

पेटेंट कार्यालय  
शासकीय जर्नल

**OFFICIAL JOURNAL  
OF  
THE PATENT OFFICE**

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दिनांक: 04/07/2025  
DATE: 04/07/2025

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पेटेंट कार्यालय का एक प्रकाशन  
PUBLICATION OF THE PATENT OFFICE

## **INTRODUCTION**

In view of the recent amendment made in the Patents Act, 1970 by the Patents (Amendment) Act, 2005 effective from 01<sup>st</sup> January 2005, the Official Journal of The Patent Office is required to be published under the Statute. This Journal is being published on weekly basis on every Friday covering the various proceedings on Patents as required according to the provision of Section 145 of the Patents Act 1970. All the enquiries on this Official Journal and other information as required by the public should be addressed to the Controller General of Patents, Designs & Trade Marks. Suggestions and comments are requested from all quarters so that the content can be enriched.

**( PROF. (DR) UNNAT P. PANDIT)**  
**CONTROLLER GENERAL OF PATENTS, DESIGNS & TRADE MARKS**

**04<sup>th</sup> July, 2025**

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**THE PATENT OFFICE  
KOLKATA, 04/07/2025**

**Address of the Patent Offices/Jurisdictions**

**The following are addresses of all the Patent Offices located at different places having their Territorial Jurisdiction on a Zonal basis as shown below:-**

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><b>1</b> Office of the Controller General of Patents, Designs &amp; Trade Marks,<br/>Boudhik Sampada Bhavan,<br/>Plot No. 32., Sector-14, Dwarka,<br/>New Delhi – 110075</p> <p>Phone: +91 11 2530 0205<br/>Fax : +91-22-24172288<br/>E-mail: <a href="mailto:cgpdtm@nic.in">cgpdtm@nic.in</a></p>                                                                                                                                                                                  | <p><b>4</b> The Patent Office,<br/>Government of India,<br/>Intellectual Property Rights Building,<br/>G.S.T. Road, Guindy,<br/>Chennai – 600 032.</p> <p>Phone: (91)(44) 2250 2081-84<br/>Fax : (91)(44) 2250 2066<br/>E-mail: <a href="mailto:chennai-patent@nic.in">chennai-patent@nic.in</a></p> <p>❖ The States of Andhra Pradesh, Telangana, Karnataka, Kerala, Tamil Nadu and the Union Territories of Puducherry and Lakshadweep.</p> |
| <p><b>2</b> The Patent Office,<br/>Government of India,<br/>Boudhik Sampada Bhavan,<br/>Near Antop Hill Post Office, S.M. Road, Antop Hill,<br/>Mumbai – 400 037</p> <p>Phone: (91)(22) 24137701<br/>Fax: (91)(22) 24130387<br/>E-mail: <a href="mailto:mumbai-patent@nic.in">mumbai-patent@nic.in</a></p> <p>❖ The States of Gujarat, Maharashtra, Madhya Pradesh, Goa and Chhattisgarh and the Union Territories of Daman and Diu &amp; Dadra and Nagar Haveli</p>                   | <p><b>5</b> The Patent Office (Head Office),<br/>Government of India,<br/>Boudhik Sampada Bhavan,<br/>CP-2, Sector –V, Salt Lake City,<br/>Kolkata- 700 091</p> <p>Phone: (91)(33) 2367 1943/44/45/46/87<br/>Fax: (91)(33) 2367 1988<br/>E-Mail: <a href="mailto:kolkata-patent@nic.in">kolkata-patent@nic.in</a></p>                                                                                                                         |
| <p><b>3</b> The Patent Office,<br/>Government of India,<br/>Boudhik Sampada Bhavan,<br/>Plot No. 32., Sector-14, Dwarka,<br/>New Delhi – 110075</p> <p>Phone: (91)(11) 25300200 &amp; 28032253<br/>Fax: (91)(11) 28034301 &amp; 28034302<br/>E-mail: <a href="mailto:delhi-patent@nic.in">delhi-patent@nic.in</a></p> <p>❖ The States of Haryana, Himachal Pradesh, Jammu and Kashmir, Punjab, Rajasthan, Uttar Pradesh, Uttaranchal, Delhi and the Union Territory of Chandigarh.</p> | <p>❖ Rest of India</p>                                                                                                                                                                                                                                                                                                                                                                                                                        |

Website: [www.ipindia.nic.in](http://www.ipindia.nic.in)

[www.patentoffice.nic.in](http://www.patentoffice.nic.in)

**All applications, notices, statements or other documents or any fees required by the Patents Act, 1970 and The Patents (Amendment) Act, 2005 or by the Patents (Amendment) Rules, 2006 will be received only at the appropriate offices of the Patent Office.**

**Fees: The Fees may either be paid in cash or may be sent by Bank Draft or Cheques payable to the Controller of Patents drawn on a scheduled Bank at the place where the appropriate office is situated.**



**पेटेंट कार्यालय**  
**कोलकाता, दिनांक 04/07/2025**

**• कार्यालयों के क्षेत्राधिकार के पते**

विभिन्न जगहों पर स्थित पेटेंट कार्यालय के पते आंचलिक आधार पर दर्शित उनके प्रादेशिक अधिकार क्षेत्र के साथ नीचे दिए गए हैं:-

|   |                                                                                                                                                                                                                                                                                                                                                         |   |                                                                                                                                                                                                                                                                                                                                                                                                |
|---|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1 | कार्यालय : महानियंत्रक, एकस्व, अभिकल्प तथा व्यापार चिह्न, बौद्धिक संपदा भवन, प्लॉट सं. 32, सेक्टर- 14, द्वारका, नई दिल्ली- 110 075, भारत, फोन: +91 11 2530 0205 फ़ैक्स: +91-22-24172288 ई. मेल: cgpdtm@nic.in                                                                                                                                           | 4 | पेटेंट कार्यालय, भारत सरकार इंटेलेक्चुअल प्रॉपर्टी राइट्स बिल्डिंग, इंडस्ट्रियल इस्टेट एसआईडीसीओ आरएमडी गोडाउन एरिया एडजसेन्ट टु ईगल फ्लास्क, जी. एस. टी. रोड, गायन्डी चेन्नई - 600 032. फोन: (91) (44) 2250 2081-84 फ़ैक्स: (91) (44) 2250-2066 ई. मेल: chennai-patent@nic.in<br>❖ आन्ध्र प्रदेश, तेलंगाना, कर्नाटक, केरल, तमिलनाडु तथा पुडुचेरी राज्य क्षेत्र एवं संघ शासित क्षेत्र, लक्षदीप |
| 2 | पेटेंट कार्यालय, भारत सरकार बौद्धिक संपदा भवन, एंटोप हिल डाकघर के समीप, एस. एम. रोड, एंटोप हिल, मुम्बई- 400 037, फोन: (91) (22) 24137701 फ़ैक्स: (91) (22) 24130387 ई. मेल: Mumbai-patent@nic.in<br>❖ <input type="checkbox"/> गुजरात, महाराष्ट्र, मध्य प्रदेश, गोवा तथा छत्तीसगढ़ राज्य क्षेत्र एवं संघ शासित क्षेत्र, दमन तथा दीव, दादर और नगर हवेली. | 5 | पेटेंट कार्यालय, भारत सरकार कोलकाता, (प्रधान कार्यालय) बौद्धिक संपदा भवन, सीपी-2, सेक्टर- V, साल्ट लेक सिटी, कोलकाता-700 091, भारत. फोन: (91) (33) 2367 1943/44/45/46/87 फ़ैक्स:/Fax: (91) (33) 2367 1988 ई. मेल: kolkata-patent@nic.in<br><br>❖ भारत का अवशेष क्षेत्र                                                                                                                         |
| 3 | पेटेंट कार्यालय, भारत सरकार बौद्धिक संपदा भवन, प्लॉट सं. 32, सेक्टर- 14, द्वारका, नई दिल्ली- 110 075. फोन: (91) (11) 25300200, 28032253 फ़ैक्स: (91) (11) 28034301, 28034302 ई. मेल: delhi-patent@nic.in हरियाणा, हिमाचल प्रदेश, जम्मू तथा कश्मीर, पंजाब, राजस्थान, उत्तर प्रदेश, दिल्ली तथा उत्तरांचल राज्य क्षेत्रों, एवं संघ शासित क्षेत्र चंडीगढ़   |   |                                                                                                                                                                                                                                                                                                                                                                                                |

वेबसाइट: <http://www.ipindia.nic.in>  
[www.patentoffice.nic.in](http://www.patentoffice.nic.in)

पेटेंट अधिनियम, 1970 तथा पेटेंट (संशोधन) अधिनियम, 2005 अथवा पेटेंट (संशोधन) नियम, 2006 द्वारा वांछित सभी आवेदन, सूचनाएं, विवरण या अन्य दस्तावेज़ या कोई शुल्क पेटेंट कार्यालय के केवल उपयुक्त कार्यालय में स्वीकृत होंगे।

शुल्क: शुल्क या तो नगद रूप में या Controller of Patents के नाम में देय बैंक ड्राफ्ट या चेक के द्वारा भेजी जा सकती है जो उसी स्थान के किसी अनुसूचित बैंक में प्रदत्त हो जहाँ उपयुक्त कार्यालय स्थित है।

## **SPECIAL NOTICE**

### **18 Months publication as required under Section 11A of the Patents Act, 1970 as amended by the Patents (Amendment) Act, 2005.**

Notice is hereby given that any person at any time before the grant of Patent may give representation by way of opposition to the Controller of Patents at appropriate office on the ground and in a manner specified under section 25(1) of the Patents (Amendment) Act, 2005 read with Rule 55 of the Patents (Amendment) Rules, 2006.

Notice is also given that if any interested person requests for copies of the complete specification, drawing and abstract of any application already published, the photocopy of the same can be supplied by the Patent Office as per the jurisdiction on payment of prescribed fees of Rs.10/- per page. If any further details are required to be obtained, the same can be provided by the respective Patent Offices on request.

**( PROF. (DR) UNNAT P. PANDIT)**  
**CONTROLLER GENERAL OF PATENTS, DESIGNS & TRADE MARKS**

## **SPECIAL NOTICE**

Under the new provision of the Patents Act, 1970 as amended by the Patents (Amendment) Act, 2005 and Rules there under, Publication of the matter relating to Patents in the Official Gazette of India Part III, Section 2 has been discontinued and instead The Official Journal of the Patent Office is being published containing all the activities of The Patent Office such as publication of all the patent applications after 18<sup>th</sup> months , grant of patents & all other information in respect of the proceedings as required under the provisions of the Patents (Amendment) Act, 2005 and Rules thereunder on weekly basis on every **Friday**.

The Journal is uploaded in the website every Friday. So Paper form and CD-ROM form of the Journal are discontinued from 01/01/2009.

## **SPECIAL NOTICE**

Every effort is being taken to publish all the patent applications under section 11(A) of the Patents Act. However, if duplication of publication of any application is found, then earlier date of publication will be taken for the purpose of provisional protection for applicant and Patent Office will grant Patent not before six months from the date of second publication, provided that there is no third party representation.

## **CORRIGENDUM**

### **(PATENT, KOLKATA)**

Patent application no. 202531043919 was published under Section 11-A(2) of The Patents Act read with Rule 24-A of The Patents Rules in the Official Journal No. 20 of 2025 dated 16<sup>th</sup> May 2025, wherein the name of the fourth applicant was inadvertently mentioned as “**Dr. Sumi Kankara Dewan**”. However, the correct name of the fourth applicant is “**Dr. Sumi Kankana Dewan**”. Therefore, it is hereby notified that the name of the fourth applicant as published in the Official Journal No. 20 of 2025 dated 16<sup>th</sup> May 2025 shall be read as “**Dr. Sumi Kankana Dewan**”.

## **CORRIGENDUM**

### **(PATENT, KOLKATA)**

Patent application no. 202531050429 was published under Section 11-A(2) of The Patents Act read with Rule 24-A of The Patents Rules in the Official Journal No. 24 of 2025 dated 13<sup>th</sup> June 2025, wherein the name of the first applicant was inadvertently mentioned as “**Dr. Sumi Kankara Dewan**”. However, the correct name of the first applicant is “**Dr. Sumi Kankana Dewan**”. Therefore, it is hereby notified that the name of the first applicant as published in the Official Journal No. 24 of 2025 dated 13<sup>th</sup> June 2025 shall be read as “**Dr. Sumi Kankana Dewan**”.

## **CORRIGENDUM FOR CORRECTION IN PATENT OFFICE JOURNAL**

APPLICATION NO. 202541033343 published in Patent Office Journal no. 17/2025 dated 25/04/2025, the address of the applicant/inventor should read as follows:

### **ADDRESS OF APPLICANT/INVENTOR:**

DEPARTMENT OF PHARMACOLOGY, KLE COLLEGE OF PHARMACY, JNMC CAMPUS, KAHER, NEHRU NAGAR, BELAGAVI BELAGAVI  
KARNATAKA INDIA 590010.

## Early Publication:

The following patent applications have been published under section 11A (2) of The Patents (Amendment) Act 2005 and rule 24A of The Patents (Amendment) Rules, 2006. Any person may file representation by way of opposition to the Controller of Patents at the appropriate office against the grant of the patent in the prescribed manner under section 25(1) of the Patents (Amendment) Act 2005 read with the rule 55 of The Patents (Amendment) Rules, 2006:

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202311085886 A

(19) INDIA

(22) Date of filing of Application :15/12/2023

(43) Publication Date : 04/07/2025

(54) Title of the invention : A SYSTEM AND METHOD FOR SMART METER OPERATIONS WITH A NETWORK INTERFACE CARD (NIC)

|                                               |                                       |                                                                                                                                                                                               |
|-----------------------------------------------|---------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (51) International classification             | :H04L12/28,<br>G01D4/00,<br>H04L29/06 | (71)Name of Applicant :<br><b>1)PROBUS SMART THINGS PRIVATE LIMITED</b><br>Address of Applicant :63, IIIrd Floor, DSIDC Complex, Phase-I, Okhla Industrial Area, New Delhi-110020 Delhi ----- |
|                                               |                                       | Name of Applicant : NA<br>Address of Applicant : NA                                                                                                                                           |
| (86) International Application No             | :NA                                   | (72)Name of Inventor :<br><b>1)Anand Mohan Singh</b><br>Address of Applicant :63, IIIrd Floor, DSIDC Complex, Phase-I, Okhla Industrial Area, New Delhi-110020 Delhi -----                    |
| Filing Date                                   | :NA                                   | <b>2)Shailendra Kumar Singh</b><br>Address of Applicant :63, IIIrd Floor, DSIDC Complex, Phase-I, Okhla Industrial Area, New Delhi-110020 Delhi -----                                         |
| (87) International Publication No             | : NA                                  | <b>3)Ahmad Raza</b><br>Address of Applicant :63, IIIrd Floor, DSIDC Complex, Phase-I, Okhla Industrial Area, New Delhi-110020 Delhi -----                                                     |
| (61) Patent of Addition to Application Number | :NA                                   | <b>4)Rahul Mishra</b><br>Address of Applicant :63, IIIrd Floor, DSIDC Complex, Phase-I, Okhla Industrial Area, New Delhi-110020 Delhi -----                                                   |
| Filing Date                                   | :NA                                   | <b>5)Sunny Jadoon</b><br>Address of Applicant :63, IIIrd Floor, DSIDC Complex, Phase-I, Okhla Industrial Area, New Delhi-110020 Delhi -----                                                   |
| (62) Divisional to Application Number         | :NA                                   | <b>6)Mohd. Saquib.</b><br>Address of Applicant :63, IIIrd Floor, DSIDC Complex, Phase-I, Okhla Industrial Area, New Delhi-110020 Delhi -----                                                  |
| Filing Date                                   | :NA                                   | <b>7)Anmol Kohli</b><br>Address of Applicant :63, IIIrd Floor, DSIDC Complex, Phase-I, Okhla Industrial Area, New Delhi-110020 Delhi -----                                                    |
|                                               |                                       | <b>8)Michael Sagayaraj</b><br>Address of Applicant :63, IIIrd Floor, DSIDC Complex, Phase-I, Okhla Industrial Area, New Delhi-110020 Delhi -----                                              |
|                                               |                                       | <b>9)Zuhaib Choudary</b><br>Address of Applicant :63, IIIrd Floor, DSIDC Complex, Phase-I, Okhla Industrial Area, New Delhi-110020 Delhi -----                                                |
|                                               |                                       | <b>10)Rishabh Yadav</b><br>Address of Applicant :63, IIIrd Floor, DSIDC Complex, Phase-I, Okhla Industrial Area, New Delhi-110020 Delhi -----                                                 |
|                                               |                                       | <b>11)Suraj Sarkar</b><br>Address of Applicant :63, IIIrd Floor, DSIDC Complex, Phase-I, Okhla Industrial Area, New Delhi-110020 Delhi -----                                                  |
|                                               |                                       | <b>12)Kapil Gaire</b><br>Address of Applicant :63, IIIrd Floor, DSIDC Complex, Phase-I, Okhla Industrial Area, New Delhi-110020 Delhi -----                                                   |
|                                               |                                       | <b>13)Sreeteja Bana</b><br>Address of Applicant :63, IIIrd Floor, DSIDC Complex, Phase-I, Okhla Industrial Area, New Delhi-110020 Delhi -----                                                 |
|                                               |                                       | <b>14)Yashwant Reddy</b><br>Address of Applicant :63, IIIrd Floor, DSIDC Complex, Phase-I, Okhla Industrial Area, New Delhi-110020 Delhi -----                                                |
|                                               |                                       | <b>15)Mandip Singh Nain</b><br>Address of Applicant :63, IIIrd Floor, DSIDC Complex, Phase-I, Okhla Industrial Area, New Delhi-110020 Delhi -----                                             |
|                                               |                                       | <b>16)Amit Singh</b><br>Address of Applicant :63, IIIrd Floor, DSIDC Complex, Phase-I, Okhla Industrial Area, New Delhi-110020 Delhi -----                                                    |

(57) Abstract :

The present invention relates to a communication system and a method thereof. Further, the system (100) comprises one or more measuring devices connected to a server (104) via a communication network (106). Further, each measuring device from the one or more measuring devices comprises a network interface card (NIC). Further, the NIC comprises a first communication interface and a second communication interface. Further, the first communication interface is configured to connect a measuring device from the one or more measuring devices to the server (104). Furthermore, the second communication interface is configured to connect the measuring device from the one or more measuring devices to a user device. [To be published with Fig. 4]

No. of Pages : 52 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202411099304 A

(19) INDIA

(22) Date of filing of Application :16/12/2024

(43) Publication Date : 04/07/2025

(54) Title of the invention : ADVANCE U-TURN AND OVERTAKE INDICATOR SYSTEM FOR ALL AUTOMOBILE VEHICLES

(51) International classification :B60W0030180000, B60W0060000000, B60Q0001500000, B60H0001000000, A61B0034320000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

(71)Name of Applicant :

**1)RAMAN JHA**

Address of Applicant :H.NO.544,DALAN PANA, NEAR OLD POST OFFICE, BIJWASAN, DELHI-110061 -----

**Name of Applicant : NA**

**Address of Applicant : NA**

(72)Name of Inventor :

**1)RAMAN JHA**

Address of Applicant :H.NO.544,DALAN PANA, NEAR OLD POST OFFICE, BIJWASAN, DELHI-110061 -----

(57) Abstract :

This invention relates to an advanced signaling system ·designed specifically to enhance road safety by minimizing the chances of accidents during U-turns and overtaking maneuvers. The proposed equipment integrates indicators to provide precise and clear communication of the driver's intentions to surrounding vehicles.

No. of Pages : 13 No. of Claims : 7

(54) Title of the invention : A SHOCK DETECTION AND DYNAMIC ADJUSTMENT SYSTEM FOR VEHICLES

|                                               |                                                 |                                                                                                                                                                                                                          |
|-----------------------------------------------|-------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (51) International classification             | :B60G17/015, B60G17/0165, B60W10/22, B60G17/018 | (71) <b>Name of Applicant :</b><br><b>1)Chandigarh University</b><br>Address of Applicant :Chandigarh University, National Highway 05, Chandigarh-Ludhiana Highway, Mohali, Punjab -140413, INDIA. Mohali -----<br>----- |
| (86) International Application No             | :NA                                             | <b>Name of Applicant : NA</b>                                                                                                                                                                                            |
| Filing Date                                   | :NA                                             | <b>Address of Applicant : NA</b>                                                                                                                                                                                         |
| (87) International Publication No             | : NA                                            | (72) <b>Name of Inventor :</b>                                                                                                                                                                                           |
| (61) Patent of Addition to Application Number | :NA                                             | <b>1)Pankaj</b>                                                                                                                                                                                                          |
| Filing Date                                   | :NA                                             | Address of Applicant :Department of Computer Science Engineering, Chandigarh University, National Highway 05, Chandigarh-Ludhiana Highway, Mohali, Punjab -140413, India Mohali -----                                    |
| (62) Divisional to Application Number         | :NA                                             |                                                                                                                                                                                                                          |
| Filing Date                                   | :NA                                             |                                                                                                                                                                                                                          |

(57) Abstract :  
The present invention provides a shock detection and dynamic adjustment system for vehicles that enhances ride quality and handling by automatically responding to road irregularities. The system comprises optical displacement sensors to monitor tire movement, a motor-driven adjustment mechanism for real-time suspension modifications, and an AI-driven predictive module that anticipates shocks and adjusts vehicle dynamics preemptively. A square offline mechanism constrains the motor-driven system within defined spatial limits, while an emergency braking interface activates when collision risks are detected. The system also includes speed monitoring, power management, and user-adjustable sensitivity settings. By integrating these components, the invention provides a comprehensive solution for real-time shock detection and adjustment, ensuring improved vehicle stability, comfort, and safety across varying road conditions.

No. of Pages : 12 No. of Claims : 10



(12) PATENT APPLICATION PUBLICATION

(21) Application No.202511051546 A

(19) INDIA

(22) Date of filing of Application :29/05/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : DEVICE FOR TEXTURE ANALYSIS AND PRECISION MOVEMENT AUTOMATION

(51) International classification :A61B0005000000, G06N0020000000, G06N0003006000, G06F0003041000, G01N0015143400

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

The present invention relates to a device that employs a mouse-like sensor system designed to capture and analyze surface textures, automate precise movements, and maintain consistent functionality across various surfaces. The device integrates advanced optical and tactile sensors with machine learning algorithms to dynamically interpret texture data and adjust its movement responses in real time. A modular hardware architecture supports scalability and adaptability, comprising, in some embodiments, a sensor module, processing unit, control unit, and actuation module. A novel algorithm maps surface texture patterns and informs control responses to enable smooth and accurate motion. The invention enables consistent and intelligent performance of automated movements, regardless of surface variation.

No. of Pages : 11 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :29/05/2025

(21) Application No.202511051547 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : AUTONOMOUS AERIAL PEST DETECTION DRONE SYSTEM FOR PRECISION AGRICULTURE

(51) International classification :B64C0039020000, G05D0001000000, H04L0067120000, B64U0101300000, H04W0004021000  
(86) International Application No :NA  
Filing Date :NA  
(87) International Publication No : NA  
(61) Patent of Addition to Application Number :NA  
Filing Date :NA  
(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

The present invention relates to an autonomous drone-based system for integrated pest control, animal deterrence, and security surveillance in agricultural environments. The system consists of a multi-rotor or fixed-wing drone equipped with a high-resolution camera, thermal imaging sensor, GPS, inertial measurement unit (IMU), and obstacle detection sensors. A high-performance onboard AI processor executes deep learning models including CNN and YOLO to detect and classify harmful insects, warm-blooded animals, and unauthorized human presence in real time. A precisely calibrated Class 4 laser system, integrated with AI-based target locking, enables selective insect elimination and configurable low-power pulsing for non-lethal deterrence of animals and humans. The system is powered by a lithium polymer battery with smart power management, and includes a solar charging dock for sustainable operation. Autonomous navigation, real-time obstacle avoidance, geo-fencing, and emergency safety protocols are included to ensure precision, safety, and operational reliability across diverse agricultural zones.

No. of Pages : 15 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202511051548 A

(19) INDIA

(22) Date of filing of Application :29/05/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : WIRELESS-CONTROLLED BALL MILLING SYSTEM WITH INTEGRATED HALL EFFECT MEASUREMENT

(51) International classification

:G01R0033070000, H10N0052000000, H10B0061000000, B02C0017160000, H01L0021660000

(86) International Application No  
Filing Date

:NA  
:NA

(87) International Publication No

: NA

(61) Patent of Addition to Application Number  
Filing Date

:NA  
:NA

(62) Divisional to Application Number  
Filing Date

:NA  
:NA

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(57) Abstract :

The invention discloses a mobile-controlled ball mill system integrated with an electronic Hall effect characterization module for real-time evaluation of material properties. The apparatus consists of a milling chamber driven by a variable-speed brushless or stepper motor, controlled through a wireless IoT interface 6 linked to a mobile application. Users remotely set and monitor parameters including rotational speed, milling time, and internal temperature or vibration. Post-milling, a portion of the processed material is directed into an adjacent Hall effect characterization unit featuring a Hall bar substrate 10, magnetic field source 11, voltage probes 12, and a programmable current supply. Real-time measurements of Hall voltage, resistance, and carrier mobility are acquired and transmitted to the mobile interface 7 and cloud database. The system provides integration of mechanical grinding and electrical property measurement in a portable, automated platform, suitable for academic, industrial, and field-based applications. The invention provides reproducibility, reduces contamination, and simplifies material analysis workflows.

No. of Pages : 15 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202511051550 A

(19) INDIA

(22) Date of filing of Application :29/05/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : CAMERA-BASED LAPTOP EXTENSION FOR HOLOGRAPHIC PROJECTION OF A PERSON

(51) International  
classification

:G06F0003010000, H04N0023900000,  
G06T0007593000, H04N0013239000,  
G06V0040200000

(86) International  
Application No  
Filing Date

:NA  
:NA

(87) International  
Publication No

: NA

(61) Patent of Addition to  
Application Number  
Filing Date

:NA  
:NA

(62) Divisional to  
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Filing Date

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-140413, India Mohali -----

(57) Abstract :

A device for generating real-time holographic projections of a person includes four spatially arranged imaging cameras positioned around a laptop, depth mapping sensors, a processing unit with machine learning-based 4D motion capture algorithms, and a holographic projection module. The cameras capture synchronized image data from multiple angles while depth sensors detect distance and surface information. The processing unit analyzes this data in real-time to generate a dynamic three-dimensional representation including body pose, facial expressions, and micro-movements. The holographic module projects this representation using optical elements and operates with a modular data flow architecture for latency-minimized rendering. The system features a tetrahedral camera configuration, structured light and time-of-flight sensing, convolutional neural networks for motion capture, and Fourier transform-based light field synthesis. Additional components include a temporal smoothing module, microlens array, tunable laser array, calibration module, and thermal management mechanisms, enabling realistic, interactive holographic telepresence.

No. of Pages : 12 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202411061926 A

(19) INDIA

(22) Date of filing of Application :14/08/2024

(43) Publication Date : 04/07/2025

(54) Title of the invention : PRODUCTON OF XYLITOL FROM CORN SHEATH AND METHOD THEREOF

(51) International classification :C12P0007180000, A61K0008340000, G06T0011000000, A61K0031047000, A23L0033125000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

The present disclosure relates to a method of production of xylitol from corn sheath. The method comprises three phases viz., Isolation of hemicellulose from corn sheath, conversation of hemicellulose in xylitol and purification of the xylitol. The said method results in xylitol yield of 67.68 per cent and colour value (?E) of 32.03.

No. of Pages : 15 No. of Claims : 3

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202511042181 A

(19) INDIA

(22) Date of filing of Application :01/05/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : A METHOD FOR DETECTION AND QUANTIFICATION OF STRABISMUS USING DEEP LEARNING TOOLS

(51) International classification :G06T0007000000, G06N0003080000, A61B0003080000, A61B0003000000, A61B0003140000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

Present invention discloses a method for quantification and detection of strabismus using deep learning and ocular landmark detection. The method involves data collection by capturing images of patients using 12MP smartphone camera, preprocessing images by auto-orientation, resizing to 640×640 and segmentation to extract eye region from images, splitting data into training, validation and test sets in 70:15:15 ratios, data augmentation by flipping, rotation to range of -5° to +5° and adjusting brightness between -20% to +20%, binary classification of eye conditions as "normal" or "abnormal" using YOLOv8, applying a multiclass classification approach using ResNet-101 to categorize strabismus into esotropia, exotropia, hypertropia, and hypotropia, detecting ocular landmarks using ResNet-18 to identify key anatomical points including medial canthus, lateral canthus, and pupil center, computing ocular deviations based on pupil displacement indices and angular deviation calculations and quantifying strabismus severity using a regression model to estimate deviation angles, ensuring objective and reproducible results.

No. of Pages : 31 No. of Claims : 8

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202511054481 A

(19) INDIA

(22) Date of filing of Application :05/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : A LOW-COST TORREFIED MUNICIPAL SOLID WASTE (MSW) WITH ENHANCED FUEL PROPERTIES

|                                                                                                                                                                                                                                                                                                                                                                                           |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
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| <p>(51) International classification :C10L0009080000, C10L0005440000, B09B0003000000, C10B0053020000, C07C0029151000</p> <p>(86) International Application No :NA<br/>Filing Date :NA</p> <p>(87) International Publication No : NA</p> <p>(61) Patent of Addition to Application Number :NA<br/>Filing Date :NA</p> <p>(62) Divisional to Application Number :NA<br/>Filing Date :NA</p> |  | <p>(71)<b>Name of Applicant :</b><br/><b>1)INDIAN INSTITUTE OF TECHNOLOGY ROORKEE</b><br/>Address of Applicant :Roorkee, Uttarakhand Roorkee -----<br/><b>Name of Applicant : NA</b><br/><b>Address of Applicant : NA</b></p> <p>(72)<b>Name of Inventor :</b><br/><b>1)PROF. SONAL KESHAWRAO THENGANE</b><br/>Address of Applicant :Department of Hydro and Renewable Energy, Indian Institute of Technology Roorkee, Roorkee- 247667, Uttarakhand Roorkee -----<br/>-----<br/><b>2)MR. ABDUL REHMAN</b><br/>Address of Applicant :Department of Hydro and Renewable Energy, Indian Institute of Technology Roorkee, Roorkee- 247667, Uttarakhand Roorkee -----<br/>-----<br/><b>3)MS. PRATISTHA RAI</b><br/>Address of Applicant :Department of Hydro and Renewable Energy, Indian Institute of Technology Roorkee, Roorkee- 247667, Uttarakhand Roorkee -----<br/>-----<br/><b>4)MS. SHRUTI KUMARI</b><br/>Address of Applicant :Department of Hydro and Renewable Energy, Indian Institute of Technology Roorkee, Roorkee- 247667, Uttarakhand, Roorkee -----<br/>-----</p> |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

(57) Abstract :

The present invention relates to a low-cost torrefied municipal solid waste (MSW) with enhanced fuel properties. The torrefied MSW is produced through oxidative torrefaction for the treatment of municipal solid waste in an auger reactor as an alternative energy source to fossil-based coal. The produced torrefied MSW has enhanced calorific value and energy density as well as reduced chlorine and sulfur content than that of raw MSW as well inert torrefied MSW. This process employs the combustion of volatiles released from MSW during the process and provides the heat thereby eliminating the external heat required for torrefaction. To be Published with Figures 1 and 2

No. of Pages : 19 No. of Claims : 9

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202511055473 A

(19) INDIA

(22) Date of filing of Application :09/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : A NOVEL SYNTHETIC PROCESS FOR PREPARATION OF QUINOLINE BASED TRIAZOLE MOIETY AND THEIR DIFFERENT DERIVATIVES WITH POTENTIAL VEGFR-2 INHIBITORS AS ANTI-BREAST CANCER ACTIVITY.

(51) International classification :A61P0035000000, A61P0001160000, A61K0031470000, C07D0249040000, C07D0417120000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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**5)Dr Kalicharan Sharma**

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(57) Abstract :

The present invention relates to a efficient synthetic method for the preparation of hybrid compounds comprising quinoline and 1,2,3-triazole moieties linked via a methyl ether bridge Formula (I). The method involves the initial formation of a 6,7-dimethoxy-4-(prop-2-yn-1-yloxy) quinoline intermediate, followed by a Cu(I)-catalyzed azide-alkyne cycloaddition (click reaction) with various aryl azides under mild, aqueous conditions. The process yields a library of structurally diverse triazole-linked quinoline derivatives with high purity and excellent yields. These compounds exhibit potential as inhibitors of vascular endothelial growth factor receptor 2 (VEGFR-2) and are thereby proposed as candidate agents for breast cancer therapy. The invention further provides pharmaceutical compositions comprising said compounds and their use in the treatment of cancer.

No. of Pages : 33 No. of Claims : 3



(54) Title of the invention : SYSTEM AND METHOD FOR PLAQUE SEGMENTATION IN INTRAVASCULAR ULTRASOUND IMAGES

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <div>(51) International classification :A61B0008120000, G06K0009620000, G06N0020000000, A61B0008080000, A61B0008000000</div> <div>(86) International Application No :NA</div> <div>(86) International Filing Date :NA</div> <div>(87) International Publication No : NA</div> <div>(61) Patent of Addition to Application Number :NA</div> <div>(61) Patent of Addition to Filing Date :NA</div> <div>(62) Divisional to Application Number :NA</div> <div>(62) Divisional to Filing Date :NA</div> |  | <div>(71)Name of Applicant :<br/><b>1)IHUB DRISHTI FOUNDATION</b><br/>Address of Applicant :Indian Institute of Technology Jodhpur, NH 62, Nagaur Road, Karwar, Jodhpur, Rajasthan, 342030, India Jodhpur -----<br/><b>2)INDIAN INSTITUTE OF TECHNOLOGY, JODHPUR</b><br/>Name of Applicant : NA<br/>Address of Applicant : NA<br/>(72)Name of Inventor :<br/><b>1)Angshuman Paul</b><br/>Address of Applicant :Department of CSE, IIT Jodhpur, NH62, Karwar, Jodhpur, Rajasthan, 342030, India Jodhpur -----<br/><b>2)Mayank Vatsa</b><br/>Address of Applicant :Department of CSE, IIT Jodhpur, NH62, Karwar, Jodhpur, Rajasthan, 342030, India Jodhpur -----<br/><b>3)Richa Singh</b><br/>Address of Applicant :Department of CSE, IIT Jodhpur, NH62, Karwar, Jodhpur, Rajasthan, 342030, India Jodhpur -----<br/><b>4)Bhanu Duggal</b><br/>Address of Applicant :Department of Cardiology, AIIMS Rishikesh, Virbhadra Road, Rishikesh, Uttarakhand, 249203, India Rishikesh -----<br/><b>5)Anuradha Mahato</b><br/>Address of Applicant :Department of CSE, IIT Jodhpur, NH62, Karwar, Jodhpur, Rajasthan, 342030, India; Jodhpur -----<br/><b>6)Rutvik Narendrabhai Jethava</b><br/>Address of Applicant :Department of CSE, IIT Jodhpur, NH62, Karwar, Jodhpur, Rajasthan, 342030, India Jodhpur -----<br/><b>7)Paromita Banerjee</b><br/>Address of Applicant :Department of Cardiology, AIIMS Rishikesh, Virbhadra Road, Rishikesh, Uttarakhand, 249203, India Rishikesh -----</div> |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

(57) Abstract :  
Disclosed is a system (100) for plaque segmentation in intravascular ultrasound (IVUS) images. The system includes a user device (102), a communication network (106), and an information processing apparatus (104). The information processing apparatus includes processing circuitry (108) configured to: acquire IVUS images; preprocess the images; initialize a machine learning model including an encoder, dual decoders, and a discriminator; train the model on labeled data (308); encode unlabeled images; select informative unlabeled samples (312); extract labels for selected samples (314); add newly labeled samples to training data (316); retrain the model (318); generate plaque segmentation masks (320); and evaluate segmentation performance (322). The system iteratively improves model performance by incorporating newly labeled data and refining the training process. FIG. 1 is selected

No. of Pages : 26 No. of Claims : 7

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202511043310 A

(19) INDIA

(22) Date of filing of Application :05/05/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : MODULAR HANDBAG SYSTEM WITH FULLY INTERCHANGEABLE OUTER SHELLS FOR COMPLETE AESTHETIC CUSTOMIZATION

(51) International classification :A45C0003060000, A45C0003080000, A45C0013020000, B32B0005180000, A45C0003000000

(86) International Application No :NA

Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA

Filing Date :NA

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---

(57) Abstract :

The present invention discloses a modular handbag system (100). The modular 5 handbag system (100) comprising a base bag with fixed internal compartments for storing user essentials, and a plurality of interchangeable outer shells (102) including front, back, bottom panels, and one or more handles. The outer shells (102) are detachably connected to the base bag using a three-point attachment mechanism with dual zippers (106) on lateral sides and a Velcro strip (104) along 10 the top edge. The outer shells (102) are foldable, reducing to at least 20% of their expanded volume for compact storage. Handles are detachable and interchangeable, supporting various carrying options. The system maintains internal organization without transferring items. Sustainable materials such as recycled polyester and plant-based leather are used. Additionally, a shell recycling program enables eco-15 conscious replacements, supporting long-term durability and environmental responsibility. Figure 1 will be the reference

No. of Pages : 17 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :09/06/2025

(21) Application No.202511055649 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : EXTRACTION AND BIOLOGICAL EVALUATION OF PLANTS EXTRACT FOR KIDNEY STONE MANAGEMENT

(51) International classification :A61K0036185000, A61P0013120000, A61K0036610000, A61P0013040000, A61K0009000000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
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(57) Abstract :

The present invention relates to a herbal composition comprising extracts of Syzygium cumini stem bark, Phyllanthus fraternus leaves, and Urtica dioica root for the prevention and management of kidney stones (nephrolithiasis). The extracts are obtained using Soxhlet extraction and evaluated through in vitro assays, demonstrating significant inhibition of calcium oxalate crystal formation, nucleation, and aggregation. Molecular docking identified ellagic acid, methyl brevifolincarboxylate, and neoolivil as key active constituents with high affinity toward the renal calcium-sensing receptor. The composition is formulated into a 600 mg oral capsule and shown to be non-toxic in HepG2 cell lines and stable under accelerated conditions. The invention offers a safe, natural, and effective alternative to conventional therapies for managing kidney stone disease.

No. of Pages : 27 No. of Claims : 9

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202511054979 A

(19) INDIA

(22) Date of filing of Application :06/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : ANTENNA SYSTEM FOR WIRELESS COMMUNICATION

|                                               |                                                                                 |                                                                                                                                                                                                                             |
|-----------------------------------------------|---------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (51) International classification             | :H01Q0001380000, H01Q0009040000, H01Q0013100000, H01Q0021280000, H01Q0021060000 | (71)Name of Applicant :<br><b>1)Indian Institute of Technology Delhi</b><br>Address of Applicant :IIT – Delhi, Hauz Khas, New Delhi -110016, India. New Delhi -----                                                         |
| (86) International Application No             | :NA                                                                             | Name of Applicant : NA                                                                                                                                                                                                      |
| Filing Date                                   | :NA                                                                             | Address of Applicant : NA                                                                                                                                                                                                   |
| (87) International Publication No             | : NA                                                                            | (72)Name of Inventor :<br><b>1)Amar D. Chaudhari</b><br>Address of Applicant :Room: 112, Bharti School of Telecommunication Technology and Management, IIT-Delhi, Hauz Khas, New Delhi, Delhi, India 110016 New Delhi ----- |
| (61) Patent of Addition to Application Number | :NA                                                                             | <b>2)Soumava Mukherjee</b><br>Address of Applicant :Room: 225, Department of Electrical Engineering, IIT Jodhpur, NH-62, Nagour Road, Karwar, Jodhpur, Rajasthan, India 342030 Jodhpur -----                                |
| Filing Date                                   | :NA                                                                             | <b>3)Brejesh Lall</b><br>Address of Applicant :Room: 112, Bharti School of Telecommunication Technology and Management, IIT-Delhi, Hauz Khas, New Delhi, Delhi, India 110016 New Delhi -----                                |
| (62) Divisional to Application Number         | :NA                                                                             |                                                                                                                                                                                                                             |
| Filing Date                                   | :NA                                                                             |                                                                                                                                                                                                                             |

(57) Abstract :

Embodiments herein disclose an antenna system (100) for a wireless communication system, including a top layer (102), a ground layer (106), and a bottom layer (112). The top layer (102) includes at least one antenna slot array (114) in the center of the top layer (102). The ground layer (106) includes at least two coupling apertures (124, 126) for dual-polarization. At least two grounded coplanar waveguide (GCPW) feedlines (128) for the at least one antenna slot (114) are printed on the bottom layer (112). The top layer (102) and the ground layer (106) is separated by a first dielectric substrate (104). The ground layer (106) and the bottom layer (112) is separated by a second dielectric substrate (108) and a bonding film (110). FIG. 1A

No. of Pages : 48 No. of Claims : 16

(54) Title of the invention : Biodegradable Nano-Encapsulated Botanical Pesticide for EcoFriendly Plant Protection

|                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>(51) International classification :A61K0009510000, A61K0009000000, A61K0009160000, A01N0025280000, A01N0025040000</p> <p>(86) International Application No :NA<br/>Filing Date :NA</p> <p>(87) International Publication No : NA</p> <p>(61) Patent of Addition to Application Number :NA<br/>Filing Date :NA</p> <p>(62) Divisional to Application Number :NA<br/>Filing Date :NA</p> | <p>(71)<b>Name of Applicant :</b><br/> <b>1)Prateek Kumar</b><br/> Address of Applicant :Ph.D. Scholar, Department of Plantology, CCS HAU, Main Rd, Azad Nagar, Hisar -125004, Haryana, India Hisar -----<br/> <b>2)Aditya</b><br/> <b>3)Dr. Amritha Singh</b><br/> <b>4)Santosh Kumari</b><br/> <b>5)Sonu Kumar</b><br/> <b>6)Rajesh Mor</b><br/> <b>7)Yugvinder</b><br/> <b>8)Sudesh</b><br/> <b>9)Hardeep</b><br/> <b>10)Dr. Sonu Dwivedi</b><br/> <b>11)Dr. Nitesh Singh</b><br/> <b>Name of Applicant : NA</b><br/> <b>Address of Applicant : NA</b><br/> <b>(72)Name of Inventor :</b><br/> <b>1)Prateek Kumar</b><br/> Address of Applicant :Ph.D. Scholar, Department of Plantology, CCS HAU, Main Rd, Azad Nagar, Hisar -125004, Haryana, India Hisar -----<br/> <b>2)Aditya</b><br/> Address of Applicant :Ph.D. Scholar, Department of Agronomy, CCS HAU, Main Rd, Azad Nagar, Hisar -125004, Haryana, India. Hisar -----<br/> <b>3)Dr. Amritha Singh</b><br/> Address of Applicant :Assistant Professor, Department of Botany, Sri Venkateswara College, University of Delhi, Benito Juarez Road, Dhaula Kuan, New Delhi - 110021, India New Delhi -----<br/> <b>4)Santosh Kumari</b><br/> Address of Applicant :Ph.D. Scholar, Department of Horticulture (Fruit Science), Maharana Partap Horticulture University, PXHJ+96X, Baldhi Part, Karnal - 132001, Haryana, India. Karnal -----<br/> <b>5)Sonu Kumar</b><br/> Address of Applicant :Ph.D. Scholar, Department of Horticulture (Fruit Science), CCS HAU, Main Rd, Azad Nagar, Hisar - 125004, Haryana, India. Hisar -----<br/> <b>6)Rajesh Mor</b><br/> Address of Applicant :Assistant Professor, Department of Horticulture (Fruit Science), SGT University, Gurgaon-Badli Road Chandu, Budhera, Gurugram - 122505, Haryana, India Gurugram -----<br/> <b>7)Yugvinder</b><br/> Address of Applicant :Ph.D. Scholar, Department of Horticulture (Vegetable Science), CCS HAU, Main Rd, Azad Nagar, Hisar -125004, Haryana, India. Hisar -----<br/> <b>8)Sudesh</b><br/> Address of Applicant :Ph.D. Scholar, Department of Horticulture (Vegetable Science), CCS HAU, Main Rd, Azad Nagar, Hisar -125004, Haryana, India. Hisar -----<br/> <b>9)Hardeep</b><br/> Address of Applicant :Ph.D. Scholar, Department of Horticulture (Fruit Science), Maharana Partap Horticulture University, PXHJ+96X, Baldhi Part, Karnal - 132001, Haryana, India. Karnal -----<br/> <b>10)Dr. Sonu Dwivedi</b><br/> Address of Applicant :Associate professor, Department of Chemistry, D.B.S (P.G.) College, Karanpur Rd, Chironwali, Dehradun - 248001, Uttarakhand, India. Dehradun -----<br/> <b>11)Dr. Nitesh Singh</b><br/> Address of Applicant :Assistant, Department of Plant Protection, SGT University, Gurgaon-Badli Road Chandu, Budhera, Gurugram - 122505, Haryana, India. Gurugram -----</p> |
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## (57) Abstract :

The present disclosure proposes a biodegradable nano-encapsulation system designed for the controlled and targeted delivery of botanical-based pesticides. The biodegradable nano-encapsulation system for the controlled delivery of botanical-based pesticides comprises one or more plant-derived bioactive compounds. and a nanocarrier matrix. The proposed system offers an eco-friendly and effective alternative to conventional synthetic pesticides. The proposed system encapsulates the plant-derived bioactive compounds within the biodegradable and non-toxic nanocarriers for agricultural pest control. The proposed system protects the active pesticidal agents from environmental degradation factors, such as UV radiation, high temperatures, oxidation, and moisture, thereby enhancing their shelf life and field stability. The proposed system ensures in prolonged pest control and reducing the need for frequent reapplication. The proposed system minimizes off-target effects and protect beneficial organisms, such as pollinators and natural predators by offering precise and localized action of the pesticidal agents.

No. of Pages : 13 No. of Claims : 10

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| <p>(51) International classification :A01B0079000000, G06Q0050020000, G01N0033240000, G16H0050200000, G01N0033000000</p> <p>(86) International Application No :NA<br/>Filing Date :NA</p> <p>(87) International Publication No : NA</p> <p>(61) Patent of Addition to Application Number :NA<br/>Filing Date :NA</p> <p>(62) Divisional to Application Number :NA<br/>Filing Date :NA</p> | <p>(71)Name of Applicant :<br/> <b>1)Aditya</b><br/> Address of Applicant :Ph.D. Scholar, Department of Agronomy, CCS HAU, Main Rd, Azad Nagar, Hisar -125004, Haryana, India Hisar -----<br/> <b>2)Prateek Kumar</b><br/> <b>3)Santosh Kumari</b><br/> <b>4)Hardeep</b><br/> <b>5)Sudesh</b><br/> <b>6)Yugvinder</b><br/> <b>7)Rajesh Mor</b><br/> <b>8)Sonu Kumar</b><br/> <b>9)Dr. Amrita Singh</b><br/> <b>10)Dr. Sonu Dwivedi</b><br/> <b>11)Dr. Nitesh Singh</b><br/> Name of Applicant : NA<br/> Address of Applicant : NA<br/> (72)Name of Inventor :<br/> <b>1)Aditya</b><br/> Address of Applicant :Ph.D. Scholar, Department of Agronomy, CCS HAU, Main Rd, Azad Nagar, Hisar -125004, Haryana, India Hisar -----<br/> <b>2)Prateek Kumar</b><br/> Address of Applicant :Ph.D. Scholar, Department of Plantology, CCS HAU, Main Rd, Azad Nagar, Hisar -125004, Haryana, India. Hisar -----<br/> <b>3)Santosh Kumari</b><br/> Address of Applicant :Ph.D. Scholar, Department of Horticulture (Fruit Science), Maharana Partap Horticulture University, PXHJ+96X, Baldhi Part, Karnal - 132001, Haryana, India. Karnal -----<br/> <b>4)Hardeep</b><br/> Address of Applicant :Ph.D. Scholar, Department of Horticulture (Fruit Science), Maharana Partap Horticulture University, PXHJ+96X, Baldhi Part, Karnal - 132001, Haryana, India. Karnal -----<br/> <b>5)Sudesh</b><br/> Address of Applicant :Ph.D. Scholar, Department of Horticulture (Vegetable Science), CCS HAU, Main Rd, Azad Nagar, Hisar -125004, Haryana, India. Hisar -----<br/> <b>6)Yugvinder</b><br/> Address of Applicant :Ph.D. Scholar, Department of Horticulture (Vegetable Science), CCS HAU, Main Rd, Azad Nagar, Hisar -125004, Haryana, India. Hisar -----<br/> <b>7)Rajesh Mor</b><br/> Address of Applicant :Assistant Professor, Department of Horticulture (Fruit Science), SGT University, Gurgaon-Badli Road Chandu, Budhera, Gurugram - 122505, Haryana, India. Gurugram -----<br/> <b>8)Sonu Kumar</b><br/> Address of Applicant :Ph.D. Scholar, Department of Horticulture (Fruit Science), CCS HAU, Main Rd, Azad Nagar, Hisar - 125004, Haryana, India. Hisar -----<br/> <b>9)Dr. Amrita Singh</b><br/> Address of Applicant :Assistant Professor, Department of Botany, Sri Venkateswara College, University of Delhi, Benito Juarez Road, Dhaula Kuan, New Delhi - 110021, India. New Delhi -----<br/> <b>10)Dr. Sonu Dwivedi</b><br/> Address of Applicant :Associate professor, Department of Chemistry, D.B.S (P.G.) College, Karanpur Rd, Chironwali, Dehradun - 248001, Uttarakhand, India. Dehradun -----<br/> <b>11)Dr. Nitesh Singh</b><br/> Address of Applicant :Assistant, Department of Plant Protection, SGT University, Gurgaon-Badli Road Chandu, Budhera, Gurugram - 122505, Haryana, India. Gurugram -----</p> |
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## (57) Abstract :

The present disclosure proposes an intelligent soil health assessment and regenerative management system (100) for improving long-term soil productivity and reducing dependency on chemical inputs. The proposed system (100) supports sustainable agricultural practices. The proposed system (100) monitors key soil health parameters such as organic matter content, microbial biomass, pH, salinity, and nutrient levels using a distributed network of embedded biosensors. The proposed system (100) enables the identification of early-stage soil degradation or nutrient imbalance. The proposed system (100) re-evaluates soil conditions after each intervention to optimize subsequent corrective actions and improve long-term soil management strategies. The proposed system (100) supports precision agriculture and maximizes crop productivity with minimal environmental impact. The proposed system (100) reduces dependency on chemical fertilizers and soil conditioners by promoting biologically-driven, sustainable methods of soil enrichment and regeneration.

No. of Pages : 18 No. of Claims : 10

(54) Title of the invention : VENTURI-BASED AUTOMATIC FIRE SUPPRESSION SYSTEM FOR VEHICLE CABINS

|                                                                                                                                                                                                                                                                                                                                                                                                  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
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| <div><div>(51) International classification</div><div>(86) International Application No</div><div>(87) International Publication No</div><div>(61) Patent of Addition to Application Number</div><div>(62) Divisional to Application Number</div></div> <div><div>:A62C3/07, A62C99/00, A62C3/02</div><div>:NA</div><div>:NA</div><div>:NA</div><div>:NA</div><div>:NA</div><div>:NA</div></div> |  | <div><div>(71)Name of Applicant :</div><div>1)Chandigarh University</div><div>Address of Applicant :Chandigarh University National Highway 05, Chandigarh-Ludhiana Highway, Mohali, Punjab -140413, India. Mohali -----</div><div>-----</div><div>Name of Applicant : NA</div><div>Address of Applicant : NA</div><div>(72)Name of Inventor :</div><div>1)Utkarsh Prajapati</div><div>Address of Applicant :Department of Automobile Engineering, Chandigarh University, National Highway 05, Chandigarh-Ludhiana Highway, Mohali, Punjab -140413, India Mohali -----</div></div> |
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(57) Abstract :  
The invention relates to Automatic Venturi Fire Extinguishing System (AVFES) for enclosed vehicle cabins. The system consists of an air intake, a high-pressure air compressor, a pressurized storage tank 1, an air distribution network, strategically positioned nozzles, fire detection sensors, and an electronic control unit. The control unit activates a solenoid valve, releasing compressed air through the nozzles 3 at high velocity, upon detection of fire or smoke. This creates a Venturi effect, generating suction that displaces oxygen from the cabin, effectively extinguishing the fire without the use of chemical suppressants. The system is fully automated, clean, and residue-free, making it safe for occupants and electronics. Modular nozzle 3 placement, sensor validation logic, and safety fail-safes ensure reliable operation. AVFES provides a rapid, non-intrusive fire suppression solution ideal for vehicles including buses, trucks, and passenger cars, especially in scenarios where occupants are unconscious, and unable to respond manually.

No. of Pages : 15 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202511051557 A

(19) INDIA

(22) Date of filing of Application :29/05/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : INTEGRATED SAFETY AND RESPONSE SYSTEM FOR THREAT ZONES IN OIL AND GAS HANDLING FACILITIES

(51) International  
classification

:G05B0023020000, G01N0029140000,  
F17D0005000000, G01M0003240000,  
G01M0003000000

(86) International  
Application No  
Filing Date

:NA  
:NA

(87) International  
Publication No

: NA

(61) Patent of Addition to  
Application Number  
Filing Date

:NA  
:NA

(62) Divisional to  
Application Number  
Filing Date

:NA  
:NA

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(72)**Name of Inventor :**

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Mohali, Punjab -140413, India Mohali -----

(57) Abstract :

The present invention represents an intelligent fault detection and emergency response system for oil and gas facilities, addressing critical safety and environmental challenges. It integrates ultrasonic, acoustic, catalytic, and infrared sensors to detect leaks, corrosion, and hazardous gases with high accuracy. A solar-powered GPS module ensures real-time fault localization, even in remote areas. The system autonomously triggers alarms and deploys emergency containment mechanisms such as sand bombs and zeolite/polymeric absorbents to mitigate spills and gas leaks. Machine learning algorithms enable predictive maintenance and fault trend analysis, enhancing long-term reliability. The system's eco-friendly, solar-powered design ensures uninterrupted operation while supporting sustainability goals. This invention offers a comprehensive, efficient, and autonomous solution to improve industrial safety, reduce environmental impact, and prevent operational disruptions in oil and gas handling and refinery operations by combining advanced sensing, automation, and AI.

No. of Pages : 14 No. of Claims : 10



(54) Title of the invention : A SYSTEM FOR THE DESIGN AND GENERATION OF USER INTERFACE COMPONENTS FROM NATURAL LANGUAGE & METHOD THEREOF

|                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <div>(51) International classification :G06F8/38, G06F40/30, G06F9/451, G06F40/20, G06F8/20</div> <div>(86) International Application No :NA</div> <div>    Filing Date :NA</div> <div>(87) International Publication No : NA</div> <div>(61) Patent of Addition to Application Number :NA</div> <div>    Filing Date :NA</div> <div>(62) Divisional to Application Number :NA</div> <div>    Filing Date :NA</div> | <div>(71)Name of Applicant :<br/>    <b>1)Newgen Software Technologies Limited</b><br/>    Address of Applicant :E - 44/13, Okhla Phase-2, New Delhi-110020 Delhi -----</div> <div>-----</div> <div><b>Name of Applicant : NA</b><br/><b>Address of Applicant : NA</b></div> <div>(72)Name of Inventor :<br/>    <b>1)Ms. Puja Lal</b><br/>    Address of Applicant :House No. 9M, Ruby M Tower, Olympia Opaline Sequel, Navalur, OMR, Chennai- 603103 Chennai -----</div> <div>    <b>2)Mr. Sanjay Pandey</b><br/>    Address of Applicant :House No - 703, Tower - i, Supertech Ecociti, Sector 137, Noida, U. P.- 201304 Noida -----</div> <div>    <b>3)Mr. Virender Jeet</b><br/>    Address of Applicant :1403 Klypso Court, Tower 2, Sector 128, Noida, Uttar Pradesh- 201304 Noida -----</div> <div>    <b>4)Mr. Sheri Chander</b><br/>    Address of Applicant :Flat A2-1120, Tower 10, Purvanchal Royal Park, Sector 137, Noida, Uttar Pradesh-201304 Noida -----</div> <div>    <b>5)Mr. Himanshu Kumar</b><br/>    Address of Applicant :House No. 274, Rajouri Apartments, Rajouri Garden, New Delhi-10064 Noida -----</div> |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

(57) Abstract :  
The present invention relates to a system (100) and method (200) for generating user interface (UI) components using Artificial Intelligence (AI). The system leverages Natural Language Processing (NLP) to interpret user input in natural language to extract component requirements (202). A Contextual AI Engine (103) retrieves design guidelines and branding rules, and a Component Generation Engine (105) generates multiple UI component design options (204). A Live Preview Module (106) displays the generated options and enables real-time editing (205). The system also includes an Accessibility and Responsiveness Validator (107) to ensure compliance with accessibility standards and a Data Binding and Logic Automation Module (108) to automate data integration and interaction logic (207). The invention enables the creation of UI components from natural language input, automatically adapts components to match design systems, generates multiple design options, and automates data binding and logic generation. This approach reduces development time, ensures design consistency, enhances accessibility, and provides greater flexibility in UI design and customization. Fig. 1

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202511055736 A

(19) INDIA

(22) Date of filing of Application :10/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : SYSTEM AND METHOD FOR DETERMINING THE HEALTH STATUS OF A PLANT

|                                                                                       |      |                                                                                                                                                                                                                                         |
|---------------------------------------------------------------------------------------|------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (51) International classification :G06Q50/02, G06N20/00, G06T7/00, G06N3/08, G06T7/11 |      | (71)Name of Applicant :<br><b>1)INDIAN INSTITUTE OF TECHNOLOGY KANPUR</b><br>Address of Applicant :DEAN, RESEARCH & DEVELOPMENT, ROOM NUMBER 151, FACULTY BUILDING, POST OFFICE: IIT KANPUR, UTTAR PRADESH - 208016, INDIA Kanpur ----- |
| (86) International Application No                                                     | :NA  | <b>Name of Applicant : NA</b><br><b>Address of Applicant : NA</b>                                                                                                                                                                       |
| Filing Date                                                                           | :NA  |                                                                                                                                                                                                                                         |
| (87) International Publication No                                                     | : NA | <b>(72)Name of Inventor :</b><br><b>1)Amer Tabbakh</b><br>Address of Applicant :ELECTRICAL ENGINEERING DEPARTMENT, INDIAN INSTITUTE OF TECHNOLOGY KANPUR, POST OFFICE: IIT KANPUR, KANPUR, UTTAR PRADESH – 208016, INDIA Kanpur -----   |
| (61) Patent of Addition to Application Number                                         | :NA  |                                                                                                                                                                                                                                         |
| Filing Date                                                                           | :NA  | <b>2)Tushar Balasaheb Sandhan</b><br>Address of Applicant :ELECTRICAL ENGINEERING DEPARTMENT, INDIAN INSTITUTE OF TECHNOLOGY KANPUR, POST OFFICE: IIT KANPUR, KANPUR, UTTAR PRADESH – 208016, INDIA Kanpur -----                        |
| (62) Divisional to Application Number                                                 | :NA  |                                                                                                                                                                                                                                         |
| Filing Date                                                                           | :NA  |                                                                                                                                                                                                                                         |

(57) Abstract :

A plant health assessment system and method determine plant health using ultraviolet (UV) and visible light spectral images. The system includes a specimen imaging unit with a tray for leaf specimens, a UV light source, a UV pass filter, and an image-capturing device to capture images under UV and visible light with various flash modes. An integrated controller switches between UV and non-UV light sources. The data processing unit, connected to the imaging unit, comprises modules for image data processing, region of interest (ROI) detection using a Region Proposal Network (RPN) and Convolutional Neural Network (CNN), and plant health classification. The image data processing module standardizes images from the specimen imaging unit and external sources. The ROI detection module identifies features of interest, and the plant health classification module generates spectral representations, identifies differences, and classifies plant health status using a machine learning model.

FIG. 2

No. of Pages : 51 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :13/06/2025

(21) Application No.202511057160 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : REAL TIME CASH THEFT DETECTION AND TRACKING SYSTEM AND METHOD THEREOF

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|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>(51) International classification :G06T7/292, G06V20/52, G08B13/196, G07F19/00</p> <p>(86) International Application No :NA</p> <p>Filing Date :NA</p> <p>(87) International Publication No : NA</p> <p>(61) Patent of Addition to Application Number :NA</p> <p>Filing Date :NA</p> <p>(62) Divisional to Application Number :NA</p> <p>Filing Date :NA</p> |  | <p>(71)<b>Name of Applicant :</b><br/><b>1)Proeffico Solutions Private Limited</b><br/>Address of Applicant :Third Floor, 23 B Block Road, Block B, Sector 67 Noida<br/>Uttar Pradesh India 201301 Noida -----</p> <p><b>Name of Applicant : NA</b><br/><b>Address of Applicant : NA</b></p> <p>(72)<b>Name of Inventor :</b><br/><b>1)Saurabh Agrawal</b><br/>Address of Applicant :Proeffico Solutions Private Limited Third Floor, 23 B Block<br/>Road, Block B, Sector 67 Noida Uttar Pradesh India 201301 Noida -----</p> <p>----</p> <p><b>2)Swastik Vaish</b><br/>Address of Applicant :Proeffico Solutions Private Limited Third Floor, 23 B Block<br/>Road, Block B, Sector 67 Noida Uttar Pradesh India 201301 Noida -----</p> <p>----</p> |
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(57) Abstract :

The present invention relates to a real time video surveillance system (100) for detection and tracking of cash theft based on CCTV vision and AI detection and method thereof. The system (100) comprises a memory (105) configured to store the information therein and a processor (106) configured to access video frames captured using one or more overhead video cameras, communication module (102) and alert module (120). The method for detecting and tracking cash theft by a person in an organization includes accessing video frames captured using cameras processing the videos to identify cash as present in the hands of a person in the space such that each detection corresponds to a cash present in the hands of a person as present in the space of the organization and analyzing the detections to define at least one of true positives and false positives associated with movement of cash in hand. Figure 4

No. of Pages : 31 No. of Claims : 24

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202511057310 A

(19) INDIA

(22) Date of filing of Application :14/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : ANTI-BACTERIAL NANOCONJUGATES OF  $\beta$  -LACTAM

|                                               |                                                                                                 |                                                                                                                                                                       |
|-----------------------------------------------|-------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                               |                                                                                                 | (71)Name of Applicant :<br><b>1)Panjab University</b><br>Address of Applicant :Sector 14 and 25, Chandigarh, Pin- 160014 Chandigarh -<br>-----                        |
| (51) International classification             | : C07D209/60, A61K31/403, A61K31/407, A61K31/4439, A61K31/506, A61P31/04, C07C29/143, C07C45/42 | <b>Name of Applicant : NA</b><br><b>Address of Applicant : NA</b>                                                                                                     |
| (86) International Application No             | :NA                                                                                             | (72)Name of Inventor :<br><b>1)Dr. Aman Bhalla</b><br>Address of Applicant :Department of Chemistry Panjab University Chandigarh<br>U.T INDIA 160014 Chandigarh ----- |
| Filing Date                                   | :NA                                                                                             | <b>2)Dr Savita Chaudhary</b><br>Address of Applicant :Department of Chemistry Panjab University Chandigarh<br>U.T INDIA 160014 Chandigarh -----                       |
| (87) International Publication No             | : NA                                                                                            | <b>3)Prof. Ganga Ram Chaudhary</b><br>Address of Applicant :Department of Chemistry Panjab University Chandigarh<br>U.T INDIA 160014 Chandigarh -----                 |
| (61) Patent of Addition to Application Number | :NA                                                                                             | <b>4)Dr Ankita Garg</b><br>Address of Applicant :Department of Chemistry Panjab University Chandigarh<br>U.T INDIA 160014 Chandigarh -----                            |
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| (62) Divisional to Application Number         | :NA                                                                                             |                                                                                                                                                                       |
| Filing Date                                   | :NA                                                                                             |                                                                                                                                                                       |

(57) Abstract :

The present invention pertains to a nanoconjugate comprising a metal oxide nanostructure covalently and/or non-covalently conjugated to a  $\beta$ -lactam compound. In particular, the invention relates to novel  $\beta$ -lactam nanoconjugates with enhanced antimicrobial efficacy against drug-resistant microorganisms that produce  $\beta$ -lactamase. Additionally, the invention encompasses a method for synthesizing these nanoconjugates and their incorporation into pharmaceutical compositions.

No. of Pages : 55 No. of Claims : 16

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202511057317 A

(19) INDIA

(22) Date of filing of Application :14/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : SELF-HEALING HYDROGEL DOPED WITH METAL OXIDE NANOPARTICLES AND METAL ION CO-CRYSTALS AND A PREPARATION METHOD THEREOF

|                                               |             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
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| (51) International classification             | : A61L26/00 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| (86) International Application No             | :NA         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Filing Date                                   | :NA         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| (87) International Publication No             | : NA        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| (61) Patent of Addition to Application Number | :NA         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Filing Date                                   | :NA         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| (62) Divisional to Application Number         | :NA         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Filing Date                                   | :NA         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |

(57) Abstract :

This invention relates to a self-healing wound dressing with antioxidant properties comprising a sodium alginate hydrogel matrix (1-3% w/v) crosslinked with calcium chloride (4-7% w/v). The hydrogel is embedded with zinc oxide nanoparticles (0.02-0.05% w/v) synthesized via hydrothermal treatment of zinc acetate dihydrate and citric acid monohydrate under basic conditions, and copper metal ion co-crystals (80-120 mg) prepared from benzimidazole and bromoacetic acid. The composition includes glycerol (5-8% v/v) for enhanced flexibility and ascorbic acid (8-12 mg) for antioxidant properties. The manufacturing process involves dissolving sodium alginate in water, incorporating glycerol, ZnO nanoparticles, copper co-crystals and ascorbic acid, followed by calcium chloride crosslinking. This novel wound dressing combines the healing properties of sodium alginate with the antimicrobial activity of zinc oxide nanoparticles and copper co-crystals, creating an effective treatment for wound management with self-healing capabilities. [Figure.1]

No. of Pages : 27 No. of Claims : 9

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202511051552 A

(19) INDIA

(22) Date of filing of Application :29/05/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : FLEXIBLE HELMET WITH IMPACT-RESPONSIVE LIQUID CONTROL SYSTEM

(51) International classification

:A42B0003040000, A42B0003060000, A42B0003120000, G06N0020000000, G06F0003000000

(86) International Application No

:NA

Filing Date

:NA

(87) International Publication No

: NA

(61) Patent of Addition to Application Number

:NA

Filing Date

:NA

(62) Divisional to Application Number

:NA

Filing Date

:NA

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(57) Abstract :

A flexible helmet system is disclosed, comprising an impact-responsive liquid control mechanism that dynamically adjusts to external stimuli. The helmet includes an impact-resistant outer shell, a smart liquid chamber containing a shear-thickening fluid, embedded sensors, and a microcontroller executing real-time control algorithms. Upon detecting a high-velocity impact, the control unit triggers the fluid to harden locally, enhancing user protection. The helmet maintains flexibility under normal conditions and supports modular replacement of components. Additional features include wireless communication, environmental sensing, and predictive impact management. This intelligent, adaptive helmet offers advanced safety for users in high-risk environments.

No. of Pages : 9 No. of Claims : 8

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :29/05/2025

(21) Application No.202511051553 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : COOKING BRUSH WITH INTEGRATED OIL RESERVOIR AND CONTROLLED DISPENSING MECHANISM

(51) International classification :A46B11/00  
(86) International Application No :NA  
Filing Date :NA  
(87) International Publication No : NA  
(61) Patent of Addition to Application Number :NA  
Filing Date :NA  
(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

The present invention discloses a smart oil/ghee dispensing brush designed to provide controlled, hygienic, and efficient application of edible oils during cooking. The device consists of an ergonomic handle integrated with a refillable reservoir for storing oil or ghee, a button-operated dispensing mechanism for precise release, and high-quality silicone bristles for uniform application. The dispensing system includes an anti-leak nozzle that prevents accidental dripping, ensuring a clean and mess-free cooking experience. The parallel orientation of the bristles enhances user ergonomics and spreading efficiency. The detachable reservoir simplifies both refilling and cleaning, supporting hygienic reuse. This all-in-one solution eliminates the need for multiple utensils such as separate oil bowls, spoons, or brushes. The invention reduces oil wastage and promotes user convenience suitable for various cooking techniques including baking, grilling, roasting, and pan-frying.. The device presents a novel alternative to conventional oil application tools by combining precision control, portability, and ease of maintenance in a compact design.

No. of Pages : 11 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202511051554 A

(19) INDIA

(22) Date of filing of Application :29/05/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : VEHICLE TO DRIVER PEDESTRIAN WARNING SYSTEM

|                                               |                                                                                 |                                                                                                                                                                                                            |
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| (51) International classification             | :G08G0001160000, G01S0013931000, B60Q0005000000, G08G0001005000, B60Q0009000000 | <b>Name of Applicant : NA</b><br><b>Address of Applicant : NA</b><br>(72)Name of Inventor :                                                                                                                |
| (86) International Application No             | :NA                                                                             | <b>1)Dr. Praveen Ailawalia</b><br>Address of Applicant :Department of Mathematics, Chandigarh University, National Highway 05, Chandigarh-Ludhiana Highway, Mohali, Punjab -140413, India Mohali -----     |
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| (87) International Publication No             | : NA                                                                            | <b>3)Yash Shukla</b><br>Address of Applicant :Department of Mathematics, Chandigarh University, National Highway 05, Chandigarh-Ludhiana Highway, Mohali, Punjab -140413, India Mohali -----               |
| (61) Patent of Addition to Application Number | :NA                                                                             | <b>4)Aditi Singh</b><br>Address of Applicant :Department of Mathematics, Chandigarh University, National Highway 05, Chandigarh-Ludhiana Highway, Mohali, Punjab -140413, India Mohali -----               |
| Filing Date                                   | :NA                                                                             |                                                                                                                                                                                                            |
| (62) Divisional to Application Number         | :NA                                                                             |                                                                                                                                                                                                            |
| Filing Date                                   | :NA                                                                             |                                                                                                                                                                                                            |

(57) Abstract :

The present invention relates to a Vehicle to Driver Pedestrian Warning (VDPW) system designed to enhance road safety by preventing collisions between vehicles and pedestrians, particularly during overtaking manoeuvres. The system comprises a sensor fusion unit that integrates inputs from LiDAR, radar and cameras to detect pedestrian presence and movement in real-time. Upon detection, a portable projector mounted on the rear shelf of the vehicle projects a vivid red pedestrian symbol and directional cues onto the rear windshield. This visual alert warns following drivers of pedestrian activity ahead, enabling timely and informed driver responses. The system features adaptive calibration for various environmental conditions and vehicle types, ensuring consistent performance.

No. of Pages : 11 No. of Claims : 10



(54) Title of the invention : AI-POWERED SYSTEM AND METHOD FOR AUTOMATED MULTILINGUAL DOCUMENT LOCALIZATION WITH PRESERVED LAYOUT AND FORMATTING

|                                               |                                   |                                                                                                                                                                   |
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| (51) International classification             | :G06F40/103, G06V30/10, G06F40/58 | (72)Name of Inventor :                                                                                                                                            |
| (86) International Application No             | :NA                               | <b>1)Mr. Nikhil Nanda</b>                                                                                                                                         |
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| (87) International Publication No             | : NA                              | -----                                                                                                                                                             |
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| Filing Date                                   | :NA                               | Address of Applicant :H. No. 525, First Floor , Sector 30, Faridabad, Haryana - 121003 Faridabad -----                                                            |
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(57) Abstract :  
The present invention automates multilingual document localization through an AI-driven system (100) and method (200). The system includes an input unit (101) to receive a document, an AI-enhanced OCR module (102) for text extraction and error correction, and a translation module (103) to preserve semantic integrity. A document layout preservation engine (104) maintains structure, while a dynamic text resizing module (105) adjusts text positioning and font size. The output unit (110) generates a localized document matching the original format. Optional components include a user-assisted feedback module (107), a metadata preservation engine (108), and an AI-driven optimization module (109). The method involves pre-processing, text extraction, translation, formatting preservation, and adaptive layout adjustments, ensuring accuracy and efficiency in document localization.

No. of Pages : 23 No. of Claims : 15

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202511056811 A

(19) INDIA

(22) Date of filing of Application :13/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : BIO-ASSAY GUIDED FRACTIONATION AND ISOLATION FROM LASIA SPINOSA LEAVES AGAINST IN-VITRO MODEL OF NEUROINFLAMMATION.

(51) International classification :A61K0036888000, A61P0025000000, A61P0029000000, A61P0037000000, A23L0033100000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

The present invention relates to a method for the extraction, isolation, and biological evaluation of bioactive phytoconstituents from the leaves of Lasia spinosa, a traditionally used medicinal plant, for potential therapeutic use in neuroinflammatory disorders. The invention describes a bio-assay guided approach utilizing methanolic extraction followed by chromatographic separation to identify fractions exhibiting antioxidant and neuroprotective activity. In-vitro studies on SH-SY5Y neuronal cell lines demonstrate that the extract significantly mitigates oxidative stress and reduces the expression of pro-inflammatory cytokines such as TNF- $\alpha$  and IL-6 induced by hydrogen peroxide (H<sub>2</sub>O<sub>2</sub>), without inducing cytotoxicity up to 40  $\mu$ g/mL. The method ensures efficient extraction using a hydroethanolic solvent system, followed by concentration and lyophilization to yield dry extract rich in active compounds. The invention provides a novel, plant-based approach to counteract neuroinflammation and supports the development of alternative therapies for neuroinflammation.

No. of Pages : 18 No. of Claims : 3

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :13/06/2025

(21) Application No.202511056895 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : A HAND GESTURE BASED VIRTUAL KEYBOARD

|                                                                                                                                                                                                                                                                                                                                                                                           |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>(51) International classification :G06F0003010000, G06F0003048860, G06V0040200000, G06F0003030000, G06T0007246000</p> <p>(86) International Application No :NA<br/>Filing Date :NA</p> <p>(87) International Publication No : NA</p> <p>(61) Patent of Addition to Application Number :NA<br/>Filing Date :NA</p> <p>(62) Divisional to Application Number :NA<br/>Filing Date :NA</p> |  | <p>(71)<b>Name of Applicant :</b><br/><b>1)SHARDA UNIVERSITY</b><br/>Address of Applicant :Plot No. 32-34, Knowledge Park 3, Greater Noida, 201310, Uttar Pradesh (UP), India (IN) Greater Noida -----<br/><b>Name of Applicant : NA</b><br/><b>Address of Applicant : NA</b></p> <p>(72)<b>Name of Inventor :</b><br/><b>1)HRIDEY DALAL</b><br/>Address of Applicant :Department of Computer Science &amp; Engineering, Sharda School of Computing Science &amp; Engineering (SSCSE), Sharda University, Plot No. 32-34, Knowledge Park 3, Greater Noida, 201310, Uttar Pradesh (UP), India (IN) Greater Noida -----<br/><b>2)SUKHAM KAUR</b><br/>Address of Applicant :Department of Computer Science &amp; Engineering, Sharda School of Computing Science &amp; Engineering (SSCSE), Sharda University, Plot No. 32-34, Knowledge Park 3, Greater Noida, 201310, Uttar Pradesh (UP), India (IN) Greater Noida -----<br/><b>3)DR. MAYANK KUMAR GOYAL</b><br/>Address of Applicant :Department of Computer Science &amp; Engineering, Sharda School of Computing Science &amp; Engineering (SSCSE), Sharda University, Plot No. 32-34, Knowledge Park 3, Greater Noida, 201310, Uttar Pradesh (UP), India (IN) Greater Noida -----</p> |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

(57) Abstract :

The invention discloses a touchless hand gesture-based virtual keyboard (302). The method includes a step to receive video data from a video capturing device (104). Next, the method includes a step to analyze each frame of the video data using a hand tracking model and a user gesture profile to identify hand gestures and fingertip coordinates. Furthermore, the method maps the fingertip coordinates to specific regions on the virtual keyboard (302) based on the hand gesture and determines key selection based on the mapping in real-time. Additionally, the method displays the key selection based on the hand gesture on a display device (102). Fig. 3

No. of Pages : 31 No. of Claims : 20

(54) Title of the invention : VISAVENTURES: A TECHNOLOGY-DRIVEN PLATFORM FOR SECURE, TRANSPARENT, AND AI-ASSISTED VISA APPLICATION MANAGEMENT

|                                                                                                                                                                                                                                                                                                                                                    |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <div>(51) International classification :G06Q20/38, G06N20/00, G06Q10/00</div> <div>(86) International Application No Filing Date :NA :NA</div> <div>(87) International Publication No : NA</div> <div>(61) Patent of Addition to Application Number Filing Date :NA :NA</div> <div>(62) Divisional to Application Number Filing Date :NA :NA</div> |  | <div>(71)Name of Applicant :<br/>1)Baba Farid College of Engineering and Technology<br/>Address of Applicant :Muktsar Road, Bathinda-151001, Punjab, India Bathinda -----<br/>2)Baba Farid College<br/>Name of Applicant : NA<br/>Address of Applicant : NA<br/>(72)Name of Inventor :<br/>1)Chotu Kumar<br/>Address of Applicant :Department of Computer Science and Engineering, Baba Farid College of Engineering and Technology, Muktsar Road, Bathinda-151001, Punjab, India Bathinda -----<br/>2)Praveen Kumar<br/>Address of Applicant :Department of Computer Science and Engineering, Baba Farid College of Engineering and Technology, Muktsar Road, Bathinda-151001, Punjab, India Bathinda -----<br/>3)Rahul Sen<br/>Address of Applicant :Department of Mechanical Engineering, Baba Farid College of Engineering and Technology, Muktsar Road, Bathinda-151001, Punjab, India Bathinda -----</div> |
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(57) Abstract :  
The present invention discloses a computer-implemented system (100) and method (200) for managing visa application services through a unified digital platform. The system (100) comprises a user interface (106) for inputting visa-related data, an agent interface (104) for managing KYC-verified agent profiles, and a backend engine (108) integrating an artificial intelligence recommendation module (102), a secure document storage module (110), a notification and tracking module (112), a secure payment gateway (114), and a real-time communication module (116). The platform facilitates agent discovery, document submission, AI-based agent matching, milestone-based visa tracking, and secure financial transactions. The system (100) further includes automated alerts, a visa approval prediction module (118), mobile application access (120), and analytics dashboards (122) for agent performance. The invention enables a transparent, efficient, and secure visa application process for users and agents across web and mobile environments. Figure 1

No. of Pages : 20 No. of Claims : 3

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202511057667 A

(19) INDIA

(22) Date of filing of Application :16/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : REAL-TIME MONITORING AND PREDICTION OF SOIL HEALTH USING IOT AND COMPUTER VISION

(51) International classification :A61B0005000000, G01N0033240000, G16H0050200000, G06N0003045000, G06N0020000000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

The present invention relates to a soil health monitoring and prediction system that integrates Internet of Things (IoT) sensors and computer vision technology to enable real-time, automated, and accurate assessment of soil conditions. The system comprises a large number of Smart Numeric Sensory Data Collection Devices (SNSDCDs), each equipped with sensors for measuring key soil parameters such as nitrogen, phosphorus, potassium (NPK), pH, moisture, temperature, humidity, and electrical conductivity. A smaller number of Edge Vision Devices (EVDs), equipped with high-definition cameras and edge processors, capture visual data of soil and crop conditions. Sensor and image data are transmitted to a cloud server where they are fused into a multimodal dataset. A machine learning model is trained on this dataset to identify patterns and correlations, enabling predictive analysis of soil health. The system operates autonomously using solar power and offers local storage and real-time clock functionality for reliable operation in remote areas. This integrated solution supports data-driven decision-making for sustainable agriculture by optimizing resource usage, improving crop yields, and enabling proactive land and soil management.

No. of Pages : 19 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202511057671 A

(19) INDIA

(22) Date of filing of Application :16/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : PORTABLE PYROLYSIS SYSTEM AND A METHOD WITH INTEGRATED EMISSION CONTROL AND IOT-BASED CARBON CREDIT VERIFICATION

(51) International classification :C10B0053020000, B01D0047100000, C10B0047440000, H04L0012280000, C10B0033000000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

The present invention introduces a portable pyrolysis system with integrated emission control and IoT-based carbon credit verification designed to convert biomass into biochar. The biochar can be used as an organic manure, providing a sustainable alternative to stubble burning. The disclosed pyrolysis system features a portable, stainless steel pyrolysis/kiln that utilizes flame-curtain pyrolysis (650±50°C) to achieve a 30% biochar yield efficiency. The closed-loop emission control unit (103) combines the features of a venturi scrubber chamber (103a) for particulate and gas removal along with an activated carbon filter chamber (103b) for adsorbing volatile organic compounds, resulting in a 75% reduction in harmful emissions. Integrated IoT sensors (105) monitor real-time operational data and are synchronized to a cloud-based dMRV platform, enabling automated carbon credit issuance and verification via registries like Carbon Standards International. Representative Figure 1

No. of Pages : 25 No. of Claims : 5

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :16/06/2025

(21) Application No.202511057802 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : AUTOMATED UTENSIL HANDLING AND COOKING ASSISTANCE SYSTEM

(51) International classification :F24C3/12, F24C15/20, B25J18/02  
(86) International Application No :NA  
Filing Date :NA  
(87) International Publication No : NA  
(61) Patent of Addition to Application Number :NA  
Filing Date :NA  
(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

An automated utensil handling and cooking assistance system is comprising, a housing 101 with cavities 102 for gas burners on drawer-based enclosure 103s with vertical sliders 104, allowing upward movement for use and downward for storage, a microphone 106 receives voice commands, a central cavity 107 houses a spring-loaded pivot clamping arrangement 108 with a pivot arm 108a on a stepper motor to lift utensils, a spring 108b regulates lift height, and a limit switch verifies it, a temperature sensor detects utensil temperature, triggering a thermo-responsive C-shaped clamping assembly 108c with shape-memory alloy 108d to engage, a rotating bearing disc 109 with a thermocouple sensor repositions the utensil via the Seebeck effect, an L-shaped telescopic link 110 with a circular slider 112 and suction unit 113 controls the burner knob, a load sensor detects utensil weight, a multi-axis C-clamp arm 114 with silicone-covered mechanical gripper 115 ensure safe utensil transfer.

No. of Pages : 23 No. of Claims : 9

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202511057867 A

(19) INDIA

(22) Date of filing of Application :16/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : A REAL-TIME SEIZURE DETECTION SYSTEM AND A METHOD FOR REAL-TIME DETECTION OF EPILEPTIC SEIZURES

(51) International classification :A61B0005000000, G06N0003080000, A61B0005369000, G06N0003045000, A61B0005291000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

The present invention relates to a real-time seizure detection system (100) comprising: (i) a wearable EEG headset (101) having at least one dry electrode selected from a hard dry electrode or a soft dry electrode, configured to capture multi-channel EEG signals from a patient; ii) a signal preprocessing unit (102) configured to perform amplification, filtering, normalization, segmentation, and augmentation of the EEG signals; iii) an embedded microcontroller unit (MCU) (103) with integrated AI acceleration configured to perform initial signal processing and manage data transmission; iv) a wireless module (104), preferably WiFi or Bluetooth, for transmitting preprocessed EEG data to a mobile or cloud-based processing unit (105); v) a deep learning inference engine (106) comprising a Convolutional Neural Network (CNN) model utilizing Global Average Pooling (GAP), trained to classify EEG signals into seizure or non-seizure events; vi) a post-processing module (107) configured to apply a moving average filter and peak detection to smooth classification output and identify seizure events; and vii) an alert generation module (108) configured to deliver real-time notifications to caregivers or clinicians upon detection of seizure events. Fig 1.

No. of Pages : 18 No. of Claims : 6



(54) Title of the invention : A CURCUMIN–GLUTARIC ANHYDRIDE–6-AMINOCAPROIC ACID CONJUGATE NANOPARTICLES AND METHOD FOR ITS PREPARATION

|                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>(51) International classification :A61K31/12, A61P25/28, A61P29/00, A61P33/06, A61P35/00, B32B1/00, B82Y5/00, C07C49/255</p> <p>(86) International Application No :NA<br/>Filing Date :NA</p> <p>(87) International Publication No : NA</p> <p>(61) Patent of Addition to Application Number :NA<br/>Filing Date :NA</p> <p>(62) Divisional to Application Number :NA<br/>Filing Date :NA</p> | <p>(71)Name of Applicant :<br/><b>1)DIT University</b><br/>Address of Applicant :Mussoorie Diversion Road, Village Makkawala, Dehradun, Uttarakhand, India -248009 Dehradun -----</p> <p><b>Name of Applicant : NA</b><br/><b>Address of Applicant : NA</b></p> <p>(72)Name of Inventor :<br/><b>1)Vanshika</b><br/>Address of Applicant :M. Pharm, Faculty of Pharmacy, SoPPHI, DIT University, Dehradun, Uttarakhand Dehradun -----</p> <p><b>2)Dr. Ashok Behera</b><br/>Address of Applicant :Associate Professor, Faculty of Pharmacy, SoPPHI, DIT University, Dehradun, Uttarakhand Dehradun -----</p> <p><b>3)Dr. Mandeep Kumar Arora</b><br/>Address of Applicant :Associate Professor, Faculty of Pharmacy, SoPPHI, DIT University, Dehradun, Uttarakhand Dehradun -----</p> |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

## (57) Abstract :

The present invention relates to a curcumin–glutaric anhydride–6-aminocaproic acid conjugate nanoparticles, comprising: i) 150mg of curcumin; ii) 35 mg of 4-dimethylaminopyridine (DMAP); iii) 7 ml of tetrahydrofuran (THF); iv) 1 ml of Et3N; v) 120 mg of glutaric anhydride (95%); vi) 200.0 mg of 6-aminocaproic acid; and vii) chitosan–poly(acrylic acid) (CS–PAA). The method for preparing conjugate nanoparticles, the method comprising: i) reacting curcumin with glutaric anhydride in the presence of 4-dimethylaminopyridine and triethylamine in tetrahydrofuran to form curcumin–glutaric anhydride intermediate; ii) activating said intermediate with N-hydroxy succinimide and dicyclohexyl carbodiimide to form an NHS ester; iii) coupling the NHS ester with ethyl 6-aminocaproate to form a curcumin–glutaric anhydride–6-aminocaproic acid conjugate; iv) dissolving chitosan in 1% acetic acid solution to prepare a 0.2% chitosan solution, and poly(acrylic acid) in distilled water to prepare a 0.2% PAA solution; v) adding said conjugate dissolved in a 1:1 ethanol-acetone mixture to the chitosan solution; vi) dropwise addition of the PAA solution into the drug-containing chitosan solution under magnetic stirring to form an opalescent suspension of nanoparticles; and vii) centrifuging and washing the nanoparticles, followed by freeze-drying to obtain drug-loaded CS–PAA nanoparticles. Fig 1 to 13.

No. of Pages : 30 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202511057869 A

(19) INDIA

(22) Date of filing of Application :16/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : A PHOTOCATALYTIC BIOCOMPOSITE MATERIAL FOR SIMULTANEOUS REMOVAL OF HAZARDOUS DYES AND INACTIVATING ESCHERICHIA COLI IN WASTEWATER UNDER ULTRAVIOLET IRRADIATION

(51) International classification :C01B32/198, B82Y30/00, B01J35/00, C02F101/30, C02F1/30, C02F1/32

(86) International Application No :NA

Filing Date :NA

(87) International Publication No: NA

(61) Patent of Addition to :NA

Application Number :NA

Filing Date :NA

(62) Divisional to Application :NA

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Filing Date :NA

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(57) Abstract :

The present invention relates to a photocatalytic composite material (BG) for degrading organic dye and inactivating Escherichia coli in water under ultraviolet irradiation, comprising: i) a reduced graphene oxide (RGO) 50mg was added to 50ml of distilled water ii) zinc oxide (ZnO) 50mg was added to 50 ml of distilled water iii) an extract of Camellia sinensis (green tea waste) 25 ml; and iv) an extract of Ginkgo biloba leaf powder 25 ml and sonicated for uniform dispersion and then microwave for 2min under 300 watt. Fig 1 to 5

No. of Pages : 22 No. of Claims : 7

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202511028234 A

(19) INDIA

(22) Date of filing of Application :26/03/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : SYSTEM AND METHOD FOR THERMAL MANAGEMENT IN COMPUTING DEVICES

(51) International classification :G06F1/20, H01L23/34, H05K7/20  
(86) International Application No :NA  
Filing Date :NA  
(87) International Publication No : NA  
(61) Patent of Addition to Application Number :NA  
Filing Date :NA  
(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

A system (100) for thermal management in computing devices, the system (100) comprising a computing device chassis (106) configured to function as a primary heat sink, at least one compact component heatsink (108) thermally coupled to a heat-generating component within the computing device chassis (106), a heat transfer mechanism configured to conduct heat from the at least one compact component heatsink (108) to the computing device chassis (106), a heat dissipation mechanism integrated with the computing device chassis (106) for removing heat from the computing device chassis (106) to an external environment, and a controller (104) configured to manage thermal operations of the system (100). FIG. 1

No. of Pages : 33 No. of Claims : 9

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202511028235 A

(19) INDIA

(22) Date of filing of Application :26/03/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : SYSTEM AND METHOD FOR DETECTING DIELECTRIC FLUID LEAKS IN SERVER ENVIRONMENT

(51) International classification :H05K0007200000, G01M0003280000, A61B0005026000, H04L0012400000, A61N0001040000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
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(57) Abstract :

A system (100A, 100B) for detecting dielectric fluid leaks in a server environment, the system (100A, 100B) comprising a server motherboard (102), a plurality of sensors (114) arranged within the server motherboard (102), wherein each of the plurality of sensors is arranged in a predefined location to sense any environmental changes within the server chassis, a baseboard management controller (BMC) (112), and a processor (104) configured to receive sensor data from the plurality of sensors (114) via the BMC (112), analyze the sensor data to detect changes in at least one environmental parameter indicating a dielectric fluid leak, and generate an alert when the changes in the at least one environmental parameter exceed a predetermined threshold. FIG. 1B

No. of Pages : 27 No. of Claims : 10

|                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>(51) International classification :A61Q5/00, A61K31/56, A61P13/08, A61P43/00, A61Q5/10, A61K8/97</p> <p>(86) International Application No :NA</p> <p>Filing Date :NA</p> <p>(87) International Publication No : NA</p> <p>(61) Patent of Addition to Application Number :NA</p> <p>Filing Date :NA</p> <p>(62) Divisional to Application Number :NA</p> <p>Filing Date :NA</p> | <p>(71)<b>Name of Applicant :</b><br/> <b>1)MS. SHIPRA OMAR</b><br/> Address of Applicant :ASSISTANT PROFESSOR, DEPARTMENT OF PHARMACY PRACTICE, SCHOOL OF PHARMACEUTICAL SCIENCES, SHRI GURU RAM RAI UNIVERSITY, DEHRADUN, UTTARAKHAND, INDIA Dehradun ----</p> <p><b>2)MARKA VANLALZAWMA</b><br/> <b>3)DR. AARTI SATI</b><br/> <b>4)MRS. SUNEHA RANI</b><br/> <b>5)MS. MEENA DEVI</b><br/> <b>6)MR. SACHIN DIMRI</b><br/> <b>7)MS. AKRITI PAL</b><br/> <b>8)MS. SWATI TRIVEDI</b><br/> <b>9)DR. ANKITA SINGH</b><br/> <b>10)DR. ANJALI KUSHWAHA</b></p> <p><b>Name of Applicant : NA</b><br/> <b>Address of Applicant : NA</b></p> <p>(72)<b>Name of Inventor :</b><br/> <b>1)MS. SHIPRA OMAR</b><br/> Address of Applicant :ASSISTANT PROFESSOR, DEPARTMENT OF PHARMACY PRACTICE, SCHOOL OF PHARMACEUTICAL SCIENCES, SHRI GURU RAM RAI UNIVERSITY, DEHRADUN, UTTARAKHAND, INDIA Dehradun ----</p> <p><b>2)MARKA VANLALZAWMA</b><br/> Address of Applicant :SCHOLAR, B. PHARM, SHREE DEV BHOOMI INSTITUTE OF TECHNOLOGY, PAUNDHA, DEHRADUN, UTTARAKHAND, INDIA Dehradun -----</p> <p><b>3)DR. AARTI SATI</b><br/> Address of Applicant :ASSOCIATE PROFESSOR, DEPARTMENT OF PHARMACOLOGY, SCHOOL OF PHARMACEUTICAL SCIENCES, SHRI GURU RAM RAI UNIVERSITY, DEHRADUN, UTTARAKHAND, INDIA Dehradun -----</p> <p><b>4)MRS. SUNEHA RANI</b><br/> Address of Applicant :ASSISTANT PROFESSOR, DEPARTMENT OF PHARMACY PRACTICE, SCHOOL OF PHARMACEUTICAL SCIENCES, SHRI GURU RAM RAI UNIVERSITY, DEHRADUN, UTTARAKHAND, INDIA Dehradun ----</p> <p><b>5)MS. MEENA DEVI</b><br/> Address of Applicant :ASSOCIATE PROFESSOR, GRD (PG) IMT RAJPUR ROAD, DEHRADUN, UTTARAKHAND, INDIA Dehradun -----</p> <p><b>6)MR. SACHIN DIMRI</b><br/> Address of Applicant :ASSOCIATE PROFESSOR, SAI COLLEGE OF PHARMACY, 26A RAJPUR ROAD, DEHRADUN, UTTARAKHAND, INDIA Dehradun -----</p> <p><b>7)MS. AKRITI PAL</b><br/> Address of Applicant :ASSISTANT PROFESSOR, MAHARANA PRATAP COLLEGE OF PHARMACEUTICAL SCIENCES, MANDHANA, KANPUR (U.P.), INDIA Kanpur Nagar -----</p> <p><b>8)MS. SWATI TRIVEDI</b><br/> Address of Applicant :PH.D. SCHOLAR, MANSAROVAR GLOBAL UNIVERSITY, BHOPAL, MADHYA PRADESH, INDIA Bhopal -----</p> <p><b>9)DR. ANKITA SINGH</b><br/> Address of Applicant :ASSISTANT PROFESSOR, MAYA DEVI UNIVERSITY, SELAQUI, DEHRADUN, UTTARAKHAND, INDIA Dehradun -----</p> <p><b>10)DR. ANJALI KUSHWAHA</b><br/> Address of Applicant :LECTURER, GOVERNMENT GIRLS POLYTECHNIC, PRAYAGRAJ, UTTAR PRADESH, INDIA Prayagraj -----</p> |
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## (57) Abstract :

Disclosed herein is a method for the preparation of herbal hair dye (100) comprises collecting and cleaning plant materials (102). The method also includes drying the cleaned plant materials (104), pulverizing the dried plant materials into a fine powder and storing the powdered material (106). The method also includes subjecting the powdered plant material to cold maceration by soaking it in a solvent in a closed container (108) and filtering and pressing the macerated mixture (110). The method also includes concentrating the filtered extract by evaporating the solvent (112). The method also includes mixing predetermined quantities of the dried extracts of plant materials in a sufficient quantity of ethanol (114). The method also includes applying the herbal dye formulation to human white hair by immersing the hair in the formulation (116). The method also includes removing the formulation from the hair and assessing the color retention (118).

No. of Pages : 30 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :17/06/2025

(21) Application No.202511058054 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : A COMPOSITE MESH FOR REINFORCING CONCRETE

(51) International classification :E04C0005070000, C04B0111340000, E04C0003293000, A61F0002000000, E04C0003340000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

The present invention relates to a composite mesh for concrete reinforcement and its preparation method. More particularly, the present invention provides a composite mesh for controlling shrinkage and cracking in concrete wherein, the composite mesh is a made of textile fibers and coated with a coating composition. Figure 1

No. of Pages : 25 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202511058318 A

(19) INDIA

(22) Date of filing of Application :18/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : ACTIVE-PASSIVE HYBRID COOLING SYSTEM FOR RAILWAY TUNNEL TEMPERATURE REGULATION

(51) International classification :F28D0015020000, G21C0015180000, B64G0001500000, C09K0005060000, F03G0007040000

(86) International Application No :NA

Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA

Filing Date :NA

(62) Divisional to Application Number :NA

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(57) Abstract :

The present invention relates to a hybrid active-passive cooling system designed for railway tunnels, aimed at overcoming challenges associated with overheating, energy inefficiency and infrastructure deterioration. The system combines passive thermal regulation components such as geothermal heat pipes utilizing nanofluids, phase-change material (PCM) panels for thermal energy storage and conductive Aluminum rail cooling plates, with active components including AI-controlled variable-speed fans, ultrasonic misting units for emergency cooling and regenerative braking-based energy recovery systems. The invention significantly reduces reliance on external power sources by integrating self-sustaining energy harvesting technologies, such as piston-effect turbines and piezoelectric track harvesters. A predictive control framework employing LSTM neural networks forecasts heat loads in advance, enabling precise thermal management. The modular and retrofittable architecture allows scalable deployment across various tunnel types with minimal downtime. The system operates on a zero-water, closed-loop basis and incorporates fire-resistant PCMs and explosion-proof enclosures for enhanced safety.

No. of Pages : 23 No. of Claims : 3

(54) Title of the invention : ULTRA-WIDEBAND ANNULAR RING MICROSTRIP ANTENNA FOR KU/K-BAND APPLICATIONS

|                                               |                                                                                 |                                                                                                                                                                                                                               |
|-----------------------------------------------|---------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (51) International classification             | :H01Q0001380000, H01Q0001500000, H01Q0009040000, H01Q0021060000, H01Q0013100000 | (71)Name of Applicant :<br><b>1)Chandigarh University</b><br>Address of Applicant :Chandigarh University, National Highway 05, Chandigarh-Ludhiana Highway, Mohali, Punjab -140413, India. Mohali -----                       |
| (86) International Application No             | :NA                                                                             | <b>Name of Applicant : NA</b>                                                                                                                                                                                                 |
| Filing Date                                   | :NA                                                                             | <b>Address of Applicant : NA</b>                                                                                                                                                                                              |
| (87) International Publication No             | : NA                                                                            | (72)Name of Inventor :                                                                                                                                                                                                        |
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| Filing Date                                   | :NA                                                                             | <b>2)Thiha Naing</b><br>Address of Applicant :Department of Electronics and Communication Engineering, Chandigarh University, National Highway 05, Chandigarh-Ludhiana Highway, Mohali, Punjab -140413, India Mohali -----    |
| (62) Divisional to Application Number         | :NA                                                                             |                                                                                                                                                                                                                               |
| Filing Date                                   | :NA                                                                             |                                                                                                                                                                                                                               |

(57) Abstract :  
The invention discloses a compact and ultra-wideband annular ring microstrip antenna (ARMSA) designed for Ku-band (12–18 GHz) and K-band (18–27 GHz) applications, including satellite communication and radar systems. The antenna consists of a dual concentric ring configuration on FR4 substrate (er = 4.4, thickness = 1.6 mm) with full copper ground plane. Multiple circular and rectangular slots are embedded into the radiating rings to enhance impedance bandwidth and gain. The antenna is excited using a coaxial probe feed optimized through electromagnetic simulation. The proposed design achieves measured bandwidth of 5.28 GHz, spanning from 14.67 GHz to 19.95 GHz, and a peak gain of 7.86 dB. The structure provides low fabrication cost, compact size, and high efficiency, makes it suitable for integration into space-constrained and portable systems. The antenna design is simulated and validated using HFSS software and is optimized for wideband, high-gain, and stable performance in high-frequency applications.

No. of Pages : 16 No. of Claims : 10



(54) Title of the invention : HIGH-PERFORMANCE, SELF-HEALING & HYDROPHOBIC SILICA AEROGEL INSULATION FROM RICE HUSK FOR INDUSTRIAL HEAT EXCHANGERS

|                                               |                                                                                 |                                                                                                                                                                                                          |
|-----------------------------------------------|---------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (51) International classification             | :C09D0005080000, C09D0007610000, C09K0005060000, C01B0033158000, C09D0007630000 | (71)Name of Applicant :<br><b>1)Chandigarh University</b><br>Address of Applicant :Chandigarh University National Highway 05, Chandigarh-Ludhiana Highway, Mohali, Punjab -140413, India. Mohali ----- - |
| (86) International Application No             | :NA                                                                             | <b>Name of Applicant : NA</b>                                                                                                                                                                            |
| Filing Date                                   | :NA                                                                             | <b>Address of Applicant : NA</b>                                                                                                                                                                         |
| (87) International Publication No             | : NA                                                                            | (72)Name of Inventor :                                                                                                                                                                                   |
| (61) Patent of Addition to Application Number | :NA                                                                             | <b>1)Ritik Sharma</b>                                                                                                                                                                                    |
| Filing Date                                   | :NA                                                                             | Address of Applicant :Department of Chemical Engineering, Chandigarh University, National Highway 05, Chandigarh-Ludhiana Highway, Mohali, Punjab -140413, India Mohali -----                            |
| (62) Divisional to Application Number         | :NA                                                                             | <b>2)Vikas Kumar Chaudhary</b>                                                                                                                                                                           |
| Filing Date                                   | :NA                                                                             | Address of Applicant :Department of Chemical Engineering, Chandigarh University, National Highway 05, Chandigarh-Ludhiana Highway, Mohali, Punjab -140413, India Mohali -----                            |

(57) Abstract :

The present invention relates to a high-performance, environmentally friendly silica aerogel insulation for industrial heat exchangers that is made from rice husk waste using a silica extraction method aided by bioenzymes. To create an extremely lightweight, highly porous structure with superior thermal insulation, the aerogel is reinforced with biopolymer nanofibers and dried using supercritical CO2. In order to prevent moisture absorption and corrosion under insulation (CUI), surface treatments employing graphene oxide and silane impart superhydrophobicity and corrosion resistance. Durability is increased by embedded self-healing microcapsules, which allow for the automatic repair of microcracks caused by heat or moisture. By stabilizing temperature fluctuations and increasing heat exchanger efficiency, the incorporation of nano-encapsulated phase change materials (PCMs) offers thermal energy buffering. The sustainable, cost-effective solution significantly reduces heat loss, enhances equipment longevity, and minimizes environmental impact in industrial thermal management applications.

No. of Pages : 20 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202511057803 A

(19) INDIA

(22) Date of filing of Application :16/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : SYSTEM FOR CONTROLLED FRUIT RIPENING

(51) International classification :C25B0001040000, A23B0007152000, C07C0001200000, B01D0053040000, A23L0003344500

(86) International Application No :NA

Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA

Filing Date :NA

(62) Divisional to Application Number :NA

Filing Date :NA

(71)Name of Applicant :

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Address of Applicant :Sector-43, Aravali Hills Delhi Suraj Kund, Faridabad, Haryana, India, Pin – 121004. Faridabad -----

**Name of Applicant : NA**

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(72)Name of Inventor :

**1)Dr. Jyotsna Pandit**

Address of Applicant :Professor, Department of Chemistry, Manav Rachna University, Sector-43, Aravali Hills Delhi Suraj Kund, Faridabad, Haryana, India, Pin – 121004. Faridabad -----

(57) Abstract :

A system for controlled fruit ripening, comprises of a DAC unit 101 with a fan 102 and a latticed sorbent matrix 103 for selectively capturing carbon dioxide gas, a heat exchanger 104 for regenerating the sorbent, a filter unit 105 for removing moisture and particulates from the carbon dioxide, a compressor 106 to compress carbon dioxide, a storage tank 107 to buffer and store compressed carbon dioxide, PEM electrolyzer unit 108 for electrolyzing water, a feed gas conditioning and mixing unit 110 to combine carbon dioxide and hydrogen gases, a methanol separation and purification unit 112 to condense, separate, and purify methanol, a MECM 114 for converting methanol to ethylene gas, an ethylene gas storage module 116 for dosing of ethylene gas, a fruit sorting cabinet 117 for classifying fruits, multiple sealed fruit ripening chambers 115 to facilitate optimal ripening conditions.

No. of Pages : 27 No. of Claims : 8

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202511057804 A

(19) INDIA

(22) Date of filing of Application :16/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : FRUIT STORAGE AND PREPARATION SYSTEM

|                                               |                                                                                 |                                                                                                                                                                                                                           |
|-----------------------------------------------|---------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (51) International classification             | :B30B0009300000, A61B0005020500, A01D0046240000, G16H0040670000, A23B0007154000 | (71) <b>Name of Applicant :</b><br><b>1)Manav Rachna University</b><br>Address of Applicant :Sector-43, Aravali Hills Delhi Suraj Kund, Faridabad, Haryana, India, Pin – 121004. Faridabad -----                          |
| (86) International Application No             | :NA                                                                             | <b>Name of Applicant : NA</b>                                                                                                                                                                                             |
| Filing Date                                   | :NA                                                                             | <b>Address of Applicant : NA</b>                                                                                                                                                                                          |
| (87) International Publication No             | : NA                                                                            | (72) <b>Name of Inventor :</b>                                                                                                                                                                                            |
| (61) Patent of Addition to Application Number | :NA                                                                             | <b>1)Dr. Piyush Mahendru</b>                                                                                                                                                                                              |
| Filing Date                                   | :NA                                                                             | Address of Applicant :Assistant Professor, Department of Mechanical Engineering, Manav Rachna University, Sector-43, Aravali Hills Delhi Suraj Kund, Faridabad, Haryana, India, Pin – 121004. Faridabad -----             |
| (62) Divisional to Application Number         | :NA                                                                             | <b>2)Dr. Prashant Bhardwaj</b>                                                                                                                                                                                            |
| Filing Date                                   | :NA                                                                             | Address of Applicant :Associate Professor, Department of Mechanical Engineering, Manav Rachna University, Sector-43, Aravali Hills Delhi Suraj Kund, Faridabad, Haryana, India, Pin – 121004. Faridabad -----             |
|                                               |                                                                                 | <b>3)Dr. Kirti Khanna</b>                                                                                                                                                                                                 |
|                                               |                                                                                 | Address of Applicant :Assistant Professor, Manav Rachna International Institute of Research & Studies, Plot A, Sector – 43, Aravalli Hills, Delhi – Surajkund Road, Faridabad – 121004, (Haryana), India. Faridabad ----- |

(57) Abstract :

A fruit storage and preparation system, comprising a refrigerator body 101, imaging unit 103 detecting, ripeness, spoilage, on the fruits, clamping unit 105 holds fruit packets, motorized roller 106 compacting waste packets, motorized cutting blade 107 cuts open packets, a cleaning chamber 110 including a motorized clamp 111 for securing fruits and a dual-section water tank 112 for supplying and draining water, a U-shaped plate 115 hold and secure individual fruits during transportation, a fruit preparation unit 118 arranged via a tilted frame 119 that slides fruits downward, and comprises of a peeling unit 120 and a motorized fruit cutter 121 to cut fruits, a flap 123 is attached to a two-axis sliding unit 124 to gently deposit the prepared fruit into temporary storage member 122, a wearable wristband 125 via a second sensing module detect vital health parameters of the user.

No. of Pages : 30 No. of Claims : 8

(54) Title of the invention : PYROLYSIS BASED SYSTEM FOR CONVERSION OF PINE CONE BIOMASS INTO BIO-OIL USING AI TOOLS

|                                                                                                                                                                                                                                                                                                                                                                                                               |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <div>(51) International classification :C10B0053020000, G06Q0010063900, C10G0001020000, C10C0005000000, G06N0020000000</div> <div>(86) International Application No :NA<br/>Filing Date :NA</div> <div>(87) International Publication No : NA</div> <div>(61) Patent of Addition to Application Number :NA<br/>Filing Date :NA</div> <div>(62) Divisional to Application Number :NA<br/>Filing Date :NA</div> |  | <div>(71)Name of Applicant :<br/>1)Dr. Priyanka Chand<br/>Address of Applicant :Department of Farm Machinery and Power Engineering, College of Technology, G. B. Pant University of Agriculture and Technology, Pantnagar-263145, Udham Singh Nagar, Uttarakhand Pantnagar -----<br/>-<br/>2)Dr. Jayant Singh<br/>3)Dr. Bhawana Negi<br/>4)Dr. Triveni Prasad Singh<br/>Name of Applicant : NA<br/>Address of Applicant : NA<br/>(72)Name of Inventor :<br/>1)Dr. Priyanka Chand<br/>Address of Applicant :Department of Farm Machinery and Power Engineering, College of Technology, G. B. Pant University of Agriculture and Technology, Pantnagar-263145, Udham Singh Nagar, Uttarakhand Pantnagar -----<br/>-<br/>2)Dr. Jayant Singh<br/>Address of Applicant :Department of Farm Machinery and Power Engineering, College of Technology, G. B. Pant University of Agriculture and Technology, Pantnagar-263145, Udham Singh Nagar, Uttarakhand Pantnagar -----<br/>-<br/>3)Dr. Bhawana Negi<br/>Address of Applicant :Department of Farm Machinery and Power Engineering, College of Technology, G. B. Pant University of Agriculture and Technology, Pantnagar-263145, Udham Singh Nagar, Uttarakhand Pantnagar -----<br/>-<br/>4)Dr. Triveni Prasad Singh<br/>Address of Applicant :Department of Farm Machinery and Power Engineering, College of Technology, G. B. Pant University of Agriculture and Technology, Pantnagar-263145, Udham Singh Nagar, Uttarakhand Pantnagar -----<br/>-</div> |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

(57) Abstract :

The advanced pyrolysis-based conversion system introduces an innovative AI-driven analytical framework for pine cone biomass-to-bio-oil transformation that integrates computational optimization protocols with adaptive process control mechanisms, facilitating real-time parameter adjustment, dynamic yield optimization, and robust quality assurance while maintaining seamless production integration and operational efficiency for consistent bio-oil production from lignocellulosic feedstock. [510] The comprehensive conversion framework employs adaptive machine learning algorithms and intuitive process optimization protocols, utilizing embedded computational processing arrays and energy-efficient pyrolysis systems to ensure optimal temperature control, enhanced conversion efficiency, and maximum bio-oil yield while maintaining continuous production monitoring capabilities and feedstock quality assessment. [515] The integrated methodology combines multi-parameter pyrolysis optimization with artificial intelligence-driven process control systems, leveraging variable-temperature analytical signals and multi-factor yield indicators to optimize conversion procedures and production workflows for maximum bio-oil quality and minimal energy consumption during critical biomass transformation applications. [520] The novel responsive pyrolysis architecture features engineered high-precision temperature control components with specialized biomass preprocessing protocols, enabling complex multi-stage conversion verification while ensuring production consistency and performance optimization across various feedstock compositions without compromising system reliability or product quality. [525] The innovative design incorporates strategic validation mechanisms for enhanced pine cone biomass conversion and product security, utilizing optimized multi-stage pyrolysis systems and adaptive control technology to ensure legitimate bio-oil production while maintaining functionality across diverse biomass environments and processing scenarios. [530] Implementation methodology emphasizes scalable production integration and efficient conversion sequences, implementing interactive process monitoring measures and pattern recognition algorithms to achieve superior bio-oil yield, enhanced product quality, and unauthorized production prevention while ensuring technological simplicity during biomass processing operations. [535] The system demonstrates exceptional adaptability through comprehensive integration of conversion optimization protocols and intelligent pyrolysis technologies, validating its effectiveness across various pine cone biomass configurations and processing scenarios while maintaining consistent production performance and operational efficiency under diverse feedstock conditions. [540] The developed framework enables sustainable and reliable conversion of pine cone biomass through streamlined, AI-powered pyrolysis systems, providing significant advantages over traditional conversion approaches through variable optimization mechanisms, adaptive control protocols, and improved yield prediction while maintaining superior production accuracy during critical bio-oil generation procedures.

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202511057870 A

(19) INDIA

(22) Date of filing of Application :16/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : A COMPOSITION FOR TEA WASTE-DERIVED HYDROCHAR AND A METHOD FOR REMOVAL OF NITRATE IONS FROM AQUEOUS SOLUTIONS FOR WATER RECLAMATION

(51) International classification :C02F0001280000, C10L0005440000, B82Y0030000000, B01J0020300000, B01J0020200000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

The present invention relates to a composition of tea waste-derived hydrochar for removal of nitrate ions from aqueous solutions, wherein the hydrochar comprises: (i) a carbonaceous porous matrix derived from thermochemically treated tea waste; (ii) surface functional groups selected from hydroxyl (-OH), carboxyl (-COOH), and quinone groups; and (iii) moisture content of less than 10% by weight. The method for synthesizing tea waste-derived hydrochar for adsorption of nitrate ions from aqueous solutions, the method comprising: (i) washing a tea waste (TW) sample with distilled water to remove contaminants including milk, sugar, and coloring agents; (ii) boiling said TW sample for removal of residual coloring agents; (iii) drying said TW sample at a temperature of approximately 80°C for about 10 hours; (iv) grinding and sieving said TW sample through a 100-mesh sieve to obtain a processed sample; (v) subjecting 6 g of said processed sample to hydrothermal carbonization in a Teflon-lined container with 200 ml deionized water at a temperature of 180°C for a duration of approximately 10 hours in an autoclave; (vi) filtering and repeatedly rinsing the resulting hydrochar product with deionized water until a neutral pH is achieved; (vii) air-drying the hydrochar at ambient temperature for approximately 24 hours; and (viii) weighing the final dried hydrochar to determine yield. Fig 1 to 7.

No. of Pages : 21 No. of Claims : 6

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :17/06/2025

(21) Application No.202511057920 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : A SYSTEM AND METHOD FOR AI-BASED SOLAR-POWERED AGRICULTURAL ROBOT FOR AUTONOMOUS FARM OPERATIONS

(51) International classification :G05D0001000000, A01M0007000000, A01B0079000000, G05B0019042000, B25J0005000000  
(86) International Application No :NA  
Filing Date :NA  
(87) International Publication No : NA  
(61) Patent of Addition to Application Number :NA  
Filing Date :NA  
(62) Divisional to Application Number :NA  
Filing Date :NA

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**2)Mrs. M. Durga Prasanna**

**3)Dr. Roopa H**

**4)Dr. Pubali Mitra Paul**

**5)D. Karthikeyan**

**6)Mr. Parikshit Kumar Paul**

Name of Applicant : NA

Address of Applicant : NA

(72)Name of Inventor :

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**6)Mr. Parikshit Kumar Paul**

Address of Applicant :Assistant Professor, Department of Electronics and Communication Engineering, Swami Vivekananda Institute of Science and Technology, Dakshin Gobindapur, Kolkata, West Bengal, 700145, India -----

(57) Abstract :

The present invention discloses a system and method for an AI-based solar-powered agricultural robot designed to autonomously perform diverse farming operations such as irrigation, pesticide spraying, weeding, and soil monitoring. The system comprises a mobile robotic platform equipped with solar panels for energy harvesting, battery storage for energy management, and modular task-specific attachments. An onboard AI processing unit analyzes real-time environmental data from integrated sensors and autonomously determines appropriate actions to optimize crop health and resource usage. The robot utilizes GPS and obstacle avoidance technologies for autonomous navigation and supports remote monitoring via IoT connectivity. This invention provides a sustainable, intelligent, and flexible solution for modern precision agriculture, particularly in off-grid and labor-constrained environments. Accompanied Drawing [FIGS. 1-2]

No. of Pages : 19 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202511057922 A

(19) INDIA

(22) Date of filing of Application :17/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : DEEP NEURAL NETWORK-BASED FRAMEWORK FOR ADVANCED SENTIMENT ANALYSIS AND EMOTIONAL TONE DETECTION

|                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>(51) International classification :G06F0040300000, G06N0003080000, G06N0003045000, G06N0003044000, G06N0003084000</p> <p>(86) International Application No :NA<br/>Filing Date :NA</p> <p>(87) International Publication No :NA<br/>Patent of Addition to Application Number :NA<br/>Filing Date :NA</p> <p>(62) Divisional to Application Number :NA<br/>Filing Date :NA</p> | <p>(71)Name of Applicant :<br/>1)Hifzurrahman<br/>Address of Applicant :Assistant Professor, Integral University, Lucknow, Uttar Pradesh -----<br/>2)Abhinav Pratap Singh<br/>3)Manish Kumar Srivastava<br/>4)Nausheen Fatma<br/>5)Atifa Parveen<br/>6)Hamdi Shakeel<br/>7)Hamdi Shakeel<br/>8)Amit kumar srivastava<br/>9)Dr. Sudheer Kumar singh<br/>10)Hannan Ansari<br/>Name of Applicant : NA<br/>Address of Applicant : NA<br/>(72)Name of Inventor :<br/>1)Hifzurrahman<br/>Address of Applicant :Assistant Professor, Integral University, Lucknow, Uttar Pradesh -----<br/>2)Abhinav Pratap Singh<br/>Address of Applicant :Assistant Professor, Department of Computer Science and Information System, SRMU, Uttar Pradesh -----<br/>3)Manish Kumar Srivastava<br/>Address of Applicant :Assistant Professor , Babu Banarasi Das University Lucknow, Uttar Pradesh -----<br/>4)Nausheen Fatma<br/>Address of Applicant :Assistant Professor, Integral University, Lucknow, Uttar Pradesh -----<br/>5)Atifa Parveen<br/>Address of Applicant :Assistant Professor, Shri Ramswaroop Memorial University Barabanki, Tindola, Uttar Pradesh -----<br/>6)Hamdi Shakeel<br/>Address of Applicant :Assistant Professor, Integral University, Uttar Pradesh 226026 -----<br/>7)Hamdi Shakeel<br/>Address of Applicant :Assistant Professor, Integral University, Uttar Pradesh 226026 -----<br/>8)Amit kumar srivastava<br/>Address of Applicant :Department of Computer Science and Information System, Ramswaroop Memorial University , Barabanki, Uttar Pradesh, India -----<br/>9)Dr. Sudheer Kumar singh<br/>Address of Applicant :Associate Professor, School of Computer Science and Engineering, Galgotias University, Greater Noida, India -----<br/>10)Hannan Ansari<br/>Address of Applicant :Assistant Professor and Technology, Sitapur Road, Lucknow, Uttar Pradesh -----</p> |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

(57) Abstract :

The present invention provides a deep neural network-based framework for advanced sentiment analysis and emotional tone detection from textual and multimodal data sources. Existing sentiment analysis methods, including rule-based and lexicon-driven systems, often fail to interpret context-sensitive expressions, sarcasm, and implicit emotions, leading to inaccurate predictions. The proposed invention utilizes advanced deep learning architectures such as Recurrent Neural Networks (RNNs), Long Short-Term Memory (LSTM) networks, CNN, and transformer-based models including BERT and GPT, to capture rich contextual semantics and improve classification accuracy. The framework incorporates attention mechanisms to dynamically highlight sentiment-relevant features. Transfer learning techniques are applied to fine-tune pretrained language models for domain-specific tasks and low-resource languages. Data augmentation methods such as back-translation and synonym substitution are employed to enhance training data variability and generalizability. A distinctive feature of this invention is its multimodal integration, combining textual, visual, audio, and video data for holistic sentiment and emotion recognition. The system includes Explainable AI (XAI) modules—such as attention visualization, sentiment heatmaps, and feature attribution—to ensure interpretability and transparency in predictions. Designed for scalability and real-time performance, the invention can be deployed across cloud infrastructures, mobile applications, and streaming analytics platforms. It is particularly suitable for use in industries such as marketing, healthcare, finance, customer experience management, and public governance, where real-time emotional intelligence and sentiment analysis are essential for data-driven decision-making and user engagement enhancement.

No. of Pages : 20 No. of Claims : 8

(54) Title of the invention : AI-BASED SMART MODULAR AIR PURIFICATION POLE SYSTEM (SMAPP) FOR URBAN INFRASTRUCTURE

|                                               |                                                                                 |                                                                                                                                                                                                       |
|-----------------------------------------------|---------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (51) International classification             | :G01N0033000000, G06Q0050260000, G06N0003045000, G06N0003046400, G06Q0010063900 | (71)Name of Applicant :<br><b>1)Dr. Navdeep Sharma</b><br>Address of Applicant :Assistant Professor, School of Basic Sciences, Abhilashi University, ChailChowk, H.P. -175045, India ChailChowk ----- |
| (86) International Application No             | :NA                                                                             | <b>2)Abhilashi University</b>                                                                                                                                                                         |
| Filing Date                                   | :NA                                                                             | <b>Name of Applicant : NA</b>                                                                                                                                                                         |
| (87) International Publication No             | : NA                                                                            | <b>Address of Applicant : NA</b>                                                                                                                                                                      |
| (61) Patent of Addition to Application Number | :NA                                                                             | (72)Name of Inventor :                                                                                                                                                                                |
| Filing Date                                   | :NA                                                                             | <b>1)Dr. Navdeep Sharma</b>                                                                                                                                                                           |
| (62) Divisional to Application Number         | :NA                                                                             | Address of Applicant :Assistant Professor, School of Basic Sciences, Abhilashi University, ChailChowk, H.P. -175045, India ChailChowk -----                                                           |
| Filing Date                                   | :NA                                                                             |                                                                                                                                                                                                       |

(57) Abstract :  
ABSTRACT The AI-based Smart Modular Air Purification Pole System introduces an innovative solar-powered environmental framework for urban areas that integrates biometric pollution detection protocols with adaptive filtration mechanisms, facilitating real-time contaminant capture, dynamic operational adjustment, and robust air quality improvement while maintaining seamless urban integration and infrastructural integrity for consistent public health protection. [510] The comprehensive purification framework employs adaptive algorithmic systems and intuitive environmental assessment protocols, utilizing embedded neural processing arrays and energy-efficient filtration systems to ensure timely pollution identification, enhanced atmospheric cleansing, and optimal operational integrity while maintaining continuous air quality monitoring capabilities. [515] The integrated methodology combines sustainable energy utilization with artificial intelligence-driven purification systems, leveraging pattern-variable pollution signals and multi-factor environmental indicators to optimize treatment procedures and operational workflows for maximum public health protection and minimal energy consumption during critical pollution events. [520] The novel responsive modular architecture features engineered weather-resistant components with specialized pollution anomaly detection protocols, enabling complex multi-stage air purification while ensuring operational consistency and performance optimization across various environmental conditions without compromising system reliability. [525] The innovative design incorporates strategic filtration mechanisms for enhanced urban air protection and operational efficiency, utilizing optimized response systems and adaptive purification technology to ensure effective contaminant removal while maintaining functionality across diverse metropolitan environments and pollution scenarios. [530] Implementation methodology emphasizes scalable infrastructure integration and efficient operational sequences, implementing interactive purification measures and pollution response algorithms to achieve superior air quality control, enhanced public health protection, and urban contamination prevention while ensuring technological simplicity during environmental emergencies. [535] The system demonstrates exceptional adaptability through comprehensive integration of pollution detection protocols and intelligent purification technologies, validating its effectiveness across various urban configurations and environmental scenarios while maintaining consistent operational performance and energy efficiency under diverse conditions. [540] The developed framework enables sustainable and reliable protection of urban air quality through streamlined, AI-powered purification systems, providing significant advantages over traditional environmental approaches through variable response mechanisms, adaptive operational protocols, and improved pollution management while maintaining superior public health outcomes during critical pollution interventions.

No. of Pages : 12 No. of Claims : 8



(54) Title of the invention : AI-BASED AIR PURIFIER FOR HIGH SMOG AREAS

|                                               |                                                                                 |                                                                                                                                                                                               |
|-----------------------------------------------|---------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (51) International classification             | :G01N0033000000, G06Q0050260000, B01D0046620000, C02F0003320000, B01D0047060000 | (71)Name of Applicant :<br><b>1)Khushal Singh</b><br>Address of Applicant :BSc Bed Integrated, 2nd Year, Abhilashi University, Chailchowk, -175045, Himachal Pradesh, India, Chailchowk ----- |
| (86) International Application No             | :NA                                                                             | <b>2)Dr. Navdeep Sharma</b>                                                                                                                                                                   |
| Filing Date                                   | :NA                                                                             | <b>3)Abhilashi University</b>                                                                                                                                                                 |
| (87) International Publication No             | : NA                                                                            | <b>Name of Applicant : NA</b>                                                                                                                                                                 |
| (61) Patent of Addition to Application Number | :NA                                                                             | <b>Address of Applicant : NA</b>                                                                                                                                                              |
| Filing Date                                   | :NA                                                                             | (72)Name of Inventor :                                                                                                                                                                        |
| (62) Divisional to Application Number         | :NA                                                                             | <b>1)Khushal Singh</b>                                                                                                                                                                        |
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(57) Abstract :  
ABSTRACT The AI-based air purification system introduces an innovative artificial intelligence-driven environmental remediation framework for high-smog urban areas that integrates real-time pollution detection protocols with adaptive filtration mechanisms, facilitating continuous air quality monitoring, dynamic purification adjustment, and robust particulate matter removal while maintaining sustainable energy consumption and operational efficiency for consistent environmental protection. [510] The comprehensive purification framework employs adaptive sensor algorithms and intelligent control protocols, utilizing embedded neural processing arrays and solar-powered energy systems to ensure timely pollution identification, enhanced filtration performance, and optimal air quality improvement while maintaining continuous environmental monitoring capabilities. [515] The integrated methodology combines renewable energy generation with artificial intelligence-driven purification systems, leveraging pattern-variable sensor signals and multi-stage filtration indicators to optimize purification procedures and energy workflows for maximum environmental benefit and minimal power consumption during critical pollution episodes. [520] The novel responsive purification architecture features engineered weather-resistant components with specialized air quality anomaly detection protocols, enabling complex multi-stage filtration verification while ensuring purification consistency and performance optimization across various environmental conditions without compromising system reliability. [525] The innovative design incorporates strategic sensor mechanisms for enhanced pollution detection and operational efficiency, utilizing optimized challenge-response systems and adaptive purification technology to ensure legitimate environmental benefit while maintaining functionality across diverse urban environments and traffic scenarios. [530] Implementation methodology emphasizes scalable infrastructure integration and efficient purification sequences, implementing interactive monitoring measures and pollution response algorithms to achieve superior air quality control, enhanced environmental protection, and unauthorized emission mitigation while ensuring technological simplicity during peak pollution periods. [535] The system demonstrates exceptional adaptability through comprehensive integration of pollution detection protocols and intelligent purification technologies, validating its effectiveness across various urban configurations and traffic scenarios while maintaining consistent environmental performance and operational efficiency under diverse atmospheric conditions. [540] The developed framework enables sustainable and reliable purification of urban air environments through streamlined, AI-powered filtration systems, providing significant advantages over traditional air cleaning approaches through variable sensor mechanisms, adaptive purification protocols, and improved environmental management while maintaining superior air quality improvement during critical smog episodes.

No. of Pages : 14 No. of Claims : 7

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :18/06/2025

(21) Application No.202511058321 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : SELF-PURIFYING HOLY WATER DISPENSER WITH INTEGRATED FILTRATION AND SANCTIFICATION SYSTEM

|                                                                                                                   |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|-------------------------------------------------------------------------------------------------------------------|------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (51) International classification :C02F0009000000, C02F0001000000, C02F0001280000, C02F0001440000, B01D0039160000 |      | (71)Name of Applicant :<br><b>1)Chandigarh University</b><br>Address of Applicant :Chandigarh University, National Highway 05, Chandigarh-Ludhiana Highway, Mohali, Punjab -140413, India. Mohali -----                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
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| Filing Date                                                                                                       | :NA  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| (87) International Publication No                                                                                 | : NA |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| (61) Patent of Addition to Application Number                                                                     | :NA  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Filing Date                                                                                                       | :NA  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| (62) Divisional to Application Number                                                                             | :NA  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Filing Date                                                                                                       | :NA  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |

(57) Abstract :

A self-purifying holy water dispenser comprising a food-grade water storage tank with a level sensor, a multi-stage filtration system (sediment filter, activated carbon filter, and UV sterilization chamber), a blessing chamber, a hands-free dispensing mechanism, a user interface, an energy-efficient design, and IoT capabilities. The level sensor monitors the water level, alerting users when refilling is necessary. The filtration system removes contaminants, while the UV chamber inactivates microorganisms. The blessing chamber sanctifies the purified water according to religious traditions. The dispensing mechanism ensures hygienic and controlled dispensing, and the user interface allows selection of the desired amount and displays the dispenser status. The energy-efficient design reduces consumption and prolongs component life. IoT capabilities enable remote monitoring of performance, filter status, and water quality. The embodiments are interconnected via pipes and valves, ensuring seamless operation and instant access to clean, sanctified holy water.

No. of Pages : 10 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :18/06/2025

(21) Application No.202511058322 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : SAFEGUARD PRO: AI-ENHANCED SMARTWATCH WITH REAL-TIME GPS, BIOLOGICAL MONITORING, AND EMERGENCY GUIDANCE

(51) International classification :G08B0025010000, H04W0004900000, H04W0004020000, A61B0005020500, A61B0005000000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

The present invention relates to a wrist-worn wearable device for personal safety, comprising an integrated system of biometric sensors, GPS tracking, audio-visual modules, and an artificial intelligence (AI)-based analytics engine. The device continuously monitors physiological parameters to detect abnormal or distress conditions. Upon identifying such anomalies via pre-set voice commands, the device autonomously triggers emergency alerts. These alerts include real-time transmission of the user's location, live audio and video feeds to pre-registered emergency contacts and authorities. The device further incorporates an AI-driven threat prediction module that analyzes environmental data and user behaviour to anticipate and prevent potential risks. It also includes a self-defense shock mechanism and a navigation system that guides the user to the nearest safe location or police station. The invention provides a comprehensive and proactive personal safety solution, enhancing emergency response efficiency and user protection in critical situations.

No. of Pages : 13 No. of Claims : 10

(54) Title of the invention : WIDEBAND ANNULAR RING MICROSTRIP ANTENNA FOR SATELLITE APPLICATIONS

|                                                                                                                                                                                                                                                                                                                                                                                                               |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
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| <div>(51) International classification :H01Q0001380000, H01Q0009040000, H01Q0001500000, H01Q0021000000, H01Q0001520000</div> <div>(86) International Application No :NA<br/>Filing Date :NA</div> <div>(87) International Publication No : NA</div> <div>(61) Patent of Addition to Application Number :NA<br/>Filing Date :NA</div> <div>(62) Divisional to Application Number :NA<br/>Filing Date :NA</div> |  | <div>(71)Name of Applicant :<br/><b>1)Chandigarh University</b><br/>Address of Applicant :Chandigarh University, National Highway 05, Chandigarh-Ludhiana Highway, Mohali, Punjab -140413, India. Mohali -----</div> <div>Name of Applicant : NA<br/>Address of Applicant : NA</div> <div>(72)Name of Inventor :<br/><b>1)Dr. Vivek Arya</b><br/>Address of Applicant :University Institute of Engineering, Chandigarh University, National Highway 05, Chandigarh-Ludhiana Highway, Mohali, Punjab -140413, India Mohali -----</div> <div><b>2)Mr. Sayam Gupta</b><br/>Address of Applicant :University Institute of Engineering, Chandigarh University, National Highway 05, Chandigarh-Ludhiana Highway, Mohali, Punjab -140413, India Mohali -----</div> <div><b>3)Dr. Meet Kumari</b><br/>Address of Applicant :University Institute of Engineering, Chandigarh University, National Highway 05, Chandigarh-Ludhiana Highway, Mohali, Punjab -140413, India Mohali -----</div> <div><b>4)Dr. Rajiv Kumar Chechi</b><br/>Address of Applicant :University Institute of Engineering, Chandigarh University, National Highway 05, Chandigarh-Ludhiana Highway, Mohali, Punjab -140413, India Mohali -----</div> |
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(57) Abstract :  
The present invention presents a new annular ring microstrip antenna (ARMSA) designed for high-performance Ku band applications. The design features rectangular slot elements and a centrally slotted circular patch, placed strategically to enhance impedance characteristics, radiation efficiency, and bandwidth. The antenna, when implemented on an FR4 substrate, provides a compact and low-cost solution, which makes it suitable for advanced satellite and radar communication systems. By electromagnetic simulation via Ansys HFSS, the antenna has a measured bandwidth of 3.9 GHz and a maximum gain of 8.55 dB, as well as a return loss of -16.79 dB, reflecting very good impedance matching and low reflection loss. The suggested geometry improves surface current control and directional radiation and is superior to conventional circular slot-based annular ring structures. The antenna offers a useful and scalable approach for future wireless systems demanding strong, high-speed data transmission across the Ku band frequency range.

No. of Pages : 15 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :16/06/2025

(21) Application No.202511057437 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : COMPACT MAIZE DE-HUSKER CUM SHELLER WITH ADJUSTABLE CONCAVE AND INTEGRATED BLOWER FOR SMALL FARMERS

(51) International classification :A01F0011060000, A01F0012200000, B02B0003040000, A61B0017160000, A23N0005010000  
(86) International Application No :NA  
Filing Date :NA  
(87) International Publication No : NA  
(61) Patent of Addition to Application Number :NA  
Filing Date :NA  
(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

The present invention relates to a compact, energy-efficient maize de-husker cum sheller machine designed for small and marginal farmers. The machine comprises a rectangular feeding hopper for introducing whole maize cobs, a threshing unit with a rasp bar cylinder fitted with circular bars for simultaneous dehusking and shelling, and a spring-mounted adjustable concave for handling varying cob sizes. The rasp cylinder is driven by a 2 HP single-phase electric motor through a belt and pulley system. An integrated axial blower fan, powered by the same motor, facilitates separation of husk and dust from clean maize grains. The device includes an inclined grain outlet aligned with the angle of repose of maize, and a separate residue outlet for husks and cob cores. The machine achieves shelling efficiency above 98%, cleaning efficiency around 97%, and minimal grain breakage (<1%), offering a throughput of approximately 400 kg/h. The portable design with wheels allows easy transport for on-site threshing. This invention reduces post-harvest labor and improves processing speed, quality, and affordability for small-scale agricultural operations.

No. of Pages : 18 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202511057448 A

(19) INDIA

(22) Date of filing of Application :16/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : NANO ZIRCONIA BASED SUPERHYDROPHOBIC COATING FOR SILVER METAL PROTECTION

(51) International classification :A44C0027000000, C01G0025020000, A44C0015000000, A44C0017000000, A01N0025040000  
(86) International Application No :NA  
Filing Date :NA  
(87) International Publication No : NA  
(61) Patent of Addition to Application Number :NA  
Filing Date :NA  
(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

Silver has been utilized since ancient ago because of its brilliant, shiny appearance, silver has been used as a precious material for adorning jewelry and ornaments for a very long time. Beyond its ornamental and monetary value, silver possesses a myriad of practical applications across various industries, owing to its unique properties and versatility. One notable aspect of silver is its tendency to tarnish. This tarnish can diminish the metal brightness and aesthetic appeal. The issue of silver objects rusting, even under museum ambient conditions, has been well documented. The present investigation report focuses on the fabrication of hydrophobically modified nano zirconia particles using the sol-gel method to prevent tarnishing of silver metal. Synthesized nano zirconia sol was characterized by infrared spectroscopy. Zirconia particle size was determined to be 55 nm and zeta potential of -36.25 mv which indicating the overa

No. of Pages : 15 No. of Claims : 1

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202511059212 A

(19) INDIA

(22) Date of filing of Application :20/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : SUSTAINABLE GRAPHENE OXIDE INTERCALATED BENTONITE COMPOSITE FOR THE EFFECTIVE REMOVAL OF IMIDACLOPRID FROM WATER: ADSORPTION PERFORMANCE, ISOTHERM AND KINETICS

(51) International classification :C02F0001280000, C02F0101300000, B01J0020280000, C02F0001440000, B01J0020300000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

Water is a fundamental necessity for our existence but its rapid contamination is causing devastating effects on environment and health of living species worldwide. Sequestration of the persistent pollutants from the water is essential for achieving the sustainable development goal (SDG 6) adopted by UN for 2030. Adsorptive removal of pollutants is one of the popular water treatment techniques because of its simplicity, affordability, and the broad range of available adsorbents. Among the diverse range of adsorbents utilized for water applications, graphene-based materials are gaining substantial attention in the water treatment applications owing to their unique physicochemical properties. Clay minerals are also quite popular adsorbents due to their low cost, abundant availability and environment compatibility. In this respect, GO intercalate

No. of Pages : 24 No. of Claims : 1

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202511058096 A

(19) INDIA

(22) Date of filing of Application :17/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : A METHOD OF EXTRACTION AND PHYSIOCHEMICAL CHARACTERIZATION OF MICRO-FIBRILLATED CELLULOSE BASED COMPOSITE BIOFILM DERIVED FROM AEGLE MARMELOS FRUIT SHELLS WASTE FOR PACKAGING APPLICATIONS SUPPORTED BY IN-SILICO DOCKING STUDIES

|                                                                                                                                                                                                                                                                                                                                                                                           |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>(51) International classification :D21H0011180000, C08L0001020000, C09D0101020000, G01N0021350000, A61K0036750000</p> <p>(86) International Application No :NA<br/>Filing Date :NA</p> <p>(87) International Publication No : NA</p> <p>(61) Patent of Addition to Application Number :NA<br/>Filing Date :NA</p> <p>(62) Divisional to Application Number :NA<br/>Filing Date :NA</p> |  | <p>(71)Name of Applicant :<br/><b>1)VIDYULLATHA PEDDIREDDY</b><br/>Address of Applicant :DEPARTMENT OF NUTRITION BIOLOGY, SCHOOL OF INTERDISCIPLINARY &amp; APPLIED SCIENCES, CENTRAL UNIVERSITY OF HARYANA, JANT-PALI, MAHENDERGARH, HARYANA 12031, INDIA -----<br/><b>2)PRINCE KUMAR SONU</b><br/><b>3)UMESH KUMAR</b><br/>Name of Applicant : NA<br/>Address of Applicant : NA<br/>(72)Name of Inventor :<br/><b>1)VIDYULLATHA PEDDIREDDY</b><br/>Address of Applicant :DEPARTMENT OF NUTRITION BIOLOGY, SCHOOL OF INTERDISCIPLINARY &amp; APPLIED SCIENCES, CENTRAL UNIVERSITY OF HARYANA, JANT-PALI, MAHENDERGARH, HARYANA 12031, INDIA - -----<br/><b>2)PRINCE KUMAR SONU</b><br/>Address of Applicant :DEPARTMENT OF NUTRITION BIOLOGY, SCHOOL OF INTERDISCIPLINARY &amp; APPLIED SCIENCES, CENTRAL UNIVERSITY OF HARYANA, JANT-PALI, MAHENDERGARH, HARYANA 12031, INDIA - -----<br/><b>3)UMESH KUMAR</b><br/>Address of Applicant :DEPARTMENT OF NUTRITION BIOLOGY, SCHOOL OF INTERDISCIPLINARY &amp; APPLIED SCIENCES, CENTRAL UNIVERSITY OF HARYANA, JANT-PALI, MAHENDERGARH, HARYANA 12031, INDIA - -----</p> |
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(57) Abstract :

This invention explores the conversion of waste bael (Aegle marmelos) shells into Microfibrillated Cellulose (MFC) for sustainable food packaging. Present invention characterized both raw and extracted bael shell material using FTIR, revealing increased crystallinity (from 18.89% to 39.59%) after MFC extraction. Our investigations into MFC-based films, particularly composites with guar gum and chitosan, showed strong interactions (covalent and hydrogen bonding) confirmed by FTIR. While X-ray diffraction indicated an amorphous structure in the final films, FE-SEM analysis revealed a dense, disordered network that improved their water contact angle as MFC concentration increased. Furthermore, we observed strong binding affinity between cellulose I $\beta$  and chitosan (-7.3 kcal/mol), suggesting enhanced compatibility. Notably, incorporating MFC significantly boosted the films' antioxidant capacity, increasing it from 10.90% to 61.80% with higher MFC concentrations demonstrating superior scavenging activity. This research highlights the potential of bael shell waste as a valuable resource for developing functional and environmentally friendly food packaging materials.

No. of Pages : 29 No. of Claims : 6



(12) PATENT APPLICATION PUBLICATION

(21) Application No.202511058115 A

(19) INDIA

(22) Date of filing of Application :17/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : SYSTEMS AND METHODS FOR AUTOMATED IRRIGATION MANAGEMENT

|                                                                                                                                                                                                                                                                                                                                                                                           |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
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| <p>(51) International classification :A01G0025160000, H04W0056000000, G01N0033000000, G06F0016220000, G06F0016410000</p> <p>(86) International Application No :NA<br/>Filing Date :NA</p> <p>(87) International Publication No : NA</p> <p>(61) Patent of Addition to Application Number :NA<br/>Filing Date :NA</p> <p>(62) Divisional to Application Number :NA<br/>Filing Date :NA</p> |  | <p>(71)<b>Name of Applicant :</b><br/><b>1)Sharda University</b><br/>Address of Applicant :Plot No. 32-34, Knowledge Park-III, Greater Noida - 201310, Uttar Pradesh, India Greater Noida -----<br/><b>Name of Applicant : NA</b><br/><b>Address of Applicant : NA</b></p> <p>(72)<b>Name of Inventor :</b><br/><b>1)VERMA, Jai</b><br/>Address of Applicant :Sharda University, Greater Noida 201310, Uttar Pradesh, India Greater Noida -----<br/><b>2)SHARMA, Ashish Kumar</b><br/>Address of Applicant :Sharda University, Greater Noida 201310, Uttar Pradesh, India Greater Noida -----<br/><b>3)VISHWAKARMA, Vivek</b><br/>Address of Applicant :Sharda University, Greater Noida 201310, Uttar Pradesh, India Greater Noida -----<br/><b>4)Dr. DHAR, Suman Lata</b><br/>Address of Applicant :Sharda University, Greater Noida 201310, Uttar Pradesh, India Greater Noida -----<br/><b>5)Dr. SAHNI, Mohit</b><br/>Address of Applicant :Sharda University, Greater Noida 201310, Uttar Pradesh, India Greater Noida -----</p> |
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(57) Abstract :

A method (300) for automated irrigation management is disclosed. The method (300) includes receiving (302), a plurality of environmental parameters. Further, comparing (304), a current value of the moisture with a predefined threshold value indicative of moisture present in a soil of each of a plurality of portions. Further, identifying (306), at least one portion from among the plurality of portions, in response to determining that the current value of the moisture of the at least one portion is less than the predefined threshold value. Further, determining (308), simultaneously, whether a weather-related parameter indicates no rainfall for a predefined period in the surrounding of the agricultural area. Further, initiating (310), irrigation of the identified at least one portion in response to the determining weather-related parameter indicates no rainfall for the predefined period.

No. of Pages : 27 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202511058127 A

(19) INDIA

(22) Date of filing of Application :17/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : REVOLUTIONIZING PRINT QUALITY: A MOBILE-BASED COLOR INK VALIDATION SYSTEM

(51) International classification :H04N0001600000, B41F0033000000, G01N0021270000, G01J0003020000, H02J0001100000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

The invention provides a hybrid solution combining both hardware and software components. It operates as a smartphone-based system designed to monitor, analyze, and validate ink color accuracy during commercial and industrial printing operations. By leveraging the ubiquity of smartphones and integrating them with advanced image processing algorithms, the system offers a cost-effective and portable alternative to conventional spectrophotometers.

No. of Pages : 9 No. of Claims : 1

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202511058129 A

(19) INDIA

(22) Date of filing of Application :17/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : TRANSFORMABLE WEATHER PROTECTION GARMENT AND METHOD THEREOF

(51) International classification :A45C0003000000, A41D0027100000, A45F0003020000, A41D0015040000, A41D0019010000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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Name of Applicant : NA

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(57) Abstract :

Disclosed herein is a transformable weather protection garment and method thereof (100) that comprises a body portion (102) configured to cover a torso region of a user and for supporting transformation features for dual-purpose usage in both garment and bag configurations, a plurality of accessible storage pockets (104) connected to the body portion (102), a plurality of sleeve portions (106) attached to opposite sides of the body portion (102) configured to encase the arms of a user during wear, a concealed zipper (108) integrated inside each of the plurality of sleeve portions (106) configured to enable each sleeve portion (106) to retract into the body portion (102), a transformation enclosure (110) positioned along a rear surface of the body portion (102), a pair of flap-covered compartments (112) integrated over the transformation enclosure (110), a pair of adjustable strap elements (114) operably connected to the transformation enclosure (110).

No. of Pages : 33 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202511055944 A

(19) INDIA

(22) Date of filing of Application :10/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : IOT AND MACHINE LEARNING-ENABLED SYSTEM AND METHOD FOR SMART WASTE MONITORING AND OPTIMIZATION IN SMART CITIES

|  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
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(57) Abstract :

IoT and Machine Learning-Enabled System and Method for Smart Waste Monitoring and Optimization in Smart Cities is the proposed invention. The proposed invention focuses on understanding the functions of Optimization in Smart Cities. The invention focuses on analyzing the parameters of Smart Waste Monitoring using algorithms of IoT Approach.

No. of Pages : 12 No. of Claims : 3

(54) Title of the invention : A COMPREHENSIVE DIGITAL HEALTH E-CARD SYSTEM FOR OPTIMIZED EMERGENCY RESPONSE AND MEDICAL RECORD MANAGEMENT

|                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
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| <p>(51) International classification :G16H0010600000, G16H0015000000, G16H0040200000, G16H0040670000, G16H0050200000</p> <p>(86) International Application No :NA<br/>Filing Date :NA</p> <p>(87) International Publication No :NA<br/>(61) Patent of Addition to Application Number :NA<br/>Filing Date :NA<br/>(62) Divisional to Application Number :NA<br/>Filing Date :NA</p> | <p>(71)Name of Applicant :<br/> <b>1)Pancham Singh</b><br/> Address of Applicant :Ajay Kumar Garg Engineering College, Ghaziabad, 27th Km Milestone, Delhi-Meerut Expressway, P.O. Adhyatmik Nagar, Ghaziabad - 201009 -----<br/> <b>2)Dr. Sakshi Pandey</b><br/> <b>3)Dr. Amita Asthana</b><br/> <b>4)Dr. Sachin Kumar</b><br/> <b>5)Ms. Monika Srivastava</b><br/> <b>6)Ms. Shraddha Mishra</b><br/> <b>7)Mr. Kartik Garg</b><br/> <b>8)Dr. Shilpi Singh</b><br/> <b>9)Ms. Chelsi Sen</b><br/> <b>10)Ms. Pooja Mishra</b><br/> Name of Applicant : NA<br/> Address of Applicant : NA<br/> (72)Name of Inventor :<br/> <b>1)Pancham Singh</b><br/> Address of Applicant :Ajay Kumar Garg Engineering College, Ghaziabad, 27th Km Milestone, Delhi-Meerut Expressway, P.O. Adhyatmik Nagar, Ghaziabad - 201009 -----<br/> <b>2)Dr. Sakshi Pandey</b><br/> Address of Applicant :Department of Artificial Intelligence and Machine Learning, Maharaja Agrasen institute of technology, New Delhi-110086, Delhi Delhi -----<br/> <b>3)Dr. Amita Asthana</b><br/> Address of Applicant :Department of Electronics and Communications Engineering, Ajay Kumar Garg Engineering College, 27Km. Stone Delhi Hapur road Adhyatmic Nagar, Ghaziabad-201015, India Ghaziabad -----<br/> <b>4)Dr. Sachin Kumar</b><br/> Address of Applicant :Department of Computer Science and Engineering, Galgotias College of Engineering and Technology, Gr. Noida-201310, India Gr. Noida -----<br/> <b>5)Ms. Monika Srivastava</b><br/> Address of Applicant :Department of Information technology, Netaji Subhas University of Technology, New Delhi-110078, India Dwarka -----<br/> <b>6)Ms. Shraddha Mishra</b><br/> Address of Applicant :Department of Information technology, Ajay Kumar Garg Engineering College, 27Km. Stone Delhi Hapur road Adhyatmic Nagar, Ghaziabad-201015, India Ghaziabad -----<br/> <b>7)Mr. Kartik Garg</b><br/> Address of Applicant :Department of Information technology, Ajay Kumar Garg Engineering College, 27Km. Stone Delhi Hapur road Adhyatmic Nagar, Ghaziabad-201015, India Ghaziabad -----<br/> <b>8)Dr. Shilpi Singh</b><br/> Address of Applicant :Department of Management, Integrated Academy of Management and Technology, Ghaziabad-201009 Ghaziabad -----<br/> <b>9)Ms. Chelsi Sen</b><br/> Address of Applicant :Department of Information technology, Ajay Kumar Garg Engineering College, 27Km. Stone Delhi Hapur road Adhyatmic Nagar, Ghaziabad-201015, India Ghaziabad -----<br/> <b>10)Ms. Pooja Mishra</b><br/> Address of Applicant :Department of Electronics and Communications Engineering, Ajay Kumar Garg Engineering College, 27Km. Stone Delhi Hapur road Adhyatmic Nagar, Ghaziabad-201015, India Ghaziabad -----</p> |
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## (57) Abstract :

The Medical Health e-card is a comprehensive digital healthcare solution designed to enhance emergency medical response and streamline patient care. At its core, the system integrates a real-time ambulance service equipped with GPS location tracking, enabling swift dispatch and arrival during critical situations. Crucially, this is coupled with immediate access to a patient's pre-existing medical history, providing emergency room staff with important information for informed decision-making from the moment of contact. Beyond emergencies, the e-card facilitates the identification of the most appropriate hospital for a patient's specific needs, considering factors such as available services, specialized departments relevant to their condition, and even insurance coverage where applicable. A significant feature of the Medical Health e-card is its secure repository for storing and managing patient prescriptions and comprehensive medical reports. This digital record benefits both healthcare providers by offering a holistic view of the patient's health journey and family members by providing a centralized and accessible source of crucial medical information. To further enhance usability and security, the system incorporates patient details management, a secure QR code-based login mechanism for quick and reliable access, the ability to view and manage digital doctor prescriptions, and a detailed directory of specialized doctors practicing within the user's vicinity. By integrating these diverse services, the Medical Health e-card aims to significantly improve medical safety, optimize the selection of healthcare services, and provide a robust platform for managing individual health information effectively.

No. of Pages : 14 No. of Claims : 5

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :19/06/2025

(21) Application No.202511058725 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : SKILL TRACKER AND MICRO-CERTIFICATION PORTAL

(51) International classification :G06Q0050200000, G09B0007000000, G09B0005000000, G09B0005020000, H04L0009400000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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**3)Mr. Ashwini Kumar Verma**  
**4)Mr. Arjun Singh**  
**5)Dr. Arun Kumar Singh**  
**6)Dr. Sanjay Pratap Singh Chauhan**  
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**6)Dr. Sanjay Pratap Singh Chauhan**  
Address of Applicant :Professor, Department of Computer Science and Engineering, Greater Noida Institute of Technology, Greater Noida, Uttar Pradesh-201310 -----

(57) Abstract :

The present invention relates to an the Skill Tracker and Micro-Certification Portal is a secure, web-based platform designed to assist educational institutions in monitoring student skill development and awarding performance-based certifications. It enables students to select specific skill domains and complete multi-format assessments, including MCQs, written tasks, voice inputs, and video submissions. The system integrates TSAT scores and communication skill evaluations into a weighted performance matrix. Administrators can manage modules, track individual and group performance, and issue certificates when predefined criteria are met. Students receive downloadable certificates and digital badges, which are showcased on a personalized public profile. The platform bridges the gap between academic learning and industry requirements by providing transparent, credible, and cost-effective internal certification.

No. of Pages : 10 No. of Claims : 8

(54) Title of the invention : RECTANGULAR SCRAMJET INLET WITH INTEGRATED RIBLETS AND MICRO-RAMP FLOW CONTROL FEATURES

|                                               |                                                                                 |                                                                                                                                                                                                           |
|-----------------------------------------------|---------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (51) International classification             | :F15D0001000000, B64D0033020000, B64C0021100000, H01L0021670000, B64C0030000000 | (71)Name of Applicant :<br><b>1)Chandigarh University</b><br>Address of Applicant :Chandigarh University, National Highway 05, Chandigarh-Ludhiana Highway, Mohali, Punjab -140413, India Mohali ----- -- |
| (86) International Application No             | :NA                                                                             | -----                                                                                                                                                                                                     |
| Filing Date                                   | :NA                                                                             | <b>Name of Applicant : NA</b>                                                                                                                                                                             |
| (87) International Publication No             | : NA                                                                            | <b>Address of Applicant : NA</b>                                                                                                                                                                          |
| (61) Patent of Addition to Application Number | :NA                                                                             | (72)Name of Inventor :                                                                                                                                                                                    |
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(57) Abstract :  
The present invention pertains to a scramjet inlet apparatus featuring a rectangular, converging-diverging duct with a constant-width cross-section. The system includes an angled inlet ramp for compressing hypersonic airflow, a central constant-area combustor section for maintaining uniform flow and combustion, and a diverging nozzle for flow expansion and thrust generation. Integrated onto the internal surfaces of the inlet ramp are passive flow control elements (riblets and micro-ramps) that function to reduce skin friction drag and suppress shock-induced boundary layer separation. This configuration enables enhanced pressure recovery, improved flow stability, and superior performance across a wide range of Mach numbers. Compared to existing designs, the apparatus offers improved manufacturability and aerodynamic efficiency. Its rectangular cross-section and structured integration of riblets and micro-ramps make it particularly suitable for high-speed propulsion applications in advanced aerospace systems.

No. of Pages : 18 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202511058005 A

(19) INDIA

(22) Date of filing of Application :17/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : NUTRITIONALLY ENRICHED MULTIGRAIN LITTI PREMIX

|                                               |                                                                                 |                                                                                                                                                                                                               |
|-----------------------------------------------|---------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (51) International classification             | :A23L0019000000, A23K0020174000, A23L0033150000, A23K0010300000, A21D0010000000 | (71)Name of Applicant :<br><b>1)Chandigarh University</b><br>Address of Applicant :Chandigarh University National Highway 05, Chandigarh-Ludhiana Highway, Mohali, Punjab -140413, India. Mohali -----        |
| (86) International Application No             | :NA                                                                             | <b>Name of Applicant : NA</b>                                                                                                                                                                                 |
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| (87) International Publication No             | : NA                                                                            | (72)Name of Inventor :                                                                                                                                                                                        |
| (61) Patent of Addition to Application Number | :NA                                                                             | <b>1)Dr. Laxmi Pandey</b><br>Address of Applicant :Department of Nutrition and Dietetics, Chandigarh University, National Highway 05, Chandigarh-Ludhiana Highway, Mohali, Punjab -140413, India Mohali ----- |
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| (62) Divisional to Application Number         | :NA                                                                             | <b>3)Khushboo Yadav</b><br>Address of Applicant :Department of Nutrition and Dietetics, Chandigarh University, National Highway 05, Chandigarh-Ludhiana Highway, Mohali, Punjab -140413, India Mohali -----   |
| Filing Date                                   | :NA                                                                             |                                                                                                                                                                                                               |

(57) Abstract :

The present invention provides a nutritionally-enriched multigrain Litti premix formulated using a curated blend of cereal and legume-based flours along with dehydrated vegetable powder to offer a health-oriented adaptation of a traditional Indian food. The premix comprises Ragi flour, Maize flour, Besan (chickpea flour), Wheat flour, Sattu (roasted gram flour), and dried Carrot powder in specific proportions to deliver a balanced profile of proteins, fiber, complex carbohydrates, vitamins, and minerals. The premix is shelf-stable due to controlled dehydration and blending techniques and is capable of conveniently reconstitution with water and oil to prepare dough for Litti. The invention also discloses a method for preparing the premix and for making stuffed Litti, ensuring ease of preparation, nutritional enhancement, and scalability for commercial packaging and distribution.

No. of Pages : 10 No. of Claims : 9



(54) Title of the invention : AI-DRIVEN PERSONALIZED WELLNESS PLATFORM INTEGRATING NUTRITION ANALYSIS, MOOD TRACKING, AND MOTIVATIONAL TOOLS

|                                                                                                                                                                                                                                                                                                                                                                                                               |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
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| <div>(51) International classification :G16H0020600000, A61B0005000000, G16H0050200000, G16H0020700000, G16H0010600000</div> <div>(86) International Application No :NA<br/>Filing Date :NA</div> <div>(87) International Publication No : NA</div> <div>(61) Patent of Addition to Application Number :NA<br/>Filing Date :NA</div> <div>(62) Divisional to Application Number :NA<br/>Filing Date :NA</div> |  | <div>(71)Name of Applicant :<br/><b>1)Chandigarh University</b><br/>Address of Applicant :Chandigarh University, National Highway 05, Chandigarh-Ludhiana Highway, Mohali, Punjab -140413, India. Mohali ----- -<br/>-----<br/><b>Name of Applicant : NA</b><br/><b>Address of Applicant : NA</b></div> <div>(72)Name of Inventor :<br/><b>1)Priyanshu Panwar</b><br/>Address of Applicant :Department of Computer Science Engineering &amp; IT, Chandigarh University, National Highway 05, Chandigarh-Ludhiana Highway, Mohali, Punjab -140413, India Mohali -----<br/><b>2)Priyanshu Vatsyan</b><br/>Address of Applicant :Department of Computer Science Engineering &amp; IT, Chandigarh University, National Highway 05, Chandigarh-Ludhiana Highway, Mohali, Punjab -140413, India Mohali -----<br/><b>3)Vaibhavi Mishra</b><br/>Address of Applicant :Department of Computer Science Engineering &amp; IT, Chandigarh University, National Highway 05, Chandigarh-Ludhiana Highway, Mohali, Punjab -140413, India Mohali -----<br/><b>4)Dr. Bhupinder Kaur</b><br/>Address of Applicant :Department of Computer Science Engineering &amp; IT, Chandigarh University, National Highway 05, Chandigarh-Ludhiana Highway, Mohali, Punjab -140413, India Mohali -----<br/><b>5)Dr. Poonam Kukana</b><br/>Address of Applicant :Department of Computer Science Engineering &amp; IT, Chandigarh University, National Highway 05, Chandigarh-Ludhiana Highway, Mohali, Punjab -140413, India Mohali -----<br/><b>6)Dr. Parveen Bajaj</b><br/>Address of Applicant :Department of Computer Science Engineering &amp; IT, Chandigarh University, National Highway 05, Chandigarh-Ludhiana Highway, Mohali, Punjab -140413, India Mohali -----</div> |
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(57) Abstract :  
The present invention relates to an AI-powered, integrated wellness management system, designed to provide personalized, emotionally intelligent health support through a mobile platform. The system consolidates multiple wellness domains including nutrition tracking, emotional health monitoring, micro habit formation, social motivation, and reflective journaling into a unified digital ecosystem. Core modules include an interactive wellness timeline that visualizes progress through milestones; a Snap & Learn nutrition analyzer that uses computer vision to evaluate food intake; an engine that delivers daily behavioral prompts; a Health Buddy Connect module for AI-based peer matching; and a Talk to Future You feature that stores motivational time capsule messages. The platform is supported by a secure, encrypted backend and an adaptive AI engine for real-time personalization. Optional wearable integration allows biometric syncing. The present invention addresses fragmentation in existing wellness tools by delivering a holistic, adaptive, and emotionally engaging solution for sustainable personal health improvement and user empowerment.

No. of Pages : 11 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :18/06/2025

(21) Application No.202511058331 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : INNOVATIVE METHOD FOR FORMULATING NATURAL UNDER-EYE HYDROGEL PATCHES USING ALGAL EXTRACTS AND CORDYCEPIN

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| <p>(51) International classification :A61Q0019000000, A61Q0019080000, A61K0008020000, A61K0008978900, A61K0008730000</p> <p>(86) International Application No :NA<br/>Filing Date :NA</p> <p>(87) International Publication No : NA</p> <p>(61) Patent of Addition to Application Number :NA<br/>Filing Date :NA</p> <p>(62) Divisional to Application Number :NA<br/>Filing Date :NA</p> |  | <p>(71)Name of Applicant :<br/><b>1)Chandigarh University</b><br/>Address of Applicant :Chandigarh University, National Highway 05, Chandigarh-Ludhiana Highway, Mohali, Punjab -140413, India. Mohali -----</p> <p><b>Name of Applicant : NA</b><br/><b>Address of Applicant : NA</b></p> <p>(72)Name of Inventor :<br/><b>1)Dr Neha Chandra</b><br/>Address of Applicant :Department of Biotechnology Engineering and Food Technology , Chandigarh University, National Highway 05, Chandigarh-Ludhiana Highway, Mohali, Punjab -140413, India Mohali -----</p> <p><b>2)Dr. Naveen Dwivedi</b><br/>Address of Applicant :Department of Biotechnology Engineering and Food Technology , Chandigarh University, National Highway 05, Chandigarh-Ludhiana Highway, Mohali, Punjab -140413, India Mohali -----</p> <p><b>3)Dr Harmanpreet Meehnian</b><br/>Address of Applicant :Department of Biotechnology Engineering and Food Technology , Chandigarh University, National Highway 05, Chandigarh-Ludhiana Highway, Mohali, Punjab -140413, India Mohali -----</p> |
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(57) Abstract :

The present invention provides a natural, biodegradable under-eye hydrogel patch formulated using chia seed mucilage, algal exopolysaccharides (EPS), cordycepin, and mycosporine-like amino acids (MAAs), along with plant-based additives such as aloe vera and rosewater. The hydrogel matrix formed by chia seed mucilage and algal EPS ensures sustained hydration, film formation, and controlled delivery of embedded bioactives. Cordycepin, derived from Cordyceps militaris, exhibits anti-aging, antioxidant, and anti-inflammatory properties, while MAAs extracted from marine algae offer natural UV protection and antioxidant defense. The formulation is further enhanced with gum arabic for structural stability and skin adhesion. Designed for topical application, the patch provides targeted treatment for under-eye concerns including dryness, pigmentation, puffiness, and fine lines. The invention offers a sustainable and effective alternative to synthetic cosmetic patches, being suitable for sensitive skin and contributing to environmentally responsible skincare solutions.

No. of Pages : 10 No. of Claims : 10

(54) Title of the invention : AI-BASED ADAPTIVE SPIRITUAL ASSISTANT SYSTEM

|                                                                                                                                                                                                                                                                                                                                                                                                               |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
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| <div>(51) International classification :A61B0005160000, A61B0005000000, A61B0005024000, G16H0020700000, G06F0003010000</div> <div>(86) International Application No :NA<br/>Filing Date :NA</div> <div>(87) International Publication No : NA</div> <div>(61) Patent of Addition to Application Number :NA<br/>Filing Date :NA</div> <div>(62) Divisional to Application Number :NA<br/>Filing Date :NA</div> |  | <div>(71)Name of Applicant :<br/><b>1)Chandigarh University</b><br/>Address of Applicant :Chandigarh University, National Highway 05, Chandigarh-Ludhiana Highway, Mohali, Punjab -140413, India. Mohali -----</div> <div>Name of Applicant : NA<br/>Address of Applicant : NA</div> <div>(72)Name of Inventor :<br/><b>1)Dr. Raghav Mehra</b><br/>Address of Applicant :Apex Institute of Technology- CSE, Chandigarh University, National Highway 05, Chandigarh-Ludhiana Highway, Mohali, Punjab -140413, India Mohali -----</div> <div><b>2)Yatin Singh</b><br/>Address of Applicant :Department of Computer Science and Engineering-AIML, Chandigarh University, National Highway 05, Chandigarh-Ludhiana Highway, Mohali, Punjab -140413, India Mohali -----</div> <div><b>3)Krrish Parashar</b><br/>Address of Applicant :Department of Computer Science and Engineering-AIML, Chandigarh University, National Highway 05, Chandigarh-Ludhiana Highway, Mohali, Punjab -140413, India Mohali -----</div> <div><b>4)Kunal Jain</b><br/>Address of Applicant :Department of Computer Science and Engineering-AIML, Chandigarh University, National Highway 05, Chandigarh-Ludhiana Highway, Mohali, Punjab -140413, India Mohali -----</div> |
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(57) Abstract :  
The invention discloses an AI-based adaptive spiritual assistant system designed to personalize Bhakti Yoga and meditation practices through real-time biometric analysis and immersive experiences. An AI-based adaptive spiritual assistant system, comprising: at least one biometric sensor (101) selected from EEG headband (102), heart rate monitor (103), and voice analysis module (104) for collecting real-time physiological and emotional data from a user; a signal processing unit (105) configured to filter and process the biometric data; an emotion recognition engine (106) operable to determine the user's mental and emotional state; and an AI engine (107) configured to generate personalized Bhakti Yoga and meditation recommendations based on the processed biometric and emotional data. AI engine (107) comprises a Natural Language Processing (NLP) module (108). AI-based adaptive spiritual assistant further comprises a reinforcement learning module (109) and a virtual reality (VR) and/or augmented reality (AR) module (110).

No. of Pages : 13 No. of Claims : 9

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202511058333 A

(19) INDIA

(22) Date of filing of Application :18/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : NANOBOT-INTEGRATED BIOELECTRONIC TATTOO FOR REAL-TIME HEALTH MONITORING

(51) International classification :H02N0002180000, A61B0005000000, A61B0005145000, A61M0037000000, A61N0005060000

(86) International Application No :NA

Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA

Filing Date :NA

(62) Divisional to Application Number :NA

Filing Date :NA

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(57) Abstract :

The invention relates to a nanobot-integrated bioelectronic tattoo for real-time health monitoring and autonomous drug delivery. The tattoo comprises a flexible, biocompatible polymer layer embedded with nanosensors for molecular-level biomarker detection. Wireless data transmission, AI-based health analytics, and predictive modeling enable proactive healthcare management. The device includes a self-powered drug delivery system that releases medication upon detection of abnormal biomarker levels. Powered by thermoelectric, piezoelectric, and RF energy harvesters, the tattoo offers a non-invasive, self-sustaining, and intelligent alternative to existing wearable health technologies.

No. of Pages : 9 No. of Claims : 7

(54) Title of the invention : AI BASED SUPER ELECTRICAL VECHILE MANUFACTURING METHOD AND PROCESS

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| (51) International classification             | :G06N0003045000, G05B0019418000, G06F0018250000, G06Q0050040000, G06V0010800000 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| (86) International Application No             | :NA                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Filing Date                                   | :NA                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| (87) International Publication No             | : NA                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| (61) Patent of Addition to Application Number | :NA                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Filing Date                                   | :NA                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| (62) Divisional to Application Number         | :NA                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Filing Date                                   | :NA                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |

(57) Abstract :

The advanced AI-powered electrical vehicle manufacturing system introduces an innovative multi-stage production framework for Super Electrical Vehicle (SEV) assembly that integrates computational optimization protocols with adaptive manufacturing determination mechanisms, facilitating real-time component identification, dynamic production optimization, and robust quality assurance confirmation while maintaining seamless assembly integration and operational accuracy for consistent vehicle manufacturing. [510] The comprehensive manufacturing framework employs adaptive machine learning algorithms and intuitive production protocols, utilizing embedded computational processing arrays and energy-efficient assembly systems to ensure timely component identification, enhanced vehicle understanding, and optimal manufacturing reliability while maintaining continuous production monitoring capabilities. [515] The integrated methodology combines multi-dimensional manufacturing techniques with artificial intelligence-driven pattern recognition systems, leveraging variable-frequency production signals and multi-factor quality indicators to optimize assembly procedures and manufacturing workflows for maximum production accuracy and minimal defect uncertainty during critical vehicle applications. [520] The novel responsive manufacturing architecture features engineered high-precision assembly components with specialized vehicle fingerprinting protocols, enabling complex multi-stage component verification while ensuring manufacturing consistency and performance optimization across various production instruments without compromising system reliability. [525] The innovative design incorporates strategic validation mechanisms for enhanced SEV identification and structural security, utilizing optimized multi-technique systems and adaptive manufacturing technology to ensure legitimate vehicle assembly while maintaining functionality across diverse production environments and manufacturing scenarios. [530] Implementation methodology emphasizes scalable manufacturing integration and efficient assembly sequences, implementing interactive production measures and pattern recognition algorithms to achieve superior structural determination, enhanced component identification, and unauthorized assembly prevention while ensuring technological simplicity during production monitoring. [535] The system demonstrates exceptional adaptability through comprehensive integration of vehicle identification protocols and intelligent manufacturing technologies, validating its effectiveness across various SEV production configurations and assembly scenarios while maintaining consistent manufacturing performance and operational efficiency under diverse conditions. [540] The developed framework enables sustainable and reliable manufacturing of Super Electrical Vehicles through streamlined, AI-powered production systems, providing significant advantages over traditional manufacturing approaches through variable validation mechanisms, adaptive identification protocols, and improved assembly assignment while maintaining superior manufacturing accuracy during critical vehicle production procedures.

No. of Pages : 13 No. of Claims : 5

(54) Title of the invention : AUTOMATED HEALTHCARE TEXT ANALYSIS AND VOICE SUMMARY DEVICE

|                                               |                                                                                 |                                                                                                                                                                                                                                            |
|-----------------------------------------------|---------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (51) International classification             | :G16H0010600000, G16H0015000000, G06N0003045000, G06Q0010107000, G06F0040300000 | (71) <b>Name of Applicant :</b><br><b>1)Chandigarh University</b><br>Address of Applicant :Chandigarh University National Highway 05, Chandigarh-Ludhiana Highway, Mohali, Punjab -140413, India. Mohali -----                             |
| (86) International Application No             | :NA                                                                             |                                                                                                                                                                                                                                            |
| Filing Date                                   | :NA                                                                             |                                                                                                                                                                                                                                            |
| (87) International Publication No             | : NA                                                                            | <b>Name of Applicant : NA</b><br><b>Address of Applicant : NA</b>                                                                                                                                                                          |
| (61) Patent of Addition to Application Number | :NA                                                                             | (72) <b>Name of Inventor :</b><br><b>1)Pankaj</b><br>Address of Applicant :Department of Computer Science Engineering, Chandigarh University, National Highway 05, Chandigarh-Ludhiana Highway, Mohali, Punjab -140413, India Mohali ----- |
| Filing Date                                   | :NA                                                                             |                                                                                                                                                                                                                                            |
| (62) Divisional to Application Number         | :NA                                                                             |                                                                                                                                                                                                                                            |
| Filing Date                                   | :NA                                                                             |                                                                                                                                                                                                                                            |

(57) Abstract :  
The present invention relates to a real-time, hardware-integrated device for the fast translation and summarization of health-related text-based information. The device combines an optical sensor, OCR technology, and natural language processing (NLP) to extract and summarize medical content from printed or digital documents. The system includes multilingual support and a text-to-speech (TTS) engine for generating clear, audible summaries. A form recognition module detects structured fields in medical documents, while a data insertion module auto-fills these fields with relevant extracted information. The device features a touch-enabled display for user interaction and a verification module for reviewing and confirming output accuracy. Bluetooth connectivity ensures seamless integration with hospital systems and electronic health record (EHR) platforms. Additional capabilities include sentiment analysis, adaptive voice modulation, and real-time error handling. Designed to enhance clinical workflows and reduce manual effort, the invention provides an intelligent, efficient, and accessible solution for medical data communication and decision support.

No. of Pages : 14 No. of Claims : 10

(54) Title of the invention : CONCAVE TANK DESIGN FOR ENHANCED ROCKET EFFICIENCY

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| <div>(51) International classification :B64G0001400000, F02K0009600000, B64G0001000000, B65D0090520000, F01D0005140000</div> <div>(86) International Application No :NA<br/>Filing Date :NA</div> <div>(87) International Publication No : NA</div> <div>(61) Patent of Addition to Application Number :NA<br/>Filing Date :NA</div> <div>(62) Divisional to Application Number :NA<br/>Filing Date :NA</div> |  | <div>(71)Name of Applicant :<br/><b>1)Chandigarh University</b><br/>Address of Applicant :Chandigarh University, National Highway 05, Chandigarh-Ludhiana Highway, Mohali, Punjab -140413, India. Mohali -----</div> <div>Name of Applicant : NA<br/>Address of Applicant : NA</div> <div>(72)Name of Inventor :<br/><b>1)Dev AmitKumar Vora</b><br/>Address of Applicant :Department of Aerospace Engineering, Chandigarh University, National Highway 05, Chandigarh-Ludhiana Highway, Mohali, Punjab -140413, India Mohali -----</div> <div><b>2)Tejaswini Yadav</b><br/>Address of Applicant :Department of Aerospace Engineering, Chandigarh University, National Highway 05, Chandigarh-Ludhiana Highway, Mohali, Punjab -140413, India Mohali -----</div> <div><b>3)Koleti Lakshmikanth</b><br/>Address of Applicant :Department of Aerospace Engineering, Chandigarh University, National Highway 05, Chandigarh-Ludhiana Highway, Mohali, Punjab -140413, India Mohali -----</div> <div><b>4)Dr. Dheeraj Minglani</b><br/>Address of Applicant :Department of Aerospace Engineering, Chandigarh University, National Highway 05, Chandigarh-Ludhiana Highway, Mohali, Punjab -140413, India Mohali -----</div> |
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(57) Abstract :  
The present invention introduces an advanced concave cambered propellant tank design intended to enhance rocket performance by improving fluid dynamics and structural efficiency. The tank features a uniquely concave internal geometry that guides liquid fuel smoothly along its curved surfaces, significantly reducing sloshing and minimizing in-flight vibrations. Central to the design is an integrated cylindrical chamber for oxidizer storage, eliminating the need for separate tanks and optimizing spatial efficiency. Radial support structures maintain the integrity of the concave shape while contributing to overall weight reduction. This configuration streamlines the propellant delivery system, decreases geometric residuals, and maximizes usable volume, thereby improving stability, efficiency, and mission performance.

No. of Pages : 26 No. of Claims : 2

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202511058008 A

(19) INDIA

(22) Date of filing of Application :17/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : INNOVATIVE SHOES FOR CLIMBING STAIRS

|                                                  |                                                                                       |                                                                                                                                                                                                                                               |
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| (51) International<br>classification             | :A61G0005060000, B62B0005020000,<br>A43B0013180000, A43B0013120000,<br>B62D0055075000 | <b>Name of Applicant : NA</b><br><b>Address of Applicant : NA</b>                                                                                                                                                                             |
| (86) International<br>Application No             | :NA                                                                                   | (72)Name of Inventor :<br><b>1)Dr. Ashish Sharma</b><br>Address of Applicant :Department of Electrical Engineering, Chandigarh<br>University, National Highway 05, Chandigarh-Ludhiana Highway, Mohali, Punjab<br>-140413, India Mohali ----- |
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| (87) International<br>Publication No             | : NA                                                                                  | <b>3)Dr. Nitish Sharma</b><br>Address of Applicant :Department of Civil Engineering, Chandigarh University,<br>National Highway 05, Chandigarh-Ludhiana Highway, Mohali, Punjab -140413,<br>India Mohali -----                                |
| (61) Patent of Addition to<br>Application Number | :NA                                                                                   | <b>4)Anterjot Singh</b><br>Address of Applicant :Department of Computer Science and Engineering,<br>Chandigarh University, National Highway 05, Chandigarh-Ludhiana Highway,<br>Mohali, Punjab -140413, India Mohali -----                    |
| Filing Date                                      | :NA                                                                                   |                                                                                                                                                                                                                                               |
| (62) Divisional to<br>Application Number         | :NA                                                                                   |                                                                                                                                                                                                                                               |
| Filing Date                                      | :NA                                                                                   |                                                                                                                                                                                                                                               |

(57) Abstract :

The present invention relates to a solar-powered, spring-assisted stair-climbing shoe designed to aid individuals, particularly the elderly and those with joint-related conditions, in ascending stairs with reduced physical strain. The shoe integrates thin-film solar cells on its surface to harness solar energy, which is stored in a rechargeable battery. A barometric elevation sensor embedded in the midsole detects stair height, transmitting data to an Arduino microcontroller. The Arduino calculates and activates the appropriate thrust force via pistons and springs embedded within the sole based on the detected elevation. The spring compresses during foot contact, while the piston delivers an upward force to assist in stair climbing. The system provides adaptive support, improves mobility, and promotes independence for users with limited lower limb strength. The components are ergonomically integrated within the sole and upper regions without compromising the shoe's flexibility or comfort.

No. of Pages : 13 No. of Claims : 10



(12) PATENT APPLICATION PUBLICATION

(21) Application No.202511058009 A

(19) INDIA

(22) Date of filing of Application :17/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : BLUETOOTH-BASED DOOR LOCKING SYSTEM

|                                                                                                                                                                                                                                                                                                                                                                                           |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
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| <p>(51) International classification :H04W0004800000, G07C0009000000, H04L0009400000, H04W0012060000, H04W0012080000</p> <p>(86) International Application No :NA<br/>Filing Date :NA</p> <p>(87) International Publication No : NA</p> <p>(61) Patent of Addition to Application Number :NA<br/>Filing Date :NA</p> <p>(62) Divisional to Application Number :NA<br/>Filing Date :NA</p> |  | <p>(71)<b>Name of Applicant :</b><br/><b>1)Chandigarh University</b><br/>Address of Applicant :Chandigarh University National Highway 05, Chandigarh-Ludhiana Highway, Mohali, Punjab -140413, India Mohali ----- --<br/>-----<br/><b>Name of Applicant : NA</b><br/><b>Address of Applicant : NA</b><br/><b>(72)Name of Inventor :</b><br/><b>1)Aaskaran Bishnoi</b><br/>Address of Applicant :Department of Computer Science and Engineering, Chandigarh University, National Highway 05, Chandigarh-Ludhiana Highway, Mohali, Punjab -140413, India Mohali -----<br/><b>2)Harsh Kumar</b><br/>Address of Applicant :Department of Computer Science and Engineering, Chandigarh University, National Highway 05, Chandigarh-Ludhiana Highway, Mohali, Punjab -140413, India Mohali -----<br/><b>3)Anuj Lohan</b><br/>Address of Applicant :Department of Computer Science and Engineering, Chandigarh University, National Highway 05, Chandigarh-Ludhiana Highway, Mohali, Punjab -140413, India Mohali -----</p> |
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(57) Abstract :

The invention discloses a Bluetooth-based proximity-activated door locking system that allows secure, keyless, and contactless access control using a mobile device. The system includes a microcontroller, a Bluetooth module, a locking mechanism, and a power source. An authorized mobile device, paired via a dedicated application, enables the door to unlock when it comes within a predefined Bluetooth range and re-locks automatically when the device exits the range. The system operates without internet connectivity, ensuring offline security and minimizing remote hacking risks. The mobile application manages access control, user authorization, and system status. The invention eliminates the need for physical keys or cards and overcomes the vulnerabilities of Wi-Fi-based and NFC-based door systems. It is suitable for various door types in homes, offices, and secure facilities. Enhanced features include multi-user access, optional biometric verification, access logs, and tamper resistance. The system offers a cost-effective and reliable alternative for modern security needs.

No. of Pages : 8 No. of Claims : 10

(54) Title of the invention : INTEGRATED FLUIDIZED BED AND PACKED BED BIOREACTOR SYSTEM FOR ENHANCED BIOHYDROGEN PRODUCTION

|                                               |                                                                                 |                                                                                                                                                                                                                         |
|-----------------------------------------------|---------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (51) International classification             | :C12M0001000000, C02F0003080000, C12P0003000000, C02F0003000000, C12M0001060000 | (71)Name of Applicant :<br><b>1)Chandigarh University</b><br>Address of Applicant :Chandigarh University, National Highway 05, Chandigarh-Ludhiana Highway, Mohali, Punjab -140413, India. Mohali -----                 |
| (86) International Application No             | :NA                                                                             | <b>Name of Applicant : NA</b>                                                                                                                                                                                           |
| Filing Date                                   | :NA                                                                             | <b>Address of Applicant : NA</b>                                                                                                                                                                                        |
| (87) International Publication No             | : NA                                                                            | (72)Name of Inventor :                                                                                                                                                                                                  |
| (61) Patent of Addition to Application Number | :NA                                                                             | <b>1)Dr. Abhishek Kumar Singh</b><br>Address of Applicant :Department of Biotechnology Engineering, Chandigarh University, National Highway 05, Chandigarh-Ludhiana Highway, Mohali, Punjab -140413, India Mohali ----- |
| Filing Date                                   | :NA                                                                             | <b>2)Dr. Parul Sharma</b><br>Address of Applicant :Department of Biotechnology Engineering, Chandigarh University, National Highway 05, Chandigarh-Ludhiana Highway, Mohali, Punjab -140413, India Mohali -----         |
| (62) Divisional to Application Number         | :NA                                                                             |                                                                                                                                                                                                                         |
| Filing Date                                   | :NA                                                                             |                                                                                                                                                                                                                         |

(57) Abstract :  
The present invention relates to an integrated bioreactor system designed to enhance biohydrogen production through anaerobic fermentation of organic waste. The system uniquely combines a fluidized bed zone and a packed bed zone within a single reactor chamber or modular configuration. The fluidized bed zone, located at the lower section, ensures efficient substrate mixing and mass transfer using suspended carrier particles, while the packed bed zone, positioned above, facilitates stable biofilm formation and microbial retention. This dual-zone design overcomes common limitations such as biomass washout, clogging, and low hydrogen yield found in traditional reactors. The reactor includes a gas-liquid separator, heating jacket, effluent outlet, and embedded sensors linked to an automated control unit for real-time monitoring of key operational parameters. The invention supports a wide range of feedstocks and scalable configurations, offering a reliable, flexible, and energy-efficient platform for sustainable biohydrogen production and effective organic waste utilization.

No. of Pages : 13 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :18/06/2025

(21) Application No.202511058335 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : INTELLIGENT SELF-CLEANING WATER BOTTLE

(51) International classification :A61L0002100000, G01N0033180000, C02F0001000000, H02J0007000000, C02F0001320000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

The present invention relates to a smart self-cleaning water bottle that utilizes a dual sterilization mechanism combining Ultraviolet-C (UV-C) light and electrostatic pulse technology to effectively disinfect drinking water and the bottle's internal surfaces. An intelligent self-cleaning water bottle, comprising: a body (101) with an interior chamber for holding water; a UV-C LED module (102); a quartz lens (103); one or more electrostatic plates (104); one or more sensors (105) within the bottle configured to detect turbidity and moisture content; a microcontroller (106) configured to receive input from said sensors and activate the UV-C light and/or electrostatic plates; a rechargeable battery (107); and a Bluetooth module (108) configured to transmit data to a mobile application for monitoring water quality, battery status, and cleaning cycles. The present invention further comprises a USB-C charging interface (109) located at the base of the bottle for fast and universal recharging of the battery.

No. of Pages : 15 No. of Claims : 10

(54) Title of the invention : SMART RUDRAKSHA MALA WITH INTEGRATED SENSOR-BASED PERSONALIZED MANTRA CHANTING GUIDANCE SYSTEM

|                                               |                                                                                 |                                                                                                                                                                                                                               |
|-----------------------------------------------|---------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (51) International classification             | :G06F0003010000, B24B0041060000, H04L0001000000, B24B0009180000, A41D0001000000 | (71)Name of Applicant :<br><b>1)Chandigarh University</b><br>Address of Applicant :Chandigarh University, National Highway 05, Chandigarh-Ludhiana Highway, Mohali, Punjab -140413, India. Mohali -----                       |
| (86) International Application No             | :NA                                                                             | <b>Name of Applicant : NA</b>                                                                                                                                                                                                 |
| Filing Date                                   | :NA                                                                             | <b>Address of Applicant : NA</b>                                                                                                                                                                                              |
| (87) International Publication No             | : NA                                                                            | (72)Name of Inventor :<br><b>1)Vaibhav Mishra</b><br>Address of Applicant :Department of Forensic Science, Chandigarh University National Highway 05, Chandigarh-Ludhiana Highway, Mohali, Punjab -140413, India Mohali ----- |
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| (62) Divisional to Application Number         | :NA                                                                             |                                                                                                                                                                                                                               |
| Filing Date                                   | :NA                                                                             |                                                                                                                                                                                                                               |

(57) Abstract :  
The present invention relates to a smart rudraksha mala integrating traditional spiritual practices with modern technology. The mala consists of rudraksha beads embedded with miniature sensors (Structure of the Smart Rudraksha Mala), connected via a flexible thread housing wiring to a central microprocessor (Sensor and Microprocessor Integration). This microprocessor, located in the tassel, processes data from the sensors to analyze chanting speed, consistency, and rhythm. A haptic feedback mechanism (Haptic Feedback Mechanism) in the tassel provides tactile alerts for real-time user guidance. The system interfaces with a mobile application (Mobile Application Interface) via Bluetooth, offering personalized mantra recommendations, progress tracking, and custom alerts. This innovation enhances mantra chanting by providing immediate feedback and personalized guidance, seamlessly blending traditional spiritual tools with advanced technological features.

No. of Pages : 10 No. of Claims : 10

(54) Title of the invention : AN AI-BASED EDUCATIONAL QUERY RESPONSE SYSTEM

|                                               |                                                                                 |                                                                                                                                                                                                                                                   |
|-----------------------------------------------|---------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (51) International classification             | :G06F0016330000, G06F0016332000, G06F0040300000, G06F0016245700, G06F0016951000 | (71)Name of Applicant :<br><b>1)MANIPAL UNIVERSITY JAIPUR</b><br>Address of Applicant :Dehmi Kalan, Off Jaipur-Ajmer Expressway, Jaipur-303007, Rajasthan, India -----<br><b>Name of Applicant : NA</b><br><b>Address of Applicant : NA</b>       |
| (86) International Application No             | :NA                                                                             | (72)Name of Inventor :                                                                                                                                                                                                                            |
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| (61) Patent of Addition to Application Number | :NA                                                                             | <b>3)Dr. Sandeep Chaurasia</b><br>Address of Applicant :Professor & Director, Directorate of Corporate Relations and Placements, SCSE, Manipal University Jaipur, Dehmi Kalan, Off Jaipur-Ajmer Expressway, Jaipur 303007, Rajasthan, India ----- |
| Filing Date                                   | :NA                                                                             |                                                                                                                                                                                                                                                   |
| (62) Divisional to Application Number         | :NA                                                                             |                                                                                                                                                                                                                                                   |
| Filing Date                                   | :NA                                                                             |                                                                                                                                                                                                                                                   |

(57) Abstract :  
The present invention relates to an AI-based educational query response system (100). The system (100) comprises a multi-query generation module that reformulates a user's natural language query into multiple semantically diverse versions using a large language model. A semantic retriever employing a vector database and a keyword-based retriever using BM25 independently retrieves relevant documents. The results from both retrievers are combined and ranked using a weighted aggregation method to identify the most relevant content. The top-ranked documents, along with the original query, are then processed by a large language model to generate a coherent and precise response. The system (100) enables efficient access to academic information, reduces manual search time, and enhances the user experience through intelligent, domain-specific query processing. The invention is particularly suited for deployment in educational institutions and is scalable for other information-dense domains

No. of Pages : 10 No. of Claims : 7

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :17/06/2025

(21) Application No.202511058208 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : HERBAL TEA COMPOSITION AND METHOD OF PREPARING THE SAME

(51) International classification :A23F0003340000, A61K0036480000, A23F0003140000, A61K0036899000, A23F0003400000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

The invention discloses a natural herbal tea composition using Butea monosperma, lemongrass, ajwain, and tulsi. Each herb is individually dried, crushed, and combined to provide antioxidant, immune-boosting, and digestive benefits. The tea is provided in tea bags or loose form, free of additives, suitable for daily consumption. A method of preparing a herbal tea composition comprises the steps of: separately drying Butea monosperma petals, lemongrass leaves, ajwain leaves, and tulsi leaves at a temperature in the range of 60°C to 70°C for individual durations ranging from 5 to 10 hours, mixing the dried ingredients in select proportions, coarsely crushing the mixed ingredients, and packaging the crushed composition into tea bags or containers.

No. of Pages : 30 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202511058221 A

(19) INDIA

(22) Date of filing of Application :17/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : FEDERATED LEARNING-ENABLED DEVICE FOR DYNAMICALLY PROVIDING PERSONALIZED CONTENT TO A USER

|                                                                              |      |                                                                                                                                                                                                    |
|------------------------------------------------------------------------------|------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (51) International classification :G06N3/045, G06F3/16, G06N20/00, G06Q30/02 |      | (71)Name of Applicant :<br><b>1)Delhi Technological University</b><br>Address of Applicant :Delhi Technological University, Shahbad Daulatpur, Main Bawana Road, Delhi -110042, India. Delhi ----- |
| (86) International Application No                                            | :NA  | <b>Name of Applicant : NA</b>                                                                                                                                                                      |
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| (87) International Publication No                                            | : NA | (72)Name of Inventor :                                                                                                                                                                             |
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| (62) Divisional to Application Number                                        | :NA  | <b>3)DEVI, Abha</b><br>Address of Applicant :A-104, ACE Platinum, Zeta-1, Greater Noida - 201306, Uttar Pradesh, India. Greater Noida -----                                                        |
| Filing Date                                                                  | :NA  |                                                                                                                                                                                                    |

(57) Abstract :

The present disclosure pertains to a device (100) utilizing a federated learning framework for dynamically providing personalized content to a user. The method (200) includes receiving (202) one or more image frames of a user, voice inputs from the user and geo location information of the device associated with the user via one or more sensors associated with the device and simultaneously fetching (204) the historical sleeping pattern of the user from the memory. The method (200) include predicting (206) an emotional state of the user based on the one or more image frames, the voice inputs and the historical sleeping patterns and simultaneously predicting (208) the current environmental condition around the user based on the geolocation information. The method (200) dynamically providing (210) the content to the user in real time based on the emotional state, the current environmental condition, and the historical sleeping patterns.

No. of Pages : 23 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :17/06/2025

(21) Application No.202511058277 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : MACHINE LEARNING-BASED PREDICTIVE MAINTENANCE SYSTEM FOR INDUSTRIAL EQUIPMENT HEALTH MONITORING

(51) International classification :G06N0020000000, G05B0023020000, G06N0003088000, G06Q0010200000, G05B0019418000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

The present invention provides a machine learning-based predictive maintenance system for industrial equipment health monitoring. The system utilizes real-time sensor data and historical operational patterns to assess equipment condition, predict potential failures, and estimate remaining useful life (RUL). It integrates data preprocessing, feature extraction, supervised and unsupervised learning models, and an intelligent recommendation engine to enable proactive maintenance actions. By reducing unplanned downtime and optimizing maintenance schedules, the invention enhances equipment reliability, operational efficiency, and cost-effectiveness across diverse industrial environments.

No. of Pages : 18 No. of Claims : 9



(12) PATENT APPLICATION PUBLICATION

(21) Application No.202511059521 A

(19) INDIA

(22) Date of filing of Application :21/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : REAL-TIME VISION POWER DETECTION SMART EYE-WEAR

(51) International classification :G02B0027010000, G09G0003200000, A61B0003028000, G02C0007080000, A61B0005110000

(86) International Application No :NA

Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA

Filing Date :NA

(62) Divisional to Application Number :NA

Filing Date :NA

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(57) Abstract :

The present invention relates to a wearable ophthalmic device in the form of smart glasses designed to analyze and display the refractive power of the user's eyes in real time. Integrated with infrared-based sensors or micro-cameras (104) within a standard spectacle frame and controlled via a microcontroller (103), the device enables users to initiate an eye scan through a button (101) or touch-sensitive interface. The measured optical power (in Dioptres) is instantly shown on an OLED or digital screen (102) embedded in the glasses' arm. This eliminates the need for bulky auto refractors or trial lenses, offering a portable, self-operable solution for vision assessment. Ideal for personal eye monitoring or preliminary clinical diagnosis, the device ensures fast, convenient, and accurate refractive power evaluation.

No. of Pages : 15 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :21/06/2025

(21) Application No.202511059522 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : ADAPTIVE SMART WINDSHIELD WITH AUTO-DIMMING, ANTI-REFLECTION COATING, AND LIGHT-SENSING ACTIVATION

(51) International classification :G02F0001170000, B32B0017100000, B60R0001080000, B60Q0001140000, B60J0003040000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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Address of Applicant :Department of Aerospace Engineering, Chandigarh University, National Highway 05, Chandigarh-Ludhiana Highway, Mohali, Punjab -140413, India Mohali -----

(57) Abstract :

The present invention discloses an Adaptive Smart Windshield System designed to enhance driver safety and visibility by providing automated glare reduction through dynamic transparency control. The system features a multi-layered windshield comprising a Suspended Particle Device (SPD) film on the upper 30% for instant dimming of high-beam glare, a Pi-Polarizer layer on the middle 40% to filter horizontally polarized reflections, and an Anti-Reflective (AR) coating (SiO<sub>2</sub> + MgF<sub>2</sub>) across the entire surface to minimize light scattering. The lower 30% remains uncoated to preserve visibility and reduce cost. An Intelligent Controller Unit (ICU) with ambient light sensors, and a microcontroller continuously monitors incoming light intensity and activates the SPD and Pi-Polarizer layers in real time. The system responds within milliseconds, reduces glare intensity by up to 85%, and automatically reverts to a transparent state when glare subsides. It operates efficiently on 3–7W and integrates seamlessly with existing vehicles, ensuring compliance with safety standards.

No. of Pages : 16 No. of Claims : 10

(54) Title of the invention : SYSTEM FOR ENHANCING ROAD SAFETY BY ANALYZING PEDESTRIAN WALKING PATTERNS AND DYNAMICALLY ADJUSTING VEHICLE SPEED

|                                               |                                                                                 |                                                                                                                                                                                                                  |
|-----------------------------------------------|---------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (51) International classification             | :G08G0001160000, B60Q0009000000, G01S0013931000, G06N0003006000, G08G0001010000 | (71) <b>Name of Applicant :</b><br><b>1)Chandigarh University</b><br>Address of Applicant :Chandigarh University National Highway 05, Chandigarh-Ludhiana Highway, Mohali, Punjab -140413, India. Mohali ----- - |
| (86) International Application No             | :NA                                                                             |                                                                                                                                                                                                                  |
| Filing Date                                   | :NA                                                                             |                                                                                                                                                                                                                  |
| (87) International Publication No             | : NA                                                                            | <b>Name of Applicant : NA</b>                                                                                                                                                                                    |
| (61) Patent of Addition to Application Number | :NA                                                                             | <b>Address of Applicant : NA</b>                                                                                                                                                                                 |
| Filing Date                                   | :NA                                                                             | (72) <b>Name of Inventor :</b>                                                                                                                                                                                   |
| (62) Divisional to Application Number         | :NA                                                                             | <b>1)Pankaj</b>                                                                                                                                                                                                  |
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(57) Abstract :  
The present invention discloses a system for adaptive vehicle speed adjustment based on real-time pedestrian movement analysis to enhance road safety, particularly in urban environments. The system comprises a network of sensors, including radar, LiDAR, infrared, camera, and depth sensors, configured to detect pedestrian movement around a vehicle. A processing unit analyzes pedestrian walking speeds, directions, and trajectories using predictive algorithms, including machine learning techniques. Based on this analysis, a control unit dynamically adjusts vehicle speed to maintain a safe distance from pedestrians and prevent collisions. The system also includes a graphical user interface that provides real-time visual and auditory alerts to the driver, and an external light alert system that activates warning signals when the vehicle speed exceeds a safe threshold relative to pedestrian movement. Additional components include data storage for logging interactions, adjustable mirrors for improved sensor range, and communication modules for transmitting data to nearby vehicles, supporting proactive collision prevention.

No. of Pages : 13 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202511058337 A

(19) INDIA

(22) Date of filing of Application :18/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : AN AUTOMATIC PRASAD MAKER FOR CONSISTENT AND HYGIENIC OFFERINGS

|                                                                                                                                                                                                                                                                                                                                                                                           |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>(51) International classification :H04L0027260000, G07F0017000000, G06Q0050120000, A47J0044000000, B01L0003000000</p> <p>(86) International Application No :NA<br/>Filing Date :NA</p> <p>(87) International Publication No : NA</p> <p>(61) Patent of Addition to Application Number :NA<br/>Filing Date :NA</p> <p>(62) Divisional to Application Number :NA<br/>Filing Date :NA</p> |  | <p>(71)<b>Name of Applicant :</b><br/><b>1)Chandigarh University</b><br/>Address of Applicant :Chandigarh University, National Highway 05, Chandigarh-Ludhiana Highway, Mohali, Punjab -140413, India. Mohali -----</p> <p><b>Name of Applicant : NA</b><br/><b>Address of Applicant : NA</b></p> <p>(72)<b>Name of Inventor :</b><br/><b>1)Vaibhav Mishra</b><br/>Address of Applicant :Department of Forensic Science, Chandigarh University National Highway 05, Chandigarh-Ludhiana Highway, Mohali, Punjab -140413, India Mohali -----</p> <p><b>2)Mahipal Singh Sankhla</b><br/>Address of Applicant :Department of Forensic Science, Chandigarh University National Highway 05, Chandigarh-Ludhiana Highway, Mohali, Punjab -140413, India Mohali -----</p> <p><b>3)Archana Gautam</b><br/>Address of Applicant :Department of Forensic Science, Chandigarh University National Highway 05, Chandigarh-Ludhiana Highway, Mohali, Punjab -140413, India Mohali -----</p> <p><b>4)Tina Sharma</b><br/>Address of Applicant :Department of Forensic Science, Chandigarh University National Highway 05, Chandigarh-Ludhiana Highway, Mohali, Punjab -140413, India Mohali -----</p> |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

(57) Abstract :

An automatic prasad maker is disclosed, comprising ingredient storage compartments, a mixing chamber, a cooking unit, a dispensing mechanism, and a user interface. The machine features wireless connectivity for remote monitoring and control, a self-cleaning system, a modular design, and advanced sensors. The machine produces consistent, hygienic prasad offerings while reducing manual labor. The invention streamlines the prasad preparation process in temples and religious institutions, setting a new standard for automated food preparation in the realm of religious offerings.

No. of Pages : 10 No. of Claims : 8

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202511058351 A

(19) INDIA

(22) Date of filing of Application :18/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : GRIPPING FORCE VERIFICATION SYSTEM AND METHOD

(51) International classification :B25J0009160000, B25J0015020000, B25J0013080000, G01L0005000000, B65G0043080000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

The present disclosure relates to a gripping force verification (GFV) system (102). The GFV system includes a force sensing unit (204). The force sensing unit (204) includes a plurality of load sensors (206, 208, 210, 212). The plurality of load sensors (206, 208, 210, 212) are interconnected horizontally or vertically with a plurality of tension strings (214, 216) configured to be gripped and compressed by a gripper (304). The gripper (304) is actuated to impart a gripping action on the plurality of tension strings (214, 216) to generate a tension force along each tension string. Further, the force sensing unit (204) is configured to generate sensor data corresponding to the tension force. Furthermore, the GFV system (102) includes a controller (310) communicably coupled to the force sensing unit (204), configured to calculate a resultant force based on the sensor data. [To be published with FIG. 1]

No. of Pages : 46 No. of Claims : 8

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :18/06/2025

(21) Application No.202511058388 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : HANDWOVEN TEXTILE FABRIC WITH SELECTIVELY COMBINED WARP AND WEFT YARN MATERIALS

(51) International classification :D03D0013000000, D03D0001000000, D03D0015410000, A61L0027220000, D03D0015233000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

The present disclosure discloses a handwoven textile fabric comprising a warp yarn and a weft yarn interlaced in a weave structure selected from the group consisting of plain weave, twill weave, herringbone twill, zigzag twill, diamond twill, and straight twill; wherein the warp yarn is selected from the group comprising a golden zari thread wrapped around a resham thread, a China silk yarn, and a 100% Pashmina yarn; wherein the weft yarn is selected from the group consisting of a 100% Pashmina yarn, a 100% Pashmina yarn twisted together with a golden zari thread, a blend comprising 85% wool and 15% silk, a blend comprising 75% wool, 15% silk, and 10% Cashmere Pashmina, a modal yarn, and a colored Pashmina yarn. Fig. 1

No. of Pages : 28 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202511058438 A

(19) INDIA

(22) Date of filing of Application :18/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : DEVELOPMENT COATING OF HYDROPHOBICALLY MODIFIED SILICA ON SILVER METAL AND EVALUATION OF HYDROPHOBICITY

|                                                                                                                                                                                                                                                                                                                                                                                           |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>(51) International classification :A44C0027000000, A44C0005000000, A61K0008020000, C09C0001300000, C22C0005080000</p> <p>(86) International Application No :NA<br/>Filing Date :NA</p> <p>(87) International Publication No : NA</p> <p>(61) Patent of Addition to Application Number :NA<br/>Filing Date :NA</p> <p>(62) Divisional to Application Number :NA<br/>Filing Date :NA</p> |  | <p>(71)<b>Name of Applicant :</b><br/><b>1)GRAPHIC ERA DEEMED TO BE UNIVERSITY</b><br/>Address of Applicant :566/6, Bell Road, Society Area, Clement Town, Dehradun - 248002, Uttarakhand, India Dehradun -----<br/><b>Name of Applicant : NA</b><br/><b>Address of Applicant : NA</b><br/><b>(72)Name of Inventor :</b><br/><b>1)Akanksha Rajput</b><br/>Address of Applicant :Department of Chemistry, Graphic Era Deemed to be University, Dehradun, 566/6, Bell Road, Society Area, Clement Town, Dehradun - 248002, Uttarakhand, India Dehradun -----<br/><b>2)Abhilasha Mishra</b><br/>Address of Applicant :Department of Chemistry, Graphic Era Deemed to be University, Dehradun, 566/6, Bell Road, Society Area, Clement Town, Dehradun - 248002, Uttarakhand, India Dehradun -----<br/><b>3)Adeeba Mirza1</b><br/>Address of Applicant :Department of Chemistry, Graphic Era Deemed to be University, Dehradun, 566/6, Bell Road, Society Area, Clement Town, Dehradun - 248002, Uttarakhand, India Dehradun -----<br/><b>4)Neha Bhatt</b><br/>Address of Applicant :Department of Physics, Indian Institute of Technology, Kanpur, Kanpur – 208016, Uttar Pradesh, India Kanpur -----</p> |
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(57) Abstract :

Silver has been cherished since ancient times for its radiant, brilliant, and shiny appearance. This lustrous metal has been widely utilized as a precious material for crafting jewelry, ornaments, and decorative items throughout history Its unique combination of beauty, malleability, and resistance to tarnish made it highly sought after by various civilizations. One notable characteristic of silver is its tendency to tarnish over time. This process is common in environments where hydrogen sulfide is prevalent, such as areas near industrial emissions, natural gas sources, or even in everyday surroundings containing sulfur. The deterioration of the silver surface results in the degradation of both its aesthetic and conductive characteristics. The present investigation report focuses on the fabrication of hydrophobically modified silica particles using the sol-gel method to prevent tarnishing of silve

No. of Pages : 29 No. of Claims : 1

(54) Title of the invention : INTEGRATED SYSTEM AND METHOD FOR N-PHASE SRM DRIVE AND MULTI-MODE CHARGING IN ELECTRIC VEHICLES

(51) International classification: B60L53/24, H02P25/092, H02P25/18, H02M1/42, H02J7/00, B60L55/00, G05F1/67

(86) International Application No :NA

Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA

Filing Date :NA

(62) Divisional to Application Number :NA

Filing Date :NA

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## (57) Abstract :

The invention provides an integrated converter system (100) and method for electric vehicles that combines motor propulsion and multi-mode battery charging using a switched reluctance motor (110) with N isolated phase windings. The integrated converter (130) operates as an N-phase asymmetric half-bridge during propulsion and is reconfigurable via relays (J1, J2) for various charging modes without additional hardware. The system supports single-phase AC charging using a bridgeless boost PFC stage and a bidirectional DC-DC converter (150), three-phase AC fast charging through a boost rectifier stage, and DC or vehicle-to-vehicle (V2V)/vehicle-to-grid (V2G) charging using buck/boost operation. Selected motor windings act as inductors during charging. Rotor positions are chosen to neutralize torque generation, maintaining rotor standstill. Control strategies include closed-loop CC/CV profiles, dual synchronous reference frame (DSRF) control for unbalanced grids, and maximum power point tracking (MPPT) for DC sources. The system reduces cost, size, and complexity in EV powertrains. Figure 1

No. of Pages : 23 No. of Claims : 10



(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :19/06/2025

(21) Application No.202511058755 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : VERTICALLY ALIGNED ZNO NANORODS FOR PIEZOELECTRIC NANOGENERATOR

(51) International classification : C01G9/02, B82Y40/00,  
H01L31/029  
(86) International Application No :NA  
Filing Date :NA  
(87) International Publication No : NA  
(61) Patent of Addition to Application  
Number :NA  
Filing Date :NA  
(62) Divisional to Application Number :NA  
Filing Date :NA

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**7)Satya Prakash Singh**

**8)Dr. Ambrish Singh**

Name of Applicant : NA

Address of Applicant : NA

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(57) Abstract :

The present invention relates to using a hydrothermal process, highly vertically aligned ZnO nanorods are grown over Si substrates. Two steps are used to generate ZnO nanorods. First, using the sol-gel process, an ideal ZnO seed layer with a nucleation site with a particle size of around 40 nm is formed on an n-type Si wafer. On such spots, nanorods with lengths ranging from 250 to 400 nm are subsequently produced. These nanorods underwent FESEM analysis, and XRD is used to establish their phase. In a stainless-steel autoclave walled with Teflon, the pressure effect is investigated at 5 bar.

No. of Pages : 29 No. of Claims : 6

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202511058790 A

(19) INDIA

(22) Date of filing of Application :19/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : WHEAT STRAW-BASED NAOH ACTIVATED BIOCHAR FOR TETRACYCLINE ADSORPTION FROM WATER: A STUDY ON THE EFFECT OF CHEMICAL ACTIVATION ON ITS PROCESS EFFICIENCY

|                                               |                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
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| (51) International classification             | :B01J20/20, B01J20/28, B01J20/30, C02F1/28, C02F101/30, C02F103/34 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| (86) International Application No             | :NA                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Filing Date                                   | :NA                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| (87) International Publication No             | : NA                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| (61) Patent of Addition to Application Number | :NA                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Filing Date                                   | :NA                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| (62) Divisional to Application Number         | :NA                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Filing Date                                   | :NA                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |

(57) Abstract :

Wheat straw (WS) is a potential biomass having no economic value but has vast environmental consequences. Valorization of WS to its biochar (WS-BC) with further NaOH activation (WS-NBC) was fabricated and employed as an adsorbent to eliminate tetracycline (TTC) from contaminated solution. The process fabrication was an initial pyrolysis under N<sub>2</sub> atmosphere at 450°C to form WS-BC followed by its impregnation with NaOH to form WS-NBC. Characterization studies revealed the successful fabrication of activated biochar having favourable surface functionalities and well-defined porosity as per FTIR and BET studies. Batch adsorption tests conducted under operating conditions of 10 ppm of TTC, adsorbent dosage of 1g/L, for a contact duration of 30 minutes and at neutral pH revealed 89% removal efficiency. Adsorption tests revealed not only fast kinetics but a

No. of Pages : 15 No. of Claims : 1

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202511058803 A

(19) INDIA

(22) Date of filing of Application :19/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : MAGNETIC POLYMER COMPOSITE FOR REMOVAL OF DYES AND PHARMACEUTICALS FROM WATER: A STUDY OF INVOLVEMENT OF DIFFERENT ADSORPTION PROCESS

|                                                                                                                                                                                                                                                                                                                                                                                           |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
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| <p>(51) International classification :B01J0020280000, C02F0001280000, G01N0033180000, B01J0020200000, B01J0035630000</p> <p>(86) International Application No :NA<br/>Filing Date :NA</p> <p>(87) International Publication No : NA</p> <p>(61) Patent of Addition to Application Number :NA<br/>Filing Date :NA</p> <p>(62) Divisional to Application Number :NA<br/>Filing Date :NA</p> |  | <p>(71)Name of Applicant :<br/><b>1)GRAPHIC ERA DEEMED TO BE UNIVERSITY</b><br/>Address of Applicant :566/6, Bell Road, Society Area, Clement Town, Dehradun - 248002, Uttarakhand, India Dehradun -----</p> <p><b>Name of Applicant : NA</b><br/><b>Address of Applicant : NA</b></p> <p>(72)Name of Inventor :<br/><b>1)Nayak Arunima</b><br/>Address of Applicant :Department of Chemistry, Graphic Era Deemed to be University, Dehradun, 566/6, Bell Road, Society Area, Clement Town, Dehradun - 248002, Uttarakhand, India Dehradun -----</p> <p><b>2)Brij Bhushan</b><br/>Address of Applicant :Department of Chemistry, Graphic Era Deemed to be University, Dehradun, 566/6, Bell Road, Society Area, Clement Town, Dehradun - 248002, Uttarakhand, India Dehradun -----</p> <p><b>3)Kashyap Deepika</b><br/>Address of Applicant :Department of Chemistry, Graphic Era Deemed to be University, Dehradun, 566/6, Bell Road, Society Area, Clement Town, Dehradun - 248002, Uttarakhand, India Dehradun -----</p> |
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(57) Abstract :

With the assumption that composites exhibit better adsorptivity, and better stability, magnetite@chitosan composite (MNP@CT) was fabricated to evaluate its adsorptive behavior towards two different classes of pollutants: tetracycline (TTC) and Eriochrome Black-T (EBT) from wastewater. A study of its adsorptivity under identical conditions revealed higher EBT removal rates but TTC lower removal when compared to its pristine counterparts (EBT: 86%; TTC: 62%) as compared to that for MNP (EBT: 40%; TTC: 73%) and that for CT (EBT: 93%; TTC: 42%). Detailed characterization studies revealed that MNP@CT showed a dispersed nano-rod type particle with low crystallinity as compared to the highly crystalline, aggregated spherical MNP. While the surface functionality was enhanced, the particle surface area, mesoporosity, total pore volume and magnetization showed a decrease in the

No. of Pages : 22 No. of Claims : 1

(54) Title of the invention : ADAPTIVE MULTI-FREQUENCY DIELECTRIC SENSING SYSTEM FOR REAL-TIME SOIL AND CROP CHARACTERIZATION IN RICE-GROWING FIELDS

|                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <div>(51) International classification :A01G0025160000, A01B0079000000, G01N0033240000, G06N0020000000, G06Q0050020000</div> <div>(86) International Application No :NA<br/>Filing Date :NA</div> <div>(87) International Publication No : NA</div> <div>(61) Patent of Addition to Application Number :NA<br/>Filing Date :NA</div> <div>(62) Divisional to Application Number :NA<br/>Filing Date :NA</div> | <div>(71)Name of Applicant :<br/><b>1)Chandigarh University</b><br/>Address of Applicant :Chandigarh University, National Highway 05, Chandigarh-Ludhiana Highway, Mohali, Punjab -140413, India. Mohali ----- -</div> <div>Name of Applicant : NA<br/>Address of Applicant : NA</div> <div>(72)Name of Inventor :<br/><b>1)Dr. Prachi Palta</b><br/>Address of Applicant :Department of Physics and IQAC, Chandigarh University, National Highway 05, Chandigarh-Ludhiana Highway, Mohali, Punjab -140413, India Mohali -----</div> <div><b>2)Dr. Aastha Palta</b><br/>Address of Applicant :UCRD, Chandigarh University, National Highway 05, Chandigarh-Ludhiana Highway, Mohali, Punjab -140413, India. Mohali ----- -</div> |
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(57) Abstract :  
The present invention to an adaptive multi-frequency dielectric sensing system for real-time and high-precision monitoring of soil and crop conditions in rice cultivation. The system features multi-depth dielectric probe arrays (DMPA) and employs frequency-modulated wave transmission combined with reflectometry to measure key dielectric properties, including dielectric constant, phase shift, attenuation, and resonance across various soil layers and crop zones. The system dynamically adjusts to environmental variations, allowing continuous, multi-depth, and multi-frequency data acquisition. A Reflectometry and Transmission Analyzer (RTA) processes signal responses, while a cloud-integrated AI module analyzes the data using machine learning algorithms to predict parameters such as soil moisture content, conductivity, nutrient distribution, and root structure density. The system is designed for seamless integration with IoT-enabled precision agriculture frameworks, supporting automated irrigation control, remote sensing calibration, and efficient resource management. This invention offers a significant improvement in data-driven agricultural practices, contributing to enhanced productivity, sustainability, and decision-making in crop management.

No. of Pages : 13 No. of Claims : 10

(54) Title of the invention : SYSTEM AND METHOD FOR REAL-TIME WATER QUALITY MONITORING USING AI-DRIVEN SENSOR NETWORKS AND PREDICTIVE ANALYTICS

|                                               |                                                                                 |                                                                                                                                                                                                                   |
|-----------------------------------------------|---------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (51) International classification             | :G01N0033180000, G06F0009451000, C02F0001780000, G06Q0050260000, C02F0001740000 | (71) <b>Name of Applicant :</b><br><b>1)Chandigarh University</b><br>Address of Applicant :Chandigarh University, National Highway 05, Chandigarh-Ludhiana Highway, Mohali, Punjab -140413, India. Mohali ----- - |
| (86) International Application No             | :NA                                                                             |                                                                                                                                                                                                                   |
| Filing Date                                   | :NA                                                                             |                                                                                                                                                                                                                   |
| (87) International Publication No             | : NA                                                                            | <b>Name of Applicant : NA</b>                                                                                                                                                                                     |
| (61) Patent of Addition to Application Number | :NA                                                                             | <b>Address of Applicant : NA</b>                                                                                                                                                                                  |
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(57) Abstract :  
The present invention relates to an automated, AI-driven system for real-time water quality monitoring, utilizing a network of IoT-based sensors to continuously measure key parameters including pH, temperature, dissolved oxygen, turbidity and various chemical and biological contaminants. Sensor data is transmitted in real-time to a cloud-based analytics platform, where advanced machine learning algorithms detect anomalies, predict contamination events and forecast water quality trends. The system features a user-friendly dashboard for data visualization, configurable alerts and automated regulatory compliance reporting. Integration with water treatment infrastructure enables dynamic process control, while edge computing ensures low-latency operation in remote environments. Energy-efficient, solar-powered sensors support sustainable deployment and blockchain integration ensures data integrity. Scalable and adaptable, the system is applicable across municipal, industrial, agricultural and environmental sectors, offering a cost-effective solution for proactive and reliable water quality management.

No. of Pages : 13 No. of Claims : 10

(54) Title of the invention : AUTOMATED EYE MOVEMENT ANALYSIS AND THERAPY DEVICE FOR NEUROLOGICAL AND PERCEPTUAL REHABILITATION

|                                                                                                                                                                                                                                                                                                                                                                                                               |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
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| <div>(51) International classification :A61B0005000000, A61B0003113000, G02B0027010000, A61B0005160000, G16H0050200000</div> <div>(86) International Application No :NA<br/>Filing Date :NA</div> <div>(87) International Publication No : NA</div> <div>(61) Patent of Addition to Application Number :NA<br/>Filing Date :NA</div> <div>(62) Divisional to Application Number :NA<br/>Filing Date :NA</div> |  | <div>(71)Name of Applicant :<br/><b>1)Chandigarh University</b><br/>Address of Applicant :Chandigarh University, National Highway 05, Chandigarh-Ludhiana Highway, Mohali, Punjab -140413, India. Mohali ----- -</div> <div>Name of Applicant : NA<br/>Address of Applicant : NA</div> <div>(72)Name of Inventor :<br/><b>1)Sachitanand Singh</b><br/>Address of Applicant :Department of Optometry, Chandigarh University, National Highway 05, Chandigarh-Ludhiana Highway, Mohali, Punjab -140413, India Mohali -----</div> <div><b>2)Mahak</b><br/>Address of Applicant :Department of Optometry, Chandigarh University, National Highway 05, Chandigarh-Ludhiana Highway, Mohali, Punjab -140413, India Mohali -----</div> <div><b>3)Sanskriti Singh</b><br/>Address of Applicant :Department of Nursing, Chandigarh University, National Highway 05, Chandigarh-Ludhiana Highway, Mohali, Punjab -140413, India Mohali -----</div> <div><b>4)Dr. Padamandala Krishnasri</b><br/>Address of Applicant :Department of Optometry, Chandigarh University, National Highway 05, Chandigarh-Ludhiana Highway, Mohali, Punjab -140413, India Mohali -----</div> <div><b>5)Iqra Jamal Khan</b><br/>Address of Applicant :Department of Optometry, Chandigarh University, National Highway 05, Chandigarh-Ludhiana Highway, Mohali, Punjab -140413, India Mohali -----</div> <div><b>6)Ashith Tripathi</b><br/>Address of Applicant :Department of Optometry, Chandigarh University, National Highway 05, Chandigarh-Ludhiana Highway, Mohali, Punjab -140413, India Mohali -----</div> |
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(57) Abstract :  
The present invention discloses an AI-based system for the real-time diagnosis and rehabilitation of oculomotor dysfunctions, particularly abnormalities in saccadic and pursuit eye movements. The device integrates high-precision eye-tracking sensors within a virtual reality (VR) headset to capture fine-grained eye movement data. An embedded artificial intelligence engine analyzes the data using machine learning algorithms trained on normative and pathological profiles to detect irregularities such as delayed saccades, unstable pursuits, and fixation drifts. Based on the diagnosis, the system delivers personalized, adaptive therapy exercises supported by real-time multimodal biofeedback, including visual, auditory, and haptic cues. A connected interface allows clinicians to remotely monitor user progress and adjust therapy protocols. The system generates detailed graphical outputs such as heatmaps and trajectory plots for visual analysis and longitudinal tracking. The invention is suitable for clinical, home, educational, and sports vision applications, transforming conventional neuro-visual therapy through intelligent automation.

No. of Pages : 17 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202511058010 A

(19) INDIA

(22) Date of filing of Application :17/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : VIRTUAL REALITY BASED HISTORICAL RECONSTRUCTION SYSTEM

(51) International  
classification

:G06N0003045000, G06T0019000000,  
G06N0003047000, G06F0003010000,  
G06F0021310000

(86) International  
Application No  
Filing Date

:NA  
:NA

(87) International  
Publication No

: NA

(61) Patent of Addition to  
Application Number  
Filing Date

:NA  
:NA

(62) Divisional to  
Application Number  
Filing Date

:NA  
:NA

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Address of Applicant :Department of Computer Science Engineering, Chandigarh  
University, National Highway 05, Chandigarh-Ludhiana Highway, Mohali, Punjab  
-140413, India Mohali -----

(57) Abstract :

The present invention presents a Virtual Reality (VR)-based historical reconstruction system that leverages reverse engineering and artificial intelligence (AI) to recreate ancient environments with high accuracy and interactivity. The system integrates high-resolution optical sensors, depth measurement units, metal, and radiation detectors to capture detailed spatial and material data from historical sites. Advanced data processing algorithms and AI-driven models, including machine learning and generative adversarial networks (GANs), are employed to reconstruct 3D virtual environments. A model refinement module allows for continuous enhancement based on expert feedback and historical references. The reconstructed models are visualized through immersive AR/VR platforms, offering users interactive features such as navigation, overlays, and contextual information. The system also supports data management, user feedback analysis, and cloud-based processing for large-scale reconstructions. Designed for education, research, and virtual tourism, this scalable and portable solution enhances cultural heritage preservation by delivering dynamic, engaging, realistic experiences of historical events and environments.

No. of Pages : 11 No. of Claims : 10

(54) Title of the invention : VIRTUAL MENTORING AI-BASED SYSTEM FOR AUTO REVERSE ENGINEERING EDUCATION

|                                               |                                  |                                                                                                                                                                                                         |
|-----------------------------------------------|----------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (51) International classification             | :G06V30/00, G06V30/10, G06F40/20 | (71)Name of Applicant :<br><b>1)Chandigarh University</b><br>Address of Applicant :Chandigarh University, National Highway 05, Chandigarh-Ludhiana Highway, Mohali, Punjab -140413, India. Mohali ----- |
| (86) International Application No             | :NA                              |                                                                                                                                                                                                         |
| Filing Date                                   | :NA                              |                                                                                                                                                                                                         |
| (87) International Publication No             | : NA                             | <b>Name of Applicant : NA</b>                                                                                                                                                                           |
| (61) Patent of Addition to Application Number | :NA                              | <b>Address of Applicant : NA</b>                                                                                                                                                                        |
| Filing Date                                   | :NA                              | (72)Name of Inventor :                                                                                                                                                                                  |
| (62) Divisional to Application Number         | :NA                              | <b>1)Pankaj</b>                                                                                                                                                                                         |
| Filing Date                                   | :NA                              | Address of Applicant :Department of Computer Science Engineering, Chandigarh University, National Highway 05, Chandigarh-Ludhiana Highway, Mohali, Punjab -140413, India Mohali -----                   |

(57) Abstract :  
The present invention relates to a Virtual Mentorization AI-Based System for Auto Reverse Engineering Education, a portable, AI-driven educational platform designed to deliver personalized learning experiences. The system digitizes educational materials, analyzes content, and generates individualized learning paths using advanced Optical Character Recognition (OCR), Natural Language Processing (NLP), and Augmented Reality (AR). The system adapts content difficulty, pacing, and format in real-time by interpreting user performance and interaction data. It incorporates a feedback loop powered by reinforcement learning to optimize instructional delivery continuously. The AR module offers immersive simulations and visual guidance, enhancing conceptual understanding. A built-in assessment engine provides quizzes and interactive tasks, while a data repository stores user history to inform future learning adaptations. The system’s reverse engineering approach deconstructs complex material into manageable learning units, fostering deeper comprehension and retention. This system represents a transformative solution in personalized, intelligent education tailored to diverse learning needs and environments.

No. of Pages : 12 No. of Claims : 10



(54) Title of the invention : AI-BASED SYSTEM AND METHOD FOR AUTOMATED INSOLVENCY APPLICATION FILING

|                                               |                                                                                 |                                                                                                                                                                                                         |
|-----------------------------------------------|---------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (51) International classification             | :G06Q0050180000, G06Q0010100000, G06Q0040120000, G06Q0010063500, G06Q0040030000 | (71)Name of Applicant :<br><b>1)Chandigarh University</b><br>Address of Applicant :Chandigarh University, National Highway 05, Chandigarh-Ludhiana Highway, Mohali, Punjab -140413, India. Mohali ----- |
| (86) International Application No             | :NA                                                                             |                                                                                                                                                                                                         |
| Filing Date                                   | :NA                                                                             |                                                                                                                                                                                                         |
| (87) International Publication No             | : NA                                                                            | <b>Name of Applicant : NA</b><br><b>Address of Applicant : NA</b>                                                                                                                                       |
| (61) Patent of Addition to Application Number | :NA                                                                             | (72)Name of Inventor :<br><b>1)Disha Dogra</b>                                                                                                                                                          |
| Filing Date                                   | :NA                                                                             | Address of Applicant :Department of University Institute of Legal Studies , Chandigarh University, National Highway 05, Chandigarh-Ludhiana Highway, Mohali, Punjab -140413, India Mohali -----         |
| (62) Divisional to Application Number         | :NA                                                                             |                                                                                                                                                                                                         |
| Filing Date                                   | :NA                                                                             |                                                                                                                                                                                                         |

(57) Abstract :  
The present invention relates to an AI-powered system and method for automating the preparation and filing of insolvency applications. It leverages artificial intelligence technologies, including natural language processing (NLP) and machine learning (ML), to extract, analyze, and process financial and legal data from sources such as accounting software, bank statements, credit reports, and court databases. The system comprises key modules: a data ingestion engine, a decision engine trained on statutory criteria and historical cases, a document generator that auto-fills jurisdiction-specific templates, and a compliance checker to validate legal conformity. An intuitive user interface facilitates applicant interaction, while AI-driven risk assessment enhances decision accuracy. Integration with government and court portals enables real-time electronic filing.

No. of Pages : 17 No. of Claims : 2

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :20/06/2025

(21) Application No.202511059291 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : BLOCKCHAIN-INTEGRATED IOT SYSTEM FOR SECURE AND REAL-TIME HEALTHCARE MONITORING AND DATA MANAGEMENT

(51) International classification :H04L0009320000, H04L0009000000, G16H0010600000, H04L0009400000, H04L0009080000  
(86) International Application No :NA  
Filing Date :NA  
(87) International Publication No : NA  
(61) Patent of Addition to Application Number :NA  
Filing Date :NA  
(62) Divisional to Application Number :NA  
Filing Date :NA

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3)Avantika Vashistha

4)Manoj Kumar

5)Swarnika Singh

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(57) Abstract :

The present invention discloses a smart healthcare monitoring and data integrity system that integrates Internet of Things (IoT) and blockchain technologies to provide secure, real-time, and reliable health data management. The system employs a network of IoT-enabled biosensors to continuously monitor physiological parameters such as heart rate, temperature, blood pressure, and glucose levels. These sensors transmit data to edge computing nodes, which perform preprocessing, anomaly detection, and encryption. The processed data is then securely transmitted to a permissioned blockchain network, where it is immutably recorded using lightweight consensus algorithms. Smart contracts are deployed to govern access control, automate alerts, and ensure compliance with regulatory standards. Patients maintain ownership of their health data and can manage permissions through blockchain-based digital identities. The invention addresses key challenges in healthcare such as data tampering, unauthorized access, and system interoperability, providing a scalable, decentralized framework suitable for hospitals, remote care, and chronic disease management. Accompanied Drawing [FIGS. 1-2]

No. of Pages : 19 No. of Claims : 10

(54) Title of the invention : PREPARATION AND FORMULATION OF ANTIDIABETIC SYRUP THEREOF

|                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>(51) International classification :A61P0003100000, A61K0036610000, A61K0036590000, A61K0009000000, A61K0036886000</p> <p>(86) International Application No :NA<br/>Filing Date :NA</p> <p>(87) International Publication No : NA<br/>(61) Patent of Addition to Application Number :NA<br/>Filing Date :NA</p> <p>(62) Divisional to Application Number :NA<br/>Filing Date :NA</p> | <p>(71)Name of Applicant :<br/> <b>1)Mr. Roshan Kumar</b><br/> Address of Applicant :School of Pharmacy, Maya Devi University, Dehradun, Uttarakhand -----<br/> <b>2)Ms. Himanshi Chorotiya</b><br/> <b>3)Dr. Jadhav Kavita Kalyan</b><br/> <b>4)Hajera Sana</b><br/> <b>5)Farha Naaz</b><br/> <b>6)Shivani Bhardwaj</b><br/> <b>7)Heena</b><br/> <b>8)Chetan Singh</b><br/> <b>9)Deeksha Gusain</b><br/> <b>10)Prakash Pralhad Sarwade</b><br/> <b>11)Kavita Narayan Gaisamurdre</b><br/> <b>12)Dr. Ajay Kumar</b><br/> Name of Applicant : NA<br/> Address of Applicant : NA<br/> (72)Name of Inventor :<br/> <b>1)Mr. Roshan Kumar</b><br/> Address of Applicant :School of Pharmacy, Maya Devi University, Dehradun, Uttarakhand -----<br/> <b>2)Ms. Himanshi Chorotiya</b><br/> Address of Applicant :D. Y. PATIL , University, School of Pharmacy, Navi Mumbai, Maharashtra. -----<br/> <b>3)Dr. Jadhav Kavita Kalyan</b><br/> Address of Applicant :Shri Dnyaneshwar Mahavidyalaya, Newasa, Maharashtra -----<br/> <b>4)Hajera Sana</b><br/> Address of Applicant :Veeranari Chakali Ilamma Women's University, Hyderabad, Telangana -----<br/> <b>5)Farha Naaz</b><br/> Address of Applicant :School of Pharmacy, Maya Devi University, Dehradun, Uttarakhand -----<br/> <b>6)Shivani Bhardwaj</b><br/> Address of Applicant :School of Pharmacy, Maya Devi University, Dehradun, Uttarakhand -----<br/> <b>7)Heena</b><br/> Address of Applicant :School of Pharmacy, Maya Devi University, Dehradun, Uttarakhand -----<br/> <b>8)Chetan Singh</b><br/> Address of Applicant :Guru Nanak College of Pharmaceutical Sciences, Dehradun , Uttarakhand -----<br/> <b>9)Deeksha Gusain</b><br/> Address of Applicant :School of Pharmacy, Maya Devi University, Dehradun, Uttarakhand -----<br/> <b>10)Prakash Pralhad Sarwade</b><br/> Address of Applicant :Shikshan MaharshiGuruvaryan R.G. Shinde Mahavidyalaya, Dharashiv, Mumbai, Maharashtra. -----<br/> <b>11)Kavita Narayan Gaisamurdre</b><br/> Address of Applicant :Shriman Bhausaheb Zadbuke Mahavidyalaya, Solapur, Maharashtra. -----<br/> <b>12)Dr. Ajay Kumar</b><br/> Address of Applicant :L.S.M Campus, Pithoragarh, SSJ University, Almora, Uttarakhand -----</p> |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

## (57) Abstract :

Diabetes mellitus is a chronic metabolic disorder characterized by hyperglycemia, necessitating effective and natural therapeutic approaches. This study aimed to formulate and evaluate an antidiabetic herbal syrup using Banana Stem Water (*Musa paradisiaca*), Jamun Seed Powder (*Syzygium cumini*), Giloy Powder (*Tinospora cordifolia*), Aloe Vera Juice (*Aloe barbadensis*), and Barley Flour (*Hordeum vulgare*), known for their hypoglycemic properties. Banana stem water acts as a diuretic and helps regulate blood sugar, while Jamun seed powder contains jamboline, which slows glucose release. Giloy enhances insulin sensitivity, Aloe Vera juice improves glycemic control by reducing fasting blood glucose, and Barley flour, rich in beta-glucans, delays carbohydrate absorption. The syrup was prepared by maceration, decoction, and mixing with excipients like honey and preservatives for stability. Physicochemical evaluation included pH, viscosity, density, and sweetness consistency. In-vitro antidiabetic activity was assessed using alpha-amylase and alpha-glucosidase inhibition assays, demonstrating significant enzyme inhibition comparable to standard acarbose. Stability studies over 60 days under different conditions confirmed the syrup's shelf life. Preliminary phytochemical screening revealed the presence of flavonoids, alkaloids, tannins, and saponins, contributing to its antidiabetic effects. The syrup exhibited a pleasant taste, optimal viscosity, and good palatability in sensory evaluation. In-vivo studies on diabetic-induced rats showed a notable reduction in blood glucose levels. The formulated syrup presents a promising natural adjunct for diabetes management, combining traditional knowledge with scientific validation, offering a safe, cost-effective, and easily administrable alternative to synthetic drugs.

No. of Pages : 11 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202511059528 A

(19) INDIA

(22) Date of filing of Application :21/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : MANUAL TOOTHBRUSH WITH INTEGRATED TOOTHPASTE DISPENSING MECHANISM

(51) International  
classification

:A46B0011000000, B05B0011100000,  
B67D0007020000, B05B0011000000,  
A61F0002240000

(86) International  
Application No  
Filing Date

:NA  
:NA

(87) International  
Publication No

: NA

(61) Patent of Addition to  
Application Number  
Filing Date

:NA  
:NA

(62) Divisional to  
Application Number  
Filing Date

:NA  
:NA

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(57) Abstract :

The present invention relates to a manually operable toothbrush integrated with a built-in toothpaste dispensing mechanism. The toothbrush comprises a hollow handle containing a refillable toothpaste chamber 101, 201, a horizontally aligned piston 203, and a spring-actuated mechanism 204 controlled by a manually operated button 102, 209. One or more glass ball valves 205 are provided to function as non-return valves, ensuring unidirectional flow and preventing backflow or leakage. The device is compact, non-electric, and enables clean, consistent, and hygienic dispensing of toothpaste directly onto the bristles. The integrated structure minimizes waste, improves convenience, and eliminates the need for separate toothpaste tubes.

No. of Pages : 9 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :21/06/2025

(21) Application No.202511059529 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : AUTOMATED SMART PARCEL DELIVERY SYSTEM

(51) International classification :G06Q0010080000, G06Q0010083300, G06Q0010083000, H04W0012060000, A47G0029140000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

The present invention relates to an Automated Secure Parcel Delivery System (ASPS) that provides a comprehensive, smart and secure infrastructure for last-mile parcel delivery. The system integrates multiple advanced technologies, including biometric and OTP-based authentication, AI-driven route optimization, real-time GPS and RFID tracking and autonomous delivery vehicles such as drones or self-driving vans. Smart delivery lockers equipped with surveillance cameras, tamper-evident packaging and weight sensors ensure secure, contactless delivery and retrieval by authorized recipients only. A centralized AI engine monitors parcel integrity and environmental conditions during transit, enabling anomaly detection and proactive threat response. A user-friendly mobile application provides real-time updates, secure locker access and delivery confirmations, while seamless integration with e-commerce platforms and predictive maintenance capabilities enhance operational efficiency. The ASPS offers a scalable and future-ready logistics solution optimized for smart cities, high-volume delivery environments and sensitive or time-critical goods.

No. of Pages : 13 No. of Claims : 10

(54) Title of the invention : HYPERLIFT RECO-X

|                                                                                                                                                                                                                                                                                                                                                                                                               |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <div>(51) International classification :B64C0039020000, B64U0010250000, B64C0029000000, B64U0010200000, F41H0013000000</div> <div>(86) International Application No :NA<br/>Filing Date :NA</div> <div>(87) International Publication No : NA</div> <div>(61) Patent of Addition to Application Number :NA<br/>Filing Date :NA</div> <div>(62) Divisional to Application Number :NA<br/>Filing Date :NA</div> |  | <div>(71)Name of Applicant :<br/><b>1)Chandigarh University</b><br/>Address of Applicant :Chandigarh University National Highway 05, Chandigarh-Ludhiana Highway, Mohali, Punjab -140413, India. Mohali -----</div> <div>Name of Applicant : NA<br/>Address of Applicant : NA</div> <div>(72)Name of Inventor :<br/><b>1)Yuvraj Singh Walia</b><br/>Address of Applicant :Department of Aerospace Engineering, Chandigarh University, National Highway 05, Chandigarh-Ludhiana Highway, Mohali, Punjab -140413, India Mohali -----</div> <div><b>2)Vaibhav Pratap Singh</b><br/>Address of Applicant :Department of Aerospace Engineering, Chandigarh University, National Highway 05, Chandigarh-Ludhiana Highway, Mohali, Punjab -140413, India Mohali -----</div> <div><b>3)Sugandh Gupta</b><br/>Address of Applicant :Department of Aerospace Engineering, Chandigarh University, National Highway 05, Chandigarh-Ludhiana Highway, Mohali, Punjab -140413, India Mohali -----</div> <div><b>4)Sanjeev Kumar Dhama</b><br/>Address of Applicant :Department of Aerospace Engineering, Chandigarh University, National Highway 05, Chandigarh-Ludhiana Highway, Mohali, Punjab -140413, India Mohali -----</div> |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

(57) Abstract :  
The present invention discloses a next-generation Unmanned Aerial Vehicle (UAV) system that combines Vertical Take-off and Landing (VTOL) capabilities with high-speed fixed-wing flight for enhanced operational flexibility. Designed for military and defense applications, the UAV integrates a solid-fuel rocket-assisted escape system that enables rapid altitude gain or evasive maneuvers upon threat detection, significantly improving mission survivability. The stealth-optimized airframe, constructed from low Radar Cross Section (RCS) composite materials and featuring a swept-back wing design, minimizes radar detectability. A modular payload bay supports a variety of mission profiles including Intelligence, Surveillance, and Reconnaissance (ISR), Electronic Warfare (EW), tactical strike, and logistics. The hybrid propulsion system, aerodynamic efficiency, and compact, rugged design allow deployment in confined or hostile environments without the need for runways. This invention represents a strategic advancement in UAV technology for modern, high-risk battlefield operations.

No. of Pages : 18 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :18/06/2025

(21) Application No.202511058473 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : PET SAFETY MONITORING DEVICE AND METHOD THEREOF

|                                                                                                                                                                                                                                                                                                                                                                                           |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>(51) International classification :A61B0005000000, A61B0005010000, A61B0005145000, A61B0005110000, A61B0005024000</p> <p>(86) International Application No :NA<br/>Filing Date :NA</p> <p>(87) International Publication No : NA</p> <p>(61) Patent of Addition to Application Number :NA<br/>Filing Date :NA</p> <p>(62) Divisional to Application Number :NA<br/>Filing Date :NA</p> |  | <p>(71)<b>Name of Applicant :</b><br/><b>1)DR. SUBODH KUMAR TRIPATHI</b><br/>Address of Applicant :DIRECTOR, CARE4 DEAR PRIVATE LIMITED, KIRAN COLLEGE CHAURAH, KARBALA ROAD KATRA BANDA, UP, 210001 Banda -----<br/><b>2)MR. SURAJ SHARMA</b><br/><b>3)DR. CHANDRAVILASH RAI</b><br/><b>Name of Applicant : NA</b><br/><b>Address of Applicant : NA</b><br/><b>(72)Name of Inventor :</b><br/><b>1)DR. SUBODH KUMAR TRIPATHI</b><br/>Address of Applicant :DIRECTOR, CARE4 DEAR PRIVATE LIMITED, KIRAN COLLEGE CHAURAH, KARBALA ROAD KATRA BANDA, UP, 210001 Banda -----<br/><b>2)MR. SURAJ SHARMA</b><br/>Address of Applicant :DIRECTOR, CARE4 DEAR PRIVATE LIMITED, 2/16, SCHEME NO. 10 B, ALWAR, RAJASTHAN, 301001 Alwar -----<br/><b>3)DR. CHANDRAVILASH RAI</b><br/>Address of Applicant :DIRECTOR, CARE4 DEAR PRIVATE LIMITED, VILLAGE- NYAYIPUR POST- AKHOURIPUR GOLA, DIST- BUXAR, BIHAR 802114 Buxar -----</p> |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

(57) Abstract :

Disclosed herein is a pet safety monitoring device and method thereof (100) that comprises a harness body (102) configured to be worn by a pet and shaped to accommodate various body sizes of different animals, a plurality of sensors (104) operatively connected to the harness body (102), the plurality of sensors (104) configured to detect physiological and environmental parameters associated with the pet and transmit corresponding sensor data, a central processing unit (106) operatively connected to the plurality of sensors (104), the central processing unit (106) configured to process data signals and execute control commands, the central processing unit (106) comprising; a location tracking module (108), a motion detection module (110), a sound detection module (112), a communication network (114) operatively connected to the central processing unit (106), a user device (116) operatively connected to the communication network (114), a user interface (118) integrated inside the user device (116).

No. of Pages : 30 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202511058497 A

(19) INDIA

(22) Date of filing of Application :18/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : METHOD AND SYSTEM FOR PRODUCING MANGO SEED KERNEL FLOUR WITH REDUCED TANNIN CONTENT

(51) International classification :C12N0001200000, A23B0007060000, A23G0003480000, B33Y0010000000, A61K0036220000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

The present invention provides a food-safe method and system for producing mango seed kernel flour with significantly reduced tannin content. The process includes cleaning mango seeds, drying to facilitate shell removal, slicing kernels, soaking in a dilute sodium meta-bisulfite solution with periodic solution replacement, blanching at 80–90°C, drying to moisture below 10%, milling, and sieving to obtain uniform flour. This method reduces tannin content by up to 87%, improving taste, protein digestibility, and suitability for food applications. The system comprises integrated modules for cleaning, drying, shell removal, slicing, soaking with agitation, blanching, drying, milling, sieving, and packaging, enabling scalable industrial production. The invention adds value to mango processing by-products and promotes sustainable food ingredient development without using harmful chemicals.

No. of Pages : 14 No. of Claims : 10



(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :18/06/2025

(21) Application No.202511058562 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : SMARTPHONE CHARGING WATER PURIFIER DEVICE

(51) International classification :C02F1/32, C02F1/44, F03B17/06,  
F03B13/06, H02J7/00  
(86) International Application No :NA  
Filing Date :NA  
(87) International Publication No : NA  
(61) Patent of Addition to :NA  
Application Number :NA  
Filing Date :NA  
(62) Divisional to Application :NA  
Number :NA  
Filing Date :NA

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Address of Applicant :Student, CCE, Manipal University Jaipur, Dehmi Kalan, Off Jaipur-Ajmer Expressway, Jaipur 303007, Rajasthan, India -----

(57) Abstract :

The present invention discloses a portable, multi-functional device (100) that integrates water purification with on-demand electrical energy generation for charging portable electronic devices. The device (100) comprises a housing containing a water inlet, a micro-turbine generator, a multi-stage water purification unit, a power management module with a rechargeable battery, and at least one electrical output port. As water flows through the device (100), the kinetic energy is harnessed by the turbine to generate electricity, which is either stored or used to directly charge devices such as smartphones. The water simultaneously passes through filtration and sterilization stages to ensure safe drinking water. The system operates without reliance on grid electricity, making it particularly suitable for off-grid environments, emergency relief scenarios, and outdoor activities

No. of Pages : 13 No. of Claims : 7

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202511058577 A

(19) INDIA

(22) Date of filing of Application :18/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : PREPARATION AND ANALYSIS OF DIELECTRIC BEHAVIOUR OF BCZT BASED FLEXIBLE PVDF POLYMER COMPOSITE MEMBRANE

|                                                                                                                   |      |                                                                                                                                                                                                                                  |
|-------------------------------------------------------------------------------------------------------------------|------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (51) International classification :B01D0069120000, B01D0071340000, H01G0011260000, C08L0027160000, B01D0067000000 |      | (71) <b>Name of Applicant :</b><br><b>1)GRAPHIC ERA DEEMED TO BE UNIVERSITY</b><br>Address of Applicant :566/6, Bell Road, Society Area, Clement Town, Dehradun - 248002, Uttarakhand, India Dehradun -----                      |
| (86) International Application No                                                                                 | :NA  | <b>Name of Applicant : NA</b>                                                                                                                                                                                                    |
| Filing Date                                                                                                       | :NA  | <b>Address of Applicant : NA</b>                                                                                                                                                                                                 |
| (87) International Publication No                                                                                 | : NA | (72) <b>Name of Inventor :</b>                                                                                                                                                                                                   |
| (61) Patent of Addition to Application Number                                                                     | :NA  | <b>1)Arun Shekhar Bahuguna</b>                                                                                                                                                                                                   |
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| (62) Divisional to Application Number                                                                             | :NA  | ---                                                                                                                                                                                                                              |
| Filing Date                                                                                                       | :NA  | <b>2)Varij Panwar</b>                                                                                                                                                                                                            |
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|                                                                                                                   |      | ---                                                                                                                                                                                                                              |

(57) Abstract :

The invention provides a process of preparing ceramic powder samples by the solid-state reaction process. After that, it is mixed with polyvinylidene fluoride (PVDF) to form composite membrane, which is fabricated using the solution cast method. Two membranes were prepared with 15 wt% and 50 wt% filler concentrations of BCZT with PVDF matrix. Dielectric behaviours of prepared composite membrane are analyzed, and these various analyses of composite film are also compared with each other. In this, we see that the increasing addition of lead-free based inorganic filler with an organic PVDF matrix enhanced the dielectric constant five times for the frequency 1KHz and reduction in the losses and increases the conductivity of the composite as the filler weight percentage increased. These fabricated composite membrane can be used for wearable biomedical devices, soft robotics and flexible energy storage c

No. of Pages : 15 No. of Claims : 1

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202511058013 A

(19) INDIA

(22) Date of filing of Application :17/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : UNIVERSAL LEARNING AND SUMMARIZATION DEVICE USING REFERENTIAL PROGRAMMING MODULES

(51) International classification :G06F0040300000, G06N0003045000, G06F0016340000, G06N0003080000, G06V0030100000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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Name of Applicant : NA

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(72)Name of Inventor :

**1)Pankaj**

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(57) Abstract :

The present invention relates to a Universal Learning and Summarization Device is a portable, real-time system designed to extract, analyze, and summarize text using advanced referential algorithms. Equipped with a high-resolution camera and Optical Character Recognition (OCR) technology enhanced by Convolutional Neural Networks (CNNs), the device accurately captures and converts text from physical or digital sources into a machine-readable format. It employs Natural Language Processing (NLP) techniques and semantic analysis to compare newly captured text against stored content, highlighting differences and generating concise summaries using both extractive and abstractive methods. An integrated Augmented Reality (AR) interface overlays these summaries onto the original document for enhanced user interaction. The system continuously improves through user feedback and a learning module, ensuring adaptive summarization and better knowledge retention. Additional features include a customizable user interface, memory storage, real-time processing, and efficient power management, making it an ideal tool for students, educators, and professionals.

No. of Pages : 11 No. of Claims : 10

(54) Title of the invention : SYSTEM AND METHOD FOR VIRTUAL MENTOR MATCHING PLATFORM UTILIZING NATURAL LANGUAGE PROCESSING AND VOICE ANALYSIS

|                                               |                                                                                 |                                                                                                                                                                                                                   |
|-----------------------------------------------|---------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (51) International classification             | :G06Q0050200000, G09B0005060000, G09B0007000000, G10L0017260000, G06F0040400000 | (71) <b>Name of Applicant :</b><br><b>1)Chandigarh University</b><br>Address of Applicant :Chandigarh University, National Highway 05, Chandigarh-Ludhiana Highway, Mohali, Punjab -140413, India. Mohali ----- - |
| (86) International Application No             | :NA                                                                             |                                                                                                                                                                                                                   |
| Filing Date                                   | :NA                                                                             |                                                                                                                                                                                                                   |
| (87) International Publication No             | : NA                                                                            | <b>Name of Applicant : NA</b><br><b>Address of Applicant : NA</b>                                                                                                                                                 |
| (61) Patent of Addition to Application Number | :NA                                                                             | (72) <b>Name of Inventor :</b><br><b>1)Pankaj</b>                                                                                                                                                                 |
| Filing Date                                   | :NA                                                                             | Address of Applicant :Department of Computer Science Engineering, Chandigarh University, National Highway 05, Chandigarh-Ludhiana Highway, Mohali, Punjab -140413, India Mohali -----                             |
| (62) Divisional to Application Number         | :NA                                                                             |                                                                                                                                                                                                                   |
| Filing Date                                   | :NA                                                                             |                                                                                                                                                                                                                   |

(57) Abstract :  
The present invention presents a Virtual Mentor Matching Platform that leverages Natural Language Processing (NLP) and voice analysis to optimize tutor-student interactions. The system dynamically matches students with mentors based on academic performance, learning preferences, and real-time communication cues. It integrates a microphone and audio analysis module to extract vocal features such as pitch, tone, and tempo during tutoring sessions. These features are evaluated by an engagement assessment module to generate an engagement score, enabling adaptive feedback and instructional adjustments. The NLP module analyzes written and spoken responses to identify learning gaps and generate personalized educational content. A feedback generation system uses machine learning to provide actionable insights for both students and mentors. The platform also includes modules for mentor matching, progress-tracking, and real-time visualization, ensuring a holistic and responsive learning environment. The system enhances educational outcomes by providing intelligent, personalized, and data-driven mentorship designed to be scalable and energy-efficient.

No. of Pages : 12 No. of Claims : 10

(54) Title of the invention : SMART LATCHING CONTROL SYSTEM FOR VEHICLE SEATS WITH SENSOR-BASED SAFETY AND MULTI-MODAL OPERATION

|                                               |                                                                                 |                                                                                                                                                                                                                                                         |
|-----------------------------------------------|---------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (51) International classification             | :H04W0012060000, H04W0004029000, G07C0009000000, G05D0001000000, H04L0009400000 | (71) <b>Name of Applicant :</b><br><b>1)Chandigarh University</b><br>Address of Applicant :Chandigarh University National Highway 05, Chandigarh-Ludhiana Highway, Mohali, Punjab -140413, India. Mohali ----- -                                        |
| (86) International Application No             | :NA                                                                             |                                                                                                                                                                                                                                                         |
| Filing Date                                   | :NA                                                                             |                                                                                                                                                                                                                                                         |
| (87) International Publication No             | : NA                                                                            | <b>Name of Applicant : NA</b>                                                                                                                                                                                                                           |
| (61) Patent of Addition to Application Number | :NA                                                                             | <b>Address of Applicant : NA</b>                                                                                                                                                                                                                        |
| Filing Date                                   | :NA                                                                             | (72) <b>Name of Inventor :</b><br><b>1)Bebesh Tripathy</b><br>Address of Applicant :Department of Computer Science and Engineering, Chandigarh University, National Highway 05, Chandigarh-Ludhiana Highway, Mohali, Punjab -140413, India Mohali ----- |
| (62) Divisional to Application Number         | :NA                                                                             |                                                                                                                                                                                                                                                         |
| Filing Date                                   | :NA                                                                             |                                                                                                                                                                                                                                                         |

(57) Abstract :  
The present invention discloses an intelligent latching control system for a vehicle seat, comprising an electromechanical actuator, a control unit with a multi-modal logic controller, and sensors including a weight sensor and inertial measurement unit (IMU). The system operates in automated, manual override, and crash-responsive modes based on inputs received via wireless signal or manual input. A safety check module evaluates predefined parameters before allowing latch actuation, ensuring secure release only under safe conditions. A crash detection module overrides normal logic to trigger latch locking or unlocking based on impact or abnormal motion. The system includes a feedback module for notifying users and a logging module for recording events. A sleep mode conserves power post-operation. The system supports wireless authentication, OTA updates, and optional energy harvesting, offering enhanced safety, reliability, and user control in vehicular environments.

No. of Pages : 7 No. of Claims : 10

(54) Title of the invention : IOT-ENABLED BODY-MOUNTED MEDICAL MONITORING APPARATUS WITH DISTRIBUTED SENSOR NODES AND AI ANALYTICS

|                                                                                                                                                                                                                                                                                                                                                                         |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <div>(51) International classification :A61B5/00, G16H50/20</div> <div>(86) International Application No :NA</div> <div>Filing Date :NA</div> <div>(87) International Publication No : NA</div> <div>(61) Patent of Addition to Application Number :NA</div> <div>Filing Date :NA</div> <div>(62) Divisional to Application Number :NA</div> <div>Filing Date :NA</div> |  | <div>(71)Name of Applicant :</div> <div>1)ARPIT BHARDWAJ</div> <div>Address of Applicant :HOUSE NO 5, TYPE VI, D BLOCK, GAUTAM BUDDHA UNIVERSITY, U.P 201312 Greater Noida -----</div> <div>2)DR. MADHUSHI VERMA</div> <div>3)MANOJ DAHIYA</div> <div>4)DEEPAK KUMAR AGGARWAL</div> <div>5)AJITH ABRAHAM</div> <div>Name of Applicant : NA</div> <div>Address of Applicant : NA</div> <div>(72)Name of Inventor :</div> <div>1)ARPIT BHARDWAJ</div> <div>Address of Applicant :HOUSE NO 5, TYPE VI, D BLOCK, GAUTAM BUDDHA UNIVERSITY, U.P 201312 Greater Noida -----</div> <div>2)DR. MADHUSHI VERMA</div> <div>Address of Applicant :SCHOOL OF COMPUTER SCIENCE ENGINEERING AND TECHNOLOGY, BENNETT UNIVERSITY, PLOT NO. 8-11, TECH ZONE - 2, GREATER NOIDA Greater Noida -----</div> <div>3)MANOJ DAHIYA</div> <div>Address of Applicant :TOWER 4G HOUSE # 1203, GURJINDER VIHAR, AWHO, SECTOR- CHI1, GREATER NOIDA Greater Noida -----</div> <div>4)DEEPAK KUMAR AGGARWAL</div> <div>Address of Applicant :594, BELTON CT, CUMMING, GA 30041, USA undefined -----</div> <div>5)AJITH ABRAHAM</div> <div>Address of Applicant :SAI UNIVERSITY , CHENNAI, INDIA Chennai -----</div> |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

(57) Abstract :

The present disclosure provides a physiological monitoring system (100) comprising a tension-adaptive strap (102) configured to encircle a thoracic region and constructed from dual-elastic fabric enabling dynamic expansion. The system (100) includes a plurality of biopotential electrodes (104) positioned on an inner surface of the strap (102) and a plurality of piezoelectric sensing strips (106) embedded between said electrodes (104). A clasp enclosure (108) centrally affixed to the strap (102) houses a signal processing unit interfacing the electrodes (104) and sensing strips (106), and a wireless transmission interface (110) configured for IoT-based data communication. The system (100) employs an IoT architecture for continuous acquisition and transmission of physiological signals. The signal processing unit includes embedded AI analytics for real-time classification of cardiopulmonary conditions using learned signal patterns. The AI analytics framework enables adaptive filtering and anomaly detection, enhancing diagnostic accuracy during ambulatory use. Fig. 1

No. of Pages : 28 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202511058288 A

(19) INDIA

(22) Date of filing of Application :17/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : REAL-TIME BEHAVIOURAL NUDGING SYSTEMS IN BEHAVIOURAL FINANCE AND METHOD THEREOF

(51) International classification :G06Q40/00, G06Q40/06, G06N20/00  
(86) International Application No :NA  
Filing Date :NA  
(87) International Publication No : NA  
(61) Patent of Addition to Application Number :NA  
Filing Date :NA  
(62) Divisional to Application Number :NA  
Filing Date :NA

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**5)ABHISHEK SINGH CHAUHAN**  
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(57) Abstract :

The invention relates to a real-time behavioural nudging system designed to assist investors in making rational financial decisions. It integrates AI-driven sentiment analysis, pattern recognition, and reinforcement learning to detect cognitive biases and provide timely, personalized nudges. The system monitors market conditions, investor behaviour, and sentiment data to deliver context-aware interventions that counteract biases such as loss aversion, FOMO, and panic selling. By offering just-in-time financial guidance, this invention aims to enhance investor discipline, minimize irrational decision-making, and improve financial outcomes.

No. of Pages : 12 No. of Claims : 6

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202511058294 A

(19) INDIA

(22) Date of filing of Application :18/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : AUTONOMOUS POLLINATION ROBOT MIMICKING BEE BEHAVIOR FOR AGRICULTURAL CROP ENHANCEMENT

(51) International  
classification

:G05D0001000000, B64C0039020000,  
B64U0101300000, A01B0079000000,  
B64U0101000000

(86) International  
Application No  
Filing Date

:NA  
:NA

(87) International  
Publication No

: NA

(61) Patent of Addition to  
Application Number  
Filing Date

:NA  
:NA

(62) Divisional to  
Application Number  
Filing Date

:NA  
:NA

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India Mohali -----

(57) Abstract :

The present invention relates to an autonomous pollination robot configured to mimic the behavior of bees for agricultural crop enhancement. The system comprises a lightweight aerial drone equipped with biomimetic flapping wings or multi-rotors, a pollen collection mechanism using electrostatic or adhesive surfaces, and a pollen deposition mechanism for targeted pollination. The drone integrates AI-based navigation, environmental sensors, and machine vision for real-time identification of flowers, bloom assessment, and obstacle avoidance. Powered by rechargeable batteries and optionally solar panels, the system autonomously navigates agricultural fields to collect and deposit pollen, thereby improving pollination efficiency and crop yields. The invention addresses the decline in natural pollinators and offers a sustainable, scalable, and intelligent solution for precision agriculture.

No. of Pages : 10 No. of Claims : 10



(54) Title of the invention : WEARABLE SENSOR SYSTEM

|                                               |                                                                                 |                                                                                                                                                                                                         |
|-----------------------------------------------|---------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (51) International classification             | :A61B0005000000, G06Q0010063100, G06F0003010000, G06V0040100000, G06Q0010063900 | (71)Name of Applicant :<br><b>1)Chandigarh University</b><br>Address of Applicant :Chandigarh University, National Highway 05, Chandigarh-Ludhiana Highway, Mohali, Punjab -140413, India. Mohali ----- |
| (86) International Application No             | :NA                                                                             |                                                                                                                                                                                                         |
| Filing Date                                   | :NA                                                                             |                                                                                                                                                                                                         |
| (87) International Publication No             | : NA                                                                            | <b>Name of Applicant : NA</b><br><b>Address of Applicant : NA</b>                                                                                                                                       |
| (61) Patent of Addition to Application Number | :NA                                                                             | (72)Name of Inventor :<br><b>1)Pankaj</b>                                                                                                                                                               |
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| (62) Divisional to Application Number         | :NA                                                                             |                                                                                                                                                                                                         |
| Filing Date                                   | :NA                                                                             |                                                                                                                                                                                                         |

(57) Abstract :  
The present invention discloses a wearable sensor system designed to enhance workplace productivity and employee well-being through real-time monitoring and intelligent task optimization. The system integrates an optical sensor and an MPU6050 motion sensor to capture visual and physical data, such as task progress, ingredient handling, hand gestures, and body orientation. A processor analyzes the sensor inputs and delivers real-time feedback and time-based recommendations through an augmented reality (AR) interface, aiding multitasking and ergonomic posture. A data analytics module powered by machine learning algorithms identifies inefficiencies, tracks performance trends, and generates actionable insights. The system includes a communication interface for data transmission to central servers and a user feedback module to refine system behavior. Designed for adaptability across various work environments, the system supports personalized calibration, seamless integration with workplace management systems, and visual performance dashboards.

No. of Pages : 12 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :18/06/2025

(21) Application No.202511058578 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : A SYSTEM AND A METHOD TO AUTHENTICATE USER IDENTITY USING SELF-EVOLVING ENTANGLEMENT, QUANTUM-CLASSICAL IDENTITY HASHING, AND TAMPER-EVIDENT QUANTUM INTERFERENCE

(51) International classification :H04L0009080000, H04L0009320000, H04L0009400000, H04L0009000000, G06Q0020380000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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**4)Dr Pankaj Adatiya Tiwari**  
**5)Dr. Raju Suresh Gaware**  
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Address of Applicant :Professor, GCRC, Govt Dungar College ( NAAC ‘A’ Grade) , MGS University, Bikaner, Rajasthan Bikaner -----

(57) Abstract :

The present disclosure relates to a system and method to authenticate user identity using quantum computing-based techniques that provide secure, tamper-evident, and non-reproducible authentication. The system comprises a quantum key generation module, a self-evolving entanglement matrix, a quantum encoder for embedding identity data into quantum states, a quantum channel interface, and a quantum interference detection module to identify spoofing or tampering attempts. A quantum-classical identity hashing engine fuses quantum measurement outcomes with classical data to generate a unique, session-specific identity signature. A processor orchestrates the authentication lifecycle and initiates access control or secure erasure based on signature validation and interference checks. Additionally, a blockchain anchoring module immutably records authentication events for post-quantum auditability. The method includes generating quantum keys, encoding user input into quantum states, detecting tampering, and authorizing access based on hybrid identity verification. This invention offers a resilient and adaptive approach to identity authentication, suitable for post-quantum security infrastructure. Fig. 3.

No. of Pages : 27 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :18/06/2025

(21) Application No.202511058580 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : AI-DRIVEN ANALYSIS OF HONEYPOT THREAD DETECTION

(51) International classification :G06N20/00, G06F21/55,  
G06N20/10  
(86) International Application No :NA  
Filing Date :NA  
(87) International Publication No : NA  
(61) Patent of Addition to Application  
Number :NA  
Filing Date :NA  
(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

The Present invention discloses an AI-driven cybersecurity system that combines honeypot-based data collection with machine learning algorithms for real-time threat detection. Honeypots are deployed to attract malicious activity, capturing detailed logs and network data. This data undergoes preprocessing and feature extraction before being used to train multiple machine learning models, including Random Forest, SVM, Decision Tree, and Naive Bayes. The best-performing model is selected based on accuracy, precision, and recall metrics and deployed for live intrusion detection. The system supports continuous learning to adapt to new threats and includes interpretability features for transparent decision-making. This integrated approach offers automated, scalable, and highly accurate protection against evolving cyberattacks.

No. of Pages : 10 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :18/06/2025

(21) Application No.202511058581 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : ENERGY-EFFICIENT SMART HOME AUTOMATION USING CONTEXT-AWARE AI

(51) International classification :G05B0015020000, H04L0012280000, G06N0020000000, G06N0003006000, G05B0019418000  
(86) International Application No :NA  
Filing Date :NA  
(87) International Publication No : NA  
(61) Patent of Addition to Application Number :NA  
Filing Date :NA  
(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

The present invention relates to an energy-efficient smart home automation system utilizing context-aware artificial intelligence (AI). By integrating IoT sensors and machine learning algorithms, the system collects real-time data on occupancy, environment, and appliance usage to optimize energy consumption. The AI analyzes user behavior and environmental conditions to autonomously control lighting, temperature, and devices, thereby reducing energy waste and enhancing user comfort. A user interface allows feedback, monitoring, and manual overrides, while the system continuously learns to improve efficiency. It also supports renewable energy integration and secure data transmission. This invention promotes sustainable living, cost savings, and intelligent automation within modern households.

No. of Pages : 11 No. of Claims : 10

(54) Title of the invention : HANDHELD CLEANING APPARATUS WITH CAPILLARY ACTION

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <div><div>(51) International classification</div><div>:A47L0005240000, A47L0007000000, A47L0009000000, A47L0009100000, G06F0001200000</div></div> <div><div>(86) International Application No</div><div>:NA</div><div>Filing Date</div><div>:NA</div></div> <div><div>(87) International Publication No</div><div>: NA</div></div> <div><div>(61) Patent of Addition to Application Number</div><div>:NA</div><div>Filing Date</div><div>:NA</div></div> <div><div>(62) Divisional to Application Number</div><div>:NA</div><div>Filing Date</div><div>:NA</div></div> |  | <div><div>(71)Name of Applicant :</div><div><b>1)Chandigarh University</b><br/>Address of Applicant :Chandigarh University National Highway 05, Chandigarh-Ludhiana Highway, Mohali, Punjab -140413, India. Mohali -----</div><div><b>Name of Applicant : NA</b><br/><b>Address of Applicant : NA</b></div><div><div>(72)Name of Inventor :</div><div><b>1)Dr.Asma Fayaz</b><br/>Address of Applicant :Department of Agricultural Sciences, Chandigarh University, National Highway 05, Chandigarh-Ludhiana Highway, Mohali, Punjab -140413, India Mohali -----</div><div><b>2)Mrs. Sonia Bajaj</b><br/>Address of Applicant :Department of Mathematics, Chandigarh University, National Highway 05, Chandigarh-Ludhiana Highway, Mohali, Punjab -140413, India Mohali -----</div><div><b>3)Dr. Saboor Fayaz</b><br/>Address of Applicant :Department of Mechanical Engineering, Chandigarh University, National Highway 05, Chandigarh-Ludhiana Highway, Mohali, Punjab -140413, India Mohali -----</div><div><b>4)Dr. Shilpi Jindal</b><br/>Address of Applicant :Department of Physics, Chandigarh University, National Highway 05, Chandigarh-Ludhiana Highway, Mohali, Punjab -140413, India Mohali -----</div><div><b>5)Dr. Shalini Sharma</b><br/>Address of Applicant :Department of Liberal Arts and Humanities, Chandigarh University, National Highway 05, Chandigarh-Ludhiana Highway, Mohali, Punjab -140413, India Mohali -----</div></div></div> |
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(57) Abstract :

The present invention discloses a compact handheld cleaning apparatus employing capillary action for efficient dust removal in hard-to-reach or low-clearance areas. Inspired by the ink-filling mechanism of fountain pens, the device features a micro-channeled suction tip that draws in dust through finely engineered grooves using passive capillary dynamics, with or without powered airflow. It operates in manual or motorized modes, utilizing either a bellows/piston mechanism or a low-powered fan to initiate airflow. The capillary-assisted nozzle design ensures effective dust collection at low energy consumption, particularly in narrow spaces beneath furniture or in tight corners. The apparatus includes a modular cleaning head, integrated microfiltration, and a removable dust chamber for hygienic maintenance. Soft bristles around the tip enhance surface contact and agitation, while interchangeable nozzles support different cleaning scenarios. Ergonomically shaped like a pen for precision handling, the invention provides a silent, energy-efficient alternative to conventional vacuums and brooms in confined environments.

No. of Pages : 8 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :17/06/2025

(21) Application No.202511058023 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : WATER-RECYCLING HYDRATION BOTTLE

(51) International classification :C02F0001000000, A61Q0019000000, C02F0001440000, B01D0005000000, B67D0007040000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

The present invention relates to a self-cooling, water-recycling hydration bottle that combines passive evaporative cooling with an integrated water recovery system in a compact, portable form. Utilizing a superabsorbent polymer (SAP) hydrogel core, the device regulates controlled water release to enable continuous cooling without external energy input. A multi-stage spiral condensation system efficiently captures and recycles over 80% of evaporated moisture, converting it into potable water. Key features include an optimized SAP matrix for evaporation control, a passive fin-based condenser for vapour recovery, and a closed-loop design that conserves water while maintaining user comfort. The bottle requires no electricity, offers reliable thermal regulation, and supports prolonged use in diverse environments. Ideal for outdoor activities, emergency kits, and everyday hydration, this innovation merges sustainable engineering with practical design, delivering dual functionality, cooling, and hydration in a durable, user-friendly, energy-independent system.

No. of Pages : 14 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202511058024 A

(19) INDIA

(22) Date of filing of Application :17/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : WEARABLE GESTURE-BASED MONITORING SYSTEM FOR DETECTING INCORRECT POSTURE AND PREDICTING FALL EVENTS

(51) International classification :A61B0005000000, A61B0005110000, G06F0003010000, G16H0050300000, G16H0040670000

(86) International Application No :NA

Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA

Filing Date :NA

(62) Divisional to Application Number :NA

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(57) Abstract :

The present invention relates to a wearable gesture-based monitoring system for real-time detection of incorrect posture and prediction of fall events. A wearable gesture-based monitoring system for detecting incorrect posture and predicting fall events in a user, comprising: a. an inertial measurement unit (IMU) including an accelerometer, gyroscope, and magnetometer for detecting motion and orientation; an optical sensor comprising a Time-of-Flight (ToF) module for monitoring foot elevation and stride length; a microprocessor configured to process real-time data from the IMU and ToF sensor and execute a machine learning algorithm to detect postural deviations and predict fall likelihood; a feedback module including a vibration motor for providing haptic alerts upon detection of posture anomalies or fall risk; and a communication module for transmitting data to external devices for logging or remote monitoring.

No. of Pages : 10 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202511058826 A

(19) INDIA

(22) Date of filing of Application :19/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : VOICE-ACTIVATED SMART HOME SYSTEM WITH REAL-TIME SCHEDULING ANDLOCALIZED DEVICE CONTROL

|                                               |                                                                                 |                                                                                                                                                                                                 |
|-----------------------------------------------|---------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (51) International classification             | :G10L0015220000, G05B0019418000, G05B0015020000, G06F0003160000, G06Q0030018000 | (71)Name of Applicant :<br><b>1)MANIPAL UNIVERSITY JAIPUR</b><br>Address of Applicant :Dehmi Kalan, Off Jaipur-Ajmer Expressway, Jaipur-303007, Rajasthan, India -----                          |
| (86) International Application No             | :NA                                                                             | <b>Name of Applicant : NA</b>                                                                                                                                                                   |
| Filing Date                                   | :NA                                                                             | <b>Address of Applicant : NA</b>                                                                                                                                                                |
| (87) International Publication No             | : NA                                                                            | (72)Name of Inventor :                                                                                                                                                                          |
| (61) Patent of Addition to Application Number | :NA                                                                             | <b>1)Souhardo Saha</b>                                                                                                                                                                          |
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(57) Abstract :

The present invention relates to a voice-activated smart home system (100) that enables users to control household appliances using either voice commands or a web-based interface, without requiring continuous internet connectivity. The system (100) comprises a local AI assistant for interpreting voice inputs, a dynamic web dashboard for manual control and configuration, and a Flask-based backend that manages real-time device status, scheduling, and command execution. Commands are validated against a centralized MongoDB Atlas database before execution to prevent redundant actions. A scheduling module supports both one-time and recurring events. Device control is carried out through ESP8266 and ESP32 microcontrollers communicating via the ESP-NOW protocol, ensuring fast, offline-capable operation. All interactions are logged for traceability. The system (100) is modular, scalable, and suitable for deployment in homes, institutions, and low-connectivity environments

No. of Pages : 17 No. of Claims : 6



(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :19/06/2025

(21) Application No.202511058883 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : SUSTAINABLE USE OF KITCHENWASTE-BASED ACTIVATED CARBON FOR THE REMOVAL OF CIPROFLOXACIN FROM WATER

|                                                                                                                                                                                                                                                                                                                                                                                        |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>(51) International classification :C02F1/28, C01B32/30, C01B32/312, C01B32/318, B01J20/20, C02F101/30</p> <p>(86) International Application No :NA</p> <p>Filing Date :NA</p> <p>(87) International Publication No : NA</p> <p>(61) Patent of Addition to Application Number :NA</p> <p>Filing Date :NA</p> <p>(62) Divisional to Application Number :NA</p> <p>Filing Date :NA</p> |  | <p>(71)Name of Applicant :<br/><b>1)GRAPHIC ERA DEEMED TO BE UNIVERSITY</b><br/>Address of Applicant :566/6, Bell Road, Society Area, Clement Town, Dehradun - 248002, Uttarakhand, India Dehradun -----<br/><b>Name of Applicant : NA</b><br/><b>Address of Applicant : NA</b><br/>(72)Name of Inventor :<br/><b>1)Priya Chaudhary</b><br/>Address of Applicant :Department of Chemistry, Graphic Era Deemed to be University, Dehradun, 566/6, Bell Road, Society Area, Clement Town, Dehradun - 248002, Uttarakhand, India Dehradun -----<br/><b>2)Nupur Kukretee</b><br/>Address of Applicant :Department of Chemistry, Graphic Era Deemed to be University, Dehradun, 566/6, Bell Road, Society Area, Clement Town, Dehradun - 248002, Uttarakhand, India Dehradun -----<br/><b>3)Arunima Nayak</b><br/>Address of Applicant :Department of Chemistry, Graphic Era Deemed to be University, Dehradun, 566/6, Bell Road, Society Area, Clement Town, Dehradun - 248002, Uttarakhand, India Dehradun -----<br/><b>4)Brij Bhushan</b><br/>Address of Applicant :Department of Chemistry, Graphic Era Deemed to be University, Dehradun, 566/6, Bell Road, Society Area, Clement Town, Dehradun - 248002, Uttarakhand, India Dehradun -----<br/><b>5)Richa Bhatt</b><br/>Address of Applicant :Department of Chemistry, Graphic Era Deemed to be University, Dehradun, 566/6, Bell Road, Society Area, Clement Town, Dehradun - 248002, Uttarakhand, India Dehradun -----</p> |
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(57) Abstract :

The humungous generation of kitchen wastes followed by their unscientific disposal has resulted in environmental pollution and solid waste management problems. The present study provides a sustainable and economical alternative by fabricating porous activated carbon (Kitchen waste@AC) from mixed kitchen waste by physical activation at 950°C. Characterization studies were employed via FTIR, FE-SEM EDX, XRD, and BET analysis techniques. BET analysis determined the mean pore diameter, surface area and pore volume of 3.8nm,580.82 m<sup>2</sup>/g, and 0.11 cm<sup>3</sup>/g, respectively. CIP was selected as a model adsorbate due to its extensive presence in water bodies and as result of which adverse impacts have been observed on the living biota. The optimization of CIP adsorption was carried out by varying adsorbent dosages (0.01-0.04 g/L), adsorbent concentrations (20-40 g/L-1) and aqueous pH of 1-11. The maximum removal capaci

No. of Pages : 21 No. of Claims : 1

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :19/06/2025

(21) Application No.202511058906 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : AUTONOMOUS RESCUE AND ENVIRONMENTAL DATA ACQUISITION SYSTEM FOR DISASTER-AFFECTED TERRAINS

(51) International classification :G06Q0050260000, G06Q0010040000, H01Q0001240000, G06F0017180000, G01C0021200000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

The present disclosure relates to a system (100) for autonomous rescue and data acquisition in disaster-affected environments, is disclosed. The system (100) comprises a chassis body (102) structured for traversal across unstable terrain, a terrain sensing unit (104) using light detection and ranging for spatial mapping, and a thermal imaging camera (106) to capture infrared radiation profiles. A sensor assembly (108) including acoustic and hazard sensors enables detection of survivor cues and hazardous conditions. A hybrid-electric locomotion assembly (110) powers a torque-controlled continuous track drive for multi-terrain mobility. A thermochromic surface coating (112) modulates thermal emission based on environmental input. A retractable antenna (114) facilitates secure directional data transmission. A computing device (116) receives and processes input from all sensors to construct a terrain model, identify human-compatible heat signatures, classify hazards, compute a traversal priority index, and regulate drive signals. Said computing device (116) generates and transmits encoded data to a ground station before retracting the antenna (114).

No. of Pages : 27 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202511058025 A

(19) INDIA

(22) Date of filing of Application :17/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : MAGLEV SPIN LAUNCH SYSTEM WITH SILICON-CARBIDE-TITANIUM COMPOSITE TETHER FOR LEO SATELLITE DEPLOYMENT

(51) International classification :B60L0013030000, H02K0041030000, B64G0001220000, H01F0006060000, B60L0015000000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

A satellite launch system is disclosed that integrates magnetic levitation and spin launch technologies within a vacuum chamber to enable efficient payload deployment into Low Earth Orbit. The system utilizes a tether composed of silicon-carbide fibre reinforced titanium matrix composite, providing high tensile strength and thermal stability under extreme rotational loads. Niobium-Titanium (NbTi) superconducting wires embedded in the tether are cooled to 4.2 K and interact with electromagnetic coils generating a 2.5 Tesla field, powered by 5 MJ superconducting magnetic energy storage units. Propulsion is provided by Linear Induction Motors (LIMs) or Linear Synchronous Motors (LSMs), accelerating the tether to 900 RPM and 8,000 m/s<sup>2</sup>. The payload is released using a solenoid-actuated latch with piezoelectric precision. Radiative cooling panels and Invar spacers address thermal expansion. The system achieves a launch efficiency of 15 kWh/kg and complies with ISO 21360 and IEC 61000 standards, offering a scalable alternative to traditional launch methods.

No. of Pages : 17 No. of Claims : 5

(54) Title of the invention : MULTI-MODAL DIGITAL THERAPY SYSTEM WITH AI-DRIVEN INSIGHTS AND BLOCKCHAIN-BASED HEALTH RECORD MANAGEMENT

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| <div><div>(51) International classification</div><div>:A61B0005000000, A61B0005024000, H04L0009000000, G16H0010600000, H04L0009320000</div></div> <div><div>(86) International Application No</div><div>:NA</div><div>Filing Date</div><div>:NA</div></div> <div><div>(87) International Publication No</div><div>: NA</div></div> <div><div>(61) Patent of Addition to Application Number</div><div>:NA</div><div>Filing Date</div><div>:NA</div></div> <div><div>(62) Divisional to Application Number</div><div>:NA</div><div>Filing Date</div><div>:NA</div></div> |  | <div><div>(71)Name of Applicant :</div><div><b>1)Chandigarh University</b><br/>Address of Applicant :Chandigarh University, National Highway 05, Chandigarh-Ludhiana Highway, Mohali, Punjab -140413, India. Mohali ----- -</div></div> <div><div>Name of Applicant : NA</div><div>Address of Applicant : NA</div></div> <div><div>(72)Name of Inventor :</div><div><b>1)Aman Kumar</b><br/>Address of Applicant :Department of Computer Science Engineering and IT, Chandigarh University, National Highway 05, Chandigarh-Ludhiana Highway, Mohali, Punjab -140413, India Mohali -----</div><div><b>2)Sakshi Sikarwar</b><br/>Address of Applicant :Department of Computer Science Engineering and IT, Chandigarh University, National Highway 05, Chandigarh-Ludhiana Highway, Mohali, Punjab -140413, India Mohali -----</div><div><b>3)Bhaskar Kumar Jha</b><br/>Address of Applicant :Department of Computer Science Engineering and IT, Chandigarh University, National Highway 05, Chandigarh-Ludhiana Highway, Mohali, Punjab -140413, India Mohali -----</div><div><b>4)Dr. Bhupinder Kaur</b><br/>Address of Applicant :Department of Computer Science Engineering and IT, Chandigarh University, National Highway 05, Chandigarh-Ludhiana Highway, Mohali, Punjab -140413, India Mohali -----</div><div><b>5)Avneet Kaur</b><br/>Address of Applicant :Department of Computer Science Engineering and IT, Chandigarh University, National Highway 05, Chandigarh-Ludhiana Highway, Mohali, Punjab -140413, India Mohali -----</div><div><b>6)Dr. Poonam Kukana</b><br/>Address of Applicant :Department of Computer Science Engineering and IT, Chandigarh University, National Highway 05, Chandigarh-Ludhiana Highway, Mohali, Punjab -140413, India Mohali -----</div><div><b>7)Dr. Navpreet Kaur Walia</b><br/>Address of Applicant :Department of Computer Science Engineering and IT, Chandigarh University, National Highway 05, Chandigarh-Ludhiana Highway, Mohali, Punjab -140413, India Mohali -----</div><div><b>8)Dr. Parveen Bajaj</b><br/>Address of Applicant :Department of Computer Science and Engineering, Chandigarh University, National Highway 05, Chandigarh-Ludhiana Highway, Mohali, Punjab -140413, India Mohali -----</div></div> |
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(57) Abstract :  
The present invention relates to a system for providing personalized, secure, and real-time mental health support by integrating artificial intelligence (AI), blockchain technology, and Internet of Things (IoT) sensors. The system comprises an AI module employing a Retrieval-Augmented Generation (RAG) model to deliver context-aware therapeutic responses based on individual medical history, emotional state, and real-time physiological data. IoT-enabled wearable devices continuously monitor biometric parameters such as heart rate, blood pressure, sleep, and stress levels. The collected data is encrypted and stored on a blockchain ledger, ensuring user-controlled, tamper-proof data management. The system further includes a user interface for interactive communication and a dashboard for health visualization. Machine learning allows the AI to adapt responses over time. The invention provides a unified ecosystem for mental health care that is context-sensitive, privacy-focused, and evolutionarily intelligent, providing continuous, personalized support based on multidimensional user inputs.

No. of Pages : 14 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :17/06/2025

(21) Application No.202511058027 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : HELMET COMPLIANCE ENFORCEMENT SYSTEM WITH IGNITION CONTROL BASED ON REAL-TIME IMAGE PROCESSING

(51) International classification :G06N0003080000, G06V0010820000, H04N0007180000, G08G0001017000, G06V0020400000  
(86) International Application No :NA  
Filing Date :NA  
(87) International Publication No : NA  
(61) Patent of Addition to Application Number :NA  
Filing Date :NA  
(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :  
The invention relates to a real-time helmet detection system designed to monitor and enforce helmet compliance among two-wheeler riders using artificial intelligence and computer vision. The system consists of high-resolution surveillance cameras, a video preprocessing unit, and a deep learning-based object detection model YOLOv5 or YOLOv8 trained to detect helmets, riders, and motorcycles within live traffic footage. Video frames are extracted, normalized, and analyzed to identify violations where a rider is not wearing a helmet. The system generates a violation log containing a timestamp, location data, camera identifier, and visual evidence. Optional features include automatic number plate recognition (ANPR), GPS integration, and dashboard-based reporting tools. Alerts are delivered automatically to traffic authorities via SMS, email, or API. The system supports both cloud and edge deployment, allowing flexible and scalable integration into urban or remote environments. The invention provides a fully automated, non-intrusive solution for enhancing traffic safety and law enforcement efficiency.

No. of Pages : 17 No. of Claims : 10

(54) Title of the invention : QUANTUM CIRCUIT OPTIMIZATION USING GENETIC ALGORITHMS IN NANOTECHNOLOGY

|                                                                                                                                                                                                                                                                                                                                                                                                               |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <div>(51) International classification :G06N0010000000, G06N0003126000, G06N0010400000, G06N0010700000, G06N0010200000</div> <div>(86) International Application No :NA<br/>Filing Date :NA</div> <div>(87) International Publication No : NA</div> <div>(61) Patent of Addition to Application Number :NA<br/>Filing Date :NA</div> <div>(62) Divisional to Application Number :NA<br/>Filing Date :NA</div> |  | <div>(71)Name of Applicant :<br/><b>1)Chandigarh University</b><br/>Address of Applicant :Chandigarh University, National Highway 05, Chandigarh-Ludhiana Highway, Mohali, Punjab -140413, India. Mohali -----<br/>-----<br/><b>Name of Applicant : NA</b><br/><b>Address of Applicant : NA</b><br/>(72)Name of Inventor :<br/><b>1)Nitin Tomar</b><br/>Address of Applicant :Department of Computer Science Engineering, Chandigarh University, National Highway 05, Chandigarh-Ludhiana Highway, Mohali, Punjab -140413, India Mohali -----<br/><b>2)Laxminarayan Sharma</b><br/>Address of Applicant :Department of Computer Science Engineering, Chandigarh University, National Highway 05, Chandigarh-Ludhiana Highway, Mohali, Punjab -140413, India Mohali -----<br/><b>3)Rudra Narayan Sharma</b><br/>Address of Applicant :Department of Computer Science Engineering, Chandigarh University, National Highway 05, Chandigarh-Ludhiana Highway, Mohali, Punjab -140413, India Mohali -----<br/><b>4)Chandan Bhattacharya</b><br/>Address of Applicant :Department of Computer Science Engineering, Chandigarh University, National Highway 05, Chandigarh-Ludhiana Highway, Mohali, Punjab -140413, India Mohali -----</div> |
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(57) Abstract :  
This invention presents a Nano-Enhanced Genetic Algorithm Framework for Quantum Circuit Optimization, integrating AI-driven evolutionary computing with nanotechnology-based quantum hardware to achieve fault-tolerant, high-efficiency quantum computation. The system employs Genetic Algorithms (GA) to iteratively evolve quantum circuits, optimizing gate sequences, qubit connectivity, and error correction strategies. It leverages self-assembled quantum dots, nano-patterned superconducting qubits, and topological materials to dynamically enhance qubit coherence and minimize decoherence effects. A hybrid quantum-classical co-processing model integrates a nanophotonic AI accelerator, enabling real-time feedback-driven optimization. Furthermore, adaptive quantum error correction (GA-QEC) evolves alongside circuit design, reducing the need for excessive physical qubits while maintaining computational integrity. This novel framework ensures cross-platform compatibility across superconducting, trapped-ion, photonic, and topological quantum computing architectures, making it a scalable, hardware-aware, and commercially viable solution for next-generation quantum processors.

No. of Pages : 9 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :21/06/2025

(21) Application No.202511059558 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : SELF PREDICTABLE AI BASED RETINOSCOPE

(51) International classification :A61B0003120000, A61B0003103000, A61B0003140000, G16H0050200000, G16H0030400000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :  
The present invention relates to a self-predictable AI-based retinoscope configured to assess and predict ocular refractive errors in real-time. The device comprises a retinoscope unit, an image-capturing module, and an artificial intelligence-based processor that analyzes retinal reflex images and outputs predicted refractive power values. A graphical user interface is used to display the results in diopters including spherical, cylindrical, and axis components. The invention optionally includes cloud-based storage, wireless connectivity, distance sensors, and ergonomic design suited for pediatric screening. The system provides an accurate, automated, and non-invasive method for vision assessment without requiring skilled interpretation, thereby enabling widespread deployment in both clinical and remote healthcare applications.

No. of Pages : 8 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :21/06/2025

(21) Application No.202511059559 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : NON-INVASIVE SYSTEM FOR PREDICTING HUMAN BLOOD GROUP USING FINGERPRINT IMAGE PROCESSING

(51) International classification :G06V0040120000, G06V0040130000, G06F0021320000, G06N0003045000, G06N0003080000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

The present invention discloses a non-invasive, AI-powered system for predicting human blood groups using fingerprint patterns. A non-invasive system for predicting human blood group using fingerprint image processing, the system comprising: a fingerprint scanner configured to capture a fingerprint image of the subject; an FTDI USB-to-serial (101) connector enabling communication between said fingerprint scanner and a computing device; a computing device (102); a pre-processing software module stored in the computing device and executable by a processor; a feature extraction software module; a trained deep learning model and an output interface (103) configured to display the predicted blood group and a confidence score. The fingerprint scanner comprising: an optical Sensor (104) to capture the fingerprint image; a Digital Signal Processor (105) to process the raw image; a flash memory (106) to store the fingerprint templates; and a UART Interface (TX and RX pins) (107) to enable communication with FTDI connector.

No. of Pages : 15 No. of Claims : 9



(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :19/06/2025

(21) Application No.202511058907 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : AUTONOMOUS HYBRID-ENERGY SYSTEM FOR AGRICULTURAL MONITORING AND PRECISION IRRIGATION

(51) International classification :H02M0003335000, H02S0040380000, H02J0007350000, H02M0003000000, H02M0007000000  
(86) International Application No :NA  
Filing Date :NA  
(87) International Publication No : NA  
(61) Patent of Addition to Application Number :NA  
Filing Date :NA  
(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

The present disclosure provides a system for autonomous hybrid-energy agricultural monitoring and precision irrigation. The system comprises a U-shaped telescopic chassis frame comprising a cross-member housing a pair of oppositely threaded lead-screw driven rails operatively coupled through a synchronous magnetic coupling assembly to vary a lateral track width. A pair of vertical legs incorporating lift actuators are pivotally connected to opposing ends of the cross-member. An environmental sensing unit comprises at least one selected from a thermochromic or an image-based sensor. A hybrid energy management unit comprises photovoltaic cells, hydrogen fuel cells, and a battery storage array. An energy control circuit dynamically switches between solar and hydrogen power sources. A processing unit analyzes environmental data and generates control signals. An irrigation dispensing unit discharges water in response to said control signals. A wireless communication interface transmits environmental data and irrigation status in discrete intervals to an external interface. Fig. 1

No. of Pages : 27 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :19/06/2025

(21) Application No.202511058908 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : WEARABLE OCULAR SCREENING GLASSES FOR NON-INVASIVE GLAUCOMA DETECTION AND RISK EVALUATION

(51) International classification :A61B0005000000, G06T0007000000, A61P0027060000, A61B0003120000, A61B0003100000  
(86) International Application No :NA  
Filing Date :NA  
(87) International Publication No : NA  
(61) Patent of Addition to Application Number :NA  
Filing Date :NA  
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Filing Date :NA

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(57) Abstract :

Abstract Disclosed a wearable ocular screening system (100) for non-invasive glaucoma detection and risk evaluation comprises a spectacle-type frame (102) having right-side (106) and left-side (108) supports and a front lens support section (104). A piezoelectric pressure sensor (110) on the right-side support estimates intraocular pressure via eyelid deformation. An ocular Doppler optical sensor (112) on a lateral segment of the right-side support measures ocular blood flow, while an infrared ocular thermography sensor (114) on a forward-facing portion of the right-side support detects periocular temperature variations. Smart camera modules (116) on opposing ends of the front lens support capture photoplethysmographic signals and pupil responses. A LIDAR-based surface topography sensor (118) on the left-side support generates a corneal curvature map. A microprocessor (120), housed within the left-side support, receives all sensor data, segments optic disc/cup boundaries to compute cup-to-disc ratios, analyzes retinal nerve fiber layer thinning, compares temporal landmarks, and executes a trained decision model to compute a glaucoma risk score. A wireless communication interface (122) transmits the risk score and associated data to an external device.

No. of Pages : 27 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202511058978 A

(19) INDIA

(22) Date of filing of Application :19/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : DYNAMIC AI-DRIVEN WATER CREDITS PLATFORM WITH IOT VERIFICATION AND BLOCKCHAIN LEDGER FOR WATER CONSERVATION

(51) International classification :H04L0009000000, H04L0009320000, G06Q0020140000, G06Q0040040000, G06Q0030040000

(86) International Application No :NA

Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA

Filing Date :NA

(62) Divisional to Application Number :NA

Filing Date :NA

(71)Name of Applicant :

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(57) Abstract :

The present invention provides a dynamic, AI-driven platform for issuing, tracking, and trading water credits, based on verified real-time data from multiple water conservation and generation sources such as Atmospheric Water Generators (AWG), rainwater harvesting, Sewage Treatment Plants (STP), and household consumption reduction. Verified through IoT devices, the system employs machine learning models to dynamically adjust credit values based on environmental and market factors. All credits are immutably recorded on a blockchain ledger, supporting secure, transparent peer-to-peer trading and third-party integrations via APIs. The platform incentivizes sustainable water usage by gamifying user engagement and enabling integration with utility billing systems and corporate ESG frameworks. The invention fosters market-driven conservation practices applicable to both public and private sectors.

No. of Pages : 11 No. of Claims : 20

(54) Title of the invention : VOICE-CONTROLLED REMOTE FARMING DEVICE WITH AUTOMATED MECHANISMS AND NLP-BASED COMMAND INTERFACE

|                                               |                                                                                 |                                                                                                                                                                                                                   |
|-----------------------------------------------|---------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (51) International classification             | :G06F0040295000, A01B0079000000, H04N0021422000, G06N0003044000, G06N0020000000 | (71) <b>Name of Applicant :</b><br><b>1)Chandigarh University</b><br>Address of Applicant :Chandigarh University, National Highway 05, Chandigarh-Ludhiana Highway, Mohali, Punjab -140413, India. Mohali ----- - |
| (86) International Application No             | :NA                                                                             |                                                                                                                                                                                                                   |
| Filing Date                                   | :NA                                                                             |                                                                                                                                                                                                                   |
| (87) International Publication No             | : NA                                                                            | <b>Name of Applicant : NA</b>                                                                                                                                                                                     |
| (61) Patent of Addition to Application Number | :NA                                                                             | <b>Address of Applicant : NA</b>                                                                                                                                                                                  |
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(57) Abstract :  
The present invention introduces a voice-controlled remote farming device that integrates advanced automation, real-time sensing, and Natural Language Processing (NLP) for precision agriculture. Utilizing a high-fidelity microphone and NLP algorithms, including Named Entity Recognition (NER) and intent classification, the system accurately interprets user voice commands. These commands are mapped to predefined farming procedures, dynamically adjusted through sensor inputs such as infrared (IR) for irrigation and light-dependent resistors (LDR) for field monitoring. The device generates executable task frames and autonomously carries out operations like seeding, irrigation, and harvesting. A feedback mechanism provides real-time updates on execution status, while adaptive algorithms optimize performance based on environmental data and historical trends. Machine learning further refines procedures over time, enhancing efficiency and sustainability. With a customizable command interface, multitask coordination, and robust power management, this device offers a comprehensive, user-friendly solution for modern farming, minimizing manual intervention and maximizing productivity across diverse agricultural environments.

No. of Pages : 10 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202511058297 A

(19) INDIA

(22) Date of filing of Application :18/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : BIODEGRADABLE HIVE COATING FOR PEST AND DISEASE PREVENTION

(51) International  
classification

:A61K0035644000, A61K0008980000,  
A01K0047040000, A01K0047020000,  
A01K0047060000

(86) International  
Application No  
Filing Date

:NA  
:NA

(87) International  
Publication No

: NA

(61) Patent of Addition to  
Application Number  
Filing Date

:NA  
:NA

(62) Divisional to  
Application Number  
Filing Date

:NA  
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(57) Abstract :

The present invention discloses a biodegradable hive coating for use in apiculture to protect beehives from pests and microbial infections. The composition comprises propolis extract, chitosan, beeswax, tree resins, essential oils, and a starch-based biopolymer. The coating is applied to the inner surfaces of the hive, where it forms a breathable, water-resistant, and antimicrobial barrier that degrades over 3–6 months. The invention provides a non-toxic, eco-friendly alternative to synthetic pesticides and supports sustainable beekeeping practices.

No. of Pages : 9 No. of Claims : 9

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202511058298 A

(19) INDIA

(22) Date of filing of Application :18/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : INTELLIGENT IOT-BASED PRECISION FARMING SYSTEM WITH REAL-TIME CROP HEALTH MONITORING AND AUTOMATED NUTRIENT MANAGEMENT

(51) International classification :A01G0025160000, A01C0023040000, G16H0050200000, G06Q0050020000, G16H0050700000

(86) International Application No :NA

Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA

Filing Date :NA

(62) Divisional to Application Number :NA

Filing Date :NA

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(57) Abstract :

The present invention discloses an intelligent IoT-based precision farming system for real-time crop health monitoring and automated nutrient management. The system comprises environmental, soil, and imaging sensors; a data analytics module powered by machine learning; and an actuator control unit interfaced with a smart fertigation system. It continuously monitors crop health, diagnoses nutrient deficiencies or plant stress, and executes real-time, site-specific nutrient application autonomously. The invention enables sustainable agriculture by optimizing input use, enhancing productivity, and reducing environmental impact.

No. of Pages : 10 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202511058299 A

(19) INDIA

(22) Date of filing of Application :18/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : DESIGN AND ANALYSIS OF VENTILATION SYSTEM FOR CLOSED POULTRY HOUSE IN TROPICAL CLIMATE CONDITIONS USING ANSYS CFD

(51) International classification :A01K1/00, F24F5/00, A01K31/20, F24F11/00  
(86) International Application No :NA  
Filing Date :NA  
(87) International Publication No : NA  
(61) Patent of Addition to Application Number :NA  
Filing Date :NA  
(62) Divisional to Application Number :NA  
Filing Date :NA

(71)**Name of Applicant :**  
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**Name of Applicant : NA**  
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(72)**Name of Inventor :**  
**1)Anuj Gupta**  
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(57) Abstract :

The present invention provides a ventilation system designed for closed poultry houses located in tropical climatic regions, where external temperatures often exceed 40°C. The invention addresses the critical need to maintain internal conditions within the ideal thermal comfort zone for poultry, between 25°C and 30°C, to ensure their health and productivity. The system integrates a water-based evaporator (such as a sprinkler mechanism) with a strategically positioned exhaust fan to achieve effective cooling and air circulation. The proposed configuration was designed and analyzed using ANSYS Computational Fluid Dynamics (CFD) software to simulate real-world heat transfer and airflow patterns within the poultry house. Four different models were evaluated through CFD simulations: (i) a base model with no evaporator or exhaust fan, (ii) a model with only an evaporator, (iii) a model with only an exhaust fan, and (iv) a hybrid model with both systems.

No. of Pages : 11 No. of Claims : 7

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :17/06/2025

(21) Application No.202511058028 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : SMART SELF-HEALING ROAD SYSTEM

(51) International classification :E21B0047070000, G06N0020000000, G01L0001000000, H04L0067120000, G01L0001180000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

The present invention relates to a Smart Self-Healing Road System that autonomously detects, analyzes, and repairs road surface damage using a combination of smart materials, embedded nano/micro-robotics, artificial intelligence (AI), and renewable energy technologies. A smart self-healing road system, comprising: a smart asphalt layer (101) embedded with microcapsules containing healing agents; a network of embedded sensors (102) configured to monitor parameters including strain, vibration, temperature, and pressure in real-time; an artificial intelligence (AI) processing unit (103); one or more nano- or micro-scale robotic repair units (104) embedded within or beneath the road surface, operable to perform localized repair upon receiving a signal from the AI unit; a renewable energy harvesting module (105) comprising solar panels and/or piezoelectric devices configured to power system components; and an IoT communication module (106) configured to transmit system status, repair activity, and diagnostic data to a central monitoring system.

No. of Pages : 13 No. of Claims : 10



(54) Title of the invention : CRYOGENIC HEAT EXCHANGER FOR THE RECUPERATOR

|                                                                                                                                                                                                                                                                                                                                                                                                           |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
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| <div>(51) International classification :F28F13/00, F28F9/00, F28F99/00, F28F21/00</div> <div>(86) International Application No :NA</div> <div>    Filing Date :NA</div> <div>(87) International Publication No : NA</div> <div>(61) Patent of Addition to Application Number :NA</div> <div>    Filing Date :NA</div> <div>(62) Divisional to Application Number :NA</div> <div>    Filing Date :NA</div> |  | <div>(71)Name of Applicant :<br/>    <b>1)Chandigarh University</b><br/>    Address of Applicant :Chandigarh University, National Highway 05, Chandigarh-Ludhiana Highway, Mohali, Punjab -140413, India Mohali ----- --</div> <div><b>Name of Applicant : NA</b><br/><b>Address of Applicant : NA</b></div> <div>(72)Name of Inventor :<br/>    <b>1)Kedarisetti Pramoda Lochan</b><br/>    Address of Applicant :Department of Aerospace Engineering, Chandigarh University, National Highway 05, Chandigarh-Ludhiana Highway, Mohali, Punjab -140413, India Mohali -----</div> <div>    <b>2)Tejaswini Yadav</b><br/>    Address of Applicant :Department of Aerospace Engineering, Chandigarh University, National Highway 05, Chandigarh-Ludhiana Highway, Mohali, Punjab -140413, India Mohali -----</div> <div>    <b>3)Rahul Gupta</b><br/>    Address of Applicant :Department of Aerospace Engineering, Chandigarh University, National Highway 05, Chandigarh-Ludhiana Highway, Mohali, Punjab -140413, India Mohali -----</div> |
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(57) Abstract :  
The present invention relates to a cryogenic heat exchanger recuperator featuring a uniform crystal lattice structure fabricated from a Cu-Cr-Nb alloy. The integrated design eliminates conventional brazed or welded joints, reducing structural vulnerabilities and enhancing reliability under thermal cycling. Strategically engineered expansion and compression regions optimize fluid dynamics, improving thermodynamic efficiency through controlled pressure and velocity changes. The advanced Cu-Cr-Nb alloy offers superior thermal conductivity and mechanical strength at cryogenic temperatures. Inlet and outlet ports are positioned to leverage natural convection, enhancing heat transfer without additional energy input. The monolithic construction simplifies manufacturing, reduces cost, and increases durability compared to traditional multistream plate-fin heat exchangers. This innovation addresses the limitations of conventional designs, offering improved performance, reliability, and efficiency in extreme cryogenic environments, representing a significant advancement in the field of thermal energy exchange systems.

No. of Pages : 16 No. of Claims : 8

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :17/06/2025

(21) Application No.202511058035 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : MECHANICAL ELEVATOR SAFETY SYSTEM USING PULLEY-ACTUATEDTRAPDOORS

|                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>(51) International classification :B66B0009000000, B66B0005000000, B66B0001340000, B66B0001460000, E04G0021320000</p> <p>(86) International Application No :NA<br/>Filing Date :NA</p> <p>(87) International Publication No : NA</p> <p>(61) Patent of Addition to Application Number :NA<br/>Filing Date :NA</p> <p>(62) Divisional to Application Number :NA<br/>Filing Date :NA</p> | <p>(71)<b>Name of Applicant :</b><br/><b>1)MANIPAL UNIVERSITY JAIPUR</b><br/>Address of Applicant :Dehmi Kalan, Off Jaipur-Ajmer Expressway, Jaipur-303007, Rajasthan, India -----<br/><b>Name of Applicant : NA</b><br/><b>Address of Applicant : NA</b></p> <p>(72)<b>Name of Inventor :</b><br/><b>1)Dr Shyam Sunder Sharma</b><br/>Address of Applicant :Assistant Professor, Department of Mechanical Engineering, SoE, Manipal University Jaipur, Dehmi Kalan, Off Jaipur-Ajmer Expressway, Jaipur 303007, Rajasthan, India -----<br/><b>2)Dr Anurag Joshi</b><br/>Address of Applicant :Assistant Professor, Department of Mechanical Engineering, SoE, Manipal University Jaipur, Dehmi Kalan, Off Jaipur-Ajmer Expressway, Jaipur 303007, Rajasthan, India -----<br/><b>3)Parth Bajaj</b><br/>Address of Applicant :Student, CCE, Manipal University Jaipur, Dehmi Kalan, Off Jaipur-Ajmer Expressway, Jaipur 303007, Rajasthan, India -----<br/><b>4)Swayam Agarwal</b><br/>Address of Applicant :Student, CCE, Manipal University Jaipur, Dehmi Kalan, Off Jaipur-Ajmer Expressway, Jaipur 303007, Rajasthan, India -----<br/><b>5)Swapnil Fegade</b><br/>Address of Applicant :Student, CCE, Manipal University Jaipur, Dehmi Kalan, Off Jaipur-Ajmer Expressway, Jaipur 303007, Rajasthan, India -----</p> |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

(57) Abstract :

The present invention provides a mechanical safety system for elevators to prevent accidental falls into the elevator shaft. The system (100) comprises a plurality of trapdoors installed at each floor level within the shaft, configured to remain closed when the elevator car is not present at the respective floor. A pulley-based mechanism, mechanically linked to the elevator car, controls the opening and closing of these trapdoors in synchronization with the elevator's vertical movement. As the elevator approaches a floor, the pulley system activates the corresponding trapdoor to open, allowing the car to enter. After the elevator departs, the trapdoor closes automatically using counterweights or springs. The system (100) is entirely mechanical, operates without electrical sensors or external power, and is suitable for retrofitting in existing elevator shafts. This invention offers a reliable and fail-safe method to enhance passenger safety and eliminate the risk of falling into an empty elevator shaft.

No. of Pages : 13 No. of Claims : 5

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :21/06/2025

(21) Application No.202511059560 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : SMART ANTI-SNORING PILLOW WITH ADAPTIVE FEEDBACK

(51) International classification :A61F0005560000, A61B0005000000, A47G0009100000, A61B0007000000, A61B0005080000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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**5)Dr. Harpreet Kaur**

Address of Applicant :Department of Mathematics, Chandigarh University, National Highway 05, Chandigarh-Ludhiana Highway, Mohali, Punjab -140413, India Mohali -----

(57) Abstract :

The invention relates to a smart anti-snoring pillow system that detects and mitigates snoring through a combination of real-time audio monitoring, artificial intelligence-based snore pattern recognition, and automated physical feedback mechanisms. The system comprises an embedded microphone, a microcontroller running a snore detection algorithm, micro-vibration modules, and inflatable air bladders. Upon detecting snoring, the system delivers gentle vibrations or dynamically adjusts the shape of the pillow via air-cell inflation to encourage a shift in the user's head or neck position, improving airway alignment. Pressure sensors and AI learning algorithms enable personalized responses without disturbing sleep. A companion mobile app allows sleep data analysis, customization of settings, and firmware updates. The system provides a non-invasive, silent, and intelligent solution for individuals suffering from habitual snoring or mild obstructive sleep apnea.

No. of Pages : 7 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :21/06/2025

(21) Application No.202511059561 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : NON-INVASIVE SYSTEM FOR REAL-TIME HEART RATE MONITORING AND ANOMALY DETECTION

|                                                  |                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
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| (51) International classification                | :A61B5/024, G16H50/20,<br>G06N3/08 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| (86) International Application No                | :NA                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Filing Date                                      | :NA                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| (87) International Publication No                | : NA                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| (61) Patent of Addition to Application<br>Number | :NA<br>:NA                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Filing Date                                      |                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| (62) Divisional to Application Number            | :NA                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Filing Date                                      | :NA                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |

(57) Abstract :

The present invention discloses a non-invasive, real-time system for heart rate monitoring and anomaly detection using facial video analysis and embedded edge processing. A non-invasive system for real-time heart rate monitoring and anomaly detection, comprising: a high-resolution camera (101) configured to capture facial video of a patient; an embedded processing unit (102) configured to extract photoplethysmographic signals from said facial video; a cooling fan (103); an external memory support (104); two ports (105) alternatively for the power supply and for connecting an external camera; two LED indicators (106) alternatively indicating the built-in camera and external camera; a tactile On/Off button (107); a pre-processing module; a deep learning model; a cloud-based alert software module for generating and transmitting alerts upon detection of abnormal heart rate values; a multi-bed detection module using YOLOv8; a pose estimation module (MediaPipe or equivalent) and an anomaly detection module.

No. of Pages : 12 No. of Claims : 10

(54) Title of the invention : SYSTEM AND METHOD FOR SUPPRESSING LEAKAGE IN NANO-MOSFETS USING REVERSE GATE BIAS

|                                               |                                                                                 |                                                                                                                                                                                                         |
|-----------------------------------------------|---------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (51) International classification             | :H01L0029778000, H01L0029200000, H03K0019000000, H01J0049000000, H03K0019003000 | (71)Name of Applicant :<br><b>1)Chandigarh University</b><br>Address of Applicant :Chandigarh University, National Highway 05, Chandigarh-Ludhiana Highway, Mohali, Punjab -140413, India. Mohali ----- |
| (86) International Application No             | :NA                                                                             |                                                                                                                                                                                                         |
| Filing Date                                   | :NA                                                                             |                                                                                                                                                                                                         |
| (87) International Publication No             | : NA                                                                            | <b>Name of Applicant : NA</b><br><b>Address of Applicant : NA</b>                                                                                                                                       |
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| (62) Divisional to Application Number         | :NA                                                                             |                                                                                                                                                                                                         |
| Filing Date                                   | :NA                                                                             |                                                                                                                                                                                                         |

(57) Abstract :  
The invention provides a switching system for n-channel enhancement-type MOSFETs that addresses leakage current and logic instability at nanometre-scale dimensions. It introduces a dual-polarity gate control mechanism wherein a positive voltage is applied to the Gate terminal during the ON state to induce conduction, and a negative voltage is applied during the OFF state to increase the potential barrier and suppress quantum tunneling. To further isolate the main logic circuit from residual minority carrier flow, an alternative conduction loop is introduced across the n-type regions on the opposite side of the channel, biased with a positive voltage during the OFF state. This loop diverts residual current away from the logic path, maintaining signal integrity. The system is designed with a logic threshold above the level of minority current, ensuring accurate switching. This configuration supports improved logic accuracy, thermal efficiency, and scalability in ultra-miniaturized integrated circuits used in high-density microprocessor applications.

No. of Pages : 15 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :19/06/2025

(21) Application No.202511058981 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : AUTONOMOUS COLLAPSIBLE ANTENNA APPARATUS FOR EMERGENCY COMMUNICATION IN CONSTRAINED ENVIRONMENTS

(51) International classification :H01Q0001100000, H01Q0001420000, H04W0004900000, B60T0007220000, A61B0005000000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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Name of Applicant : NA  
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(57) Abstract :

The present disclosure provides a system for autonomous emergency communication deployment in constrained environments. The system comprises a base enclosure having a top mounting surface, a power compartment, and an interface panel. A segmented telescopic antenna shaft having helicoidally guided polygonal segments is mounted on the top mounting surface. A planetary gear drive assembly generates axial extension and rotation of the segments. A universal joint with a tri-lobed flexure array allows directional redirection. A foldable radome assembly with a microfluidic bladder array is positioned over the antenna. A torsional recoil chamber facilitates passive retraction using stored rotational energy. A sensor skirt with capacitive, ultrasonic, and proximity sensors evaluates surrounding structures. A communication interface coupled to the antenna shaft, gear assembly, and power compartment enables bidirectional wireless transmission and deployment status indication through the interface panel. Fig. 1

No. of Pages : 27 No. of Claims : 10

(54) Title of the invention : INTELLIGENT AND SCALABLE BATTERY MANAGEMENT SYSTEM FOR ELECTRIC VEHICLES INTEGRATING REAL-TIME HEALTH DIAGNOSTICS, PREDICTIVE THERMAL CONTROL AND HYBRID CELL BALANCING

|                                                                                                                                                                                                                                                                                                                                                                                                               |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <div>(51) International classification :H02J0007000000, H01M0010420000, G06N0020000000, H01M0010480000, H01M0010440000</div> <div>(86) International Application No :NA<br/>Filing Date :NA</div> <div>(87) International Publication No : NA</div> <div>(61) Patent of Addition to Application Number :NA<br/>Filing Date :NA</div> <div>(62) Divisional to Application Number :NA<br/>Filing Date :NA</div> |  | <div>(71)Name of Applicant :<br/><b>1)Centre for Innovation and Incubation, Central University of Haryana</b><br/>Address of Applicant :Jant-Pali, Mahendragarh-123031, Haryana, India<br/>Mahendragarh -----<br/><b>Name of Applicant : NA</b><br/><b>Address of Applicant : NA</b><br/>(72)Name of Inventor :<br/><b>1)Dr. Muralidhar Nayak Bhukya</b><br/>Address of Applicant :Assistant Professor, Department of Electrical Engineering, School of Engineering and Technology, Central University of Haryana, Jant-Pali, Mahendragarh-123031, Haryana, India Mahendragarh -----<br/><b>2)Dr. Sumit Saini</b><br/>Address of Applicant :Assistant Professor, Department of Electrical Engineering, School of Engineering &amp; Technology, Central University of Haryana, Jant-Pali, Mahendragarh-123031, Haryana, India Mahendragarh -----<br/><b>3)Abhishake Jain</b><br/>Address of Applicant :Assistant Professor, Department of Electrical Engineering, Ganga Institute of Technology and Management, Kablana, Jhajjar-124104, Haryana Jhajjar -----<br/><b>4)Muskan Garg</b><br/>Address of Applicant :Department of Electronics and Communication Engineering with Artificial Intelligence, Indira Gandhi Delhi Technical University for Women, Delhi - 110006 Delhi -----</div> |
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(57) Abstract :  
The present invention discloses a next-generation Battery Management System (BMS) for electric vehicles that integrates intelligent real-time health monitoring, predictive thermal control, and hybrid cell balancing. By combining federated sensor networks, an advanced microcontroller, and machine learning algorithms, the system offers precise estimation of battery state parameters and proactive fault detection. A hybrid balancing mechanism ensures charge uniformity while minimizing energy loss. Thermal safety is maintained through synergistic passive and active cooling strategies. Designed for scalability, this modular BMS supports diverse EV configurations ranging from 48V to 400V, enhancing both performance and safety in urban mobility solutions. Figure of abstract: FIG. 1.

No. of Pages : 23 No. of Claims : 8

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202511059010 A

(19) INDIA

(22) Date of filing of Application :19/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : AN INTELLIGENT ASSISTIVE ROBOTIC SYSTEM WITH VOICE AND GESTURECONTROL FOR ELDERLY AND PHYSICALLY IMPAIRED USERS

(51) International classification :A61B0005000000, G08B0021040000, A61B0005020500, G16H0080000000, A61H0003000000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

The present invention provides an intelligent assistive robotic system designed to support elderly individuals and persons with physical or medical challenges by integrating multiple assistive functions into a single, adaptive platform. The system comprises a morphing structural frame with articulated joints, enabling it to transform its configuration for various tasks such as mobility support, personal care, household assistance, and exercise guidance. The system includes non-invasive health monitoring sensors for tracking vital signs and fall detection, along with emergency alert capabilities. It features intuitive control interfaces including voice recognition, gesture recognition, and mobile application connectivity. The system further integrates with smart home infrastructure via wireless communication protocols, allowing environmental control. An embedded adaptive artificial intelligence module enables personalized support by learning user preferences, behaviors, and routines.

No. of Pages : 11 No. of Claims : 9



(54) Title of the invention : PROCEDURE AND IMAGE RECOGNITION-BASED BRUSH FOR PRECISE PAINTING

|                                               |                                                                                 |                                                                                                                                                                                                        |
|-----------------------------------------------|---------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (51) International classification             | :F16M0011180000, F16M0011120000, B05B0013040000, B05B0013000000, H04N0023680000 | (71)Name of Applicant :<br><b>1)Chandigarh University</b><br>Address of Applicant :Chandigarh University National Highway 05, Chandigarh-Ludhiana Highway, Mohali, Punjab -140413, India. Mohali ----- |
| (86) International Application No             | :NA                                                                             |                                                                                                                                                                                                        |
| Filing Date                                   | :NA                                                                             |                                                                                                                                                                                                        |
| (87) International Publication No             | : NA                                                                            | <b>Name of Applicant : NA</b><br><b>Address of Applicant : NA</b>                                                                                                                                      |
| (61) Patent of Addition to Application Number | :NA                                                                             | (72)Name of Inventor :<br><b>1)Pankaj</b>                                                                                                                                                              |
| Filing Date                                   | :NA                                                                             | Address of Applicant :Department of Computer Science Engineering, Chandigarh University, National Highway 05, Chandigarh-Ludhiana Highway, Mohali, Punjab -140413, India Mohali -----                  |
| (62) Divisional to Application Number         | :NA                                                                             |                                                                                                                                                                                                        |
| Filing Date                                   | :NA                                                                             |                                                                                                                                                                                                        |

(57) Abstract :  
The present invention relates to an automated painting device that integrates image recognition and real-time motion control to enhance the precision of physical brush strokes. The system includes a motorized actuator with high-torque motors and a three-rod stabilization mechanism that enables multi-axis, fine-tuned brush positioning. A camera module equipped with image recognition algorithms such as edge and contour detection continuously monitors the canvas to detect boundaries and provide visual feedback. A roller mechanism with proximity sensors forms dynamic physical barriers, ensuring the brush remains within defined painting zones. The system also features a screen module for real-time user interaction, displaying painting progress and accepting control inputs. A feedback-driven control unit employing PID and adaptive algorithms regulates brush movement and corrects deviations in real time. The invention automates and enhances the accuracy of manual painting tasks, making it suitable for both artistic and industrial applications requiring consistent, high-precision output with minimal manual intervention.

No. of Pages : 12 No. of Claims : 10

(54) Title of the invention : PORTABLE LIE DETECTING BRACELET

|                                                                                                                                                                                                                                                                                                                                                                                                               |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <div>(51) International classification :A61B0005000000, A61B0005024000, A61B0005160000, A61B0005022000, A61B0005021000</div> <div>(86) International Application No :NA<br/>Filing Date :NA</div> <div>(87) International Publication No : NA</div> <div>(61) Patent of Addition to Application Number :NA<br/>Filing Date :NA</div> <div>(62) Divisional to Application Number :NA<br/>Filing Date :NA</div> |  | <div>(71)Name of Applicant :<br/><b>1)Chandigarh University</b><br/>Address of Applicant :Chandigarh University, National Highway 05, Chandigarh-Ludhiana Highway, Mohali, Punjab -140413, India. Mohali -----<br/>-----<br/><b>Name of Applicant : NA</b><br/><b>Address of Applicant : NA</b><br/>(72)Name of Inventor :<br/><b>1)Antarjot Singh</b><br/>Address of Applicant :Department of Computer Science Engineering (H), Cybersecurity, Chandigarh University. National Highway 05, Chandigarh-Ludhiana Highway, Mohali, Punjab -140413, India Mohali -----<br/><b>2)Aryan Karthik</b><br/>Address of Applicant :Department of Electronics and Communications, Chandigarh University, National Highway 05, Chandigarh-Ludhiana Highway, Mohali, Punjab -140413, India. Mohali -----<br/><b>3)Dr. Ashish Sharma</b><br/>Address of Applicant :Department of Electrical Engineering, Chandigarh University, National Highway 05, Chandigarh-Ludhiana Highway, Mohali, Punjab -140413, India. Mohali -----<br/><b>4)Dr. Rinku Sharma</b><br/>Address of Applicant :University Institute of Computing, Chandigarh University, National Highway 05, Chandigarh-Ludhiana Highway, Mohali, Punjab -140413, India Mohali -----</div> |
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(57) Abstract :  
The present invention discloses a wearable lie detection device in the form of a bracelet, configured to non-invasively monitor physiological parameters indicative of deceptive behaviour. The device integrates multiple compact biosensors, including an oscillometric sensor for blood pressure measurement, a photoplethysmography (PPG) sensor for detecting heart rate variability, a skin conductance sensor for assessing sweat response, and optionally a breath pattern detector. Data collected from these sensors is processed by an onboard artificial intelligence (AI) system, trained to identify physiological patterns commonly associated with lying. The AI-driven analysis eliminates the need for professional interpretation, enabling real-time, autonomous lie detection in a portable, user-friendly format. The invention overcomes the limitations of traditional polygraph systems by providing a compact, wearable and easy-to-use solution that can be utilized in everyday environments without expert assistance.

No. of Pages : 11 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202511059565 A

(19) INDIA

(22) Date of filing of Application :21/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : SMART MULTI-FUNCTIONAL SELF DEFENSE KEYCHAIN

(51) International classification :G08B0021020000, H04W0004900000, H04L0009400000, F41H0009100000, G08B0025010000

(86) International Application No :NA

Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA

Filing Date :NA

(62) Divisional to Application Number :NA

Filing Date :NA

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(57) Abstract :

The present invention relates to a compact, multi-functional self defense keychain, intended to provide enhanced protection in emergency situations. The keychain integrates multiple self-defense and alert mechanisms, including a retractable knife, pepper spray dispenser, electric shock module, loud alarm system, GPS tracking, Bluetooth connectivity and an emergency activation button. Upon activation, the device simultaneously triggers real-time location sharing, sends emergency alerts via Bluetooth to pre-configured contacts and emits a high-decibel alarm to deter threats and attract attention. It is lightweight, portable and user-friendly, allowing it to be carried conveniently on a keychain or clipped to personal belongings. Constructed with durable materials and powered by a rechargeable lithium-ion battery, the device ensures long-term reliability and operational efficiency. This invention offers a comprehensive and intelligent solution for personal security, particularly suited for individuals in vulnerable or high-risk environments, such as students, night workers and solo travellers.

No. of Pages : 10 No. of Claims : 10

(54) Title of the invention : A MACHINE LEARNING-BASED SYSTEM FOR REAL-TIME PREDICTIVE HEALTH DIAGNOSTICS USING MULTIMODAL DATA INTEGRATION

|                                               |                                                                                 |                                                                                                                                                                                                                   |
|-----------------------------------------------|---------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (51) International classification             | :G16H0010600000, G06N0020200000, G16H0050200000, G16H0050700000, A61B0005000000 | (71) <b>Name of Applicant :</b><br><b>1)Chandigarh University</b><br>Address of Applicant :Chandigarh University, National Highway 05, Chandigarh-Ludhiana Highway, Mohali, Punjab -140413, India. Mohali ----- - |
| (86) International Application No             | :NA                                                                             |                                                                                                                                                                                                                   |
| Filing Date                                   | :NA                                                                             |                                                                                                                                                                                                                   |
| (87) International Publication No             | : NA                                                                            | <b>Name of Applicant : NA</b>                                                                                                                                                                                     |
| (61) Patent of Addition to Application Number | :NA                                                                             | <b>Address of Applicant : NA</b>                                                                                                                                                                                  |
| Filing Date                                   | :NA                                                                             | (72) <b>Name of Inventor :</b>                                                                                                                                                                                    |
| (62) Divisional to Application Number         | :NA                                                                             | <b>1)Siddharth Arora</b>                                                                                                                                                                                          |
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(57) Abstract :  
The present invention discloses a machine learning-based system for predictive health diagnostics using multimodal data integration. The system acquires real-time health data from diverse sources including electronic health records (EHRs), wearable sensors, and patient-reported inputs. An ontology-driven semantic harmonization layer aligns this data using standard medical vocabularies. The diagnostic core employs an ensemble of machine learning models, including CNNs, LSTMs, and gradient boosting algorithms, to provide condition-specific predictions. To ensure interpretability, the system integrates Explainable AI (XAI) tools such as SHAP and LIME, generating feature-based justifications for each output. A feedback loop enables adaptive learning based on clinical validation. The system supports real-time monitoring, interoperates with existing health infrastructures via HL7/FHIR APIs, and is deployable across cloud and edge platforms for both institutional and personal healthcare applications.

No. of Pages : 11 No. of Claims : 7

(54) Title of the invention : ENERGY-GENERATING ROOF TILES WITH EMBEDDED WIND AND SOLAR HYBRID MECHANISM

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
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| <div><div>(51) International classification</div><div>:H02S10/12, G05F1/67, F03D9/25, H02S20/25, F03D9/45</div><div>(86) International Application No</div><div>:NA</div><div>Filing Date</div><div>:NA</div><div>(87) International Publication No</div><div>: NA</div><div>(61) Patent of Addition to</div><div>:NA</div><div>Application Number</div><div>:NA</div><div>Filing Date</div><div>:NA</div><div>(62) Divisional to Application</div><div>:NA</div><div>Number</div><div>:NA</div><div>Filing Date</div><div>:NA</div></div> |  | <div><div>(71)Name of Applicant :</div><div><b>1)Chandigarh University</b></div><div>Address of Applicant :Chandigarh University, National Highway 05, Chandigarh-Ludhiana Highway, Mohali, Punjab -140413, India Mohali ----- --</div><div>-----</div><div><b>Name of Applicant : NA</b></div><div><b>Address of Applicant : NA</b></div><div>(72)Name of Inventor :</div><div><b>1)Dr. Shivani Singla</b></div><div>Address of Applicant :Department of Physics, Chandigarh University, National Highway 05, Chandigarh-Ludhiana Highway, Mohali, Punjab -140413, India Mohali -----</div><div>-----</div><div><b>2)Heemal Jaglan</b></div><div>Address of Applicant :Department of Computer Science and Engineering, Chandigarh University, National Highway 05, Chandigarh-Ludhiana Highway, Mohali, Punjab -140413, India Mohali -----</div><div>-----</div><div><b>3)Anushka Shekhawat</b></div><div>Address of Applicant :Department of Computer Science and Engineering, Chandigarh University, National Highway 05, Chandigarh-Ludhiana Highway, Mohali, Punjab -140413, India Mohali -----</div><div>-----</div><div><b>4)Naveen Bansal</b></div><div>Address of Applicant :Department of Computer Applications, University Institute of Sciences, Chandigarh University, National Highway 05, Chandigarh-Ludhiana Highway, Mohali, Punjab -140413, India Mohali -----</div><div>-----</div><div><b>5)Dr. Nupur Aggarwal</b></div><div>Address of Applicant :Department of Physics, Chandigarh University, National Highway 05, Chandigarh-Ludhiana Highway, Mohali, Punjab -140413, India Mohali -----</div><div>-----</div></div> |
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(57) Abstract :

The present invention relates to a rooftop tile system integrated with miniature vertical-axis wind turbines (VAWTs) for converting wind energy into electrical energy. Each tile comprises a compact VAWT coupled to a micro-generator and a smart micro-inverter with Maximum Power Point Tracking (MPPT) 22 for efficient energy conversion. Conductive tracks embedded within the tile route the generated electricity to a centralized controller, battery, or building grid. The system optionally includes a piezoelectric support layer for harvesting vibrational energy, and integrated photovoltaic strips for hybrid solar-wind operation. Additional features include aerodynamic wind-guiding vanes, a self-cleaning nano-coating, drainage channels, IoT-based real-time monitoring, and protective systems such as lightning arrestors and thermal sensors. The invention offers a modular, low-noise, and aesthetically integrated renewable energy solution for urban and residential buildings, enhancing rooftop space utilization while contributing to decentralized and sustainable power generation.

No. of Pages : 17 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202511058302 A

(19) INDIA

(22) Date of filing of Application :18/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : NATURE CLOCK SHOWING SHADES OF MORNING, EVENING, TO NIGHT AS PER TIME MOVES IN A DAY

(51) International classification :H02J0007020000, F21Y0113170000, H04N0021258000, G06F0001321200, H02J0007000000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
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(57) Abstract :

This nature-inspired clock visually reflects the progression of time through dynamic color transitions representing morning, midday, evening, and night. It utilizes RGB LEDs managed by a microcontroller synchronized with real-time data to ensure smooth, second-by-second transitions. The clock features aesthetically designed hands—a leaf-shaped hour hand, wave-shaped minute hand, and straight second hand—symbolizing growth, flow, and precision. It can be wall-mounted or adapted for wearable use. Powered by a rechargeable battery or an AC adapter, it includes adjustable brightness and may utilize eco-friendly materials. This innovative device combines aesthetics, functionality, and emotional well-being through visual synchronization with natural cycles.

No. of Pages : 10 No. of Claims : 7

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202511058303 A

(19) INDIA

(22) Date of filing of Application :18/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : SELF-HEALING BIODEGRADABLE MEDICAL IMPLANT

(51) International classification :A61L0027540000, A61L0027580000, A61K0009000000, C08L0067040000, A61L0027180000

(86) International Application No :NA

Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA

Filing Date :NA

(62) Divisional to Application Number :NA

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(57) Abstract :

The present invention relates to a self-healing biodegradable medical implant equipped with AI-guided adaptive healing, bioinductive peptide coatings, and bioelectric stimulation for enhanced tissue regeneration and personalized recovery. A self-healing biodegradable medical implant comprising: a biopolymer matrix formed from biodegradable polymers including polylactic acid (PLA), polycaprolactone (PCL), or poly(lactic-co-glycolic acid) (PLGA); one or more embedded AI-powered biosensors configured to monitor biological markers selected from the group consisting of pH, inflammation indicators, oxygenation levels, and mechanical stress; a bioinductive peptide coating comprising functionalized peptides selected from RGD, BMP-2, or VEGF-mimetic peptides to enhance cellular adhesion, vascularization, and tissue regeneration; a conductive polymer network composed of electroactive biomaterials including PEDOT:PSS or polypyrrole; and an AI-controlled nanocarrier-based drug delivery system that autonomously dispenses therapeutic agents in response to biosensor data; wherein the implant dynamically adjusts its degradation rate, drug release, and bioelectric stimulation intensity based on patient-specific healing conditions.

No. of Pages : 13 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202511058306 A

(19) INDIA

(22) Date of filing of Application :18/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : SMART HUMAN DETECTION POWER SAVER FOR AUTOMATED ENERGY OPTIMIZATION AND WASTE PREVENTION

(51) International classification :H02J0003140000, G06N0020000000, H05B0047110000, H02J0013000000, G08B0013190000

(86) International Application No :NA

Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA

Filing Date :NA

(62) Divisional to Application Number :NA

Filing Date :NA

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(57) Abstract :

The present invention introduces an Attachable Universal Smart Module that automates the control of electrical appliances based on human presence detection. The device is designed to eliminate electricity wastage by ensuring appliances like lights, fans, and air conditioners operate only when a human is present. It integrates PIR (Passive Infrared) sensors, Ultrasonic sensors, AI-based tracking, and IoT capabilities to enhance accuracy and efficiency. Unlike conventional motion sensors, the system distinguishes between humans and other moving objects, reducing false activations. The plug-and-play module can be attached to any existing electrical appliance, making it a universal and cost-effective solution. Additionally, the AI-based adaptive learning feature analyzes user behavior to optimize energy usage over time. This smart automation system significantly reduces manual effort, enhances convenience, and promotes sustainable energy consumption in homes, offices, and industries.

No. of Pages : 11 No. of Claims : 10



(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :18/06/2025

(21) Application No.202511058307 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : LIFTSense

(51) International classification :B60R0021015000, B66B0005000000, G06F0003160000, F24F0120100000, G06F0001300000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

The present invention relates to an intelligent elevator control system that detects the presence of people inside an elevator cabin by using artificial intelligence and real-time video capture. The system identifies occupants with over 95% accuracy over its numerous high-resolution cameras and AI processing unit, which uses sophisticated image recognition algorithms. The control module optimizes elevator operation and energy efficiency by selectively enabling and disabling floor stop requests based on occupant detection. In the event of a camera or AI malfunction, a fail-safe mechanism guarantees continuous service by reverting to a default mode that responds to all floor requests. The system also includes manual override capabilities for emergency responders and regular self-diagnostics. The adaptive and configurable solution enhances elevator safety, efficiency, and responsiveness by intelligently managing operations based on real-time occupancy detection while maintaining robust fault tolerance.

No. of Pages : 19 No. of Claims : 10

|                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
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| <p>(51) International classification :C12M0001000000, G01N0033000000, C01B0032170000, B01D0053620000, C02F0003320000</p> <p>(86) International Application No :NA<br/>Filing Date :NA</p> <p>(87) International Publication No :NA<br/>(61) Patent of Addition to Application Number :NA<br/>Filing Date :NA<br/>(62) Divisional to Application Number :NA<br/>Filing Date :NA</p> | <p>(71)Name of Applicant :<br/><b>1)Dr Kapila Kumar</b><br/>Address of Applicant :Associate Professor, DIRECTOR (MBRC) Department of Biotechnology, Manav Rachna International Institute of Research And Sciences, sector – 43, Aravalli hills, Delhi – Surajkund road, Faridabad – 121004, (Haryana), India -----</p> <p><b>2)Ms Priya Sharma</b><br/><b>3)Mr Piyush Sharma</b><br/><b>4)Ms Smriti Prajapati</b><br/><b>5)Ms Stuti Bhatnagar</b><br/><b>6)Ms Anshu Kamboj</b><br/><b>7)Ms Harshika Saini</b><br/><b>8)Mr Kanav Sharma</b><br/>Name of Applicant : NA<br/>Address of Applicant : NA</p> <p>(72)Name of Inventor :<br/><b>1)Dr Kapila Kumar</b><br/>Address of Applicant :Associate Professor, DIRECTOR (MBRC) Department of Biotechnology, Manav Rachna International Institute of Research And Sciences, sector – 43, Aravalli hills, Delhi – Surajkund road, Faridabad – 121004, (Haryana), India -----</p> <p><b>2)Ms Priya Sharma</b><br/>Address of Applicant :Student, Manav Rachna International Institute of Research and Sciences, sector – 43, Aravalli hills, Delhi – Surajkund road, Faridabad – 121004, (Haryana), India -----</p> <p><b>3)Mr Piyush Sharma</b><br/>Address of Applicant :Student, Manav Rachna International Institute of Research and Sciences, sector – 43, Aravalli hills, Delhi – Surajkund road, Faridabad – 121004, (Haryana), India -----</p> <p><b>4)Ms Smriti Prajapati</b><br/>Address of Applicant :Student, Manav Rachna International Institute of Research And Sciences, sector – 43, Aravalli hills, Delhi – Surajkund road, Faridabad – 121004, (Haryana), India -----</p> <p><b>5)Ms Stuti Bhatnagar</b><br/>Address of Applicant :Student, Manav Rachna International Institute of Research And Sciences, sector – 43, Aravalli hills, Delhi – Surajkund road, Faridabad – 121004, (Haryana), India -----</p> <p><b>6)Ms Anshu Kamboj</b><br/>Address of Applicant :Student, Manav Rachna International Institute of Research And Sciences, sector – 43, Aravalli hills, Delhi – Surajkund road, Faridabad – 121004, (Haryana), India -----</p> <p><b>7)Ms Harshika Saini</b><br/>Address of Applicant :Student, Manav Rachna International Institute of Research And Sciences, sector – 43, Aravalli hills, Delhi – Surajkund road, Faridabad – 121004, (Haryana), India -----</p> <p><b>8)Mr Kanav Sharma</b><br/>Address of Applicant :Student, Manav Rachna International Institute of Research And Sciences, sector – 43, Aravalli hills, Delhi – Surajkund road, Faridabad – 121004, (Haryana), India -----</p> |
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## (57) Abstract :

The present invention relates to an IoT-enabled air purifying and carbon capturing device utilizing microalgae-based biofiltration for environmental remediation. The system comprises a photobioreactor chamber containing a liquid culture of photosynthetic microalgae configured to absorb carbon dioxide and release oxygen through photosynthesis. Ambient air is drawn into the system, where it passes through a gas-liquid interface that facilitates pollutant removal and CO<sub>2</sub> capture. An array of environmental sensors monitors parameters including CO<sub>2</sub> concentration, particulate matter, VOCs, temperature, humidity, and nutrient levels. A microcontroller processes this data to autonomously adjust airflow, lighting, and nutrient dosing for optimized system performance. The device includes a communication module for transmitting real-time air quality data to a remote platform via IoT. The system is modular, energy-efficient, and supports the harvesting of algal biomass for secondary applications, thereby promoting sustainable air purification and carbon management in indoor and outdoor environments.

No. of Pages : 10 No. of Claims : 8

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :20/06/2025

(21) Application No.202511059160 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : ELECTROCHEMICAL REACTOR FOR EFFICIENT CO2 CONVERSION INTO FUEL FOR USE IN HYBRID ELECTRIC VEHICLES

(51) International classification :C25B0001040000, C25B0011091000, G06Q0050060000, G06Q0010063700, B01J0019080000

(86) International Application No :NA

Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA

Filing Date :NA

(62) Divisional to Application Number :NA

Filing Date :NA

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(72)Name of Inventor :

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(57) Abstract :

The method for the development of a revolutionary strategy for sustainable energy and emission reduction, especially for hybrid electric vehicles (HEVs), is the creation of an electrochemical reactor for the effective conversion of CO<sub>2</sub> into fuel. This work introduces a new reactor system that uses sophisticated electrocatalysts and tailored reaction paths to produce energy-dense fuels like formic acid or methanol from atmospheric CO<sub>2</sub> in ambient circumstances. The reactor is made to work in unison with HEV systems, reducing greenhouse gas emissions and offering an additional low-carbon fuel source. The reactor produces significant CO<sub>2</sub>-to-fuel conversion rates with little energy input thanks to its high Faradaic efficiency and low overpotential operation. The process's sustainability is further improved by the incorporation of renewable electricity. The system's feasibility for automotive applications is demonstrated by experimental findings, which support environmental and energy security goals. This work represents a major advancement in electrochemical innovation for cleaner transportation solutions and circular carbon technology.

FIG.1

No. of Pages : 13 No. of Claims : 6

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202511059184 A

(19) INDIA

(22) Date of filing of Application :20/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : FABRICATION AND ADSORPTIVE PERFORMANCE OF ZIF-8 AND MIL-100(Fe) FOR THE EFFICIENT ADSORPTION OF CHLORPYRIFOS FROM WASTEWATER

(51) International classification :C08G83/00, B01J20/22, B01J20/28, B01J20/30, C02F1/28, B01D53/02, C02F101/38

(86) International Application No :NA

Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA

Filing Date :NA

(62) Divisional to Application Number :NA

Filing Date :NA

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(57) Abstract :

The widespread utilisation of organophosphate pesticides, such as chlorpyrifos, in agricultural activities has raised significant environmental risks, affecting aquatic life and human health. Adsorption has become a simple, economical, and environmentally friendly technique for removing such contaminants from water. Among several reported adsorbents, metal-organic frameworks (MOFs) have materialized as a supremely efficient adsorbent due to their high specific surface area, tunable chemical properties with high thermal and chemical stability, and multi-functionality in water remediation applications. In this study, two different metal-organic frameworks (Materials of Institute Lavoisier: MIL-100 (Fe) and Zeolite imidazole Framework: ZIF-8) were synthesized via simple and room temperature methods for the adsorption of chlorpyrifos (CHP). The fabricated adsorbents were characteri

No. of Pages : 20 No. of Claims : 1

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :18/06/2025

(21) Application No.202511058308 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : SMART PROBIOTIC CAPSULES WITH AI-OPTIMIZED MICROBIOME MODULATION

|                                                                                                                                                                                                                                                                                                                                                                                           |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
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| <p>(51) International classification :A61B0005000000, A61B0005070000, A61K0009480000, A61B0001040000, A61B0001000000</p> <p>(86) International Application No :NA<br/>Filing Date :NA</p> <p>(87) International Publication No : NA</p> <p>(61) Patent of Addition to Application Number :NA<br/>Filing Date :NA</p> <p>(62) Divisional to Application Number :NA<br/>Filing Date :NA</p> |  | <p>(71)<b>Name of Applicant :</b><br/><b>1)Chandigarh University</b><br/>Address of Applicant :Chandigarh University National Highway 05, Chandigarh-Ludhiana Highway, Mohali, Punjab -140413, India. Mohali -----<br/>-----</p> <p><b>Name of Applicant : NA</b><br/><b>Address of Applicant : NA</b></p> <p>(72)<b>Name of Inventor :</b><br/><b>1)Nitin Tomar</b><br/>Address of Applicant :Department of Computer Science and Engineering, Chandigarh University, National Highway 05, Chandigarh-Ludhiana Highway, Mohali, Punjab -140413, India Mohali -----</p> <p><b>2)Laxminarayan Sharma</b><br/>Address of Applicant :Department of Computer Science and Engineering, Chandigarh University, National Highway 05, Chandigarh-Ludhiana Highway, Mohali, Punjab -140413, India Mohali -----</p> <p><b>3)Rudra Narayan Sharma</b><br/>Address of Applicant :Department of Aerospace Engineering, Chandigarh University, National Highway 05, Chandigarh-Ludhiana Highway, Mohali, Punjab -140413, India Mohali -----</p> <p><b>4)Chandan Bhattacharya</b><br/>Address of Applicant :Department of Computer Science and Engineering, Chandigarh University, National Highway 05, Chandigarh-Ludhiana Highway, Mohali, Punjab -140413, India Mohali -----</p> |
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(57) Abstract :

The present invention discloses an AI-integrated smart probiotic capsule system for personalized gut microbiome modulation. The system includes an ingestible capsule containing a customized probiotic formulation determined using artificial intelligence based on the user's gut microbiota profile. The capsule comprises a pH-sensitive coating for targeted release in specific regions of the gastrointestinal tract and includes biosensors for in vivo detection of gut biomarkers such as pH, redox potential, and microbial metabolites. The biosensor data is wirelessly transmitted to an external AI-based engine that analyzes the real-time gut conditions and triggers selective release of the microbial formulation through compartmentalized reservoirs within the capsule. The invention enables adaptive, data-driven, and personalized probiotic therapy using next-generation microbial strains and advanced delivery mechanisms. The system forms a closed-loop feedback architecture for individualized gut health optimization.

No. of Pages : 8 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :18/06/2025

(21) Application No.202511058309 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : NANOPARTICULATE CARRIER SYSTEM FOR FORMONONETIN: CHEMICAL FORMULATION AND THERAPEUTIC APPLICATIONS

(51) International classification :A61K0009510000, B82Y0005000000, A61P0025000000, A61P0025280000, A61K0047690000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

The present invention discloses a green, biocompatible method for synthesizing formononetin-loaded silver nanoparticles (FMN-AgNO<sub>3</sub>-NPs) designed to overcome the pharmacokinetic limitations of free formononetin. Formononetin, a plant-derived isoflavone, exhibits neuroprotective, antioxidant, and anti-inflammatory activities, yet suffers from poor water solubility, low bioavailability, and limited blood-brain barrier permeability. The present invention synthesizes silver nanoparticles via chemical reduction using silver nitrate and trisodium citrate, followed by the incorporation of formononetin through ethanol-mediated mixing and thermal evaporation. The resulting nanoparticles exhibit spherical morphology, average sizes between 100–200 nm, high zeta potential for colloidal stability, and functional group interactions confirmed via FTIR. This formulation significantly enhances aqueous solubility, enables sustained release, facilitates brain targeting, and reduces systemic toxicity. The FMN-AgNO<sub>3</sub>-NPs present a promising nanomedicine platform for treating diabetes-associated cognitive decline and other neurodegenerative conditions. The invention is scalable, eco-friendly, and suitable for pharmaceutical application in central nervous system drug delivery.

No. of Pages : 19 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202511058310 A

(19) INDIA

(22) Date of filing of Application :18/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : SATYADARSHAK YANTRA

(51) International  
classification

:G06V0030100000, G06Q0030018000,  
G06Q0010100000, G06F0018000000,  
G06N0003045000

(86) International  
Application No  
Filing Date

:NA  
:NA

(87) International  
Publication No

: NA

(61) Patent of Addition to  
Application Number  
Filing Date

:NA  
:NA

(62) Divisional to  
Application Number  
Filing Date

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(57) Abstract :

An AI-powered consumer product safety scanning system that evaluates the health risks and legal compliance of food, cosmetics, and related products. The system gathers visual information about the product using a multi-angle image capture module and a rotating scanning platform. Text, symbols, and ingredient information are extracted using Optical Character Recognition (OCR) and integrated AI algorithms. A pre-trained health and regulatory database is cross-referenced with this data in order to assess possible risks, prohibited substances, and adherence to FDA, EU, and FSSAI standards. Real-time reports on ingredient safety, regulatory status, and recommended substitutes are shown on a mobile application interface. The AI model is being continuously improved by users interacting with the system, offering feedback, and reporting false product claims. The present invention enhances consumer awareness and safety through automated, intelligent product analysis accessible in everyday settings.

No. of Pages : 20 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202511059418 A

(19) INDIA

(22) Date of filing of Application :20/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : METHOD AND SYSTEM FOR IDENTIFYING FALSE POSITIVES OF SECURITY VULNERABILITES IN CODEBASE

(51) International classification :G06F0021570000, G06F0021560000, H04L0009400000, G06N0020000000, G06F0008770000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

A method (300) and system (100) of identifying false positives of security vulnerabilities in a codebase thereof is disclosed. A processor (104) determines at least one function corresponding to a plurality of components (120) vulnerable to security risk. The plurality of components (120) are in a plurality of configurations. A plurality of parameters corresponding to the at least one function by using a machine learning engine (110) are extracted. The codebase with the plurality of parameters of the at least one function determines if at least one parameter of the at least one function exists within the codebase to identify a security vulnerability is analyzed. A non-existence of the plurality of parameters of the at least one function in the at least one parameter of the component (120) within the codebase is determined. A false positive of the security vulnerability of the component (120) of the codebase is identified. [To be published with FIG. 1]

No. of Pages : 37 No. of Claims : 16



(12) PATENT APPLICATION PUBLICATION

(21) Application No.202511059425 A

(19) INDIA

(22) Date of filing of Application :20/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : PORTABLE SOLAR-POWERED WATER QUALITY MONITORING SYSTEM WITH LORA TRANSMISSION

|                                                                                                                                                                                                                                                                                                                                                                                           |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
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| <p>(51) International classification :G01N0033180000, H02J0007000000, C02F0001000000, H02J0003380000, G01N0033000000</p> <p>(86) International Application No :NA<br/>Filing Date :NA</p> <p>(87) International Publication No : NA</p> <p>(61) Patent of Addition to Application Number :NA<br/>Filing Date :NA</p> <p>(62) Divisional to Application Number :NA<br/>Filing Date :NA</p> |  | <p>(71)<b>Name of Applicant :</b><br/><b>1)INDIAN INSTITUTE OF TECHNOLOGY KANPUR</b><br/>Address of Applicant :Dean, Research &amp; Development, Room Number 151, Faculty Building, Post Office: IIT Kanpur, Kanpur 208016, Uttar Pradesh, India Kanpur -----</p> <p><b>Name of Applicant : NA</b><br/><b>Address of Applicant : NA</b></p> <p>(72)<b>Name of Inventor :</b><br/><b>1)BAJPAI, Avnish Kumar</b><br/>Address of Applicant :ZBee Technologies Pvt Ltd, 120/315, Lajpat Nagar Kanpur - 208005, Uttar Pradesh, India Kanpur -----</p> <p><b>2)BHATIA, Bhuwan</b><br/>Address of Applicant :ZBee Technologies Pvt Ltd, 120/315, Lajpat Nagar Kanpur - 208005, Uttar Pradesh, India Kanpur -----</p> <p><b>3)J Ramkumar</b><br/>Address of Applicant :Department of Mechanical &amp; Design, Indian Institute of Technology Kanpur, Kalyanpur, Kanpur - 208016, Uttar Pradesh, India Kanpur ----</p> <p><b>4)OBEROI, Amandeep Singh</b><br/>Address of Applicant :Imagineering Laboratory, Indian Institute of Technology Kanpur, Kalyanpur, Kanpur - 208016, Uttar Pradesh, India Kanpur -----</p> |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

(57) Abstract :

The present disclosure provides a portable water quality monitoring system for remote areas, comprising a multi-channel analog front-end unit, a plurality of sensors configured to measure water quality parameters including pH, Total Dissolved Solids (TDS), turbidity, and temperature, a LoRa E5 module for data transmission, a battery with an integrated management system, and a solar cell configured to charge the battery. The system enables continuous monitoring of water quality in remote locations such as overhead tanks, ponds, and rivers, with long-range data transmission capabilities and sustainable power management for extended operation in off-grid environments.

No. of Pages : 17 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202511059448 A

(19) INDIA

(22) Date of filing of Application :20/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : ORTHOPEDIC ANKLE REHABILITATION DEVICE

(51) International classification :A61H0001020000, G10L0015260000, A61B0017000000, A61H0039040000, A61F0005010000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

An orthopedic ankle rehabilitation device, comprising a wearable body 101 comprising two U-shaped support units 102 connected by a stretchable strap 103 that conforms to the ankle for targeted compression and stabilization, a miniature air pump 104 inflate multiple air-cushion patches 201 along with multiple rubberized air-pads 105 for providing cushioning and comfort to the user, a camera 106 detect inflammation and abnormal heat patterns, multiple Peltier units providing targeted heating therapy, multiple micro-pored patches 202 releasing relieving solution stored in a vessel 107 to provide therapy, a flexible circular member 203 equipped with multiple rubberized spikes 204 to apply light pressure for stimulate blood flow and reduce pain, multiple therapeutic spots 205 arranged with an expandable conduit and a multi-sectioned chamber 108 to dispense the liquid to targeted areas for relieving inflammations, a microphone 109 allow user to provide voice commands for requirement of heel support.

No. of Pages : 27 No. of Claims : 9

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :20/06/2025

(21) Application No.202511059449 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : CHILD SAFETY AND SUPERVISION DEVICE

(51) International classification :G05D0001000000, B63C0009000000, B63C0009150000, B60B0019000000, A61B0017000000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

A child safety and supervision device, comprising a mobile body 101 installed with motorized wheels 102 for autonomous movement and positioning, a plurality of high-sensitivity cameras 103 identify individual(s) and monitor movements of the individual(s), multiple vertically oriented foldable flaps 104 each connected to body 101 via motorized hinge joints 105, and equipped with motorized omnidirectional wheels 106 that provide multi-directional movement on ground surfaces, a water safety unit assisting in aquatic safety and mobility, multiple motorized hinge fold legs 107 to allow aquatic adaptation of body 101, an inflatable bag 108 linked to an air inflator 109 that inflate the bag 108 to provide buoyancy, multiple motorized propellers 110 provide thrust and enable controlled movement of body 101 over the water surface, a robotic arm 111 having a circular ring net 112 affixed at a distal end, to deploy and retract for gently trapping identified animal without causing harm.

No. of Pages : 28 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :21/06/2025

(21) Application No.202511059506 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : REAL-TIME FACE TRACKING SYSTEM

|                                                                                                                                                                                                                                                                                                                                                                                           |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>(51) International classification :G06V0040160000, H04N0007140000, G06T0007200000, H04N0023610000, G06F0003010000</p> <p>(86) International Application No :NA<br/>Filing Date :NA</p> <p>(87) International Publication No : NA</p> <p>(61) Patent of Addition to Application Number :NA<br/>Filing Date :NA</p> <p>(62) Divisional to Application Number :NA<br/>Filing Date :NA</p> |  | <p>(71)Name of Applicant :<br/><b>1)Manipal University Jaipur</b><br/>Address of Applicant :Jaipur-Ajmer Express Highway, Dehmi Kalan, Near GVK Toll Plaza, Jaipur, Rajasthan, India, 303007 -----</p> <p><b>Name of Applicant : NA</b><br/><b>Address of Applicant : NA</b></p> <p>(72)Name of Inventor :<br/><b>1)Dr. Varun Tiwari</b><br/>Address of Applicant :Assistant Professor (Selection Grade), Department of AIML, Manipal University Jaipur, Jaipur-Ajmer Express Highway, Dehmi Kalan, Near GVK Toll Plaza, Jaipur, Rajasthan, India, 303007 -----</p> <p><b>2)Dr. Amit Kumar Bairwa</b><br/>Address of Applicant :Assistant Professor (Selection Grade), Department of AIML, Manipal University Jaipur, Jaipur-Ajmer Express Highway, Dehmi Kalan, Near GVK Toll Plaza, Jaipur, Rajasthan, India, 303007 -----</p> <p><b>3)Mr. Darshita Singh</b><br/>Address of Applicant :Student, Department of AIML, Manipal University Jaipur, Jaipur-Ajmer Express Highway, Dehmi Kalan, Near GVK Toll Plaza, Jaipur, Rajasthan, India, 303007 -----</p> |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

(57) Abstract :

The present invention discloses real-time face tracking system (100) that integrates computer vision with servo motor actuation using microcontroller-based control. The system comprises a webcam (102) for capturing live video feed, a face detection module (104) for identifying human faces using Haar cascade or DNN models, and a coordinate mapping unit (106) for converting face position data into angular values. A microcontroller unit (108) receives these values via a communication interface (110) using the pyfirmata protocol and actuates a horizontal servo motor (112) and a vertical servo motor (114) to align the camera with the detected face. A real-time tracking controller (116) manages synchronized operation to maintain sub-200 ms latency, visual feedback display (118) overlays tracking indicators on the live video stream and alert system(120) generates alert upon successful detection of a human face. The system is cost-effective and adaptable for surveillance and robotics applications. Reference Fig 1

No. of Pages : 21 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202511059507 A

(19) INDIA

(22) Date of filing of Application :21/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : MOBILE TRACKING CASE WITH BATTERY AND SOS SWITCH

|                                               |                                                                                 |                                                                                                                                                                                                                                                              |
|-----------------------------------------------|---------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                               |                                                                                 | (71) <b>Name of Applicant :</b><br><b>1)Chandigarh University</b><br>Address of Applicant :Chandigarh University National Highway 05,<br>Chandigarh-Ludhiana Highway, Mohali, Punjab -140413, India. Mohali -----                                            |
| (51) International classification             | :H02J0007000000, H02J0050100000, G08B0021040000, G08B0025010000, G08B0021020000 | <b>Name of Applicant : NA</b><br><b>Address of Applicant : NA</b>                                                                                                                                                                                            |
| (86) International Application No             | :NA                                                                             | (72) <b>Name of Inventor :</b><br><b>1)Jaskaran Singh</b><br>Address of Applicant :Department of Computer Science Engineering (CSE-UIE), Chandigarh University, National Highway 05, Chandigarh-Ludhiana Highway, Mohali, Punjab -140413, India Mohali ----- |
| Filing Date                                   | :NA                                                                             | <b>2)Inderdeep Kaur</b><br>Address of Applicant :Department of Computer Science Engineering (CSE-UIE), Chandigarh University, National Highway 05, Chandigarh-Ludhiana Highway, Mohali, Punjab -140413, India Mohali -----                                   |
| (87) International Publication No             | : NA                                                                            | <b>3)Devanshi Shrivastava</b><br>Address of Applicant :Department of Computer Science Engineering (CSE-UIE), Chandigarh University, National Highway 05, Chandigarh-Ludhiana Highway, Mohali, Punjab -140413, India Mohali -----                             |
| (61) Patent of Addition to Application Number | :NA                                                                             | <b>4)Nisha Chauhan</b><br>Address of Applicant :Department of Computer Science Engineering (CSE-UIE), Chandigarh University, National Highway 05, Chandigarh-Ludhiana Highway, Mohali, Punjab -140413, India Mohali -----                                    |
| Filing Date                                   | :NA                                                                             |                                                                                                                                                                                                                                                              |
| (62) Divisional to Application Number         | :NA                                                                             |                                                                                                                                                                                                                                                              |
| Filing Date                                   | :NA                                                                             |                                                                                                                                                                                                                                                              |

(57) Abstract :

The present invention discloses an intelligent mobile charging and tracking case that integrates wireless charging, real-time GPS tracking, and an emergency SOS alert system into a single protective unit. Designed for universal smartphone compatibility, the case features a Qi-standard wireless charging coil, a concealed SOS switch, a GPS module, and a GSM communication unit, all powered by an internal rechargeable battery. Upon SOS activation, the system transmits the user's location and a distress message to pre-selected contacts. The present invention includes a companion mobile application for configuring emergency settings, viewing live location, managing alerts, and monitoring device health. Additional features include fall detection, tamper sensing, geofencing, and LED status indicators. The multi-functional case enhances personal safety, ensures connectivity in remote or crisis scenarios, and eliminates the need for multiple standalone devices which offers a compact, reliable, and user-friendly solution ideal for travelers, students, outdoor enthusiasts, and individuals in high-risk environment.

No. of Pages : 18 No. of Claims : 10

(54) Title of the invention : SYSTEM AND METHOD FOR AUTOMATED DEFECT DETECTION IN SOLAR PANELS

|                                               |                                                                                 |                                                                                                                                                                                                                                                   |
|-----------------------------------------------|---------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (51) International classification             | :G06V0020100000, G05D0001000000, B64U0101300000, G06T0007000000, B64C0039020000 | (71)Name of Applicant :<br><b>1)Chandigarh University</b><br>Address of Applicant :Chandigarh University National Highway 05, Chandigarh-Ludhiana Highway, Mohali, Punjab -140413, India. Mohali -----                                            |
| (86) International Application No             | :NA                                                                             |                                                                                                                                                                                                                                                   |
| Filing Date                                   | :NA                                                                             |                                                                                                                                                                                                                                                   |
| (87) International Publication No             | : NA                                                                            | <b>Name of Applicant : NA</b><br><b>Address of Applicant : NA</b>                                                                                                                                                                                 |
| (61) Patent of Addition to Application Number | :NA                                                                             | (72)Name of Inventor :<br><b>1)Bebesh Tripathy</b><br>Address of Applicant :Department of Computer Science Engineering (CSE), Chandigarh University, National Highway 05, Chandigarh-Ludhiana Highway, Mohali, Punjab -140413, India Mohali ----- |
| Filing Date                                   | :NA                                                                             |                                                                                                                                                                                                                                                   |
| (62) Divisional to Application Number         | :NA                                                                             |                                                                                                                                                                                                                                                   |
| Filing Date                                   | :NA                                                                             |                                                                                                                                                                                                                                                   |

(57) Abstract :  
The present invention discloses an autonomous, AI-powered inspection system for photovoltaic (PV) panels utilizing aerial drones, robotic crawlers, and handheld kits equipped with a tri-modal multi-spectral sensor suite. Each unit captures visible (400–700nm), thermal (3–5μm), and electroluminescence (950nm) imagery, processed via an onboard quantized hybrid CNN-Transformer model with sub-20ms latency. The system integrates RTK-GPS for centimeter-level navigation, obstacle avoidance radar, and a multi-spectral fusion engine for high-precision defect detection. Over 63 PV defect types are classified with >94% accuracy, and crack geometries are reconstructed at ≈500 pts/cm². A predictive maintenance module forecasts degradation up to 12 months in advance. Reports are generated per IEC standards and transmitted via API to SCADA systems. Blockchain integration ensures secure audit trails and federated learning enables continuous, privacy-preserving model updates. The system enables real-time, high-resolution diagnostics and actionable maintenance insights without requiring manual data handling or cloud-based processing.

No. of Pages : 21 No. of Claims : 10

(54) Title of the invention : DEVELOPMENT OF AN ARTIFICIAL PHOTOSYNTHESIS SYSTEM FOR SUSTAINABLE ENERGY PRODUCTION

|                                               |                                                                                 |                                                                                                                                                                                                                    |
|-----------------------------------------------|---------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (51) International classification             | :C25B0001040000, C25B0001550000, G06F0030200000, C25B0015080000, H01G0009200000 | (71)Name of Applicant :<br><b>1)Chandigarh University</b><br>Address of Applicant :Chandigarh University National Highway 05, Chandigarh-Ludhiana Highway, Mohali, Punjab -140413, India Mohali ----- --           |
| (86) International Application No             | :NA                                                                             | <b>Name of Applicant : NA</b>                                                                                                                                                                                      |
| Filing Date                                   | :NA                                                                             | <b>Address of Applicant : NA</b>                                                                                                                                                                                   |
| (87) International Publication No             | : NA                                                                            | (72)Name of Inventor :                                                                                                                                                                                             |
| (61) Patent of Addition to Application Number | :NA                                                                             | <b>1)Tanishq Sharma</b><br>Address of Applicant :Department of Computer Science Engineering, Chandigarh University, National Highway 05, Chandigarh-Ludhiana Highway, Mohali, Punjab -140413, India Mohali -----   |
| Filing Date                                   | :NA                                                                             | <b>2)Lohitaksh Sharma</b><br>Address of Applicant :Department of Computer Science Engineering, Chandigarh University, National Highway 05, Chandigarh-Ludhiana Highway, Mohali, Punjab -140413, India Mohali ----- |
| (62) Divisional to Application Number         | :NA                                                                             |                                                                                                                                                                                                                    |
| Filing Date                                   | :NA                                                                             |                                                                                                                                                                                                                    |

(57) Abstract :  
The present invention discloses an artificial photosynthesis system designed for sustainable energy production by converting sunlight, carbon dioxide (CO2), and water (H2O) into renewable energy carriers such as hydrogen and methanol. The system comprises a high-efficiency light-absorbing module incorporating perovskite-sensitized metal-organic frameworks (MOFs) to enhance solar photon capture across a broad spectral range. A photocatalytic layer embedded with biomimetic and metal-based catalysts, encapsulated within nanoscopic oxide shells, enables selective and stable water splitting and CO2 reduction. A dual-chamber photo-electrochemical reactor, partitioned by a proton exchange membrane (PEM), independently facilitates oxygen evolution and fuel generation under precisely regulated conditions. The system integrates transparent conductive substrates, real-time sensor arrays, and an adaptive control unit for autonomous operation. A modular, scalable reactor design supports plug-and-play deployment and seamless integration with existing infrastructure. Life Cycle Assessment (LCA) metrics are embedded in the design to ensure long-term environmental and economic sustainability.

No. of Pages : 8 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202511058312 A

(19) INDIA

(22) Date of filing of Application :18/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : DESIGN AND OPERATION OF A TOROIDAL BIOREACTOR FOR ENHANCED MICROBIAL AND CELL CULTURE

(51) International classification :C12M0001000000, C12M0001120000, C12M0001340000, C12M0001020000, C12M0003000000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

The present invention relates to a novel toroidal bioreactor, which is a suitable system for the enhancement of microbial and cell culture applications. Covered with a toroidal main chamber and vertical sides, the bioreactor provides a curved inner surface that guarantees fluid circulation and elimination of dead spots. The invention utilizes orbital motion to facilitate a traveling wave in the culture medium, thereby creating an efficient mix without the use of internal mechanical agitators. By providing low shear, wave-mixed conditions within the bioreactor, conditions are suitably optimized for shear-sensitive cells to increase diffusion of oxygen, nutrient supply, and cell health. The bioreactor is flexible, supporting various operational modes: batch, fed-batch, and perfusion – and it fulfills the prerequisites for this CIP/SIP. The modular scalability of the bioreactor makes it suitable for effective industrial-scale bioprocessing processes. This technological revolution improves cell and microbial culture efficiency by maximizing mechanical simplicity and improving hydrodynamics.

No. of Pages : 14 No. of Claims : 10



(12) PATENT APPLICATION PUBLICATION

(21) Application No.202511058313 A

(19) INDIA

(22) Date of filing of Application :18/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : A UPI PAYMENT AND FINANCE MANAGEMENT SYSTEM FOR VISUALLY IMPAIRED USERS AND METHOD THEREOF

(51) International classification :G09B0021000000, G06F0003010000, G06F0003160000, G06Q0020400000, G06Q0020320000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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**Name of Applicant : NA**

**Address of Applicant : NA**

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(57) Abstract :

The present invention relates to a Unified Payments Interface (UPI) system that is fully accessible and operable by visually impaired and elderly individuals, without reliance on external assistance, by integrating voice-based navigation, spoken confirmations, and tactile interface mechanisms.

No. of Pages : 18 No. of Claims : 7

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202511058314 A

(19) INDIA

(22) Date of filing of Application :18/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : DIGITAL ENHANCED PORTABLE SPIROMETER WITH REAL-TIME MONITORING AND FEEDBACK

|                                               |                                                                                 |                                                                                                                                                                                                        |
|-----------------------------------------------|---------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (51) International classification             | :A61B0005087000, A61B0005000000, A61B0005091000, A63B0023180000, A61B0005080000 | (71)Name of Applicant :<br><b>1)Chandigarh University</b><br>Address of Applicant :Chandigarh University National Highway 05, Chandigarh-Ludhiana Highway, Mohali, Punjab -140413, India. Mohali ----- |
| (86) International Application No             | :NA                                                                             | <b>Name of Applicant : NA</b>                                                                                                                                                                          |
| Filing Date                                   | :NA                                                                             | <b>Address of Applicant : NA</b>                                                                                                                                                                       |
| (87) International Publication No             | : NA                                                                            | (72)Name of Inventor :                                                                                                                                                                                 |
| (61) Patent of Addition to Application Number | :NA                                                                             | <b>1)NIDHI</b>                                                                                                                                                                                         |
| Filing Date                                   | :NA                                                                             | Address of Applicant :Department of Physiotherapy, Chandigarh University, National Highway 05, Chandigarh-Ludhiana Highway, Mohali, Punjab -140413, India Mohali -----                                 |
| (62) Divisional to Application Number         | :NA                                                                             | <b>2)DR. SUMEDHA BHATIA</b>                                                                                                                                                                            |
| Filing Date                                   | :NA                                                                             | Address of Applicant :Department of Physiotherapy, Chandigarh University, National Highway 05, Chandigarh-Ludhiana Highway, Mohali, Punjab -140413, India Mohali -----                                 |
|                                               |                                                                                 | <b>3)ANAMIKA KUMARI</b>                                                                                                                                                                                |
|                                               |                                                                                 | Address of Applicant :Department of Physiotherapy, Chandigarh University, National Highway 05, Chandigarh-Ludhiana Highway, Mohali, Punjab -140413, India Mohali -----                                 |

(57) Abstract :

The present invention disclosed a portable digital spirometry device with an ergonomic handgrip, detachable mouthpiece, integrated airflow sensors, and a cylindrical body with a digital screen for real-time pulmonary function assessment. In order to compute important spirometric parameters such as Forced Vital Capacity (FVC), Forced Expiratory Volume in 1 second (FEV1), and Peak Expiratory Flow (PEF), the device records and analyzes inhalation and exhalation data. When predetermined respiratory targets are met, audiovisual alerts are activated, and results are shown instantly on the digital screen. For the purpose of tracking past data and tracking lung function over time, the system has onboard memory. Users are further assisted in receiving performance feedback by a visual ball-based airflow indicator. Designed for ease of use in clinical and home settings, the device enables accurate, repeated respiratory assessments and supports diagnosis, monitoring, and treatment of pulmonary disorders.

No. of Pages : 19 No. of Claims : 10

(54) Title of the invention : SYSTEM AND METHOD FOR IDENTIFYING OBSTACLES THROUGH IMAGE-PROCESSING

|                                               |                                                                                 |                                                                                                                                                                                                        |
|-----------------------------------------------|---------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (51) International classification             | :G05D0001000000, G06V0020580000, G08G0001160000, G06T0007593000, B60W0060000000 | (71)Name of Applicant :<br><b>1)Chandigarh University</b><br>Address of Applicant :Chandigarh University National Highway 05, Chandigarh-Ludhiana Highway, Mohali, Punjab -140413, India. Mohali ----- |
| (86) International Application No             | :NA                                                                             |                                                                                                                                                                                                        |
| Filing Date                                   | :NA                                                                             |                                                                                                                                                                                                        |
| (87) International Publication No             | : NA                                                                            | <b>Name of Applicant : NA</b>                                                                                                                                                                          |
| (61) Patent of Addition to Application Number | :NA                                                                             | <b>Address of Applicant : NA</b>                                                                                                                                                                       |
| Filing Date                                   | :NA                                                                             | (72)Name of Inventor :                                                                                                                                                                                 |
| (62) Divisional to Application Number         | :NA                                                                             | <b>1)Bebesh Tripathy</b>                                                                                                                                                                               |
| Filing Date                                   | :NA                                                                             | Address of Applicant :Department of Computer Science Engineering (CSE), Chandigarh University, National Highway 05, Chandigarh-Ludhiana Highway, Mohali, Punjab -140413, India Mohali -----            |

(57) Abstract :  
The present invention discloses an edge-AI-based obstacle detection and vehicle control system designed for autonomous or semi-autonomous vehicles. The system integrates a multi-camera array comprising stereo and wide-angle monocular sensors, a high-performance low-power AI processor, and hybrid depth estimation combining stereo disparity and monocular prediction. An onboard tracking engine continuously updates obstacle state vectors and estimates time-to-collision with high precision. A motion planning module evaluates multiple trajectories in real time to ensure safe vehicle navigation, while a fail-safe mechanism autonomously initiates emergency maneuvers in case of low confidence or processing delay. The method enables robust detection of over 120 obstacle classes in diverse environmental conditions, including low-light and rain, while maintaining a total system power consumption under 15?W. The present invention ensures enhanced situational awareness, fast response, and reliable obstacle avoidance for next-generation vehicles operating in complex environments.

No. of Pages : 18 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202511059510 A

(19) INDIA

(22) Date of filing of Application :21/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : WIRELESS ELECTRONIC NOTICE BOARD SYSTEM FOR REAL-TIME COMMUNICATION AND DISPLAY

(51) International classification :H04L0009400000, G06Q0050200000, H04W0004800000, G06F0021600000, H04L0009320000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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Name of Applicant : NA

Address of Applicant : NA

(72)Name of Inventor :

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**2)Tejas Sharma**

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**3)Madhav Uppal**

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Address of Applicant :Department of Computer Science and Engineering, Chandigarh University, National Highway 05, Chandigarh-Ludhiana Highway, Mohali, Punjab -140413, India Mohali -----

**5)Niraj Kumar**

Address of Applicant :Department of Computer Science and Engineering, Chandigarh University, National Highway 05, Chandigarh-Ludhiana Highway, Mohali, Punjab -140413, India Mohali -----

(57) Abstract :

The present invention relates to a Wireless Electronic Notice Board System designed to enable real-time, remote, and secure display of information using dual-mode wireless communication. The system integrates a microcontroller unit (ESP32, Arduino, or Raspberry Pi) with Bluetooth and Wi-Fi/GSM modules 102 to receive messages from a mobile application or web portal. Users can transmit messages locally via Bluetooth or remotely via cloud platforms such as Firebase, AWS, or Thingspeak. A display unit, such as an LED matrix or e-paper screen, renders messages in scrolling or static formats. The system features encrypted communication using AES or RSA, and access is controlled via role-based authentication. It supports cross-platform compatibility and multi-board synchronization for centralized management. Designed for energy efficiency and minimal maintenance, it is suitable for educational institutions, smart campuses, offices, and public spaces. This paperless solution ensures timely, eco-friendly, and tamper-resistant information dissemination in dynamic environments.

No. of Pages : 13 No. of Claims : 10

(54) Title of the invention : AI-POWERED THROUGH-WALL DETECTION AND WEAPON CLASSIFICATION SYSTEM FOR MILITARY USE

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| <div>(51) International classification :G06N0003045000, G06N0003080000, G01S0013880000, G01S0013340000, G06V0020100000</div> <div>(86) International Application No :NA<br/>Filing Date :NA</div> <div>(87) International Publication No : NA</div> <div>(61) Patent of Addition to Application Number :NA<br/>Filing Date :NA</div> <div>(62) Divisional to Application Number :NA<br/>Filing Date :NA</div> |  | <div>(71)Name of Applicant :<br/><b>1)Chandigarh University</b><br/>Address of Applicant :Chandigarh University, National Highway 05, Chandigarh-Ludhiana Highway, Mohali, Punjab -140413, India. Mohali ----- -</div> <div>Name of Applicant : NA<br/>Address of Applicant : NA</div> <div>(72)Name of Inventor :<br/><b>1)Ujjwal Mishra</b><br/>Address of Applicant :AIT-CSE, Chandigarh University, National Highway 05, Chandigarh-Ludhiana Highway, Mohali, Punjab -140413, India. Mohali ----- -</div> <div><b>2)Dr. Prabhjot Kaur</b><br/>Address of Applicant :AIT-CSE, Chandigarh University, National Highway 05, Chandigarh-Ludhiana Highway, Mohali, Punjab -140413, India. Mohali ----- -</div> <div><b>3)Raj Singh</b><br/>Address of Applicant :AIT-CSE, Chandigarh University, National Highway 05, Chandigarh-Ludhiana Highway, Mohali, Punjab -140413, India. Mohali ----- -</div> <div><b>4)Harsh Raj</b><br/>Address of Applicant :AIT-CSE, Chandigarh University, National Highway 05, Chandigarh-Ludhiana Highway, Mohali, Punjab -140413, India. Mohali ----- -</div> |
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(57) Abstract :  
The present invention discloses an AI-powered through-wall detection and weapon classification system designed for real-time surveillance and threat identification in military and security operations. The system integrates a 77 GHz millimeter wave radar with a Multiple Input Multiple Output (MIMO) antenna configuration and an embedded artificial intelligence processing unit capable of executing deep neural networks, including convolutional neural networks (CNN) and bidirectional long short-term memory (BiLSTM) networks. The radar module, operating on a Frequency Modulated Continuous Wave (FMCW) waveform, penetrates non-metallic barriers and captures range-Doppler-angle data to detect and classify human presence and concealed weapons. The AI subsystem performs spatial and temporal analysis of radar returns to accurately differentiate between armed and unarmed individuals, and to identify weapon types such as rifles, handguns, and explosives. The system supports real-time visualization, low-latency inference, environmental adaptability, and multi-modal sensor fusion with optional LiDAR and acoustic inputs.

No. of Pages : 14 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202511058315 A

(19) INDIA

(22) Date of filing of Application :18/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : WEARABLE DEVICE FOR GESTURE-BASED NAVIGATION PATH SHARING USING AUGMENTED REALITY (AR)

(51) International classification :G06F0003010000, G06T0019000000, G06V0020200000, G06F0001160000, G06F0003048830

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

The present invention discloses a wearable or portable device for gesture-based navigation path sharing using augmented reality (AR). A wearable device for gesture-based navigation path sharing using augmented reality (AR), comprising: a processor operatively coupled to a memory; an optical displacement tracking module configured to record spatial navigation paths based on user movement, wherein the optical displacement tracking module comprises at least one image sensor and at least one depth-sensing unit; a gesture recognition module; a natural language processing (NLP) unit configured to process contextual voice commands for modifying or annotating navigation paths; an augmented reality rendering unit configured to overlay navigation paths, landmarks, and directional cues within a user's field of view; a feedback mechanism comprising haptic and/or auditory output for real-time user guidance and environment-based corrections; and a cloud-connected synchronization module configured to transmit, store, and share navigation path data with other devices.

No. of Pages : 11 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :18/06/2025

(21) Application No.202511058316 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : OPEN-SOURCE IOT FRAMEWORK FOR REAL-TIME AIR QUALITY MONITORING, ANALYSIS, AND VISUALIZATION

(51) International classification :G01N0033000000, H04L0067120000, H04W0004380000, G06F0011300000, G06K0007100000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

The present invention relates to an Internet of Things (IoT)-based modular and scalable framework for real-time air quality monitoring and data analytics, designed to be low-cost, portable, and easily deployable in resource-constrained environments. The system integrates affordable air quality sensors with open-source software components including Node-RED for data preprocessing, Telegraf for high-speed ingestion, InfluxDB for time-series data storage, and Grafana for real-time visualization. Sensor data is transmitted via the lightweight MQTT protocol, ensuring reliable communication even over low-bandwidth networks. The architecture is fully modular, enabling independent upgrades or replacements of components without disrupting system functionality. The entire solution operates efficiently on standard laptops or edge devices with limited computing resources, making it ideal for rural, educational, and community-level deployments. By eliminating the need for specialized infrastructure and technical expertise, the invention democratizes access to accurate environmental data, fostering informed decision-making, public awareness, and proactive environmental management at scale.

No. of Pages : 14 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :18/06/2025

(21) Application No.202511058317 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : ELECTRA COMB

(51) International classification :A01K0013000000, G01R0029120000, A45D0024100000, A45D0024020000, A45D0024320000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

An electrostatic hair comb that effectively detangles hair while catching loose strands to stop them from scattering. The device ensures smooth and gentle grooming with its long-lasting comb teeth composed of recycled plastic and an eco-friendly bamboo fiber composite. When a spring-loaded button mechanism is used to activate a piezoelectric plate embedded behind the comb teeth, static electricity is produced, creating an electrostatic field that draws loose hair. The drawn hair is gathered and kept in a built-in chamber with a handy latch for effortless disposal. By safely directing the static charge toward hair attraction, electrical insulation protects users from the possibility of electric shock. The present invention combines sustainable materials with an innovative static charge generation system, providing a hygienic, user-friendly, and environmentally conscious solution for hair grooming and loose hair management.

No. of Pages : 25 No. of Claims : 10



(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :21/06/2025

(21) Application No.202511059512 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : SMART ADAPTIVE TINTING SHIELD USING PDLC TECHNOLOGY FOR HEAT AND LIGHT CONTROL

(51) International classification :G02F0001133400, E06B0009240000, B60J0003040000, G02F0001163000, G09F0027000000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

The present invention relates to Smart Adaptive Tinting Shield utilizing Polymer Dispersed Liquid Crystal (PDLC) technology for dynamic regulation of transparency in vehicle and building windows. The system is configured to automatically adjust the tint level based on real-time inputs from motion and light sensors. In vehicular applications, the invention ensures compliance with legal visibility standards while in motion and transitions to full opacity when stationary to minimize solar heat gain and ultraviolet exposure. In architectural settings, the system dynamically darkens or clears windows in response to sunlight intensity, thereby enhancing indoor comfort and reducing energy consumption. The tinting shield integrates a microcontroller unit, low-power electronics and optional solar power support, along with a mobile application for manual override. This invention offers a rapid-response, energy-efficient, and legally compliant alternative to conventional static or slow-reacting smart glass solutions.

No. of Pages : 10 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202511059513 A

(19) INDIA

(22) Date of filing of Application :21/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : ADAPTIVE BALANCE BOARD WITH HEIGHT-ADJUSTABLE SUPPORT AND MULTI-AXIS RESISTANCE MECHANISM

(51) International classification :A63B0026000000, A63B0021000000, A63B0024000000, A61B0005000000, A63B0071060000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

An adaptive balance training device is disclosed, comprising a balance board equipped with a detachable, height-adjustable support stick to provide progressive stability assistance. The board includes a dual-stage pivot system enabling multi-axis tilt with adjustable resistance to accommodate varying skill levels and training goals. Embedded sensors, including gyroscopes and accelerometers, deliver real-time performance feedback to a companion mobile application. The device further includes a 360-degree rotating handle for ergonomic gripping, an anti-slip surface for enhanced user safety and curved perimeter edges to reduce fall risk. Designed for use across rehabilitation, general fitness, and advanced athletic training, the system allows users to customize tilt, resistance and support for a tailored balance training experience.

No. of Pages : 16 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :21/06/2025

(21) Application No.202511059514 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : SELF-ASSISTING GYM SPOTTER

(51) International classification :A63B0021000000, A63B0021078000, A63B0071060000, B01J0019000000, H04L0067100000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :  
The present invention discloses a self-assisting gym spotter system integrated into a stable bar cage structure designed to enhance safety and performance during compound exercises such as squats, bench presses and deadlifts. The system includes hydraulic-powered spotting arms equipped with intelligent load sensing technology, enabling real-time detection of exerted force and adaptive adjustment of rebound support. A central processing unit (CPU) processes user inputs and sensor data to dynamically control the spotting response. The system further includes an automatic latching mechanism that activates upon detecting full load, ensuring secure transition from spotting to independent lifting. This configuration replicates the function of a human spotter, allowing users to perform repetitions safely until failure while retaining the benefits of free-weight training. The invention delivers a personalized and responsive workout experience, significantly improving safety, efficiency and user confidence.

No. of Pages : 11 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202511059515 A

(19) INDIA

(22) Date of filing of Application :21/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : HYBRID THERMOS FLASK

(51) International  
classification

:A47J0027210000, A61B0017000000,  
A47J0041000000, G05D0023190000,  
G06Q0020400000

(86) International  
Application No  
Filing Date

:NA  
:NA

(87) International  
Publication No

: NA

(61) Patent of Addition to  
Application Number  
Filing Date

:NA  
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(62) Divisional to  
Application Number  
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(57) Abstract :

The invention relates to “Hybrid Thermos Flask” integrating functionalities of a traditional flask and an electric kettle into a single, portable unit that is designed to heat and maintain the temperature of liquids without the need for a separate heating device. It features a built-in heating element located at the base of the flask, powered by a rechargeable 15,000mAh battery and alternatively, through a direct plug-in option. The flask's smart features include temperature control, water level sensors and a digital display, allowing users to set and monitor the heating process. Additionally, the flask is equipped with a companion mobile application, enabling remote control of the temperature and usage tracking. The Hybrid Flask aims to address the inconvenience of carrying separate devices for storing and heating water. This innovation offers a compact, energy-efficient, and user-friendly solution, enhancing the convenience of heating and consuming hot liquids on the go.

No. of Pages : 16 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :21/06/2025

(21) Application No.202511059516 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : ADAPTIVE IOT SYSTEM FOR DISASTER PREDICTION AND DYNAMIC RESPONSE

(51) International classification :H04L0009000000, H04L0009400000, H04L0009320000, G06Q0050260000, A61B0005000000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

The present invention discloses an intelligent disaster prediction and management system that integrates IoT-based sensing, edge processing, secure communication, AI/ML analytics, and blockchain-backed logging to enable real-time, resilient, and transparent disaster response. The system comprises distributed sensors monitoring seismic, weather, and hydrological parameters, which are analyzed locally for anomalies and transmitted securely via low-power wide-area networks. Centralized AI models predict disaster risks and guide dynamic allocation of emergency resources. A mobile/web application provides users with real-time alerts and safety instructions, while a closed-loop feedback mechanism continuously refines the models using post-event data and user inputs. All operational logs are immutably stored on a blockchain to ensure tamper-proof accountability. The system ensures proactive risk mitigation, rapid decision-making, and trustworthy disaster governance, especially in resource-constrained or connectivity-challenged environments.

No. of Pages : 16 No. of Claims : 10

(54) Title of the invention : STORAGE DEVICE FOR DATA

|                                                                                                                                                                                                                                                                                                                                                                                                               |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <div>(51) International classification :H04L0009080000, H04B0010700000, G06F0003060000, A61B0005000000, B82Y0010000000</div> <div>(86) International Application No :NA<br/>Filing Date :NA</div> <div>(87) International Publication No : NA</div> <div>(61) Patent of Addition to Application Number :NA<br/>Filing Date :NA</div> <div>(62) Divisional to Application Number :NA<br/>Filing Date :NA</div> |  | <div>(71)Name of Applicant :<br/><b>1)Chandigarh University</b><br/>Address of Applicant :Chandigarh University National Highway 05, Chandigarh-Ludhiana Highway, Mohali, Punjab -140413, India. Mohali -----<br/>-----<br/><b>Name of Applicant : NA</b><br/><b>Address of Applicant : NA</b><br/>(72)Name of Inventor :<br/><b>1)Dr. Surjeet Singh Chauhan</b><br/>Address of Applicant :Department of Mathematics, Chandigarh University, National Highway 05, Chandigarh-Ludhiana Highway, Mohali, Punjab -140413, India Mohali -----<br/><b>2)Shivam Tyagi</b><br/>Address of Applicant :Department of Computer Science Engineering (CSE), Chandigarh University, National Highway 05, Chandigarh-Ludhiana Highway, Mohali, Punjab -140413, India Mohali -----<br/><b>3)Parveen Tyagi</b><br/>Address of Applicant :Department of Mathematics, Chandigarh University, National Highway 05, Chandigarh-Ludhiana Highway, Mohali, Punjab -140413, India Mohali -----<br/><b>4)Aakriti Kayshap</b><br/>Address of Applicant :Department of Computer Science Engineering (CSE), Chandigarh University, National Highway 05, Chandigarh-Ludhiana Highway, Mohali, Punjab -140413, India Mohali -----</div> |
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(57) Abstract :  
The present invention discloses a compact, ultra-dense, and quantum-secured data storage system utilizing engineered nanoparticles arranged in a customizable three-dimensional grid. Each nanoparticle functions as a quantum data unit, encoding information via spin states, charge states, and photonic emissions. Quantum-access interfaces, such as nitrogen-vacancy centers and quantum dots, enable precise and authenticated data operations through Quantum Key Distribution (QKD) or entangled photons. The device supports non-destructive data retrieval using laser excitation and fluorescence-based interrogation. An integrated AI module facilitates intelligent data search, optimization, and pattern recognition. The system is being embedded in personal electronics, medical monitoring tools, or structural materials, offering real-time sensing and secure data logging. Designed for high security, durability, and environmental adaptability, the present invention is ideal for applications in healthcare, defense, smart infrastructure, and long-term archival. The hybrid platform represents a next-generation approach to intelligent, secure, and scalable data storage beyond classical memory technologies.

No. of Pages : 21 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202511058036 A

(19) INDIA

(22) Date of filing of Application :17/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : INNOVATIVE ASSAY FOR ASSESSING PHENOL CONTENT AND DEFENSE ENZYMES IN FUSARIUM-INFECTED LENS CULINARIS

(51) International classification :C12N0009200000, A61K0036480000, A61K0008978900, G16H0050800000, A61P0003020000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
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(57) Abstract :

Quantification of phenol and their related enzymes was studied in Lentil (lens culinaris medic) infected with Fusarium oxysporum F. Sp. lentis causing wilt disease. The contents of total lipid and lipase activities in healthy and diseased counter parts of lentils were measured. Different plant parts showed variation in their phenol contents were recorded higher in wilt infected plant then healthy leaf, stem, fruit and seeds while lipase activities were recorded higher in normal leaf, stem, fruit and seeds as compared to infected plant.

No. of Pages : 7 No. of Claims : 5

(54) Title of the invention : ELECTROLYTE AND VANADIUM REDOX FLOW BATTERY

|                                               |                    |                                                                                                                                                                               |
|-----------------------------------------------|--------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                               |                    | (71)Name of Applicant :<br>1)SUZHOU RONGKE POWER CO., LTD.<br>Address of Applicant :No.1801, Pangjin Road, Jiangling Community, Wujiang District Suzhou, Jiangsu 215299 ----- |
| (51) International classification             | :H01M 8/18         | Name of Applicant : NA                                                                                                                                                        |
| (31) Priority Document No                     | :202211446542.2    | Address of Applicant : NA                                                                                                                                                     |
| (32) Priority Date                            | :18/11/2022        | (72)Name of Inventor :                                                                                                                                                        |
| (33) Name of priority country                 | :-----             | 1)GAO, Xinliang                                                                                                                                                               |
| (86) International Application No             | :PCT/CN2023/115989 | Address of Applicant :No.1801, Pangjin Road, Jiangling Community, Wujiang District Suzhou, Jiangsu 215299 -----                                                               |
| Filing Date                                   | :30/08/2023        | 2)WANG, Shiyu                                                                                                                                                                 |
| (87) International Publication No             | :WO 2024/103909    | Address of Applicant :No.1801, Pangjin Road, Jiangling Community, Wujiang District Suzhou, Jiangsu 215299 -----                                                               |
| (61) Patent of Addition to Application Number | :NA                | 3)LI, Siyi                                                                                                                                                                    |
| Filing Date                                   | :NA                | Address of Applicant :No.1801, Pangjin Road, Jiangling Community, Wujiang District Suzhou, Jiangsu 215299 -----                                                               |
| (62) Divisional to Application Number         | :NA                | 4)JIANG, Shan                                                                                                                                                                 |
| Filing Date                                   | :NA                | Address of Applicant :No.1801, Pangjin Road, Jiangling Community, Wujiang District Suzhou, Jiangsu 215299 -----                                                               |
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(57) Abstract :  
Disclosed are an electrolyte and a vanadium redox flow battery. The electrolyte comprises a positive electrode electrolyte and a negative electrode electrolyte, and the positive electrode electrolyte and the negative electrode electrolyte contain chloride ions, sulfate ions and vanadium ions. The positive electrode electrolyte and the negative electrode electrolyte both satisfy:  $2.9=[c(Cl^-)+c(SO_4^{2-})]/c(Vn^+)=3.6$ , wherein  $c(Cl^-)$  represents the concentration of the chloride ions,  $c(SO_4^{2-})$  represents the concentration of the sulfate ions, and  $c(Vn^+)$  represents the concentration of the vanadium ions. When  $Cl^-$ ,  $SO_4^{2-}$  and  $Vn^+$  in the electrolyte satisfy a suitable concentration relationship, the output rate of  $Cl_2$  can be greatly reduced, thus reducing corrosion of battery materials; in addition, a small amount of evolved  $Cl_2$  can compensate for the oxidation of battery electrode carbon felt, thereby achieving the effect of protecting the electrode carbon felt, and lowering the risk level of a chlorine-containing electrolyte work environment.

No. of Pages : 27 No. of Claims : 13



(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :18/06/2025

(21) Application No.202511058582 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : AI-DRIVEN SMART FOOD MATCHING AND REDISTRIBUTION SYSTEM FOR OPTIMIZED HUNGER MITIGATION

(51) International classification :G06N0020000000, G06Q0030060100, G06Q0010087000, G06Q0010083200, G06N0003080000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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**3)Aman Naeem**

**4)Abhishek Kumar**

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(57) Abstract :

The present invention relates to an AI-powered smart food matching and redistribution system designed to reduce food wastage and combat hunger. It connects food donors—such as restaurants, grocery stores, and individuals—with recipients like NGOs and shelters through mobile and web platforms. The system uses machine learning algorithms to analyze food type, quantity, shelf life, location, and recipient needs, enabling real-time, optimized matches. It features urgency scoring, geolocation filtering, and a feedback-driven learning loop to continuously enhance performance. By automating logistics and matching, the invention ensures efficient, equitable, and sustainable food distribution.

No. of Pages : 10 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :18/06/2025

(21) Application No.202511058583 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : A PERSONALIZED E-LEARNING ASSISTANT UTILIZING KNOWLEDGE GRAPHS AND LANG GRAPH-ORCHESTRATED MULTI-AGENT FRAMEWORK

(51) International classification :G06Q0050200000, G06F0016360000, G06N0005022000, G09B0007000000, G09B0005060000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

The present invention relates to an AI-powered personalized e-learning assistant that integrates semantic knowledge graphs with a LangGraph-orchestrated multi-agent framework to deliver highly adaptive and intelligent learning experiences. It constructs a dynamic learner model based on prior knowledge, learning goals, preferences, and real-time performance, stored in a Neo4j-based knowledge graph. Specialized agents—such as onboarding, curriculum planning, content recommendation, assessment, and feedback agents—collaborate through a state-aware control flow to guide the learner's journey. Integrated Large Language Models (LLMs) generate personalized quizzes, feedback, and explanations, simulating the role of a human tutor. The system continuously refines its recommendations by updating the learner model with each interaction, enabling responsive, scalable, and domain-independent learning support across K–12, higher education, and professional training platforms.

No. of Pages : 13 No. of Claims : 8

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202511058619 A

(19) INDIA

(22) Date of filing of Application :18/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : A COMPOSITE MEMBRANE FOR REMOVING DYES FROM A WASTEWATER AND A PROCESS FOR PREPARATION THEREOF

(51) International classification :B01D0069120000, B01J0035390000, B01J0037160000, B01J0035330000, C02F0001620000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

The present invention relates to a cost-effective, an environmentally friendly, a biodegradable, an efficient composite membrane for removing dyes from a wastewater, and an easy, a cost effective, an ecofriendly and an industrially scalable process for preparation thereof. The composite membrane of the present invention is a transition metal oxide nanoparticle-embedded polymeric membrane, wherein fabrication of said composite membrane is accomplished by a green method without employing organic solvents. In addition, the embedded nanoparticles are prepared by the green synthesis method by replacing organic solvent with distilled water and by using natural material like walnut husk powder extract for bio-reduction and bio-oxidation of the transition metal ions and preparation of transition metal oxide. Therefore, the composite membrane and the process of preparation thereof offer a green and sustainable approach for removal of dyes from the wastewater.

No. of Pages : 17 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202511059518 A

(19) INDIA

(22) Date of filing of Application :21/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : SENSOR-INTEGRATED SMART GLOVES FOR REAL-TIME PLANT HEALTH MONITORING AND CARE GUIDANCE

(51) International classification :A61B0005000000, G06F0003010000, A61B0005110000, G16H0040670000, A41D0019000000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

The present invention relates to a smart gardening glove system designed for real-time plant health monitoring through direct physical contact. The glove comprises embedded optical sensors located on the thumb and touch sensors integrated into the glove fabric to assess key plant parameters such as moisture content, texture, nutrient status, and disease indicators. A processing unit collects and analyzes data from the sensors, while a natural language processing (NLP)-based system interprets the results and generates actionable plant care instructions. The glove provides real-time feedback via visual, haptic, or mobile interfaces. Additional features include a calibration module for maintaining sensor accuracy, a data logger for historical tracking, and a rechargeable battery with power optimization. The system supports multilingual output and can integrate with mobile applications for extended functionality. This invention offers a compact, wearable solution to enable efficient, accurate, and adaptive plant care for both professional horticulturists and amateur gardeners.

No. of Pages : 11 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :21/06/2025

(21) Application No.202511059519 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : LAZTER

(51) International classification :F21S0009030000, F21Y0115100000, F21S0008080000, F21W0131103000, B60Q0001260000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

The present invention relates to a smart, solar-powered street lighting system designed to enhance road safety in hilly and mountainous regions with poor visibility due to fog, sharp curves, and limited electricity access. The system integrates solar panels, rechargeable batteries, energy-efficient LED streetlights, high-intensity laser guidance modules, and motion sensors. In day time the solar panels charge the battery, which powers the LED and laser modules at night. The laser lights project visible guidance lines onto the road surface, improving lane visibility in low-light or foggy conditions. Motion sensors detect approaching vehicles or pedestrians, triggering illumination only when needed, thereby conserving energy. The system provides a reliable, eco-friendly, and cost-effective solution ideal for remote or disaster-prone areas, significantly reducing accident risks and improving night-time navigation on challenging terrains.

No. of Pages : 18 No. of Claims : 10

|                                                                                                                                                                                                                                                                                                                                                                 |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (12) PATENT APPLICATION PUBLICATION                                                                                                                                                                                                                                                                                                                             |  | (21) Application No.202421016265 A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| (19) INDIA                                                                                                                                                                                                                                                                                                                                                      |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| (22) Date of filing of Application :07/03/2024                                                                                                                                                                                                                                                                                                                  |  | (43) Publication Date : 04/07/2025                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| (54) Title of the invention : A ROAD ACCIDENT DETECTION AND ALERT SYSTEM FOR VEHICLES                                                                                                                                                                                                                                                                           |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| (51) International classification :B60K0028060000, G08B0021060000, E01C0023060000, E01C0011000000, B60L0015200000<br>(86) International Application No :NA<br>Filing Date :NA<br>(87) International Publication No : NA<br>(61) Patent of Addition to Application Number :NA<br>Filing Date :NA<br>(62) Divisional to Application Number :NA<br>Filing Date :NA |  | (71)Name of Applicant :<br><b>1)Anvesh Ambastha</b><br>Address of Applicant :RAIT, Sector 7, Phase I, Pad. Dr. D. Y. Patil Vidyapeeth, Nerul, Navi Mumbai, Maharashtra 400706 Mumbai -----<br>-<br><b>2)Shreemoyee Bag</b><br><b>3)Akshita Gajengi</b><br><b>4)Trupti Agarkar</b><br><b>5)Ramrao Adik Institute of Technology, Nerul, Navi Mumbai</b><br>Name of Applicant : NA<br>Address of Applicant : NA<br>(72)Name of Inventor :<br><b>1)Anvesh Ambastha</b><br>Address of Applicant :RAIT, Sector 7, Phase I, Pad. Dr. D. Y. Patil Vidyapeeth, Nerul, Navi Mumbai, Maharashtra 400706 Mumbai -----<br><b>2)Shreemoyee Bag</b><br>Address of Applicant :RAIT, Sector 7, Phase I, Pad. Dr. D. Y. Patil Vidyapeeth, Nerul, Navi Mumbai, Maharashtra 400706 Mumbai -----<br><b>3)Akshita Gajengi</b><br>Address of Applicant :RAIT, Sector 7, Phase I, Pad. Dr. D. Y. Patil Vidyapeeth, Nerul, Navi Mumbai, Maharashtra 400706 Mumbai -----<br><b>4)Trupti Agarkar</b><br>Address of Applicant :RAIT, Sector 7, Phase I, Pad. Dr. D. Y. Patil Vidyapeeth, Nerul, Navi Mumbai, Maharashtra 400706 Mumbai ----- |

(57) Abstract :

The present invention provides a road accident detection and alert system for vehicles which comprises a drowsiness detection module, an alcohol detection module, a road accident detection module, and a pothole detection module. The combination of said modules prevent mishaps occurring while driving a vehicle. The system of the present invention alerts the user while he/she is feeling drowsy or the alcohol consumption rate is higher than standard. The system also alerts nearby help center if the user met with an accident while driving. Further, the system also notifies the user regarding upcoming potholes on the road thus, allowing the user to slow down the vehicle and drive safely. Fig 3

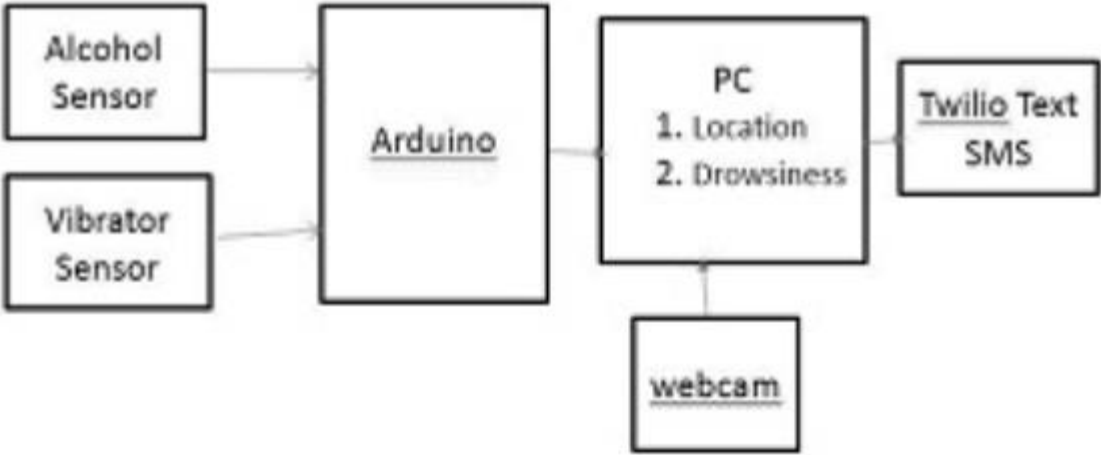


FIGURE 3

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :07/03/2024

(21) Application No.202421016466 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : A SYSTEM FOR ANALYZING CONTEXT-BASED PRIVACY REQUIREMENTS

(51) International classification :G06F11/30, G06F21/60  
(86) International Application No :NA  
Filing Date :NA  
(87) International Publication No : NA  
(61) Patent of Addition to Application Number :NA  
Filing Date :NA  
(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

The present invention provides a system for analyzing context-based privacy requirements comprises a communication device comprising a user interface, display unit, and a storage unit; a plurality of input data from two or more user interfaces for monitoring user's activity by means of the communication device; a plurality of computerized optimizer modules for analyzing and monitoring user's activity by means of the said communication device; and a computerized trained privacy preservation model for preventing breaching of the user's privacy. The said system in conjunction with the said computing device, analyses and processes the input data to monitor user's activity and privacy requirement parameters, and then acquires the requirement parameters and effectively selects the computerized trained privacy preservation model by investigating the adaptability and behaviour of the selected privacy preservation model. The present invention solves the problem of the breaching of the user data on various e-commerce platforms by creating a computerized trained privacy preservation model. Fig 1

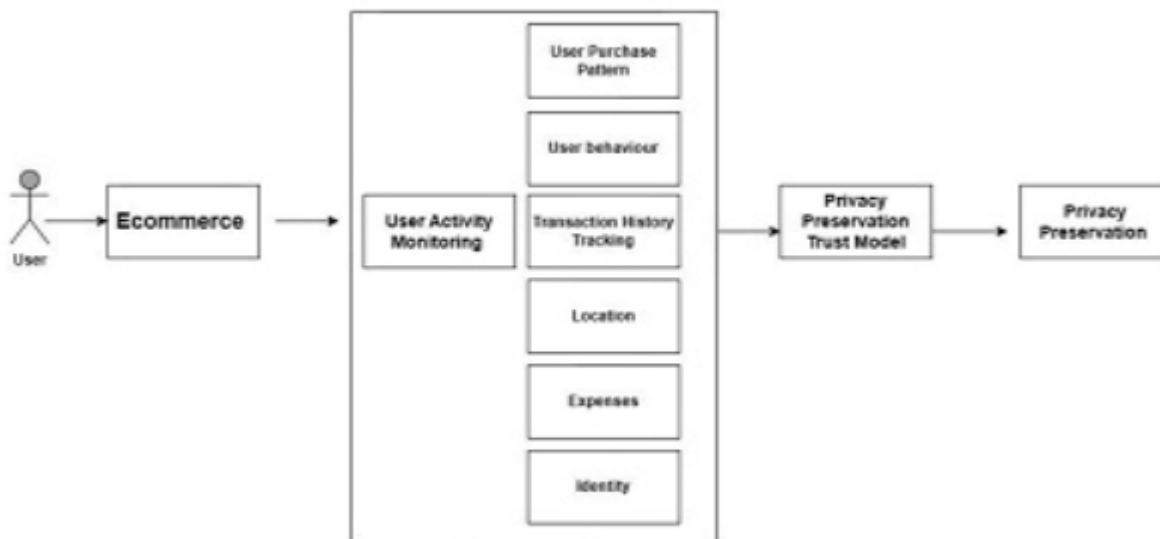


FIGURE 1

No. of Pages : 12 No. of Claims : 7

(54) Title of the invention : SYSTEM AND METHOD FOR MITIGATING PAGE FAILURE AND REDUCING PAGING LOAD IN A CELLULAR NETWORK

(51) International classification :H04W0060040000, H04W0004020000, H04W0084040000, H04W0064000000, H04W0068020000

(86) International

Application No. :NA

(87) International

Publication No. 1474

(61) Patent of Addition to :NA  
Application Number

|             |     |
|-------------|-----|
| Filing Date | :NA |
|-------------|-----|

(62) Divisional to  
Application Number :NA

Filing Date :NA

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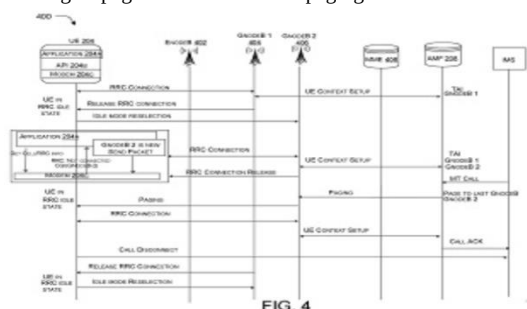
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---

(57) Abstract :

The present disclosure provides a system (208) and a method for mitigating page failure and reducing paging load in a cellular network. The system (208) may establish a connection with a user equipment (204) to facilitate a context setup. Upon the context setup, the system (208) may receive a Tracking Area Identity (TAI), a cell identifier, and cell and Radio Resource Control (RRC) status information from the user equipment (204). The system (208) may determine a transition in location of the user equipment (204) based on the TAI, the cell identifier, and the cell and RRC status information, and update location information of the user equipment (204) in a database associated with the system (208). Further, the system (208) may page the user equipment (204) based on the location information of the user equipment (204) to mitigate page failure and reduce paging load in a cellular network (206).



No. of Pages : 32 No. of Claims : 12



(54) Title of the invention : SYSTEM AND METHOD FOR MITIGATING PAGE FAILURE AND REDUCING PAGING LOAD IN BANDWIDTH CONSTRAINT CELLULAR NETWORKS

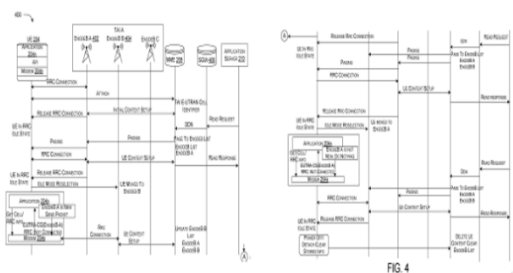
|      |                                          |                                                                                             |
|------|------------------------------------------|---------------------------------------------------------------------------------------------|
| (51) | International classification             | :H04W0068020000,<br>H04W0084040000,<br>H04W0048160000,<br>H04W0076270000,<br>H04W0036360000 |
| (86) | International Application No             | :NA<br>:NA                                                                                  |
|      | Filing Date                              |                                                                                             |
| (87) | International Publication No             | : NA                                                                                        |
| (61) | Patent of Addition to Application Number | :NA<br>:NA                                                                                  |
|      | Filing Date                              |                                                                                             |
| (62) | Divisional to Application Number         | :NA<br>:NA                                                                                  |
|      | Filing Date                              |                                                                                             |

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(57) Abstract :

The present disclosure provides a system (208) and a method for mitigating page failure and reducing paging load in a bandwidth constraint cellular network. The system (208) may establish a connection with a user equipment (204) to facilitate a context setup. Upon the context setup, the system (208) may receive a Tracking Area Identity (TAI), an Evolved Universal Terrestrial Radio Access (EUTRA)-cell identity, and cell and Radio Resource Control (RRC) status information from the user equipment (204). The system (208) may update a list of cells visited by the user equipment (204) based on at least one of the TAI, the EUTRA-cell identity, and the cell and RRC status information. Further, the system (208) may page the user equipment (204) based on the list of cells visited by the user equipment (204) to mitigate page failure and reduce paging load in the bandwidth constraint cellular network.



No. of Pages : 35 No. of Claims : 14

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :02/07/2024

(21) Application No.202421050735 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : A SYSTEM AND METHOD TO ENSURE A SECURED MULTI-PARTY COMPUTATION FRAMEWORK

|                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>(51) International classification :H04L9/00, H04L9/32</p> <p>(86) International Application No :NA</p> <p>Filing Date :NA</p> <p>(87) International Publication No : NA</p> <p>(61) Patent of Addition to Application Number :NA</p> <p>Filing Date :NA</p> <p>(62) Divisional to Application Number :NA</p> <p>Filing Date :NA</p> | <p>(71)Name of Applicant :</p> <p><b>1)Mrs. Namita Pulgam</b></p> <p>Address of Applicant :Department of Computer Engineering, Ramrao Adik Institute of Technology, D.Y.Patil Deemed to be University, Nerul, Navi Mumbai, Maharashtra Mumbai -----</p> <p><b>2)Dr.Tabassum Maktum</b></p> <p><b>3)Dr. Vanita Mane</b></p> <p><b>4)Ramrao Adik Institute of Technology</b></p> <p>Name of Applicant : NA</p> <p>Address of Applicant : NA</p> <p>(72)Name of Inventor :</p> <p><b>1)Janak Ghansham Dhokrat</b></p> <p>Address of Applicant :B Wing 005 Third Floor Panchjanya CHS LTD Ramchandra Nagar Dombivli East Mumbai -----</p> <p><b>2)Mrs. Namita Pulgam</b></p> <p>Address of Applicant :Department of Computer Engineering, Ramrao Adik Institute of Technology, D.Y.Patil Deemed to be University, Nerul, Navi Mumbai, Maharashtra Mumbai -----</p> <p><b>3)Dr.Tabassum Maktum</b></p> <p>Address of Applicant :Department of Computer Engineering, Ramrao Adik Institute of Technology, D.Y.Patil Deemed to be University, Nerul, Navi Mumbai, Maharashtra Mumbai -----</p> <p><b>4)Dr. Vanita Mane</b></p> <p>Address of Applicant :Department of Computer Engineering, Ramrao Adik Institute of Technology, D.Y.Patil Deemed to be University, Nerul, Navi Mumbai, Maharashtra Mumbai -----</p> |
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(57) Abstract :

The fast-paced and digitized contemporary world faces the security of data protection and its integrity as a major issue and to combat the said problem the present invention discloses a computational framework that incorporates homomorphic encryption schemes together with the zero-knowledge proof mechanism. This framework performs the encryption of sensitive data in order to increase its security in a cloud environment. The framework is built on RSA cryptosystem multiplicative homomorphism properties together with Paillier additive homomorphism cryptosystem so that secure operations can be performed on encrypted data directly. Privacy-preserving multiplication operations are allowed by RSA while the addition is enabled by Paillier which operates over encrypted numbers. Zero-knowledge proofs offer an extra layer of security on both operations since they allow verifying computation correctness without disclosing any private content. By using these techniques computation overhead is reduced. Further, with the combination of multiple techniques in the computation process, the system offers enhanced security and privacy, facilitating multiparty computation, and promoting interoperability and adoption.

No. of Pages : 13 No. of Claims : 5

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202421050736 A

(19) INDIA

(22) Date of filing of Application :02/07/2024

(43) Publication Date : 04/07/2025

(54) Title of the invention : AN RFID BASED AUTOMATED ATTENDANCE MONITORING AND REPORTING SYSTEM

(51) International classification :G06K0007100000, G06K0017000000, G06Q0010100000, A61K0036730000, G08B0021020000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

The present invention discloses a comprehensive system for managing and reporting attendance, enhances accuracy and provides real-time monitoring of attendance based on Radio Frequency Identification (RFID) technology. The present invention aims to develop an RFID-based attendance monitoring and reporting system that utilises Raspberry Pi (RPI) for processing the scanned data. Each individual is assigned with a unique RFID tag which can be embedded in a card or keychain, and is read by RFID readers connected to the Raspberry Pi. The system processes the collected data in real-time, ensuring quick and accurate attendance recording. The Raspberry Pi acts as the central processing unit, managing data storage, analysing data and communication with external devices. The use of Raspberry Pi offers advantages such as low cost, energy efficiency and an open-source platform, making the system affordable, sustainable and accessible to a wide range of organizations. Key features of the system include its scalability, adaptability and user-friendly interface. It is designed to support a large number of users, making it suitable for organizations of varying sizes. Its adaptability facilitates easy integration with existing infrastructure, reducing implementation challenges, the user-friendly interface ensures that the both administrators and end-users can easily navigate and interact with the system, enhancing its practicality and usability.

No. of Pages : 18 No. of Claims : 3

(54) Title of the invention : AN ADVANCED WEARABLE TRACKING DEVICE USING A LONG-RANGE COMMUNICATION MODULE

(51) :A61B0005000000,  
International H04W0004020000,  
classification H04W0064000000,  
H04W0004021000,  
H04W0004900000

(86)  
International :NA  
Application :NA  
No :NA

Filing  
Date  
(87)

International :NA  
Publication No

(61) Patent of  
Addition to  
Application :NA  
Number :NA  
Filing  
Date

(62)  
Divisional to  
Application :NA  
Number :NA  
Filing  
Date

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## (57) Abstract :

The present disclosure provides an advanced wearable tracking device using a long-range communication module which is a life saving tool that can be used for search operation and locating disaster affecting people. The present invention uses the LoRa module as a communication module to transmit input data and to establish a secured communication pathway to a distance from 5km to 15km using less energy and bandwidth. The device of the present invention comprises a plurality of long-range based receiver nodes; a plurality of long-range based transmitter nodes; a processing unit; a communication device; a plurality of sensors; a voice activated module; an emergency button; a cloud based server for storing the data; a power source for powering the said device; a location tracking module; and a plurality of jumping wires. The said device of the present invention allows the rescue team and authority to locate and obtain live status of the user's health parameters with the help of a secured long-range communication module.



No. of Pages : 14 No. of Claims : 6

(54) Title of the invention : A SYSTEM FOR MONITORING AUTOMATIC TENSIONING DEVICE AND METHOD THEREOF

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**1)KHANOLKAR, Subodh Deepak**  
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The present disclosure relates to a system 102 and a method 300 for monitoring an Automatic Tensioning Device (ATD). The system 102 includes one or more sets of sensor-reflector units 108 connected to a set of pulleys 128 of the ATD 104. The sensor-reflector units 108 are configured to measure variations in at least an X parameter and a Y parameter of the ATD 104 in real-time. The system 102 includes a control unit 110 coupled to the one or more sensor-reflector units 108. The control unit 110 is configured to collect data pertaining to the variations in the X and Y parameters from the sensor-reflector units 108, detect one or more anomalies in the overhead power cable 122 by monitoring the variations in the X and Y parameters, and generate and transmit an alert to a user equipment 124 associated with the system 102 based on the detection of the one or more anomalies.

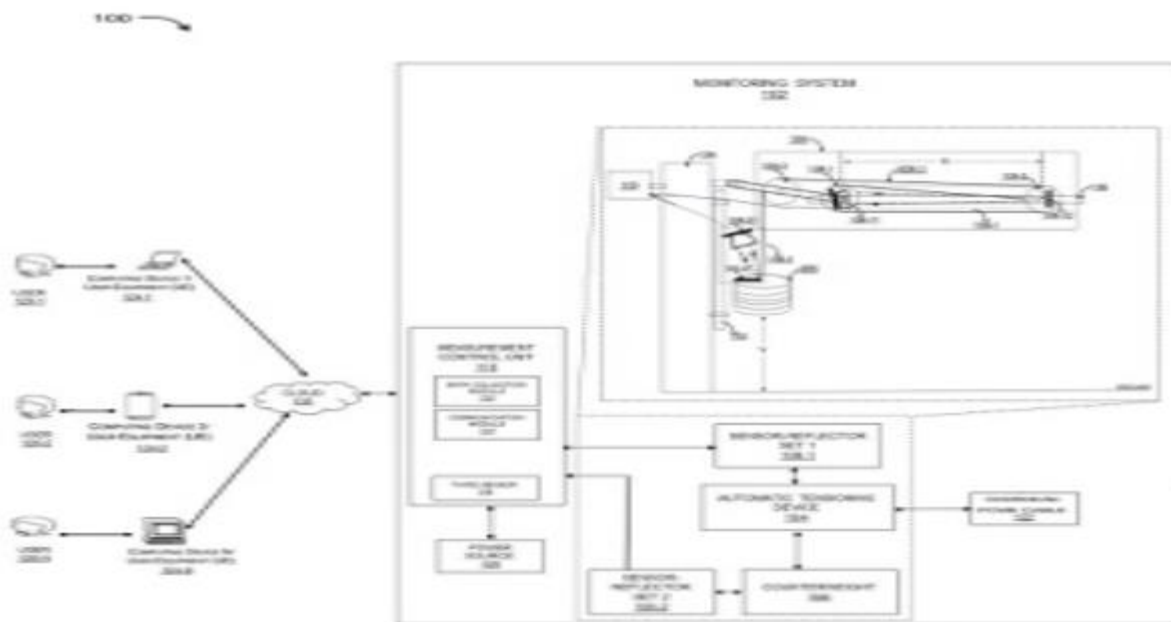


FIG. 1

|                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <div>(51) International classification :G06T7/00, G06N3/0464, G06N3/08, G06F18/24</div> <div>(86) International Application No :NA</div> <div>    Filing Date :NA</div> <div>(87) International Publication No : NA</div> <div>(61) Patent of Addition to Application Number :NA</div> <div>    Filing Date :NA</div> <div>(62) Divisional to Application Number :NA</div> <div>    Filing Date :NA</div> | <div>(71)Name of Applicant :<br/>    <b>1)MIT Art, Design and Technology University, Pune</b><br/>        Address of Applicant :Railway station, MIT ADT Campus, Rajbaugh, Solapur - Pune Hwy, near Bharat Petrol Pump, Loni Kalbhori, Maharashtra 412201 -----<br/>    <b>2)Dr Rajesh Prasad</b><br/>    <b>3)Dr Jayashree Prasad</b><br/>    <b>4)Dr Mohit Kumar</b><br/>    <b>5)Dr Rahesha Mulla</b><br/>Name of Applicant : NA<br/>Address of Applicant : NA<br/>(72)Name of Inventor :<br/>    <b>1)Dr Rajesh Prasad</b><br/>        Address of Applicant :Associate Dean and Professor (CSE), School of Computing MIT Art, Design and Technology University, Railway station, MIT ADT Campus, Rajbaugh, Solapur - Pune Hwy, near Bharat Petrol Pump, Loni Kalbhori, Maharashtra 412201 -----<br/>    <b>2)Dr Jayashree Prasad</b><br/>        Address of Applicant :Professor (CSE) , School of Computing, MIT Art, Design and Technology University, Railway station, MIT ADT Campus, Rajbaugh, Solapur - Pune Hwy, near Bharat Petrol Pump, Loni Kalbhori, Maharashtra 412201 -----<br/>    <b>3)Dr Mohit Kumar</b><br/>        Address of Applicant :Associate Professor, School of Computing, MIT Art, Design and Technology University, Railway station, MIT ADT Campus, Rajbaugh, Solapur - Pune Hwy, near Bharat Petrol Pump, Loni Kalbhori, Maharashtra 412201 -----<br/>    <b>4)Dr Rahesha Mulla</b><br/>        Address of Applicant :Assistant Professor, School of Computing, MIT Art, Design and Technology University, Railway station, MIT ADT Campus, Rajbaugh, Solapur - Pune Hwy, near Bharat Petrol Pump, Loni Kalbhori, Maharashtra 412201 -----</div> |
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(57) Abstract :  
The present invention relates to an artificial intelligence based oral cancer diagnosis device (100). The device (100) comprises a data collection module, a preprocessing module, a convolutional neural network (CNN) model, a validation and testing module, an integration module, an regulatory compliance module and an user interface. The data collection module configured to gather a dataset of oral images. The preprocessing module ensure uniformity and reduce noise. The convolutional neural network (CNN) model trained on the preprocessed dataset to identify and classify different stages of oral cancer. The validation and testing module that evaluates the model's performance using separate validation and independent test datasets to determine accuracy, sensitivity, specificity, and other relevant metrics. The user interface that allows healthcare professionals to upload oral images and receive diagnostic results. The integration module designed for seamless compatibility with existing healthcare systems. The regulatory compliance module ensuring the device meets standards

No. of Pages : 16 No. of Claims : 8

(54) Title of the invention : MOTOR-DRIVE FOR ELECTRIC VEHICLES

|                                                                                                                                                                                                                                                                                                             |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <div>(51) International classification :B60K7/00, H02K1/00, B60L15/00, B60L50/00</div> <div>(86) International Application No :NA</div> <div>(87) International Publication No : NA</div> <div>(61) Patent of Addition to Application Number :NA</div> <div>(62) Divisional to Application Number :NA</div> |  | <div>(71)Name of Applicant :<br/>1)Matter Motor Works Private Limited<br/>Address of Applicant :301, PARISHRAM BUILDING, 5B RASHMI SOC., NR. MITHAKHALI SIX ROADS, NAVRANGPURA AHMEDABAD, GUJARAT, INDIA - 380010 Ahmedabad -----<br/>Name of Applicant : NA<br/>Address of Applicant : NA<br/>(72)Name of Inventor :<br/>1)KUMAR PRASAD TELIKEPALLI<br/>Address of Applicant :301, PARISHRAM BUILDING, 5B RASHMI SOC., NR. MITHAKHALI SIX ROADS, NAVRANGPURA AHMEDABAD, GUJARAT, INDIA - 380010 Ahmedabad -----<br/>2)SHIRISH VIJAYPAL SINGH<br/>Address of Applicant :301, PARISHRAM BUILDING, 5B RASHMI SOC., NR. MITHAKHALI SIX ROADS, NAVRANGPURA AHMEDABAD, GUJARAT, INDIA - 380010 Ahmedabad -----<br/>3)YOGESH DHANRAJ SHARDUL<br/>Address of Applicant :301, PARISHRAM BUILDING, 5B RASHMI SOC., NR. MITHAKHALI SIX ROADS, NAVRANGPURA AHMEDABAD, GUJARAT, INDIA - 380010 Ahmedabad -----</div> |
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(57) Abstract :  
ABSTRACT MOTOR-DRIVE FOR ELECTRIC VEHICLES The invention pertains to a motor-drive (100) for an electric vehicle. The motor-drive (100) comprises a common rotor shaft (102) for integrating a motor and a gearbox, a rotor (104) comprising at least one endplate (106) and a rotor core (108). The rotor core (108) comprises at least one slot (110) on an inner diameter configured to lock the at least one endplate (106). FIG. 1

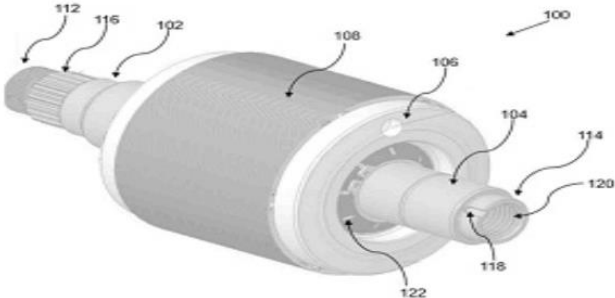


FIG. 1

No. of Pages : 22 No. of Claims : 11

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202421050742 A

(19) INDIA

(22) Date of filing of Application :02/07/2024

(43) Publication Date : 04/07/2025

(54) Title of the invention : AN ADVANCED AND PORTABLE WOMEN SAFETY DEVICE

(51) International classification :G08B0021020000, G08B0025100000, G06N0020000000, B60K0035000000, H04W0004020000  
(86) International Application No :NA  
Filing Date :NA  
(87) International Publication No : NA  
(61) Patent of Addition to Application Number :NA  
Filing Date :NA  
(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

The present disclosure provides an advanced and portable women safety device. The present invention aims towards providing a safety device which is portable and easy to carry and can differentiate between emergency and abnormal situation based on the monitored parameters and machine learning algorithm. The said device comprises a plurality of sensors (4), a processing unit (1), a push button (2), a location tracking module (3), a location tracking module (3), an alarming buzzer (6), a shock circuit (7) (18) of the said device, a position and navigation detecting module, a user application (8), a wireless communication module for transmitting input and output data. The said device allows the user (woman) to defend herself from the attacker by pre pressing the said push button of the said device which generates electric shock if an emergency condition is detected that may weaken the strength of the attacker, giving an opportunity and a short time to the user to escape herself from the attacker.

No. of Pages : 19 No. of Claims : 6



(12) PATENT APPLICATION PUBLICATION

(21) Application No.202421050759 A

(19) INDIA

(22) Date of filing of Application :02/07/2024

(43) Publication Date : 04/07/2025

(54) Title of the invention : A SYSTEM AND METHOD TO CLASSIFY CHEST X-RAYS TO DETECT THE PNEUMONIA USING CONVOLUTIONAL NEURAL NETWORK

(51) International classification :G06T7/00, A61B6/00, G06N3/04, G06N3/08, G06V10/764, G06V10/82

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA  
(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

The present invention relates to a system and method for detecting pneumonia in the children early by classifying chest X- ray images using convolutional neural network which is a famous deep learning technique used to classify the X-ray images efficiently and provide high accuracy. In the present invention convolutional neural network is designed to detect pneumonia from chest X-ray images. The CNN model is trained on a labeled dataset to achieve high accuracy and robustness. By optimizing the architecture layers and employing data augmentation methods, the model's performance in classifying pneumonia is enhanced. The model is tested on invisible X-ray images to ensure reliable diagnosis, providing a quick and accurate tool for early detection and treatment of pneumonia. The system's primary goal is to recognize cases of pneumonia and differentiate between healthy lungs and pneumonia infected lungs on chest X-ray images.

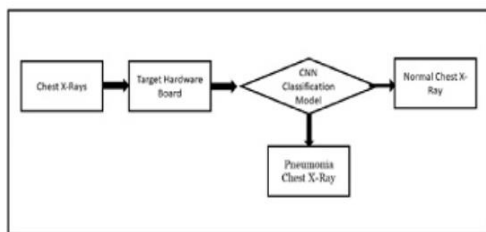


Figure 1: Block Diagram consisting of the process of the proposed methodology and model deployment.

No. of Pages : 13 No. of Claims : 5

(54) Title of the invention : A SYSTEM AND A METHOD TO DEVELOP A RESUME SCREENING SYSTEM

|                                                                                                                                                                                                                                                                                                        |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <div>(51) International classification :G06F 16/335, G06F 16/33, G06Q 10/10</div> <div>(86) International Application No :NA</div> <div>(87) International Publication No : NA</div> <div>(61) Patent of Addition to Application Number :NA</div> <div>(62) Divisional to Application Number :NA</div> |  | <div>(71)Name of Applicant :<br/>1)Sarth Joshi<br/>Address of Applicant :Room 403b, Ramrao Adik Institute of Technology, Sector 7, Phase I, Pad. Dr. D. Y. Patil Vidyapeeth, Nerul, Navi Mumbai, Maharashtra 400706 Mumbai -----<br/>2)Amrita Bhattacharyya<br/>3)Uttam Choudhary<br/>4)Rugved Koli<br/>5)Dr. Yogita Mistry<br/>6)Ramrao Adik Institute of Technology, D Y PATIL deemed to be University<br/>Name of Applicant : NA<br/>Address of Applicant : NA<br/>(72)Name of Inventor :<br/>1)Sarth Joshi<br/>Address of Applicant :Room 403b, Ramrao Adik Institute of Technology, Sector 7, Phase I, Pad. Dr. D. Y. Patil Vidyapeeth, Nerul, Navi Mumbai, Maharashtra 400706 Mumbai -----<br/>2)Amrita Bhattacharyya<br/>Address of Applicant :Room 403b, Ramrao Adik Institute of Technology, Sector 7, Phase I, Pad. Dr. D. Y. Patil Vidyapeeth, Nerul, Navi Mumbai, Maharashtra 400706 Mumbai -----<br/>3)Uttam Choudhary<br/>Address of Applicant :Room 403b, Ramrao Adik Institute of Technology, Sector 7, Phase I, Pad. Dr. D. Y. Patil Vidyapeeth, Nerul, Navi Mumbai, Maharashtra 400706 Mumbai -----<br/>4)Rugved Koli<br/>Address of Applicant :Room 403b, Ramrao Adik Institute of Technology, Sector 7, Phase I, Pad. Dr. D. Y. Patil Vidyapeeth, Nerul, Navi Mumbai, Maharashtra 400706 Mumbai -----<br/>5)Dr. Yogita Mistry<br/>Address of Applicant :Room 403b, Ramrao Adik Institute of Technology, Sector 7, Phase I, Pad. Dr. D. Y. Patil Vidyapeeth, Nerul, Navi Mumbai, Maharashtra 400706 Mumbai -----</div> |
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(57) Abstract :

The present invention is a resume-screening model that addresses the inefficiencies and subjectivity in existing resume-screening methods by proposing the development of an AI-based system. Manual screening is challenging for recruiters, leading to biased selections and the potential loss of qualified candidates. The need for automation arises to effectively evaluate resumes, rank candidates based on job relevance, and overcome issues related to time efficiency, standardization, bias reduction, and scalability. The present invention relates to an AI-based resume-screening system by software implementation that begins with data pre-processing by using Python libraries and applying data cleaning techniques to eliminate noise and irrelevant information from both resumes and job descriptions. Following the data pre-processing, the next phase involves model training. Two primary approaches are employed for the purpose of model training. Firstly, the Multinomial Naive Bayes classifier is trained using the pre-processed data to predict the relevance of resumes to specific job positions and secondly, the K-nearest neighbour (KNN) algorithm is applied to classify similar resumes based on their features. Upon completion of model training, the system proceeds to integration. This entails the development of APIs (Application Programming Interfaces) to facilitate communication between the user interface and the backend model. Finally, the integrated system is deployed either on a web server or a cloud platform to ensure accessibility for recruiters and stakeholders. The final phase of the software implementation involves testing and evaluation to assess the system's functionality and effectiveness. Furthermore, end-to-end testing is performed to evaluate the performance and usability of the resume screening system under various scenarios. Evaluation metrics such as accuracy, precision, recall, and F1-score are utilized to assess the system's effectiveness in identifying relevant candidates and providing accurate recommendations.

No. of Pages : 17 No. of Claims : 6

(54) Title of the invention : SYSTEM AND METHOD FOR SKILL TRANSFER VIA HUMAN TO HUMAN INTERFACE

|                                                                                                                                                                                                                                                                                                  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <div>(51) International classification :A61B5/0476, A61B5/00, G06N3/02</div> <div>(86) International Application No :NA</div> <div>(87) International Publication No :NA</div> <div>(61) Patent of Addition to Application Number :NA</div> <div>(62) Divisional to Application Number :NA</div> |  | <div>(71)Name of Applicant :<br/><b>1)Dimension NXG Pvt. Ltd.</b><br/>Address of Applicant :527 &amp; 528, 5th floor, Lodha Supremus 2, Road no.22, near new passport office, Wagle Estate, Thane West, Maharashtra, India- 400604, India Thane -----<br/><b>Name of Applicant : NA</b><br/><b>Address of Applicant : NA</b><br/>(72)Name of Inventor :<br/><b>1)Abhishek Tomar</b><br/>Address of Applicant :527 &amp; 528, 5th floor, Lodha Supremus 2, Road no.22, near new passport office, Wagle Estate, Thane West, Maharashtra, India- 400604, India Thane -----<br/><b>2)Abhijit Patil</b><br/>Address of Applicant :527 &amp; 528, 5th floor, Lodha Supremus 2, Road no.22, near new passport office, Wagle Estate, Thane West, Maharashtra, India- 400604, India Thane -----<br/><b>3)Pankaj Raut</b><br/>Address of Applicant :527 &amp; 528, 5th floor, Lodha Supremus 2, Road no.22, near new passport office, Wagle Estate, Thane West, Maharashtra, India- 400604, India Thane -----<br/><b>4)Purwa Rathi</b><br/>Address of Applicant :527 &amp; 528, 5th floor, Lodha Supremus 2, Road no.22, near new passport office, Wagle Estate, Thane West, Maharashtra, India- 400604, India Thane -----<br/><b>5)Yukti Suri</b><br/>Address of Applicant :527 &amp; 528, 5th floor, Lodha Supremus 2, Road no.22, near new passport office, Wagle Estate, Thane West, Maharashtra, India- 400604, India Thane -----</div> |
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(57) Abstract :

In system and method disclosed herein, an advanced framework for accelerated skill transfer is presented through a human-to-human neural interface operable in both synchronous (real-time/online) and asynchronous (offline) modes. The framework enables the neurophysiological encoding and transfer of motor skills from a trainer to a trainee by leveraging brain-computer interface (BCI) and neuromuscular stimulation technologies integrated with machine learning algorithms. In the training phase, neural activity patterns corresponding to specific motor intentions or skill executions are captured from expert trainers. These signals then undergo signal pre-processing, followed by feature extraction and classification using advanced machine learning or deep learning models tailored for spatio-temporal neural data. In the skill transfer phase, the classified and semantically mapped neural command set is used to generate corresponding neuromuscular stimulation sequences. The stimulation targets specific motor neurons or muscle groups, eliciting physical movements in the trainee that mimic the trainer’s intended motor activity.

No. of Pages : 40 No. of Claims : 22

(54) Title of the invention : A PET MONITORING ROBOTIC DEVICE

(51) International:A01K5/02,  
classification G06V10/00

(86) International :NA

Application No :NA

Filing Date :NA

(87) International : NA

Publication No : NA

(61) Patent of

Addition to :NA

Application :NA

Number

Filing Date

(62) Divisional :NA

to Application :NA

Number :NA

Filing Date

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(57) Abstract :

The present invention provides a pet monitoring robotic device which comprises a robotic chassis comprising two pairs of robotic wheels and stepper motors; a plurality of sensors for sensing surrounding environment data; a processing unit comprising a microcontroller, storage unit, and a display screen; a power source module; two or more DC motor driver boards; two or more DC motors; a relay module; connecting wires; an image capturing module; a virtual network computing (VNC) graphical user interface; a solid and a liquid dispensing food containers; and a movable slide mounted at the base of the said food container operably rotated by a servo motor for dispensing the stored food into a feeding bowl. The present invention enables the user to monitor his/her pet activities in real time, and better verbal communication with the pets. An automatic feeding and monitoring system is also disclosed in the present invention. Fig 1

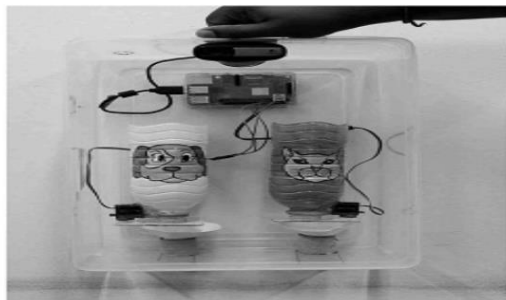


FIGURE 1

No. of Pages : 13 No. of Claims : 7

(54) Title of the invention : AI-POWERED DECISION SUPPORT SYSTEM FOR REAL-TIME STRATEGY AND PRODUCT PLANNING

(51) International classification :G06N20/00, G06Q10/06, G06F40/30, G06Q10/04

(86) International Application No :NA

Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA

Filing Date :NA

(62) Divisional to Application Number :NA

Filing Date :NA

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(57) Abstract :  
AI-POWERED DECISION SUPPORT SYSTEM FOR REAL-TIME STRATEGY AND PRODUCT PLANNING The present invention discloses an AI-powered decision support system designed for OEMs to enhance competitive strategy and new product planning. The system accepts natural language inputs regarding desired vehicle features, markets, and budgets, and converts them into structured data using advanced NLP models. Integrated with real-time and historical datasets, the system applies predictive analytics to forecast market trends and performance, and prescriptive analytics to optimize feature selection, pricing, and launch strategy using genetic algorithms and constraint programming. Interactive dashboards visualize forecasts and actionable recommendations, enabling informed, data-driven decisions. Scenario testing and simulation modules evaluate multiple market outcomes, while a feedback module continuously improves model accuracy based on post-launch results. The system ensures secure API-based integration with enterprise systems and complies with data protection regulations such as GDPR and ISO 27001. It offers a scalable, adaptive solution for OEMs and Tier-1 suppliers seeking real-time market insight and reduced time-to-market.

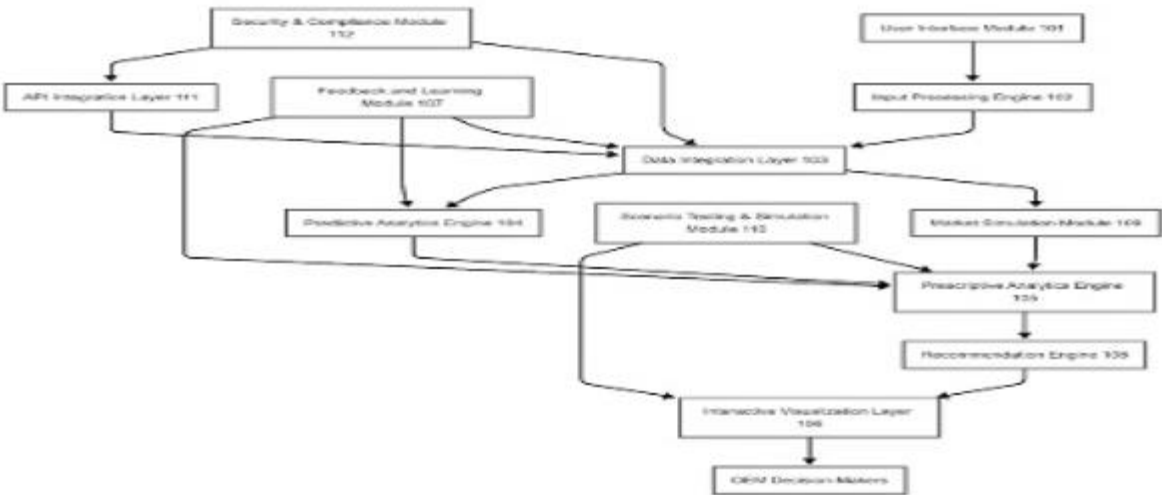


Figure 1

(54) Title of the invention : SYNERGISTIC BIOACTIVE COMPOSITION TO IMPROVE JOINT HEALTH

|                                               |                                                                                         |                                                                                                                                                              |
|-----------------------------------------------|-----------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (51) International classification             | :A61K9/00, A61K47/38, A61K47/26, A61K47/34, A61K47/24, A61K36/42, A61K31/16, A61K31/164 | (71)Name of Applicant :<br><b>1)Radhika Sharma</b><br>Address of Applicant :33, Narmada Nagar Annapurna Road Indore Madhya Pradesh India 452009 Indore ----- |
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| (87) International Publication No             | : NA                                                                                    | <b>Address of Applicant : NA</b>                                                                                                                             |
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(57) Abstract :  
“SYNERGISTIC BIOACTIVE COMPOSITION TO IMPROVE JOINT HEALTH” The present invention relates to the field of nutraceuticals, specifically to a synergistic bioactive composition designed to improve joint health. This composition comprises Palmitoylethanolamide (PEA) and Cucumis sativus, aimed at reducing joint pain and protecting cartilage. It addresses the complex pain components of osteoarthritis, including both nociceptive pain, which stems from ongoing joint inflammation and tissue damage, and neuropathic pain, which indicates nerve damage. This nutraceutical composition provides a novel solution for mitigating the debilitating effects of osteoarthritis through oral administration, utilizing pharmaceutically acceptable excipients to ensure efficacy and safety.

No. of Pages : 33 No. of Claims : 10

(54) Title of the invention : MONO FLIGHT: A TRANSPORTABLE SINGLE-ROTOR UNMANNED AERIAL VEHICLE (UAV) SYSTEM

(51) International classification :B64U50/18,  
B64U50/20,  
B64U30/20,  
B64U40/00(86) International Application No :NA  
Filing :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing :NA(62) Divisional to Application Number :NA  
Filing :NA  
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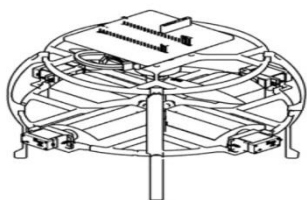
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## (57) Abstract :

The present invention relates to a thrust vector-controlled single-rotor UAV mono-flight system that emulates reusable rocket dynamics through its integrated components: communication module, microcontroller, BLDC motor, MEMS with accelerometer and gyroscope, power management module, actuators, flight controller, sensors, and control surfaces. Utilizing a 3D-printed spherical external structure, the flight controller executes commands from a ground station via the communication module for stabilization and thrust vectoring. Control surfaces, actuated by servo motors, enable altitude and direction control, while a client-server communication architecture facilitates remote operation. The system's single rotor and four control surfaces allow for pitch, roll, and yaw control. The PLA-printed external structure houses components, with a battery elimination circuit reducing weight. A custom PCB integrates components efficiently. A quaternion-based attitude control system provides stability, with a Q-P Attitude Controller and PID controllers adjusting control surfaces. This system, mimicking reusable rockets, enables precise maneuvering and is suitable for educational and real-world applications. This thrust vector-controlled single-rotor UAV mono-flight system offers a novel approach to emulate reusable rocket dynamics, facilitating remote control and precise maneuvering and its integrated design and control systems provide a platform for educational projects and real-world applications in a secure setting.



(12) PATENT APPLICATION PUBLICATION

(21) Application No.202421062070 A

(19) INDIA

(22) Date of filing of Application :16/08/2024

(43) Publication Date : 04/07/2025

(54) Title of the invention : Inorganic soil conditioner for enhancing fertility of alkaline soil

(51) International classification :C09K17/40, C05G3/80, C05G5/12,  
C09K101/00, C09K109/00

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to :NA  
Application Number :NA  
Filing Date :NA

(62) Divisional to Application :NA  
Number :NA  
Filing Date :NA

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(57) Abstract :

BSTRACT TITLE: INORGANIC SOIL CONDITIONER FOR ENHANCING FERTILITY OF ALKALINE SOIL. 5 Disclosed herein is a inorganic soil conditioner which is a effective source for enhancing the phosphorus nutrient to growing plant. The inorganic soil conditioner comprises egg shell oxalic acid which is an acidic extract containing both acid and calcium oxalate. Presence of both together causes increase in the availability of phosphorus in soil at acidic and alkaline pH value of soil so that decreases cost, time 10 and labors for operation

No. of Pages : 29 No. of Claims : 6



(54) Title of the invention : A SYSTEM FEATURING A MULTI-MOTOR HOVERCRAFT FOR IMPROVED NAVIGATION AND MANOEUVRABILITY

(51) :H04W0004800000,  
B60V0001140000,  
International G05D0001000000,  
classification A61B0034100000,  
B60V0001160000

(86)  
International  
Application :NA  
No :NA

Filing  
Date

(87)  
International : NA  
Publication No

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Filing  
Date

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(57) Abstract :

The present invention relates to a system featuring a multi-motor hovercraft for improved navigation and maneuverability. The system comprises a plurality of high-RPM (revolution per minute), motors (108) and (109), a propeller (401) a power supply unit (103) having a rectifier (104) and regulator (105), a microcontroller (100), a receiver module (102), a servo motor (107) integrated with a rudder (404). The system (800) works in conjunction with the existing hovercraft's propulsion and lift mechanisms, using continuous adjustments of both the servo and propeller motors to achieve the desired trajectory and to achieve the required performance. The engine at the back of the hovercraft spins at a very high RPM, allowing it to generate enough power to keep it above the surface, reducing friction underneath and the generator mounted on the back of the hovercraft helps it to propel it forward and by integrating a servo motor (107) with the rudder (404) to control the direction of movement by adjusting the angle of airflow thereby enhancing the maneuverability and navigation capacity of the hovercraft system (800).

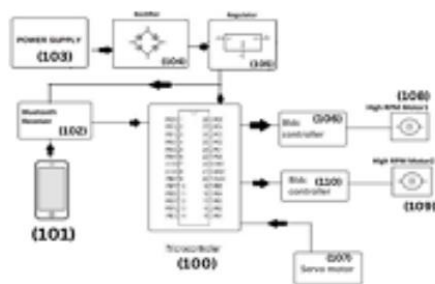


Figure 8: Block diagram of the proposed system

No. of Pages : 21 No. of Claims : 4

(54) Title of the invention : AUTOMATED DEACTIVATION OF TURN INDICATORS

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <div><div>(51) International classification</div><div>:G02B0027010000, B62K0011000000, B62D0061000000, G01C0025000000, H04W0052020000</div></div> <div><div>(86) International Application No</div><div>:NA</div><div>Filing Date</div><div>:NA</div></div> <div><div>(87) International Publication No</div><div>: NA</div></div> <div><div>(61) Patent of Addition to Application Number</div><div>:NA</div><div>Filing Date</div><div>:NA</div></div> <div><div>(62) Divisional to Application Number</div><div>:NA</div><div>Filing Date</div><div>:NA</div></div> | <div>(71)Name of Applicant :<br/><b>1)Matter Motor Works Private Limited</b><br/>Address of Applicant :301, PARISHRAM BUILDING, 5B RASHMI SOC., NR. MITHAKHALI SIX ROADS, NAVRANGPURA AHMEDABAD, GUJARAT, INDIA - 380010 Ahmedabad -----<br/><b>Name of Applicant : NA</b><br/><b>Address of Applicant : NA</b><br/>(72)Name of Inventor :<br/><b>1)KUMAR PRASAD TELIKEPALLI</b><br/>Address of Applicant :301, PARISHRAM BUILDING, 5B RASHMI SOC., NR. MITHAKHALI SIX ROADS, NAVRANGPURA AHMEDABAD, GUJARAT, INDIA - 380010 Ahmedabad -----<br/><b>2)SATISH THIMMALAPURA</b><br/>Address of Applicant :301, PARISHRAM BUILDING, 5B RASHMI SOC., NR. MITHAKHALI SIX ROADS, NAVRANGPURA AHMEDABAD, GUJARAT, INDIA - 380010 Ahmedabad -----<br/><b>3)JAYA VIJAYVERGIYA</b><br/>Address of Applicant :301, PARISHRAM BUILDING, 5B RASHMI SOC., NR. MITHAKHALI SIX ROADS, NAVRANGPURA AHMEDABAD, GUJARAT, INDIA - 380010 Ahmedabad -----<br/><b>4)ROHAN R. LODAYA</b><br/>Address of Applicant :301, PARISHRAM BUILDING, 5B RASHMI SOC., NR. MITHAKHALI SIX ROADS, NAVRANGPURA AHMEDABAD, GUJARAT, INDIA - 380010 Ahmedabad -----</div> |
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(57) Abstract :  
ABSTRACT AUTOMATED DEACTIVATION OF TURN INDICATORS The present disclosure describes a system (100) for switching off a turn-indicator of a vehicle. The system (100) comprises at least one sensor (102) configured to sense a current value of linear acceleration and a current value of angular velocity of the vehicle. The system (100) comprises a processor (104) configured to calculate a current value of lean angle and a current value of yaw angle, determine a threshold value of lean angle and a threshold value of yaw angle dynamically, based on speed of the vehicle, compare the current value of lean angle and yaw angle with the threshold value of lean angle and yaw angle, and generate a signal to turn off the turn-indicator (108) based on comparison between the current values and the threshold values of the lean angle and the yaw angle. FIG. 1

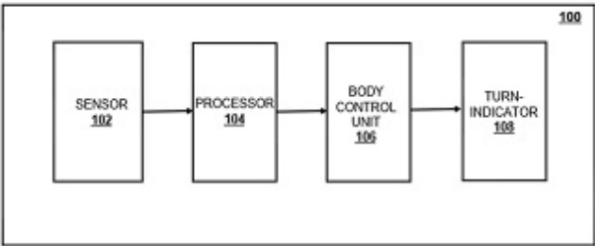


FIG. 1

No. of Pages : 21 No. of Claims : 13

(54) Title of the invention : A MULTIFUNCTIONAL BLIND STICK

(51) International classification :A61B0005000000, A61B0005024000, A61B0005145500, H04W0004900000, G09B0021000000

(86) International Application No :NA  
Filing Date :NA

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(61) Patent of Addition to Application Number :NA  
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Address of Applicant :RAIT, Dept of Computer Engineering, B.Tech in CSBS D Y Patil deemed to be university Nerul -----

(57) Abstract :  
ABSTRACT: A MULTIFUNCTIONAL BLIND STICK The present disclosure provides a which multifunctional blind stick which comprises an integrated pulse oximetry and heart rate monitor module; an adjustable dial with Braille engraving for customizing the sensitivity of obstacle detection based on individual preferences and environmental conditions; an SOS button integrated with a global positioning system (GPS) module for alerting the user and emergency contacts and requesting assistance during emergency situation; a camera module; a micro processing unit; one or more ultrasonic sensors; a plurality of ports; a roller tip for enhancing comfort, stability, and ease of movement for the users while using the said stick; a wrist strap for preventing the stick from falling if accidentally released from the user hand wherein the said stick provides health parameters related data to the user in real time and on regular basis. The said stick generates tactile feedback sensations which are produced by integrated ERM (eccentric rotating mass) motors, allowing the user to quickly response to obstacles or change the walking direction and navigate more confidently and independently.

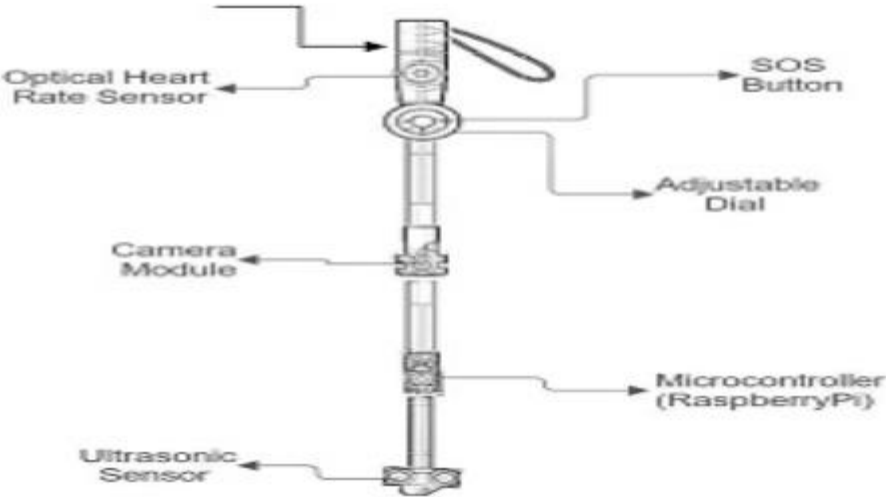


Figure 1 illustrates an exemplary diagram of the blind stick

(54) Title of the invention : AN ADVANCED FACIAL RECOGNITION ATTENDANCE MANAGEMENT SYSTEM

|                                                                                                                                                                                                                                                                                                                                                                                                                  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <div>(51) International classification :G06Q 10/00, G06Q 10/10, G06Q 10/109, G06Q 10/1091, G07C 1/10</div> <div>(86) International Application No :NA</div> <div>Filing Date :NA</div> <div>(87) International Publication No : NA</div> <div>(61) Patent of Addition to Application Number :NA</div> <div>Filing Date :NA</div> <div>(62) Divisional to Application Number :NA</div> <div>Filing Date :NA</div> |  | <div>(71)Name of Applicant :<br/>1)Dr. Bhawana Garg<br/>Address of Applicant :Department of Instrumentation Engineering, RAIT, Nerul Navi Mumbai-400706 Nerul -----<br/>2)Ramrao Adik Institute of Technology<br/>Name of Applicant : NA<br/>Address of Applicant : NA<br/>(72)Name of Inventor :<br/>1)Dr Bhawana Garg<br/>Address of Applicant :Department of Instrumentation Engineering, RAIT, Nerul Navi Mumbai-400706 Nerul -----<br/>2)Rohit Talele<br/>Address of Applicant :Department of Instrumentation Engineering, RAIT, Nerul Navi Mumbai-400706 Nerul -----</div> |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

(57) Abstract :  
ABSTRACT: AN ADVANCED FACIAL RECOGNITION ATTENDANCE MANAGEMENT SYSTEM The present disclosure provides an advanced facial recognition attendance management system which aims at automating attendance tracking in various industries like educational institutes, private sector, and factories etc. The said system is designed to streamline and enhance attendance tracking procedure more accurately without any error and significantly improves efficiency in attendance management of above- mentioned areas. The system comprises a central processing unit for processing data input; an image capturing module for capturing a plurality of facial images and videos of a user for marking the attendance of the user; a power supplying module for powering the said system; a plurality of computer generated instructions; an open source database system for storing attendance records and facilitating efficient data querying; and an intuitive interface for remotely managing and sorting attendance data. The system of the present invention represents a significant advancement in attendance management at various levels, offering a secure and efficient solution to tackle problems related to attendance management procedures

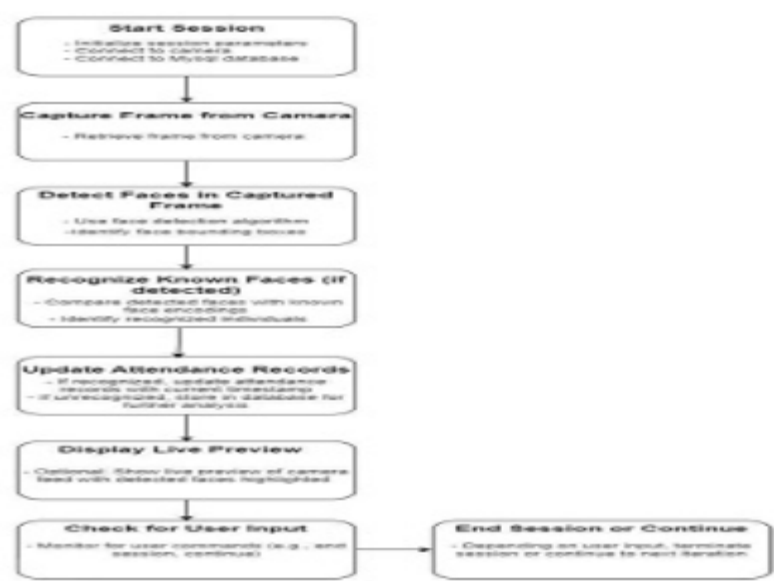


Figure 1: A flow chart of the attendance system

(54) Title of the invention : WIRING HARNESS AND METHOD OF MANUFACTURE THEREOF

|                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <div>(51) International classification</div> <div>(86) International Application No</div> <div>(87) International Publication No</div> <div>(61) Patent of Addition to Application Number</div> <div>(62) Divisional to Application Number</div> <div>Filing Date</div> <div>Filing Date</div> <div>Filing Date</div> | <div>:B60R0016020000, F21Y0115100000, H02G0003040000, H01M0050502000, H05K0009000000</div> <div>:NA</div> <div>:NA</div> <div>: NA</div> <div>:NA</div> <div>:NA</div> <div>:NA</div> <div>:NA</div> | <div>(71)Name of Applicant :</div> <div>1)Matter Motor Works Private Limited</div> <div>Address of Applicant :301, PARISHRAM BUILDING, 5B RASHMI SOC., NR. MITHAKHALI SIX ROADS, NAVRANGPURA AHMEDABAD, GUJARAT, INDIA - 380010 Ahmedabad -----</div> <div>Name of Applicant : NA</div> <div>Address of Applicant : NA</div> <div>(72)Name of Inventor :</div> <div>1)RAMACHANDRAN R</div> <div>Address of Applicant : "IP Department MATTER, DCT, C/O Container Corporations of India Ltd., Domestic Container Terminal Gate No. 4, Shed No 1, Khodiyar, Gujarat 382421" Ahmedabad -----</div> <div>2)SAURABH KASALIWAL</div> <div>Address of Applicant : "IP Department MATTER, DCT, C/O Container Corporations of India Ltd., Domestic Container Terminal Gate No. 4, Shed No 1, Khodiyar, Gujarat 382421" Ahmedabad -----</div> |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

(57) Abstract :  
ABSTRACT WIRING HARNESS AND METHOD OF MANUFACTURE THEREOF The present disclosure describes a spring-action busbar assembly (100) for grounding a shielded cable (102). The spring-action busbar assembly (100) comprises a spring-type busbar (104) configured to encircle a metallic shield (106) of the shielded cable (102), and adapted to exert a controlled pressure on the metallic shield (106) to ensure electrical contact, a connection means (108) integral to the busbar (104) configured to secure the busbar (104) to a grounding point and an extended grounding path (110) comprising a wire or a conductive element (112) configured to connect the busbar (104) to a remote grounding point when a local grounding point is unavailable. The spring-type busbar (104) is configured to provide a secure and continuous grounding connection. FIG. 1

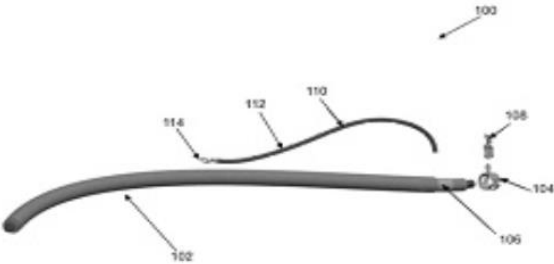


FIG. 1

No. of Pages : 27 No. of Claims : 14

(54) Title of the invention : METHOD AND SYSTEM FOR CRASH DETECTION OF ELECTRIC VEHICLE(S)

(51) :G07C0005080000,  
International G07C0005000000,  
classification G06N0020100000,  
G06N0020200000,  
G06N0005010000

(86)  
International  
Application :NA  
No :NA

Filing  
Date

(87)  
International : NA  
Publication No

(61) Patent of  
Addition to  
Application :NA  
Number :NA  
Filing  
Date

(62) Divisional  
to Application :NA  
Number :NA  
Filing  
Date

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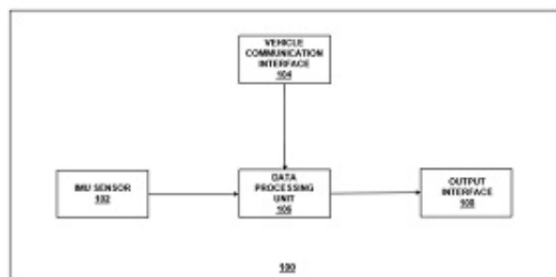
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**(57) Abstract :**

**ABSTRACT METHOD AND SYSTEM FOR CRASH DETECTION OF ELECTRIC VEHICLE(S)** The present disclosure describes a system (100) for detecting a crash of a vehicle. The system (100) comprises at least one Inertial Measurement Unit (IMU) sensor (102) configured to sense multi-dimensional inertial data of the vehicle, a vehicle communication interface (104) configured to retrieve vehicle operational data from a Controller Area Network (CAN), a data processing unit (106) communicably coupled to the IMU sensor (102) and the vehicle communication interface (104), and an output interface (108) communicably coupled to the data processing unit. Further, the data processing unit (106) is configured to cluster correlated multi-dimensional inertial data and vehicle operational data into a plurality of operating states, with each operating state representing a discrete behavioral condition of the vehicle. FIG. 1

**FIG. 1**

No. of Pages : 41 No. of Claims : 10

(54) Title of the invention : SYSTEM AND METHOD FOR REAL-TIME VIDEO STREAMING OF TRANSPORTATION

|                                               |                                                                                 |                                                                                                                                                                                     |
|-----------------------------------------------|---------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (51) International classification             | :G06Q0040040000, G06Q0040060000, G06Q0040000000, H04N0021218700, G06Q0030020100 | (71)Name of Applicant :<br>1)PRAKASH ROHRA<br>Address of Applicant :1701, Meera cooperative society, New link road, Jogeshwari West, Mumbai-400102, Maharashtra, India MUMBAI ----- |
| (86) International Application No             | :NA                                                                             | ---                                                                                                                                                                                 |
| Filing Date                                   | :NA                                                                             | Name of Applicant : NA                                                                                                                                                              |
| (87) International Publication No             | : NA                                                                            | Address of Applicant : NA                                                                                                                                                           |
| (61) Patent of Addition to Application Number | :NA                                                                             | (72)Name of Inventor :                                                                                                                                                              |
| Filing Date                                   | :NA                                                                             | 1)PRAKASH ROHRA                                                                                                                                                                     |
| (62) Divisional to Application Number         | :NA                                                                             | Address of Applicant :1702, Meera cooperative society, New link road, Jogeshwari West, Mumbai-400102, Maharashtra, India Mumbai -----                                               |
| Filing Date                                   | :NA                                                                             |                                                                                                                                                                                     |

(57) Abstract :  
ABSTRACT SYSTEM AND METHOD FOR REAL-TIME VIDEO STREAMING OF TRANSPORTATION The present disclosure discloses a system (100) and method (200) for real-time video streaming of transportation. The system comprises a user interface (127) configured configured to allow a traveler to select from a list of available transportation modes, a data acquisition module (101) gathering real-time, historical, and predictive transportation data from diverse sources (102), a data processing module (104) refining data through AI-driven cleaning (105), mapping (106), and insight generation (107), and a content generation module (108) producing multilingual, interactive content with 3D map overlays. A screen capturing module (114) converts this into video streams, enhanced with overlays (116) and audio (117), followed by an encoding and streaming preparation module (118) that encodes (119), segments (120), and encrypts (121) streams for security. A multi-platform streaming module (122) delivers (123) low-latency broadcasts to varied platforms, while a monitoring and scalability module (124) optimizes performance (125) and scalability (126).

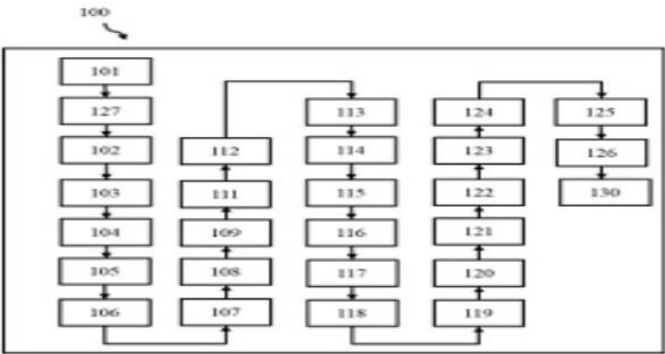


FIGURE 1

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202421051060 A

(19) INDIA

(22) Date of filing of Application :03/07/2024

(43) Publication Date : 04/07/2025

(54) Title of the invention : A SYSTEM FOR AN ELECTROMAGNETIC COMPATIBILITY (EMC) TESTING

|                                                   |  |                                                                                                                                                                             |
|---------------------------------------------------|--|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (51) International classification :G01M17/00      |  | (71)Name of Applicant :                                                                                                                                                     |
| (86) International Application No :NA             |  | 1)The Automotive Research Association of India (ARAI)                                                                                                                       |
| Filing Date :NA                                   |  | Address of Applicant :Survey No. 102, Vetel Hill, Off Paud Road, Kothrud, Pune - 411038, Maharashtra, India Pune -----                                                      |
| (87) International Publication No : NA            |  | Name of Applicant : NA                                                                                                                                                      |
| (61) Patent of Addition to Application Number :NA |  | Address of Applicant : NA                                                                                                                                                   |
| Filing Date :NA                                   |  | (72)Name of Inventor :                                                                                                                                                      |
| (62) Divisional to Application Number :NA         |  | 1)MULAY, Abhijit Bhaskar                                                                                                                                                    |
| Filing Date :NA                                   |  | Address of Applicant :The Automotive Research Association of India (ARAI), Survey No. 102, Vetel Hill, Off Paud Road, Kothrud, Pune – 411038, Maharashtra, India Pune ----- |
|                                                   |  | 2)MURALIDHARAN, Gokul                                                                                                                                                       |
|                                                   |  | Address of Applicant :The Automotive Research Association of India (ARAI), Survey No. 102, Vetel Hill, Off Paud Road, Kothrud, Pune – 411038, Maharashtra, India Pune ----- |

(57) Abstract :

A system (200) for an electromagnetic compatibility (EMC) testing is disclosed. The system (200) comprises at least one motor mount structure (102), a primary pulley (124), a secondary pulley (126), plurality of castor wheels (106), a driving wheel (108), a chassis dynamometer roller (110), a ground plane (112), plurality of dampers (114) enclosed in an ALSE chamber (116). The chassis dynamometer (110) rollers are used to transfer power and torque to the Electric traction motor (118) and in turn load the E-motor (130) along with the controller (120). The chassis dynamometer (110) is loaded using existing electronic control arrangement.

No. of Pages : 19 No. of Claims : 12



(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :04/07/2024

(21) Application No.202421051260 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : AN ADVANCED DOOR LOCK SYSTEM

(51) International classification :G07C0009000000, G06F0021620000, H04N0007180000, H04W0012108000, G06F0021320000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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**3)Vedang Pawaskar**

**4)Sai Swetha Vemulapalli**

**5)Nayana M Nair**

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(57) Abstract :

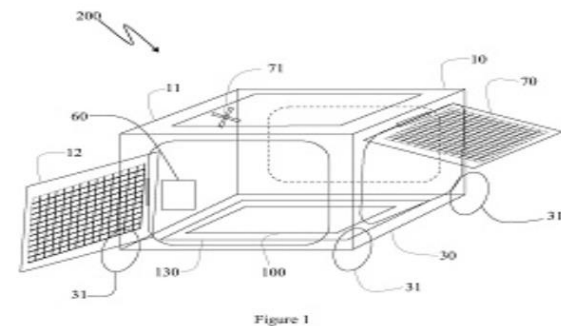
The present disclosure provides an advanced door lock system which prevents a keyless access to the unauthorized person and alerts the user regarding the same by sending an alert notification along with captured images of the said unauthorized person on the communication device. The system comprises an image capturing module; a fingerprint scanning module for scanning fingerprints of an authenticated person; a processing unit; a transistor; a voltage regulator; one or more capacitors; one or more diodes; one or more resistors; a wireless transmission module; a power supply module; a communication device; and one or more LED lights. The system prioritizes data security and privacy, with encrypted communication and secure storage of access logs. The system represents a significant advancement in access control technology, offering an elegant and sophisticated solution for securing and managing access to properties. It caters to the increasing demand for convenient and secure access control while aligning with the principles of modern smart living.

No. of Pages : 19 No. of Claims : 6

(54) Title of the invention : A Smart Pet Travel Cage for Transporting a Pet

|                                                                                                                                                                                                                                                                                                                                                                    |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <div>(51) International classification : A01K1/02, A01K1/03, A01K1/035, A01K1/015</div> <div>(86) International Application No : NA Filing Date : NA</div> <div>(87) International Publication No : NA</div> <div>(61) Patent of Addition to Application Number : NA Filing Date : NA</div> <div>(62) Divisional to Application Number : NA Filing Date : NA</div> |  | <div>(71)Name of Applicant :<br/><b>1)Ramdeobaba University, Nagpur</b><br/>Address of Applicant :Formly Shri Ramdeobaba College of Engineering and Management, Ramdeo Tekdi, Gittikhadan, Katol Road, Nagpur-440013, Maharashtra, India. Nagpur -----<br/><b>2)Shri Ramdeobaba College of Engineering and Management, Nagpur</b><br/><b>3)HARDAS, Bhulchandra M</b><br/><b>4)QURESHI, Mohammed Rushaad</b><br/><b>5)BERDIA, Ojas</b><br/><b>6)BAHADURE, Ameya</b><br/><b>7)SONI, Yash</b><br/><b>8)RATHI, Atharva</b><br/>Name of Applicant : NA<br/>Address of Applicant : NA<br/>(72)Name of Inventor :<br/><b>1)HARDAS, Bhulchandra M</b><br/>Address of Applicant :Shri Ramdeobaba College of Engineering and Management, Ramdeo Tekdi, Gittikhadan, Katol Road, Nagpur-440013, Maharashtra, India. Nagpur -----<br/><b>2)BUXY, Mohammed Rushaad</b><br/>Address of Applicant :Shri Ramdeobaba College of Engineering and Management, Ramdeo Tekdi, Gittikhadan, Katol Road, Nagpur-440013, Maharashtra, India. NAGPUR -----<br/><b>3)BERDIA, Ojas</b><br/>Address of Applicant :Shri Ramdeobaba College of Engineering and Management, Ramdeo Tekdi, Gittikhadan, Katol Road, Nagpur-440013, Maharashtra, India. Nagpur -----<br/><b>4)BAHADURE, Ameya</b><br/>Address of Applicant :Shri Ramdeobaba College of Engineering and Management, Ramdeo Tekdi, Gittikhadan, Katol Road, Nagpur-440013, Maharashtra, India. Nagpur -----<br/><b>5)SONI, Yash</b><br/>Address of Applicant :Shri Ramdeobaba College of Engineering and Management, Ramdeo Tekdi, Gittikhadan, Katol Road, Nagpur-440013, Maharashtra, India. Nagpur -----<br/><b>6)RATHI, Atharva</b><br/>Address of Applicant :Shri Ramdeobaba College of Engineering and Management, Ramdeo Tekdi, Gittikhadan, Katol Road, Nagpur-440013, Maharashtra, India. Nagpur -----</div> |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

(57) Abstract :  
The present invention provides a smart pet travel cage (200). The smart pet travel cage (200) has an enclosure (10) with ventilation panels (70) and an insulating layer (40) to regulate internal temperature. The GPS module (50) is embedded within the insulating layer and enables real-time location tracking for security and anti-theft protection. Further, the smart pet travel cage (200) includes a compartment (60) that can be expanded from a wall (11), a removable tray (100) for easy cleaning, at least one quick-release buckle (90) for emergency access, a shoulder strap (120) for manual carrying of the smart pet travel cage (200), and at least one reflective safety strip (80) for visibility in low-light conditions. The smart pet travel cage (200) enhances travel convenience, comfort and owner peace of mind through advanced design and integrated smart features.



No. of Pages : 18 No. of Claims : 10

(54) Title of the invention : EXPANDABLE INTRAMEDULLARY NAIL

(51) International classification :A61B0017720000,  
A61B0017740000,  
A61B0017000000,  
A61F0002360000,  
A61N0001360000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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**Name of Applicant : NA****Address of Applicant : NA**

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## (57) Abstract :

An expandable intramedullary nail (100) is provided. Expandable intramedullary nail comprises housing (102) comprising first end (120), second end (124), first side part implemented as tapered surface(s) (206), second side part implemented as expandable fin(s) (212) perpendicular to second end at resting configuration and angular to second end at implanted configuration of expandable intramedullary nail, and sliding slot(s); front head (104) adapted to engage with housing for insertion of expandable intramedullary nail into femoral neck of user from femoral head ; sliding element (106) adapted to slide, into sliding slot(s) (136) to achieve implanted configuration of expandable intramedullary nail; and occluder (108) adapted to fit into housing to seal implanted configuration of expandable intramedullary nail. Disclosed also is an expandable intramedullary nail (600) adapted to be inserted into femoral neck of from femoral shaft. Expandable intramedullary nail comprises housing (602) and sliding element (604) adapted to slide into the housing.

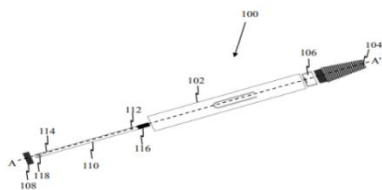


FIG. 1A

No. of Pages : 30 No. of Claims : 7

(54) Title of the invention : A SYSTEM AND METHOD FOR DETECTING RESPIRATORY DISEASE

(51) :A61B5/00,  
International  
classification G10L21/0208,  
G06N20/00  
(86)  
International :NA  
Application No :NA  
Filing Date  
(87)  
International : NA  
Publication No  
(61) Patent of  
Addition to :NA  
Application :NA  
Number :NA  
Filing Date  
(62) Divisional  
to Application :NA  
Number :NA  
Filing Date

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Name of Applicant : NA

Address of Applicant : NA

## (72)Name of Inventor :

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Address of Applicant :Ramrao Adik Institute of Technology, D Y Patil deemed to be University, Nerul, Navi Mumbai - 400706 -----

**3)Mr. Pramod Haribhau Kachare**

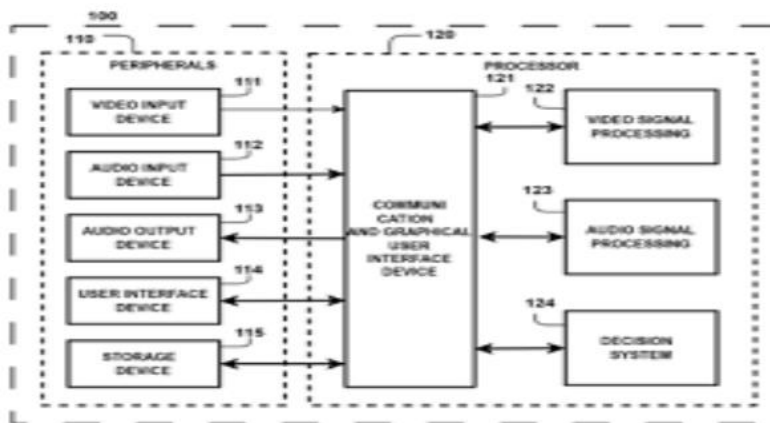
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Address of Applicant :Ramrao Adik Institute of Technology, D Y Patil deemed to be University, Nerul, Navi Mumbai -400706 -----

## (57) Abstract :

The present invention discloses an automated and smart AI-based system for detecting respiratory disease using coughing sound in crowded areas. The system integrates the video input device [111] and the audio input device [112] to capture both video and audio data. The camera records the video data to identify coughing persons, while the microphone captures coughing sounds, and analyzed using higher-order spectra features at noisy environment by differentiating coughing sound and non-coughing sound. The recorded data is processed using signal processing techniques, such as framing and windowing, and analyzed with a Convolutional Neural Network (CNN) model to determine if a person is infected or not. The results are stored and transferred to a cloud-based database through a communication and graphical user interface module [121]. The system then notifies medical staff via an audio output device [113] on the user interface device [114] like dashboards or mobile devices. This early detection system helps reduce disease spread and ensures timely treatment.



No. of Pages : 12 No. of Claims : 4

(54) Title of the invention : AN EQUIPMENT FOR MAGNETIC RECANALIZATION OF BENIGN BILIARY STRICTURES

|                                               |                                                                                 |                                                                                                                                  |
|-----------------------------------------------|---------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|
| (51) International classification             | :A61M0025100000, A61F0002040000, A61L0031100000, A61B0017320700, A61K0031474500 | (71)Name of Applicant :                                                                                                          |
| (86) International Application No             | :NA                                                                             | 1)Veeral M. Oza                                                                                                                  |
| Filing Date                                   | :NA                                                                             | Address of Applicant :209 Abenaki Way, Piedmont, South Carolina, USA                                                             |
| (87) International Publication No             | : NA                                                                            | Piedmont -----                                                                                                                   |
| (61) Patent of Addition to Application Number | :NA                                                                             | 2)Sanjay Lalchandsingh Rajput                                                                                                    |
| Filing Date                                   | :NA                                                                             | Name of Applicant : NA                                                                                                           |
| (62) Divisional to Application Number         | :NA                                                                             | Address of Applicant : NA                                                                                                        |
| Filing Date                                   | :NA                                                                             | (72)Name of Inventor :                                                                                                           |
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|                                               |                                                                                 | Piedmont -----                                                                                                                   |
|                                               |                                                                                 | 2)Sanjay Lalchandsingh Rajput                                                                                                    |
|                                               |                                                                                 | Address of Applicant :4/a/2 sardar patel society, Raman nagar, near Shraddha hospital Maninagar, Ahmedabad India Ahmedabad ----- |

(57) Abstract :  
“AN EQUIPMENT FOR MAGNETIC RECANALIZATION OF BENIGN BILIARY STRICTURES” The present invention relates to an equipment for magnetic recanalization of benign biliary strictures. Said equipment (100) includes a wire-guided magnet pusher tube (102a), atleast one magnet (110), and a magnet retrieval tube (102b). The equipment (100) works in conjunction with a visualization system to guide placement of the magnet (110) at the target site for recanalization og the biliary stricture. Said magnet (110), may be deployed at opposing ends of a biliary stricture to create a controlled recanalization channel via magnetic attraction. The deployment process can be performed using endoscopic retrograde cholangiopancreatography (ERCP), percutaneous transhepatic biliary drainage (PTBD), or a combination of both. Magnets may be retrieved following recanalization using biopsy forceps or allowed to pass naturally through the digestive tract, avoiding permanent implantation. Real-time imaging techniques such as fluoroscopy and cholangioscopy aid in precise targeting and monitoring of the treatment site. Figure 1.

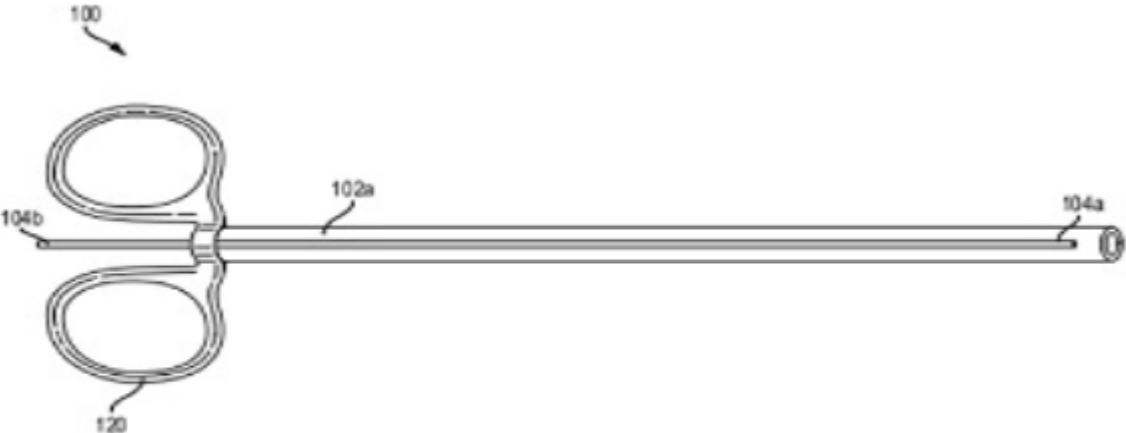


Figure 1A

(54) Title of the invention : A DUAL-BAND IN-BAND FULL-DUPLEX (DB-IBFD) PLANAR ANTENNA SYSTEM

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <div>(51) International classification</div> <div>(86) International Application No</div> <div>(87) International Publication No</div> <div>(61) Patent of Addition to Application</div> <div>(62) Divisional to Application</div> <div>Filing Date</div> <div>International :NA</div> <div>Application :NA</div> <div>Number :NA</div> <div>Filing Date</div> <div>International :NA</div> <div>Publication No</div> <div>Addition to Application :NA</div> <div>Number :NA</div> <div>Filing Date</div> <div>Divisional to Application :NA</div> <div>Number :NA</div> <div>Filing Date</div> | <div>(71)Name of Applicant :</div> <div>1)Dr. Anil Kumar Nayak</div> <div>Address of Applicant :Asst. Professor in Dept. of ENTCJSPM University, JSPMS Bhivarabai Sawant Institute, Gat No. 720, Nagar Road, Wagholi, Pune, Maharashtra 412207 India Pune -----</div> <div>2)Dr. Anuradha</div> <div>3)Dr. Ajeet Kumar</div> <div>4)Dr. Sandeep Singh Chauhan</div> <div>5)Dr. Naveen Kumar Maurya</div> <div>6)Dr. Baruna Kumar Turuk</div> <div>Name of Applicant : NA</div> <div>Address of Applicant : NA</div> <div>(72)Name of Inventor :</div> <div>1)Dr. Anil Kumar Nayak</div> <div>Address of Applicant :Asst. Professor in Dept. of ENTCJSPM University, JSPMS Bhivarabai Sawant Institute, Gat No. 720, Nagar Road, Wagholi, Pune, Maharashtra 412207 India Pune -----</div> <div>2)Dr. Anuradha</div> <div>Address of Applicant :Assistant Professor, Department of Electronics &amp; Communication, UIET, Babasaheb Bhimrao Ambedkar University, Lucknow, Uttar Pradesh, India Lucknow -----</div> <div>3)Dr. Ajeet Kumar</div> <div>Address of Applicant :Researcher (Permanent Position), Level IV National Inter-University Consortium for Telecommunications (CNIT, www.cnit.it/en), National Laboratory of Radar and Surveillance Systems (RaSS), Galleria G.B. Gerace, 14, 56124, Pisa, Italy -----</div> <div>4)Dr. Sandeep Singh Chauhan</div> <div>Address of Applicant :Room No. 207, First Floor, Block-B, Department of Electronics and Communication Engineering, Amrita School of Engineering, Amrita Vishwa Vidyapeetham, Bangalore, 560035, India Bengaluru Urban -----</div> <div>5)Dr. Naveen Kumar Maurya</div> <div>Address of Applicant :Department of Electronics and Communication Engineering, Vishnu Institute of Technology, Bhimavaram-534202, Andhra Pradesh, India West Godavari -----</div> <div>6)Dr. Baruna Kumar Turuk</div> <div>Address of Applicant :Department of Electronics and Communication Engineering, GIET University, Odisha, India Rayagada -----</div> |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

(57) Abstract :

The present invention generally relates to a dual-band in-band full-duplex antenna system designed for efficient signal transmission and reception in two distinct frequency bands. The system comprises a substrate with two antennas fabricated at opposite ends in the same plane. The first antenna operates in a first frequency band, while the second antenna operates in a second frequency band. Each antenna features a microstrip slot radiator with slot elements, resonator elements, and a defective ground structure (DGS) integrated into the ground plane for enhanced performance. Independent feed lines are provided for each antenna to enable signal transmission and reception at the respective frequency bands. To ensure superior isolation between the two antennas and minimize interference, a row of metallic vias is positioned between them. This innovative design is compact, efficient, and suitable for applications requiring high isolation and reliable dual-band operation in full-duplex communication systems.

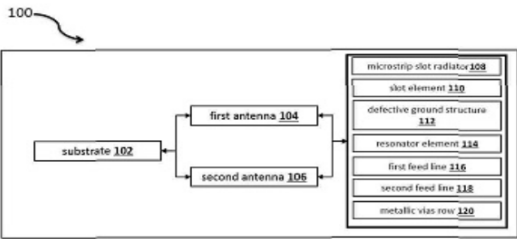


Figure 1

No. of Pages : 20 No. of Claims : 10

(54) Title of the invention : METHODS AND SYSTEMS FOR CONTROLLING PERMANENT MAGNET SYNCHRONOUS MACHINE (PMSM) MOTOR

(51) International classification

(86) International Application No

(87) International Publication No

(61) Patent of Addition to Application Number

(62) Divisional to Application Number

:H02P25/022, H02P21/00, H02P21/22, H02P27/08, H02P6/10

:NA

:NA

:NA

:NA

:NA

Filing Date

Filing Date

Filing Date

Filing Date

Filing Date

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Name of Applicant : NA

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(57) Abstract :  
Methods and systems for controlling Permanent Magnet Synchronous Machine (PMSM) Motor 5 10 15 Embodiments herein disclose a method for controlling the PMSM motor (590) using hall sensors. The method includes estimating, by a transition block (530), a rotor position in the PMSM motor (590). Further, the method includes determining, by the transition block (530), a transition point between control modes based on an instantaneous torque ( $\tau_e$ ) and an average torque ( $\tau_{avg}$ ) produced by the PMSM motor (590). The control modes comprise a first (quasi-square wave current control) mode and a second (Field-Oriented Control (FOC)) mode. Further, the method includes triggering, by the transition block (530), an appropriate controller based on the state of flags from a position error sub-block (610) and a torque sub-block (630) between control modes based on operational factors. Further, the method includes enabling, by the transition block (530), a smooth transition between control modes to minimize torque ripples. FIG. 14

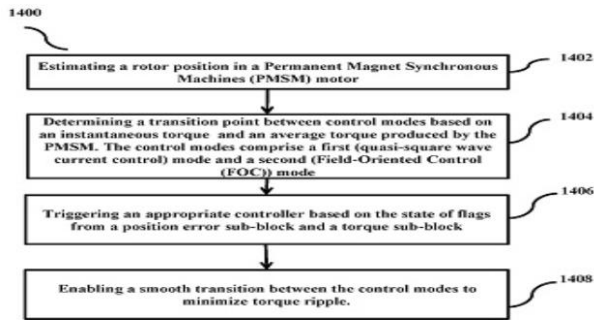


FIG. 14

No. of Pages : 50 No. of Claims : 20

(54) Title of the invention : A SYSTEM AND METHOD FOR AI-POWERED PERSONALIZED PROMPT GENERATION AND EXPRESSIVE LISTENING

|                                                                                                                                                                                                                                                                                                                        |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <div>(51) International classification :G10L25/63, G06F40/30, G06N3/08, G06F16/332</div> <div>(86) International Application No :NA</div> <div>(87) Filing Date :NA</div> <div>(61) Patent of Addition to Application Number :NA</div> <div>(62) Divisional to Application Number :NA</div> <div>(57) Abstract :</div> |  | <div>(71)Name of Applicant :<br/>1)AKSHITA SPARSHNEEL CHANCHLANI<br/>Address of Applicant :ASSISTANT PROFESSOR, DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING, DR. VISHWANATH KARAD MIT WORLD PEACE UNIVERSITY (MIT-WPU), PUNE, INDIA-411038 -----<br/>2)VIDYA PATIL<br/>3)PRANALI KOSAMKAR<br/>4)ANIRUDH GUPTA<br/>5)MANAN DADOO<br/>6)NIKITA SHASHIKANT KEDARI<br/>7)SANIKI NILESH MULIK<br/>Name of Applicant : NA<br/>Address of Applicant : NA<br/>(72)Name of Inventor :<br/>1)AKSHITA SPARSHNEEL CHANCHLANI<br/>Address of Applicant :ASSISTANT PROFESSOR, DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING, DR. VISHWANATH KARAD MIT WORLD PEACE UNIVERSITY (MIT-WPU), PUNE, INDIA-411038 -----<br/>2)VIDYA PATIL<br/>Address of Applicant :ASSISTANT PROFESSOR, DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING, DR. VISHWANATH KARAD MIT WORLD PEACE UNIVERSITY (MIT-WPU), PUNE, INDIA-411038 -----<br/>3)PRANALI KOSAMKAR<br/>Address of Applicant :ASSISTANT PROFESSOR, DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING, DR. VISHWANATH KARAD MIT WORLD PEACE UNIVERSITY (MIT-WPU), PUNE, INDIA-411038 -----<br/>4)ANIRUDH GUPTA<br/>Address of Applicant :DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING, DR. VISHWANATH KARAD MIT WORLD PEACE UNIVERSITY (MIT-WPU), PUNE, INDIA-411038 -----<br/>5)MANAN DADOO<br/>Address of Applicant :DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING, DR. VISHWANATH KARAD MIT WORLD PEACE UNIVERSITY (MIT-WPU), PUNE, INDIA -411038 -----<br/>6)NIKITA SHASHIKANT KEDARI<br/>Address of Applicant :DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING, DR. VISHWANATH KARAD MIT WORLD PEACE UNIVERSITY (MIT-WPU), PUNE, INDIA -411038 -----<br/>7)SANIKI NILESH MULIK<br/>Address of Applicant :DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING, DR. VISHWANATH KARAD MIT WORLD PEACE UNIVERSITY (MIT-WPU), PUNE, INDIA -411038 -----</div> |
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The current invention pertains to a system and method for the automated generation of personalized prompts and expressive listening, facilitating real-time, adaptable human-computer interaction. The system incorporates multimodal interaction processing, merging voice analysis, facial expression recognition, and natural language processing (NLP) to accurately evaluate user intent and emotional conditions. By employing hierarchical database indexing, smart data compression, and a self-learning feedback system, it consistently adjusts to changing user preferences, enhancing context-sensitive response generation. Significant developments comprise non-intrusive dialogue state monitoring, organized metadata for emotion assessment, and flexible caching methods to improve processing efficiency. Created for use in client assistance, AI-based education, psychological health support, and virtual helpers, the system offers emotionally aware, tailored engagements. By utilizing real-time annotation, synchronization, and modular AI-driven structures, it guarantees high precision in identifying emotional states while reducing false positives and improving scalability, accuracy, and interaction across various user contexts. FIG.4

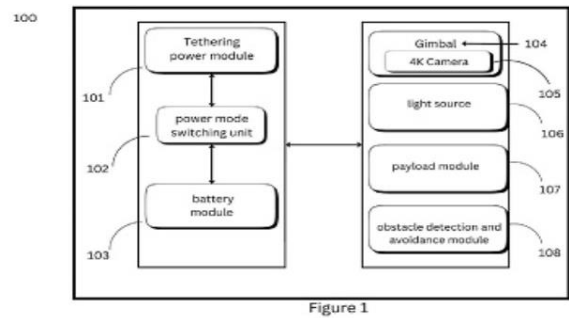




(54) Title of the invention : ADVANCED DRONE SYSTEM FOR EXTENDED MONITORING WITH TETHERED AND AUTONOMOUS POWER

|                                                                                                                                                                                                                                                                                                                          |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |  |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| <div>(51) International classification</div> <div>(86) International Application No</div> <div>(87) International Publication No</div> <div>(61) Patent of Addition to Application Number</div> <div>(62) Divisional to Application Number</div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> |  | <div>(71)Name of Applicant :</div> <div>1)Indian Institute of Technology, Indore.</div> <div>Address of Applicant :Simrol, Khandwa Road, Indore-453552, Madhya Pradesh, India. Indore -----</div> <div>Name of Applicant : NA</div> <div>Address of Applicant : NA</div> <div>(72)Name of Inventor :</div> <div>1)GAUTAM, Sumit</div> <div>Address of Applicant :Assistant Professor Department Electrical Engineering Department POD 1A - 719, Silicon Building, Indian Institute of Technology - Indore Simrol, Khandwa Road, Indore - 453552 Madhya Pradesh, India. Indore ----</div> <div>2)MISHRA, Devesh</div> <div>Address of Applicant :Project Lead Department Makerspace SwaYaan Lab, Makerspace, Central Workshop IIT Indore, Indore - 453552 Madhya Pradesh, India. Indore -----</div> <div>3)PRAJAPATI, Sandeep</div> <div>Address of Applicant :Project Associate Department Makerspace SwaYaan Lab, Makerspace, Central Workshop IIT Indore, Indore - 453552 Madhya Pradesh, India. Indore -----</div> <div>4)TOSHNIWAL, Parth</div> <div>Address of Applicant :Department Electrical Engineering Department SwaYaan Lab, Makerspace, Central Workshop IIT Indore, Indore - 453552 Madhya Pradesh, India. Indore -----</div> <div>5)YADAV, Rajesh</div> <div>Address of Applicant :Department Electrical Engineering Department SwaYaan Lab, Makerspace, Central Workshop IIT Indore, Indore - 453552 Madhya Pradesh, India. Indore -----</div> |  |
| <div>(51) International classification</div> <div>(86) International Application No</div> <div>(87) International Publication No</div> <div>(61) Patent of Addition to Application Number</div> <div>(62) Divisional to Application Number</div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> |  | <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |  |

(57) Abstract :  
The present invention relates to an advanced drone system (100) designed for extended aerial monitoring with both tethered and untethered operation modes. It features a tethering power module (101) that connects to a ground power station for uninterrupted operation, while a battery module (103) ensures autonomous functionality when untethered. A high-resolution 4K camera (105) mounted on a stabilizing gimbal (104) provides real-time, stable video capture. The system (100) includes an obstacle detection and avoidance module (108) for safe navigation in complex environments. A power mode switching unit (102), managed by an onboard power management unit (PMU), enables smooth transitions between power modes. Additionally, a payload module (107) supports heavy equipment integration, and a high-intensity light source (106) enhances surveillance in low-light conditions. This system (100) ensures reliable, continuous monitoring across diverse operational settings. (to be published with figure 1)



(54) Title of the invention : AN IoT BASED WATER OPTIMIZATION SYSTEM FOR AN OVERHEAD TANK

(51) International classification :G01N0033000000,  
G05D0007060000,  
G06F0017000000,  
B41J0002175000,  
B60K0015030000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No :NA  
Patent of Addition to Application Number :NA  
Filing Date :NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional Application Number :NA  
Filing Date :NA

(62) Divisional Application Number :NA  
Filing Date :NA

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## 3)Poulami Majumder

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## 6)Ms. Divya K. Shah

## 7)Mr. Balu Bhusari

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## (57) Abstract :

**ABSTRACT:** AN IoT BASED WATER OPTIMIZATION SYSTEM FOR AN OVERHEAD TANK The present disclosure provides an IoT based water optimization system for an overhead tank. The present invention focuses on providing an equal amount of water at different levels of a building in a controlled manner from the overhead tank. Further, the system of the present invention automatically opens or closes said valves (600), (800) based on automatic calculations, and maintains the designated flow rate regardless of changes in primary pressure. The said system comprises an overhead tank (100); a water level sensor (200) to send information regarding water level in the said overhead tank; an analogue to digital converter (300) for converting analog signals into digital; a microprocessor unit (400) for processing sensed data; a display module (500) for displaying the automatic calculations; a pressure regulator valve (600) for regulating pressure; a flow metre (700) for calculating the flow of the water through a plurality of valves; a constant flow valve (800) for maintaining the constant flow of water; and an alert module.

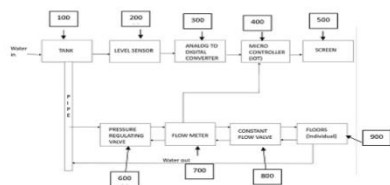


Figure 2: water flow management in the overhead tank system

No. of Pages : 17 No. of Claims : 5

(54) Title of the invention : AN INTEGRATED UNDER SINK KITCHEN WASTE CRUSHER SYSTEM

(51) International classification :B09B3/00,  
E03C1/266,  
B09B5/00,  
B09B3/00,  
E03C1/266,  
B09B5/00

(86)  
International  
Application :NA  
No :NA

Filing  
Date

(87)  
International : NA  
Publication No

(61) Patent of  
Addition to  
Application :NA  
Number :NA

Filing  
 Date  
 (62) Divisional  
 to Application :NA  
 Number :NA  
 Filing  
 Date

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---

(57) Abstract :

**ABSTRACT: AN INTEGRATED UNDER SINK WASTE CRUSHER SYSTEM** The present invention provides an integrated under sink kitchen waste crusher system. This solution is highly cost-efficient, reduces overall waste volume, minimizes landfill usage, and promotes composting. The said system comprises of a dual sink for segregating kitchen waste and washing utensils separately; a wet waste basin for receiving wet kitchen waste, the said basin is covered with a rubber flap; a plurality of sensors; a stainless steel crusher unit; a power supplying unit for powering the said system; an alert module comprises of a sound buzzer and LED light to alert the user; a processing unit; a sealed pipeline framework system for transferring crushed waste and liquid compost to a centralized composting unit; a plurality of suction pumps for preventing clogging of waste; a user interface for remotely monitoring the operation of the said system. By promoting composting and reducing landfill dependency, the system contributes to lower greenhouse gas emissions and reduced environmental pollution.



**Figure 1**

No. of Pages : 12 No. of Claims : 5

|                                                                                                    |                                                                                                                                                                                            |
|----------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (12) PATENT APPLICATION PUBLICATION                                                                | (21) Application No.202521036453 A                                                                                                                                                         |
| (19) INDIA                                                                                         |                                                                                                                                                                                            |
| (22) Date of filing of Application :15/04/2025                                                     | (43) Publication Date : 04/07/2025                                                                                                                                                         |
| (54) Title of the invention : PROCESS FOR PREPARING POLYURETHANE (PU) RESIN USING BIO-BASED POLYOL |                                                                                                                                                                                            |
| (51) International classification :C08G18/34, C08G18/42                                            | (71)Name of Applicant :<br>1)Sardar Vallabhbhai National Institute of Technology, Surat<br>Address of Applicant :Ichchhanath Surat-Dumas Road, Surat - 395007, Gujarat, India. Surat ----- |
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| (87) International Publication No : NA                                                             | (72)Name of Inventor :                                                                                                                                                                     |
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| (62) Divisional to Application Number :NA                                                          | - -----                                                                                                                                                                                    |
| Filing Date :NA                                                                                    | 2)GADHIYA, Chirag N.                                                                                                                                                                       |
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|                                                                                                    | - -----                                                                                                                                                                                    |

(57) Abstract :

A process for preparing polyurethane (PU) resin using bio-based polyol is provided. The bio-based polyol is polyetheramide polyol (PEAP) derived from niger seed oil (NO). The process involves a single-stage aminolysis reaction to convert NO into Niger Fatty Amide (NFA), which is further reacted with tetrabromobisphenol A (TBBPA) to produce PEAP. The prepared PEAP is utilized to form a high-performance PU resin. The resulting PU resin exhibits enhanced thermal stability, with a glass transition temperature (Tg) above 100°C, improved mechanical strength, chemical resistance, and durability. The process is sustainable and cost-effective, reducing reliance on petroleum-based polyols, contributing to eco-friendly coatings, adhesives, and industrial applications while maintaining excellent performance. The resulting high-performance PU resin is applicable in protective coatings, high-durability foams, strong adhesives, lubricants, and industrial sealants, offering enhanced thermal stability, mechanical strength, and chemical resistance for diverse applications.

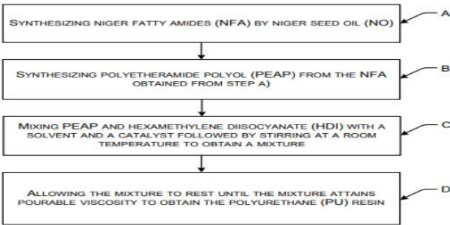


FIG. 1

No. of Pages : 27 No. of Claims : 10

(54) Title of the invention : STEM NECK TRIAL COMPONENT AND METHOD OF ASSEMBLY THEREOF

(51) International classification :A61F0002300000, A61F0002360000, A61B0017160000, A61F0002460000, A61B0017740000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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**4)PATEL, Bhavik Ashok**

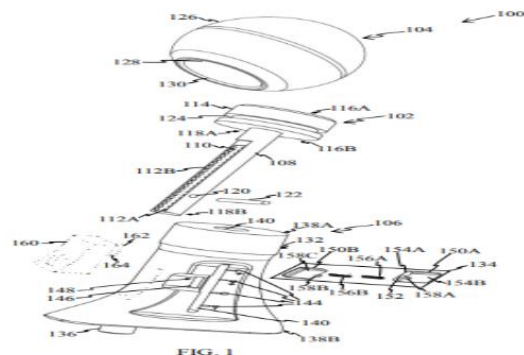
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Address of Applicant :Krishnalayam , Kudukka valappil , Edakkeppuram , Cherukunnu PO, Kannur-670301 Kannur -----

## (57) Abstract :

Disclosed is a stem neck trial component (100) comprising a slider element (102), a femoral head element (104), and a neck element (106). The slider element has: a stem (108) having an offset slot (110) that has an engagement element (112); a flange portion (114); an indicator slot (120) passing through the stem; and an indentation (124) formed circumferentially around the flange portion. The femoral head element has a hollow spherical dome (126); and a projection (202) formed corresponding to the indentation of the stem. The neck element has an elongate structure (132) comprising a slider slot (140), an offset indicator slot (142), a through-recess (146); an interlocking arrangement (134) that is arranged within through-recess; and a broach attachment element. Herein, a mechanical disengagement of interlocking arrangement allows linear movement of slider element in slider slot to adjust an offset between femoral head element and broach, when in use.



No. of Pages : 36 No. of Claims : 10

(54) Title of the invention : CEMENTED FEMORAL STEM WITH DETACHABLE CENTRALIZER WINGS

(51) International classification :A61F0002360000, A61F0002300000, E21B0017100000, H04W0072044600, H04W0088060000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(72)Name of Inventor :  
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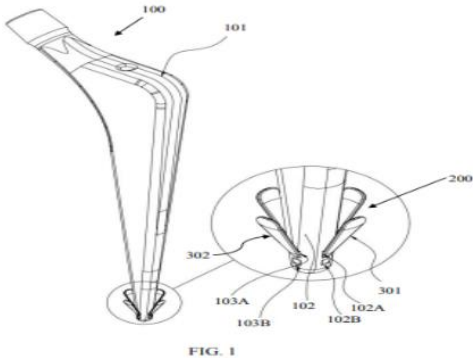
**2)KV, Latheesh**  
Address of Applicant :Krishnalayam, Kudukka valappil, Edakkeppuram, Cherukunnu PO, Kannur-670301 Kannur -----

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**4)SHAH, Naman**  
Address of Applicant :235/3, Opposite Pleser Shop, Bazar Road, Zanda Chowk, Vapi-396191 Vapi -----

**5)PATEL, Savan**  
Address of Applicant :C/5, Ayojan Nagar Society, Devsar, Ta-Gandevi, Bilimora, Dist. Navsari-396321 Bilimora -----

(57) Abstract :  
A cemented femoral stem (100) with detachable centralizer wings is provided. The cemented femoral stem (100) comprises a femoral stem body (101) and a set of centralizer wings (200). Each centralizer wing of the set of centralizer wings (200) is detachably attached to the femoral stem body (101). A distal part (102) of the femoral stem body (101) includes a set of slots. Each side of the distal part (102) includes a pair of slots of the set of slots. The pair of slots at each side of the distal part (102) includes a first slot and a second slot. The pair of slots of the set of slots at each side of the distal part (102) are interconnected. The first slot is positioned above the second slot. Each centralizer wing of the set of centralizer wings (200), after insertion through the first slot, locks into the second slot.



(54) Title of the invention : A ROBOTIC SHUTTLE SYSTEM FOR AUTOMATED PALLET STORAGE AND RETRIEVAL

|                                                                                                                                                                                                                                                                                                                                                                                   |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <div>(51) International classification :B65G1/04, B65G1/137, B65G1/06</div> <div>(86) International Application No :NA</div> <div>Filing Date :NA</div> <div>(87) International Publication No : NA</div> <div>(61) Patent of Addition to Application Number :NA</div> <div>Filing Date :NA</div> <div>(62) Divisional to Application Number :NA</div> <div>Filing Date :NA</div> |  | <div>(71)Name of Applicant :<br/><b>1)ARMSTRONG ROBOTICS &amp; TECHNOLOGIES PRIVATE LIMITED</b><br/>Address of Applicant :Office No 301, B Wing, Rushiraj Riviera Apartment, Nashik, Maharashtra, India - 422013 -----</div> <div><b>Name of Applicant : NA</b><br/><b>Address of Applicant : NA</b></div> <div>(72)Name of Inventor :<br/><b>1)MAJGAONKAR, Vineet Mohan</b><br/>Address of Applicant :Row House No. 6, S No 209/4 Plot No. 74 Sunshine Court, Central Avenue MH Kalyani Nagar, Pune, Maharashtra, India - 411006 -----</div> <div><b>2)MAJGAONKAR, Pranav Mohan</b><br/>Address of Applicant :303, Radhakrishna Apartment, Gangapur Road, Sawarkar Nagar, Nashik, Maharashtra, India - 422103 -----</div> |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

(57) Abstract :  
The present invention relates to a robotic shuttle system for automated pallet storage and retrieval. A first motor gearbox (1.1) drives X-axis (1.6) and Z-axis (1.12) travel through a dual output gearbox (1.1.2), intermediate gearboxes (2.1, 2.6, 2.8), and power transmission components (2.2, 2.3, 2.10). A second motor gearbox (1.2) with a lifting mechanism (1.4) raises or lowers the chassis using cranks and follower wheels (3.3) to engage either X-axis wheels (1.7) or Z-axis wheels (1.8). Alignment is ensured using guide rails (1.9.1, 1.9.2), and the top plate (1.14) provides structural support. The robot interfaces with a Vertical Reciprocating Carriage (VRC) and operates within a matrix racking system for high-throughput material handling. The dual-mode drive system reduces power consumption, enhances mobility, and optimizes warehouse storage through coordinated movement in X and Z axes.

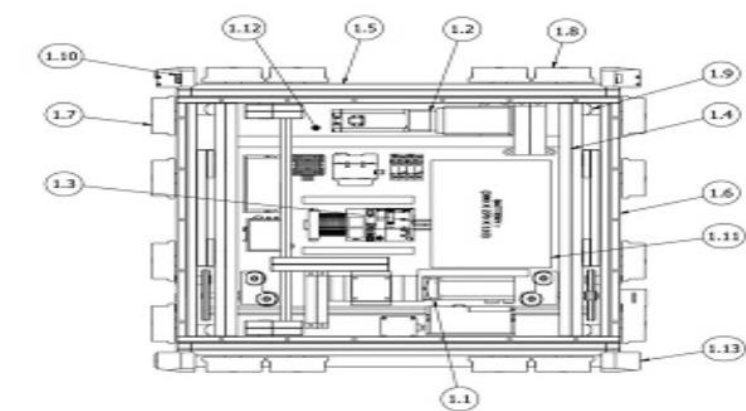


Figure 2

No. of Pages : 16 No. of Claims : 5

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202521036685 A

(19) INDIA

(22) Date of filing of Application :16/04/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : A METHOD FOR PREPARING A POLYHERBAL WOUND HEALING OINTMENT

|                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>(51) International classification :A61K0036740000, A61P0017020000, A61K0036600000, A61K0036580000, A61K0009060000</p> <p>(86) International Application No :NA<br/>Filing Date :NA</p> <p>(87) International Publication No : NA</p> <p>(61) Patent of Addition to Application Number :NA<br/>Filing Date :NA</p> <p>(62) Divisional to Application Number :NA<br/>Filing Date :NA</p> | <p>(71)<b>Name of Applicant :</b><br/><b>1)ASUTKAR, Sheetal</b><br/>Address of Applicant :Mahatma Gandhi Ayurved College, Datta Meghe Institute of Higher Education &amp; Research, Sawangi Meghe, Wardha, Maharashtra, India -----<br/><b>2)YADAV, Yogesh</b><br/><b>3)KUCHEWAR, Vaishali Vasantrao</b><br/><b>Name of Applicant : NA</b><br/><b>Address of Applicant : NA</b><br/><b>(72)Name of Inventor :</b><br/><b>1)ASUTKAR, Sheetal</b><br/>Address of Applicant :Mahatma Gandhi Ayurved College, Datta Meghe Institute of Higher Education &amp; Research, Sawangi Meghe, Wardha, Maharashtra, India -----<br/>-----<br/><b>2)YADAV, Yogesh</b><br/>Address of Applicant :Mahatma Gandhi Ayurved College, Datta Meghe Institute of Higher Education &amp; Research, Sawangi Meghe, Wardha, Maharashtra, India -----<br/>-----<br/><b>3)KUCHEWAR, Vaishali Vasantrao</b><br/>Address of Applicant :Mahatma Gandhi Ayurved College, Datta Meghe Institute of Higher Education &amp; Research, Sawangi Meghe, Wardha, Maharashtra, India -----<br/>-----</p> |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

(57) Abstract :

The present invention relates to a method for preparing a polyherbal wound healing ointment. The ointment comprises a synergistic blend of Vata (Ficus benghalensis), Udumbara (Ficus racemosa), Ashwatha (Ficus religiosa), Plaksha (Ficus lacor), Parisha (Thespesia populnea), Neem (Azadirachta indica), Manjishta (Rubia cordifolia), and Raktchandan (Pterocarpus santalinus), incorporated into a beeswax base with Vitamin E as a natural preservative. These components work collectively to enhance wound contraction, prevent infections, reduce scarring, and promote collagen synthesis. The formulation is non-adherent, minimizing trauma during dressing changes, and is suitable for chronic wounds, diabetic ulcers, burns, post-surgical wounds, pressure sores, and other dermatological conditions. The manufacturing process involves decoction, oil infusion, and controlled blending, ensuring optimal bioavailability of herbal extracts. This invention provides a safe, effective, and natural alternative for wound management

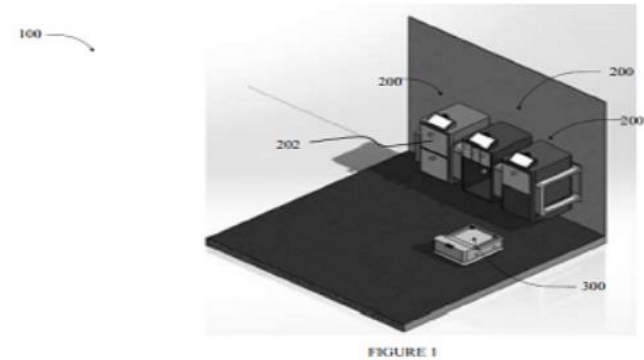
No. of Pages : 14 No. of Claims : 1



(54) Title of the invention : A ROBOT SYSTEM FOR DELIVERY ON A FLOOR

|                                                                                                                                                                                                                                                                                                                                                                                             |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <div>(51) International classification :B65G1/04, B25J5/00, B65G1/137, B25J9/16</div> <div>(86) International Application No :NA</div> <div>Filing Date :NA</div> <div>(87) International Publication No : NA</div> <div>(61) Patent of Addition to Application Number :NA</div> <div>Filing Date :NA</div> <div>(62) Divisional to Application Number :NA</div> <div>Filing Date :NA</div> |  | <div>(71)Name of Applicant :<br/><b>1)Coboticca Automation Pvt Ltd.</b><br/>Address of Applicant :D 48, Goodwill Building, Manmala Tank Road, Mahim, Mumbai 400016, India -----<br/><b>Name of Applicant : NA</b><br/><b>Address of Applicant : NA</b></div> <div>(72)Name of Inventor :<br/><b>1)KADBA, Sudarshan Narayan</b><br/>Address of Applicant :D 48, Goodwill Building, Manmala Tank Road, Mahim, Mumbai 400016, India -----<br/><b>2)PRAKASH, Kupparavalli Ramamurthy</b><br/>Address of Applicant :Professor and Head, Department of ME, The National Institute of Engineering, Mysore – 570008, Karnataka, India -----<br/><b>3)KATTI, Shrinatha R</b><br/>Address of Applicant :Assistant Professor, Department of ME, The National Institute of Engineering, Mysore – 570008, Karnataka, India -----</div> |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

(57) Abstract :  
The present disclosure relates to a robot system (100). The robot system (100) includes a plurality of storage modules (200), and a mobile unit (300) adapted to move and position below the plurality of storage modules (200). The mobile unit (300) is adapted to move based on at least one of a predefined instructions, detach from the storage module (200) upon receiving the predefined instruction, detach the storage module (200) from the wall based on the predefined instruction, and carry the storage module (200) to a predefined location to execute the predefined instructions and couple the storage module (200) to the wall. The mobile unit (300) includes a plurality of solenoid locks (302) to extend and lock the storage module (200) with the mobile unit (300). The locking of the solenoid locks (302) enables the locking of the mobile unit (300) with the storage module (200). <>



(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :13/02/2025

(21) Application No.202521012182 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : AN AQUEOUS BIOCIDAL COMPOSITION

(51) International classification :A01N25/10, A01N25/30, A01N53/00,  
A01P7/04

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application  
Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

ABSTRACT AN AQUEOUS BIOCIDAL COMPOSITION The present disclosure relates to an aqueous biocidal composition and its non-therapeutic use for controlling and/or killing a pest present at a locus. The aqueous biocidal composition is applied to at least a portion of the locus. The aqueous biocidal composition comprises polyalkyleneoxide modified heptamethyl tri-siloxane in a range of 0.2 to 2 % w/w and dimethyl sulfoxide in a range of 0.03 to 0.05% w/w. (To be published with Figure 2)

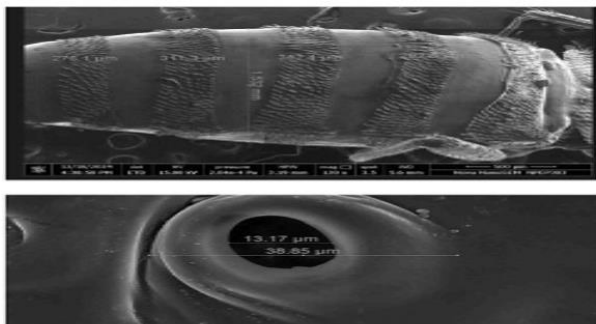


Figure 2

No. of Pages : 33 No. of Claims : 9

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202521021142 A

(19) INDIA

(22) Date of filing of Application :08/03/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : UV-VISIBLE SPECTROSCOPIC BASED CHEMOMETRICS TECHNIQUE FOR IDENTIFICATION AND DIFFERENTIATION OF CLOSELY RELATED SPECIES OF SARIVA PLANT

(51) International classification :A61K0036270000, G01N0021310000, G01N0021359000, G01N0021880000, B01J0019000000  
(86) International Application No :NA  
Filing Date :NA  
(87) International Publication No : NA  
(61) Patent of Addition to Application Number :NA  
Filing Date :NA  
(62) Divisional to Application Number :NA  
Filing Date :NA

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**3)Dr. Jagtap Suresh Dnyandeo**  
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(72)Name of Inventor :  
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(57) Abstract :

The present invention relates to UV-Visible spectroscopy based chemometrics technique for identification and differentiation of closely related species of Sariva plant namely Decalipus hamiltonii, Hemidesmus indicus, Cryptolepis buchnani and Ichanocarpus frutescene. The spectral data of the closely related species of Sariva plant namely has been acquired by UV-Visible spectroscopy and then pre-treated by chemometrics. The chemometrics methods after spectral analysis, assists in converting the complicated spectral data into the easily readable data that becomes easy for differentiation of the closely related species of Sariva plant. The technique in the present invention can enhance the quality assessment and authentication processes, ensuring the integrity and efficacy of herbal products.

No. of Pages : 12 No. of Claims : 9

(51) International classification :A61C0007100000, A61M0016000000, G05B0019418000, F21Y0115100000, G06F0003036200

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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Name of Applicant : NA

Address of Applicant : NA

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## (57) Abstract :

The present invention relates to a tool for recording the posterior palatal seal (PPS) region, essential for enhancing denture retention. The device includes a charging wire (101) for power supply, an Arduino microcontroller (102) for signal processing, a flex sensor (103) to differentiate between hard and soft tissues, a probe (104) for application on the palate, and a buzzer with a green LED light (105) for real-time feedback. The tool operates by detecting mechanical vibrations of the palatal tissue using the flex sensor (103), converting them into electrical signals processed by the microcontroller (102). Upon detecting soft tissue, the buzzer and green LED light (105) provide auditory and visual alerts, while an indelible pencil marks the identified PPS area. Data captured is stored in the system and can be exported for analysis. The device ensures accuracy, ease of use, and patient comfort, significantly improving PPS recording and denture retention.

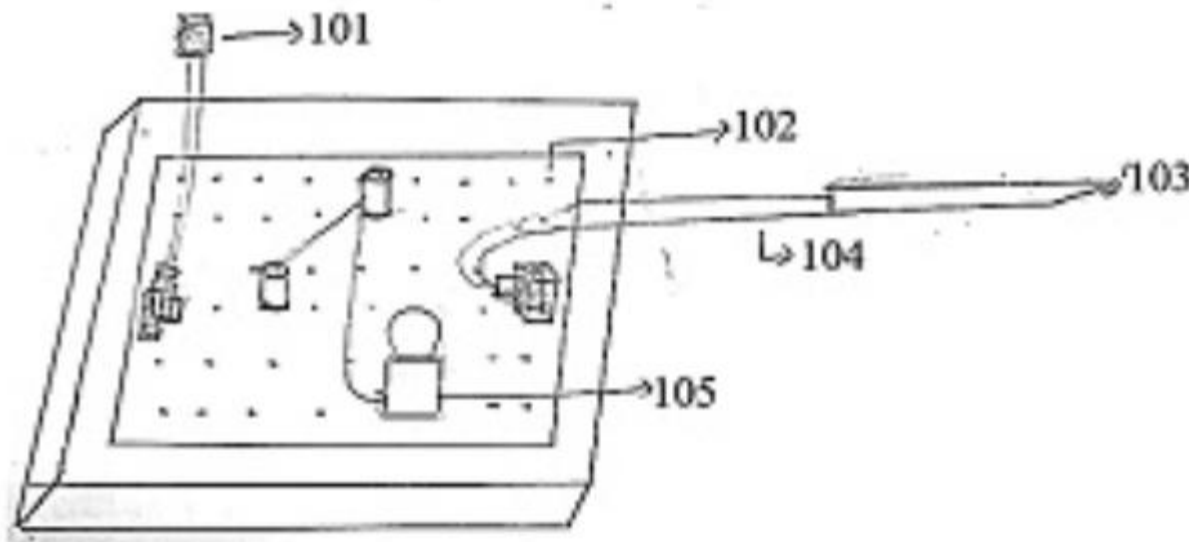


Figure 1

(54) Title of the invention : “A SYSTEM AND PROCESS FOR REAL TIME ADMINISTRATIVE STRESS AND MENTAL HEALTH EVALUATION”

|                                               |                                                                                 |                                                                                                                                                                          |
|-----------------------------------------------|---------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (51) International classification             | :A61B0005000000, A61B0005024000, A61B0005020500, A61B0005160000, A61B0005110000 | (71)Name of Applicant :<br>1)Swapnil Shioram Kumare<br>Address of Applicant :Vivekanand nagar Chamorshi road ward no 21, Gadchiroli, Maharashtra-442605 Gadchiroli ----- |
| (86) International Application No             | :NA                                                                             | 2)Shyam Trimbakrao Shirsath                                                                                                                                              |
| Filing Date                                   | :NA                                                                             | Name of Applicant : NA                                                                                                                                                   |
| (87) International Publication No             | : NA                                                                            | Address of Applicant : NA                                                                                                                                                |
| (61) Patent of Addition to Application Number | :NA                                                                             | (72)Name of Inventor :                                                                                                                                                   |
| Filing Date                                   | :NA                                                                             | 1)Swapnil Shioram Kumare                                                                                                                                                 |
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| Filing Date                                   | :NA                                                                             | 2)Shyam Trimbakrao Shirsath                                                                                                                                              |
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(57) Abstract :  
“A SYSTEM AND PROCESS FOR REAL TIME ADMINISTRATIVE STRESS AND MENTAL HEALTH EVALUATION” The present invention relates to a ADMINISTRATIVE STRESS AND MENTAL HEALTH Monitoring and Feedback System (100) for continuous mental well-being assessment. The system includes a wearable or smart device (201) with an integrated camera and audio module (202) to capture facial expressions, voice patterns, and biometric data. A data acquisition unit (203) processes and forwards the data to a processing module (204) for analysis by a machine learning unit (205), which evaluates emotional states, stress levels, and social isolation indicators. A biometric monitoring module (206) tracks physiological parameters such as heart rate and skin conductance. A feedback module (207) provides real-time insights, while an alert mechanism (208) notifies a supervisor or counselor (209) if stress crosses a threshold. FIG. 2 depicts a user (401) interacting with a smart device (409) for ADMINISTRATIVE STRESS AND MENTAL HEALTH monitoring. The system ensures secure, real-time ADMINISTRATIVE STRESS AND MENTAL HEALTH tracking and personalized interventions via encrypted communication. [ABSTRACT TO BE PUBLISHED WITH FIG.2]



FIG. 2

No. of Pages : 25 No. of Claims : 11

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202521040348 A

(19) INDIA

(22) Date of filing of Application :26/04/2025

(43) Publication Date : 04/07/2025

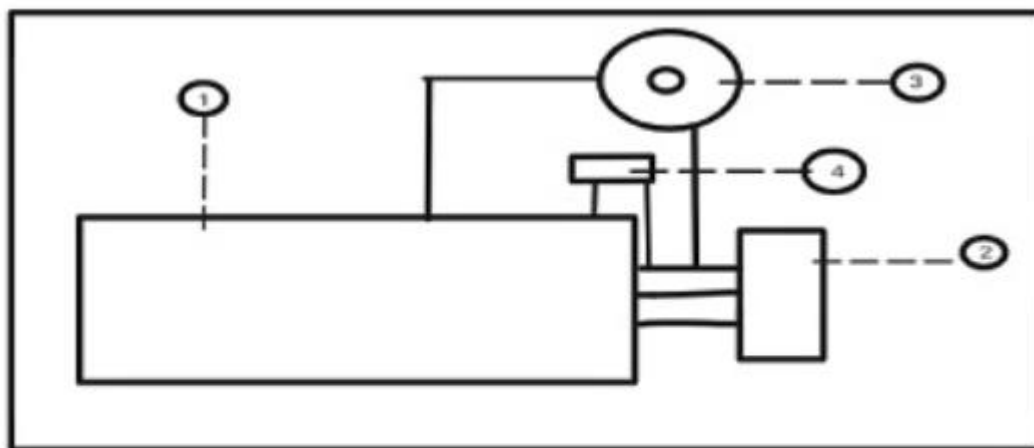
(54) Title of the invention : INTELLIGENT VEHICLE DETECTION AND ALERT SYSTEM FOR ROAD SAFETY IN HILLY AREAS USING ULTRASONIC SENSOR, LED, AND BUZZER

(51) International classification :G08G1/04, G08G1/16, G01S15/93, B60Q9/00  
(86) International Application No :NA  
Filing Date :NA  
(87) International Publication No : NA  
(61) Patent of Addition to Application Number :NA  
Filing Date :NA  
(62) Divisional to Application Number :NA  
Filing Date :NA

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**3)RATHOD, Manav D.**  
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Address of Applicant :MIT Academy of Engineering, Dehu Phata, Alandi (D), Pune, Maharashtra 412105, India Pune -----

(57) Abstract :

ABSTRACT INTELLIGENT VEHICLE DETECTION AND ALERT SYSTEM FOR ROAD SAFETY IN HILLY AREAS USING ULTRASONIC SENSOR, LED, AND BUZZER The present invention relates to an intelligent vehicle detection and alert system and method for road safety in hilly areas, comprising: an ultrasonic sensor configured to measure a distance to an approaching vehicle and detect its presence within a predetermined critical zone; a microcontroller operatively coupled to the ultrasonic sensor, configured to process distance data and generate control signals based on a predefined distance threshold; a light-emitting diode (LED) operatively coupled to the microcontroller, configured to emit a visual alert when the vehicle is detected within the critical zone; a buzzer operatively coupled to the microcontroller, configured to emit an audio alert when the vehicle is detected within the critical zone; wherein the system is configured for low-power operation suitable for remote and off-grid locations. Refer Fig. 1.



Front View

Fig. 1

No. of Pages : 14 No. of Claims : 10

(51) International classification

:G06Q0030060100, G06V0020520000, H04L0012280000, G06V0040200000, H04L0067500000

(86) International Application No

:NA

Filing Date

:NA

(87) International Publication No

: NA

(61) Patent of Addition to Application Number

:NA

Filing Date

:NA

(62) Divisional to Application Number

:NA

Filing Date

:NA

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5)KULKARNI, Smita  
Address of Applicant :MIT Academy of Engineering, Dehu Phata, Alandi (D), Pune, Maharashtra 412105, India Pune -----

(57) Abstract :  
ABSTRACT A SYSTEM FOR ECO WISE SUSTAINABLE SHOPPING COMPANION Described herein a system for providing sustainable shopping assistant, the system comprising: a computer vision module configured to extract product details from packaging or online listings; a multi-agent AI module configured to analyse the extracted product details and generate an ECO score; a user interface module configured to display the ECO score and a sustainable-based product recommendation to a user. REFER FEGURE 2



Figure 2: Workflow Diagram of the ECO Scoring Process

(54) Title of the invention : HANDHELD CONTACTLESS PAPER DETECTION SYSTEM USING CAPACITIVE AND INFRARED SENSORS

|                                                                                                                                                                                                                                                                                                                                                                                                               |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <div>(51) International classification :G06Q0050260000, G01N0001220000, A61B0005180000, B02C0018000000, G08B0007060000</div> <div>(86) International Application No :NA<br/>Filing Date :NA</div> <div>(87) International Publication No : NA</div> <div>(61) Patent of Addition to Application Number :NA<br/>Filing Date :NA</div> <div>(62) Divisional to Application Number :NA<br/>Filing Date :NA</div> |  | <div>(71)Name of Applicant :<br/>1)MIT Academy of Engineering<br/>Address of Applicant :Dehu Phata, Alandi (D), Pune, Maharashtra 412105, India Pune -----<br/>2)SWAMI, Satish<br/>3)DHONDGE, Shrutika<br/>4)GHULE, Anushaka<br/>5)SAKHARE, Omkar<br/>6)VERMA, Usha<br/>Name of Applicant : NA<br/>Address of Applicant : NA<br/>(72)Name of Inventor :<br/>1)SWAMI, Satish<br/>Address of Applicant :MIT Academy of Engineering, Dehu Phata, Alandi (D), Pune, Maharashtra 412105, India Pune -----<br/>2)DHONDGE, Shrutika<br/>Address of Applicant :MIT Academy of Engineering, Dehu Phata, Alandi (D), Pune, Maharashtra 412105, India Pune -----<br/>3)GHULE, Anushaka<br/>Address of Applicant :MIT Academy of Engineering, Dehu Phata, Alandi (D), Pune, Maharashtra 412105, India Pune -----<br/>4)SAKHARE, Omkar<br/>Address of Applicant :MIT Academy of Engineering, Dehu Phata, Alandi (D), Pune, Maharashtra 412105, India Pune -----<br/>5)VERMA, Usha<br/>Address of Applicant :MIT Academy of Engineering, Dehu Phata, Alandi (D), Pune, Maharashtra 412105, India Pune -----</div> |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

(57) Abstract :  
ABSTRACT HANDHELD CONTACTLESS PAPER DETECTION SYSTEM USING CAPACITIVE AND INFRARED SENSORS The proposed Handheld Contactless Paper Detection System is an advanced, security and document protection solution that leverages both capacitive and infrared (IR) sensing techniques to detect concealed paper-based materials. The system comprises a capacitive sensing module, which distinguishes paper from other materials such as fabric or plastic based on permittivity/capacitance differences, and an infrared sensing module , which analyzes the material's IR absorption and reflection properties for enhanced accuracy. These sensors are interfaced with a central processing unit that implements an embedded algorithm to evaluate the sensor data and confirm the presence of paper. Upon detection, the system activates an integrated alert mechanism comprising a buzzer, LED indicator. Designed to implement in both handheld and fixed formats, the system offers scalability and adaptability across various deployment scenarios. The handheld configuration is optimized for portable inspections, while the fixed installation is suitable for continuous monitoring at secured checkpoints. Its contactless design ensures non-intrusive operation, making it particularly effective in environments such as corporate offices, correctional facilities, courtrooms, and government buildings, where the unauthorized movement or theft of sensitive paper documents is a critical concern. The system achieves real-time detection and alerting, thereby reducing the need for manual inspections and improving overall screening efficiency Refer Figure 1



No. of Pages : 16 No. of Claims : 10



(54) Title of the invention : A MULTI SENSORY FIDGET SYSTEM

(51) International classification :G06F0003010000, H02J0007000000, A63H0033000000, A61H0023020000, A61B0018000000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

ABSTRACT A MULTI SENSORY FIDGET SYSTEM Described herein A multi-sensory feedback device, the system comprising: a plurality of switches including a push button, toggle switch, and rotary switch; a buzzer configured to provide auditory feedback upon activation of any switch; a vibration motor configured to provide haptic feedback upon activation of any switch; a battery unit configured to provide power to the components. REFER FIGURE 1

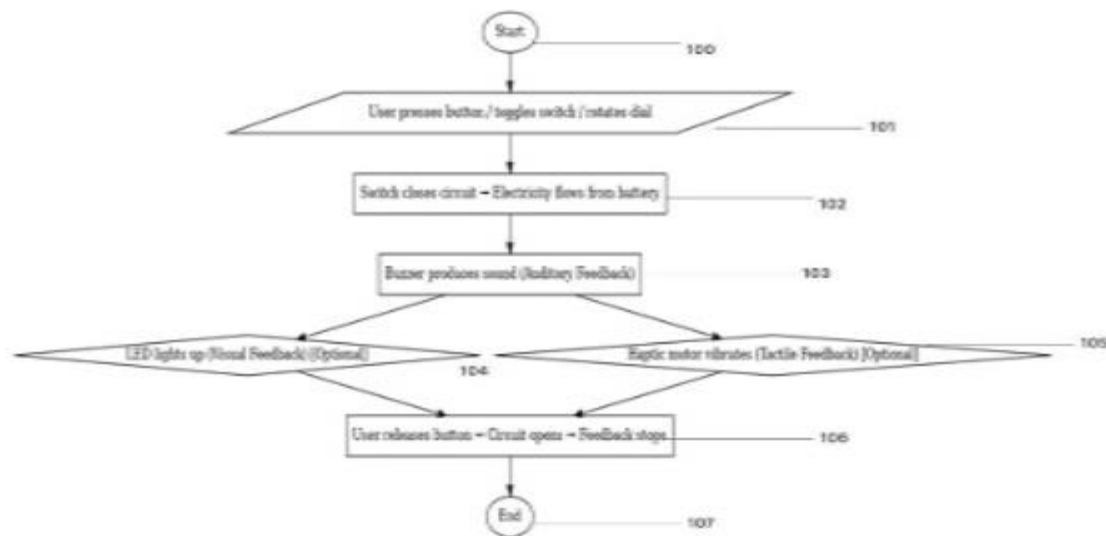


Figure 1

|                                                                                                                                                                                                                                                                                                                                                                 |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (12) PATENT APPLICATION PUBLICATION                                                                                                                                                                                                                                                                                                                             |  | (21) Application No.202521040356 A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| (19) INDIA                                                                                                                                                                                                                                                                                                                                                      |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| (22) Date of filing of Application :26/04/2025                                                                                                                                                                                                                                                                                                                  |  | (43) Publication Date : 04/07/2025                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| (54) Title of the invention : INTERNET THROUGH LIGHT: DATA TRANSMISSION SYSTEM USING MODULATED LIGHT                                                                                                                                                                                                                                                            |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| (51) International classification :H04B0010116000, A61B0005000000, H04B0010500000, G02B0006420000, H04L0007000000<br>(86) International Application No :NA<br>Filing Date :NA<br>(87) International Publication No : NA<br>(61) Patent of Addition to Application Number :NA<br>Filing Date :NA<br>(62) Divisional to Application Number :NA<br>Filing Date :NA |  | (71)Name of Applicant :<br><b>1)MIT Academy of Engineering</b><br>Address of Applicant :Dehu Phata, Alandi (D), Pune, Maharashtra 412105, India Pune -----<br><b>2)VERMA, Usha</b><br><b>3)SHINDE, Prathamesh Vitthal</b><br>Name of Applicant : NA<br>Address of Applicant : NA<br>(72)Name of Inventor :<br><b>1)VERMA, Usha</b><br>Address of Applicant :MIT Academy of Engineering, Dehu Phata, Alandi (D), Pune, Maharashtra 412105, India Pune -----<br><b>2)SHINDE, Prathamesh Vitthal</b><br>Address of Applicant :MIT Academy of Engineering, Dehu Phata, Alandi (D), Pune, Maharashtra 412105, India Pune ----- |

(57) Abstract :  
ABSTRCT INTERNET THROUGH LIGHT: DATA TRANSMISSION SYSTEM USING MODULATED LIGHT Described herein a light-based wireless communication system and method that utilizes modulated visible light for data transmission. the system comprising: a source module configured to transfer data through a wired or wireless interface; a transmission module comprising a transmission processing module configured to convert the transferred data into an encoded data stream, said processing module configured to control a light-emitting module of the transmission module to generate modulated optical signals corresponding to said encoded data stream; a receiver module comprising a light-sensing module for detecting said modulated optical signals, and a signal processing module for converting the modulated optical signals into electrical signals; and a receiver processing module configured to demodulate the electrical signals and reconstruct the transferred data. REFER FIGURE 2

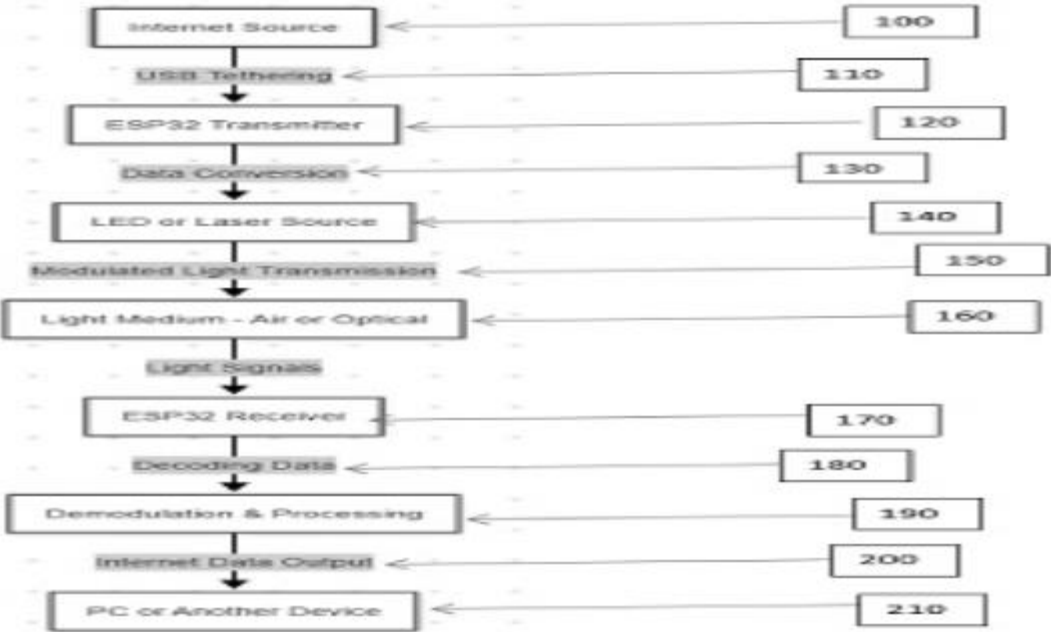


Figure 2

No. of Pages : 19 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :26/04/2025

(21) Application No.202521040357 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : RNA & MICRO-CLIMATIC CONDITION BASED YIELD & GROWTH PREDICTION OF CROPS USING IOT & REINFORCED MACHINE LEARNING

(51) International classification :G06Q50/02, G06N20/00, G06Q10/06,  
G06Q10/04, G06N3/08  
(86) International Application No :NA  
Filing Date :NA  
(87) International Publication No : NA  
(61) Patent of Addition to  
Application Number :NA  
Filing Date :NA  
(62) Divisional to Application  
Number :NA  
Filing Date :NA

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(57) Abstract :

ABSTRACT RNA & MICRO-CLIMATIC CONDITION BASED YIELD & GROWTH PREDICTION OF CROPS USING IOT & REINFORCED MACHINE LEARNING Described herein the system and method for predicting crops yield and growth. The system comprises a plurality of sensors configured to collect real-time environmental data. The system comprises an image capturing device configured to capture plant growth images, and a machine learning module configured to analyze the collected real-time environmental data and plant images to make predictions about crop yield and growth. REFER FIGURE 1

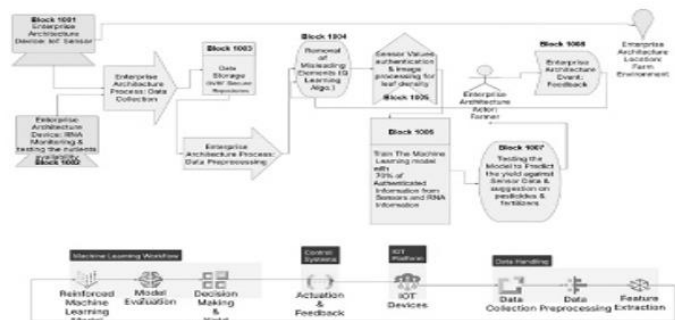


Figure 1. Architecture of Yield & Growth Prediction System

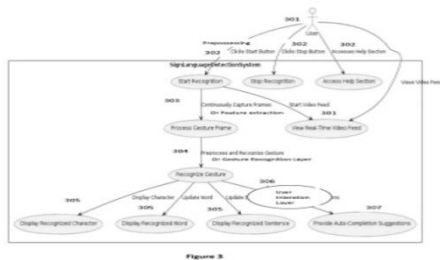
No. of Pages : 24 No. of Claims : 10

(54) Title of the invention : A SYSTEM AND METHOD FOR SIGN/GESTURE LANGUAGE TRANSLATION INTO TEXT USING CONVOLUTIONAL NEURAL NETWORKS

|                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>(51) International classification :G06F3/01, G06V40/20, G06N3/08, G06K9/46</p> <p>(86) International Application No :NA<br/>Filing Date :NA</p> <p>(87) International Publication No : NA</p> <p>(61) Patent of Addition to Application Number :NA<br/>Filing Date :NA</p> <p>(62) Divisional to Application Number :NA<br/>Filing Date :NA</p> | <p>(71)Name of Applicant :<br/> <b>1)MIT Academy of Engineering</b><br/> Address of Applicant :Dehu Phata, Alandi (D), Pune, Maharashtra 412105, India Pune -----<br/> <b>2)NIMBHORE, Padma</b><br/> <b>3)SINGH, Ikanshdeep</b><br/> <b>4)SHARMA, Pranjal</b><br/> <b>5)BALL, Arvinpreet Singh</b><br/> <b>6)CHIB, Akhil Singh</b><br/> <b>7)BARVE, Sunita</b><br/> Name of Applicant : NA<br/> Address of Applicant : NA<br/> (72)Name of Inventor :<br/> <b>1)NIMBHORE, Padma</b><br/> Address of Applicant :MIT Academy of Engineering, Dehu Phata, Alandi (D), Pune, Maharashtra 412105, India Pune -----<br/> <b>2)SINGH, Ikanshdeep</b><br/> Address of Applicant :MIT Academy of Engineering, Dehu Phata, Alandi (D), Pune, Maharashtra 412105, India Pune -----<br/> <b>3)SHARMA, Pranjal</b><br/> Address of Applicant :MIT Academy of Engineering, Dehu Phata, Alandi (D), Pune, Maharashtra 412105, India Pune -----<br/> <b>4)BALL, Arvinpreet Singh</b><br/> Address of Applicant :MIT Academy of Engineering, Dehu Phata, Alandi (D), Pune, Maharashtra 412105, India Pune -----<br/> <b>5)CHIB, Akhil Singh</b><br/> Address of Applicant :MIT Academy of Engineering, Dehu Phata, Alandi (D), Pune, Maharashtra 412105, India Pune -----<br/> <b>6)BARVE, Sunita</b><br/> Address of Applicant :MIT Academy of Engineering, Dehu Phata, Alandi (D), Pune, Maharashtra 412105, India Pune -----</p> |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

(57) Abstract :

ABSTRACT A SYSTEM AND METHOD FOR SIGN/GESTURE LANGUAGE TRANSLATION INTO TEXT USING CONVOLUTIONAL NEURAL NETWORKS Described herein an automatic system for converting a gesture content into a text content in real time for resolving the challenges. The system comprising one or more cameras for capturing the gesture content of a user in real time; a segmentation unit for eliminating noise and isolating gestures from the captured gesture content of the user to form a segmented gesture content; a feature extraction unit for extracting spatial features from the segmented gesture content of the user; a gesture recognition unit for recognizing the segmented gesture content on the basis of extracted spatial features; and an output unit for displaying the recognized segmented gesture content in the form of text content. Refer Figure 3



No. of Pages : 26 No. of Claims : 7

(54) Title of the invention : A DESIGN AND DEVELOPMENT OF PORTABLE MANUAL CARRIER

(51) :B60P1/64,  
International B66F9/06,  
classification B60P3/40(86)  
International :NA  
Application No :NA  
FilingDate  
(87)  
International : NA  
Publication No(61) Patent of  
Addition to  
Application :NA  
Number :NA  
FilingDate  
(62) Divisional  
to Application :NA  
Number :NA  
Filing  
Date

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## (57) Abstract :

ABSTRACT A DESIGN AND DEVELOPMENT OF PORTABLE MANUAL CARRIER Described herein a portable carrier that assists in unloading and handling goods like vegetable boxes from trucks. The carrier comprising: a sliding table mechanism configured to be mounted on a truck bed; a detachable frame for supporting the sliding table mechanism; and a locking mechanism for holding the sliding table mechanism in both extended and retracted positions. Refer Figure 3

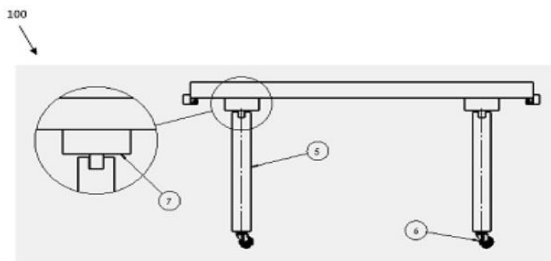


Figure 3

No. of Pages : 17 No. of Claims : 9

(54) Title of the invention : BAMBOO-COLD FORMED STEEL COMPOSITE STRUCTURAL SECTION

(51) International classification :E04C0003290000, E04B0001240000, B32B0015080000, B29L0009000000, F17C0003020000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
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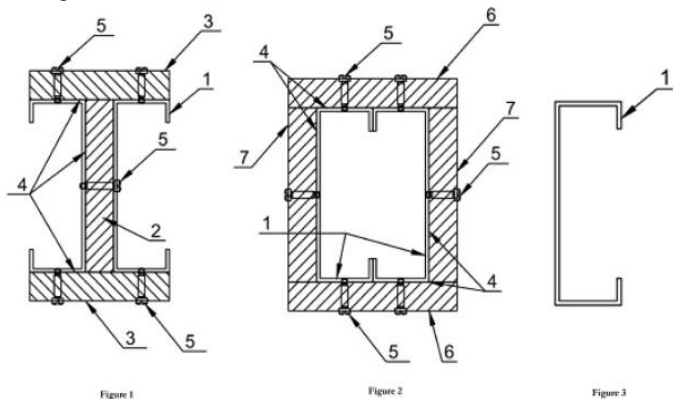
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(57) Abstract :

**ABSTRACT BAMBOO-COLD FORMED STEEL COMPOSITE STRUCTURAL SECTION** The present invention relates to a bamboo-cold formed steel composite structural section and a method of manufacturing the same comprising: a pair of cold-formed thin-walled steel channels, each having a web and flanges, configured to form a primary load-bearing structure; a plurality of bamboo plywood panels bonded to the web and flanges of the steel channels using a high-strength structural adhesive; and a series of mechanical fasteners reinforcing the adhesive bond, wherein the bamboo plywood panels, in combination with the cold-formed steel channels, contribute to enhanced axial and flexural load-bearing capacity, buckling resistance and shear transfer efficiency, forming a structurally integrated composite section. Refer Fig. 1, 2, 3



No. of Pages : 25 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :26/04/2025

(21) Application No.202521040363 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : AIRFLOW ENERGY RECOVERY SYSTEM

(51) International classification :F03D9/25, F03D7/02, H02K7/18  
(86) International Application No :NA  
Filing Date :NA  
(87) International Publication No : NA  
(61) Patent of Addition to Application Number :NA  
Filing Date :NA  
(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

**ABSTRACT** AIRFLOW ENERGY RECOVERY SYSTEM Accordingly, the present invention provides an energy recovery system for generating electricity using airflow from a cooler motor, comprising: a cooler motor configured to generate airflow during operation; an airflow harnessing mechanism configured to direct the airflow efficiently; an AC synchronous motor operatively coupled to the airflow harnessing mechanism to convert the kinetic energy of the airflow into electrical energy; and a power generation circuit connected to the AC synchronous motor for conditioning the generated electrical energy for household use. Refer Figure 1

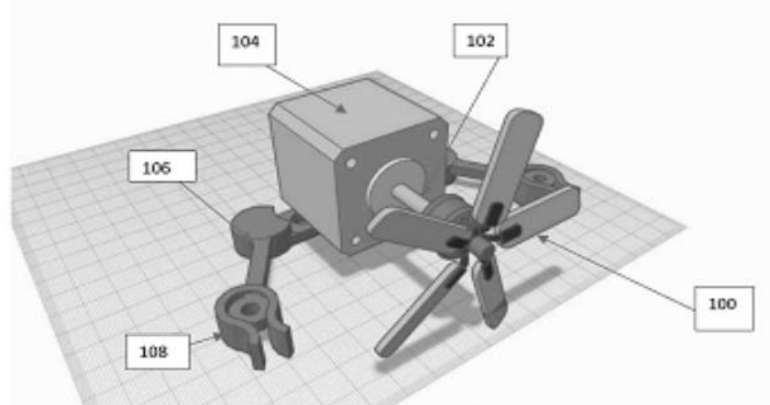


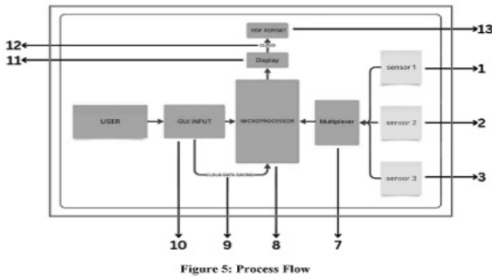
Figure 1 (right-Side view)

No. of Pages : 20 No. of Claims : 10

(54) Title of the invention : AN AI-ENABLED SYSTEM FOR THE NON-INVASIVE AYURVEDIC PULSE DIAGNOSIS

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| <div><div>(51) International classification</div><div>:A61B0005000000,<br/>G16H0050200000,<br/>A61B0005021000,<br/>A61B0005020000,<br/>A61B0005024000</div></div> <div><div>(86) International Application No</div><div>:NA<br/>:NA</div></div> <div><div>Filing Date</div><div>(87) International Publication No</div><div>(61) Patent of Addition to Application Number</div><div>:NA<br/>:NA</div></div> <div><div>Filing Date</div><div>(62) Divisional to Application Number</div><div>:NA<br/>:NA</div></div> <div><div>Filing Date</div></div> | <div>(71)Name of Applicant :<br/>1)MIT Academy of Engineering<br/>Address of Applicant :Dehu Phata, Alandi (D), Pune, Maharashtra 412105, India Pune -----<br/>2)VERMA, Usha<br/>3)NAGALKAR, Harshal<br/>4)GHADGE, Yashraj<br/>5)BADVE, Shreyash<br/>6)RAJANDEKAR, Atharva<br/>7)SAKHARE, Dipti<br/>Name of Applicant : NA<br/>Address of Applicant : NA<br/>(72)Name of Inventor :<br/>1)VERMA, Usha<br/>Address of Applicant :MIT Academy of Engineering, Dehu Phata, Alandi (D), Pune, Maharashtra 412105, India Pune -----<br/>2)NAGALKAR, Harshal<br/>Address of Applicant :MIT Academy of Engineering, Dehu Phata, Alandi (D), Pune, Maharashtra 412105, India Pune -----<br/>3)GHADGE, Yashraj<br/>Address of Applicant :MIT Academy of Engineering, Dehu Phata, Alandi (D), Pune, Maharashtra 412105, India Pune -----<br/>4)BADVE, Shreyash<br/>Address of Applicant :MIT Academy of Engineering, Dehu Phata, Alandi (D), Pune, Maharashtra 412105, India Pune -----<br/>5)RAJANDEKAR, Atharva<br/>Address of Applicant :MIT Academy of Engineering, Dehu Phata, Alandi (D), Pune, Maharashtra 412105, India Pune -----<br/>6)SAKHARE, Dipti<br/>Address of Applicant :MIT Academy of Engineering, Dehu Phata, Alandi (D), Pune, Maharashtra 412105, India Pune -----</div> |
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(57) Abstract :  
ABSTRACT AN AI-ENABLED SYSTEM FOR THE NON-INVASIVE AYURVEDIC PULSE DIAGNOSIS Described herein an AI-enabled system for pulse diagnosis, the system comprising: a sensor module configured to non-invasively detect pulse waveform data from a user; a microprocessor operatively connected to the sensors module, to collect and preprocess the pulse waveform data; and an AI-enabled module configured to receive the preprocessed data and analyze said preprocessed data to determine the user’s prakriti, and detect potential health imbalance based on the detected prakriti of the user. REFER FIGURE 5



No. of Pages : 26 No. of Claims : 10



(54) Title of the invention : TWO-WHEELER PATIENT SUPPORT KIT

(51) International classification :A61G0007100000, A61H0003000000, A41D0013015000, A41D0013050000, B64C0001060000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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5)GUNAWAT, Shriansh  
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Address of Applicant :MIT Academy of Engineering, Dehu Phata, Alandi (D), Pune, Maharashtra 412105, India Pune -----

(57) Abstract :  
ABSTRACT TWO-WHEELER PATIENT SUPPORT KIT The present invention provides a two-wheeler patient support kit comprising: a half-body support structure configured to securely attach a conscious patient to a rider on a two-wheeler; a head support mechanism coupled to the support structure for stabilizing the patient’s head and neck; a lightweight frame constructed from polypropylene for cushion padding and Carbon Fiber Reinforced Plastic (CFRP) for structural support, with a tensile strength of 500–1000 MPa; a plurality of fasteners configured to attach the support structure to the motorbike and patient; and a shock absorption mechanism integrated into the support structure to minimize vibrations and external impact during transit. Refer Fig. 1

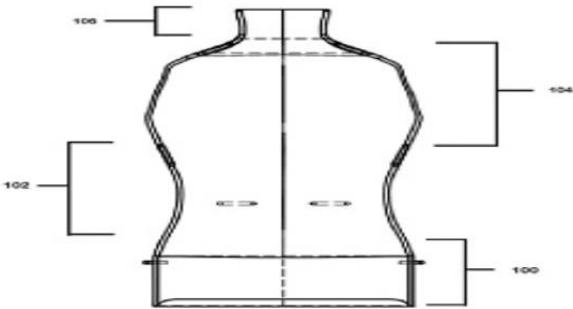


Fig. 1

No. of Pages : 21 No. of Claims : 10

(54) Title of the invention : SYSTEM AND METHOD FOR MEASURING CAM SHAFT ANGLES IN THE TEXTILE INDUSTRY

(51) International classification :G01D0005245000,  
F01L0001344000,  
F16C0041000000,  
G01P0003487000,  
G01P0003440000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No :NA  
(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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Address of Applicant :MIT Academy of Engineering, Dehu Phata, Alandi (D), Pune, Maharashtra 412105, India Pune -----

## (57) Abstract :

ABSTRACT SYSTEM AND METHOD FOR MEASURING CAM SHAFT ANGLES IN THE TEXTILE INDUSTRY The present invention provides a system and method for measuring cam shaft angles in the textile industry, said system comprising: a cam shaft (1) used in textile machinery for manufacturing printed textiles and garments; an incremental or absolute magnetic encoder mounted on the cam shaft (1), wherein the encoder (2) measures the angle of the cam shaft based on its resolution; a microcontroller connected to the encoder (2), wherein said microcontroller processes the angle data obtained from the encoder; a bluetooth module connected to said microcontroller for transmitting the processed angle data; and a mobile application (4) configured to receive and display the transmitted angle data for analysis and adjustment of the cam shaft angle. Refer Fig. 1

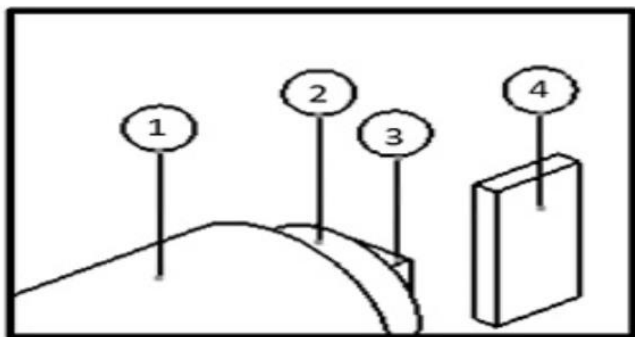


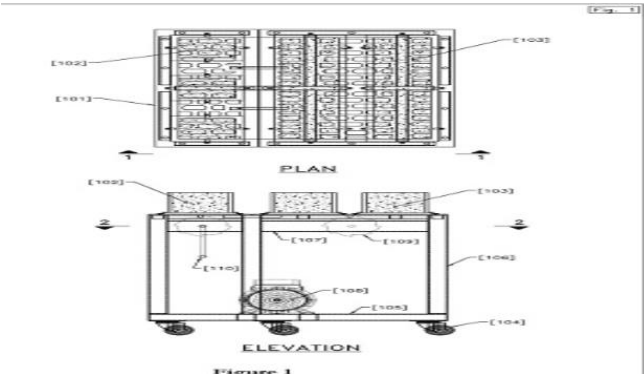
Fig. 1

No. of Pages : 21 No. of Claims : 10

(54) Title of the invention : HYBRID CONCRETE COMPACTION APPARATUS AND A METHOD OF COMPACTING CONCRETE

|                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <div>(51) International classification :G01N0001280000, E01C0019230000, B30B0011020000, B60C0011000000, H01L0021673000</div> <div>(86) International Application No :NA</div> <div>(87) Filing Date :NA</div> <div>(61) Patent of Addition to Application Number :NA</div> <div>(62) Divisional to Application Number :NA</div> | <div>(71)Name of Applicant :<br/>1)MIT Academy of Engineering<br/>Address of Applicant :Dehu Phata, Alandi (D), Pune, Maharashtra 412105, India Pune -----<br/>2)KOMBADE, Raghuveer Vaijnath<br/>3)GAWADE, Radheshyam Dhananjay<br/>4)HIRALE, Aniket Raju<br/>5)BAHEKAR, Shruti Shamrao<br/>6)RAUT, Piyush Sanjay<br/>7)MUTHEKAR, Vijay Vitthal<br/>Name of Applicant : NA<br/>Address of Applicant : NA<br/>(72)Name of Inventor :<br/>1)KOMBADE, Raghuveer Vaijnath<br/>Address of Applicant :MIT Academy of Engineering, Dehu Phata, Alandi (D), Pune, Maharashtra 412105, India Pune -----<br/>2)GAWADE, Radheshyam Dhananjay<br/>Address of Applicant :MIT Academy of Engineering, Dehu Phata, Alandi (D), Pune, Maharashtra 412105, India Pune -----<br/>3)HIRALE, Aniket Raju<br/>Address of Applicant :MIT Academy of Engineering, Dehu Phata, Alandi (D), Pune, Maharashtra 412105, India Pune -----<br/>4)BAHEKAR, Shruti Shamrao<br/>Address of Applicant :MIT Academy of Engineering, Dehu Phata, Alandi (D), Pune, Maharashtra 412105, India Pune -----<br/>5)RAUT, Piyush Sanjay<br/>Address of Applicant :MIT Academy of Engineering, Dehu Phata, Alandi (D), Pune, Maharashtra 412105, India Pune -----<br/>6)MUTHEKAR, Vijay Vitthal<br/>Address of Applicant :MIT Academy of Engineering, Dehu Phata, Alandi (D), Pune, Maharashtra 412105, India Pune -----</div> |
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(57) Abstract :  
ABSTRACT HYBRID CONCRETE COMPACTION APPARATUS AND A METHOD OF COMPACTING CONCRETE The present invention provides an hybrid concrete compaction apparatus and method comprising: a structural frame having a bottom frame, a top frame, and vertical columns extending therebetween; a platform mounted on the top frame, configured to support one or more concrete moulds, the platform comprising a meshed structure for weight reduction while maintaining structural integrity; a vertical dropping mechanism configured to lift and drop the platform under gravitational force to compact concrete within the moulds, wherein the drop height is calculated based on energy transfer specifications derived from IS 1199 Part 4 (2018) to ensure uniform compaction without segregation or bleeding; a motor assembly detachably mounted on the bottom frame and operatively connected to the vertical dropping mechanism via a belt drive system; a manual operation mechanism having a detachable handle connected to an axle for manual rotation when automatic operation is not feasible; and a swivel arrangement allowing the platform to split into two parts for transitioning between manual and automatic operation modes. Refer Fig. 1



No. of Pages : 29 No. of Claims : 10

(51) International classification

:G16H0050200000, G16H0020600000, H04N0021488000, G05B0013020000, G06Q0030025100

(86) International Application No

:NA

Filing Date

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(87) International Publication No

: NA

(61) Patent of Addition to Application Number

:NA

Filing Date

:NA

(62) Divisional to Application Number

:NA

Filing Date

:NA

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(57) Abstract :  
ABSTRACT AN AI-BASED DIET PLANNING SYTSEM FOR INDIVISIUALS Described herein a personalized AI-based diet planning system, the system comprising a data-intake module configured to collect information from a user; a decision-making module configured to dynamically generate a personalized diet plan by using the collected information; and an output module configured to provide the personalized diet plan generated by the decision-making module. REFER FIGURE 1



Figure 1

(54) Title of the invention : PROCESS FOR PRODUCING A MICRO-FERTILIZER FROM BANANA PEELS AND STEM AND A MICRO-FERTILIZER THEREOF

|                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>(51) International classification :B09B3/30, B09B3/35, B09B3/40, B09B3/70, B09B3/80, B09B101/25, C05F5/00</p> <p>(86) International Application No :NA</p> <p>Filing Date :NA</p> <p>(87) International Publication No : NA</p> <p>(61) Patent of Addition to Application Number :NA</p> <p>Filing Date :NA</p> <p>(62) Divisional to Application Number :NA</p> <p>Filing Date :NA</p> | <p>(71)Name of Applicant :</p> <p><b>1)MIT Academy of Engineering</b><br/>Address of Applicant :Dehu Phata, Alandi (D), Pune, Maharashtra 412105, India Pune -----</p> <p><b>2)GARDE, Chetan</b></p> <p><b>3)PAWAR, Sushil</b></p> <p><b>4)KUMBHAR, Prathamesh</b></p> <p><b>5)CHANDRIKAPURE, Palak</b></p> <p><b>6)MAHANT, Ayush</b></p> <p><b>7)ADMANE, Shraddha</b></p> <p><b>Name of Applicant : NA</b><br/><b>Address of Applicant : NA</b></p> <p>(72)Name of Inventor :</p> <p><b>1)GARDE, Chetan</b><br/>Address of Applicant :MIT Academy of Engineering, Dehu Phata, Alandi (D), Pune, Maharashtra 412105, India Pune -----</p> <p><b>2)PAWAR, Sushil</b><br/>Address of Applicant :MIT Academy of Engineering, Dehu Phata, Alandi (D), Pune, Maharashtra 412105, India Pune -----</p> <p><b>3)KUMBHAR, Prathamesh</b><br/>Address of Applicant :MIT Academy of Engineering, Dehu Phata, Alandi (D), Pune, Maharashtra 412105, India Pune -----</p> <p><b>4)CHANDRIKAPURE, Palak</b><br/>Address of Applicant :MIT Academy of Engineering, Dehu Phata, Alandi (D), Pune, Maharashtra 412105, India Pune -----</p> <p><b>5)MAHANT, Ayush</b><br/>Address of Applicant :MIT Academy of Engineering, Dehu Phata, Alandi (D), Pune, Maharashtra 412105, India Pune -----</p> <p><b>6)ADMANE, Shraddha</b><br/>Address of Applicant :MIT Academy of Engineering, Dehu Phata, Alandi (D), Pune, Maharashtra 412105, India Pune -----</p> |
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(57) Abstract :

ABSTRACT PROCESS FOR PRODUCING A MICRO-FERTILIZER FROM BANANA PEELS AND STEM AND A MICR-FERTILIZER THEREOF The present invention provides a process for producing a micro-fertilizer from banana peels and stems and a micro-fertilizer, comprising the steps of: collecting and cleaning waste banana peels and stems to remove contaminants; shredding the cleaned material and drying it to remove moisture; grinding the dried material into a fine powder; mixing the powder with 1200–1400 mL of distilled water to form a slurry, and stirring at 300 rpm under heating at 70°C to 80°C; adding 0.5 N potassium hydroxide (KOH) to the slurry to extract potassium and phosphorus, and stirring until a viscous slurry is formed; cooling the slurry to room temperature; filtering the slurry to separate the liquid filtrate from solid sludge; adding a 10% coffee powder extract, prepared by heating 10 g of coffee powder in 100 mL of water at 100°C for 1 hour, to enrich the filtrate with nitrogen; adjusting the pH of the filtrate to 5.0–5.3 using lemon juice (95%–98% purity); obtaining a liquid micro-fertilizer with a particle size of 1–1000 µm and a zeta potential of approximately -5.42 mV. REFER FIGURE 1

Process Flow: -

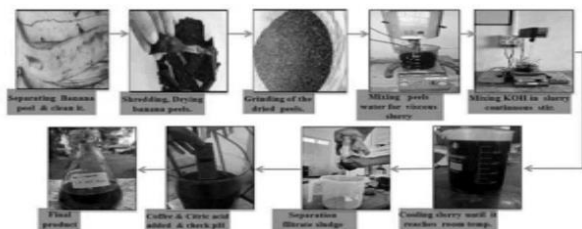


Figure - 1

No. of Pages : 27 No. of Claims : 9

(54) Title of the invention : A SYSTEM AND A METHOD FOR AUTONOMOUS VEHICLE NAVIGATION USING COLOUR SENSORS

(51) International classification :B60W10/20,  
G01C21/00,  
B60W60/00,  
G05D1/00(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA(62) Divisional to Application Number :NA  
Filing Date :NA

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## (57) Abstract :

A vehicle-mounted autonomous navigation system (100) and method are disclosed for real-time path following using an LED-guided track. The system (100) comprises at least one colour sensor mounted beneath the vehicle chassis to detect colour variations in the path. A multiplexer unit (102), communicatively coupled to the colour sensor, processes the detected colour data and transmits it to a microcontroller unit (103). The microcontroller unit (103) analyses the colour data to determine navigation commands and sends corresponding control signals to a motor control unit (104). The motor control unit (104) then adjusts the vehicle's movement, enabling autonomous navigation along the LED-guided path. This system (100) provides an efficient and adaptive solution for autonomous vehicle guidance in controlled environments. (to be published with figure 1)

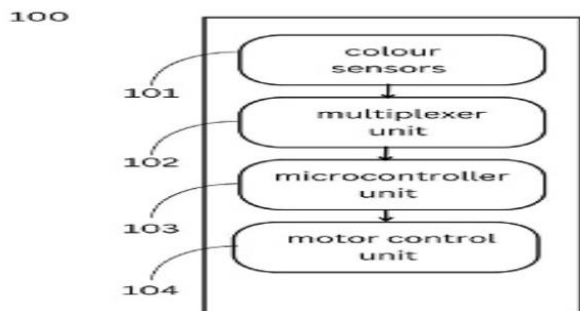


Figure 1

No. of Pages : 19 No. of Claims : 10

(54) Title of the invention : DESIGNING AND AI POWERED RECOMMENDATION SYSTEM FOR E-COMMERCE PLATFORMS

|  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
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(57) Abstract :  
DESIGNING AND AI POWERED RECOMMENDATION SYSTEM FOR E-COMMERCE PLATFORMS The present invention discloses to a recommendation engine driven by AI designed specifically for e-commerce platforms to improve user experience and increase sales. In order to provide real-time personalized product recommendations, the system examines user behaviour, preferences, and transaction history using machine learning methods, such as collaborative filtering, content-based filtering, and hybrid models. The suggested architecture combines deep learning for dynamic adaptation to changing user interests with natural language processing (NLP) for customer review analysis. The system's scalability and effective handling of massive amounts of data are important features that make it appropriate for expanding online retail settings. When compared to conventional recommendation methods, experimental results show notable gains in user engagement, click-through rates, and conversion metrics. Through automation and data-driven decision-making, this research aids in the creation of intelligent e-commerce platforms that support strategic company objectives while simultaneously optimizing customer pleasure.

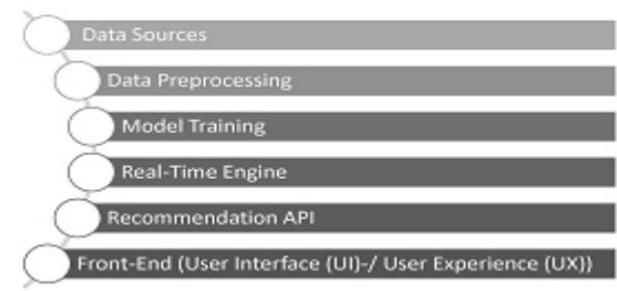


FIG.1

No. of Pages : 14 No. of Claims : 1

(54) Title of the invention : SYSTEM AND METHOD FOR REAL-TIME VIDEO STREAMING INFORMATION RELATING TO TRANSPORTATION

|                                               |                                                                                 |                                                                                                                                                                                            |
|-----------------------------------------------|---------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (51) International classification             | :G06Q0010020000, H04N0021610000, G06F0016230000, G06Q0030025100, G06Q0010080000 | (71)Name of Applicant :<br><b>1)PRAKASH ROHRA</b><br>Address of Applicant :1701, Meera cooperative society, New link road, Jogeshwari West, Mumbai-400102, Maharashtra, India Mumbai ----- |
| (86) International Application No             | :NA                                                                             | -                                                                                                                                                                                          |
| Filing Date                                   | :NA                                                                             | <b>Name of Applicant : NA</b>                                                                                                                                                              |
| (87) International Publication No             | : NA                                                                            | <b>Address of Applicant : NA</b>                                                                                                                                                           |
| (61) Patent of Addition to Application Number | :NA                                                                             | (72)Name of Inventor :                                                                                                                                                                     |
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| Filing Date                                   | :NA                                                                             |                                                                                                                                                                                            |

(57) Abstract :  
ABSTRACT SYSTEM AND METHOD FOR REAL-TIME VIDEO STREAMING INFORMATION RELATING TO TRANSPORTATION Disclosed is a system (100)and method(200) for real-time video streaming information relating to transportation that comprises a user device(127) that allows users to access live updates. Users input queries, specifying a preferred location and language, through typed-text or voice-commands, with the system automatically detecting the language via a multi-lingual module(106). The data acquisition module(101) retrieves raw transportation data, including schedules, delays, and hub assignments, from service provider servers, storing it in a real-time database(102). The data processing module(104), aided by the multi-lingual module (106), processes and translates the data into the user’s preferred language. The content generation module(108) produces visual schedules, 3D overlays, and voiceovers, which the screen capturing module(114) transforms into low-latency streams. The multi-platform streaming module(122) broadcasts these streams to digital platforms in a news-feed format, delivering culturally relevant, real-time updates within a 6-hour window, displayed on the user device(127) for seamless access across various platforms.

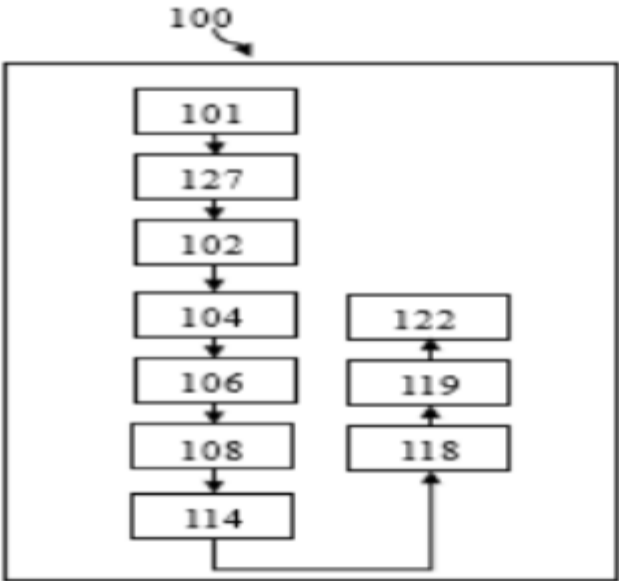


FIGURE 1



(21) Application No.202521035213 A

(43) Publication Date : 04/07/2025

(43) Publication Date : 04/07/2025

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ment of cancer, and composition thereof Disclosed herein is a compound of Formula 1, or a salt thereof, which is a compound of Formula 1, or a salt thereof, as a compound of Formula 1, or a salt thereof, according to embodiments herein is an inhibitor of PI3K alpha isoform. In some embodiments, the disclosed compound offers a more targeted, effective, and potentially less costly treatment for management, or both, of cancer. Embodiments herein further disclose a method of treating cancer by administering the disclosed compound. In some embodiments, the disclosed compound has been found to be a specific inhibitor of PI3K $\alpha$ . In some embodiments, the disclosed compound offers a more targeted, effective, and potentially less costly



SKPO-1

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202521035215 A

(19) INDIA

(22) Date of filing of Application :10/04/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : A method for preparing an eco-friendly composite, and composite thereof

(51) International classification :C08J 5/04, C08L 97/02, B29C 45/00, B01D 11/04, B29L 31/00  
(86) International Application No :NA  
Filing Date :NA  
(87) International Publication No : NA  
(61) Patent of Addition to :NA  
Application Number :NA  
Filing Date :NA  
(62) Divisional to Application :NA  
Number :NA  
Filing Date :NA

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Address of Applicant :Department of Metallurgical Engineering & Materials Science, Indian Institute of Technology Bombay, Powai, Mumbai, Maharashtra, India-400076 Powai -----

(57) Abstract :

ABSTRACT A method for preparing an eco-friendly composite, and composite thereof Embodiments herein disclose a method for preparing an eco-friendly composite. The method, according to embodiments herein include combining Saccharum Munja fibers and HDPE. The method, according to embodiments herein address common challenges in 3D printing high-density polyethylene (HDPE), including shrinkage, warping, and void formation. The composite prepared using the disclosed method is lightweight, durable, recyclable, and cost-effective, while also exhibiting superior mechanical properties. FIG. 1

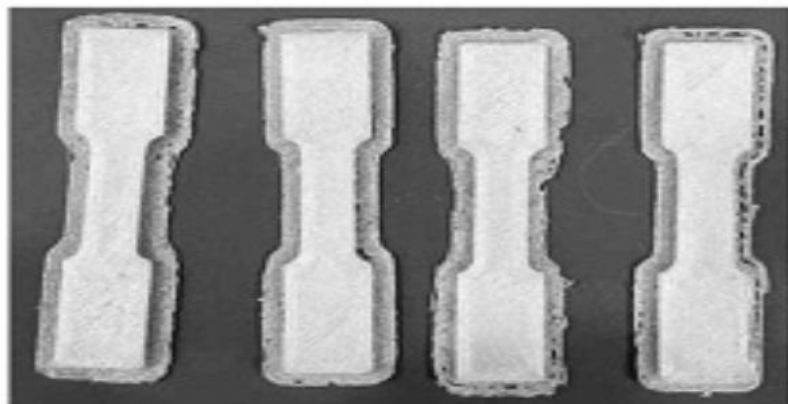


**FIG. 1**

No. of Pages : 18 No. of Claims : 8

(54) Title of the invention : A DENTAL HEALTH ASSESSMENT AND MONITORING DEVICE

|                                                                                                                                                                                                                                                                                                                                                              |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <div>(51) International classification (86) International Application No (87) International Publication No (61) Patent of Addition to Application Number (62) Divisional to Application Number</div> <div>:A61B5/00, G16H50/20</div> <div>:NA</div> <div>:NA</div> <div>:NA</div> <div>:NA</div> <div>:NA</div> <div>:NA</div> <div>:NA</div> <div>:NA</div> |  | <div>(71)Name of Applicant :<br/>1)Ramdeobaba University<br/>Address of Applicant :Ramdeobaba University, Katol road, Nagpur, Maharashtra, India - 440013 -----<br/>2)Shri Ramdeobaba College of Engineering and Management<br/>3)GUPTA, Anju<br/>4)SIDDIQUI, Simran<br/>5)JAIN, Anushree<br/>6)LINGALWAR, Nishang<br/>Name of Applicant : NA<br/>Address of Applicant : NA<br/>(72)Name of Inventor :<br/>1)GUPTA, Anju<br/>Address of Applicant :Shri Ramdeobaba College of Engineering and Management, Katol Road, Nagpur, Maharashtra, India - 440013 ---<br/>2)SIDDIQUI, Simran<br/>Address of Applicant :Shri Ramdeobaba College of Engineering and Management, Katol Road, Nagpur, Maharashtra, India - 440013 ---<br/>3)JAIN, Anushree<br/>Address of Applicant :Shri Ramdeobaba College of Engineering and Management, Katol Road, Nagpur, Maharashtra, India - 440013 ---<br/>4)LINGALWAR, Nishang<br/>Address of Applicant :Shri Ramdeobaba College of Engineering and Management, Katol Road, Nagpur, Maharashtra, India - 440013 ---</div> |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

(57) Abstract :  
The present invention relates to dental health assessment and monitoring device. The system comprises a processing unit (101), a power supply module (102), a color sensor module (103) for detecting tooth surface color variations, an LED light source (104) for enhanced accuracy, and a database (105) for reference data storage. The device features user controls (106), a display interface (108), and a wireless connectivity module (109) for real-time analysis via Bluetooth, Wi-Fi, or cloud integration. The system provides AI-assisted diagnostics, enabling predictive analysis and tele-dentistry support. The power-efficient design includes a rechargeable battery (102a) and USB charging interface (102b). The automatic calibration system (110) ensures accurate readings under various lighting conditions. The Tooth Quality Analyzer (100) offers real-time monitoring, user-friendly operation, and professional integration, enhancing dental care efficiency and accessibility.



Figure 2

No. of Pages : 19 No. of Claims : 2

(54) Title of the invention : A hydrogel for diabetic wound healing, method of preparation and application thereof

(51) International classification :A61P0017020000, A61L0027520000, A61L0027540000, C07K0007060000, A61L0027380000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

A hydrogel for diabetic wound healing, method of preparation and application thereof. A hydrogel for diabetic wound healing, method of preparation and application thereof is disclosed herein. In one embodiment, the hydrogel is a peptide of SEQ ID NO. 1, wherein the peptide is chemically modified by capping the N-terminus with a fluorenylmethyloxycarbonyl (Fmoc) group. The disclosed hydrogel demonstrates remarkable versatility, promoting cell proliferation and migration while possessing antioxidant, anti-inflammatory, and angiogenic properties. Further, the disclosed hydrogel is highly cytocompatible, hemocompatible, and biodegradable, ensuring its suitability for a wide range of applications. Moreover, the hydrogel is highly efficient, capable of healing diabetic wounds on its own without the need for additional cells, cytokines, or drugs, setting it apart from other diabetic wound healing scaffolds. Embodiments disclosed herein further provide an inexpensive and cost-effective method for preparing the disclosed hydrogel. FIG. 1A

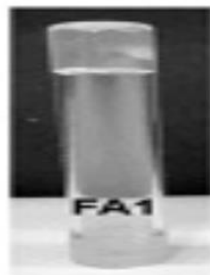


FIG. 1A

No. of Pages : 46 No. of Claims : 12

(54) Title of the invention : MACHINE LEARNING-BASED FORECASTING OF CROP YIELD USING CLIMATE AND REMOTE SENSING DATA

|  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
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(57) Abstract :  
MACHINE LEARNING-BASED FORECASTING OF CROP YIELD USING CLIMATE AND REMOTE SENSING DATA The present invention relates to food security and agricultural practice optimization, accurate crop production forecasting is essential. This work integrates climate variables and remote 5 sensing data to anticipate agricultural yield using a machine learning-based method. The model uses soil properties, satellite-derived vegetation indices, and historical weather trends to identify intricate, non-linear interactions affecting crop productivity. To find the best prediction framework, a number of machine learning methods were tested, such as Random Forest, Support Vector Regression, and Gradient Boosting. The resilience and adaptability of 10 the suggested method are highlighted by its high predicted accuracy across a variety of crop varieties and geographic locations. Furthermore, the model provides real-time yield estimation capabilities, allowing supply chain stakeholders, farmers, and regulators to make timely decisions. Forecasting reliability is greatly increased by integrating data from multiple sources, opening the door to more intelligent, data-driven agriculture in the face of resource 15 limitations and climate variability. FIG.1

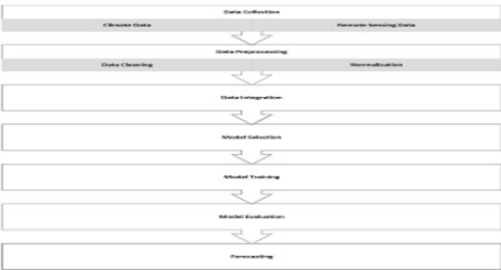


FIG. 1.

(54) Title of the invention : A HANDHELD GARDENING TOOL

(51) :B26B0021520000,  
International B25G0001100000,  
classification B25F0005020000,  
B23D0021100000,  
A61N0005060000

(86)  
International  
Application :NA  
No :NA  
Filing  
Date

(87)  
International : NA  
Publication No

(61) Patent of  
Addition to  
Application :NA  
Number :NA  
Filing  
Date

(62) Divisional  
to Application :NA  
Number :NA  
Filing  
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## (57) Abstract :

The invention relates to a handheld gardening tool (100) comprising a hook-shaped blade (105a) having a first notch (110a) at its lower end, a flat blade (105b) having a second notch (110b) at its lower end, one or more connecting screws (115), a first head portion (120a) attached to a first arm (125a), a second head portion (120b) attached to a second arm (125b), a first straight pipe (130a) including a first angular gripping portion (135a), a second straight pipe (130b) including a second angular gripping portion (135b), a first handle (140a) including a first lateral gripping portion (145a) at one end, a second handle (140b) including a second lateral gripping portion (145b) at one end, a first c-shaped handle (150a) including a first c-shaped gripping portion (155a) and a first lower diagonal gripping portion (160a), a second c-shaped handle (150b) including a second c-shaped gripping portion (155b) and a second lower diagonal gripping portion (160b) and a stopper (165). Fig. 1

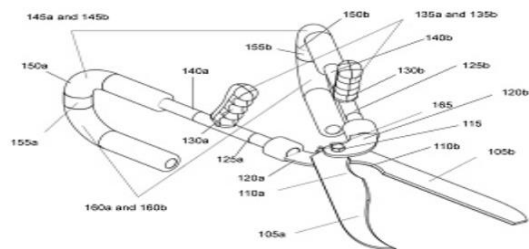


Fig. 1

No. of Pages : 26 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :13/05/2025

(21) Application No.202521046067 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : A READY TO FRY GLUTEN FREE PELLET PRODUCT AND A PROCESS OF PREPARATION THEREOF

(51) International classification :A21D0013047000, A23K0010300000, A21D0013066000, A23L0007109000, A21C0003040000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

The present invention relates to a process for preparing a ready to fry gluten free pellet product composition. Corn flour (50 % w/w), rice (10 % to 40 % w/w) and quinoa (10 % to 40 % w/w) are milled and sieved to obtain a consistent flour mixture. Water (20 % w/w) and xanthan gum (0.2 % w/w) are added to the flour mixture to form a dough. The dough is kept at rest for 20 to 25 minutes, the dough is kneaded and a sheet of the dough of 1 mm thickness is formed. Two layers of sheets of 2 mm thickness are placed onto one another and cut using a mould or a die-cutter to form pellets. The pellets are dried at a temperature of 60 °C to 80 °C in a cabinet dryer till moisture content of the pellets reaches to 4 %. Fig. 1

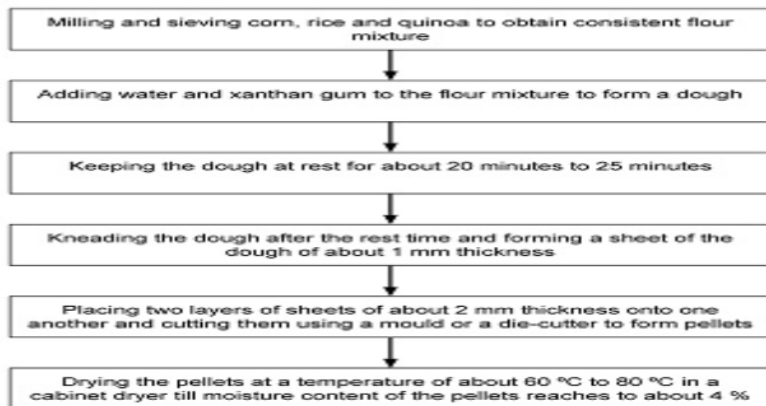


Fig. 1

No. of Pages : 30 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202521047371 A

(19) INDIA

(22) Date of filing of Application :16/05/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : STABILIZING FLUORINE-BASED POTASSIUM POLYANION CATHODE VIA 'ELECTROCHEMICAL ACTIVATION METHOD'

(51) International classification :H01M0004580000, H01M0004620000, C02F0001467000, H01M0004360000, H01M0008042230

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

ABSTRACT STABILIZING FLUORINE-BASED POTASSIUM POLYANION CATHODE VIA 'ELECTROCHEMICAL ACTIVATION METHOD'. The present invention pertains to electrochemical activation method for enhancing the properties of tavorite-type fluorine-based potassium polyanionic cathode and usage of the same as high performance cathode material for potassium-ion batteries.

No. of Pages : 27 No. of Claims : 6



(54) Title of the invention : A COOLING SYSTEM FOR A BIAXIAL MATERIAL TESTING APPARATUS AND A METHOD OF COOLING THEREOF

(51) International classification

(86) International Application No

Filing Date

(87) International Publication No

(61) Patent of Addition to Application Number

Filing Date

(62) Divisional to Application Number

Filing Date

:G01N37/00, G01N3/02

:NA

:NA

: NA

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(57) Abstract :  
A cooling system for a biaxial material testing apparatus and a method of cooling thereof. The disclosure herein relates to a cooling system (100) for a biaxial material testing apparatus and a method (300) of cooling the biaxial material testing apparatus. The cooling system (100) includes a plurality of cooling members (102) and a control module (104). The plurality of cooling members is secured to a sample (10) and is configured to circulate a coolant for cooling the sample. The control module is provided in communication with the plurality of cooling members and is configured to regulate the temperature of the sample within a predetermined range by controlling the flow of the coolant to each cooling member. The cooling system enables biaxial testing of the cruciform sample at low temperatures. The cooling system can be operated at low cost and can be fabricated at low cost. FIG. 1A

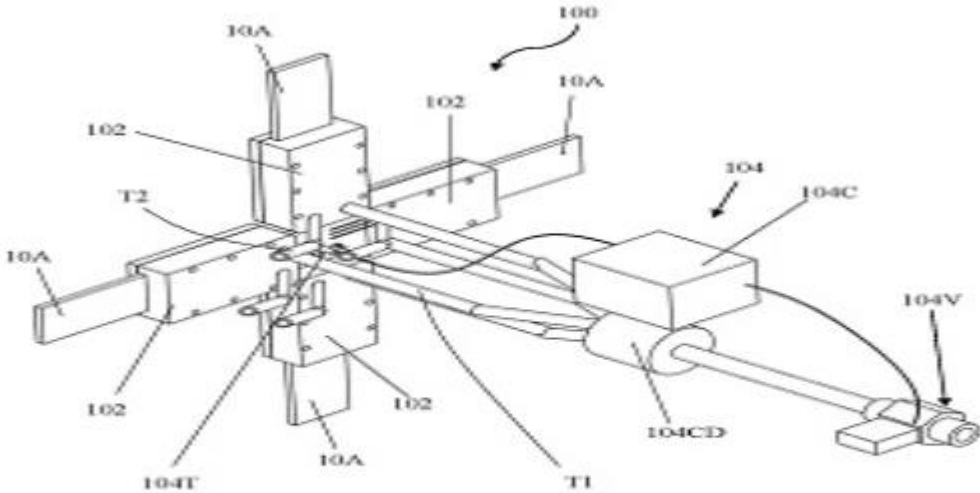


Figure 1a

(54) Title of the invention : AUTOMATED HAND DRYING SYSTEM WITH HIGH-EFFICIENCY PARTICULATE AIR (HEPA) FILTRATION AND INTELLIGENT FAN CONTROL

|                                        |                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|----------------------------------------|---------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (51) International classification      | :A47K10/48, B01D29/00, G01S13/04, G01S15/04 | (71)Name of Applicant :<br>1)Pimpri Chinchwad College of Engineering (PCCoE), Pune<br>Address of Applicant :Pimpri Chinchwad College Of Engineering Sector -26, Pradhikaran, Nigdi, Near Akurdi Railway Station, Pune - 411 044 Pune -----<br>2)Dr. Sandip Kisan Jagadale<br>3)Sneha Pravin Attarde<br>4)Parul Suresh Avhad<br>5)Siddhi Pramod Deshak<br>6)Vedanti Ganesh Papat<br>7)Srushti Nishikant Jadhav<br>Name of Applicant : NA<br>Address of Applicant : NA                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| (86) International Application No      | :NA                                         | (72)Name of Inventor :                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
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| (87) International Publication No      | : NA                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| (61) Patent of Addition to Application | :NA                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Application Number                     | :NA                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Filing Date                            |                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| (62) Divisional to Application         | :NA                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Number                                 | :NA                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Filing Date                            |                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |

(57) Abstract :  
ABSTRACT AUTOMATED HAND DRYING SYSTEM WITH HIGH-EFFICIENCY PARTICULATE AIR (HEPA) FILTRATION AND INTELLIGENT FAN CONTROL The present invention discloses an automated hand drying system (100) designed to reduce microbial contamination by delivering HEPA-filtered air. The system comprises a housing (102) with air inlets (104) and an air outlet (106), at least one High-Efficiency Particulate Air (HEPA) filter sheet (108) proximate to the inlets for removing airborne particulates, and one or more axial cooling fans (110) for drawing and directing filtered air. An ultrasonic sensor (112) detects hand proximity and triggers a microcontroller-based control unit (114), which processes detection signals and activates a relay module (116) to switch the fans on or off. The system further includes a regulated power supply (118) and a feedback module (120) for operational indication. Optional features include timer-based override, noise suppression, and environmental sensing to adjust performance. This invention ensures hygienic, touchless hand drying with significantly reduced bacterial transmission, suitable for critical environments like healthcare, food processing, and cleanrooms. FIG. 1 will be the reference figure.

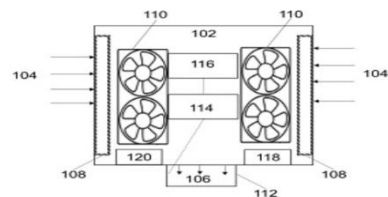


FIG. 1

No. of Pages : 26 No. of Claims : 10

(54) Title of the invention : POSTURE DETECTION SYSTEM AND A METHOD THEREOF

(51) International classification :A61B0005000000, A61B0005110000, G06T0007246000, G06T0007000000, G06V0040200000

(86) International Application No :NA  
Filing Date :NA

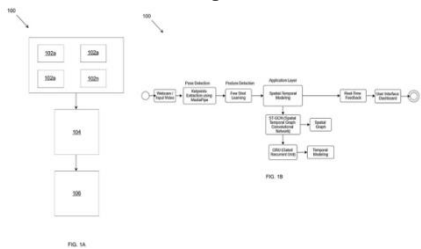
(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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4)Aditi Dabhade  
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(57) Abstract :  
ABSTRACT POSTURE DETECTION SYSTEM AND A METHOD THEREOF A posture detection system (100) includes a set of sensors (102a-102n) designed to capture motion data corresponding to a user's body movements. These sensors (102a-102n) are connected to a processor (104), which processes the motion data to analyse the user's posture. The processor (104) determines the spatial relationship between joints using a Graph Convolution technique and assesses variations in joint movement over a defined time interval using a Temporal Convolution technique. Based on these analyses, the processor (104) identifies deviations from correct posture by evaluating both joint relationships and movement changes. When an incorrect posture is detected, the processor (104) triggers the generation of an alert signal to notify the user. This enables real-time posture monitoring and correction, helping to prevent discomfort or musculoskeletal issues. The integration of Graph and Temporal Convolution techniques allows for accurate and dynamic posture assessment, making the system (100) suitable for ergonomic and health-related applications. FIG. 1 is the reference figure.



No. of Pages : 29 No. of Claims : 10

(51) International classification :G06Q0030020000, B28C0005420000, A61B0005000000, G01S0015870000, G06F0011300000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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## (57) Abstract :

ABSTRACT AUTOMATED CONCRETE WEIGHT MONITORING SYSTEM AND METHOD FOR RMC TRANSIT MIXER The present invention relates to an automated method and system (100) for monitoring the weight of concrete in a ready-mix concrete (RMC) transit mixer (106). The system employs a plurality of ultrasonic distance sensors (102-1, 102-2, 102-3) strategically positioned on the drum (104)—at the left-hand side, right-hand side, and rear side—to measure the distance between the drum base and a level surface. A microcontroller (108) receives and processes these measurements, while a memory unit (110) stores baseline (empty) and loaded data. A processing unit (112) calculates the concrete weight by comparing real-time and stored data. An inertial measurement unit (IMU) (114) compensates for tilt variations, while a GPS module (116) geotags the data. A logging unit (118) records the weight periodically, and a wireless module transmits data remotely. This system provides an accurate, real-time, and automated solution to overcome manual estimation errors in RMC operations, enhancing operational efficiency and traceability. FIG. 1 will be the reference figure.



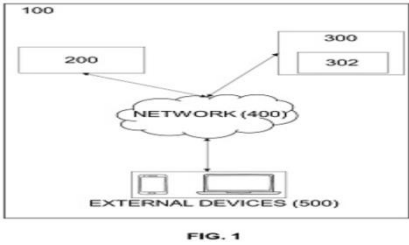
**FIG. 1 (PRIOR-ART)**

No. of Pages : 25 No. of Claims : 10

(54) Title of the invention : DISTRIBUTED SYSTEM FOR AUTOMATED CLASSIFICATION OF LUNG DISEASES USING RESPIRATORY ACOUSTIC SIGNALS

|                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
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| <div>(51) International classification :G06N0003045000, A61B0007000000, G06N0003080000, A61B0007040000, A61P0011000000</div> <div>(86) International Application No :NA</div> <div>Filing Date :NA</div> <div>(87) International Publication No :NA</div> <div>(61) Patent of Addition to Application Number :NA</div> <div>Filing Date :NA</div> <div>(62) Divisional to Application Number :NA</div> <div>Filing Date :NA</div> | <div>(71)Name of Applicant :<br/>1)Pimpri Chinchwad College of Engineering (PCCoE), Pune<br/>Address of Applicant :Pimpri Chinchwad College Of Engineering Sector -26, Pradhikaran, Nigdi, Near Akurdi Railway Station, Pune - 411 044 Pune -----<br/>2)Dr. Gulbakshee J. Dharmale<br/>3)Dr. Maya Bembde<br/>4)Mrs. Radha Deoghare<br/>5)Mrs. Sphurti Deshmukh<br/>6)Mrs Shradha Tawade<br/>7)Mrs. Madhuri Kethari<br/>Name of Applicant : NA<br/>Address of Applicant : NA<br/>(72)Name of Inventor :<br/>1)Dr. Gulbakshee J. Dharmale<br/>Address of Applicant :Pimpri Chinchwad College Of Engineering Sector -26, Pradhikaran, Nigdi, Near Akurdi Railway Station, Pune - 411 044 Pune -----<br/>2)Dr. Maya Bembde<br/>Address of Applicant :Pimpri Chinchwad College Of Engineering Sector -26, Pradhikaran, Nigdi, Near Akurdi Railway Station, Pune - 411 044 Pune -----<br/>3)Mrs. Radha Deoghare<br/>Address of Applicant :Pimpri Chinchwad College Of Engineering Sector -26, Pradhikaran, Nigdi, Near Akurdi Railway Station, Pune - 411 044 Pune -----<br/>4)Mrs. Sphurti Deshmukh<br/>Address of Applicant :Pimpri Chinchwad College Of Engineering Sector -26, Pradhikaran, Nigdi, Near Akurdi Railway Station, Pune - 411 044 Pune -----<br/>5)Mrs Shradha Tawade<br/>Address of Applicant :Pimpri Chinchwad College Of Engineering Sector -26, Pradhikaran, Nigdi, Near Akurdi Railway Station, Pune - 411 044 Pune -----<br/>6)Mrs. Madhuri Kethari<br/>Address of Applicant :Pimpri Chinchwad College Of Engineering Sector -26, Pradhikaran, Nigdi, Near Akurdi Railway Station, Pune - 411 044 Pune -----</div> |
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(57) Abstract :  
DISTRIBUTED SYSTEM FOR AUTOMATED CLASSIFICATION OF LUNG DISEASES USING RESPIRATORY ACOUSTIC SIGNALS The present invention discloses a distributed system (100) and method for automated classification of lung diseases using respiratory acoustic signals. The system comprises an edge device (200) configured to acquire lung sound data via a digital stethoscope or embedded microphone, and perform local pre-processing including normalization and data augmentation using a conditional Generative Adversarial Network (cGAN). Acoustic features are extracted using Mel Frequency Cepstral Coefficients (MFCC), Mel spectrogram, or Short-Term Fourier Transform (STFT). A device-specific inference acceleration module (300) equipped with a hardware accelerator executes a hybrid model combining Convolutional Neural Networks (CNN) with Bidirectional Long Short-Term Memory (BiLSTM) or Bidirectional Gated Recurrent Unit (BiGRU) to classify the features into disease categories including COPD, pneumonia, bronchitis, URTI, asthma, or healthy status. Anonymized classification results are transmitted (210) to external devices (500) for real-time display and optional structured diagnostic report generation, facilitating portable and intelligent respiratory diagnostics. FIG. 1 will be the reference figure.



No. of Pages : 23 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :17/05/2025

(21) Application No.202521047578 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : A SYSTEM FOR BREAST CANCER DETECTION USING PORTABLE IMAGE ACQUISITION AND DEEP LEARNING METHODS

(51) International classification :G06N3/08, G06T7/00, G16H50/20  
(86) International Application No :NA  
Filing Date :NA  
(87) International Publication No : NA  
(61) Patent of Addition to Application Number :NA  
Filing Date :NA  
(62) Divisional to Application Number :NA  
Filing Date :NA

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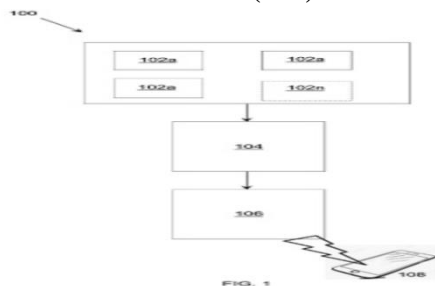
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(57) Abstract :

ABSTRACT A SYSTEM FOR BREAST CANCER DETECTION USING PORTABLE IMAGE ACQUISITION AND DEEP LEARNING METHODS Disclosed is a disease detection system (100) that includes a plurality of imaging units (102a-102n), a pre-processing unit (104), and a processor (106). The plurality of imaging units (102a-102n) are configured to capture a plurality of images of breast of a plurality of patients. The pre-processing unit (104) is configured to receive the plurality of images and generate enhanced plurality of images. The processor (106) is configured to analyse the enhanced plurality of images. The processor (106) is further configured to classify the enhanced plurality of images as cancerous images or non-cancerous images. The enhanced plurality of images are classified by way of a Deep Convolutional Neural Network (CNN) classifier. FIG. 1 is the reference figure.



No. of Pages : 25 No. of Claims : 9

(54) Title of the invention : SHELL-ENCLOSED SPIRAL HEAT EXCHANGER

(51) International classification

(86) International Application No

(87) International Publication No

(61) Patent of Addition to Application Number

(62) Divisional to Application Number

:F28D7/02, F28D1/047

:NA

:NA

:NA

:NA

:NA

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(57) Abstract :  
ABSTRACT SHELL-ENCLOSED SPIRAL HEAT EXCHANGER The present invention provides a shell-enclosed spiral heat exchanger comprising: a continuous spiral tube arranged in a helical configuration to maximize heat transfer surface area; an outer shell fully enclosing the spiral tube, the shell providing structural reinforcement and protection from external contaminants; and a pair of fluid communication ports formed in the shell, comprising an inlet and an outlet, configured to introduce and remove fluid from the heat exchanger. Refer figure 3

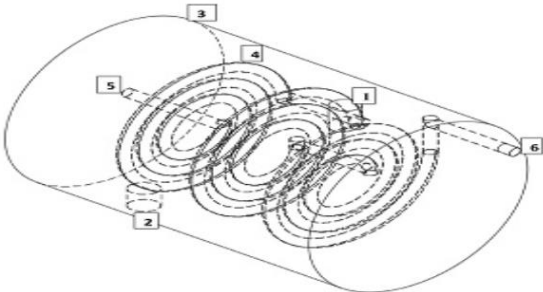


FIG: 3 (isometric view of diagram )

No. of Pages : 25 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202521045210 A

(19) INDIA

(22) Date of filing of Application :09/05/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : MODULAR TEST RIG FOR EVALUATING TRIBOELECTRIC NANOGENERATOR PERFORMANCE ACROSS DIVERSE OPERATING MODES

|                                                                                                                                                                                                                                                                                                                                                                                           |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>(51) International classification :H02N0001040000, H02N0002180000, G01M0099000000, G01R0031319000, H02J0007340000</p> <p>(86) International Application No :NA<br/>Filing Date :NA</p> <p>(87) International Publication No : NA</p> <p>(61) Patent of Addition to Application Number :NA<br/>Filing Date :NA</p> <p>(62) Divisional to Application Number :NA<br/>Filing Date :NA</p> |  | <p>(71)<b>Name of Applicant :</b><br/><b>1)Nitinkumar Raghunath Anekar</b><br/>Address of Applicant :Department of Mechanical Engg., COEP Technological University , Pune 411005, India -----<br/><b>2)Preetam Selmokar</b><br/><b>3)Nitin Satpute</b><br/><b>Name of Applicant : NA</b><br/><b>Address of Applicant : NA</b></p> <p>(72)<b>Name of Inventor :</b><br/><b>1)Nitinkumar Raghunath Anekar</b><br/>Address of Applicant :Department of Mechanical Engg., COEP Technological University , Pune 411005, India -----<br/><b>2)Preetam Selmokar</b><br/>Address of Applicant :Department of Mechanical Engg., COEP Technological University , Pune 411005, India -----<br/><b>3)Nitin Satpute</b><br/>Address of Applicant :Vishwakarma University, Pune 411048, India -----<br/>-----</p> |
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(57) Abstract :

Modular Test Rig for Evaluating Triboelectric Nanogenerator Performance Across Diverse Operating Modes This invention describes a multi-mode universal testing apparatus for Triboelectric Nanogenerators (TENGs), capable of evaluating all four operational modes—Vertical Contact-Separation (VCS), Lateral Sliding (LS), Single-Electrode (SE), and Free-Standing (FS). The apparatus incorporates a motor-driven slider-crank mechanism with an adjustable crank radius for controlled reciprocating motion. An “L”-shaped bracket transmits this motion to modular electrode assemblies, enabling precise vertical and horizontal actuation. Interchangeable dielectric material carriers allow flexible configuration for diverse triboelectric materials. A Digital Storage Oscilloscope (DSO) measures real-time voltage output and calculates charge generation using an internal equivalent circuit. The system supports parametric testing of displacement, contact force, frequency, and environmental conditions. This compact, cost-effective platform addresses the limitations of existing single-mode test setups and is intended for academic, industrial, and research applications in energy harvesting and self-powered electronics.

No. of Pages : 39 No. of Claims : 10



(54) Title of the invention : SUSTAINABLE PLASTIC PYROLYSIS PROCESS WITH CHEMICAL LOOPING UNIT (CLU) AND ZERO WASTE APPROACH

|                                               |                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
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| (51) International classification             | :C10G 1/10, C10B 53/07, C10G 1/00, G06Q 10/06 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| (86) International Application No             | :NA                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Filing Date                                   | :NA                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| (87) International Publication No             | : NA                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| (61) Patent of Addition to Application Number | :NA                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Filing Date                                   | :NA                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| (62) Divisional to Application Number         | :NA                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Filing Date                                   | :NA                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |

(57) Abstract :

The present invention introduces the innovative approach, particularly the integration of CLU technology with pyrolysis, represents a significant advancement over existing systems. The method efficiently converts non-recyclable plastic waste into valuable fuels and chemicals while minimizing environmental impact. By leveraging the CLU unit, the pyrolysis process enhances the quality of hydrocarbon products, promoting resource recovery and supporting the circular economy. This innovative approach not only addresses the growing plastic waste crisis but also contributes to energy sustainability and carbon footprint reduction. Ultimately, the integration of pyrolysis and CLU technology presents a viable pathway for transforming waste into valuable resources. Addressing previous limitations, this process aligns with both economic and environmental goals, making it highly patentable. FIG.1

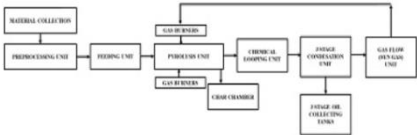


FIG.1

(51) International classification

(86) International Application No

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(87) International Publication No

(61) Patent of Addition to Application Number

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(62) Divisional to Application Number

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:G06N20/00, G06N3/08, G06F40/30, G06N3/092

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(57) Abstract :

The present invention discloses a system and method for adaptive optimization of artificial intelligence (AI) models using context-aware learning to enhance decision-making across dynamic environments. The system integrates real-time contextual data, feedback from end-users or external agents, and adaptive learning mechanisms to update and refine AI models with minimal latency. This approach improves model relevance, reduces false predictions, and ensures sustained accuracy across varying conditions and user behaviors. The invention is applicable to domains including healthcare, finance, autonomous systems, and intelligent assistants. FIG.1



FIG.1.

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202521045865 A

(19) INDIA

(22) Date of filing of Application :13/05/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : MICROFLUIDIC METHOD FOR THE SINGLE-STEP FABRICATION OF NANOMATERIAL COATED MICROFIBERS

|                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>(51) International classification :B82Y 30/00, B82Y 40/00, A61P 31/04, B01L 3/00</p> <p>(86) International Application No :NA<br/>Filing Date :NA</p> <p>(87) International Publication No : NA</p> <p>(61) Patent of Addition to Application Number :NA<br/>Filing Date :NA</p> <p>(62) Divisional to Application Number :NA<br/>Filing Date :NA</p> | <p>(71)<b>Name of Applicant :</b><br/><b>1)INDIAN INSTITUTE OF TECHNOLOGY BOMBAY</b><br/>Address of Applicant :Powai, Mumbai - 400076, Maharashtra, India Mumbai --<br/>-----<br/><b>2)IITB-MONASH RESEARCH ACADEMY</b><br/><b>Name of Applicant : NA</b><br/><b>Address of Applicant : NA</b></p> <p>(72)<b>Name of Inventor :</b><br/><b>1)SHARMA, Kajal</b><br/>Address of Applicant :IITB-Monash Research Academy, Powai, Mumbai - 400076, Maharashtra, India Mumbai -----<br/><b>2)FERNANDES, Lizelle Bernard</b><br/>Address of Applicant :Department of Chemical Engineering, Indian Institute of Technology Bombay, Powai, Mumbai 400076, Maharashtra, India Mumbai -----<br/>-----<br/><b>3)AWASTHI, Vishwesh Dutt</b><br/>Address of Applicant :Department of Chemical Engineering, Indian Institute of Technology Bombay, Powai, Mumbai 400076, Maharashtra, India Mumbai -----<br/>-----<br/><b>4)BANDYOPADHYAYA, Rajdip</b><br/>Address of Applicant :Department of Chemical Engineering, Indian Institute of Technology Bombay, Powai, Mumbai 400076, Maharashtra, India Mumbai -----<br/>-----<br/><b>5)GUNDABALA, Venkata Ramana</b><br/>Address of Applicant :Department of Chemical Engineering, Indian Institute of Technology Bombay, Powai, Mumbai 400076, Maharashtra, India Mumbai -----<br/>-----</p> |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

(57) Abstract :

A process for the single-step fabrication of microfibers homogeneously coated with nanomaterial, said process comprising the steps of : (i) providing an inner phase solution comprising of a homogenous polymeric solution, obtained by dissolving a polymer into an appropriate solvent; (ii) providing an outer phase solution comprising of a nanomaterial dispersion, obtained by ultrasonically dispersing nanomaterial into an appropriate liquid; (iii) injecting the outer phase nanomaterial dispersion into a co-axially placed outer glass capillary, and simultaneously injecting the polymeric inner phase liquid into the inner fitted glass capillary of a glass microfluidic device, said polymeric solution forming a jet in presence of the outer flowing nanomaterial dispersion which solidifies into a solid fiber coated with nanomaterial based on the principle of solvent removal; (iv) collecting the solid nanomaterial coated fibers, followed by drying in a hot air oven. Also provided is a device for fabricating microfibers homogeneously coated with nanomaterial.

No. of Pages : 30 No. of Claims : 16

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :13/05/2025

(21) Application No.202521045954 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : "CHEMICAL SYNTHESIS OF MOLYBDENUM OXIDE/REDUCED GRAPHENE OXIDE THIN COATING FOR ENERGY STORAGE APPLICATION"

(51) International classification :C01G41/02, H01G11/46, H01G11/38, B01J23/888, C09D7/40, B82Y40/00, B82Y30/00, C08G18/50  
(86) International Application No :NA  
Filing Date :NA  
(87) International Publication No : NA  
(61) Patent of Addition to Application Number :NA  
Filing Date :NA  
(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

Present invention claims the method for deposition of molybdenum oxide/reduced graphene oxide composite thin coating on conducting [stainless steel (SS) substrates]. The thin coating was deposited chemically by varying concentrations of sodium molybdate precursors (0.025 to 0.1 M) at different temperatures (333 to 353 K) for various deposition times (2-4 h). The 5 ml reduced graphene oxide (rGO) slurry of density 1 mg/mL was added in sodium molybdate solution. The XRD pattern and SEM images of molybdenum oxide/reduced graphene oxide composite coating shows hexagonal crystal structure with substrate surface covered with nanoparticles like morphology. Molybdenum oxide/reduced graphene oxide composite thin coating showed energy storage property in aqueous 1 M H<sub>2</sub>SO<sub>4</sub> electrolyte with specific capacitance of 728.6 F g<sup>-1</sup> at a scan rate of 5 mV s<sup>-1</sup>.

No. of Pages : 15 No. of Claims : 3

(51) International classification

(86) International Application No

(87) International Publication No

(61) Patent of Addition to Application Number

(62) Divisional to Application Number

:A61B0005000000, G06N0020000000, G06T0007000000, G16H0015000000, B82Y0015000000

:NA

:NA

:NA

:NA

:NA

Filing Date

Filing Date

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Filing Date

Filing Date

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10)RVS Praveen  
11)Dr Vishnu Kiran Manam  
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(57) Abstract :  
The present invention relates to an integrated strategy that combines targeted nanoparticles with cutting-edge machine learning algorithms. Medical imaging data was used to train machine learning models, such as support vector machines and deep neural networks, to accurately detect cancerous patterns. At the same time, functionalized nanoparticles were created with the ability to attach to cancer cells specifically, improving contrast in imaging tests like CT and MRI scans. By lowering false positives and facilitating early action, the combination of the high specificity of nanoparticle targeting and the intelligent analytical power of machine learning greatly enhanced diagnostic results. The promise of this hybrid system was validated by experimental results that showed higher detection rates when compared to traditional approaches. This strategy has the potential to revolutionize breast cancer diagnosis by providing a potent instrument for non-invasive, individualized cancer screening. FIG.1



(54) Title of the invention : ELECTROSPUN NANOFIBER MEMBRANE WITH TUNABLE HYDROPHOBIC-HYDROPHILIC PROPERTIES FOR ENHANCED MEMBRANE DISTILLATION PERFORMANCE

|                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <div>(51) International classification :C08L 23/06, C08L 29/04, C08L 81/04, C08L 27/14, C08L 27/18, B01D 67/00, B01D 69/12</div> <div>(86) International Application No :NA</div> <div>Filing Date :NA</div> <div>(87) International Publication No : NA</div> <div>(61) Patent of Addition to Application Number :NA</div> <div>Filing Date :NA</div> <div>(62) Divisional to Application Number :NA</div> <div>Filing Date :NA</div> | <div>(71)Name of Applicant :<br/><b>1)INDIAN INSTITUTE OF TECHNOLOGY BOMBAY</b><br/>Address of Applicant :Powai, Mumbai, Maharashtra, India - 400076 Mumbai --</div> <div>Name of Applicant : NA</div> <div>Address of Applicant : NA</div> <div>(72)Name of Inventor :<br/><b>1)SINGH, Swatantra Pratap</b><br/>Address of Applicant :Department of Environmental Science and Engineering, Indian Institute of Technology Bombay Powai, Mumbai Maharashtra India 400076 Mumbai -----</div> <div><b>2)Rashmi Ranjan</b><br/>Address of Applicant :Department of Environmental Science and Engineering, Indian Institute of Technology Bombay Powai, Mumbai Maharashtra India 400076 Mumbai -----</div> |
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(57) Abstract :  
In the present invention, a tailored Electrospun hydrophilic-hydrophobic composite membrane is provided comprising a hydrophobic polymer selected from polyvinylidene fluoride (PVDF), Polytetrafluoroethylene (PTFE), and Polyethylene (PE) and a hydrophilic polymer selected from polysulfone (PSf), Polyethersulfone (PES), and Polyvinyl alcohol (PVA). This membrane is fabricated in a manner wherein the bottom layer is hydrophobic and the hydrophilicity keeps on increasing towards the top with gradual decreasing amounts of the hydrophobic and proportionate increase of the hydrophilic polymers in between. The composite membrane has smooth surface and improved membrane water flux properties due to hierarchial structure of the membrane. These tailored multi-layered composite membrane is prepared by process of electrospinning using hydrophobic and hydrophilic polymers in different ratios during electrospinning. This tailored hydrophilic hydrophobic composite membranes has improved fiber structure and morphology with finer fibers and no beads-on-string structure and improved membrane distillation properties for water purification. Also provided is a method of preparation of such membrane.

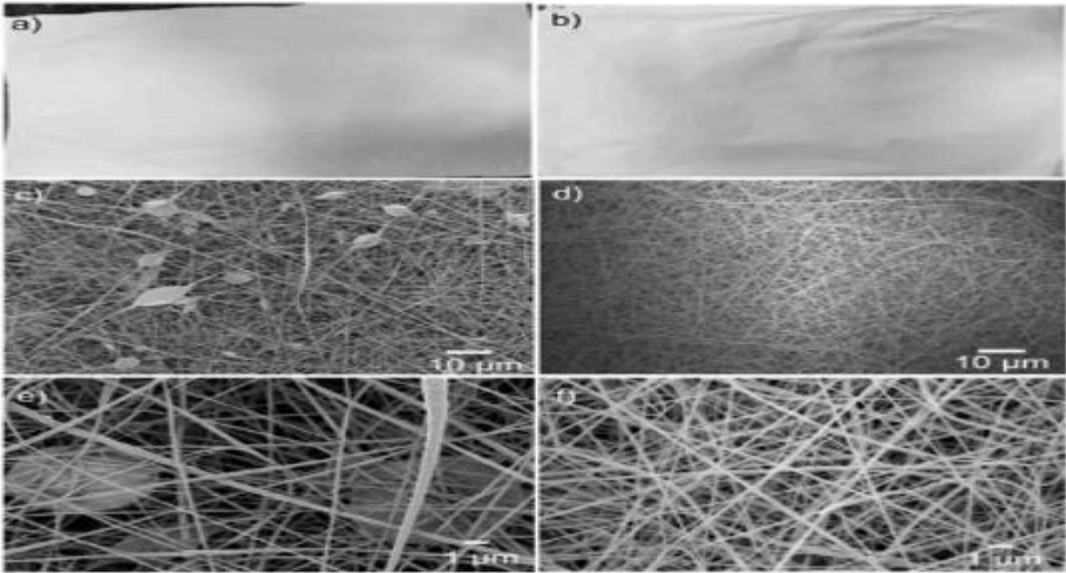


Figure 1: Images of the Electrospun membranes a) P\_ENM and b) TPP\_ENM and SEM images of the membranes: c) and e) P\_ENM (low and high resolution respectively, and d) and f) TPP\_ENM (low and high resolution respectively)

(54) Title of the invention : SYSTEM AND METHOD FOR PURIFICATION OF AIR AND EXTRACTION OF PARTICULATE-MATTER THEREFROM

|                                               |                                                         |                                                                                                                                                                                                                 |
|-----------------------------------------------|---------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (51) International classification             | :F24F11/70, F24F8/192, F24F11/64, F24F11/89, F24F110/64 | (71)Name of Applicant :<br><b>1)NOVORBIS ITUS PRIVATE LIMITED</b><br>Address of Applicant :Office: 212, 2nd floor, Kolte Patil - City Centre, Hinjewadi Phase -1, Pune, Maharashtra – 411057, India. Pune ----- |
| (86) International Application No             | :NA                                                     | <b>Name of Applicant : NA</b>                                                                                                                                                                                   |
| Filing Date                                   | :NA                                                     | <b>Address of Applicant : NA</b>                                                                                                                                                                                |
| (87) International Publication No             | : NA                                                    | (72)Name of Inventor :                                                                                                                                                                                          |
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(57) Abstract :  
ABSTRACT SYSTEM AND METHOD FOR PURIFICATION OF AIR AND EXTRACTION OF PARTICULATE-MATTER THEREFROM The present disclosure provides a method (1100) for switching between an air purification mode or a solid particulate-matter extraction mode via a control system (910). The control system (910) is connected to at least one electrode assembly (112), a first pump (122), and a second pump (904) for regulating operation thereof. The air purification mode corresponds to a process (1110) for removing particulate-matter from a stream of air and the solid particulate-matter extraction mode corresponds to a process (1120) for removing solid particulate-matter from the at least one of the cell assembly (104), the at least one electrode assembly (112), and the hopper assembly (106). (to be published with figure 11A)



FIG. 11A

(54) Title of the invention : SYSTEM AND METHOD FOR INTERACTIVE HYBRID LEARNING IN A SYNCHRONIZED VIRTUAL AND PHYSICAL CAMPUS ENVIRONMENT

|                                                                                                    |                                                                                                                                                                                                                               |
|----------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (51) International classification :G06Q50/20, G06N20/00, G06N3/08, G06T13/40, G06T19/00, G06Q10/06 | (71)Name of Applicant :<br>1)Persei Solutions (OPC) Private Limited<br>Address of Applicant :Flat No. 18, Third Floor, Amruta Heights, Near Shiv temple, Dhayari, Sinhgad Road, Pune - 411041, Maharashtra, India. Pune ----- |
| (86) International Application No :NA<br>Filing Date :NA                                           | Name of Applicant : NA<br>Address of Applicant : NA                                                                                                                                                                           |
| (87) International Publication No: NA                                                              | (72)Name of Inventor :<br>1)PRABHAVALKAR, Mangesh Arun                                                                                                                                                                        |
| (61) Patent of Addition to Application Number :NA<br>Filing Date :NA                               | Address of Applicant :Flat No. 18, Third Floor, Amruta Heights, Near Shiv temple, Dhayari, Sinhgad Road, Pune - 411041, Maharashtra, India. Pune -----                                                                        |
| (62) Divisional to Application Number :NA<br>Filing Date :NA                                       | --                                                                                                                                                                                                                            |

(57) Abstract :  
The present disclosure pertains to a system (100) and method (200) for interactive learning in a virtual campus environment. The system (100) may include processors (110) and a memory (112). The processors (110) receive data associated with user profiles from user devices (106), generate avatars corresponding to each of the user profiles, render the virtual campus environment on the user devices (106) using a virtual campus generation module (126), where each of the avatars interact within the virtual campus environment to engage in academic activities. Further, the processors (110) asynchronously track avatar interactions occurring in the virtual campus environment and user interactions occurring in a physical environment, where the asynchronously tracked avatar interactions and the user interactions are stored in a server (108), generate academic recommendations for interactive learning, using an Artificial Intelligence (AI) model to provide personalized academic feedback.

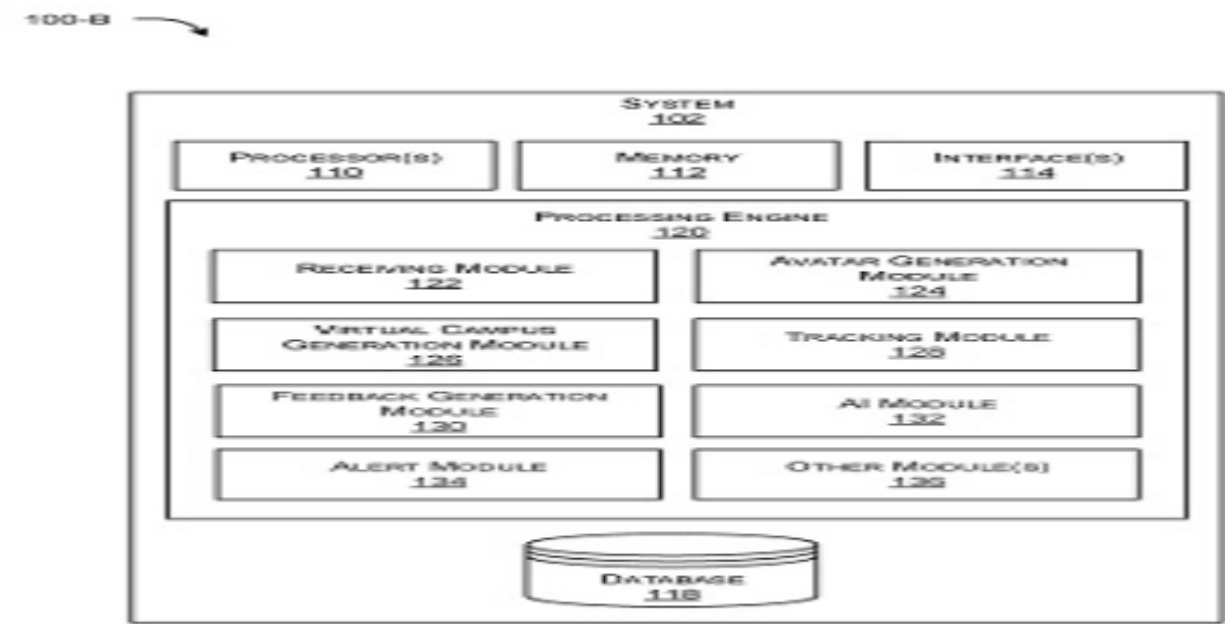


FIG. 1B



(54) Title of the invention : U-SHAPED OPTICAL FIBER SENSOR PROBE AND CARTRIDGE THEREFOR FOR DETECTING TEST ANALYTE

(51) International classification :G01D0005353000, G01N0029240000, G01R0029080000, G01F0001661000, A61B0005000000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA(62) Divisional to Application Number :NA  
Filing Date :NA

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## (57) Abstract :

ABSTRACT U-SHAPED OPTICAL FIBER SENSOR PROBE AND CARTRIDGE THEREFOR FOR DETECTING TEST ANALYTE Embodiments herein disclose a  $\mu$ -sens fiber optical sensor device (200) comprising a cartridge unit (224) designed for housing a U-shaped optical fiber sensor probe (222). The cartridge unit (224) is at least one of a static type configuration and a flow type configuration. An opto-electronic interface of the  $\mu$ Sens device houses a LED with a regulated power supply which illuminates the optical fiber sensor probe and a photo detector unit. Light output from the optical fiber (222) is converted to digital which is analyzed by a microcontroller and analysis result is displayed on a graphical user interface as a calibrated quantitative parameters or as qualitative notification, indicating the presence or absence of a target molecule in a tests analyte. FIG. 2C

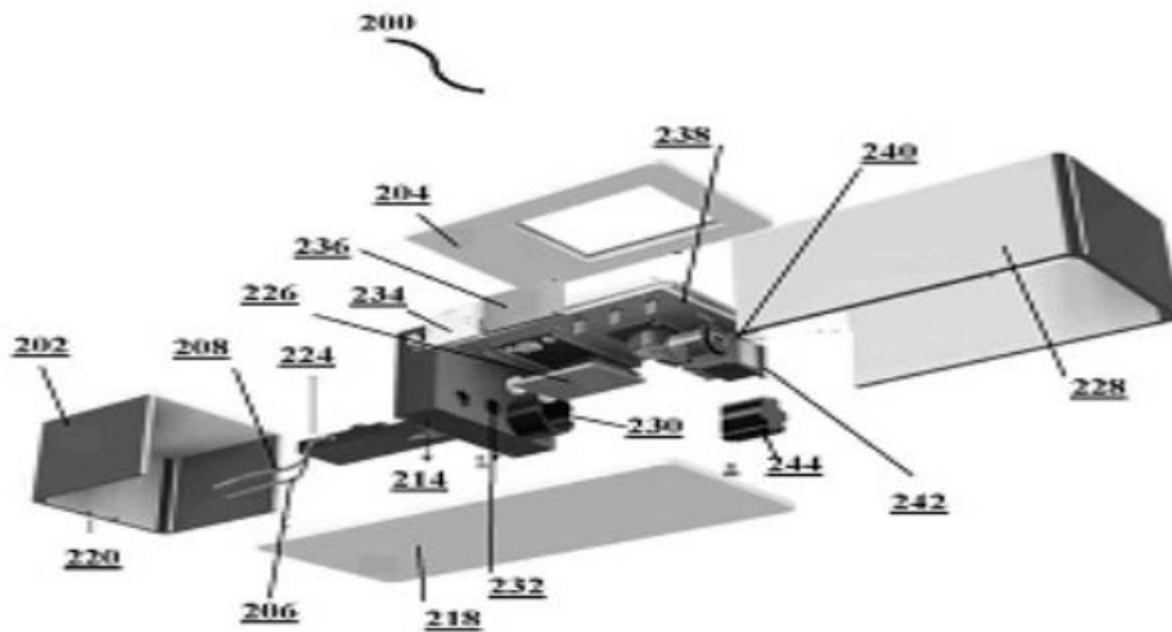


FIG.2C

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202521046626 A

(19) INDIA

(22) Date of filing of Application :14/05/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : MEDICATED WIPES AND PROCESS OF PREPARATION THEREOF

(51) International classification :A61K0036906800, A61K0008979400, A61K0036886000, A61K0036580000, A61K0009000000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

The medicated wipes for treatment of fever, inflammation and providing soothing effect is provided herein. The medicated wipes comprise Sodium Chloride (NaCl), Glycerine, Menthyl succinate, Aloe Vera (Aloe barbadensis), Neem (Azadirachta indica) Extract, and Ginger (Zingiber officinale) extract and one or more pharmaceutically acceptable excipients. The process for preparation of medicated wipes is also provided herein

No. of Pages : 24 No. of Claims : 6

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202521046742 A

(19) INDIA

(22) Date of filing of Application :15/05/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : DEVELOPMENT OF A COBALT-FREE O<sub>2</sub>-STRUCTURED LITHIUM TRANSITION METAL OXIDE CATHODE FOR LITHIUM-ION BATTERY

|                                                                                                   |     |                                                                                                                                                                                           |
|---------------------------------------------------------------------------------------------------|-----|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (51) International classification :H01M4/52, C01G53/00, C30B1/02, C30B29/22, H01M4/505, H01M4/525 |     | (71)Name of Applicant :<br><b>1)INDIAN INSTITUTE OF TECHNOLOGY BOMBAY</b><br>Address of Applicant :Powai, Mumbai - 400076, Maharashtra, India Mumbai --<br>-----                          |
| (86) International Application No                                                                 | :NA | <b>Name of Applicant : NA</b>                                                                                                                                                             |
| Filing Date                                                                                       | :NA | <b>Address of Applicant : NA</b>                                                                                                                                                          |
| (87) International Publication No:                                                                | NA  | (72)Name of Inventor :                                                                                                                                                                    |
| (61) Patent of Addition to Application Number                                                     | :NA | <b>1)DAS, Arpita</b><br>Address of Applicant :Hostel 11, Indian Institute of Technology Bombay, Powai, Mumbai 400076, Maharashtra, India Mumbai -----                                     |
| Filing Date                                                                                       | :NA | <b>2)KUMAR, Bachu Sravan</b><br>Address of Applicant :House No: 6-104/2, Opposite SBI, Raghunathapally 506244, Jangoan, Telangana, India Raghunathapally -----                            |
| (62) Divisional to Application Number                                                             | :NA | <b>3)MUKHOPADHYAY, Amartya</b><br>Address of Applicant :Advanced Ceramics and Batteries Lab, Indian Institute of Technology Bombay, Powai, Mumbai 400076, Maharashtra, India Mumbai ----- |
| Filing Date                                                                                       | :NA | -----                                                                                                                                                                                     |

(57) Abstract :

The present invention provides a cobalt-free O<sub>2</sub>-structured 'layered' lithium transition metal (TM) oxide cathode material, having a composition of Li<sub>0.74</sub>Ni<sub>0.22</sub>Mn<sub>0.66</sub>Mg<sub>0.02</sub>O<sub>2</sub>, which is synthesized via spontaneous chemical ion-exchange. In this process, Na<sup>+</sup> ions from a high Na-containing P2-structured Na-TM-oxide (Na<sub>0.84</sub>Ni<sub>0.22</sub>Li<sub>0.04</sub>Mn<sub>0.66</sub>Mg<sub>0.02</sub>O<sub>2</sub>) are replaced by Li<sup>+</sup> ions, as supplied by a Li-containing electrolyte, resulting in the formation of the desired O<sub>2</sub>-structured Li-TM-oxide cathode material. This composition is achieved without any externally applied potential, and bestows high structural stability, excellent electrochemical reversibility, and enhanced capacity retention upon being subjected to multiple charge/discharge cycles, while eliminating the reliance on cobalt and mitigating issues associated with transition metal migration to the Li-layer (i.e., 'cation mixing').

No. of Pages : 20 No. of Claims : 16

|                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>(51) International classification :A61B0005000000, G16H0050200000, A61B0005369000, A61B0005160000, G16H0050300000</p> <p>(86) International Application No :NA<br/>Filing Date :NA</p> <p>(87) International Publication No : NA</p> <p>(61) Patent of Addition to Application Number :NA<br/>Filing Date :NA</p> <p>(62) Divisional to Application Number :NA<br/>Filing Date :NA</p> | <p>(71)Name of Applicant :<br/>1)Prof. Ketan Sarvakar<br/>Address of Applicant :Research Scholar, Gujarat Technological University, Ahmedabad, Gujarat, India, PIN - 382424. Ahmedabad -----</p> <p>2)Dr. Kaushik Rana<br/>3)Prof. Dolly Prajapati<br/>4)Dr. Paresh Solanki<br/>5)Dr. Hemang Jani<br/>6)Dr. Keyur Jani<br/>7)Prof. Urmila Patel<br/>8)Prof. Hiteshri Modi<br/>9)Prof. Bhavisha Suthar<br/>10)Prof. Vidhi Chaudhary<br/>Name of Applicant : NA<br/>Address of Applicant : NA</p> <p>(72)Name of Inventor :<br/>1)Prof. Ketan Sarvakar<br/>Address of Applicant :Research Scholar, Gujarat Technological University, Ahmedabad, Gujarat, India, PIN - 382424. Ahmedabad -----</p> <p>2)Dr. Kaushik Rana<br/>Address of Applicant :Associate Professor, Gujarat Technological University, Ahmedabad, Gujarat, India, PIN - 382424. Ahmedabad -----</p> <p>3)Prof. Dolly Prajapati<br/>Address of Applicant :Assistant Professor, Ganpat University, Ganpat Vidyanagar, Mehsana-Gandhinagar Highway, North Gujarat, INDIA, PO - 384012. Mehsana -----</p> <p>4)Dr. Paresh Solanki<br/>Address of Applicant :Associate Professor, Ganpat University, Ganpat Vidyanagar, Mehsana-Gandhinagar Highway, North Gujarat, INDIA, PO - 384012. Mehsana -----</p> <p>5)Dr. Hemang Jani<br/>Address of Applicant :Professor, Ganpat University, Ganpat Vidyanagar, Mehsana-Gandhinagar Highway, North Gujarat, INDIA, PO - 384012. Mehsana -----</p> <p>6)Dr. Keyur Jani<br/>Address of Applicant :Lecturer, Information Technology Department, Government Polytechnic Gandhinagar, Gujarat Technological University, Ahmedabad, Gujarat, India - 384012. Ahmedabad -----</p> <p>7)Prof. Urmila Patel<br/>Address of Applicant :Assistant Professor, Ganpat University, Ganpat Vidyanagar, Mehsana-Gandhinagar Highway, North Gujarat, INDIA, PO - 384012. Mehsana -----</p> <p>8)Prof. Hiteshri Modi<br/>Address of Applicant :Assistant Professor, Ganpat University, Ganpat Vidyanagar, Mehsana-Gandhinagar Highway, North Gujarat, INDIA, PO - 384012. Mehsana -----</p> <p>9)Prof. Bhavisha Suthar<br/>Address of Applicant :Assistant Professor, Ganpat University, Ganpat Vidyanagar, Mehsana-Gandhinagar Highway, North Gujarat, INDIA, PO - 384012. Mehsana -----</p> <p>10)Prof. Vidhi Chaudhary<br/>Address of Applicant :Assistant Professor, Ganpat University, Ganpat Vidyanagar, Mehsana-Gandhinagar Highway, North Gujarat, INDIA, PO - 384012. Mehsana -----</p> |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

## (57) Abstract :

Sensing human emotions is a paramount subject in areas ranging from human computer interaction (HCI), mental health care, education, and even marketing. An automated and objective, and possibly real-time approach to emotion recognition brings forth the "IoT based System for Detecting Human Emotions Through Deep Neural Network Models" this invention focuses on. Unlike traditional methods which focus on using expert observation or self-reports, this approach employs real-time emotion detection through a multi-modal neurophysiologic interrogation powered by artificial intelligence. The primary approach revolves around monitoring numerous sources of data to give a complete representation of the user's affective state. Physiological data is gathered using wearable sensors, including an electroencephalogram (EEG) headset which captures brain electrical activity patterns involved in cognitive and emotional processes, as well as a wrist heart rate sensor with blood vessel contractions correlating to arousal levels. A machine vision component using a camera equipped with recognition algorithms also monitors facial expression, potent indicators of emotion. With the use of Bluetooth, heterogeneous data streams will be collected and aggregated by a microcontroller unit along with initial feature extraction synchronized through local processing. Using principles from the IoT, the data collected is sent through a network infrastructure to a remote server. The wireless transfer utilizes standard protocols like Wi-Fi. The server contains the core intelligent of the system and contains an ensemble Deep Neural Network (DNN). The DNN undergoes training with vast datasets which incorporates EEG, heart rate, and facial expression data, enabling deep understanding and identification of correlations and patterns within the data. With these multimodal inputs, the DNN adeptly classifies what the user's emotion is (happy, sad, angered, surprised,neutral). This constitutes a single integrated system which incorporates assessment and monitoring on a single non-invasive framework and further enhances the accuracy both enable through higher precision contributed with multiple data gather sensor modalities. From having an assessment and therapy tool for mental health, adaptive interfaces that gauge user satisfaction in real time, foresightedness in driver safety applications through monitoring alertness and stress, as well as gaining deeper insights into consumer behavior, integrate vast potential application Monito. The utility of this IoT-DNN framework marks a significant advancement towards fully effortless and objective understanding of a user's automated emotion in various real-world settings.

No. of Pages : 8 No. of Claims : 10

(51) International classification :A61B0005110000, A61B0005000000, G06F0003010000, A61B0005160000, A63B0071060000

(86) International Application No :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA

(62) Divisional to Application Number :NA

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(57) Abstract :  
ABSTRACT AN AUTOMATIC GYM POSITION TRACKING SYSTEM Described herein a method for providing feedback on the gesture of a user while performing a pre-defined activity in real time. The method comprising: observing the movement of a user by one or more cameras; detecting the pre-defined activity of the user in real time on the basis of the observed movement by the one or more cameras; fetching one or more body landmarks of the user according to the detected activity by a controller; capturing one or more positions of the user in real time while performing a pre-defined activity by the one or more cameras; preparing a complete posture for each position by connecting all the landmarks for the pre-defined activity; and providing visual feedback to the user to correct the posture of the user for the pre-defined activity in real time. Refer Figure 1

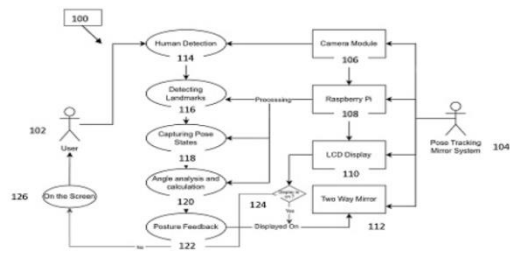


Figure 1

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :24/05/2025

(21) Application No.202521050170 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : PORTABLE EDGE INTELLIGENCE CAMERA UNIT FOR AUTOMATED EMOTION DETECTION USING CNN FOR SENTIMENT ANALYSIS

(51) International classification :G06N3/08, G06V40/16, G06V10/82  
(86) International Application No :NA  
Filing Date :NA  
(87) International Publication No : NA  
(61) Patent of Addition to Application Number :NA  
Filing Date :NA  
(62) Divisional to Application Number :NA  
Filing Date :NA

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**5)PROF. RAVI RAVAL**  
**6)PROF. KAVINDRA PATEL**  
**7)PROF. YOGESH PRAJAPATI**  
**8)PROF. CHIRAG GAMI**  
**9)PROF. HIMANSHU PATEL**  
**10)PROF. AMIT SOLANKI**  
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(57) Abstract :

The growing requirement for real-time comprehension of human emotional states in a range of areas including human-computer interaction, market research, healthcare maintenance and driver safety imposes efficient and user-friendly analytics tools. Conventional methods frequently rely on cloud-based processing, which may suffer from latency and become bandwidth consuming (especially considering streaming sensors). Widespread concerns of data privacy would be another issue when heavy sensitive biometric information (such as facial image) is inferred. To address these limitations, this paper introduces a Portable Edge Intelligence Camera Unit, designed for automatic in-device emotion detection and sentiment analysis. This portable stand alone system combines critical hardware and software in a compact stand alone package. At the core of its functionality, there is a built-in camera that takes pictures of faces or videos. This visual information is processed by an inner edge computing device that resides inside a base enclosure. It features a powerful Convolutional Neural Network (CNN) pre-trained on facial expression recognition and is capable of classifying emotions such as happiness, sadness, anger, and neutrality. The enclosure houses the required memory and storage for the OS, app, and AI model as well. User is shown the results in real-time on the integrated screen with the live camera feed, highlighted detected faces and categorized emotion classification, giving user instant feedback in terms of sentiments. Condition indicator LED light can tell you the working condition of the device. A USB data port allows you to connect the logger to the data logger for data logging or model updates and it is powered via a dedicated power input for use as a standalone model. With all computation being executed on-device (edge intelligence) the system drastically reduces latency and limits bandwidth needs, while turning user's privacy, since there's no longer a necessity to send out sensitive image data outside the unit for analysis. This mobile camera unit provides a practical, efficient and privacy aware means to deploy advanced emotion detection abilities in real world, real time settings that require timely local sentiment analysis.

No. of Pages : 8 No. of Claims : 10

(54) Title of the invention : IRIS RECOGNITION SYSTEM WITH INTEGRATED BLACK WIDOW OPTIMIZATION AND CONVOLUTIONAL NEURAL NETWORK (CNN)

|                                               |                                                                                       |                         |                                                                                              |
|-----------------------------------------------|---------------------------------------------------------------------------------------|-------------------------|----------------------------------------------------------------------------------------------|
| (51) International classification             | :G06V10/54, G06K9/20, G06F21/32, G06N3/08, G06N3/0464, G06V10/54, G06K9/20, G06F21/32 | (71)Name of Applicant : | 1)DESHMUKH, Swati Shirke                                                                     |
| (86) International Application No             | :NA                                                                                   | Address of Applicant :  | Pimpri Chinchwad University, Pune- 412106, Maharashtra, India Pune -----                     |
| Filing Date                                   | :NA                                                                                   | Name of Applicant :     | NA                                                                                           |
| (87) International Publication No             | : NA                                                                                  | Address of Applicant :  | NA                                                                                           |
| (61) Patent of Addition to Application Number | :NA                                                                                   | (72)Name of Inventor :  | 1)DESHMUKH, Swati Shirke                                                                     |
| Filing Date                                   | :NA                                                                                   | Address of Applicant :  | Pimpri Chinchwad University, Pune- 412106, Maharashtra, India Pune -----                     |
| (62) Divisional to Application Number         | :NA                                                                                   | 2)DESHPANDE, Vivek      |                                                                                              |
| Filing Date                                   | :NA                                                                                   | Address of Applicant :  | Vishwakarma Institute of Information Technology, Pune- 411048, Maharashtra, India Pune ----- |

(57) Abstract :

ABSTRACT IRIS RECOGNITION SYSTEM WITH INTEGRATED BLACK WIDOW OPTIMIZATION AND CONVOLUTIONAL NEURAL NETWORK (CNN)

An iris recognition system comprises a camera (102) capturing an eye image, an image processor receiving the captured image, and a memory storing iris recognition software and templates. The system includes a preprocessing module (108) isolating and normalizing an iris region using a Hough Transform, a feature extraction module (110) implementing a ScaT-LOOP process integrating scattering transforms, tetralet transforms, and Local Optimal Oriented Pattern descriptors, and a classification module (112) using a Black Widow-optimized Convolutional Neural Network (BW-CNN) framework. A display device outputs recognition results, while a communication interface transmits results to external systems. The BW-CNN framework comprises multiple convolutional layers optimized by a Black Widow Optimization algorithm. The ScaT-LOOP process generates and combines multiple descriptor outputs to produce a final feature representation. The system implements an end-to-end optimization approach, jointly optimizing preprocessing, feature extraction, and classification stages to improve recognition performance across diverse image capture conditions. Figure 1

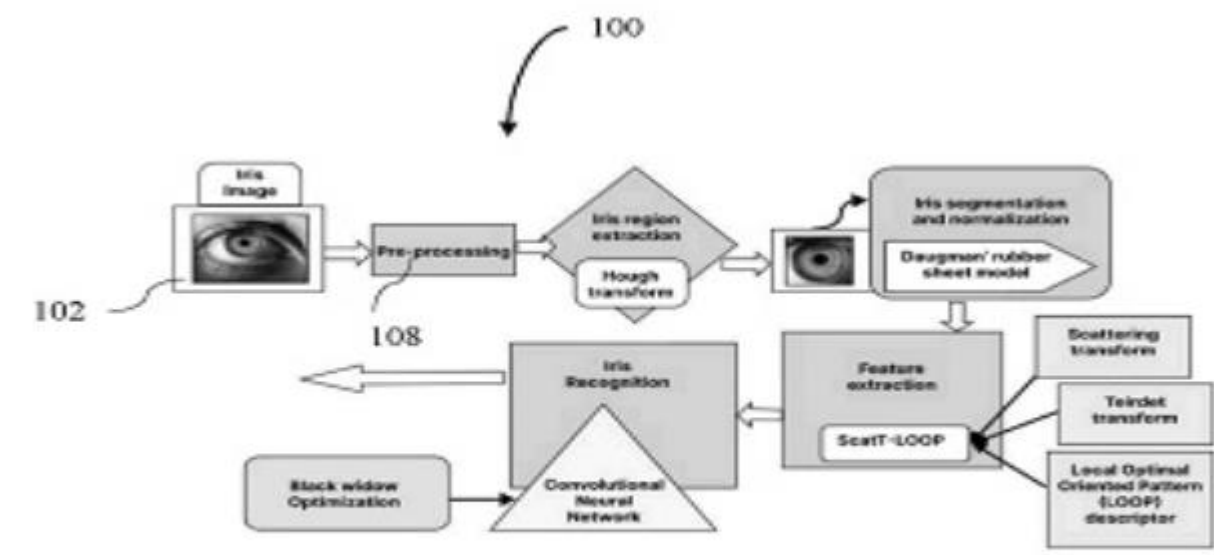
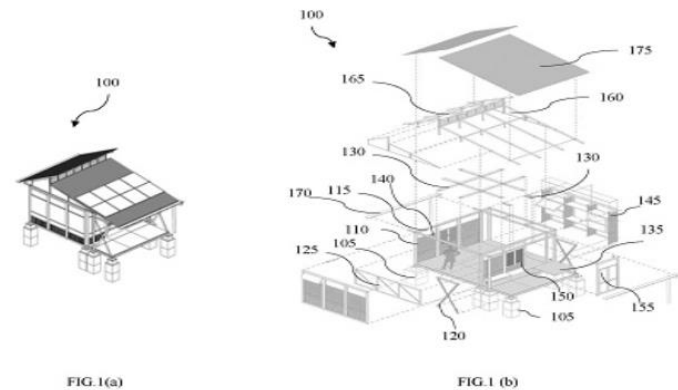


Figure 1

(54) Title of the invention : A TEMPORARY HOUSING ASSEMBLY FOR MULTI-FUNCTIONAL SPACES AND A METHOD THEREOF

|                                               |                                                                                 |                                                                                                                                                                                 |
|-----------------------------------------------|---------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (51) International classification             | :E04F0013080000, E04B0001343000, E04H0001120000, E04H0001020000, E04B0001240000 | (71)Name of Applicant :<br>1)MUSTANSIR DALVI<br>Address of Applicant :C1301, PRAJAPATI ORNATE, SECTOR 10, NEW PANVEL, NAVI MUMBAI, MAHARASHTRA- 410206, INDIA NAVI MUMBAI ----- |
| (86) International Application No             | :NA                                                                             | 2)SIDDHI HINDALKAR                                                                                                                                                              |
| Filing Date                                   | :NA                                                                             | Name of Applicant : NA                                                                                                                                                          |
| (87) International Publication No             | : NA                                                                            | Address of Applicant : NA                                                                                                                                                       |
| (61) Patent of Addition to Application Number | :NA                                                                             | (72)Name of Inventor :                                                                                                                                                          |
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|                                               |                                                                                 | -                                                                                                                                                                               |

(57) Abstract :  
A temporary housing assembly (100) for multi-functional spaces is disclosed. A footing assembly including a plurality of pre-cast footings (105) to provide a stable foundation. A plurality of structural chassis provides a structural framework and forming a reconfigurable, extendable, habitable, dismantlable, and transportable housing structure, adaptable for a plurality of configurations and relocations. A flooring assembly including a plurality of floor beams (130) and a plurality of floorboard panels (135). A wall assembly includes a plurality of wall, a plurality of window cassettes (150) and a plurality of door cassettes (155). A supplementary accessories assembly a plurality of shading panels (140) and a demountable step assembly. A roofing assembly includes a plurality of mosquito nets (160), a plurality of supporting roofing frames (165), and a rainwater gutter (170). A corrugated fiber cement sheet (175) provides durability and weather resistance. FIG. 1(a) and FIG. 1(b)



No. of Pages : 43 No. of Claims : 8



(12) PATENT APPLICATION PUBLICATION

(21) Application No.202521051221 A

(19) INDIA

(22) Date of filing of Application :28/05/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : PRODUCTION OF ALUMINIUM BY REDUCTION OF ALUMINIUM CHLORIDE BY USING METALLIC IRON AS REDUCING AGENT & RECOVERY OF METALLIC IRON

|                                               |  |                                                                                 |                                                                                                                          |
|-----------------------------------------------|--|---------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|
| (51) International classification             |  | :C21B0013000000, C25C0003120000, C02F0001700000, C25C0003160000, C22B0034120000 | (71)Name of Applicant :                                                                                                  |
| (86) International Application No             |  | :NA                                                                             | 1)MRS. KULKARNI NISHA SHREEKANT                                                                                          |
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| (87) International Publication No             |  | : NA                                                                            | -----                                                                                                                    |
| (61) Patent of Addition to Application Number |  | :NA                                                                             | 2)KULKARNI SHREEKANT DHUNDIRAJ                                                                                           |
| Filing Date                                   |  | :NA                                                                             | Name of Applicant : NA                                                                                                   |
| (62) Divisional to Application Number         |  | :NA                                                                             | Address of Applicant : NA                                                                                                |
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(57) Abstract :

Aluminium Metal can be extracted from virtually any resource of aluminium by the process of Thermo-Chemical Reduction of Aluminium Chloride by Pure Metalluc Iron produced by electrolysis of Molten Ferric Chloride.

No. of Pages : 15 No. of Claims : 8

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202521051231 A

(19) INDIA

(22) Date of filing of Application :28/05/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : 'DEVELOPMENT OF TWO STAGE ACID REGENERATION PLANT FOR MANUFACTURING TITANIUM DIOXIDE FEED STOCK (85 TO 95% TIO<sub>2</sub>) ALONG WITH SEPARATION OF OXIDES OF ALUMINIUM, IRON, VANADIUM & RARE EARTH ELEMENTS FROM BAUXITE RESIDUE (RED MUD) & LATERITIC BAUXITE ORES'

|                                               |                                                                                 |                                                                                                                                                                                                   |
|-----------------------------------------------|---------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (51) International classification             | :C22B0034120000, C02F0101100000, B01J0037000000, C22B0021000000, B01J0023220000 | (71)Name of Applicant :<br><b>1)KULKARNI NISHA SHREEKANT</b><br>Address of Applicant :11/B, PANDURANG KRUPA PATIL COMPOUND, ALMEDA ROAD, THANE (W)-400 601, MAHARASHTRA, INDIA. ----- --<br>----- |
| (86) International Application No             | :NA                                                                             | <b>2)KULKARNI SHREEKANT DHUNDIRAJ</b>                                                                                                                                                             |
| Filing Date                                   | :NA                                                                             | Name of Applicant : NA                                                                                                                                                                            |
| (87) International Publication No             | : NA                                                                            | Address of Applicant : NA                                                                                                                                                                         |
| (61) Patent of Addition to Application Number | :NA                                                                             | (72)Name of Inventor :                                                                                                                                                                            |
| Filing Date                                   | :NA                                                                             | <b>1)KULKARNI NISHA SHREEKANT</b>                                                                                                                                                                 |
| (62) Divisional to Application Number         | :NA                                                                             | Address of Applicant :11/B, PANDURANG KRUPA PATIL COMPOUND, ALMEDA ROAD, THANE (W)-400 601, MAHARASHTRA, INDIA. ----- --<br>-----                                                                 |
| Filing Date                                   | :NA                                                                             | <b>2)KULKARNI SHREEKANT DHUNDIRAJ</b>                                                                                                                                                             |
|                                               |                                                                                 | Address of Applicant :11/B, PANDURANG KRUPA PATIL COMPOUND, ALMEDA ROAD, THANE (W)-400 601, MAHARASHTRA, INDIA. ----- --<br>-----                                                                 |

(57) Abstract :

The pure Alumina (Al<sub>2</sub>O<sub>3</sub>) as well as the valuable oxides like TiO<sub>2</sub>, Fe<sub>2</sub>O<sub>3</sub> Rare Earth Oxides (REOs), Ga<sub>2</sub>O<sub>3</sub>, SiO<sub>2</sub> etc. can be extracted from Red Mud as well as the bauxites & other sources, can be recovered efficiently & economically by this process of

No. of Pages : 13 No. of Claims : 5

(54) Title of the invention : SELF- CLEANING SOLAR PANEL SYSTEM USING BIODEGRADABLE NANOCOATINGS FOR ENHANCED EFFICIENCY

|                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (51) International classification :B82Y99/00, C09D5/00<br>(86) International Application No :NA<br>Filing Date :NA<br>(87) International Publication No : NA<br>(61) Patent of Addition to Application Number :NA<br>Filing Date :NA<br>(62) Divisional to Application Number :NA<br>Filing Date :NA | (71)Name of Applicant :<br><b>1)Dr. Pawan Devidas Meshram</b><br>Address of Applicant :University Institute of Chemical Technology, KBC North Maharashtra University, Jalgaon, India - 425001. Jalgaon -----<br><b>2)Dr. Rohit Srivastava</b><br><b>3)RVS Praveen</b><br><b>4)Dr. Aloke Verma</b><br><b>5)S.V. Lakshmi</b><br><b>6)Dr. Rajashree Mohapatra</b><br><b>7)Dr. Amit Kumar Chaturvedi</b><br><b>8)Dr Pritam Kumar Singh</b><br><b>9)Dr. Raj Kumar Gupta</b><br><b>10)Anvesh Perada</b><br><b>11)Dr.Karunamoorthy.B</b><br><b>12)Kaushal Kishore</b><br>Name of Applicant : NA<br>Address of Applicant : NA<br>(72)Name of Inventor :<br><b>1)Dr. Pawan Devidas Meshram</b><br>Address of Applicant :University Institute of Chemical Technology, KBC North Maharashtra University, Jalgaon, India - 425001. Jalgaon -----<br><b>2)Dr. Rohit Srivastava</b><br>Address of Applicant :Associate Professor, Department of Chemistry, St. Andrew's College, Gorakhpur, Uttar Pradesh, India - 273012. Gorakhpur -----<br><b>3)RVS Praveen</b><br>Address of Applicant :Director/ Digital Engineering and Assurance, LTIMindtree, Houston, Fort Bend, Texas, United States of America - 77478. -----<br><b>4)Dr. Aloke Verma</b><br>Address of Applicant :Assistant Professor & Head, Department of Physics, Kalinga University, Village Kotni, Near Naya Mantralaya, Atal Nagar, Naya Raipur (CG), Chhattisgarh, India - 492101. Naya Raipur -----<br><b>5)S.V. Lakshmi</b><br>Address of Applicant :Assistant Professor, Department of Electronics and Communication Engineering, SNS College of Technology, Coimbatore, Tamilnadu, India - 641035. Coimbatore -----<br><b>6)Dr. Rajashree Mohapatra</b><br>Address of Applicant :Vice Principal DU Public School, Chandikhole, Jaipur, Odisha - 754296. Jaipur -----<br><b>7)Dr. Amit Kumar Chaturvedi</b><br>Address of Applicant :Researcher, Department of Chemistry, Dr. C. V. Raman University, Kota, Bilaspur (C.G.) Chhattisgarh, India - 495113. Kota -----<br><b>8)Dr Pritam Kumar Singh</b><br>Address of Applicant :Assistant Professor, Department of Physics, Degree College Tundi ( Binod Bihari Mahto Koyalanchal University, Dhanbad), Jharkhand, India - 828109. Dhanbad -----<br><b>9)Dr. Raj Kumar Gupta</b><br>Address of Applicant :Senior Assistant Professor, Department of Physics, Sardar Vallabhbhai Patel College, Bhabhua (VKSU, Ara, Bihar), Kaimur, India - 821101. Bhabhua -----<br><b>10)Anvesh Perada</b><br>Address of Applicant :Department of Electrical and Computer Engineering, Drexel University, Philadelphia, Pennsylvania, United States of America - 19104. -----<br><b>11)Dr.Karunamoorthy.B</b><br>Address of Applicant :Associate Professor, EEE Department, Kumaraguru College of Technology, Coimbatore - 641049, Tamilnadu, India. Coimbatore -----<br><b>12)Kaushal Kishore</b><br>Address of Applicant :Assistant Professor, Mechanical Engineering Department, Asansol Engineering College, Asansol, Paschim Burdwan, West Bengal, India - 713305. Asansol - ----- |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

## (57) Abstract :

The present invention relates to the creation of a self-cleaning solar panel technology that uses biodegradable nanocoatings to improve environmental sustainability and energy efficiency. Particularly in arid and dirty areas, dust and particulate deposition on solar panels drastically lowers their energy output. To solve this, we created a biodegradable nanocoating made of environmentally benign polymers and water-and dust-repelling hydrophobic nanoparticles. Standard solar panels were coated, and tests were conducted in real-world settings. The coated panels maintain up to 95% efficiency over time, while their uncoated counterparts see a 20–30% decline. The results show a significant improvement in transmittance and power production. The nanocoating's biodegradable nature guarantees a low ecological impact, supporting green energy objectives. This invention provides an affordable, environmentally friendly way to preserve solar panel efficiency, lessen the need for water and manual cleaning, and encourage solar energy systems to last longer. FIG.1

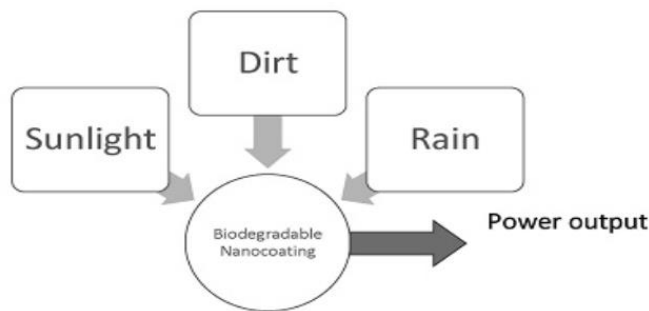


FIG.1.

No. of Pages : 11 No. of Claims : 1

(54) Title of the invention : A METHOD FOR STABILIZING AND REINFORCING SOIL SLOPES

(51) International classification :E02D0029020000, E02D0003000000, G01N0033240000, E02D0003120000, E01C0021000000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

The present invention relates to a method for stabilizing and reinforcing soil slopes. This method involves mixing weak clayey soil with industrial fly ash, a thermal waste byproduct, to improve the soil's shear strength and bearing capacity. The stabilized soil is then reinforced with geogrid layers placed at predefined vertical intervals within the soil mass to prevent tension failure and enhance slope stability. The process allows for the construction of steep slopes, reducing land acquisition requirements and ensuring sustainable use of industrial waste. The invention is particularly suited for heavy load-bearing structures such as roadways, embankments, and transmission tower foundations. Performance is verified through laboratory testing and model plate load tests, demonstrating improved soil strength, reduced failure potential, and enhanced load-bearing capacity. The method is cost-effective, environmentally friendly, and provides a reliable solution for stabilizing weak soil slopes in civil engineering applications.

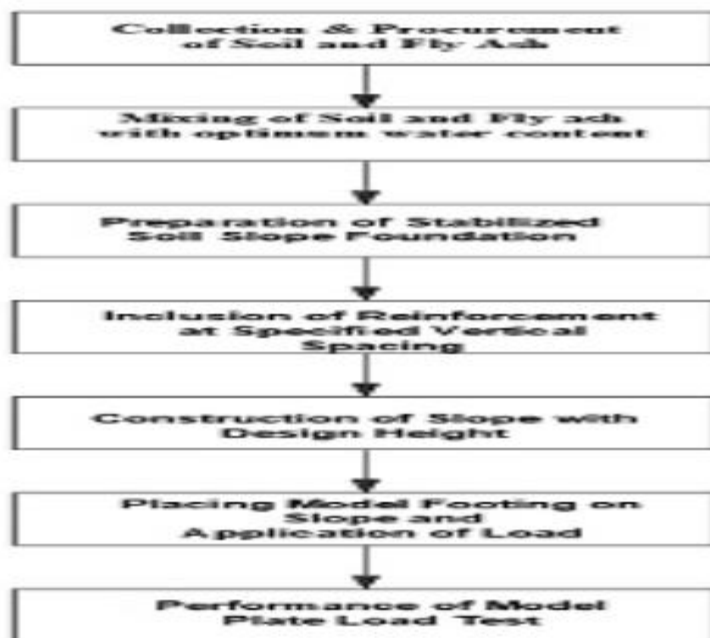


Figure 1

No. of Pages : 13 No. of Claims : 1

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202521053422 A

(19) INDIA

(22) Date of filing of Application :02/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : PC16 MUSIC SYSTEM: A NOVEL AND UNIQUE FREQUENCY-DOUBLING BASED MULTI-OCTAVE MUSIC SYSTEM WITH EQUIDISTANT NOTE LAYOUT FOR MUSIC, THERAPY, RESEARCH, MEDITATION, SENSORS, UNIVERSE, AND ELECTRONICS APPLICATIONS

(51) International classification :C10N0030060000, A61M0021000000, G10H0001000000, A61M0021020000, G10H0001340000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

ABSTRACT OF THE INVENTION PC16 is a novel and unique multi-octave music system spanning from 1 Hz to 64536 Hz, consisting of 209 main frequencies distributed across 13 octaves. Each octave contains 16 equidistant notes in Hz, ensuring a linear frequency step, doubling in range with each octave. The system supports optional microtones for greater resolution, is primarily implemented in software with real-time synthesis and composer functionality, and optionally in hardware with flexible layout and transpose features. Applications include: • Music creation • Integration with Indian Classical Music (ICM) & Western Music. • Emotion-based therapy and healing • Meditation and brainwave alignment • Scientific and frequency-based research • Education in electronics and embedded design • Sensor stimulation and response mapping • Cosmic signal analysis and universe exploration • Generation of sound beyond human audible range (above 20,000 Hz), suitable for experimentation with non-human species like dogs, bats, or dolphins etc. This system is based on a binary progression, making it ideal for engineers and sound designers aiming to explore frequency logic in both audible and inaudible domains.

No. of Pages : 16 No. of Claims : 7

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :17/05/2025

(21) Application No.202521047579 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : WEARABLE HEALTH MONITORING SYSTEM AND METHOD FOR MONITORING HEALTH OF USER

(51) International classification :A61B0005000000, A61B0005110000, A61B0005020500, G16H0040670000, A61B0005021000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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**2)Dr. Harsha Bhute**

**3)Sujal Shrivastav**

**4)Siddhesh Chaudari**

**5)Anand Umbarkar**

Name of Applicant : NA

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(72)Name of Inventor :

**1)Dr. Harsha Bhute**

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**4)Anand Umbarkar**

Address of Applicant :Pimpri Chinchwad College Of Engineering Sector -26, Pradhikaran, Nigdi, Near Akurdi Railway Station, Pune - 411 044 Pune ----- --

(57) Abstract :

ABSTRACT WEARABLE HEALTH MONITORING SYSTEM AND METHOD FOR MONITORING HEALTH OF USER A wearable health monitoring system (100) is provided for real-time detection of health anomalies in a user. The system (100) includes a plurality of sensors (102a–102n) configured to capture various health-related signals, such as physiological and motion data. These sensors (102a–102n) are connected to a processor (104), which receives the input signals and performs analysis to evaluate the user's health status. The processor (104) is designed to identify abnormal activities, such as irregular heart rhythms or sudden movements indicative of a fall, based on the analysed data. Upon detection of such abnormalities, the processor (104) generates an alert signal. An alert unit (106), operatively coupled to the processor (104), responds to this alert signal by issuing a notification. The alert unit (106) may deliver the notification through communication channels such as SMS or mobile applications, thereby enabling timely intervention from caregivers or medical personnel. FIG. 1 is the reference figure.

No. of Pages : 26 No. of Claims : 10

|                                               |                                |                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|-----------------------------------------------|--------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                               |                                | (71)Name of Applicant :<br>1)JAGTAP, Nilesh Hanumant<br>Address of Applicant :Baramati, Pune, Maharashtra, India -----<br>2)PATTNAIK, Swapnajit<br>3)SAHU, Ajay Kumar<br>4)NARANG, Jagendra Kumar<br>Name of Applicant : NA<br>Address of Applicant : NA                                                                                                                                                                                  |
| (51) International classification             | :H02M3/158, H02M3/07, H02M1/14 | (72)Name of Inventor :<br>1)JAGTAP, Nilesh Hanumant<br>Address of Applicant :Baramati, Pune, Maharashtra, India -----<br>2)PATTNAIK, Swapnajit<br>Address of Applicant :Raipur, Chhattisgarh, India -----<br>3)SAHU, Ajay Kumar<br>Address of Applicant :94/A, Sunder Vihar Colony Phase-2, Kurud, Durg, Chhattisgarh, India - 490024 -----<br>4)NARANG, Jagendra Kumar<br>Address of Applicant :Durg, Chhattisgarh, India - 490024 ----- |
| (86) International Application No             | :NA                            |                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Filing Date                                   | :NA                            |                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| (87) International Publication No             | : NA                           |                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| (61) Patent of Addition to Application Number | :NA                            |                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Filing Date                                   | :NA                            |                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| (62) Divisional to Application Number         | :NA                            |                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Filing Date                                   | :NA                            |                                                                                                                                                                                                                                                                                                                                                                                                                                           |

(57) Abstract :

The present invention relates to a non-isolated high-gain DC-DC converter topology that achieves significant voltage step-up without the use of coupled inductors. The converter comprises an electrical source (101), input inductor (102), and primary switch (103) to initiate energy storage. Energy is transferred via auxiliary inductor (104), first capacitor (105), and secondary switch (106). Diodes (107, 111, 112) ensure unidirectional current flow, while intermediate inductor (108) and second capacitor (109) support staged energy transfer. Tertiary switch (110) regulates the final transfer phase. An output capacitor (113) filters the boosted voltage delivered to load resistor (114). The topology enables high voltage gain with moderate duty cycles, mitigating switching stress and improving efficiency (>90%). A common ground configuration enhances control simplicity and EMI reduction. Simulation and hardware validation confirm stable voltage regulation, high power density, and reduced component stress. This converter is ideal for renewable energy, electric vehicles, aerospace, and industrial automation applications requiring efficient high-voltage DC output.

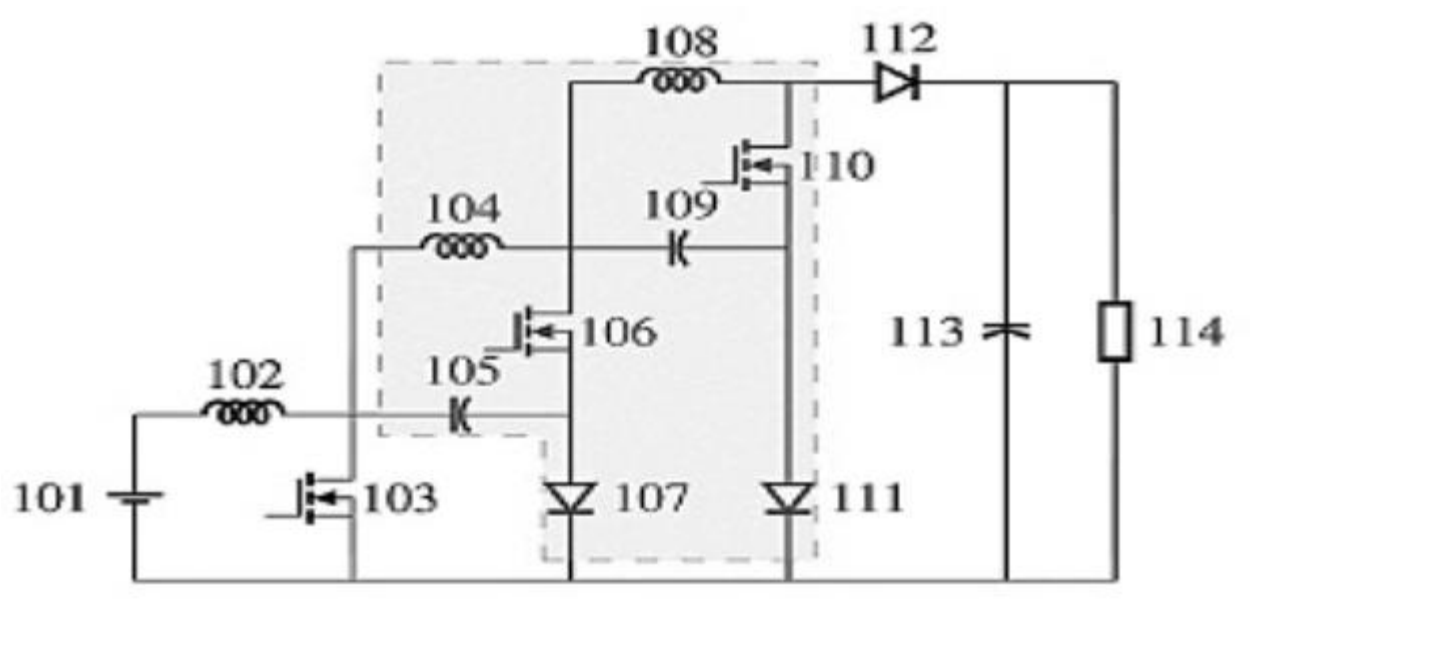
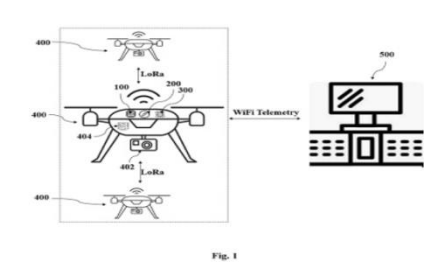


Figure 1

|                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <div>(51) International classification :B64C0039020000, G05D0001000000, B64U0010130000, G01S0019430000, G01S0019070000</div> <div>(86) International Application No :NA<br/>Filing Date :NA</div> <div>(87) International Publication No : NA</div> <div>(61) Patent of Addition to Application Number :NA<br/>Filing Date :NA</div> <div>(62) Divisional to Application Number :NA<br/>Filing Date :NA</div> | <div>(71)Name of Applicant :<br/>1)GOVERNMENT POLYTECHNIC AHMEDABAD<br/>Address of Applicant :Panjrapole, Ambawadi, Ahmedabad-380015, Gujarat, India Ahmedabad -----<br/>2)VAYUNOTICS TECHNOLOGIES PRIVATE LIMITED<br/>Name of Applicant : NA<br/>Address of Applicant : NA<br/>(72)Name of Inventor :<br/>1)PAVAN VERMA<br/>Address of Applicant :Panjrapole, Ambawadi, Ahmedabad-380015, Gujarat, India Ahmedabad -----<br/>2)MITCHELL PRAJAPATI<br/>Address of Applicant :4B Satyam Park, Opposite Municipal Bath, Sabarmati, Ahmedabad-380005, Gujarat, India Sabarmati -----<br/>3)JIMIT JAYSWAL<br/>Address of Applicant :4B Satyam Park, Opposite Municipal Bath, Sabarmati, Ahmedabad-380005, Gujarat, India Sabarmati -----<br/>4)RAJ HAKANI<br/>Address of Applicant :F 302 Avalon Courtyard-1, Near Ghodasar Cross Road, Ghodasar, Ahmedabad-380050, Gujarat, India Ghodasar -----<br/>5)PRADHYUMAN PRAJAPATI<br/>Address of Applicant :50, Mangaldeep Park Society, Near Zeel Residency behind Nigam society, Vatva, Daskroi-382440, Gujarat, India Daskroi -----</div> |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

(57) Abstract :  
Disclosed herein is a system and method for controlling decentralized drone swarm with minimal dependency on ground control station. The system comprises a microcontroller (100) integrated with a RTK GNSS (Real-Time Kinematic Global Navigation Satellite System) module (200) and a digital compass (300) mounted swarming drones in communication with a ground station device (500). The microcontroller (100) is configured to: obtain full state vector values of the drone inbuilt sensors (402); apply a Kalman filter based prediction-correction loop on the obtained vector values to correct inherent sensor errors; compute centimetre-level positioning of each drone with respect to its neighbouring drones based on positioning signals received from the GNSS and positioning correction data received from the ground station device (500); calculate field of view of the drones and an overlapping factor between each drone and its neighbouring drones based on the corresponding field of view values; combining all data associated with the corrected full state vector, the centimetre-level positioning, the overlapping factor, and the digital compass output into a standardized data packet; exchange the data packet among the neighbouring drones through a low power wide area network protocol at a periodic time interval; and feed the exchanged data to a flight controller (404) of the corresponding drone (400) to adjust or set its positioning with velocity and orientation with respect to the neighbouring drones to reach its target waypoint. Fig. 1

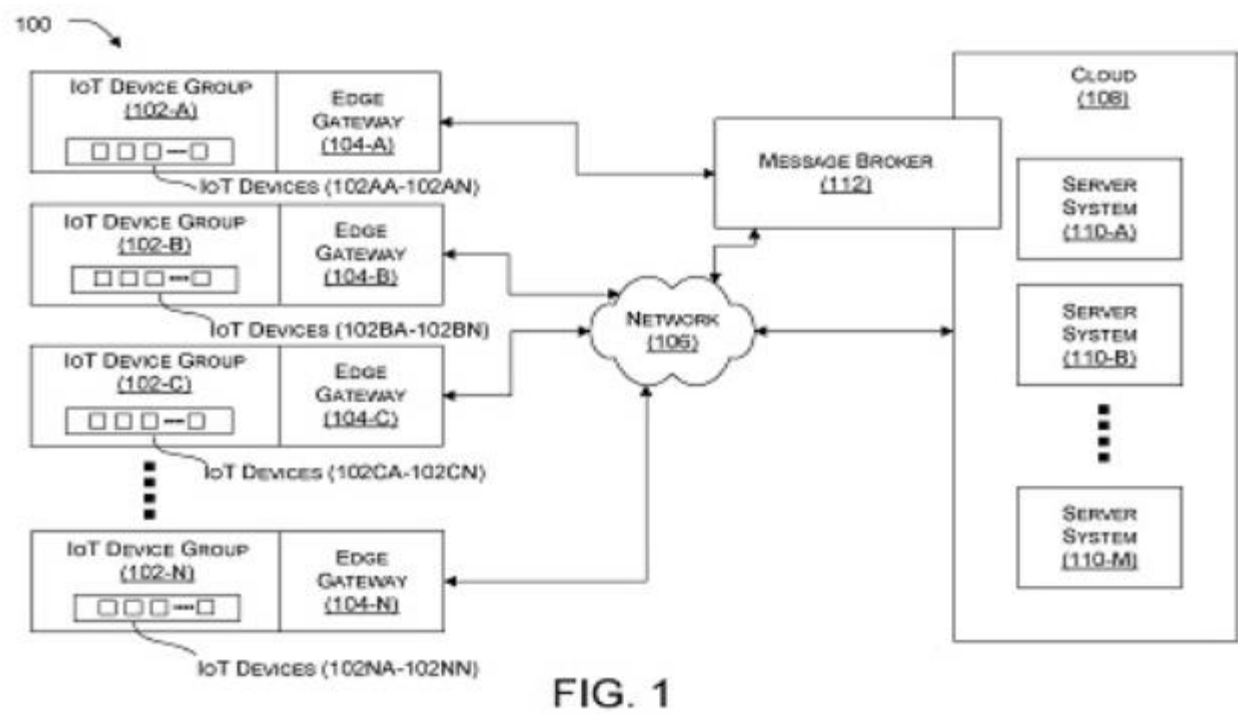




(54) Title of the invention : SYSTEM AND METHOD FOR INTERCONNECTING HETEROGENEOUS IOT ECOSYSTEMS USING A UNIFIED INFRASTRUCTURE

|                                               |                                                                                 |                                                                                                                                                                                                                                      |
|-----------------------------------------------|---------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (51) International classification             | :H04L0067120000, H04L0009400000, H04W0004700000, H04L0041080600, G05B0017020000 | (71)Name of Applicant :<br><b>1)Persei Solutions (OPC) Private Limited</b><br>Address of Applicant :Flat No. 18, Third Floor, Amruta Heights, Near Shiv temple, Dhayari, Sinhgad Road, Pune - 411041, Maharashtra, India. Pune ----- |
| (86) International Application No             | :NA                                                                             |                                                                                                                                                                                                                                      |
| Filing Date                                   | :NA                                                                             |                                                                                                                                                                                                                                      |
| (87) International Publication No             | : NA                                                                            | <b>Name of Applicant : NA</b>                                                                                                                                                                                                        |
| (61) Patent of Addition to Application Number | :NA                                                                             | <b>Address of Applicant : NA</b>                                                                                                                                                                                                     |
| Filing Date                                   | :NA                                                                             | (72)Name of Inventor :<br><b>1)PRABHAVALKAR, Mangesh Arun</b>                                                                                                                                                                        |
| (62) Divisional to Application Number         | :NA                                                                             | Address of Applicant :Flat No. 18, Third Floor, Amruta Heights, Near Shiv temple, Dhayari, Sinhgad Road, Pune - 411041, Maharashtra, India. Pune -----                                                                               |
| Filing Date                                   | :NA                                                                             | --                                                                                                                                                                                                                                   |

(57) Abstract :  
A system (100) and a method (900) for unified interconnection and intelligent coordination of Internet of Things (IoT) devices (102AA–102NN) across multiple device groups (102-A-102-N) is disclosed. The system (100) includes a processor (202) and a memory (204) configured to receive telemetry data from the IoT devices (102AA–102NN), register the devices with secure identities and metadata using a device registry manager (208D), and instantiate corresponding digital twins via a digital twin manager (208A). A rule evaluation engine (208B) determines coordination logic based on orchestration rules and telemetry data. The system (100) maintains synchronization between digital twins and IoT devices, and updates digital twins when devices are offline using a device shadow (704) stored in a cloud (108). The system (100) further includes an artificial intelligence module (604) for anomaly detection (604-A), predictive maintenance (604-B), and optimization (604-C), and may route telemetry data through a message broker (112).



(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :04/06/2025

(21) Application No.202521053939 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : SMART HELMET.

(51) International classification :A42B0003040000, A42B0003060000, A42B0003300000, A42B0003220000, A42B0003120000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
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**6)DR. YASHWANT V. CHAVAN (HOD, E&TC, GOVT. POLYTECHNIC PUNE)**

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(57) Abstract :

The present invention discloses a Smart Helmet system designed to enhance user safety by integrating multiple sensing and control technologies. The helmet incorporates a fingerprint-based biometric sensor for user authentication, an infrared (IR) sensor to confirm helmet usage, an MQ3 alcohol sensor to detect ethanol presence in breath, an ADXL345 accelerometer for accident or fall detection, and a GPS module for real-time location tracking. An ESP32 microcontroller coordinates all components, controlling ignition access, monitoring user behaviour, and triggering emergency alerts when necessary. The system prevents ignition if the helmet is not worn correctly, the rider is intoxicated, or unauthorized access, is detected. In the event of an accident, the system transmits the location to emergency contacts automatically. This integrated, modular safety solution is especially beneficial for two-wheeler users and industrial workers, promoting safer and more responsible behaviour on roads and in hazardous environments. No. of Claims: 05 No. of Pages: 04 No. of Drawings: 04

No. of Pages : 14 No. of Claims : 5

(54) Title of the invention : METHOD OF PREPARING ANATASE-BRONZE MIXED-PHASE TITANIUM DIOXIDE NANOMATERIAL FOR MULTIFUNCTIONAL APPLICATIONS

(51) International classification :B82Y30/00, B82Y40/00, B01J35/45,  
C01G23/047  
(86) International Application No :NA  
Filing Date :NA  
(87) International Publication No : NA  
(61) Patent of Addition to Application :NA  
Number :NA  
Filing Date :NA  
(62) Divisional to Application Number :NA  
Filing Date :NA

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## (57) Abstract :

Disclosed herein is a method for preparing anatase-bronze mixed-phase Titanium Dioxide (TiO<sub>2</sub>) nanomaterial for applications in photocatalysis, electrochemical energy storage, carbon dioxide adsorption, and biomedical activity. The method employs key materials such as titanium (IV) isopropoxide (TTIP) (100), isopropanol (IPA) (200), 0.01-2M aqueous sodium hydroxide (NaOH) solution (300), deionized water (400), and alcohol (isopropanol) (500). The TTIP (100) is dissolved in the IPA (200) at a molar ratio ranging from 1:2 to 1:10 to form a clear precursor solution. The aqueous NaOH solution (300) is mixed into the precursor solution under continuous stirring for 2-4 hours at ambient temperature till precipitate begins to form. The resultant mixture solution is rested for 12-24 hours followed by filtration and repeated washing of the precipitate with the deionized water (400) and the alcohol (500) to remove residual ions and solvents therefrom. Then, the washed precipitate is dried at 60–100°C in an oven followed by calcination at 300–450°C for 2-5 hours to obtain the final nanomaterial with anatase and bronze phase molecular structure (600). Fig. 3

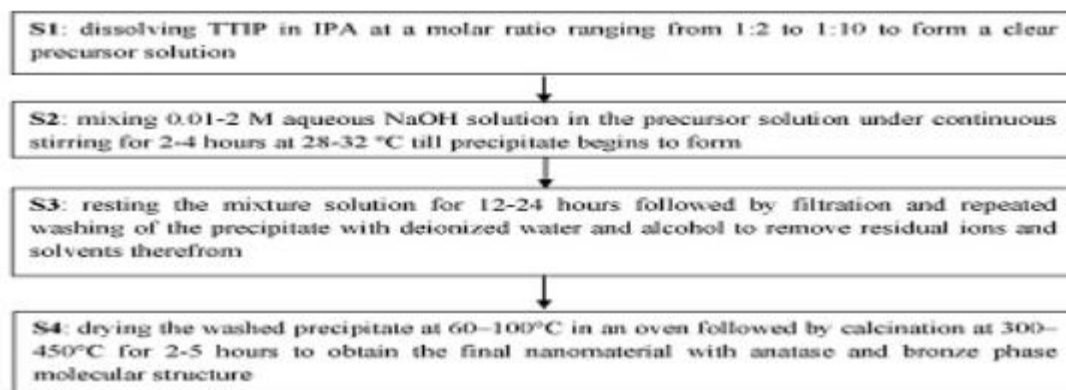


Fig. 3

(54) Title of the invention : A MULTI-WIRE FEEDING ARC ADDITIVE MANUFACTURING METHOD FOR DEPOSITION AND STRESS CONTROL OF A WORKPIECE

(51) International classification :B23K9/04, B22F10/25, B23K9/04, B33Y10/00, B29C64/118, C21D7/06  
 (86) International Application No:NA  
 Filing Date :NA  
 (87) International Publication No : NA  
 (61) Patent of Addition to Application Number :NA  
 Filing Date :NA  
 (62) Divisional to Application Number :NA  
 Filing Date :NA

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## (57) Abstract :

A MULTI-WIRE FEEDING ARC ADDITIVE MANUFACTURING METHOD FOR DEPOSITION AND STRESS CONTROL OF A WORKPIECE The disclosure herein relates to a multi-wire feeding arc additive manufacturing method (200) and a system (100) for performing multi-wire feeding arc additive manufacturing. The method (200) utilizes a multi-wire deposition and processing system (104), a power source (106), and an adaptive voltage control (AVC) system (108) to perform the steps of preheating (202) a surface of substrate or previously deposited layer of material, depositing (204) a layer of material, and sequentially smoothing (206), cooling (208) and pulse peening (210) the deposited layer, and repeating these till the formation of the workpiece. The method reduces residual stress and thermal gradient in the workpiece, minimizes cracking, improves metallurgical bonding, provides workpiece with enhanced surface finish and reduced surface roughness thereby minimizing post-processing needs, and has a higher deposition efficiency and lower build time. Fig. 2

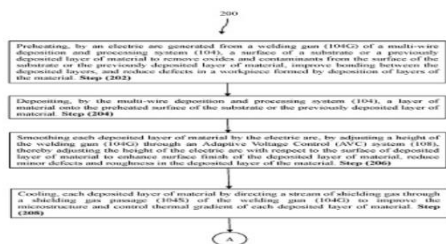


Figure 2

No. of Pages : 23 No. of Claims : 14

(54) Title of the invention : METHOD OF SYNTHESIZING NICKEL COBALT TUNGSTATE THIN COATED ELECTRODES FOR ENERGY STORAGE AND OXYGEN EVOLUTION REACTION APPLICATIONS

(51) International classification :C01G51/00, H01G11/24, H01G11/46, B82Y30/00, B82Y40/00, C01G41/02, C23C16/02  
 (86) International Application No :NA  
 Filing Date :NA  
 (87) International Publication No : NA  
 (61) Patent of Addition to Application Number :NA  
 Filing Date :NA  
 (62) Divisional to Application Number :NA  
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## (57) Abstract :

Abstract A novel method for synthesizing thin coatings of nickel cobalt tungstate on solid surfaces is presented. In this approach, nickel (Ni<sup>2+</sup>) and cobalt (Co<sup>2+</sup>) cations, along with tungsten (WO<sub>4</sub><sup>2-</sup>) anions, are adsorbed onto the substrate through electrostatic interactions. By increasing the number of successive ionic layer adsorption and reaction (SILAR) cycles, the deposited mass of the material grows, ultimately forming adherent coatings. Structural and morphological characterization via X-ray diffraction (XRD) and field emission scanning electron microscopy (FESEM) revealed that the nickel cobalt tungstate coatings exhibit a monoclinic crystal structure and a porous nanosphere-like morphology with random arrangement. The electrochemical performance of the nickel cobalt tungstate-coated electrodes was evaluated using cyclic voltammetry (CV), galvanostatic charge-discharge (GCD), and linear sweep voltammetry (LSV) techniques. The electrodes demonstrated a remarkable specific capacitance of 1627 F g<sup>-1</sup> at a current density of 1 A g<sup>-1</sup>, highlighting their potential for high-performance energy storage applications. Towards the oxygen evolution reaction application, the nickel cobalt tungstate thin coating catalyst exhibits an overpotential of 249 mV at 10 mA cm<sup>-2</sup> current density. The synthesized nickel cobalt tungstate through successive ionic layer adsorption and reaction method is suitable candidate as a cathode in supercapacitor and electrocatalyst in water splitting applications.

No. of Pages : 17 No. of Claims : 4

(54) Title of the invention : BIOMARKERS FOR THE DETECTION OF ANTIBIOTIC-RESISTANT BACTERIAL INFECTIONS DERIVED NEUROLOGICAL DEFORMITIES

|                                               |                                                                                 |                                                                                                                                                                                                                                                   |
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| (87) International Publication No             | : NA                                                                            |                                                                                                                                                                                                                                                   |
| (61) Patent of Addition to Application Number | :NA                                                                             |                                                                                                                                                                                                                                                   |
| Filing Date                                   | :NA                                                                             |                                                                                                                                                                                                                                                   |
| (62) Divisional to Application Number         | :NA                                                                             |                                                                                                                                                                                                                                                   |
| Filing Date                                   | :NA                                                                             |                                                                                                                                                                                                                                                   |

(57) Abstract :  
ABSTRACT BIOMARKERS FOR THE DETECTION OF ANTIBIOTIC-RESISTANT BACTERIAL INFECTIONS DERIVED NEUROLOGICAL DEFORMITIES  
This invention relates to the domain of biomedical diagnostics and prognostics, with a specific emphasis on multi-omics-based risk stratification of neurological disorders associated with antibiotic resistance gut bacterial infections. The approach leverages a systems biology framework that integrates lipidomics, metabolomics, immunoprofiling, and advanced bioinformatics pipelines to characterize molecular perturbations along the gut-brain axis. The technological platform encompasses the development of point-of-care diagnostic tools, and the cross-fluid biomarker interrogation of clinically relevant analytes derived from blood, cerebrospinal fluid, and saliva. By enabling high-resolution, multi-parametric profiling, this invention facilitates personalized medicine applications, particularly for the early detection, monitoring, and prognosis of multidrug resistant infection associated neurological phenotypes, including but not limited to neurodegenerative and neuroinflammatory conditions. The invention situates itself at the intersection of translational omics technologies and precision healthcare diagnostics.

No. of Pages : 36 No. of Claims : 8

(54) Title of the invention : SYSTEM AND METHOD FOR REMOTE CONTROL OF APPLIANCES

(51) International classification

:H04W4/80, G10L15/22, G05B15/02, H04L12/28

(86) International Application No

:NA

Filing Date

:NA

(87) International Publication No

: NA

(61) Patent of Addition to Application Number

:NA

Filing Date

:NA

(62) Divisional to Application Number

:NA

Filing Date

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(57) Abstract :  
Embodiments of the present disclosure relate to a system (100) and a method (400) for remote control of appliances. Configured for retrofit installation, the system (100) fits behind existing switchboards without structural changes. The system (100) features customizable and replaceable relay switches (106) for controlling appliances. With built-in voice control, the system (100) eliminates the need for third-party speakers, providing offline and online voice command functionality. Supporting both Wi-Fi and Bluetooth Low Energy (BLE), the system (100) integrates wired and wireless devices, including legacy appliances with IR remotes. Users can operate the system (100) via a smartphone app (114), voice commands, or traditional wall switches, catering to all preferences. The modular configuration of the system (100) promotes sustainability, offering flexibility, easy upgrades, and compatibility with diverse smart home setups for a convenient, cost-effective automation solution.

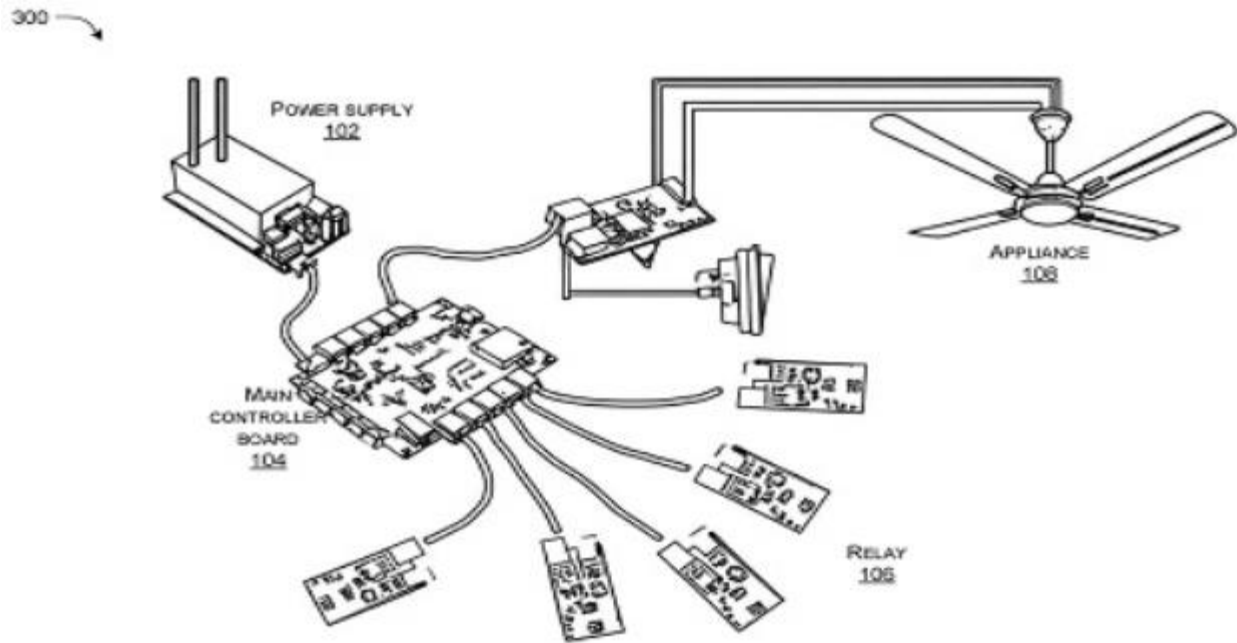


FIG. 3

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202521054463 A

(19) INDIA

(22) Date of filing of Application :05/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : SMART ROBOTIC AYURVEDIC DISPENSER WITH AI-BASED DOSHA DIAGNOSIS FOR RURAL USE

(51) International classification :A61B0005000000, A61B0005024000, G16H0010600000, A61B0005053300, G06F0021320000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

Smart Robotic Ayurvedic Dispenser with AI-Based Dosha Diagnosis for Rural Use This invention describes an artificial intelligence-enabled, portable, solar-powered robotic apparatus for individualized Ayurvedic diagnosis and automated herbal medicine dispensing. The system integrates biofeedback-based Naadi analysis using photoplethysmogram (PPG), electrocardiogram (ECG), and galvanic skin response (GSR) sensors to determine the user's dosha profile. A vernacular natural language processing (NLP) module captures symptom inputs through voice interaction. An embedded AI engine synthesizes physiological and linguistic data to infer dosha imbalances and selects corresponding Ayurvedic formulations. A robotic dispensing subsystem retrieves and prepares the prescribed medicine from RFID-tagged, temperature-controlled containers, delivering it in capsule, lepa, decoction, or oil form. The system includes biometric authentication, Aadhaar integration, AES-256 encrypted health record management, and operates autonomously in offline, resource-limited settings using a solar-charged battery. The invention ensures hygienic, standardized, and context-aware Ayurvedic healthcare delivery in underserved geographies, combining traditional diagnostics with advanced automation, AI inference, and secure digital health infrastructure.

No. of Pages : 29 No. of Claims : 10



(54) Title of the invention : A WICK MESH GLAUCOMA DRAINAGE DEVICE

|                                                                                                                                                                                                                                                                                                                                                                           |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <div>(51) International classification :A61F9/007</div> <div>(86) International Application No :NA</div> <div>    Filing Date :NA</div> <div>(87) International Publication No : NA</div> <div>(61) Patent of Addition to Application Number :NA</div> <div>    Filing Date :NA</div> <div>(62) Divisional to Application Number :NA</div> <div>    Filing Date :NA</div> |  | <div>(71)Name of Applicant :</div> <div>    <b>1)SUNDARDAS RAGHUNATH GORE</b></div> <div>        Address of Applicant :Sunder Netralaya, Super speciality eye clinic , Chaupati karanja Ahilyanagar, Ahmadnagar 414001, Maharashtra, India Ahmadnagar -----</div> <div>    -----</div> <div>    <b>2)SEEMA SUNDARDAS GORE</b></div> <div>        Name of Applicant : NA</div> <div>        Address of Applicant : NA</div> <div>(72)Name of Inventor :</div> <div>    <b>1)SUNDARDAS RAGHUNATH GORE</b></div> <div>        Address of Applicant :Sunder Netralaya, Super speciality eye clinic , Chaupati karanja Ahilyanagar, Ahmadnagar 414001, Maharashtra, India Ahmadnagar -----</div> <div>    -----</div> |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

(57) Abstract :  
ABSTRACT A WICK MESH GLAUCOMA DRAINAGE DEVICE The present invention may relate to ophthalmic surgical devices, particularly a wick mesh glaucoma drainage device (24a, 24b) for treating glaucoma conditions. The wick mesh glaucoma drainage device (24a, 24b) may comprise a porous structure configured for capillary-mediated fluid transport. The device may comprise a base portion and at least one projection portion. The base portion may be configured for placement over a trabeculectomy opening (20) at corneoscleral junction beneath a scleral flap in an eye having an eyelid (12), cornea (14), and pupil (16). The at least one projection portion may extend from the base portion and may be configured to protrude beyond an edge of the scleral flap when implanted. The porous structure may enable the base portion to collect aqueous humor through a pre-drainage chamber and may distribute the aqueous humor through the at least one projection portion to a subconjunctival space through passive capillary action. [To be published with FIG. 1]

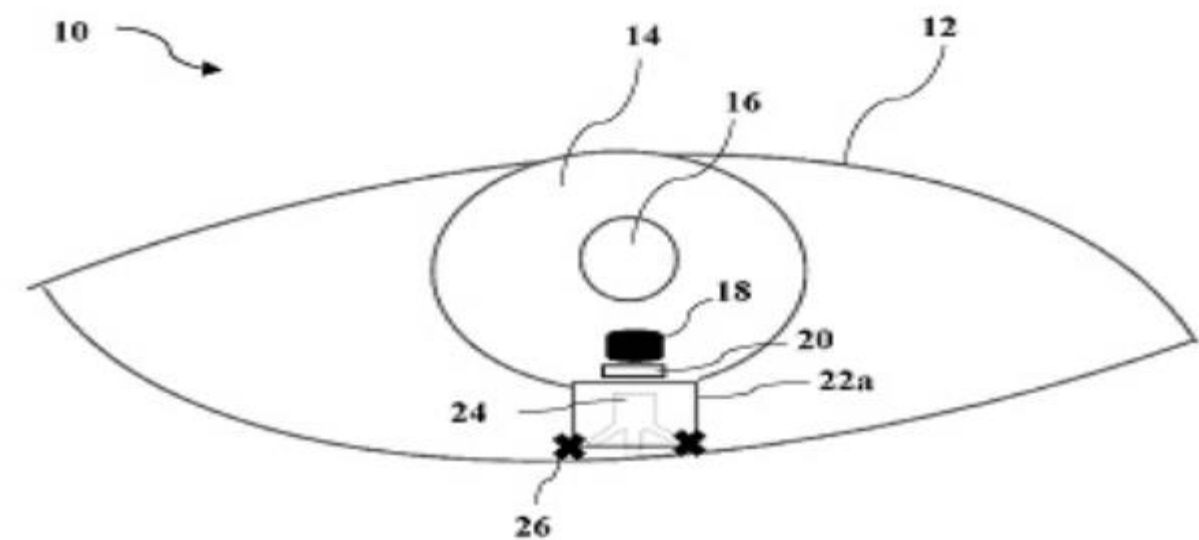
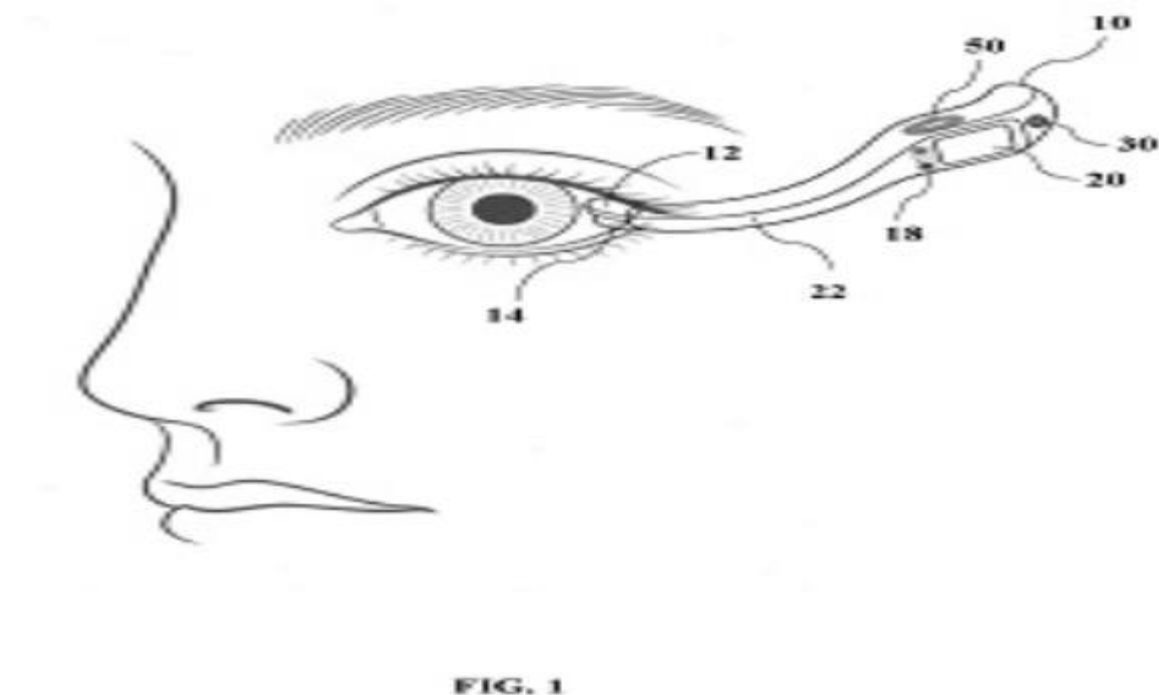


FIG. 1

(54) Title of the invention : A SCLERAL-BASED DIGITAL TONOMETER FOR MEASURING INTRAOCULAR PRESSURE

|                                                                                                                                                                                                                                                                                                                                                                                  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <div>(51) International classification :A61B3/16, A61B3/00, A61B3/10</div> <div>(86) International Application No :NA</div> <div>Filing Date :NA</div> <div>(87) International Publication No : NA</div> <div>(61) Patent of Addition to Application Number :NA</div> <div>Filing Date :NA</div> <div>(62) Divisional to Application Number :NA</div> <div>Filing Date :NA</div> |  | <div>(71)Name of Applicant :</div> <div>1)SUNDARDAS RAGHUNATH GORE</div> <div>Address of Applicant :Sunder Netralaya, Super speciality eye clinic , Chaupati karanja Ahilyanagar, Ahmadnagar 414001, Maharashtra, India Ahmadnagar -----</div> <div>-----</div> <div>2)SEEMA SUNDARDAS GORE</div> <div>Name of Applicant : NA</div> <div>Address of Applicant : NA</div> <div>(72)Name of Inventor :</div> <div>1)SUNDARDAS RAGHUNATH GORE</div> <div>Address of Applicant :Sunder Netralaya, Super speciality eye clinic , Chaupati karanja Ahilyanagar, Ahmadnagar 414001, Maharashtra, India Ahmadnagar -----</div> <div>-----</div> |
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(57) Abstract :  
ABSTRACT A SCLERAL-BASED DIGITAL TONOMETER FOR MEASURING INTRAOCULAR PRESSURE A scleral-based digital tonometer for objective intraocular pressure measurement independent of corneal condition is disclosed. The device features two biocompatible pressure-sensing probes for bilateral scleral contact, a digital processing unit with pre-calibrated algorithms, age-specific calibration modes, real-time visual feedback via color indicators, and a digital display for results. Portable and ergonomic, it mimics traditional finger palpation while enabling accurate measurements across varied patient populations including pediatric, post-surgical, and immobilized patients. [To be published with FIG. 1]



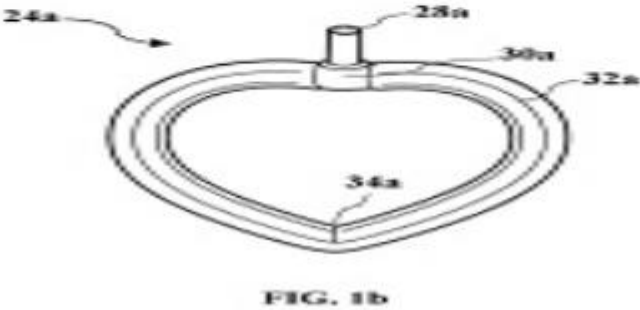
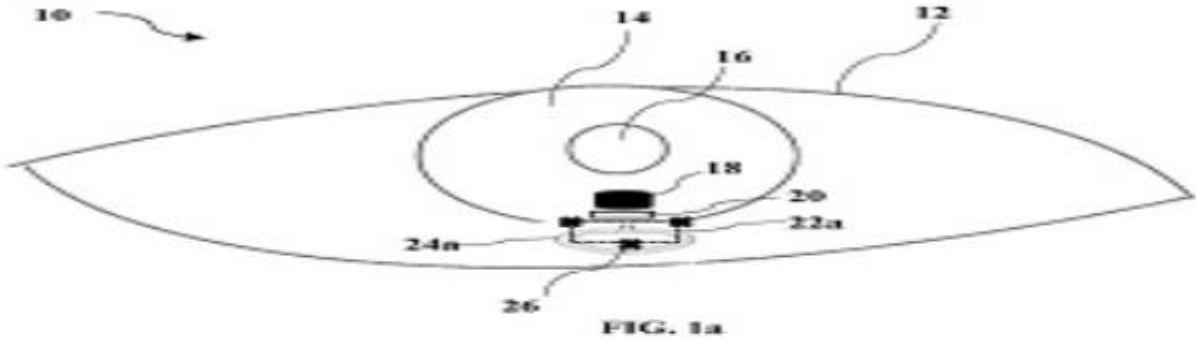
No. of Pages : 39 No. of Claims : 13

(54) Title of the invention : A GLAUCOMA DRAINAGE DEVICE

(51) International classification :A61F9/007, A61M1/00, A61M27/00  
(86) International Application No :NA  
Filing Date :NA  
(87) International Publication No : NA  
(61) Patent of Addition to Application Number :NA  
Filing Date :NA  
(62) Divisional to Application Number :NA  
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(57) Abstract :  
ABSTRACT A GLAUCOMA DRAINAGE DEVICE The present invention may relate to a glaucoma drainage device (24) in the field of medical devices for treating ophthalmic conditions. The glaucoma drainage device (24) may comprise a thin silicone tube (32) that may be formed into a closed loop configuration for regulating intraocular pressure. The thin silicone tube (32) may comprise at least one entry opening (28) that may be located on periphery of the closed loop configuration for receiving aqueous humor from a trabeculectomy opening (20). The thin silicone tube (32) may further comprise a plurality of exit openings (34) that may be located on periphery of the closed loop configuration for regulating aqueous humor outflow to prevent hypotony and over-filtration. The glaucoma drainage device (24) may include at least one fixation point (26) that may be configured to secure the glaucoma drainage device (24) beneath a scleral flap (22). [To be published with FIG. 1]



(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :06/06/2025

(21) Application No.202521054606 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : HELMET GUARD: SMART HELMET-BASED BIKE IGNITION AND SAFETY SYSTEM.

(51) International classification :A42B0003040000, G02B0027010000, G01C0021360000, F23N0005100000, F02K0009380000  
(86) International Application No :NA  
Filing Date :NA  
(87) International Publication No : NA  
(61) Patent of Addition to Application Number :NA  
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Filing Date :NA

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(57) Abstract :

This invention comes with an intelligent helmet system embedded with a motorcycle ignition circuit to provide ignition only when the rider has on a helmet and is sober. It also comes with real-time detection of accidents through vibration sensors and emergency SMS notifications to registered numbers via a GSM module. With the optional GPS integration, it offers real-time location sharing, greatly enhancing road safety and emergency response for two-wheeler users.

No. of Pages : 11 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :06/06/2025

(21) Application No.202521054612 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : A FIRE RESCUE BOT.

(51) International classification :H04L0051020000, A62C0027000000, A61K0031704800, A62C0099000000, B60P0003000000  
(86) International Application No :NA  
Filing Date :NA  
(87) International Publication No : NA  
(61) Patent of Addition to Application Number :NA  
Filing Date :NA  
(62) Divisional to Application Number :NA  
Filing Date :NA

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**3)SIDDHARTHA KUSHWAHA**

**4)SNEHA LADDHA**

**5)LAKSH KHANDELWAL**

**6)PRANAV LANDGE**

**7)NAINA SANJAY KOKATE**

**8)SHARVANI KHANDELWAL**

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(57) Abstract :

Fire Rescue Bot is an advanced robotic systems designed to work in hazardous environments. The robot detects fire and gas leakage using the MQ-2, and sends real-time video using the ESP32-CAM. The robot uses the Arduino UNO to controller it, there are two means of communication (Bluetooth and FU), so that the robot can be totally autonomous in fire affected areas to send notifications. Future work will include the implementation of Artificial intelligence (AI) so the robot can detect humans without them understudying and avoid obstacles with computer vision techniques. The first social goal is to assist missing person's rescue teams and increase the chances of humans surviving hazardous situations. The systemic goal is to reduce situations of hazards causing a delays in emergency responders in industrial, household and defence rescue situations.

No. of Pages : 10 No. of Claims : 3

(54) Title of the invention : METHODS AND SYSTEMS FOR PERFORMING ENERGY-AWARE SERVICE DELIVERY IN WIRELESS COMMUNICATION NETWORKS

(51) International classification

:G06Q0050060000, H02J0003000000, H02J0013000000, H02J0003380000, H04W0004020000

(86) International Application No

:NA

Filing Date

:NA

(87) International Publication No

: NA

(61) Patent of Addition to Application Number

:NA

Filing Date

:NA

(62) Divisional to Application Number

:NA

Filing Date

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(57) Abstract :  
Methods and systems for performing energy-aware service delivery in wireless communication networks. Embodiments disclosed herein relate to methods (200) and systems (100) for providing energy-aware service delivery in wireless communication networks by adjusting Quality of Service (QoS) for individual services. The methods (200) include collecting energy-related information (for example, energy availability, and energy source type (renewable and non-renewable)) to analyze energy usage at service/UE granularity, and adjusting QoS for individual services in a network (102) based on the collected energy-related information. The methods (200) include a dedicated Energy Management Function (EMF) to coordinate UE/service requirements and energy information (for example, energy usage) for energy-aware network decisions. FIG. 1

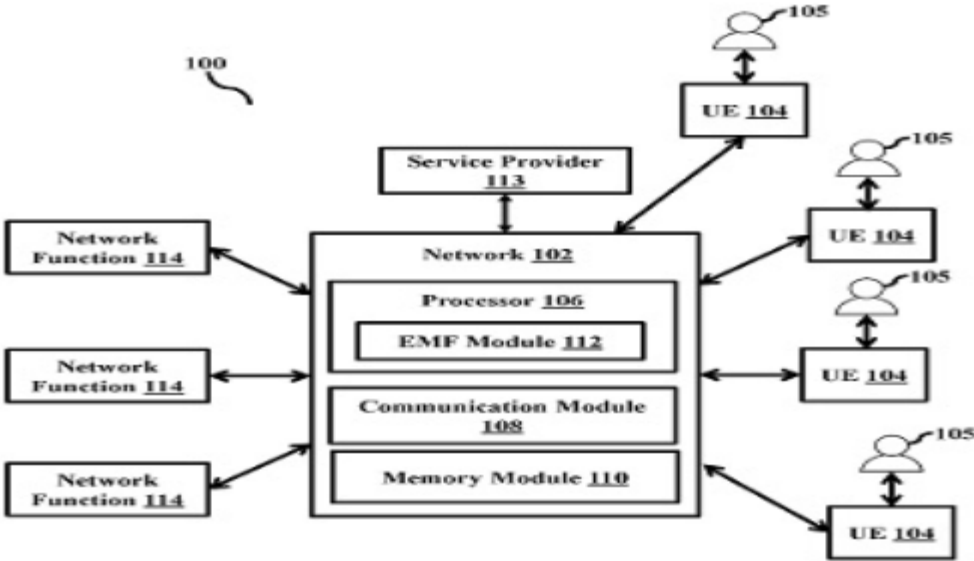


FIG. 1

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202521052176 A

(19) INDIA

(22) Date of filing of Application :30/05/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : EDGE COMPUTING FRAMEWORK FOR DYNAMIC RESOURCE ALLOCATION USING CONVEX OPTIMIZATION AND LINEAR PROGRAMMING TECHNIQUES

|                                         |                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|-----------------------------------------|---------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (51)<br>International<br>classification | :G06F0009500000,<br>H04L0067100000,<br>G06N0020000000,<br>H04L0067020000,<br>H04W0028080000 | (71)Name of Applicant :<br><b>1)PUSHPA KORANGA</b><br>Address of Applicant :Ph.D. Scholar in Mathematics, Assistant Professor, Department of Mathematics, Bharati Vidyapeeth Engineering College Deemed to be university, Kharghar, Navi Mumbai, Raigad, Maharashtra, 400614, India. Navi Mumbai ---<br>-----<br><b>2)THANMAYA JYOTHI K</b><br><b>3)DR. HEENA SHARMA</b><br><b>4)MR. PRAVIN AUTE</b><br><b>5)P. SHANTHI</b><br><b>6)PROF. SHIVANAND BHIMASHANKAR KONADE</b><br><b>7)PROF. TANIYA GHOSH</b><br><b>8)Dr. P. Meenalochini</b><br>Name of Applicant : NA<br>Address of Applicant : NA<br>(72)Name of Inventor :<br><b>1)PUSHPA KORANGA</b><br>Address of Applicant :Ph.D. Scholar in Mathematics, Assistant Professor, Department of Mathematics, Bharati Vidyapeeth Engineering College Deemed to be university, Kharghar, Navi Mumbai, Raigad, Maharashtra, 400614, India. Navi Mumbai ---<br>-----<br><b>2)THANMAYA JYOTHI K</b><br>Address of Applicant :Ph.D. Scholar in Mathematics, Assistant Professor, Department of Information Technology & Mathematics, Western College of Commerce and Business Management, Sanpada, Navi Mumbai, Thane, Maharashtra, 400705, India. Navi Mumbai -----<br><b>3)DR. HEENA SHARMA</b><br>Address of Applicant :Department of Mathematics, Chandigarh University, Gharuan, Mohali, Punjab, 140413, India. Mohali --<br>-----<br><b>4)MR. PRAVIN AUTE</b><br>Address of Applicant :Dr. D. Y. Patil Institute of Management and Research, Pimpri, Pune, Maharashtra, 411018, India. Pimpri -----<br><b>5)P. SHANTHI</b><br>Address of Applicant :Assistant Professor, Information Technology, St.Joseph's Institute of Technology, OMR, Chennai, Tamil Nadu, 600119, India. OMR -----<br><b>6)PROF. SHIVANAND BHIMASHANKAR KONADE</b><br>Address of Applicant :Assistant Professor, Electrical Engineering Department, Smt.Indira Gandhi College of Engineering, Ghansoli, Navi Mumbai, Thane, Maharashtra, 400701, India. Navi Mumbai -----<br><b>7)PROF. TANIYA GHOSH</b><br>Address of Applicant :Assistant Professor, Department of Electrical and Electronics Engineering, ARKA JAIN University, Mohanpur, Gamharia, Jamshedpur, Seraikela Kharsawan, Jharkhand, 832108, India. Jamshedpur -----<br><b>8)Dr. P. Meenalochini</b><br>Address of Applicant :Associate Professor, Department of EEE, Sethu Institute of Technology, Pulloor, Kariapatti, Virudhunagar, Tamil Nadu, 626115, India. Kariapatti ----- |
|                                         |                                                                                             | (86)<br>International<br>Application<br>No :NA<br>Filing<br>Date :NA<br>(87)<br>International : NA<br>Publication No<br>(61) Patent of<br>Addition to<br>Application :NA<br>Number :NA<br>Filing<br>Date :NA<br>(62)<br>Divisional to<br>Application :NA<br>Number :NA<br>Filing<br>Date :NA                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |

(57) Abstract :

The present invention introduces a game-changing approach for addressing the increasing need for high-efficiency and low-latency processing in distributed networks is edge computing. In order to improve computational efficiency and resource usage, this study suggests an edge computing framework for dynamic resource allocation that makes use of convex optimization and linear programming approaches. Based on real-time restrictions including processing power, energy consumption, and latency requirements, the framework dynamically distributes tasks to edge nodes. While linear programming offers computational simplicity for linear allocation problems, convex optimization techniques are used to guarantee globally optimal solutions in non-linear resource scenarios. Through the integration of these mathematical techniques, the suggested system adjusts to diverse edge situations and varying workloads. When compared to conventional allocation algorithms, simulation findings show notable gains in job completion time, energy efficiency, and system scalability. With support for a variety of IoT, smart city, and autonomous system applications, this framework provides a reliable and adaptable approach to resource management in contemporary edge computing infrastructures. FIG.1



No. of Pages : 12 No. of Claims : 1

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202521054816 A

(19) INDIA

(22) Date of filing of Application :06/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : BIOMARKERS FOR THE DETECTION OF INFECTION DRIVEN DYSBIOTIC GUT AND NEUROLOGICAL DISEASES

(51) International classification :G01N0033680000, A61B0005000000, G16B0020200000, G16B0005000000, H04L0061451100

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
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(57) Abstract :

**ABSTRACT BIOMARKERS FOR THE DETECTION OF INFECTION DRIVEN DYSBIOTIC GUT AND NEUROLOGICAL DISEASES** This invention relates to the domain of biomedical diagnostics and prognostics, with a specific emphasis on multi-omics-based risk stratification of neurological disorders associated with gut microbiota dysregulation. The approach leverages a systems biology framework that integrates lipidomics, metabolomics, immunoprofiling, and advanced bioinformatics pipelines to characterize molecular perturbations along the gut-brain axis. The technological platform encompasses the development of point-of-care diagnostic tools, and the cross-fluid biomarker interrogation of clinically relevant analytes derived from blood, cerebrospinal fluid, and saliva. By enabling high-resolution, multi-parametric profiling, this invention facilitates personalized medicine applications, particularly for the early detection, monitoring, and prognosis of gut dysbiosis-associated neurological phenotypes, including but not limited to neurodegenerative and neuroinflammatory conditions. The invention situates itself at the intersection of translational omics technologies and precision healthcare diagnostics.

No. of Pages : 35 No. of Claims : 8



(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :09/06/2025

(21) Application No.202521055405 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : "A RAPID DETECTION TEST FOR SALIVA"

(51) International classification :G01N0033558000, A61C0017080000, C12Q0001689000, A61B0005117100, G01N0027414000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

Abstract Title; "A rapid detection test for Saliva/" In an aspect of the present invention rapid detection test for saliva is provided for the crime investigation, Saliva is a watery fluid produced in the mouth of human is a source of Enzymes, Amylase (for carbohydrate digestion), Lingual lipase (for fat digestion), of that amylase useful in digestion of carbohydrate which break down it in sugar, the saliva is allowed to react with starch deposited on the paper and incubated for 10 minutes to one hour. Addition of iodide solution after incubation results in development of dark color spot with starch present on the paper indicating absence of saliva or if color not develops due to break down of starch in to glucose revealing presence of saliva. The RDT shows results within 10 minutes of incubation, the same is used to detect saliva at the crime site.

No. of Pages : 18 No. of Claims : 8

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :09/06/2025

(21) Application No.202521055419 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : AUTOMATIC CHESS PIECE MOVE DETECTION AND VALIDATION USING ARDUINO NANO AND REED SWITCH

(51) International classification :A63F0003000000, H01R0013627000, G07G0001000000, H01H0036000000, H04L0009320000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

This project presents a smart chessboard system designed to enhance the gameplay experience by automatically detecting the position of chess pieces and validating moves in real time. The system utilizes a matrix of reed switches embedded beneath the board squares, with multiplexers enabling efficient scanning of multiple inputs. An Arduino Nano microcontroller serves as the core controller, processing sensor data, enforcing chess rules, and managing player timers. A push-button timer switch and an I2C LCD display provide intuitive time control and visual feedback. This motor-free, cost-effective system ensures accurate move validation and fair play, making it suitable for casual players and competitive environments alike. The design's simplicity and scalability provide a foundation for future enhancements, including network connectivity and advanced game analysis features.

No. of Pages : 9 No. of Claims : 7

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :09/06/2025

(21) Application No.202521055424 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : UNAUTHORIZED DRIVING PREVENTION SYSTEM

(51) International classification :B60K0028060000, B60W0050140000, A61B0005080000, H04W0004029000, B60W0040080000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

This project presents a smart vehicle security system designed to prevent unauthorized driving by implementing a dual-layer authentication mechanism. The system uses an RFID reader and a fingerprint sensor to verify a driver's identity before granting access to the vehicle. An ESP8266 microcontroller serves as the core controller, coordinating input from the RFID and biometric modules, displaying prompts via an LCD, and controlling the ignition relay. Only upon successful authentication from both sources is the ignition system activated. All access attempts are logged for traceability and accountability. The system is scalable, cost-effective, and suitable for various applications, including personal cars, commercial fleets, and rental services. With built-in Wi-Fi, the ESP8266 also opens possibilities for real-time data logging and mobile integration in future developments. This approach significantly enhances vehicle security, ensures driver accountability, and sets the foundation for smarter transportation system.

No. of Pages : 8 No. of Claims : 7

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :09/06/2025

(21) Application No.202521055436 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : MONITORING AND LOGGING INSULATION BETWEEN TWO CIRCUITS USING A MICROCONTROLLER.

(51) International classification :F01P0007040000, G06F0011300000, H02P0007290000, G08B0021020000, H05B0045300000  
(86) International Application No :NA  
Filing Date :NA  
(87) International Publication No : NA  
(61) Patent of Addition to Application Number :NA  
Filing Date :NA  
(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

The prototype presents a cost effective, and an efficient way to measure insulation resistance between two circuits, where conventionally one of the circuits is an Isolated Terra system. This resistance is measured by injecting a 5-volt signal into the HV positive line and detecting the presence of the same signal in the LV ground. We measure the presence of the signal by reading the voltage drop before the 10 kΩ resistor. A voltage drop is detected only if there is some current flowing between the two circuits, therefore, ideally there should be no voltage drop. Upon detecting a drop, we calculate the leakage current, then the insulation resistance. The insulation resistance is displayed on the LCD display, and all three mentioned values are logged in a csv file on the SD card at 0.1 Hertz. These logged values can be used to understand patterns in insulation breaches, which help in eliminating flaws in the circuits. This concept finds heavy usage in the automotive, shipping, and core electrical industries.

No. of Pages : 7 No. of Claims : 2

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202521055518 A

(19) INDIA

(22) Date of filing of Application :09/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : Smart smoke alarm detector using AI

(51) International classification :G08B0017100000, G08B0017120000, G08B0007060000, G08B0017113000, G08B0017107000

(86) International Application No :NA

Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA

Filing Date :NA

(62) Divisional to Application Number :NA

Filing Date :NA

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(57) Abstract :

Smart smoke alarm detector using AI ABSTRACT: Fire safety is a vital issue in high-risk sectors. These sectors have considerable risks from fire and smoke dangers owing to their operations, which frequently entail combustible materials, heavy machinery, or perilous settings. Notwithstanding advancements in conventional fire detection and smoke detection systems, numerous workplaces continue to face challenges regarding prompt response and efficient avoidance. Workplace accidents resulting from inadequate safety measures might lead to possible fatalities annually. It can encompass both downtime and operational expenses. Consequently, recognising and identifying threats constitutes the initial stage in risk mitigation. Vision facts AI's smoke and fire detection system is specifically engineered to monitor, analyse, and identify a variety of risks that may pose potential hazards. Early detection not only prevents escalation but also preserves lives and property. It can be deployed both outside and indoors, detecting dangers more rapidly than most conventional sensors. It delivers exceptional accuracy, hence obviating the necessity for frequent recalibrations compared to traditional sensors. One of the advantageous features of Vision Facts AI that distinguishes it from competitors is its seamless integration with existing systems.

No. of Pages : 12 No. of Claims : 1

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202521055519 A

(19) INDIA

(22) Date of filing of Application :09/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : VLSI-Based Intelligent Control Unit for Real-Time Automation System

(51) International classification :H04L0067120000, G06N0020000000, G05B0013040000, G06F0009380000, G06N0003044000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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**Name of Applicant : NA**

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(72)Name of Inventor :

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**2)Dr. Govind Prasad Pandiya**

Address of Applicant :Assistant Professor, Department of Electronics & Communication Engineering, Lakshmi Narain College of Technology, Bhopal, Madhya Pradesh, 462022, India -----

(57) Abstract :

ABSTRACT VLSI-Based Intelligent Control Unit for Real-Time Automation System The present invention relates to a VLSI-based intelligent control unit specifically designed to perform real-time automation tasks with high accuracy and speed. The system integrates advanced VLSI architecture with embedded artificial intelligence logic to enable rapid processing of sensor inputs and precise generation of control outputs. It addresses latency issues in conventional automation systems by utilizing parallel processing cores and pipelined execution mechanisms within a compact chip. The control unit features AI-driven modules capable of learning from operational data, detecting anomalies, and making predictive control decisions without the need for external computing resources. With support for dynamic reconfiguration and adaptive control, the invention offers enhanced responsiveness and reliability in automation environments. The system can interface seamlessly with various sensors and actuators using standard communication protocols, making it highly compatible and scalable. This invention is applicable in diverse domains such as industrial robotics, smart manufacturing, healthcare devices, automotive systems, and intelligent infrastructure. It delivers low-power, high-performance automation with built-in intelligence, offering a next-generation solution for real-time control in embedded and edge-based applications.

No. of Pages : 18 No. of Claims : 2

(54) Title of the invention : Smart Business Decision Support System using Predictive analytics and Market Trends

|                                                  |                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
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| (51) International classification                | :G06Q10/063, G06Q30/0202,<br>G06Q10/067 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| (86) International Application No                | :NA                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Filing Date                                      | :NA                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| (87) International Publication No                | : NA                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| (61) Patent of Addition to Application<br>Number | :NA                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Filing Date                                      | :NA                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| (62) Divisional to Application Number            | :NA                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Filing Date                                      | :NA                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |

(57) Abstract :  
ABSTRACT Smart Business Decision Support System using Predictive analytics and Market Trends The invention relates to a Smart Business Decision Support System (SBDSS) designed to enhance strategic, tactical, and operational decision-making by integrating predictive analytics with real-time market trend data. The system utilizes machine learning algorithms and artificial intelligence techniques to analyze historical business data and forecast key performance indicators such as sales, demand, and customer churn. Simultaneously, it captures external market signals like consumer sentiment, competitor behavior, and economic trends to provide a comprehensive understanding of the business environment. The system comprises various integrated components, including a predictive analytics engine, market trend aggregator, data preprocessing module, visualization dashboard, and recommendation engine. It processes both structured and unstructured data, applies advanced analytical models, and delivers insights through an intuitive dashboard interface. Users can input business objectives and receive real-time forecasts, scenario simulations, and automated strategic recommendations tailored to their goals. This intelligent decision support system enables businesses to respond proactively to changing market dynamics, reduce decision-making uncertainty, and optimize overall performance. It is applicable across various industries such as retail, finance, healthcare, and manufacturing, offering a scalable and flexible solution for data-driven business management.

No. of Pages : 18 No. of Claims : 2

(54) Title of the invention : Automated Theorem Proving System Using AI Algorithms for Mathematical Proof Generation

|                                               |                                                                                 |                                                                                                                                                                                                                 |
|-----------------------------------------------|---------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (51) International classification             | :G06N0003080000, G06N0005040000, G06N0003006000, G06F0017180000, G06F0030332300 | (71)Name of Applicant :<br><b>1)Lakshmi Narain College of Technology</b><br>Address of Applicant :Lakshmi Narain College of Technology, Raisen Road, Kalchuri Nagar, Bhopal, Madhya Pradesh 462022, India ----- |
| (86) International Application No             | :NA                                                                             | <b>Name of Applicant : NA</b>                                                                                                                                                                                   |
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| (87) International Publication No             | : NA                                                                            | (72)Name of Inventor :                                                                                                                                                                                          |
| (61) Patent of Addition to Application Number | :NA                                                                             | <b>1)Dr. Akanksha Mishra</b>                                                                                                                                                                                    |
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(57) Abstract :  
ABSTRACT Automated Theorem Proving System Using AI Algorithms for Mathematical Proof Generation The present invention relates to an automated theorem proving system that uses artificial intelligence (AI) algorithms to generate formal mathematical proofs. The system is designed to reduce the need for manual intervention by leveraging advanced AI models, including deep learning and reinforcement learning, for analyzing theorem statements, retrieving relevant mathematical knowledge, and constructing logical proof sequences. It addresses the limitations of traditional symbolic theorem provers by introducing a hybrid model that combines data-driven reasoning with formal logic validation. The system comprises several core modules: an input interface for receiving the theorem, a mathematical knowledge base, a hybrid AI proof engine, a symbolic inference checker, and an output generator. The proof engine predicts logical steps using trained neural models while optimizing proof strategies through reinforcement learning. All generated steps are validated using a symbolic logic-based inference engine, ensuring logical soundness and mathematical accuracy. The final proof is verified through a formal proof checker and presented in a user-friendly format. This invention provides a powerful tool for researchers, educators, and mathematicians by automating the otherwise complex and time-intensive process of theorem proving. It enhances the speed and accuracy of mathematical discovery, supports multiple input and output formats, and enables human-AI collaboration in formal reasoning tasks. The proposed system represents a significant advancement in the field of automated reasoning and intelligent mathematical systems.

No. of Pages : 20 No. of Claims : 2



(54) Title of the invention : IoT- Based live tracking of structural stress and strain with Earthquake Monitoring device

(51) International classification :G01V0001010000, G01M0005000000, E04H0009020000, A61B0005000000, G06N0020000000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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## (57) Abstract :

This project presents a cost-effective, IoT-based structural health monitoring and earthquake detection system that integrates a custom-designed Truss Box embedded within a Cement Curing Block. The Truss Box houses a Load Cell Sensor that continuously measures the stress and strain exerted on the structure. Coupled with an HX711 amplifier, the Load Cell sends real-time data to a Raspberry Pi 5 for processing. Additionally, a Vibration Sensor is employed to detect seismic activity, allowing for both structural load monitoring and earthquake detection. All data is processed using Python on the Geany IDE and visualized through dynamic graphs, providing clear insights into structural behaviour under different load conditions. A key innovation in this system is the Truss Box, which enhances sensor integration and simulates realistic stress distribution found in structural elements. This setup not only ensures more accurate and stable readings but also increases the reliability of long-term monitoring. The system supports remote access and continuous observation through IoT connectivity, making it especially valuable in earthquake-prone areas and for civil engineering applications. Its scalable design, low cost, and predictive maintenance capabilities position it as a practical alternative to traditional structural assessment methods.

No. of Pages : 13 No. of Claims : 5

(54) Title of the invention : AI MEDIATED THEORY OF COMMUNICATION.

|                                               |                                                                                 |                                                                                                                                                                                    |
|-----------------------------------------------|---------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (51) International classification             | :A61K0036460000, A61P0005400000, H04M0001724510, G02B0027000000, H04L0067561000 | (71)Name of Applicant :<br><b>1)DR. AMRIN MOHAMMED SHARIF MOGER</b><br>Address of Applicant :703, SILVER PLAZA, BRAHMANWADI, PIPE ROAD, MUMBAI - 400070, MAHARASHTRA, INDIA. ----- |
| (86) International Application No             | :NA                                                                             | <b>Name of Applicant : NA</b>                                                                                                                                                      |
| Filing Date                                   | :NA                                                                             | <b>Address of Applicant : NA</b>                                                                                                                                                   |
| (87) International Publication No             | : NA                                                                            | (72)Name of Inventor :                                                                                                                                                             |
| (61) Patent of Addition to Application Number | :NA                                                                             | <b>1)DR. AMRIN MOHAMMED SHARIF MOGER</b>                                                                                                                                           |
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| (62) Divisional to Application Number         | :NA                                                                             |                                                                                                                                                                                    |
| Filing Date                                   | :NA                                                                             |                                                                                                                                                                                    |

(57) Abstract :  
The rapid evolution of digital media and artificial intelligence (AI) has transformed communication, necessitating new theoretical frameworks. This study examines the role of emojis in digital communication, particularly in gender-based usage patterns, and proposes an AI-mediated theory of communication. The research focuses on youth in Mumbai, employing a four-year study to analyze perceptions of gender representation through emojis. Prior research highlights that emojis function as extensions of human emotion, offering a fast and engaging way to express feelings. However, there remains a gap in understanding gender-specific emoji usage. A survey conducted with 525 respondents (59% female, 41% male) via an online questionnaire developed with experts in psychology and media provided insights into this phenomenon. Findings indicate that women use emojis more frequently, and their usage contributes to breaking communication barriers by fostering inclusivity and cultural exchange. A Digital Communication Model was developed to explain how communication functions on digital platforms through visuals and emojis. This model challenges the traditional Uses and Gratifications Theory (UGT), arguing that AI-driven recommendations shape user behavior more than individual gratification. The study suggests that AI influences how users encode and decode messages, altering their cognitive engagement in digital interactions. The AI-mediated theory of communication proposed here asserts that AI reduces users' cognitive abilities by subtly dictating message encoding and comprehension. This shift potentially reverts users to passive consumers rather than active participants in communication. The theory is based on three core assumptions: (1) the sender has limited knowledge of technology, (2) AI dictates how messages are encoded, and (3) the sender's comprehension is shaped by AI influence. By exploring these dynamics, the study advances understanding of AI's impact on digital communication and offers a framework for analyzing the intersection of technology, cognition, and human interaction.

No. of Pages : 8 No. of Claims : 4

(54) Title of the invention : AN EMERGENCY AND ACCIDENT ALERT SYSTEM WITH THE INTERNET OF THINGS (IOT) ASSISTANCE

(51) International classification :G08G1/0965, G08G1/16, G06F3/01, G08B25/01  
 (86) International Application No :NA  
 Filing Date :NA  
 (87) International Publication No : NA  
 (61) Patent of Addition to Application Number :NA  
 Filing Date :NA  
 (62) Divisional to Application Number :NA  
 Filing Date :NA

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**2)Atharva Santosh Makwan****3)Swaraj Sudhakar Phalke****4)Ajeeta Raju Gharpure**

Name of Applicant : NA

Address of Applicant : NA

## (72)Name of Inventor :

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## (57) Abstract :

The present invention relates to an emergency and vehicle accident alert system related to a movement of an ambulance tracked by computing devices. The system includes a plurality of sensors, and the plurality of sensors being enabled with IoT configurations. The plurality of sensors are configured to acquire data relating to accidents, hospitals, and police stations. A microcontroller, configurable as a central processor, is connected to each of the plurality of IoT sensors for collecting data from the sensors and configuring data transfer to cloud platforms. A Global Positioning System (GPS) member is connected to the microcontroller and the plurality of sensors for configuring real-time location tracking for ambulances and health car users, respectively. A memory is connected to the plurality of IoT sensors, the microcontroller, and the GPS member for storing and retrieving data acquired regarding accidents, hospitals, and police stations. To be published with figure 1.

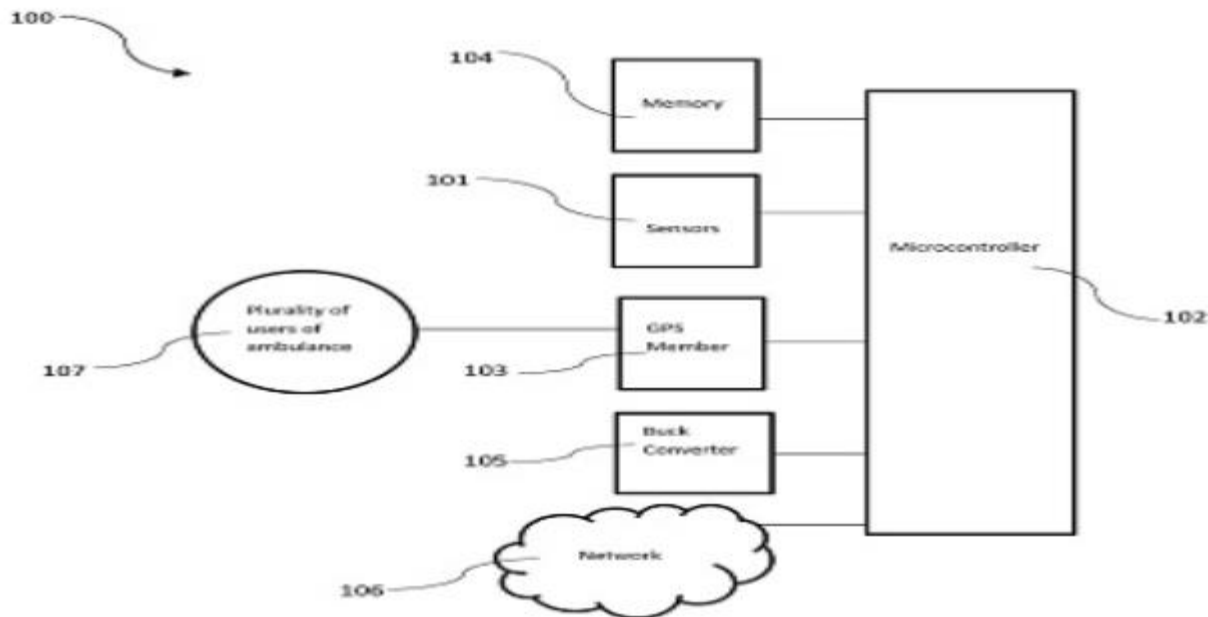


Figure 01

(54) Title of the invention : WEARABLE CLIP-ON LIGHT LOGGER DEVICE FOR STRAP AND TEXTILE-BASED HEALTH TRACKING

|                                               |                                                                                 |                                                                                                                                                                                                                                              |
|-----------------------------------------------|---------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (51) International classification             | :G06F0003044000, A61B0005000000, A61B0005024000, G06F0003041000, H04W0052020000 | (71)Name of Applicant :<br><b>1)PDPM Indian Institute of Information Technology, Design and Manufacturing, Jabalpur</b><br>Address of Applicant :Dumna Airport Road, P. O. Khamaria, Jabalpur - 482005, Madhya Pradesh, India Jabalpur ----- |
| (86) International Application No             | :NA                                                                             | <b>Name of Applicant : NA</b>                                                                                                                                                                                                                |
| Filing Date                                   | :NA                                                                             | <b>Address of Applicant : NA</b>                                                                                                                                                                                                             |
| (87) International Publication No             | : NA                                                                            | (72)Name of Inventor :                                                                                                                                                                                                                       |
| (61) Patent of Addition to Application Number | :NA                                                                             | <b>1)SHAIKH, Saad Ahmed</b>                                                                                                                                                                                                                  |
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| (62) Divisional to Application Number         | :NA                                                                             | <b>2)BHATTACHARJEE, Amrita</b>                                                                                                                                                                                                               |
| Filing Date                                   | :NA                                                                             | Address of Applicant :C/o PDPM Indian Institute of Information Technology, Design and Manufacturing, Jabalpur, Dumna Airport Road, P. O. Khamaria, Jabalpur - 482005, Madhya Pradesh, India Jabalpur -----                                   |

(57) Abstract :  
ABSTRACT WEARABLE CLIP-ON LIGHT LOGGER DEVICE FOR STRAP AND TEXTILE-BASED HEALTH TRACKING The present invention provides a wearable clip-on light logger device (100) including a housing (102), a multi-channel spectral light sensor (104) configured to measure ambient light across multiple spectral channels, an optical-grade protective cover (106) configured to allow light transmission while protecting the sensor, a clip mechanism (108) configured to attach the module to an external item, a capacitive touch sensor (110) integrated with the clip mechanism (108) and configured to detect skin contact when the module is worn by a user, a microcontroller (112) operatively connected to the multi-channel spectral light sensor and the capacitive touch sensor , and configured to activate the multi-channel spectral light sensor in response to the capacitive touch sensor detecting skin contact, and a wireless communication module (114) operatively connected to the microcontroller (112), configured to wirelessly transmit spectral light data collected by the multi-channel spectral light sensor (104). Figure 1

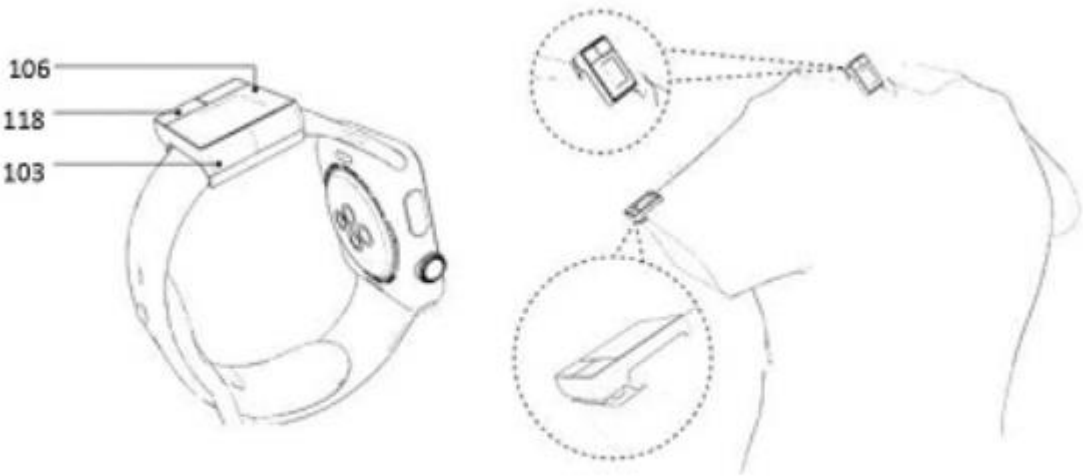


Figure 1

(51) International classification : A61K9/16, A61K9/00, A61K31/65, A61K31/7036, A61K38/14

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to :NA  
Application Number :NA  
Filing Date :NA

(62) Divisional to Application :NA  
Number :NA  
Filing Date :NA

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(57) Abstract :  
ABSTRACT ANTIBIOTIC LATEX BEADS FOR THE TREATMENT OF BONE INFECTIONS An antibiotic latex bead comprising 99.5 to 99.25 % by weight of a latex copolymer of poly (methyl methacrylate-butyl acrylate) and 0.5 to 0.75 % by weight of an antibiotic and process thereof.

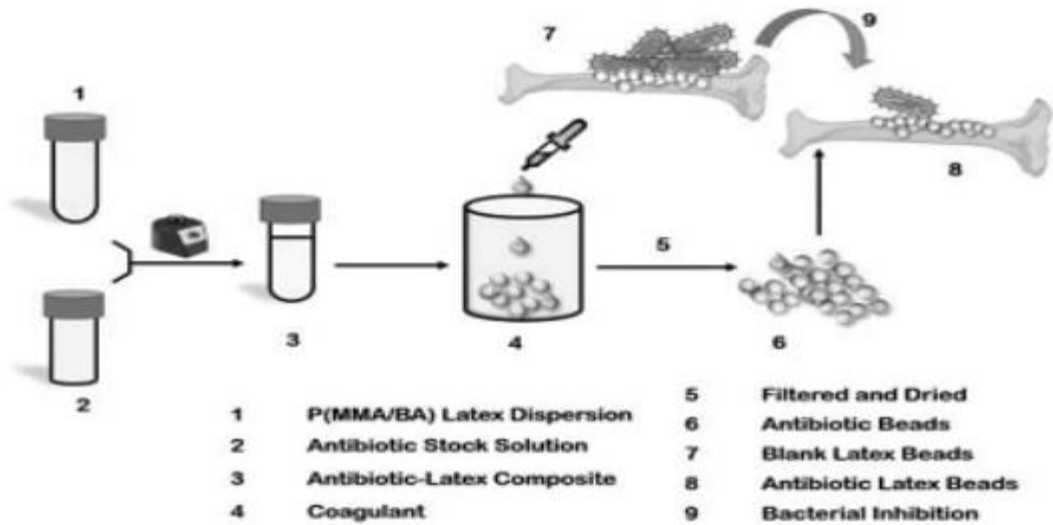


Figure 1

|                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <div>(51) International classification :G06V0040160000, G06N0003045000, G10L0025630000, G06N0003080000, G06V0020400000</div> <div>(86) International Application No :NA</div> <div>(87) International Publication No :NA</div> <div>(61) Patent of Addition to Application Number :NA</div> <div>(62) Divisional to Application Number :NA</div> <div>Filing Date :NA</div> | <div>(71)Name of Applicant :<br/><b>1)Theres Bemila Jenet</b><br/>Address of Applicant :Shah &amp; Anchor Kutchhi Engineering College, Mahavir Education Trust Chowk, W. T. Patil Marg, D. P. Road, Next to Duke's Company, Chembur, Mumbai, Maharashtra - 400088 Mumbai Suburban -----<br/><b>2)Dr. Swati Nadkarni</b><br/><b>3)Pranali Wagh</b><br/><b>4)Pranali Vhora</b><br/><b>5)Vaishali Korade</b><br/><b>6)Ankita Awasarmal</b><br/><b>7)Dikshant Patel</b><br/><b>8)Yash Jain</b><br/><b>9)Prashant Gupta</b><br/><b>10)Soham Shinde</b><br/>Name of Applicant : NA<br/>Address of Applicant : NA<br/>(72)Name of Inventor :<br/><b>1)Theres Bemila Jenet</b><br/>Address of Applicant :Shah &amp; Anchor Kutchhi Engineering College, Mahavir Education Trust Chowk, W. T. Patil Marg, D. P. Road, Next to Duke's Company, Chembur, Mumbai, Maharashtra - 400088 Mumbai Suburban -----<br/><b>2)Dr. Swati Nadkarni</b><br/>Address of Applicant :Shah &amp; Anchor Kutchhi Engineering College, Mahavir Education Trust Chowk, W. T. Patil Marg, D. P. Road, Next to Duke's Company, Chembur, Mumbai, Maharashtra - 400088 Mumbai Suburban -----<br/><b>3)Pranali Wagh</b><br/>Address of Applicant :Shah &amp; Anchor Kutchhi Engineering College, Mahavir Education Trust Chowk, W. T. Patil Marg, D. P. Road, Next to Duke's Company, Chembur, Mumbai, Maharashtra - 400088 Mumbai Suburban -----<br/><b>4)Pranali Vhora</b><br/>Address of Applicant :Shah &amp; Anchor Kutchhi Engineering College, Mahavir Education Trust Chowk, W. T. Patil Marg, D. P. Road, Next to Duke's Company, Chembur, Mumbai, Maharashtra - 400088 Mumbai Suburban -----<br/><b>5)Vaishali Korade</b><br/>Address of Applicant :Shah &amp; Anchor Kutchhi Engineering College, Mahavir Education Trust Chowk, W. T. Patil Marg, D. P. Road, Next to Duke's Company, Chembur, Mumbai, Maharashtra - 400088 Mumbai Suburban -----<br/><b>6)Ankita Awasarmal</b><br/>Address of Applicant :Shah &amp; Anchor Kutchhi Engineering College, Mahavir Education Trust Chowk, W. T. Patil Marg, D. P. Road, Next to Duke's Company, Chembur, Mumbai, Maharashtra - 400088 Mumbai Suburban -----<br/><b>7)Dikshant Patel</b><br/>Address of Applicant :Shah &amp; Anchor Kutchhi Engineering College, Mahavir Education Trust Chowk, W. T. Patil Marg, D. P. Road, Next to Duke's Company, Chembur, Mumbai, Maharashtra - 400088 Mumbai Suburban -----<br/><b>8)Yash Jain</b><br/>Address of Applicant :Shah &amp; Anchor Kutchhi Engineering College, Mahavir Education Trust Chowk, W. T. Patil Marg, D. P. Road, Next to Duke's Company, Chembur, Mumbai, Maharashtra - 400088 Mumbai Suburban -----<br/><b>9)Prashant Gupta</b><br/>Address of Applicant :Shah &amp; Anchor Kutchhi Engineering College, Mahavir Education Trust Chowk, W. T. Patil Marg, D. P. Road, Next to Duke's Company, Chembur, Mumbai, Maharashtra - 400088 Mumbai Suburban -----<br/><b>10)Soham Shinde</b><br/>Address of Applicant :Shah &amp; Anchor Kutchhi Engineering College, Mahavir Education Trust Chowk, W. T. Patil Marg, D. P. Road, Next to Duke's Company, Chembur, Mumbai, Maharashtra - 400088 Mumbai Suburban -----</div> |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

(57) Abstract :  
The present disclosure relates to multimodal emotion recognition system for sentiment and emotion analysis across multiple inputs and a process thereof.The multimodal emotion recognition system comprising: a data acquisition unit configured to receive a plurality of data inputs from users, wherein the plurality of data inputs comprising a text input, an image input, an audio input and a video input; a data pre-processing unit configured to process the plurality of data inputs, a sentiment and emotion analysis unit configured to extract sentiment and emotion indicators from the text input, wherein the sentiment analysis unit is further configured to identify positive, negative, and neutral sentiment, as well as specific emotions such as joy, anger, and sadness; an image and video feature extracting unit configured to analyze facial expression by using pre-trained convolutional neural networks (CNNs), wherein the image and video feature extracting unit is further configured to extract emotions such as happy, sad, anger, fear, surprise, or disgust based on facial movements in frames of the image and video; an audio feature extracting unit configured to extract emotion-related linguistic features from spoken words; a visualization unit configured to display results of the plurality of data inputs from the users.



(54) Title of the invention : SYSTEM AND PROCESS FOR SORTING, HANDLING AND REPRESENTING DATA THROUGH VISUALIZATION TECHNIQUE

(51) International classification :G06Q0050200000,  
G09B0019000000,  
G06T0011200000,  
G06F0016904000,  
G06F0016248000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No :NA  
(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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4)Abhishek Prashant Joshi

5)Rashi Jitu Bhanushali

6)Yogesh Krishna Tiwari

Name of Applicant : NA

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## (57) Abstract :

The present disclosure relates to a system for sorting, handling and representing data through visualization technique, said system comprising an user based platform configured to allow students to interact with visualizations by modifying inputs data, wherein the inputs are arrays values, linked lists, binary trees structures and graphs; a performance comparison log unit configured to provide performance comparison logs of the data; a progressive learning unit configured to provide a structure as a learning tool with progressive modules, starting from fundamental data like arrays and linked lists and progressing through more complex topics such as graphs and heaps; a processing unit configured to generate and provide pseudocode alongside the visual representation of the inputs data, wherein the processing unit configured to correlate graphical steps with an underlying logic, wherein the processing unit is further configured to reinforce a connection between the data and its textual representation, a data visualization unit configured to visually represent a plurality of data structures such as arrays, linked lists, binary trees and graphs in real-time on a user interface, wherein the data visualization unit configured to provide nodes change color during traversal, visually representing the current path and traversal order, wherein the visualizations are enhanced with animations and transitions, wherein colour schemes are provided in the user interface to provide visual cues to guide focus of the student on the data.



(54) Title of the invention : AI-POWERED REAL-TIME SPEECH PLAGIARISM DETECTION SYSTEM

|                                                                                                                                                                                                                                                                                                                                                                                                |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <div>(51) International classification :G10L15/26, G06F40/30, G10L15/00, G06N3/045</div> <div>(86) International Application No :NA</div> <div>Filing Date :NA</div> <div>(87) International Publication No : NA</div> <div>(61) Patent of Addition to Application Number :NA</div> <div>Filing Date :NA</div> <div>(62) Divisional to Application Number :NA</div> <div>Filing Date :NA</div> |  | <div>(71)Name of Applicant :<br/><b>1)Lakshmi Narain College of Technology (LNCT),Bhopal</b><br/>Address of Applicant :Lakshmi Narain College of Technology (LNCT), LNCT Campus, Kalchuri Nagar, (P.O. Kolua),Raisen Road, Bhopal-462022 (M.P). -----<br/>-----<br/><b>2)Ms. Huma Gupta</b><br/><b>3)Dr.Subodhini Gupta</b><br/><b>4)Ms.Devashri Deoskar</b><br/><b>5)Dr.Sadhna K.Mishra</b><br/>Name of Applicant : NA<br/>Address of Applicant : NA<br/>(72)Name of Inventor :<br/><b>1)Ms. Huma Gupta</b><br/>Address of Applicant :Assistant Professor, Department of Computer Science &amp; Engineering Lakshmi Narain College of Technology(LNCT), LNCT Campus, Kalchuri Nagar, (P.O. Kolua), Raisen Road, Bhopal-462022 (M.P). -----<br/>-----<br/><b>2)Dr.Subodhini Gupta</b><br/>Address of Applicant :Associate Professor, Department of Computer Science &amp; Engineering Lakshmi Narain College of Technology(LNCT), LNCT Campus, Kalchuri Nagar, (P.O. Kolua), Raisen Road, Bhopal-462022 (M.P). -----<br/>-----<br/><b>3)Ms.Devashri Deoskar</b><br/>Address of Applicant :Assistant Professor, Department of Computer Science &amp; Engineering Lakshmi Narain College of Technology(LNCT), LNCT Campus, Kalchuri Nagar, (P.O. Kolua), Raisen Road, Bhopal-462022 (M.P). -----<br/>-----<br/><b>4)Dr.Sadhna K.Mishra</b><br/>Address of Applicant :Professor, Department of Computer Science &amp; Engineering Lakshmi Narain College of Technology(LNCT), LNCT Campus, Kalchuri Nagar, (P.O. Kolua), Raisen Road, Bhopal-462022 (M.P). -----</div> |
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(57) Abstract :  
ABSTRACT: AI-Powered Real-Time Speech Plagiarism Detection System This invention describes that with the rise of digital communication, ensuring the originality and integrity of spoken content has become essential in academic, professional, and public domains. The AI-Powered Real-Time Speech Plagiarism Detection System addresses this need by detecting both verbatim and semantic plagiarism in spoken language—capabilities not commonly found in traditional text-based tools. Leveraging Artificial Intelligence (AI), Natural Language Processing (NLP), and Automatic Speech Recognition (ASR), the system converts live audio into text and compares it against extensive source archives. Using advanced string-matching and semantic similarity models, it accurately identifies direct copying, paraphrasing, and mimicry. The intuitive interface displays flagged content with similarity scores and source references, enabling rapid evaluation. Multilingual support, data privacy safeguards, and seamless integration through APIs make it ideal for use in education, healthcare, media, and legal sectors. This system not only redefines how spoken content is authenticated but also promotes ethical communication practices across institutions and industries.

No. of Pages : 11 No. of Claims : 8



(54) Title of the invention : A SELF-RETAINING NASOLACRIMAL DRAINAGE DEVICE

|                                               |                                                                                 |                                                                                                                                                                                                                            |
|-----------------------------------------------|---------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (51) International classification             | :A61F0009007000, A61F0009000000, A61B0017000000, A61P0029000000, A61P0043000000 | (71)Name of Applicant :<br><b>1)SUNDARDAS RAGHUNATH GORE</b><br>Address of Applicant :Sunder Netralaya, Super speciality eye clinic , Chaupati karanja Ahilyanagar, Ahmadnagar 414001, Maharashtra, India Ahmadnagar ----- |
| (86) International Application No             | :NA                                                                             |                                                                                                                                                                                                                            |
| Filing Date                                   | :NA                                                                             |                                                                                                                                                                                                                            |
| (87) International Publication No             | : NA                                                                            | <b>2)SEEMA SUNDARDAS GORE</b><br>Name of Applicant : NA<br>Address of Applicant : NA                                                                                                                                       |
| (61) Patent of Addition to Application Number | :NA                                                                             | (72)Name of Inventor :<br><b>1)SUNDARDAS RAGHUNATH GORE</b><br>Address of Applicant :Sunder Netralaya, Super speciality eye clinic , Chaupati karanja Ahilyanagar, Ahmadnagar 414001, Maharashtra, India Ahmadnagar -----  |
| Filing Date                                   | :NA                                                                             |                                                                                                                                                                                                                            |
| (62) Divisional to Application Number         | :NA                                                                             |                                                                                                                                                                                                                            |
| Filing Date                                   | :NA                                                                             |                                                                                                                                                                                                                            |

(57) Abstract :  
ABSTRACT A SELF-RETAINING NASOLACRIMAL DRAINAGE DEVICE The present invention relates to the field of ophthalmology and otorhinolaryngology, particularly to medical devices for treating nasolacrimal duct obstructions. A permanent nasolacrimal drainage device (12) comprises a C-shaped continuous hollow silicon tube (24) configured to form a loop pathway through upper and lower canaliculi with ends (8a, 8b) positioned to discharge biological fluid into a lacrimal sac (22). The device (12) further comprises a plurality of perforations (18) including upper perforation (18a), central perforation (18b), and lower perforation (18c) configured to receive biological fluid from the ocular surface of eye (14). The device additionally comprises a radiopaque strip (30) embedded within the continuous hollow silicon tube (24) for radiographic visualization and structural support. Semicircular grooves (20) formed on outer walls of canalicular portions enhance grip and prevent displacement. The self-retaining design eliminates sutures while providing mechanical eyelid support, thereby delivering comprehensive long-term drainage solutions without requiring removal procedures. [To be published with FIG. 1]

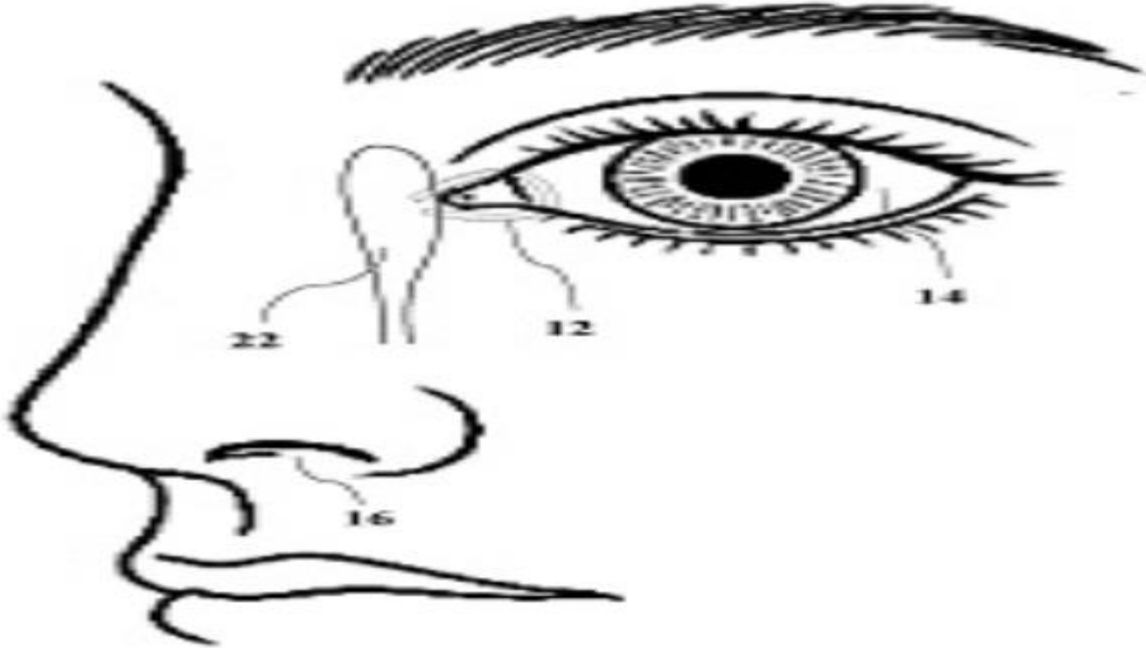


FIG. 1

No. of Pages : 24 No. of Claims : 9

(54) Title of the invention : A NASOLACRIMAL PROBE RETRIEVER

|                                                                                                                                                                                                                                                                                                                                                                                                 |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <div>(51) International classification :A61F9/007, A61B17/00, A61M25/00</div> <div>(86) International Application No :NA</div> <div>    Filing Date :NA</div> <div>(87) International Publication No : NA</div> <div>(61) Patent of Addition to Application Number :NA</div> <div>    Filing Date :NA</div> <div>(62) Divisional to Application Number :NA</div> <div>    Filing Date :NA</div> |  | <div>(71)Name of Applicant :<br/>1)SUNDARDAS RAGHUNATH GORE<br/>    Address of Applicant :Sunder Netralaya, Super speciality eye clinic , Chaupati karanja Ahilyanagar, Ahmadnagar 414001, Maharashtra, India Ahmadnagar -----<br/>-----<br/>2)SEEMA SUNDARDAS GORE<br/>Name of Applicant : NA<br/>Address of Applicant : NA<br/>(72)Name of Inventor :<br/>1)SUNDARDAS RAGHUNATH GORE<br/>    Address of Applicant :Sunder Netralaya, Super speciality eye clinic , Chaupati karanja Ahilyanagar, Ahmadnagar 414001, Maharashtra, India Ahmadnagar -----<br/>-----</div> |
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(57) Abstract :  
ABSTRACT A NASOLACRIMAL PROBE RETRIEVER The present disclosure relates to a nasolacrimal probe retriever (12) for retrieving a metallic nasolacrimal probe (20) during dacryocystorhinostomy surgery. The nasolacrimal probe retriever (12) may comprise a curved metallic body (24) having a proximal end (28) and a distal end (22). The curved metallic body (24) may define an internal lumen (36) extending from the proximal end (28) to the distal end (22). The curved metallic body (24) may be configured for navigation through a nasal cavity (16). The internal lumen (36) may be configured to receive and guide the metallic nasolacrimal probe (20). The distal end (22) may comprise an atraumatic tip configured to minimize trauma to nasal mucosa. The nasolacrimal probe retriever (12) may further comprise a suction connector (32) disposed at the proximal end (28) configured to connect to surgical suction tubing. The curved metallic body (24) may be fabricated from an autoclavable material. [To be published with FIG. 2]

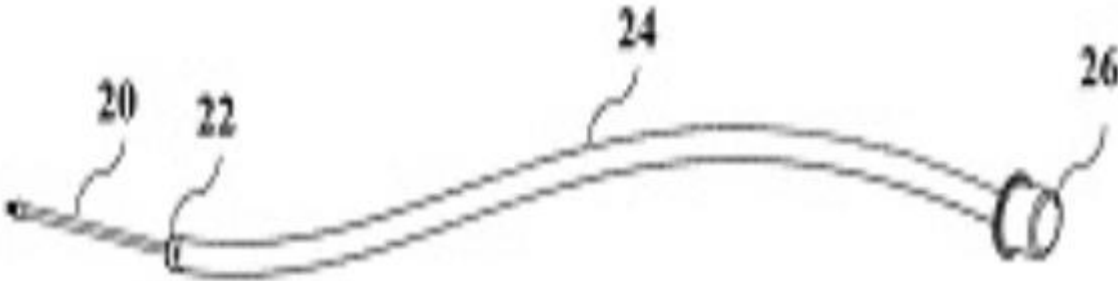


FIG. 2

(54) Title of the invention : A SYSTEM AND METHOD FOR WIRING ACCESSORIES OF DOMESTIC AND COMMERCIAL ELECTRICAL APPLICATIONS

|                                   |                                                   |
|-----------------------------------|---------------------------------------------------|
| (51) International classification | :H01H9/02, H02B1/04, H02B1/06, H02B1/14, H01H9/22 |
| (86) International Application No | :NA                                               |
| Filing Date                       | :NA                                               |
| (87) International Publication No | : NA                                              |
| (61) Patent of Addition to        | :NA                                               |
| Application Number                | :NA                                               |
| Filing Date                       | :NA                                               |
| (62) Divisional to Application    | :NA                                               |
| Number                            | :NA                                               |
| Filing Date                       | :NA                                               |

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---

(57) Abstract :

**ABSTRACT A SYSTEM AND METHOD FOR WIRING ACCESSORIES OF DOMESTIC AND COMMERCIAL ELECTRICAL APPLICATIONS** The present invention relates to a wiring accessories system that includes a switching system for domestic and commercial electrical applications. The switching system includes a wall switch plate adaptor having an aperture of a shape and size larger than a cross-section of a corresponding switch; an engraving disposed at the wall switch plate adaptor, wherein the engraving comprises a height, having dimensions conforming to the corresponding switch, for a vertical configuration of the switch plate, and wherein the engraving comprises a width, having dimensions corresponding to the electrical switch, for a horizontal configuration of the switch plate. A plurality of raised areas is disposed on the opposite sides of the wall switch plate adaptor for providing reinforcement support to the engraving. A plurality of grooves is disposed around the wall switch plate adaptor for accommodating a configuration of the switch for reducing risk of hazardous contact with live electrical parts associated with the switch plate assembly; a housing is sized to fit at least partially inside the wall switch plate adaptor for containing a plurality of conducting and insulating modules. A grid plate cover is provided, comprising a touch-sensitive surface. A plurality of sensors is disposed behind the touch-sensitive surface for sensing a user interaction with the touch-sensitive surface. A socket including a safety shutter and a shutter spring. A locking and releasing means is configured for integrating components of the switch plate assembly for a locking state and a releasing state that respectively comprise maintaining the integrity of the switch plate assembly against physical intervention. A calibrator means is configured for confirming the dimensions of the switch plate assembly with dimensions of components, interior, and exterior of the switch plate assembly. To be published with figure 1.

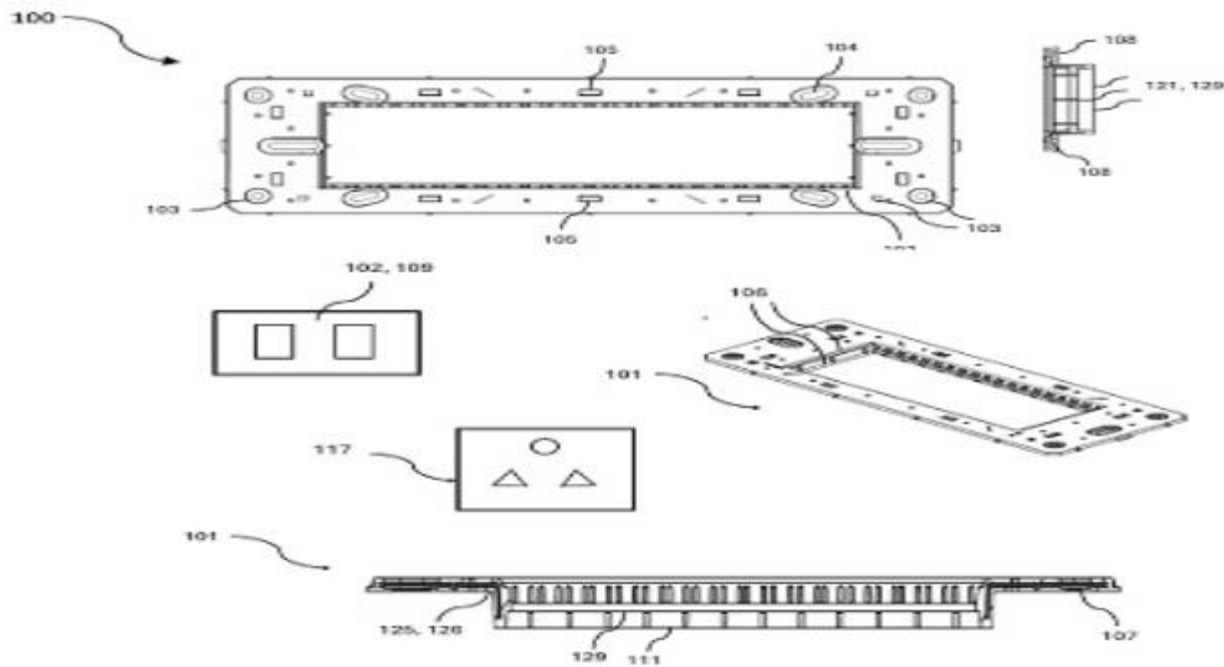


Figure 01

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202521056338 A

(19) INDIA

(22) Date of filing of Application :11/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : Intranasal Ar-Turmerone Formulation for the Treatment of Neurodegenerative Disorders

(51) International  
classification

:A61P0025280000, A61K0009000000,  
A61P0025000000, A61K0031573000,  
A61P0001180000

(86) International  
Application No  
Filing Date

:NA  
:NA

(87) International  
Publication No

: NA

(61) Patent of Addition to  
Application Number  
Filing Date

:NA  
:NA

(62) Divisional to  
Application Number  
Filing Date

:NA  
:NA

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(57) Abstract :

The invention provides an intranasal delivery system for ar-turmerone intended to treat neurodegenerative disorders by enhancing drug delivery directly to the brain.

No. of Pages : 9 No. of Claims : 7

(54) Title of the invention : SELF-LEARNING CAPABILITIES IN NEXT GENERATION INTELLIGENT AGENT

|                                               |                                                                    |                                |                                                                                                                                                 |
|-----------------------------------------------|--------------------------------------------------------------------|--------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------|
| (51) International classification             | :G06F40/30, G06F40/35, G06N3/00, G06F16/33, G06F16/3329, G06N20/00 | (71)Name of Applicant :        |                                                                                                                                                 |
| (86) International Application No             | :NA                                                                | 1)Dr. Helly Raval              | Address of Applicant :Sr. ML Developer at WeblneIndia, Ahmedabad, Gujarat, India -----                                                          |
| Filing Date                                   | :NA                                                                | 2)Dr. Satyen Parikh            |                                                                                                                                                 |
| (87) International Publication No             | : NA                                                               | 3)Dr. Meghnaben Babubhai Patel |                                                                                                                                                 |
| (61) Patent of Addition to Application Number | :NA                                                                | Name of Applicant : NA         |                                                                                                                                                 |
| Filing Date                                   | :NA                                                                | Address of Applicant : NA      |                                                                                                                                                 |
| (62) Divisional to Application Number         | :NA                                                                | (72)Name of Inventor :         |                                                                                                                                                 |
| Filing Date                                   | :NA                                                                | 1)Dr. Helly Raval              | Address of Applicant :Sr. ML Developer at WeblneIndia, Ahmedabad, Gujarat, India -----                                                          |
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|                                               |                                                                    | 3)Dr. Meghnaben Babubhai Patel | Address of Applicant :Associate. Professor, A. M. Patel Institute of Computer Studies, Ganpat University, Kherva, Mehsana, Gujarat, India ----- |

(57) Abstract :

The evolution of question-answering (QA) systems has dramatically reshaped human-computer interaction, with AI-driven conversational agents becoming essential across various domains. From Joseph Weizenbaum's ELIZA in the 1960s, which used early natural language processing (NLP) techniques to simulate basic conversation, to the emergence of advanced models like GPT-2, Mistral and LLaMA, the capabilities of these systems have evolved significantly. Today, conversational agents are capable of understanding and responding to complex queries and exhibit human-like conversational depth. This research explores the journey of QA systems, from rule-based methodologies to state-of-the-art deep learning techniques. Despite this progress, existing systems still face critical challenges, particularly in managing ambiguous questions, retaining conversational context, and commonsense reasoning tasks. To tackle these issues, this research introduces LLMHarmonized, an innovative self-learning agent that integrates the capabilities of two leading models Mistral and LLaMA2 within a hybrid architecture called the Self-Learning Intelligent Agent. This agent continually improves its performance through interaction and feedback, enhancing its accuracy, contextual understanding, and ability to resolve ambiguity. The framework's effectiveness is demonstrated through extensive experimentation on benchmark datasets. On the CoQA dataset, LLMHarmonized achieves an outstanding F1 score, illustrating its ability to maintain context and deliver precise answers in conversational settings. On the NQ-OPEN dataset, which tests ambiguity resolution in open-domain questions, showcasing its ability to handle challenging queries. Moreover, the agent demonstrates strong commonsense reasoning, achieving an accuracy on the CommonsenseQA dataset, highlighting its capacity for understanding and applying everyday logic. By leveraging a self-learning approach and integrating advanced language models, LLMHarmonized significantly advances the capabilities of modern QA systems. This research addresses persistent challenges in context comprehension and ambiguity handling and sets the stage for future advancements in conversational AI, driving the development of smarter, more adaptive, and human-like conversational agents.

No. of Pages : 11 No. of Claims : 4

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202521055981 A

(19) INDIA

(22) Date of filing of Application :10/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : "WATER-DISPERSIBLE NUTRACEUTICAL POWDER FORMULATIONS AND PREPARATION METHOD THEREOF"

|                                               |                                                                                 |                                                                                                                                                                                                                                               |
|-----------------------------------------------|---------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (51) International classification             | :A61K0009000000, A23L0033105000, A61P0029000000, A61K0009140000, A61P0031040000 | (71)Name of Applicant :<br><b>1)Bharati Vidyapeeth (Deemed to be University), Poona College of Pharmacy, Pune</b><br>Address of Applicant :Poona College of Pharmacy, Erandwane, Bharati Vidyapeeth (Deemed to be University) Pune Pune ----- |
| (86) International Application No             | :NA                                                                             | <b>Name of Applicant : NA</b>                                                                                                                                                                                                                 |
| Filing Date                                   | :NA                                                                             | <b>Address of Applicant : NA</b>                                                                                                                                                                                                              |
| (87) International Publication No             | : NA                                                                            | (72)Name of Inventor :                                                                                                                                                                                                                        |
| (61) Patent of Addition to Application Number | :NA                                                                             | <b>1)Dr. Preeti Tamane</b><br>Address of Applicant :Poona College of Pharmacy, Erandwane, Bharati Vidyapeeth (Deemed to be University) Pune- 411038 Pune -----                                                                                |
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| (62) Divisional to Application Number         | :NA                                                                             | <b>3)Dr. Varsha Pokharkar</b><br>Address of Applicant :Poona College of Pharmacy, Erandwane, Bharati Vidyapeeth (Deemed to be University) Pune- 411038 Pune -----                                                                             |
| Filing Date                                   | :NA                                                                             |                                                                                                                                                                                                                                               |

(57) Abstract :  
"A WATER-DISPERSIBLE NUTRACEUTICAL POWDER FORMULATION AND PREPARATION METHOD THEREOF" The present invention provides a platform technology for the development of water-dispersible nutraceutical powder formulations comprising plant extracts. The invention further discloses a method for preparing the nutraceutical powder formulation, specifically designed to enhance the ease of consumption, solubility, stability and palatability of the incorporated extract. The approach is solvent-free, eco-friendly, and scalable solution. The resulting formulations are suitable for use in pharmaceutical, nutraceutical, and cosmeceutical applications, particularly in products aimed at therapeutic, regenerative, anti-inflammatory, antioxidant, and general wellness benefits.

No. of Pages : 18 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202521056008 A

(19) INDIA

(22) Date of filing of Application :10/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : NON-INVASIVE BIOMARKER DETECTION FOR SCREENING, DIAGNOSIS AND STAGING OF ORAL SQUAMOUS CELL CARCINOMA

(51) International classification :G01N0033680000, G01N0033574000, C12Q0001688600, G01N0033920000, G01N0030720000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

Abstract NON-INVASIVE BIOMARKER DETECTION FOR SCREENING, DIAGNOSIS AND STAGING OF ORAL SQUAMOUS CELL CARCINOMA The present invention provides a non-invasive method and platform for the early detection, diagnosis, and staging of oral squamous cell carcinoma (OSCC) using saliva and oral mucosal lesion scrapings. The method involves metabolomic, lipidomic, and proteomic profiling via LC-MS to identify molecular biomarkers associated with OSCC development and progression. The identified biomarker panel significantly distinguishes between OSCC and healthy or OSMF patients, offering a highly sensitive and specific diagnostic alternative to invasive biopsy. The invention includes a panel of biomarkers for designing diagnostic kit, enabling personalized disease monitoring and risk stratification.

No. of Pages : 30 No. of Claims : 6

(51) International classification

:H04M0001600000, H04N0005330000, H05K0013080000, C09D0007610000, B25J0009000000

(86) International Application No

:NA

Filing Date

:NA

(87) International Publication No

: NA

(61) Patent of Addition to Application Number

:NA

Filing Date

:NA

(62) Divisional to Application Number

:NA

Filing Date

:NA

(71)Name of Applicant :

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(72)Name of Inventor :

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**6)Neel Dholakia**  
Address of Applicant :Department of Computer Science and Engineering, Artificial Intelligence, Machine Learning, Data Science, Marwadi University, Rajkot - Morbi Road, Rajkot 360003 Gujarat, India. Rajkot -----

(57) Abstract :

A multi-functional teaching assistive device comprising of a board-like panel 101 serving as a writable surface and a digital projection screen, a built-in microphone 102 enables voice commands, an automated covering unit 103 with cleaning components, including a spray unit 106 and motorized dusters mounted on a motorized two-axis slider, cleans the board 101 based on a photoelectric sensor, a retracting projector 117 with a dedicated deployable white sheet 119 for digital content, a planar manipulator assembly 122 with telescopic rods 121 precisely positions a gun barrel arrangement 124 housing multi-coloured chalks via suction units for automated writing or drawing, enabling hands-free operation, an integrated thermal imaging camera 113 detects student presence for attendance and triggers board 101 covering during unoccupied periods, an audio output unit 126 for reading instructions from the board 101.

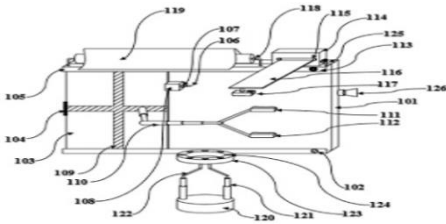


Figure 1

No. of Pages : 25 No. of Claims : 9



(54) Title of the invention : HIGH-JUMP TRAINING AND ASSISTANCE SYSTEM

|                                                                                                                                                                                                                                                                                                                          |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
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| <div>(51) International classification :A61B0005000000,A61B0005110000,A63B0005020000,A63B0023160000,A61B0005375000(86) International Application No :NAFiling Date(87) International Publication No :NAPatent of Addition to Application Number :NAFiling Date(62) Divisional to Application Number :NAFiling Date</div> |  | <div>(71)Name of Applicant :<br/>1)Marwadi University<br/>Address of Applicant :Rajkot - Morbi Road, Rajkot 360003 Gujarat, India. Rajkot -----<br/>Name of Applicant : NA<br/>Address of Applicant : NA<br/>(72)Name of Inventor :<br/>1)Ancha Vasu<br/>Address of Applicant :Department of Computer Engineering, Artificial Intelligence, Marwadi University, Rajkot - Morbi Road, Rajkot 360003 Gujarat, India. Rajkot -----<br/>2)Chakali Bharath<br/>Address of Applicant :Department of Computer Engineering, Artificial Intelligence, Marwadi University, Rajkot - Morbi Road, Rajkot 360003 Gujarat, India. Rajkot -----<br/>3)Dr. Madhu Shukla<br/>Address of Applicant :Department of Computer Science and Engineering, Artificial Intelligence, Machine Learning, Data Science, Marwadi University, Rajkot - Morbi Road, Rajkot 360003 Gujarat, India. Rajkot -----<br/>4)Simrin Fathima Syed<br/>Address of Applicant :Department of Computer Science and Engineering, Artificial Intelligence, Machine Learning, Data Science, Marwadi University, Rajkot - Morbi Road, Rajkot 360003 Gujarat, India. Rajkot -----<br/>5)Vipul Ladva<br/>Address of Applicant :Department of Computer Science and Engineering, Artificial Intelligence, Machine Learning, Data Science, Marwadi University, Rajkot - Morbi Road, Rajkot 360003 Gujarat, India. Rajkot -----<br/>6)Akshay Ranpariya<br/>Address of Applicant :Department of Computer Science and Engineering, Artificial Intelligence, Machine Learning, Data Science, Marwadi University, Rajkot - Morbi Road, Rajkot 360003 Gujarat, India. Rajkot -----<br/>7)Neel Dholakia<br/>Address of Applicant :Department of Computer Science and Engineering, Artificial Intelligence, Machine Learning, Data Science, Marwadi University, Rajkot - Morbi Road, Rajkot 360003 Gujarat, India. Rajkot -----<br/>8)Dhara Joshi<br/>Address of Applicant :Department of Computer Engineering, Marwadi University, Rajkot - Morbi Road, Rajkot 360003 Gujarat, India. Rajkot -----<br/>9)Kishan Makadiya<br/>Address of Applicant :Department of Computer Engineering, Marwadi University, Rajkot - Morbi Road, Rajkot 360003 Gujarat, India. Rajkot -----</div> |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

(57) Abstract :  
A high-jump training and assistance system comprising a platform 101 with adjustable columns 102 via vertical sliding rail 103, a crossbar 104 mounted along the transverse axis from columns 102, a handlebar 105 with a biometric scanner 106 for user authentication, a sensor suite 110 with pressure, force, and gyroscopic sensors for detecting grip strength, asymmetry, and hand alignment, a speaker 111 for real-time voice alerts, a holographic projection unit 112 for spatial jump guidance, an artificial intelligence-based imaging camera 113 with imaging processor for movement monitoring and posture analysis, an inflatable landing unit with motorized rollers 115 and inflatable sheets secured via motorized clippers 117 on a parallel slider track 118 for safety, an ultrasonic sensor for motion tracking and collision detection, a head gear 119 with EEG sensors for neuro-feedback on mental focus and fatigue, LEDs 120 on the crossbar 104 for visual fatigue and readiness alerts.

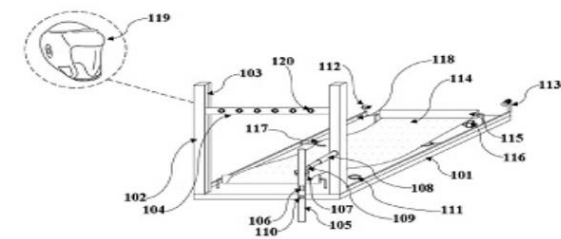


Figure 1

No. of Pages : 21 No. of Claims : 10

|                                                                                                                   |                                                                                                                                                                                              |
|-------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (12) PATENT APPLICATION PUBLICATION                                                                               | (21) Application No.202521056770 A                                                                                                                                                           |
| (19) INDIA                                                                                                        |                                                                                                                                                                                              |
| (22) Date of filing of Application :12/06/2025                                                                    | (43) Publication Date : 04/07/2025                                                                                                                                                           |
| (54) Title of the invention : A METHOD AND SYSTEM FOR AGENTIC AI-BASED SOCIAL BUSINESS NETWORKING                 |                                                                                                                                                                                              |
| (51) International classification :H04L0067306000, H04L0009400000, G06F0021620000, H04L0009000000, H04L0067109500 | (71)Name of Applicant :<br><b>1)Ramakrishnan, RAJENDRAN</b><br>Address of Applicant :2504, 25th Floor, Sreeji Villa Co housing, T.H.K Marg, Mumbai, Maharashtra, India - 400016 Mumbai ----- |
| (86) International Application No :NA<br>Filing Date :NA                                                          | <b>2)Maria, SHENTHILVEL ACHARY</b><br>Name of Applicant : NA<br>Address of Applicant : NA                                                                                                    |
| (87) International Publication No : NA                                                                            | (72)Name of Inventor :<br><b>1)Ramakrishnan, RAJENDRAN</b><br>Address of Applicant :2504, 25th Floor, Sreeji Villa Co housing, T.H.K Marg, Mumbai, Maharashtra, India - 400016 Mumbai -----  |
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| (62) Divisional to Application Number :NA<br>Filing Date :NA                                                      |                                                                                                                                                                                              |

(57) Abstract :  
The present invention relates to an agentic AI-powered social business networking system and method that enables seamless interaction between users and multiple business ecosystems through a unified, intelligent platform. The system employs autonomous AI agents configured to manage user-specific roles, preferences, and workflows, and to execute business functions such as scheduling, diagnostics, transactions, and service delivery. A multi-agent synchronization framework ensures real-time coordination of data, roles, and services across distributed environments. The platform further provides domain-specific personalization, offline and hybrid operational support, and a decentralized identity mechanism for universal access. Interaction is facilitated through a distributed network interface embedded within collaborative user experiences. The system is deployable across on-premise, private, or public cloud infrastructure with integrated privacy controls and compliance features. The invention offers scalable, adaptive, and intelligent business networking by integrating automation, personalization, and cross-platform connectivity within a secure, AI-driven ecosystem.

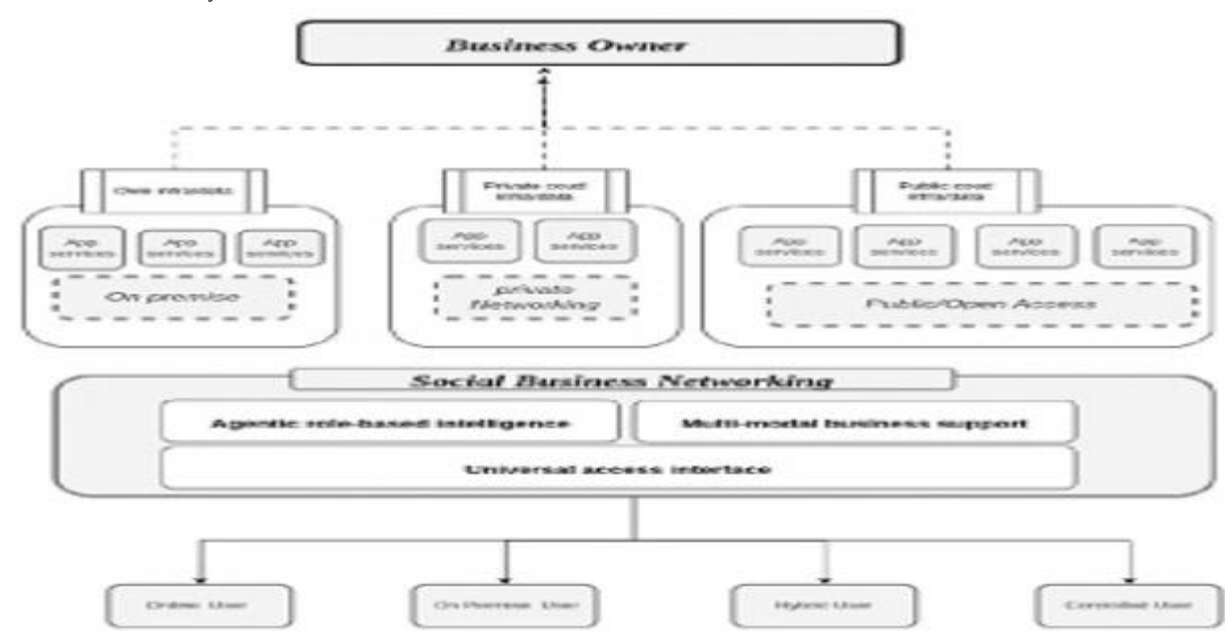


FIG – 1

No. of Pages : 21 No. of Claims : 10

(54) Title of the invention : GENETIC AND BAYESIAN OPTIMIZATION FOR HYPERPARAMETER TUNING IN KERAS-BASED CNNs.

|                                                                                                                                                                                                                                                                                                                                                                                                               |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <div>(51) International classification :G06N0007010000, G06N0003045000, G06N0020100000, G06N0005010000, G06N0003080000</div> <div>(86) International Application No :NA<br/>Filing Date :NA</div> <div>(87) International Publication No : NA</div> <div>(61) Patent of Addition to Application Number :NA<br/>Filing Date :NA</div> <div>(62) Divisional to Application Number :NA<br/>Filing Date :NA</div> |  | <div>(71)Name of Applicant :<br/><b>1)DHABE PRIYADARSHAN SHANKARRAO</b><br/>Address of Applicant :VISHWAKARMA INSTITUTE OF TECHNOLOGY, 666 UPPER INDIRA NAGAR, BIBWEWADI, PUNE, MAHARASHTRA, INDIA - 411 037. -----<br/><b>2)PATIL ROSHAN RAJENDRA</b><br/><b>3)PATIL PRATHMESH PRADIP</b><br/><b>4)PATIL PRANAV PRAVIN</b><br/><b>5)SADAKE SIDDHARTH VIKAS</b><br/><b>6)PATIL MANASVI MAHADEV</b><br/>Name of Applicant : NA<br/>Address of Applicant : NA<br/>(72)Name of Inventor :<br/><b>1)DHABE PRIYADARSHAN SHANKARRAO</b><br/>Address of Applicant :VISHWAKARMA INSTITUTE OF TECHNOLOGY, 666 UPPER INDIRA NAGAR, BIBWEWADI, PUNE, MAHARASHTRA, INDIA - 411 037. -----<br/><b>2)PATIL ROSHAN RAJENDRA</b><br/>Address of Applicant :VISHWAKARMA INSTITUTE OF TECHNOLOGY, 666 UPPER INDIRA NAGAR, BIBWEWADI, PUNE, MAHARASHTRA, INDIA - 411 037. -----<br/><b>3)PATIL PRATHMESH PRADIP</b><br/>Address of Applicant :VISHWAKARMA INSTITUTE OF TECHNOLOGY, 666 UPPER INDIRA NAGAR, BIBWEWADI, PUNE, MAHARASHTRA, INDIA - 411 037. -----<br/><b>4)PATIL PRANAV PRAVIN</b><br/>Address of Applicant :VISHWAKARMA INSTITUTE OF TECHNOLOGY, 666 UPPER INDIRA NAGAR, BIBWEWADI, PUNE, MAHARASHTRA, INDIA - 411 037. -----<br/><b>5)SADAKE SIDDHARTH VIKAS</b><br/>Address of Applicant :VISHWAKARMA INSTITUTE OF TECHNOLOGY, 666 UPPER INDIRA NAGAR, BIBWEWADI, PUNE, MAHARASHTRA, INDIA - 411 037. -----<br/><b>6)PATIL MANASVI MAHADEV</b><br/>Address of Applicant :VISHWAKARMA INSTITUTE OF TECHNOLOGY, 666 UPPER INDIRA NAGAR, BIBWEWADI, PUNE, MAHARASHTRA, INDIA - 411 037. -----</div> |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

(57) Abstract :  
The invention presents a hybrid approach for hyperparameter tuning of convolutional neural networks (CNNs) using genetic algorithms and Bayesian optimization. Designed to enhance classification performance on image datasets such as MNIST, the method automates the selection of key architectural parameters—layer count, neuron size, dropout rates, and learning rate. Genetic algorithms explore configurations through evolution-inspired operations, while Bayesian optimization models performance with probabilistic surrogates to guide sampling. Experimental evaluation demonstrates superior accuracy and training efficiency over manual and grid search methods. This invention provides a robust, scalable solution for optimizing deep learning models in image processing applications.

No. of Pages : 11 No. of Claims : 5

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :13/06/2025

(21) Application No.202521056818 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : A SMART CATTLE FEEDER WITH REAL-TIME OBJECT DETECTION, LINE FOLLOWING NAVIGATION, BATTERY LEVEL INDICATOR AND FEED WEIGHT CONTROL VIA MULTI-SENSOR INTEGRATION.

(51) International classification :H04L0065800000, G06T0001200000, G06Q0030060000, G06F0003048170, H04N0021643000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

The present invention relates to an autonomous cattle feeding system that integrates machine vision, mobile communication, and robotic automation to ensure precise and efficient livestock feeding. The system consists of a mobile application for user input, Bluetooth communication with a microcontroller (Arduino Mega), and real-time cattle detection using a custom-trained YOLOv8 deep learning model on the mobile device. The robotic unit navigates along a predefined path using IR sensors, detects and avoids obstacles using an ultrasonic sensor mounted on a servo and MPU6050, and accurately dispenses feed using a set of load cells interfaced through HX711 modules. Additionally, it includes a battery monitoring unit using LM3914 IC and a relay-controlled status circuit to assess operational readiness. The robot continues feeding based on the input data and returns to a charging/refill base station once feeding is complete or the battery/feed level is insufficient.

No. of Pages : 9 No. of Claims : 9

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :06/06/2025

(21) Application No.202521054614 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : IOT-BASED WEARABLE SMART SPECTACLES FOR REAL-TIME SPEECH-TO-TEXT AND ASSISTIVE COMMUNICATION.

(51) International classification :G10L0015260000, G10L0015220000, G02B0027010000, G06F0003160000, H05K0001020000  
(86) International Application No :NA  
Filing Date :NA  
(87) International Publication No : NA  
(61) Patent of Addition to Application Number :NA  
Filing Date :NA  
(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

The invention offers a wearable aid as smart glasses that translate speech into real-time text for hearing or speech-impaired individuals. The system includes a microphone to record ambient speech, a microcontroller to process signals, and a wireless communication module (e.g., Wi-Fi or Bluetooth) to provide connectivity with cloud-based speech recognition. The transcribed dialogue is shown on a tiny heads-up display (HUD) inside the lens area, enabling the user to view the dialogue in a natural way in his/her line of sight. The equipment operates with a small rechargeable battery and is made for portability, hands-free wear, and every-day wear. This invention improves personal communication, fosters social integration, and facilitates independent living by offering an unobtrusive, real-time, and easy-to-use solution to accessible communication.

No. of Pages : 11 No. of Claims : 6

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :13/06/2025

(21) Application No.202521057177 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : AN HERBAL GEL COMPOSITION FOR TREATING POST RADIATION ORAL MUCOSITIS IN PATIENTS WITH ORAL CANCER

(51) International classification :A61K0036906600, A61P0029000000, A61K0036484000, A61K0009000000, A61P0017020000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

The present invention relates to an herbal composition and its method of preparation for the effective management of post-radiation oral mucositis and dermatitis. The formulation incorporates a synergistic blend of standardized herbal extracts, including Haridra (Curcuma longa), Daruharidra (Berberis aristata), Triphala (Amalaki, Haritaki, Bibhitaki), and Yashtimadhu (Glycyrrhiza glabra), known for their anti-inflammatory, antioxidant, and wound-healing properties. The gel formulation utilizes Carbopol 940, Triethanolamine (TEA), Glycerine, and distilled water to create a stable base with a pH of 6.8–7.0, suitable for oral mucosal application. Additionally, a herbal lotion variant is prepared using beeswax, white paraffin wax, natural oils/ghee, and the herbal gel to treat radiation-induced skin inflammation. The invention provides a dual therapeutic solution for external and mucosal radiation injuries, ensuring patient comfort, faster healing, and minimal side effects. The composition is prepared using a hydroalcoholic extraction method and formulated under controlled conditions to preserve bioactivity and enhance efficacy.

No. of Pages : 12 No. of Claims : 2

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202521057181 A

(19) INDIA

(22) Date of filing of Application :13/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : A METHOD OF PREPARING THE STEAM ACTIVATED HERBAL THERAPY PACK

(51) International classification :A61F0007020000, A61K0036906600, A61K0036670000, A61K0036185000, A61P0019020000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
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(57) Abstract :

The present invention relates to a method of preparing the steam activated herbal therapy pack. The herbal therapy pack consists of a biodegradable, non-heat-sealed pouch containing pre-measured dried Ayurvedic herbal ingredients. Upon activation through steam at approximately 110°F, the herbs are released into a therapeutic paste, which is then applied directly to the affected body area. The pack maintains its temperature for repeated use and can be reheated during the same treatment session. The herbal ingredients, selected for their natural healing properties, include Guduchi, Khadira, Haridra, Gokshura, and Madhuyasthi, providing targeted relief for conditions such as arthritis, muscle pain, and inflammation. The system also includes a steam activation chamber and cooling mechanism to ensure the pack reaches a safe temperature for application. The biodegradable packaging ensures environmental sustainability, making the HerbaSteam Pack a revolutionary approach to Ayurvedic therapy for both clinical and home use.

No. of Pages : 17 No. of Claims : 1

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :07/06/2025

(21) Application No.202521055099 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : ORAL THIN FILM COMPOSITION OF ONDANSETRON HYDROCHLORIDE FOR RAPID ANTI-EMETIC EFFECT

(51) International classification :A61K31/4178, A61K9/00, A61K47/10, A61K47/26, A61K47/32, A61K47/36, A61K47/38  
(86) International Application No :NA  
Filing Date :NA  
(87) International Publication No : NA  
(61) Patent of Addition to Application Number :NA  
Filing Date :NA  
(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :  
The present invention relates to pharmaceutical formulations, more particularly to a novel orally dissolving thin film (ODF) composition of Ondansetron Hydrochloride. This invention further offers a rapid onset of anti-emetic action by enhancing patient compliance, especially for patients suffering from chemotherapy-induced nausea and vomiting.

No. of Pages : 22 No. of Claims : 7



(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :16/06/2025

(21) Application No.202521057442 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : AI POWERED E-MAIL GENERATION AND PERSONALIZATION SYSTEM WITH LINKEDIN WEB SCRAPER AND READ RECEIPTS.

(51) International classification :G06Q10/107, H04L51/21,  
G06Q50/00  
(86) International Application No :NA  
Filing Date :NA  
(87) International Publication No : NA  
(61) Patent of Addition to Application  
Number :NA  
Filing Date :NA  
(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

In the digital era, efficient and personalized communication is crucial for professional engagement. The AI-Powered Email Generation and Personalization System integrates AI-driven email composition with LinkedIn data extraction and read receipt tracking to enhance outreach effectiveness. This system utilizes web scraping techniques to collect recipient-specific data from LinkedIn profiles, which is then processed by AI to generate context-aware, personalized emails. A built-in read receipt mechanism enables real-time engagement tracking, allowing users to optimize follow-up strategies. Developed using Next.js, Node.js, and Python, this system provides a seamless, user-friendly experience for recruiters, marketers, and professionals seeking to automate and personalize large-scale email outreach. By reducing manual effort and improving engagement rates, it streamlines communication while ensuring relevance and efficiency

No. of Pages : 7 No. of Claims : 4

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202521057444 A

(19) INDIA

(22) Date of filing of Application :16/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : Mechanized Vermicompost Churning and Grading Machine with Integrated Rotary Sieve and Blade-Based Clod Disintegration System

(51) International classification :B07B1/22, B07B1/24, C05F17/02  
(86) International Application No :NA  
Filing Date :NA  
(87) International Publication No : NA  
(61) Patent of Addition to Application Number :NA  
Filing Date :NA  
(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

The present invention pertains to a vermicompost churning cum grading machine that is meant for automating disintegration and grading of vermicompost clods. The equipment consists of an axial feeding chute for feeding raw vermicompost; a churning unit made up of a churning drum, a rotary churning shaft, and helically mounted C-curve blades on a flange, designed to crush clods by impact, rubbing, and centrifugal force; and a sieving unit made up of a rotary sieve with adjustable mesh (usually 3–4 mm) mounted on an auxiliary rotating shaft for separating fine compost from coarse residues. The sieving and churning units are operated through a motor-driven transmission system with pulleys and belts, allowing for simultaneous use. The system involves a wheeled transportable frame, an enclosure for safety, and a tray for collecting underneath the sieve. The innovation decreases manual labor drastically, increases output quality, and minimizes efficiency under working conditions of ~25.42% moisture content and blade speed of ~5.34 m/s. It is appropriate for use on the farm and sustainable vermicompost production.

No. of Pages : 19 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :16/06/2025

(21) Application No.202521057468 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : E-LIBRARY WEBSITE WITH SECURE EBOOK AND AUDIOBOOK ACCESS.

(51) International classification :G06F0003160000, G01C0021360000, G06Q0050100000, H04L0009400000, H04L0043080000  
(86) International Application No :NA  
Filing Date :NA  
(87) International Publication No : NA  
(61) Patent of Addition to Application Number :NA  
Filing Date :NA  
(62) Divisional to Application Number :NA  
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(57) Abstract :  
ABSTRACT OF THE INVENTION: This invention provides a comprehensive e-library website designed to offer students seamless and secure access to eBooks and audiobooks, fostering a more efficient and convenient learning environment. It integrates a view-only mode for eBooks with personalized watermarks displaying PRN numbers to ensure enhanced security and resource protection. The system simplifies the borrowing process through a centralized digital system and aims to address challenges related to accessibility, security, and resource management of digital academic resources. The platform will improve resource management for college libraries, enhance accessibility, and protect digital content from unauthorized distribution.

No. of Pages : 6 No. of Claims : 7

(54) Title of the invention : Intelligent Personal Assistant for Work

|                                               |                                                                                 |                                                                                                                     |
|-----------------------------------------------|---------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------|
| (51) International classification             | :G10L0015220000, G06V0040160000, G10L0025630000, G06F0003160000, G06F0003010000 | (71) <b>Name of Applicant :</b><br><b>1)Vijayalakshmi S</b><br>Address of Applicant :CHRIST University, India ----- |
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| (87) International Publication No             | : NA                                                                            | <b>Name of Applicant : NA</b>                                                                                       |
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(57) Abstract :  
The present invention discloses an intelligent personal assistant system designed to enhance workplace productivity, emotional well-being, and time management through a seamless integration of hardware and software components. The assistant intelligently monitors user schedules, tracks daily activities, provides real-time reminders, and dynamically allocates time for prioritized tasks. Equipped with emotional intelligence capabilities, the system interprets user mood through voice and facial analysis, enabling context-aware interactions and empathetic responses. The hardware interface comprises a smart display, touch inputs, voice recognition, sensors, and camera integration, allowing multimodal user engagement. The software layer includes modules for task scheduling, natural language processing, emotion detection, behavioural learning, and personalised reporting. This hybrid assistant evolves with user behaviour, ensuring personalised support, proactive engagement, and a human-centric approach to digital productivity. The invention aims to bridge the gap between task automation and emotionally intelligent workplace assistance.

No. of Pages : 11 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :10/06/2025

(21) Application No.202521055696 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : Method and System for Early Detection of Lithium-Ion Battery Failure Using a Novel Combined Efficiency Factor (CEF)

(51) International classification :H01M0004580000, H01M0010052500, H01M0004020000, G01R0031392000, H01M0010052000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

This invention presents a novel method for early failure detection of lithium-ion batteries (LIBs) using a novel factor, Combined Efficiency Factor (CEF), calculated using coulombic and energy efficiency. The study involves a total of 45 lithium-ion battery cells, comprising different chemistries:  $\text{LiFePO}_4$  (LFP),  $\text{LiNiMnCoO}_2$  (NMC), and  $\text{LiNiCoAlO}_2$  (NCA). Among these, 15 cells belong to our laboratory Energy & Environmental Nanomaterials (EEN) Laboratory, while the remaining 30 cells data sourced from the publicly available dataset provided by Sandia National Laboratories (SNL). Analytical behaviour of CEF from early 10 to 50 cycles and studying its statistical features like slope, variance, standard deviation and range exhibited indication of early failure. The X-Ray Diffraction (XRD) analysis of LFP fresh, working and failed cells verified permanent structural damage in degraded cells through observable peak shifts and lattice changes. Among the different machine learning models, the gradient boosting classifier based on slope of CEF classified healthy and degraded cells more accurately than other models. This novel approach of early detection of batteries, validated with electrochemical characterization-based machine learning model, will allows proactive battery health monitoring, high reliability, improving safety and performance in real-world applications of all type of batteries, hence offer inventive technological steps and scalable solution for the betterment of society.

No. of Pages : 27 No. of Claims : 5

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202521058213 A

(19) INDIA

(22) Date of filing of Application :17/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : GENDER DIFFERENCES IN EMOTIONAL INTELLIGENCE AND PERSONALITY TRAITS: A CORRELATIONAL STUDY

(51) International classification :A61B0005160000, G16H0010200000, G16H0050300000, G09B0007020000, G09B0007060000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

The present invention provides a system and method for analyzing gender differences in emotional intelligence and personality traits using standardized psychometric assessments, data analytics, and correlation modeling. The invention captures participant responses, classifies them by gender, computes scores for emotional intelligence and Big Five personality traits, and calculates gender-specific correlations between these dimensions. It includes modules for data acquisition, scoring, statistical analysis, and visual reporting, enabling researchers, educators, HR professionals, and mental health practitioners to derive actionable insights into gender-based psychological profiles for academic, organizational, and clinical applications

No. of Pages : 16 No. of Claims : 9

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :13/06/2025

(21) Application No.202521056892 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : AUTOMATED DESK WITH MULTI-SENSOR INTEGRATION FOR USER PRESENCE, WELLNESS, AND AMBIENT CONTROL.

(51) International classification :H04L0067540000, H04N0023450000, G16H0020300000, G06F0003060000, H04L0051043000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
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(57) Abstract :

The invention pertains to an intelligent, sensor-integrated automated desk system that aims to increase user convenience, encourage wellness, and maximize energy efficiency in an office setting. The system utilizes three microcontrollers (one Arduino Uno and two Arduino Nano) to provide synchronized operation and effortless multi-sensor integration. A blend of ultrasonic sensors and DFPlayer Mini modules provides personalized greetings during the arrival of the user and timely reminders during departure. User presence also dictates automatic desk power activation or deactivation. Environmental convenience is regulated through a DHT22 sensor, heater, and relay module to track and regulate ambient temperature and humidity levels. A temperature sensor LM35 tracks the wireless charger and phone temperature; above threshold values trigger the activation of a fan and prompt the voice to ask users to take out their devices to avoid overheating. A load cell embedded under a water bottle reminds users from time to time to drink water through audio cues. An RGB LED strip with a potentiometer allows users to choose among five preset mood lighting modes (Happy, Focused, Disco, Aesthetic, Chill), accompanied by matching background music played by the DFPlayer Mini for mood boosting. An in-chair pressure sensor senses excessive sitting and encourages the user to stand up and rest. The desk also features an intelligent power switch to power auxiliary devices like the heater and charge laptops. Not only does this system integrate all these functions, but it also promotes healthier working habits, user interaction, and optimized resource usage, making it a smart move toward well-being-focused workspace spaces.

No. of Pages : 8 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :13/06/2025

(21) Application No.202521056898 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : SMART AUTOMOTIVE HEADLAMP CONTROL WITH REAL-TIME LIFE ESTIMATION AND ENVIRONMENTAL ADAPTATION.

(51) International classification :B60Q0001140000, H04B0010690000, H04N0023630000, B60Q0001080000, H04L0047100000  
(86) International Application No :NA  
Filing Date :NA  
(87) International Publication No : NA  
(61) Patent of Addition to Application Number :NA  
Filing Date :NA  
(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

The present invention relates to a smart power control and monitoring system for automotive headlamps, specifically designed to enhance the operational life of the headlamp and predict bulb degradation using real-time electrical parameters. This invention integrates voltage, current, and ambient light sensors with a microcontroller to intelligently monitor the headlamp's health and working conditions. The system calculates filament temperature based on measured voltage and current, estimates the bulb's electrical resistance, and predicts the remaining bulb life through defined threshold-based logic. The invention employs a relay mechanism that automatically switches the headlamp ON or OFF based on operating conditions, including overload, excessive temperature, or unnecessary use during daylight. An LDR sensor detects ambient light intensity to prevent power wastage by disabling the headlamp in bright conditions. A buzzer and LED indicator system provides alerts for fault conditions such as overload, overheating, daylight operation, or bulb weakening. An LCD interface displays real-time values of voltage, current, resistance, temperature, and estimated bulb life percentage. A button allows the user to toggle between operational data and bulb health insights. A built-in filtering method ensures more stable current readings for accurate calculations. By continuously analyzing sensor data, the system prevents damage to the bulb, optimizes energy consumption, and improves safety. This invention ensures proactive fault detection and energy-efficient headlamp operation in automotive applications. It offers a reliable, low-cost solution for extending bulb life, reducing maintenance, and enhancing user awareness, making it particularly beneficial for automotive safety and maintenance systems.

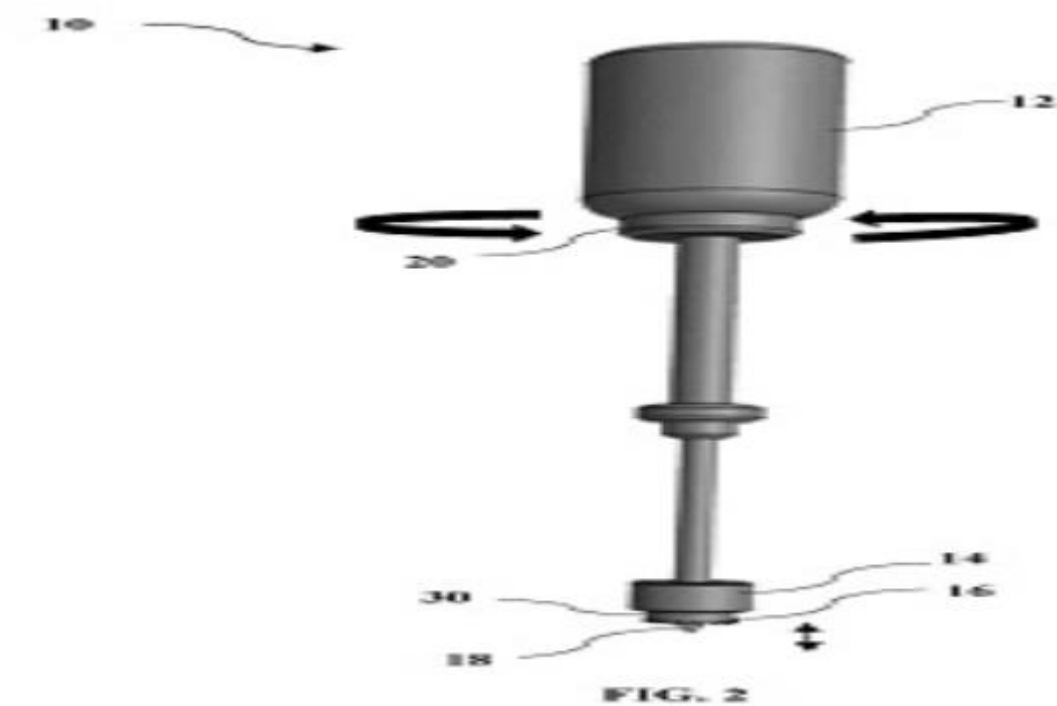
No. of Pages : 8 No. of Claims : 8



(54) Title of the invention : A NASOLACRIMAL BONE TREPHINE FOR PERFORMING CONTROLLED OSTEOTOMY IN DACRYOCYSTORHINOSTOMY SURGERY

|                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <div>(51) International classification :A61F9/007, A61B17/00, A61B17/16, A61B17/3205, A61B17/17</div> <div>(86) International Application No :NA</div> <div>Filing Date :NA</div> <div>(87) International Publication No : NA</div> <div>(61) Patent of Addition to :NA</div> <div>Application Number :NA</div> <div>Filing Date :NA</div> <div>(62) Divisional to Application :NA</div> <div>Number :NA</div> <div>Filing Date :NA</div> | <div>(71)Name of Applicant :<br/>1)SUNDARDAS RAGHUNATH GORE<br/>Address of Applicant :Sunder Netralaya, Super speciality eye clinic , Chaupati karanja Ahilyanagar, Ahmadnagar 414001, Maharashtra, India Ahmadnagar -----</div> <div>2)SEEMA SUNDARDAS GORE<br/>Name of Applicant : NA<br/>Address of Applicant : NA</div> <div>(72)Name of Inventor :<br/>1)SUNDARDAS RAGHUNATH GORE<br/>Address of Applicant :Sunder Netralaya, Super speciality eye clinic , Chaupati karanja Ahilyanagar, Ahmadnagar 414001, Maharashtra, India Ahmadnagar -----</div> |
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(57) Abstract :  
ABSTRACT A NASOLACRIMAL BONE TREPHINE FOR PERFORMING CONTROLLED OSTEOTOMY IN DACRYOCYSTORHINOSTOMY SURGERY The present invention may relate to a nasolacrimal bone trephine for performing controlled osteotomy in dacryocystorhinostomy surgery. The nasolacrimal bone trephine may comprise a hollow cylindrical shaft (30) having a proximal end and a distal end. A cutting assembly may be disposed at the distal end of the hollow cylindrical shaft (30), wherein the cutting assembly may comprise a circular cutting edge (16) having serrated teeth or diamond-coated surface for bone removal. A central guide pin (18) may extend axially through the hollow cylindrical shaft (30) and may project beyond the cutting edge (16) at the distal end. The nasolacrimal bone trephine may comprise a depth control mechanism that may be configured to limit penetration depth during osteotomy and a handle connection interface (12) at the proximal end that may be configured for attachment to manual or motorized drilling apparatus. [To be published with FIG. 2]



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(21) Application No.202521058258 A

(19) INDIA

(22) Date of filing of Application :17/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : A CANALICULAR TREPHINE SURGICAL INSTRUMENT FOR RECANALIZATION OF CANALICULAR OBSTRUCTIONS

(51) International classification :A61B17/00, A661B17/16, A61B17/32, A61B17/3207, A61F9/007

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(62) Divisional to Application :NA

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Filing Date :NA

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(57) Abstract :

IN/PA-2352 ABSTRACT A CANALICULAR TREPHINE SURGICAL INSTRUMENT FOR RECANALIZATION OF CANALICULAR OBSTRUCTIONS The present invention relates to the field of ophthalmology and otorhinolaryngology, particularly to surgical instruments for lacrimal system reconstruction and canalicular recanalization procedures. A canalicular trephine surgical instrument (10) comprises a longitudinal body (11) configured as a handle with ergonomic grip features (28) and a metal probe (12) extending from the longitudinal body (11) with a bent configuration for enhanced maneuverability. The metal probe (12) features a star screwdriver-like tip geometry (18) with raw beveled edge configuration (20) comprising multiple radial cutting surfaces for controlled tissue penetration and obstruction removal. The instrument (10) further comprises a collection cavity (26) within the metal probe (12) for debris removal during procedures. An optional electric motor (24) provides rotational or vibrational movement with variable speed control ranging from 100-3000 RPM. The instrument effectively treats proximal, distal, and common canalicular obstructions, including post-dacryocystectomy cases, while providing superior surgical control compared to conventional straight, smooth-tipped probes. [To be published with FIG. 1]

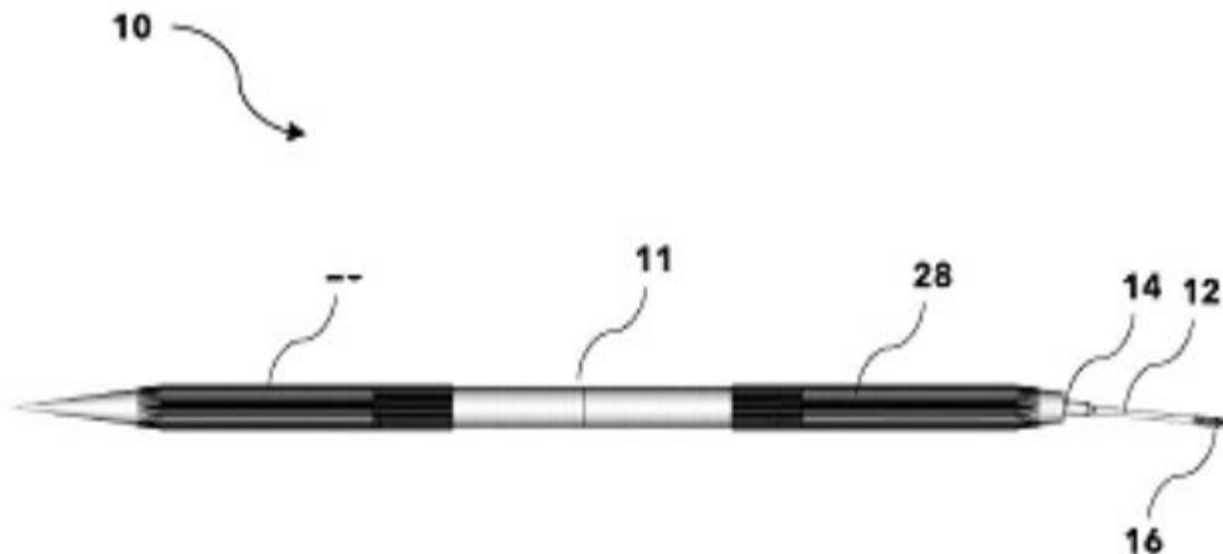


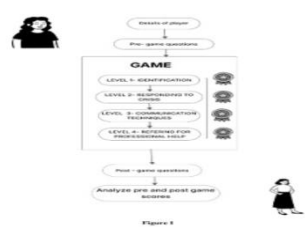
**FIG. 1**

No. of Pages : 32 No. of Claims : 15

(54) Title of the invention : GAMIFIED ONLINE PLATFORM FOR MENTAL HEALTH FIRST AID TRAINING IN WORKPLACE ENVIRONMENTS

|                                               |                                                                                             |                                                                                                                                                                                                         |
|-----------------------------------------------|---------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (51) International classification             | :G09B0005060000,<br>G09B0019000000,<br>G16H0020700000,<br>G16H0050300000,<br>G06N0020000000 | (71)Name of Applicant :<br><b>1)Symbiosis International (Deemed University)</b><br>Address of Applicant :Symbiosis Knowledge Village, Gram Lavale, Tal. Mulshi, Pune-412115, Maharashtra, India Pune -- |
| (86) International Application No             | :NA                                                                                         | Name of Applicant : NA                                                                                                                                                                                  |
| Filing Date                                   | :NA                                                                                         | Address of Applicant : NA                                                                                                                                                                               |
| (87) International Publication No             | :NA                                                                                         | (72)Name of Inventor :                                                                                                                                                                                  |
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(57) Abstract :  
ABSTRACT GAMIFIED ONLINE PLATFORM FOR MENTAL HEALTH FIRST AID TRAINING IN WORKPLACE ENVIRONMENTS The present invention discloses a gamified online training platform designed to enhance mental health awareness and first aid response capabilities within workplace environments. The system integrates structured, interactive learning with scenario-based gameplay that simulates real-life mental health challenges across four sequential levels aligned with Mental Health First Aid (MHFA) principles: Identification, Crisis Response, Communication Techniques, and Referral. Participants undergo pre- and post-assessments to measure knowledge acquisition and behavioral change. The platform features locked progression, instant feedback, scoring with penalty mechanisms, and digital badges to incentivize user engagement. Collected performance data, including test scores and time metrics, are compiled into individual and organizational-level reports. Compatible with LMS platforms, mobile, and desktop environments, this invention offers a scalable, evidence-based solution for corporate mental health training, combining cognitive and affective learning to improve early detection, empathetic communication, and appropriate referral practices in the workplace. [to be published with fig.1]



(54) Title of the invention : GRATITUDE MODEL KIT FOR ENHANCING SELF-ESTEEM AND EMOTIONAL WELL-BEING IN ORPHANED CHILDREN

|                                               |                                                                                 |                                                                                                                                                                                                            |
|-----------------------------------------------|---------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (51) International classification             | :G09B0019000000, G16H0020700000, A63H0033040000, G09B0023280000, B42D0001000000 | (71)Name of Applicant :<br><b>1)Symbiosis International (Deemed University)</b><br>Address of Applicant :Symbiosis Knowledge Village, Gram Lavale, Tal. Mulshi, Pune-412115, Maharashtra, India Pune ----- |
| (86) International Application No             | :NA                                                                             | <b>Name of Applicant : NA</b>                                                                                                                                                                              |
| Filing Date                                   | :NA                                                                             | <b>Address of Applicant : NA</b>                                                                                                                                                                           |
| (87) International Publication No             | : NA                                                                            | (72)Name of Inventor :                                                                                                                                                                                     |
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| (62) Divisional to Application Number         | :NA                                                                             | <b>2)Dr. Sheela Upendra</b>                                                                                                                                                                                |
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(57) Abstract :  
ABSTRACT GRATITUDE MODEL KIT FOR ENHANCING SELF-ESTEEM AND EMOTIONAL WELL-BEING IN ORPHANED CHILDREN The present invention relates to a Gratitude Model Kit designed to foster self-esteem, resilience, and emotional well-being among orphaned children through structured positive psychology interventions. The kit comprises five distinct compartments: a To-Do List Compartment with activity prompts and role-play scripts; an Affirmation Card Compartment with customizable affirmation tools; a Gratitude Journaling Compartment with guided prompts and journals; a Star Pocket Compartment featuring reward-based visual reinforcement; and an Inspiration and Creativity Compartment with creative materials and motivational visuals. The kit uses a color-coded layout, is made from durable, child-safe materials, and includes an instruction manual for caregiver facilitation. It enables children to internalize gratitude, practice positive self-talk, and build emotional resilience with minimal supervision. The invention is scalable, cost-effective, and adaptable for use in orphanages and educational settings, providing a novel, structured alternative to traditional behavioral and educational interventions. A digital extension is also included for progress tracking and engagement. [To be published with fig.1]

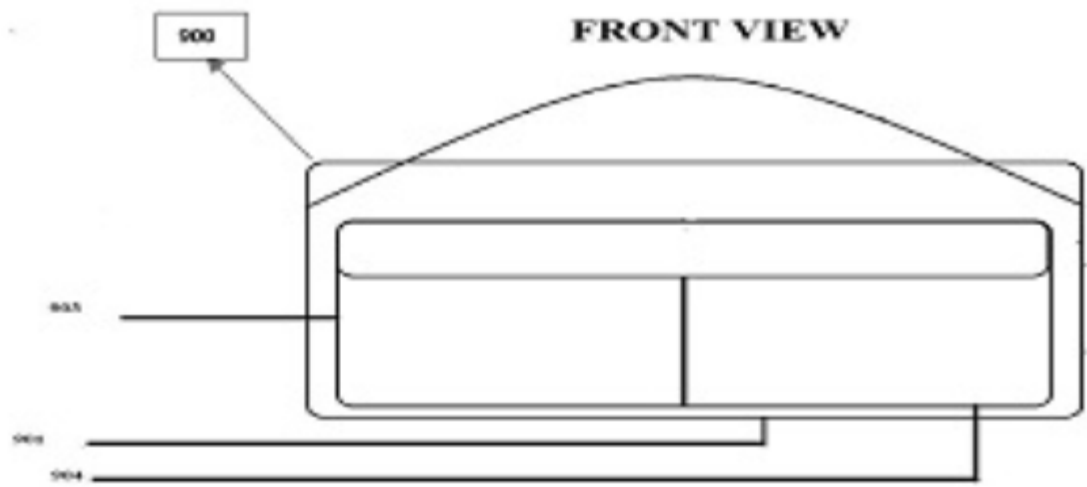


Figure 1

(54) Title of the invention : PORTABLE THERAPEUTIC KIT FOR HOLISTIC MANAGEMENT OF NEURODERMATITIS

|                                               |                                                                                 |                                                                                                                                                                                                             |
|-----------------------------------------------|---------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (51) International classification             | :G09B0019000000, A61K0036185000, A61K0008920000, A61K0008440000, A61K0008310000 | (71)Name of Applicant :<br><b>1)Symbiosis International (Deemed University)</b><br>Address of Applicant :Symbiosis Knowledge Village, Gram Lavale, Tal. Mulshi, Pune- 412115, Maharashtra, India Pune ----- |
| (86) International Application No             | :NA                                                                             | <b>Name of Applicant : NA</b>                                                                                                                                                                               |
| Filing Date                                   | :NA                                                                             | <b>Address of Applicant : NA</b>                                                                                                                                                                            |
| (87) International Publication No             | : NA                                                                            | (72)Name of Inventor :                                                                                                                                                                                      |
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(57) Abstract :  
ABSTRACT PORTABLE THERAPEUTIC KIT FOR HOLISTIC MANAGEMENT OF NEURODERMATITIS The present invention discloses a therapeutic kit (100) designed for managing neurodermatitis through a comprehensive, multi-compartment approach integrating topical treatment, sensory redirection, and behavioral guidance. The kit comprises: a first compartment containing an anti-itching cream, cotton finger cap cots, and gloves for topical relief and prevention of scratching; a second compartment with tactile engagement tools such as glee coils, thinking putty, and loofahs for anxiety reduction and sensory redirection; a third compartment housing virgin coconut oil and antiseptic wipes for skin hydration and infection prevention; and a fourth compartment including an instructional pamphlet detailing usage protocols and behavioral strategies. The kit is enclosed in a skin-friendly polyester bag with labelled sections (501, 502), a front handle (500), a back pocket (400), and numbered zippered compartments (201–204) secured by Velcro fasteners (101–104). The portable design ensures organized, secure containment and promotes regimen adherence for effective at-home dermatitis management. [To be published with fig.1]

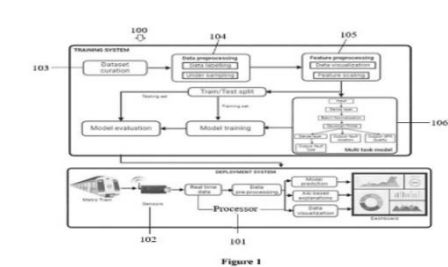


Figure 1

(54) Title of the invention : EXPLAINABLE AI BASED MULTI-TASK FRAMEWORK FOR FAULT DIAGNOSIS AND PREDICTION ON METRO TRAINS

|                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <div>(51) International classification :G06N0003080000, G06N0003045000, G06N0020000000, G06N0005045000, G06N0003084000</div> <div>(86) International Application No :NA</div> <div>(87) International Publication No :NA</div> <div>(61) Patent of Addition to Application Number :NA</div> <div>(62) Divisional to Application Number :NA</div> | <div>(71)Name of Applicant :<br/><b>1)Symbiosis International (Deemed University)</b><br/>Address of Applicant :Symbiosis Knowledge Village, Gram Lavale, Tal. Mulshi, Pune-412115, Maharashtra, India Pune --</div> <div>Name of Applicant : NA<br/>Address of Applicant : NA</div> <div>(72)Name of Inventor :<br/><b>1)Sairam V A</b><br/>Address of Applicant :Symbiosis Institute of Technology, Symbiosis International (Deemed University), Symbiosis Knowledge Village, Gram: Lavale, Taluka Mulshi, District Pune, Maharashtra, India Pin: 412115 Pune -----</div> <div><b>2)Pratik Jadhav</b><br/>Address of Applicant :Symbiosis Institute of Technology, Symbiosis International (Deemed University), Symbiosis Knowledge Village, Gram: Lavale, Taluka Mulshi, District Pune, Maharashtra, India Pin: 412115 Pune -----</div> <div><b>3)Siddharth Sonkavade</b><br/>Address of Applicant :Symbiosis Institute of Technology, Symbiosis International (Deemed University), Symbiosis Knowledge Village, Gram: Lavale, Taluka Mulshi, District Pune, Maharashtra, India Pin: 412115 Pune -----</div> <div><b>4)Dr. Shivali Amit Wagle</b><br/>Address of Applicant :Symbiosis Institute of Technology, Symbiosis International (Deemed University), Symbiosis Knowledge Village, Gram: Lavale, Taluka Mulshi, District Pune, Maharashtra, India Pin: 412115 Pune -----</div> <div><b>5)Dr. Preksha Pareek</b><br/>Address of Applicant :Symbiosis Institute of Technology, Symbiosis International (Deemed University), Symbiosis Knowledge Village, Gram: Lavale, Taluka Mulshi, District Pune, Maharashtra, India Pin: 412115 Pune -----</div> <div><b>6)Dr. Ketan Kotecha</b><br/>Address of Applicant :Symbiosis Institute of Technology, Symbiosis International (Deemed University), Symbiosis Knowledge Village, Gram: Lavale, Taluka Mulshi, District Pune, Maharashtra, India Pin: 412115 Pune -----</div> |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

(57) Abstract :  
ABSTRACT EXPLAINABLE AI BASED MULTI-TASK FRAMEWORK FOR FAULT DIAGNOSIS AND PREDICTION ON METRO TRAINS A fault prediction system (100) based on an explainable AI based Multi-task model (106) i.e multitask framework for fault diagnosis in the Air Production Unit of metro trains is disclosed herein. Several analog and digital sensors related to the air pressure, water pressure, oil pressure, oil levels, electrical signals and so on are used as features for the A.I algorithms. A multi-task neural network with feature sharing was developed with three outputs, each for fault type, fault location and GPS quality assessment. The LIME explainable AI technique was used to provide interpretations for the predictions made by the deep learning model based on feature importance and contributions. Finally, all the curated results are displayed on a website-based dashboard for analysis by maintenance engineers to help in predictive maintenance. On the whole, the proposed work can be of great aid for maintenance engineers for analysis of faults in APU of the metro train with high accuracy and efficiency. [To be published with Fig.1]



No. of Pages : 38 No. of Claims : 7

(54) Title of the invention : Ghee Production Machine

(51) International classification

:A47J0043070000, F16K0005060000, A47J0027000000, A47J0043044000, A47J0043046000

(86) International Application No

:NA

(87) International Publication No

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(61) Patent of Addition to Application Number

:NA

(62) Divisional to Application Number

:NA

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(57) Abstract :  
A ghee production machine (100) is described herein. The machine comprises a base frame (1), an induction heating unit (12), a container (6), a vertical frame (2), a control unit (14), a temperature sensor (6.1), a ball valve (6.2), and motor casing (3) which consisting of an electric AC motor (4), stirrer (5), digital display unit (3.1) and a plurality of control buttons. The invention pertains to the domain of food processing equipment, specifically within the sub-category of kitchen appliances aimed at simplifying and automating the traditional process ghee making for household consumption.

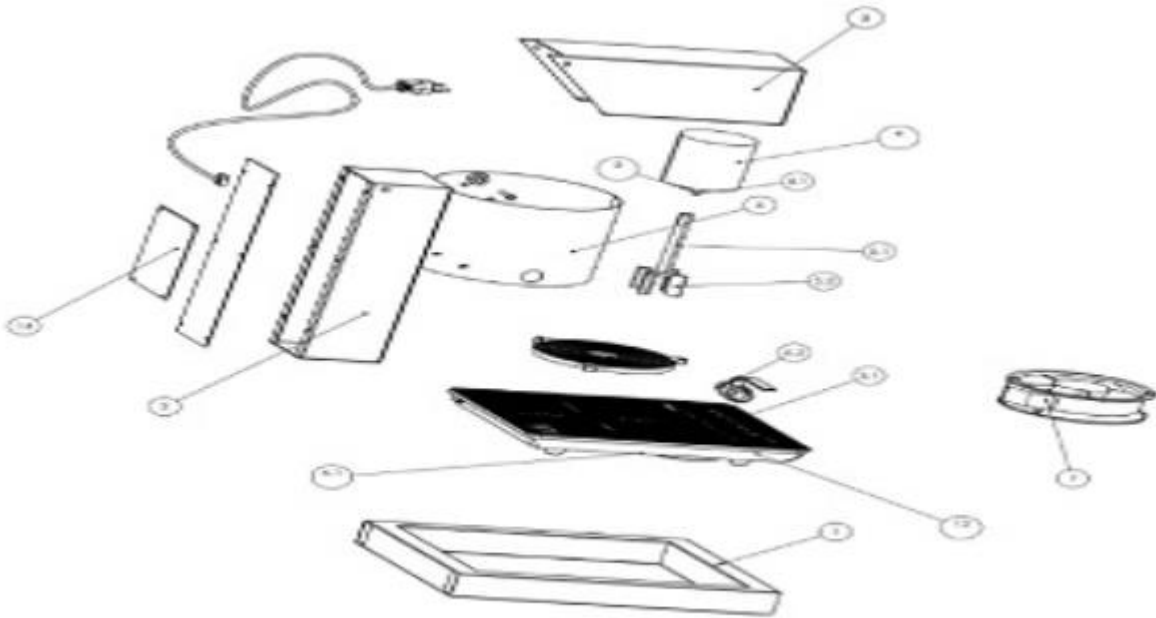


Fig. 1

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(19) INDIA

(22) Date of filing of Application :13/06/2025

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(54) Title of the invention : Towards Eternal Drive: A Self-Sustaining Energy Architecture for Next-Gen EVs

(51) International classification :H02J0007000000, H02J0007340000, H02J0007350000, B60L0053140000, B60L0003000000

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(61) Patent of Addition to Application Number :NA

Filing Date :NA

(62) Divisional to Application Number :NA

Filing Date :NA

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Address of Applicant : NA

(72)Name of Inventor :

**1)Omkar Ashok Wabale**

Address of Applicant :Bunglow No. F1, Culture Crest Housing Society, Moshi Pradhikaran -----

(57) Abstract :

A system for managing self-charging interface with multiple electrical energy storage units in an electric vehicle is disclosed. The system includes a first energy storage unit for supplying power to the propulsion system and a second energy storage unit configured to be charged during vehicle operation. A Control System monitors electrical and thermal parameters of each unit and dynamically assigns supply and charging roles using a switching assembly comprising contactors or equivalent devices. A precharge system enables safe load connection. The system further comprises a self-charging interface with rectification, filtering, and voltage regulation stages, along with a unidirectional current-blocking circuit to prevent reverse current flow during reverse vehicle operation. Additional modules include temperature sensing, wireless communication, and firmware-based logic for autonomous role switching, fault detection, and operational data logging. This architecture enables next-generation EV platforms to operate continuously under motion, potentially reducing or eliminating the need for external charging in specific applications.

No. of Pages : 32 No. of Claims : 46



(54) Title of the invention : Enhanced Cloud Security Architecture for Data Protection

|                                               |                                                                                 |                                                                                                                                                                                                                                                    |
|-----------------------------------------------|---------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (51) International classification             | :H04L0009400000, H04L0009000000, G06F0021620000, H04L0009320000, G06F0021570000 | (71)Name of Applicant :<br><b>1)Dr. Abhijeet Kaiwade</b><br>Address of Applicant :Department of Computer Science and Engineering, Aditya Engineering College Beed, Aditya Educational Campus, Talagaon Road, Beed 431122, Maharashtra, India ----- |
| (86) International Application No             | :NA                                                                             | <b>Name of Applicant : NA</b>                                                                                                                                                                                                                      |
| Filing Date                                   | :NA                                                                             | <b>Address of Applicant : NA</b>                                                                                                                                                                                                                   |
| (87) International Publication No             | : NA                                                                            | (72)Name of Inventor :                                                                                                                                                                                                                             |
| (61) Patent of Addition to Application Number | :NA                                                                             | <b>1)Dr. Abhijeet Kaiwade</b>                                                                                                                                                                                                                      |
| Filing Date                                   | :NA                                                                             | Address of Applicant :Department of Computer Science and Engineering, Aditya Engineering College Beed, Aditya Educational Campus, Talagaon Road, Beed 431122, Maharashtra, India -----                                                             |
| (62) Divisional to Application Number         | :NA                                                                             |                                                                                                                                                                                                                                                    |
| Filing Date                                   | :NA                                                                             |                                                                                                                                                                                                                                                    |

(57) Abstract :

The invention discloses an intelligent and modular framework titled Enhanced Cloud Security Architecture for Data Protection, designed to address critical security challenges in dynamic cloud computing environments. This architecture integrates advanced cryptographic methods, AI-driven threat detection, Zero Trust enforcement and blockchain-based auditability to ensure the confidentiality, integrity and availability of data across public, private and hybrid cloud platforms. The proposed system begins with real-time data ingestion from diverse sources, including user activity logs, system events and multi-cloud APIs. Data is normalized, classified and encrypted using advanced schemes such as homomorphic and quantum-resilient encryption. Deep learning models analyze behavioral and operational data to detect anomalies and assign dynamic risk scores. These insights drive automated enforcement of context-aware access policies based on user identity, workload sensitivity, device posture and environmental factors. A key innovation of the architecture is its integration of Zero Trust principles, ensuring continuous verification and micro-segmentation to prevent unauthorized access and lateral movement. The architecture also incorporates a security orchestration engine capable of initiating automated remediation workflows in response to identified threats. Compliance with global data protection standards is achieved through embedded monitoring and a real-time dashboard that maps activities to regulatory benchmarks. Blockchain-based logging ensures tamper-evident recording of all access and policy enforcement events, supporting transparency and forensic analysis. This invention represents a significant advancement in cloud security, providing organizations with a scalable, proactive and resilient defense mechanism that evolves with emerging threats and operational demands.

No. of Pages : 15 No. of Claims : 7

(54) Title of the invention : Active Exhaust Management System for Preventing Water Entry in Two-Wheeler Silencer

(51) International classification :F01N13/08, F16K1/14, F16K31/04  
 (86) International Application No :NA  
 Filing Date :NA  
 (87) International Publication No : NA  
 (61) Patent of Addition to Application Number:NA  
 Filing Date :NA  
 (62) Divisional to Application Number :NA  
 Filing Date :NA

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Address of Applicant : NA

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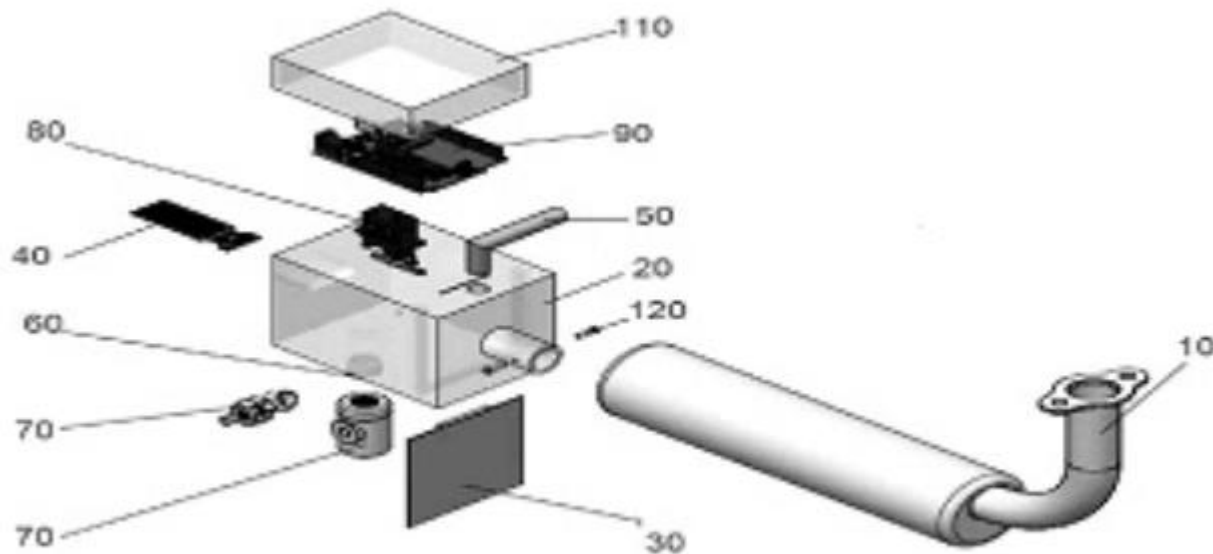
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**3)Jignesh G. Vaghasia**

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## (57) Abstract :

An active exhaust management system for preventing water entry in two-wheeler silencer is described herein. The system comprises an exhaust silencer (10), a main shell (20), a valve sheet (30), a water measuring sensor (40), an elevated bypass exhaust pipe (50), a drainage water outlet pipe (60), a ball valve (70), a servo motor (80), a microcontroller (90), a battery (100), a top cover (110). This invention is ideal for urban commuters, off-road riders, and delivery services, ensuring smooth operation in challenging weather. The design prolongs silencer life and maintains engine efficiency across various environments.

**Fig. 1**

No. of Pages : 25 No. of Claims : 4

(54) Title of the invention : Real-Time AI System for Cyber Law Violation Forecasting and Adaptive Prevention.

|                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>(51) International classification :H04L0009400000,<br/>G06Q0050180000,<br/>G06F0021620000,<br/>G06N0020000000,<br/>G06F0021550000</p> <p>(86) International Application No :NA<br/>Filing Date :NA</p> <p>(87) International Publication No : NA</p> <p>(61) Patent of Addition to Application Number :NA<br/>Filing Date :NA</p> <p>(62) Divisional to Application Number :NA<br/>Filing Date :NA</p> | <p>(71)Name of Applicant :<br/> <b>1)Bharat Ramdas Pawar</b><br/> Address of Applicant :22,madhav nagar,nagar kalyan road,ahmednagar -----<br/> <b>2)Dr.Ganesh B Dongre</b><br/> <b>3)Dr.Syed Sumera Ali</b><br/> <b>4)Prof.Akshay Tukaram Jadhav</b><br/> <b>5)Prof.Abhijit Govindrao Gaikwad</b><br/> <b>6)Prof.Satish Hiramn Jadhav</b><br/> <b>7)Prof.Nagre Vishnu Laxaman</b><br/> <b>8)Prof.Tathe Manisha Sandip</b><br/> <b>9)Prof. Amruta M. Kadli</b><br/> <b>10)Prof. Swapnil Rajesh Kadam</b><br/> Name of Applicant : NA<br/> Address of Applicant : NA<br/> (72)Name of Inventor :<br/> <b>1)Bharat Ramdas Pawar</b><br/> Address of Applicant :22,madhav nagar,nagar kalyan road,ahmednagar -----<br/> <b>2)Dr.Ganesh B Dongre</b><br/> Address of Applicant :Principal,CSMSS Chh Shahu college Of Engineering Chh Sambhaji Nagar Chh Sambhaji Nagar Maharashtra 431001 -----<br/> <b>3)Dr.Syed Sumera Ali</b><br/> Address of Applicant :Associate Professor Department of Electronics &amp; Communication (Advanced communication technology) CSMSS Chh Shahu college Of Engineering Chh Sambhaji Nagar Chh Sambhaji Nagar Maharashtra 431001 -----<br/> <b>4)Prof.Akshay Tukaram Jadhav</b><br/> Address of Applicant :Assistant Professor Department of Electronics &amp; Communication (Advanced communication technology) CSMSS Chh Shahu college Of Engineering Chh Sambhaji Nagar Chh Sambhaji Nagar Maharashtra 431001 -----<br/> <b>5)Prof.Abhijit Govindrao Gaikwad</b><br/> Address of Applicant :Assistant Professor Department of Electronics &amp; Communication (Advanced communication technology) CSMSS Chh Shahu college Of Engineering Chh Sambhaji Nagar Chh Sambhaji Nagar Maharashtra 431001 -----<br/> <b>6)Prof.Satish Hiramn Jadhav</b><br/> Address of Applicant :Assistant Professor Department of Electronics &amp; Communication (Advanced communication technology) CSMSS Chh Shahu college Of Engineering Chh Sambhaji Nagar Chh Sambhaji Nagar Maharashtra 431001 -----<br/> <b>7)Prof.Nagre Vishnu Laxaman</b><br/> Address of Applicant :assistant professor Department of Electronics &amp; Communication (Advanced communication technology) CSMSS Chh Shahu college Of Engineering Chh Sambhaji Nagar Chh Sambhaji Nagar Maharashtra 431001 -----<br/> <b>8)Prof.Tathe Manisha Sandip</b><br/> Address of Applicant :Assistant Professor Department of Electronics &amp; Communication (Advanced communication technology) CSMSS Chh Shahu college Of Engineering Chh Sambhaji Nagar Chh Sambhaji Nagar Maharashtra 431001 -----<br/> <b>9)Prof. Amruta M. Kadli</b><br/> Address of Applicant :Assistant Professor Department of Electronics and communication(advanced communication technology) CSMSS CSCOE Chh. Sambhajinagar Chh. Sambhajinagar Maharastra 431001 -----<br/> <b>10)Prof. Swapnil Rajesh Kadam</b><br/> Address of Applicant :Assistant Professor Department of Electronics and communication(advanced communication technology) CSMSS Chh Shahu college Of Engineering Chh. Sambhajinagar Chh. Sambhajinagar Maharastra 431001 -----</p> |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

## (57) Abstract :

A Real-Time AI System for Cyber Law Violation Forecasting and Adaptive Prevention is proposed in the invention. It is intended to anticipate possible infractions of cyber security rules and regulations and to instantly apply adaptive mitigation techniques. Natural language processing (NLP), sophisticated machine learning algorithms, and legal knowledge databases are all integrated into the system to track online activity, identify trends, and identify new cyber threats that could result in legal violations. Through the use of predictive algorithms, the system anticipates possible infractions based on past performance, court rulings, and ongoing cyber activity, allowing for preventative measures. This cutting-edge system continuously analyses network traffic, digital communications, and user behavior using artificial intelligence (AI) to spot indications of illegal activity, including data breaches, cyber fraud, intellectual property theft, and non-compliance with privacy laws. The system's real-time features, which include alert creation, policy enforcement, and dynamic access control modifications, guarantee that any discovered or anticipated infractions are promptly addressed. The system can modify its detection and prevention tactics in response to the changing cyber security legislation, guaranteeing adherence to regional, national, and global legal frameworks. The real-time AI system is a vital tool for risk management departments, legal teams, and cyber security operations since it enables organizations to improve data protection efforts, lower legal risks, and comply with regulations without the need for manual intervention. By combining artificial intelligence (AI) with legal compliance monitoring, this system significantly advances cyber security law enforcement by offering a fresh and all-encompassing approach to stopping cyber law violations before they happen and minimizing possible legal repercussions in a constantly changing cyber environment.

No. of Pages : 22 No. of Claims : 6

(54) Title of the invention : A BAR MAKING DEVICE

(51) International classification :A47J0031360000, B41C0001140000, C09J0005020000, E21B0007280000, D21F0009000000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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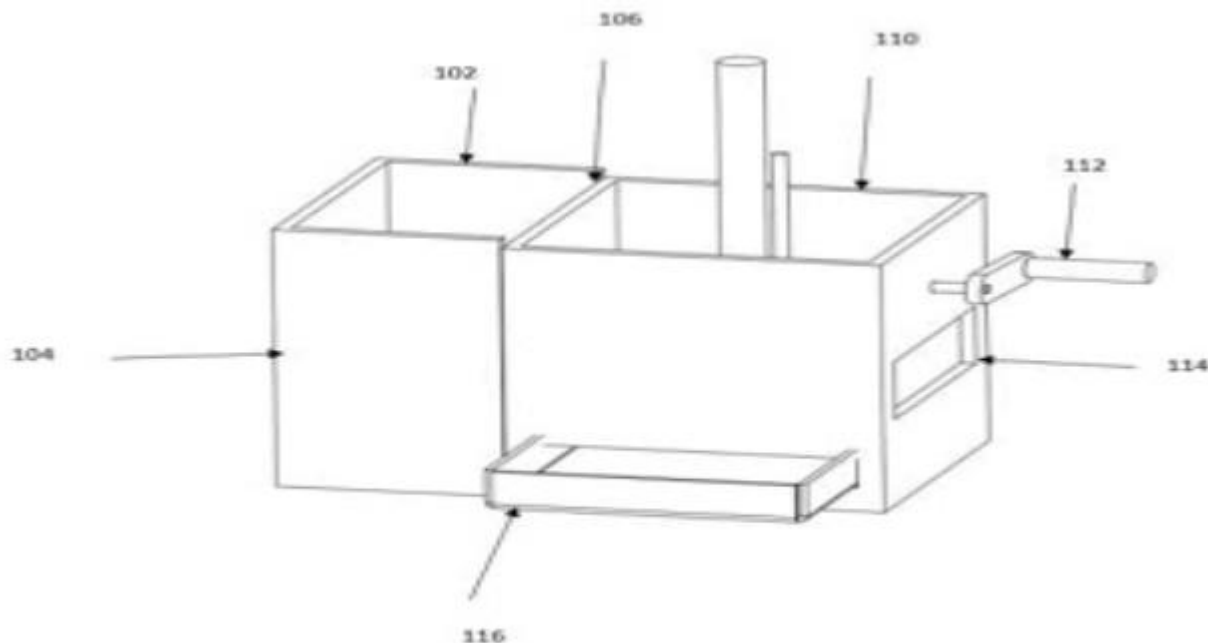
Address of Applicant :Department of Mechanical Engineering S.no. 124, Ex-Serviceman Colony, Paud Road Kothrud Pune, 411038, Maharashtra, India Pune --

**2)PUSKARAJ D SONAWWANAY**

Address of Applicant :Department of Mechanical Engineering S.no. 124, Ex-Serviceman Colony, Paud Road Kothrud Pune, 411038, Maharashtra, India Pune --

(57) Abstract :

**ABSTRACT A BAR MAKING DEVICE** The bar-making device (100) processes crushed food into compact bars. The bar making device comprises a press mould section (110). The press mould section (110) is cuboidal shaped with two openings—one for depositing crushed food and another for accessing the tray (116) at the bottom. A mechanical press (202), connected via a crank system, ascends and descends using a spur gear and rack gear system to compress food. The filler section (102) contains multiple openings, including one on top for depositing a sugar component. Several holes facilitate distribution. The heater system (104) attaches to the filler section, transferring heat through an inner wall to convert sugar into liquid syrup. This integrated system ensures efficient food compression and sugar infusion, aiding in uniform bar production.

**Figure 1**

No. of Pages : 18 No. of Claims : 8

(54) Title of the invention : AN IOT BASED REMOTE-CONTROL SYSTEM WITH WEB AND LOCAL INTERFACE FOR LEGACY INFRARED BASED APPLIANCES

(51) International classification :G05B0019042000,  
H04L0067020000,  
G08C0017020000,  
H02J0013000000,  
G06Q0020200000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No :NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

(71)Name of Applicant :

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Address of Applicant :Symbiosis Knowledge Village, Gram Lavale, Tal. Mulshi, Pune-412115, Maharashtra, India Pune --

**Name of Applicant : NA**

**Address of Applicant : NA**

(72)Name of Inventor :

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(57) Abstract :

ABSTRACT AN IOT BASED REMOTE-CONTROL SYSTEM WITH WEB AND LOCAL INTERFACE FOR LEGACY INFRARED BASED APPLIANCES The invention discloses An IoT based Remote Control System (100) for enabling wireless control of legacy infrared (IR) based appliances (2). The system comprises a Wi-Fi-enabled microcontroller unit (MCU) (5), an IR receiver (6) for capturing signals from conventional remotes, and an IR transmitter (7) for replaying those signals to appliances. A DHT22 temperature and humidity sensor (8) enables environmental monitoring, while an OLED display (5) and tactile push buttons (6) provide a local user interface. The system is remotely accessible via a web-based interface (4), which communicates through an HTTP server (9) and an MQTT server (10). The module operates in a learning mode to store IR command patterns and a control mode to transmit them on user request. Environmental data and control signals are synchronized in real time, bridging non-IoT appliances with modern IoT infrastructure. The invention offers a compact, cost-effective retrofit solution without modifying existing appliances. [to be published with fig.1]

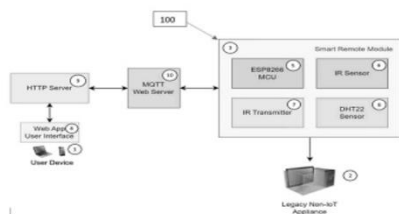


Figure 1

No. of Pages : 16 No. of Claims : 10

(54) Title of the invention : SMART SHOE WITH INTEGRATED CAMERA SYSTEM AND REAL-TIME ROAD SURFACE ANALYSIS FOR PEDESTRIAN FALL PREVENTION

|                                               |                                                                                 |                                                                                                                                                                                                                          |
|-----------------------------------------------|---------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (51) International classification             | :G06N0003080000, G06N0003045000, G06V0010820000, G01S0017890000, A61H0003060000 | (71)Name of Applicant :<br>1)Symbiosis International (Deemed University)<br>Address of Applicant :Symbiosis Knowledge Village, Gram Lavale, Tal. Mulshi, Pune-412115, Maharashtra, India Pune -----                      |
| (86) International Application No             | :NA                                                                             | Name of Applicant : NA                                                                                                                                                                                                   |
| Filing Date                                   | :NA                                                                             | Address of Applicant : NA                                                                                                                                                                                                |
| (87) International Publication No             | : NA                                                                            | (72)Name of Inventor :                                                                                                                                                                                                   |
| (61) Patent of Addition to Application Number | :NA                                                                             | 1)Priti Chakurkar                                                                                                                                                                                                        |
| Filing Date                                   | :NA                                                                             | Address of Applicant :Symbiosis Institute of Technology, Symbiosis International (Deemed University), Symbiosis Knowledge Village, Gram: Lavale, Taluka Mulshi, District Pune, Maharashtra, India Pin: 412115 Pune ----- |
| (62) Divisional to Application Number         | :NA                                                                             | 2)Dr. Deepali Vora                                                                                                                                                                                                       |
| Filing Date                                   | :NA                                                                             | Address of Applicant :Symbiosis Institute of Technology, Symbiosis International (Deemed University), Symbiosis Knowledge Village, Gram: Lavale, Taluka Mulshi, District Pune, Maharashtra, India Pin: 412115 Pune ----- |

(57) Abstract :  
ABSTRACT SMART SHOE WITH INTEGRATED CAMERA SYSTEM AND REAL-TIME ROAD SURFACE ANALYSIS FOR PEDESTRIAN FALL PREVENTION The present invention relates to a smart shoe that enhances pedestrian safety by detecting and analyzing road surface hazards in real time. The system integrates a high-resolution wide-angle camera with night vision and HDR, an Inertial Measurement Unit (IMU), optional LIDAR for depth sensing, and GPS for location-specific hazard alerts. A low-power STM32 microcontroller processes images using deep learning algorithms, including Convolutional Neural Networks (CNN) and segmentation models like UNET, to classify surface irregularities and assess fall risks. A feedback system provides haptic and auditory alerts based on hazard severity. The shoe operates efficiently with an 8-hour battery, employing burst-mode image capture to conserve power. Designed for durability, it functions in various environments and can be customized for different user needs, including the elderly and visually impaired. This self-contained system requires minimal user interaction, offering a proactive solution for safer walking experiences. (To be published with Figure 1)

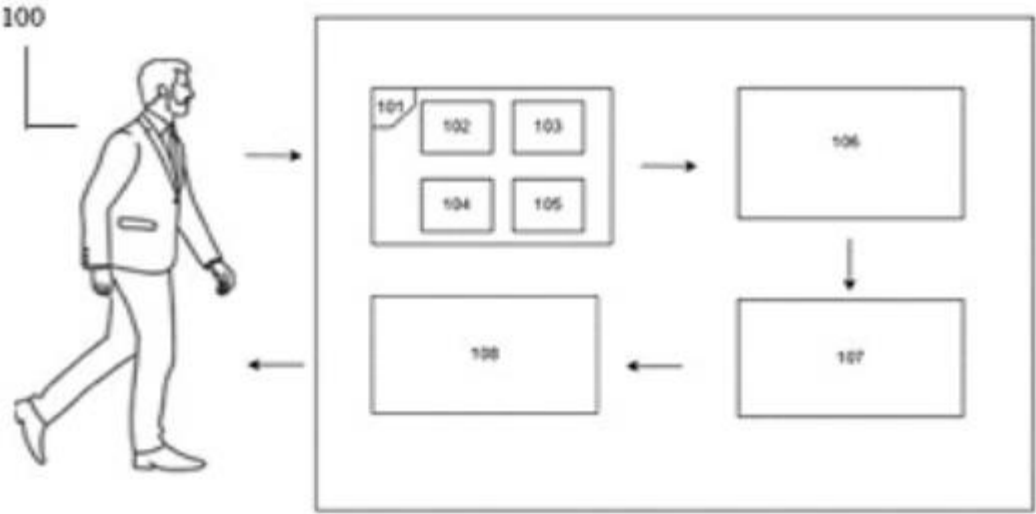


Figure 1

(54) Title of the invention : A REGENERATIVE ORGANIC RANKINE CYCLE (ORC) SYSTEM FOR CONVERTING HEAT INTO MECHANICAL ENERGY AND METHOD THEREOF

|                                                                           |      |                                                                                                                                                                                                             |
|---------------------------------------------------------------------------|------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (51) International classification :F01K7/18, F28D7/10, F28F1/36, F28D7/02 |      | (71)Name of Applicant :<br>1)DEVENDRA PUROHIT<br>Address of Applicant :Purohit traders, infront of Govt TNS College, Jhonteshwar road Gotegaon, district Narsinghpur, Madhya Pradesh- 487118 Gotegaon ----- |
| (86) International Application No                                         | :NA  | Name of Applicant : NA<br>Address of Applicant : NA                                                                                                                                                         |
| Filing Date                                                               | :NA  |                                                                                                                                                                                                             |
| (87) International Publication No                                         | : NA | (72)Name of Inventor :                                                                                                                                                                                      |
| (61) Patent of Addition to Application Number                             | :NA  | 1)DEVENDRA PUROHIT                                                                                                                                                                                          |
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| (62) Divisional to Application Number                                     | :NA  |                                                                                                                                                                                                             |
| Filing Date                                                               | :NA  |                                                                                                                                                                                                             |

(57) Abstract :

The present invention relates to a regenerative Organic Rankine Cycle (ORC) system with two turbines arranged in series, designed to achieve a realistic thermal efficiency of 32-39% with a heat source of 300°C and a heat sink of 30°C. The invention uses organic fluid p-xylene, toluene, or cyclohexane due to its critical temperature proximity to the heat source (280-350°C), enhancing heat transfer and turbine performance. A regenerator preheats the fluid post-pump using exhaust heat from the second turbine, reducing the external heat input and boosting efficiency. The evaporator heats the fluid to a saturated vapor at 290°C using a 300°C heat source, maintaining a 10°C pinch point. The dual-turbine design splits the expansion process into two stages, high-to-intermediate pressure and intermediate-to-low pressure, to optimize work extraction under practical turbine (85%) and pump (80%) efficiencies. Figure 1

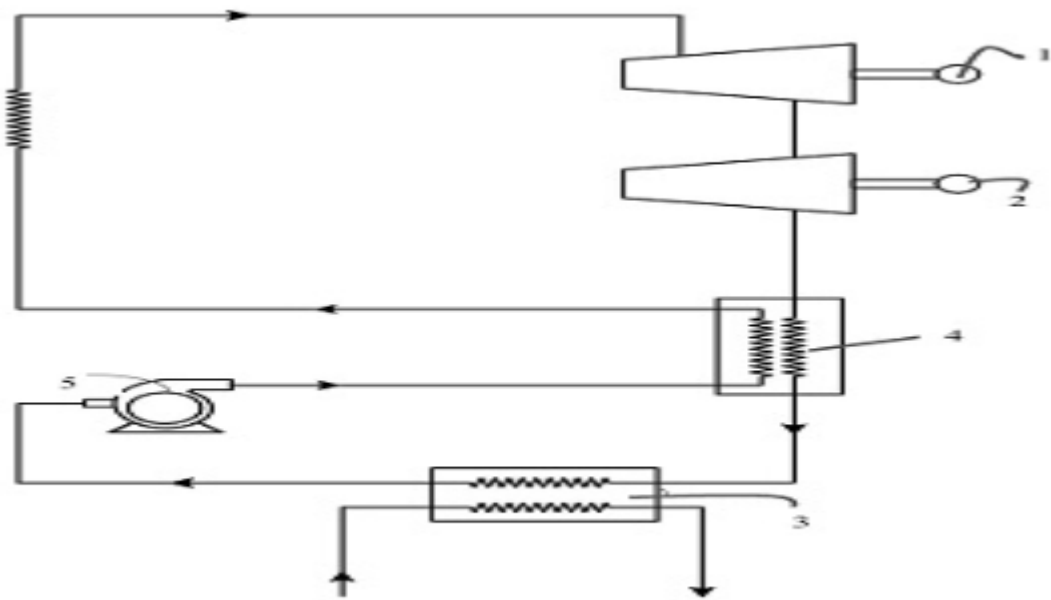


Figure 1

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202521058324 A

(19) INDIA

(22) Date of filing of Application :18/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : A Novel Process of L-leucine-PLGA Conjugated, Hybrid Solid Lipid Nanoparticles (Conj-HSLNs) for Targeted Delivery of Betulin

(51) International classification :A61P0035000000, A61K0009510000, A61K0009000000, A61K0009140000, A61K0009100000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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**2)Dr. Moreshwar P. Patil**

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(57) Abstract :

A Novel Process of L-leucine-PLGA Conjugated, Hybrid Solid Lipid Nanoparticles (Conj-HSLNs) for Targeted Delivery of Betulin The present invention introduces a novel approach for fabrication of hybrid solid lipid nanoparticles (HSLN), which enhances the solubility and bioavailability of poorly water-soluble betulin.

Furthermore, the use of L-leucine-PLGA conjugate in HSLN fabrication instead of PLGA forms Conj-HSLN, allows targeted delivery through the L-amino acid transporter system to triple-negative breast cancer, increasing drug accumulation at the tumor site and provide controlled release, reducing the frequency of dosing and improving patient compliance. Furthermore, the nanoparticles were formulated using betulin, PLGA (or L-leucine-PLGA conjugate), Compritol ATO 888, and Poloxamer 188 through ultra probe sonication a hot high-pressure homogenization technique. The optimized formulation (Conj-HSLN) demonstrated a high yield (80–88%), favorable particle size (~318 nm), enhanced drug release, improved pharmacokinetics, and increased tumor accumulation LAT1 targeting. In overall this method offers a scalable, stable, and promising platform for the intravenous administration of poorly water-soluble anticancer agents.

No. of Pages : 30 No. of Claims : 4



(54) Title of the invention : Educational Board Game System Based on Prime and Composite Number Logic

|                                               |                                                                                 |                                                                                                                                                  |
|-----------------------------------------------|---------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|
| (51) International classification             | :A63F0003000000, A63F0003040000, A63F0001040000, A63F0011000000, A63F0003020000 | (71)Name of Applicant :<br>1)Gayatri Vyas<br>Address of Applicant :B102, Swapnil Trisha Apts, Buty Layout, Laxminagar, Nagpur, MH - 440022 ----- |
| (86) International Application No             | :NA                                                                             | Name of Applicant : NA                                                                                                                           |
| Filing Date                                   | :NA                                                                             | Address of Applicant : NA                                                                                                                        |
| (87) International Publication No             | : NA                                                                            | (72)Name of Inventor :<br>1)Gayatri Vyas                                                                                                         |
| (61) Patent of Addition to Application Number | :NA                                                                             | Address of Applicant :B102, Swapnil Trisha Apts, Buty Layout, Laxminagar, Nagpur, MH - 440022 -----                                              |
| Filing Date                                   | :NA                                                                             |                                                                                                                                                  |
| (62) Divisional to Application Number         | :NA                                                                             |                                                                                                                                                  |
| Filing Date                                   | :NA                                                                             |                                                                                                                                                  |

(57) Abstract :  
Educational Board Game System Based on Prime and Composite Number Logic Abstract The present invention relates to an educational board game system for enhancing number theory skills, particularly prime and composite number identification and comprises a set of seventy-six (76) cards including number cards (categorized by prime and composite numbers), SKIP cards, and MAGIC cards. A game board with sixty numbered squares arranged in seven rows is provided. Cards are placed according to prime factorization rules: a number card can only be played if it is a prime or shares a common factor with the previously played card. MAGIC cards act as wildcard primes; SKIP cards force the next player to miss a turn. The game is initiated with a fixed '1' card and supports 2 to 6 players.

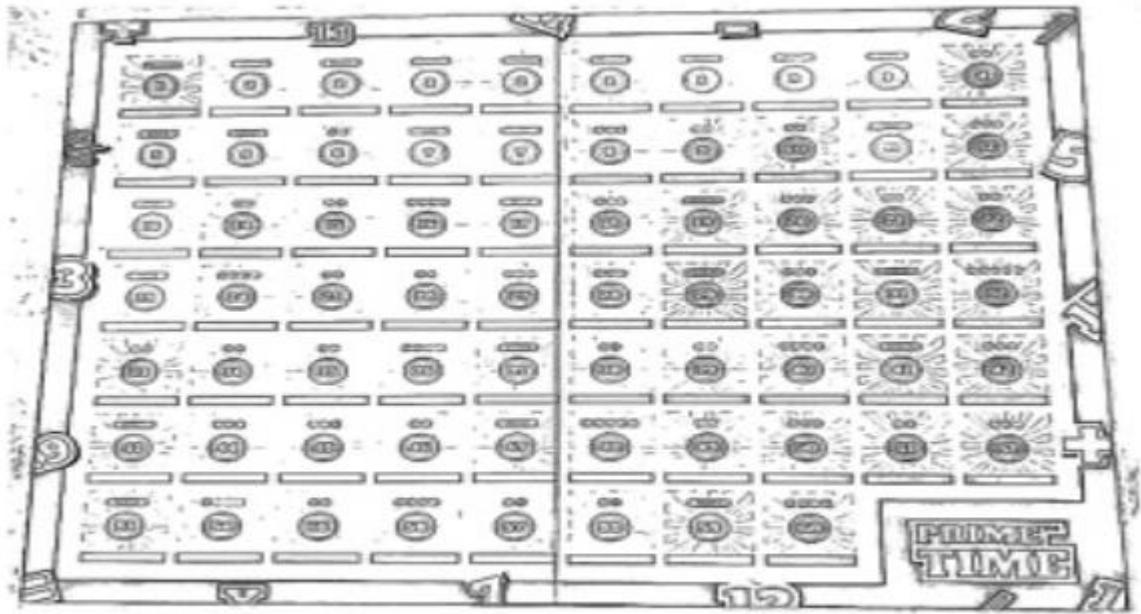


FIGURE 1

(54) Title of the invention : SYSTEM AND METHOD FOR ADVANCED SIGNAL FILTERING

(51) International classification :G16B0040000000, E21B0007040000, A61B0005000000, G01P0015180000, A61B0007000000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :  
ABSTRACT SYSTEM AND METHOD FOR ADVANCED SIGNAL FILTERING The present disclosure describes a signal processing system (100) for filtering a multi-dimensional signal generated from an input source (102). The system (100) comprises a signal acquisition unit configured to sense at least one physical parameter of the multi-dimensional signal, at least one analog-to-digital converter (106) communicably coupled to the signal acquisition unit (104) and configured to: receive the at least one sensed physical parameter and generate a sampled discrete multi-dimensional data for the at least one received physical parameter. Further, the system (100) comprises a control unit (108) communicably coupled to the at least one analog-to-digital converter (106), wherein the control unit (108) is configured to perform an adaptive distance-weighted filtering on the sampled discrete multi-dimensional data to generate at least one filter value. Furthermore, the system (100) comprises an output interface (110) communicably coupled to the control unit (108). FIG. 1

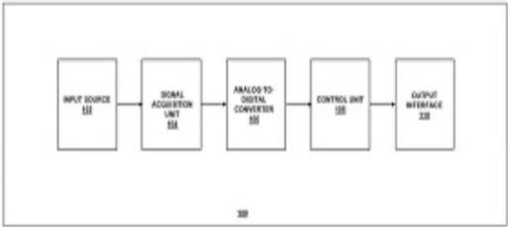


FIG. 1

No. of Pages : 46 No. of Claims : 9

(54) Title of the invention : COMPACT OPTICAL BENCH APPARATUS FOR MAGNETOMETRY USING NITROGEN-VACANCY DEFECTS IN DIAMOND

|                                               |                                                                                 |                                                                                                                                                                                                            |
|-----------------------------------------------|---------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (51) International classification             | :G01R0033320000, G01R0033032000, A61B0005000000, G02B0006420000, G01R0033260000 | (71)Name of Applicant :<br>1)Indian Institute of Science Education and Research Bhopal<br>Address of Applicant :Bhopal Bypass Road, Bhauri, Bhopal – 462066, Madhya Pradesh, India Bhopal -----            |
| (86) International Application No             | :NA                                                                             | Name of Applicant : NA                                                                                                                                                                                     |
| Filing Date                                   | :NA                                                                             | Address of Applicant : NA                                                                                                                                                                                  |
| (87) International Publication No             | : NA                                                                            | (72)Name of Inventor :                                                                                                                                                                                     |
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| (62) Divisional to Application Number         | :NA                                                                             | 2)Pralekh Dubey                                                                                                                                                                                            |
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(57) Abstract :

The present invention relates to a modular magnetometer apparatus (100) for optically detected magnetic resonance measurements using nitrogen-vacancy centers in diamond. The apparatus (100) comprises a miniature optical bench (102) supporting and aligning a plurality of optomechanical components, including a fiber-coupled 532 nm laser source (106) and a fiber-port (104) for collimating the laser beam. A dichroic mirror (108) reflects the laser toward the diamond sample (126) and transmits red photoluminescence. A microscope objective (110), long-pass filter (112), and photodiode (116) are aligned for collecting and detecting the photoluminescence signal. A data acquisition system (118) digitizes the signal. A signal generator (120) and amplifier drive a microwave signal to a printed circuit board (122) holding the diamond sample (126), while electromagnetic coils (124) apply a controlled magnetic field. The configuration of the apparatus (100) ensures accessibility, realignment, and adaptability for research, education, and training in quantum sensing applications.

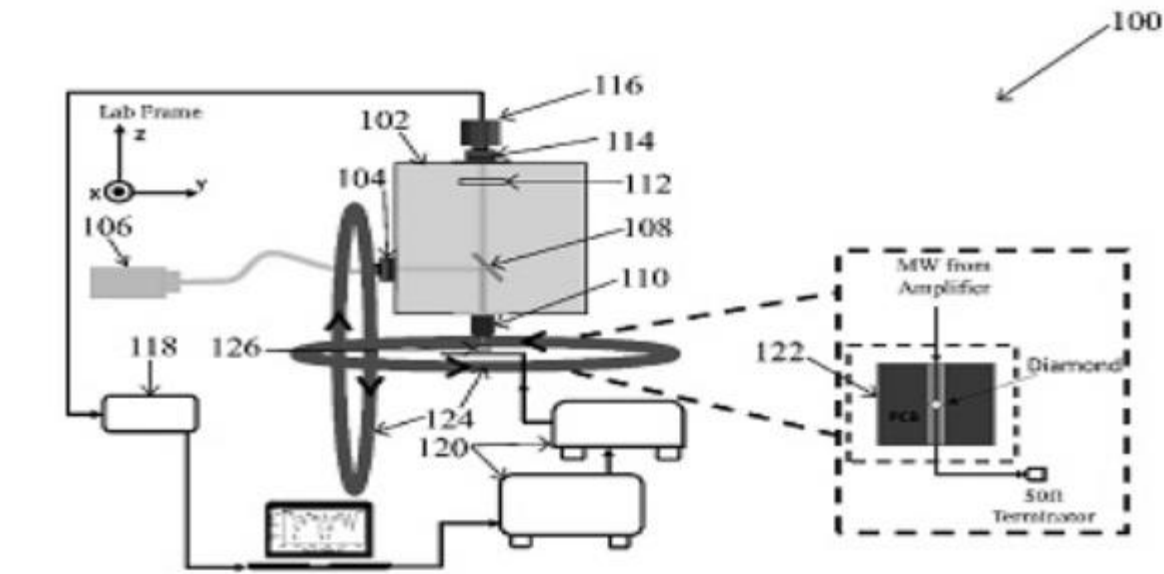


Figure.1

(54) Title of the invention : Adaptive Adhesive Joint Fixture System

(51) International classification :B25B0005120000,  
H01L0021670000,  
H05K0013080000,  
F16M0013020000,  
B25B0005160000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No :NA  
(61) Patent of Addition to Application Number :NA  
Filing Date :NA  
(62) Divisional to Application Number :NA  
Filing Date :NA

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3)Mr. Chirag Desai

4)Dr. Parag Sanghani

5)Dr. Ranjit Kumar Dehury

6)Mr. Manish Maisuria

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## (57) Abstract :

Adaptive adhesive joint fixture system is described herein. The system comprises a base plate (10), a base support (20), a toggle clamp with an adjustable holder (30), a base plate (40) for the toggle clamp (30), a support for a testing component (50), a fixed holder with a base plate (60), a fixed holder with a side plate (70), a fixed holder with a top plate (80), a support for the fixed holder (90), and a plurality of hex head nut (100). The toggle clamp with an adjustable holder (30) holds a workpiece or component in position for testing or processing. The toggle clamp with an adjustable holder (30) adjusted to accommodate objects of varying sizes.

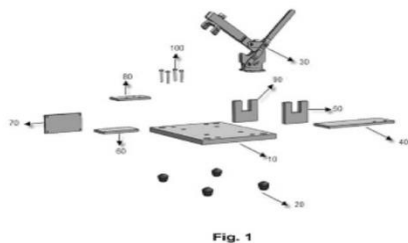


Fig. 1

No. of Pages : 19 No. of Claims : 3

|                                                                                                                                                                                                                                                                                                                                                                 |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (12) PATENT APPLICATION PUBLICATION                                                                                                                                                                                                                                                                                                                             |  | (21) Application No.202521057137 A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| (19) INDIA                                                                                                                                                                                                                                                                                                                                                      |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| (22) Date of filing of Application :13/06/2025                                                                                                                                                                                                                                                                                                                  |  | (43) Publication Date : 04/07/2025                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| (54) Title of the invention : AN INTERNET OF THINGS BASED EDDY COVARIANCE (IoT-EC) MONITORING SYSTEM                                                                                                                                                                                                                                                            |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| (51) International classification :H04L0067120000, H04W0004380000, H04W0084180000, E04H0012180000, G01W0001020000<br>(86) International Application No :NA<br>Filing Date :NA<br>(87) International Publication No : NA<br>(61) Patent of Addition to Application Number :NA<br>Filing Date :NA<br>(62) Divisional to Application Number :NA<br>Filing Date :NA |  | (71) <b>Name of Applicant :</b><br><b>1)INDIAN INSTITUTE OF TECHNOLOGY BOMBAY</b><br>Address of Applicant :Indian Institute of Technology Bombay, Powai, Mumbai – 400076, Maharashtra, India. Mumbai -----<br><b>Name of Applicant : NA</b><br><b>Address of Applicant : NA</b><br>(72) <b>Name of Inventor :</b><br><b>1)MAYANK GUPTA</b><br>Address of Applicant :Centre for Urban Science & Engineering (CUSE), Indian Institute of Technology Bombay, Powai, Mumbai-400076, Maharashtra, India. Mumbai -----<br><b>2)Prof. SUBIMAL GHOSH</b><br>Address of Applicant :Department of Civil Engineering, Indian Institute of Technology Bombay, Powai, Mumbai-400076, Maharashtra, India. Mumbai -----<br>----- |

(57) Abstract :  
According to the present disclosure, an internet of things-based eddy covariance (IoT-EC) monitoring system is disclosed. The system measures turbulent fluxes of heat, mass, and momentum across diverse environments and provides critical observations to assess land-surface feedback and improves land-surface modelling in climate systems. The system comprises a telescopic mast (1) fixed and anchored to a wall (2), a plurality of sensor mounting brackets (4) integrally positioned into the telescopic mast (1), a plurality of sensors and a plurality of IoT enabled sensor nodes (7) mounted on the plurality of sensor mounting brackets (4), and a computing device (8) communicably connected to the plurality of sensors via a communication network. Further, the sensor nodes comprise a plurality of IoT-enabled microcontrollers to facilitate wireless data acquisition, remote updates, and real-time monitoring of eddy covariance. Reference Figure: Figure 2

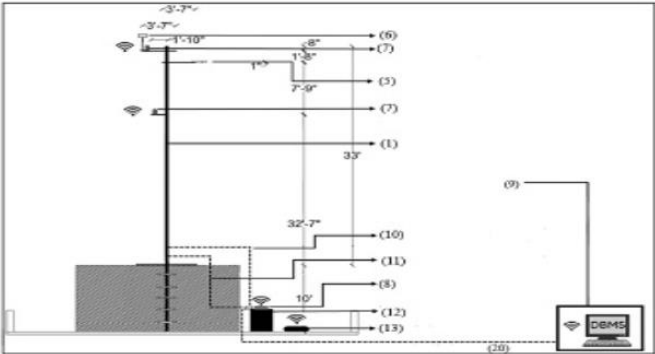


Figure 2

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :18/06/2025

(21) Application No.202521058602 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : Cognitive abilities and English language learning

(51) International classification :G09B0019060000, H04L0067306000, G09B0005060000, G06F0009451000, H04L0001000000

(86) International Application No :NA

Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA

Filing Date :NA

(62) Divisional to Application Number :NA

Filing Date :NA

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(57) Abstract :

The present invention relates to an advanced English language learning system that utilizes cognitive profiling, AI-driven personalized learning, and neuroscience-based techniques to enhance language acquisition. The system dynamically adapts lessons based on individual cognitive strengths, providing an optimized, engaging, and effective language learning experience.

No. of Pages : 9 No. of Claims : 7

(54) Title of the invention : System for determining speed of underwater ultrasound using fuzzy-based machine learning and method thereof

(51) International classification

(86) International Application No

(87) International Publication No

(61) Patent of Addition to Application Number

(62) Divisional to Application Number

:A61B0008080000, G06N0020000000, A61B0008000000, G06N0003006000, G01H0005000000

:NA

:NA

:NA

:NA

:NA

:NA

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(57) Abstract :  
ABSTRACT: Title: System for determining speed of underwater ultrasound using fuzzy-based machine learning and method thereof The present invention relates to a system for determining speed of underwater ultrasound using fuzzy-based machine learning, comprising: a data collection unit (10) comprises an ultrasound transducer configured to generate and receive ultrasonic pulses in water for measuring the speed of sound and temperature, a vibration sensor configured to measure ultrasonic temperature in pulse-echo mode, an environmental sensor configured to measure pressure and salinity, which influence sound speed, and data acquisition unit configured to record ultrasonic echo data, temperature, pressure, and salinity measurements, and a feature selection unit (30)configured to apply grey wolf optimization (GWO) to select the impactful features consists of temperature, pressure, and salinity, reducing dimensionality and improving model efficiency. Advantageously, the present invention provides human-understandable reasoning through linguistic variables and rule-based inference, facilitating better understanding, trust, and decision-making for users and operators. Main Illustrative: Figure 1

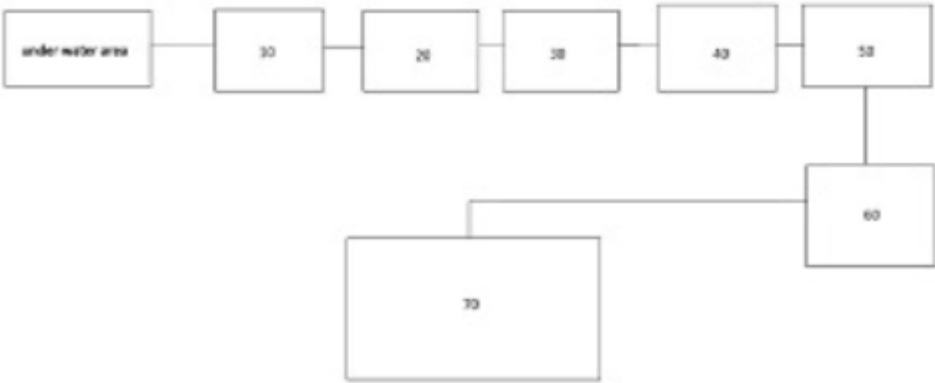


FIGURE 1

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202521058486 A

(19) INDIA

(22) Date of filing of Application :18/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : Methotrexate-Loaded Nanogel for Optimized Topical Drug Delivery

(51) International classification :A61K8/49, A61K8/06, A61K9/107, B82Y33/00, A61K8/34, A61P1/16, A61P7/02, A61P35/00

(86) International Application No :NA

Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA

Filing Date :NA

(62) Divisional to Application Number :NA

Filing Date :NA

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(57) Abstract :

This invention discloses a methotrexate-loaded nanogel optimized for topical delivery using a Box-Behnken Design (BBD). Formulated with HPMC K15, Carbopol 934, and Tween 80, the nanogel achieves a particle size of 123.74 nm, drug content of 96.45%, and sustained drug release of 91.15% over 12 hours. The emulsification-diffusion method ensures uniform nanodispersion, while pH adjustment to 7.0 enhances skin compatibility. The optimized formulation (F16) exhibits a zeta potential of -41.85 mV, entrapment efficiency of 76.65%, and spherical morphology confirmed by SEM. XRD analysis indicates partial amorphization of methotrexate, improving solubility. The nanogel follows the Higuchi model for diffusion-controlled release, offering superior stability and efficacy compared to conventional formulations. This invention provides a promising transdermal delivery system for managing psoriasis and rheumatoid arthritis, reducing systemic toxicity and enhancing patient compliance.To be signed by the authorized registered patent agent.

No. of Pages : 26 No. of Claims : 10



(54) Title of the invention : A CELLULAR GEOSYNTHETIC CLAY LINER USINGGEOTEXTILE-GEOGRID SYSTEM AND METHOD FOR PREPARING THE SAME

|                                               |  |                                                                                                                                                                         |
|-----------------------------------------------|--|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (51) International classification             |  | :E02D0031000000, B09B0001000000, E02D0003000000, E02D0017200000, H04L0005000000                                                                                         |
| (86) International Application No             |  | :NA                                                                                                                                                                     |
| Filing Date                                   |  | :NA                                                                                                                                                                     |
| (87) International Publication No             |  | : NA                                                                                                                                                                    |
| (61) Patent of Addition to Application Number |  | :NA                                                                                                                                                                     |
| Filing Date                                   |  | :NA                                                                                                                                                                     |
| (62) Divisional to Application Number         |  | :NA                                                                                                                                                                     |
| Filing Date                                   |  | :NA                                                                                                                                                                     |
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(57) Abstract :  
The present invention relates to acellular geosynthetic clay liner (GCL)(100) that enhances environmental protection and containment efficiency. The method involves the constructing a vertical element using three layers of geogrid or geonet with reduced effective aperture size for enhanced structural integrity, and connecting the vertical element to the base geogrid-geotextile-geogrid layer and top geogrid layer; and then connecting top geotextile (down) and geogrid (up) layers with entire system of top geogrid layer, vertical element and base layer using loops of monofilament wires. Finally, the sand-bentonite mixture is filled in the cells though the cut (401) made in top geotextile. The said innovative approach ensures the cellular geosynthetic clay liners (GCL) are robust and adaptable to various environmental conditions, promoting effective water management and sustainable practices in waste containment applications. Refer: Figure 2

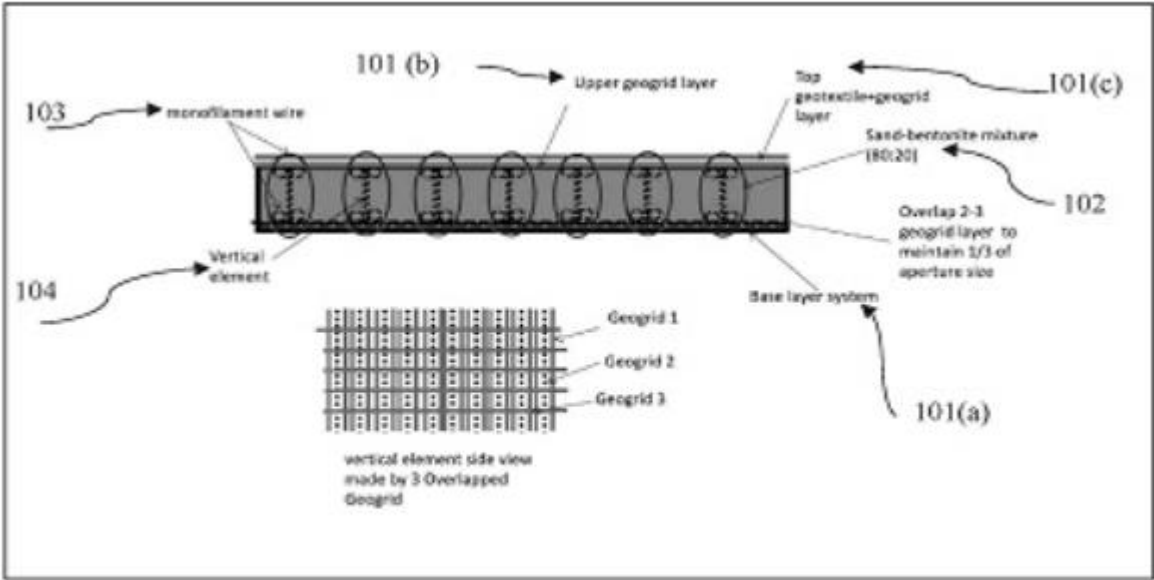


Figure 2

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202521058611 A

(19) INDIA

(22) Date of filing of Application :18/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : MULTILINGUAL SMART PILLBOX WITH AUDIO-VISUAL ALERTS BASED REMINDER MECHANISM

(51) International classification :A61J0007040000, G16H0040670000, G16H0020130000, A61J0001030000, G16H0020100000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

Multilingual Smart Pillbox with Audio-Visual Alerts based Reminder mechanism. This invention describes a multilingual, offline-enabled smart pillbox reminder system designed to improve medication adherence through time-based audio-visual alerts and manual intake confirmation. The system comprises a microcontroller-based control unit configured to execute scheduled medication reminders, illuminate corresponding compartment indicators, and deliver pre-recorded multilingual voice prompts. A user-actuated input mechanism enables confirmation of pill intake, which is logged in structured JSON format. The system further includes a rechargeable power supply with battery monitoring and a wireless communication interface to transmit adherence data to a cloud server when connectivity is available. A companion application allows remote caregivers to access real-time intake records, receive notifications for missed doses, and manage schedules. Operable without continuous internet or smartphone dependency, the invention provides an accessible, scalable, and cost-effective solution for enhancing patient compliance, particularly among the elderly and visually impaired. It is suited for deployment in domestic, rural, and institutional healthcare environments.

No. of Pages : 25 No. of Claims : 10

(54) Title of the invention : ORAL AND FACIAL HYGIENE SYSTEM

(51) International classification :G06F0003010000, A63B0071060000, A46B0011000000, A61C0017220000, A61Q0011000000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

An oral and facial hygiene system comprises of a base 101 having a set of storage chambers 102 to store oral and cleaning hygiene materials, a platform 103 with load cells to detect placement of a user's chin, a U-shaped frame 104 integrated with a motorized slider 105, a robotic gripper 106 mounted on the slider 105 to retrieve and position a flexible headband, a vertical rod 108 having a camera 109 integrated with NIR and LiDAR sensors for tracking the user's gaze and head position, a Geneva arrangement 110 including a motorized brush 112 mounted on one L-shaped link 111 incorporating a quick return arrangement and iris holes for dispensing oral care gel onto brush 112, a sponge pad 113 having dispensing holes for dispensing cleaning solution and water, a Peaucellier linkage arrangement 114 having a panel 115 and motorized clamps 116 to secure user's neck during hygiene tasks.

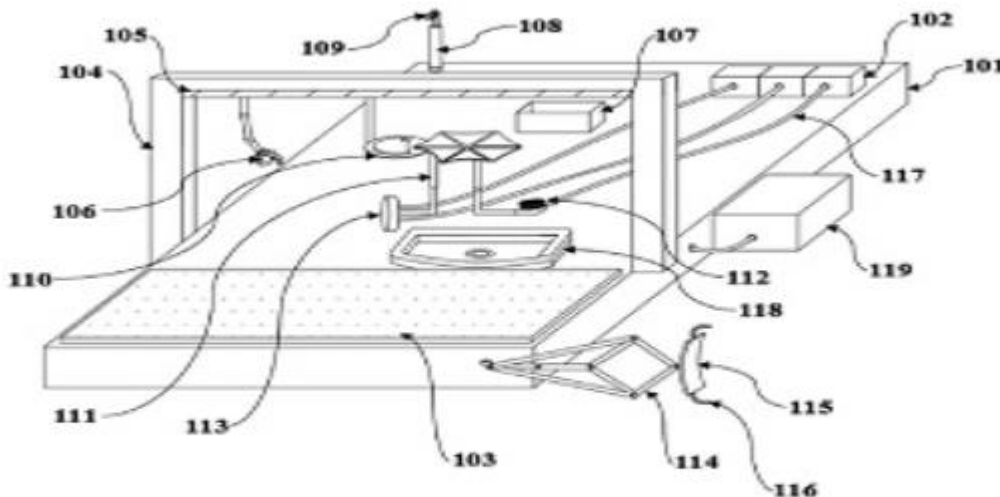


Figure 1

(54) Title of the invention : LIGHT DOME CAMOUFLAGE SYSTEM FOR SAFEGUARDING INFRASTRUCTURE

(51) International classification :H04N0009310000, G01S0017890000, F41H0003000000, G03B0021580000, H04N0013388000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :  
A light dome camouflage system for safeguarding infrastructure, comprises of a plurality of coherent near-infrared laser arrays 101 arranged to intersect in open air around a building to generate volumetric light voxels forming a three-dimensional light field projection to render the building optically merged with the surroundings, a panoramic high-resolution camera 102 to continuously scan the surrounding space for detecting unauthorized aerial hazards, an AI-based hazard detection module coupled with the camera 102 to analyze scanned data to distinguish non-civilian hazards from civilian aerial activity and trigger dome 103 activation upon detection of a hazard, an AI-controlled dynamic light modulation unit, utilizing Digital Light Processing (DLP) overlays to adapt the light field projection in real-time to environmental changes to maintain a high-fidelity optical camouflage, a control unit configured to synchronize the laser arrays 101, panoramic camera 102, and DLP overlays to generate a seamless 360-degree invisibility dome 103.

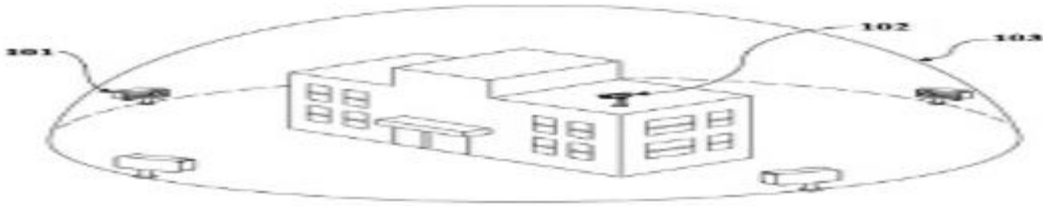


Figure 1



Figure 2

(54) Title of the invention : CONSUMER BEHAVIOR ANALYSIS IN E-COMMERCE: FACTORS INFLUENCING ONLINE PURCHASE DECISIONS

|                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
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| <p>(51) International classification :G06Q0030060100, G06Q0030025100, G06Q0030020000, G06Q0030020700, G06Q0030020100</p> <p>(86) International Application No :NA<br/>Filing Date :NA</p> <p>(87) International Publication No :NA<br/>Filing Date :NA</p> <p>(62) Divisional to Application Number :NA<br/>Filing Date :NA</p> | <p>(71)<b>Name of Applicant :</b><br/> <b>1)Prof. Ritu Tiwari</b><br/> Address of Applicant :Professor, Department of Economics, Dayanand Arya Kanya College, Nagpur, Pin: 440030, Maharashtra, India. -----<br/> <b>2)Dr. Rajeshwari R R</b><br/> <b>3)Dr. Shailaja A Akkur</b><br/> <b>4)Mr. Nagesh Mishra</b><br/> <b>5)Mr. Bharath B</b><br/> <b>6)Dr. A. Fathima</b><br/> <b>7)Ms. G. Pavithra</b><br/> <b>8)T. Kanimozhi</b><br/> <b>9)Ms. T. K. Tharani Priya</b><br/> <b>10)Mrs. Neha Maheshwari</b><br/> <b>11)Dr. Manmohan Chaudhry</b><br/> <b>12)Prof. Dr. Harikumar Pallathadka</b><br/> <b>Name of Applicant : NA</b><br/> <b>Address of Applicant : NA</b><br/> (72)<b>Name of Inventor :</b><br/> <b>1)Prof. Ritu Tiwari</b><br/> Address of Applicant :Professor, Department of Economics, Dayanand Arya Kanya College, Nagpur, Pin: 440030, Maharashtra, India. -----<br/> <b>2)Dr. Rajeshwari R R</b><br/> Address of Applicant :Assistant Professor, Department of MBA, Dr. Ambedkar Institute of Technology, Bengaluru, Pin: 560056, Karnataka, India. -----<br/> <b>3)Dr. Shailaja A Akkur</b><br/> Address of Applicant :Assistant Professor, Department of MBA, Nitte Meenakshi Institute of Technology, Bengaluru, Pin: 560064, Karnataka, India. -----<br/> <b>4)Mr. Nagesh Mishra</b><br/> Address of Applicant :Research Scholar, Pt. Ravishankar Shukla University, Raipur, Pin: 492010, Chhattisgarh, India. -----<br/> <b>5)Mr. Bharath B</b><br/> Address of Applicant :Assistant Professor, JAIN University - CMS, Lalbagh Road, Bangalore, Pin: 560027, Karnataka, India. - -----<br/> <b>6)Dr. A. Fathima</b><br/> Address of Applicant :Assistant Professor (Senior Grade), BS Abdur Rahman Crescent Institute of Science and Technology, Kanchipuram, Chennai, Pin: 600048, Tamil Nadu, India. -----<br/> <b>7)Ms. G. Pavithra</b><br/> Address of Applicant :Assistant Professor, PG &amp; Research Department of Commerce, Sri Ramakrishna College of Arts &amp; Science, Fun Mall &amp; Lakshmi Mills, Bus Stop, Avinashi Road, Between, Nava India Rd, Peelamedu, Coimbatore, Pin: 641006, Tamil Nadu, India. -----<br/> <b>8)T. Kanimozhi</b><br/> Address of Applicant :Assistant Professor Dr. SNS Rajalakshmi College of Arts and Science, 486 Thudiyalur - Saravanampatti Road, Post, Chinnavedampatti, Coimbatore, Pin: 641049, Tamilnadu, India. -----<br/> <b>9)Ms. T. K. Tharani Priya</b><br/> Address of Applicant :Assistant Professor of Commerce, K.S.R College of Arts and Science for Women, Tiruchengode, Namakkal, Pin: 637215, Tamil Nadu, India. -----<br/> <b>10)Mrs. Neha Maheshwari</b><br/> Address of Applicant :Assistant Professor, Ram Chameli Chadha Vishvas Girls College, C-22, Industrial Area, Meerut Road, Ghaziabad, Pin: 201003, Uttar Pradesh, India. -----<br/> <b>11)Dr. Manmohan Chaudhry</b><br/> Address of Applicant :Associate Professor, K R Mangalam University, Sohna, Pin 122001, Haryana, India. -----<br/> <b>12)Prof. Dr. Harikumar Pallathadka</b><br/> Address of Applicant :Professor &amp; Director, Manipur International University, Ghari Awang Leikai, Airport Road, Imphal, Imphal West District, Pin: 795140, Manipur, India. -----</p> |
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## (57) Abstract :

The present invention relates to a system and method for analyzing consumer behavior in e-commerce platforms to identify and influence factors affecting online purchase decisions. By integrating real-time interaction data, behavioral profiling, contextual analysis, and predictive modeling, the invention enables personalized user experiences and targeted marketing interventions. The system dynamically adapts to user intent, enhances product recommendations, reduces cart abandonment, and offers actionable insights for e-commerce operators, especially small and medium enterprises (SMEs), through a modular, scalable, and data-driven approach.

No. of Pages : 18 No. of Claims : 8

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :14/06/2025

(21) Application No.202521057214 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : A Polyherbal Pain Relief Patch Formulation

|                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
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| <p>(51) International classification :A61K0036906600, A61P0029000000, A61K0009700000, A61K0009000000, A61K0036850000</p> <p>(86) International Application No :NA<br/>Filing Date :NA</p> <p>(87) International Publication No : NA</p> <p>(61) Patent of Addition to Application Number :NA<br/>Filing Date :NA</p> <p>(62) Divisional to Application Number :NA<br/>Filing Date :NA</p> | <p>(71)Name of Applicant :<br/><b>1)Dr. Shravani S. Parate</b><br/>Address of Applicant :Ayurved Seva Sangh's, Ayurved Mahavidyalaya, Ganeshwadi, Panchvati, Tal. Nashik, Dist. Nashik, Pin-422003, Maharashtra, India Nashik -----<br/><b>2)Dr. Sheetal S. Chavan</b><br/><b>3)Dr. Sanjivani N. Rathod</b><br/><b>4)Dr. Abhay Kulkarni</b><br/><b>5)Dr. Pankaj P. Dixit</b><br/><b>6)Dr. Vinay R. Sonambekar</b><br/><b>7)Dr. Eknath G. Kulkarni</b><br/><b>8)Dr. Shishir P. Pande</b><br/>Name of Applicant : NA<br/>Address of Applicant : NA<br/>(72)Name of Inventor :<br/><b>1)Dr. Shravani S. Parate</b><br/>Address of Applicant :Ayurved Seva Sangh's, Ayurved Mahavidyalaya, Ganeshwadi, Panchvati, Tal. Nashik, Dist. Nashik, Pin-422003, Maharashtra, India Nashik -----<br/><b>2)Dr. Sheetal S. Chavan</b><br/>Address of Applicant :Ayurved Seva Sangh's, Ayurved Mahavidyalaya, Ganeshwadi, Panchvati, Tal. Nashik, Dist. Nashik, Pin-422003, Maharashtra, India Nashik -----<br/><b>3)Dr. Sanjivani N. Rathod</b><br/>Address of Applicant :Ayurved Seva Sangh's, Ayurved Mahavidyalaya, Ganeshwadi, Panchvati, Tal. Nashik, Dist. Nashik, Pin-422003, Maharashtra, India Nashik -----<br/><b>4)Dr. Abhay Kulkarni</b><br/>Address of Applicant :Ayurved Seva Sangh's, Ayurved Mahavidyalaya, Ganeshwadi, Panchvati, Tal. Nashik, Dist. Nashik, Pin-422003, Maharashtra, India Nashik -----<br/><b>5)Dr. Pankaj P. Dixit</b><br/>Address of Applicant :Ayurved Seva Sangh's, Ayurved Mahavidyalaya, Ganeshwadi, Panchvati, Tal. Nashik, Dist. Nashik, Pin-422003, Maharashtra, India Nashik -----<br/><b>6)Dr. Vinay R. Sonambekar</b><br/>Address of Applicant :Ayurved Seva Sangh's, Ayurved Mahavidyalaya, Ganeshwadi, Panchvati, Tal. Nashik, Dist. Nashik, Pin-422003, Maharashtra, India Nashik -----<br/><b>7)Dr. Eknath G. Kulkarni</b><br/>Address of Applicant :Ayurved Seva Sangh's, Ayurved Mahavidyalaya, Ganeshwadi, Panchvati, Tal. Nashik, Dist. Nashik, Pin-422003, Maharashtra, India Nashik -----<br/><b>8)Dr. Shishir P. Pande</b><br/>Address of Applicant :Ayurved Seva Sangh's, Ayurved Mahavidyalaya, Ganeshwadi, Panchvati, Tal. Nashik, Dist. Nashik, Pin-422003, Maharashtra, India Nashik -----</p> |
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(57) Abstract :

A Polyherbal Pain Relief Patch Formulation The present invention introduces a synergistic Polyherbal pain relief patch formulation. Furthermore, combining traditional Polyherbal wisdom with modern transdermal drug delivery technology, this patch incorporates herbal extracts from medicinal plants like Berberis aristata, Curcuma longa, Tecomella undulata, Ricinus communis, Cinnamomum camphora, and Vitex negundo, known for their anti-inflammatory, analgesic, and tissue-repairing properties. In overall, it provides localized and sustained relief, offering a natural alternative to oral medications without systemic side effects. Non-invasive, mess-free, and easy to use, this patch is ideal for various users, including elderly individuals, athletes, and working professionals. The invention provides a holistic, cost-effective, and eco-conscious solution for pain management.

No. of Pages : 21 No. of Claims : 1

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :14/06/2025

(21) Application No.202521057216 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : GREEN SCHOTTKY DIODE USING MARIGOLD FLOWER PIGMENT- SENSITIZED TIO<sub>2</sub> THIN FILMS ON ITO-PET SUBSTRATES

(51) International classification :H01G0009200000, H01L0029872000, C07C0403240000, G06T0007000000, C08J0005180000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

Green Schottky Diode Using Marigold Flower Pigment-Sensitized TiO<sub>2</sub> Thin Films on ITO-PET Substrates This invention describes a method of developing Schottky diodes using natural pigments from marigold flowers as sensitizers and insulating layers on titanium dioxide (TiO<sub>2</sub>) semiconducting films. Waste marigold petals were processed to extract pigments, which were then deposited onto electrodeposited TiO<sub>2</sub> thin films on indium tin oxide–polyethylene terephthalate (ITO-PET) substrates. The TiO<sub>2</sub> films were prepared through a controlled ultrasonic-assisted electrodeposition method, ensuring homogeneity and stability. Optical and morphological properties of both the extract and the film were characterized using UV-VIS-NIR spectroscopy and SEM-EDAX analysis. The fabricated device demonstrated potential for optoelectronic and photovoltaic performance, supporting the use of bio-derived pigments in green electronics. This work emphasizes waste-to-wealth strategies aligned with green chemistry principles and aims to promote cost-effective, eco-friendly alternatives in organic semiconductor device development.

No. of Pages : 26 No. of Claims : 2

(54) Title of the invention : SMART HOT AXLE BOX DETECTION AND COOLING SYSTEM USING IOT

|                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
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| <div>(51) International classification :B61F0005300000, B61K0009040000, B61K0009060000, B61F0015000000, B61F0015260000(86) International Application No :NA Filing Date :NA(87) International Publication No :NA(61) Patent of Addition to Application Number :NA Filing Date :NA(62) Divisional to Application Number :NA Filing Date :NA</div> | <div>(71)Name of Applicant :<br/>1)G.H.Raisoni College of Engineering and Management<br/>Address of Applicant :G.H.Raisoni College of Engineering and Management, Shraddha Park, B-37-39/1, MIDC, Nagpur 440016 Nagpur -----<br/>2)GHR Labs and Research Centre<br/>Name of Applicant : NA<br/>Address of Applicant : NA<br/>(72)Name of Inventor :<br/>1)Yogesh B. Gawali<br/>Address of Applicant :G.H.Raisoni College of Engineering and Management, Shraddha Park, B-37-39/1, MIDC, Nagpur 440016 Nagpur -----<br/>2)Adityaprakash N. Sharma<br/>Address of Applicant :G.H.Raisoni College of Engineering and Management, Shraddha Park, B-37-39/1, MIDC, Nagpur 440016 Nagpur -----<br/>3)Nishant Mohan Bhoyar<br/>Address of Applicant :G.H.Raisoni College of Engineering and Management, Shraddha Park, B-37-39/1, MIDC, Nagpur 440016 Nagpur -----<br/>4)Vedant Vijay Bagde<br/>Address of Applicant :G.H.Raisoni College of Engineering and Management, Shraddha Park, B-37-39/1, MIDC, Nagpur 440016 Nagpur -----<br/>5)Yash Sandip Puri<br/>Address of Applicant :G.H.Raisoni College of Engineering and Management, Shraddha Park, B-37-39/1, MIDC, Nagpur 440016 Nagpur -----<br/>6)Shrawani Pradip Akre<br/>Address of Applicant :G.H.Raisoni College of Engineering and Management, Shraddha Park, B-37-39/1, MIDC, Nagpur 440016 Nagpur -----<br/>7)Arya Nivruti Nandankar<br/>Address of Applicant :G.H.Raisoni College of Engineering and Management, Shraddha Park, B-37-39/1, MIDC, Nagpur 440016 Nagpur -----</div> |
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(57) Abstract :  
ABSTRACT Smart Hot Axle Box Detection and Cooling System using IoT The present invention relates to a Smart Hot Axle Box Detection and Cooling System designed for railway vehicles to prevent catastrophic axle failures caused by overheating. Utilizing a combination of non-contact infrared sensors, a microcontroller-based control unit, automated eco-friendly coolant dispensing, and real-time remote monitoring, this system offers a comprehensive solution to detect and manage excessive axle box temperatures. Upon detecting that a threshold temperature has been exceeded, the system autonomously triggers a cooling mechanism using a biodegradable ECO2 vegetable-based antifreeze solution and alerts nearby personnel through an audible buzzer. The system not only ensures mechanical safety and reliability in high-speed and freight trains but also enhances environmental sustainability and operational efficiency through real-time diagnostics and intelligent automation. [To be published along with Figure 1]

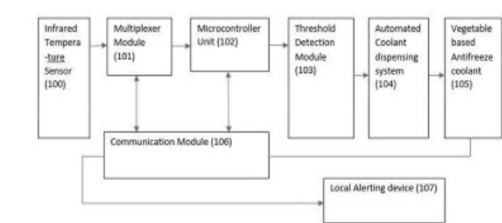


Figure 1



(54) Title of the invention : THE NOVEL ELECTRIC VEHICLE BATTERY CHARGING SYSTEM

|                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
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| (51) International classification :B60L53/51, B60L53/53, H02J7/00, H02J7/35<br>(86) International Application No :NA<br>Filing Date :NA<br>(87) International Publication No :NA<br>(61) Patent of Addition to Application Number :NA<br>Filing Date :NA<br>(62) Divisional to Application Number :NA<br>Filing Date :NA | (71)Name of Applicant :<br><b>1)G.H.Raisoni College of Engineering and Management</b><br>Address of Applicant :G.H.Raisoni College of Engineering and Management, Shraddha Park, B-37-39/1, MIDC, Nagpur 440016<br>Nagpur -----<br><b>2)GHR Labs and Research Centre</b><br><b>Name of Applicant : NA</b><br><b>Address of Applicant : NA</b><br>(72)Name of Inventor :<br><b>1)Pooja Kamlesh Kalbande</b><br>Address of Applicant :G.H.Raisoni College of Engineering and Management, Shraddha Park, B-37-39/1, MIDC, Nagpur 440016<br>Nagpur -----<br><b>2)Kamlesh Kalbande</b><br>Address of Applicant :G.H.Raisoni College of Engineering and Management, Shraddha Park, B-37-39/1, MIDC, Nagpur 440016<br>Nagpur -----<br><b>3)Tejas Namdeo Bawane</b><br>Address of Applicant :G.H.Raisoni College of Engineering and Management, Shraddha Park, B-37-39/1, MIDC, Nagpur 440016<br>Nagpur -----<br><b>4)Pranay Manik Bangar</b><br>Address of Applicant :G.H.Raisoni College of Engineering and Management, Shraddha Park, B-37-39/1, MIDC, Nagpur 440016<br>Nagpur -----<br><b>5)Shivarth Veerji Srivastava</b><br>Address of Applicant :G.H.Raisoni College of Engineering and Management, Shraddha Park, B-37-39/1, MIDC, Nagpur 440016<br>Nagpur -----<br><b>6)Meet Manoj Dhurve</b><br>Address of Applicant :G.H.Raisoni College of Engineering and Management, Shraddha Park, B-37-39/1, MIDC, Nagpur 440016<br>Nagpur -----<br><b>7)Ayush Sanjay Dandhare</b><br>Address of Applicant :G.H.Raisoni College of Engineering and Management, Shraddha Park, B-37-39/1, MIDC, Nagpur 440016<br>Nagpur ----- |
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(57) Abstract :

ABSTRACT The Novel Electric Vehicle Battery Charging System The present invention relates to a hybrid Electric Vehicle (EV) Battery Charging System designed to overcome the limitations of current EV charging infrastructure by offering a flexible, off-grid, and renewable energy-powered solution. Integrating advanced solar photovoltaic technology, intelligent control systems, and vehicle-to-vehicle (V2V) energy transfer capabilities, the system ensures efficient and sustainable charging even in remote or emergency conditions. Equipped with a boost converter, voltage regulators, real-time sensors, and an IoT-enabled microcontroller, the system provides optimized energy management, sun tracking, and remote diagnostics. This portable and intelligent charger enables users to charge EV batteries without dependence on traditional grid infrastructure, making it ideal for rural, highway, and disaster-affected environments. [To be published along with Figure 1]

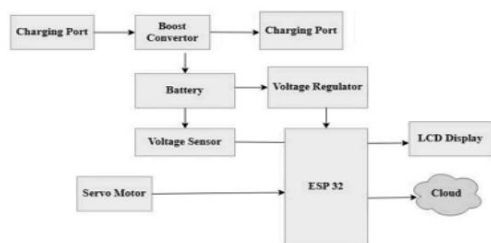


Figure 1

No. of Pages : 18 No. of Claims : 10

(54) Title of the invention : FABRICATION OF SOLAR-WIND HYBRID POWER PLANT

|                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
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| <p>(51) International classification :H02S10/12, G05F1/67, H02S40/38, F03D9/25</p> <p>(86) International Application No :NA<br/>Filing Date :NA</p> <p>(87) International Publication No : NA</p> <p>(61) Patent of Addition to Application Number :NA<br/>Filing Date :NA</p> <p>(62) Divisional to Application Number :NA<br/>Filing Date :NA</p> | <p>(71)<b>Name of Applicant :</b><br/> <b>1)G.H.Raisoni College of Engineering and Management</b><br/> Address of Applicant :G.H.Raisoni College of Engineering and Management, Shraddha Park, B-37-39/1, MIDC, Nagpur 440016<br/> Nagpur -----<br/> <b>2)GHR Labs and Research Centre</b><br/> <b>Name of Applicant : NA</b><br/> <b>Address of Applicant : NA</b><br/> (72)<b>Name of Inventor :</b><br/> <b>1)Dinesh Bodhankar</b><br/> Address of Applicant :G.H.Raisoni College of Engineering and Management, Shraddha Park, B-37-39/1, MIDC, Nagpur 440016<br/> Nagpur -----<br/> <b>2)Ganesh N Akhade</b><br/> Address of Applicant :G.H.Raisoni College of Engineering and Management, Shraddha Park, B-37-39/1, MIDC, Nagpur 440016<br/> Nagpur -----<br/> <b>3)Vijay V Kale</b><br/> Address of Applicant :G.H.Raisoni College of Engineering and Management, Shraddha Park, B-37-39/1, MIDC, Nagpur 440016<br/> Nagpur -----<br/> <b>4)Sarthak P Chikhale</b><br/> Address of Applicant :G.H.Raisoni College of Engineering and Management, Shraddha Park, B-37-39/1, MIDC, Nagpur 440016<br/> Nagpur -----<br/> <b>5)Samir Jamdai</b><br/> Address of Applicant :G.H.Raisoni College of Engineering and Management, Shraddha Park, B-37-39/1, MIDC, Nagpur 440016<br/> Nagpur -----<br/> <b>6)Gitesh Wanve</b><br/> Address of Applicant :G.H.Raisoni College of Engineering and Management, Shraddha Park, B-37-39/1, MIDC, Nagpur 440016<br/> Nagpur -----<br/> <b>7)Bhavana Dhawale</b><br/> Address of Applicant :G.H.Raisoni College of Engineering and Management, Shraddha Park, B-37-39/1, MIDC, Nagpur 440016<br/> Nagpur -----<br/> <b>8)Dhiraj P Vaidya</b><br/> Address of Applicant :G.H.Raisoni College of Engineering and Management, Shraddha Park, B-37-39/1, MIDC, Nagpur 440016<br/> Nagpur -----</p> |
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(57) Abstract :

ABSTRACT Fabrication of Solar-Wind Hybrid Power Plant The present invention relates to a hybrid renewable energy system that integrates solar and wind power generation to deliver a sustainable, efficient, and reliable electricity supply. The system combines photovoltaic (PV) solar panels and a vertical-axis wind turbine (VAWT), each harnessing renewable energy independently or simultaneously, depending on environmental conditions. It includes a hybrid charge controller, a battery bank for energy storage, and an inverter for converting DC to AC power. Designed to address the limitations of standalone solar or wind systems, this invention ensures consistent power output even under fluctuating weather patterns. It is particularly suitable for remote areas, rural electrification, and applications where grid access is limited or unavailable. The system provides a cost-effective, eco-friendly alternative to fossil fuel-based power generation, promoting energy independence and environmental sustainability. [To be published along with Figure 1]

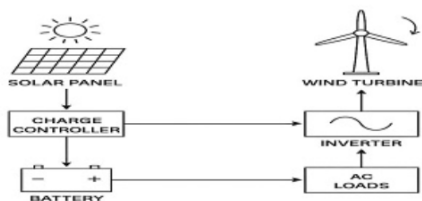


Figure 1

No. of Pages : 17 No. of Claims : 10

(54) Title of the invention : VISIONSTICK: BRIDGING THE GAP BETWEEN SIGHT AND TOUCH

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| <div>(51) International classification</div> <div>:G06F0003048800,<br/>G06F0003048830,<br/>G06F0003048200,<br/>H01L0021265000,<br/>G06T0019200000</div> <div>(86) International Application No</div> <div>:NA<br/>:NA</div> <div>Filing Date</div> <div>(87) International Publication No</div> <div>: NA</div> <div>(61) Patent of Addition to Application Number</div> <div>:NA<br/>:NA</div> <div>Filing Date</div> <div>(62) Divisional to Application Number</div> <div>:NA<br/>:NA</div> <div>Filing Date</div> | <div>(71)Name of Applicant :</div> <div>1)G.H.Raisoni College of Engineering and Management</div> <div>Address of Applicant :G.H.Raisoni College of Engineering and Management, Shraddha Park, B-37-39/1, MIDC, Nagpur 440016 Nagpur -----</div> <div>2)GHR Labs and Research Centre</div> <div>Name of Applicant : NA</div> <div>Address of Applicant : NA</div> <div>(72)Name of Inventor :</div> <div>1)Harsha Kunwar</div> <div>Address of Applicant :G.H.Raisoni College of Engineering and Management, Shraddha Park, B-37-39/1, MIDC, Nagpur 440016 Nagpur -----</div> <div>2)Shivam Jagdish Tadas</div> <div>Address of Applicant :G.H.Raisoni College of Engineering and Management, Shraddha Park, B-37-39/1, MIDC, Nagpur 440016 Nagpur -----</div> <div>3)Priyanshu Dnyaneshwar Patil</div> <div>Address of Applicant :G.H.Raisoni College of Engineering and Management, Shraddha Park, B-37-39/1, MIDC, Nagpur 440016 Nagpur -----</div> <div>4)Ayush Kailash Akare</div> <div>Address of Applicant :G.H.Raisoni College of Engineering and Management, Shraddha Park, B-37-39/1, MIDC, Nagpur 440016 Nagpur -----</div> <div>5)Anshul Vivek Patil</div> <div>Address of Applicant :G.H.Raisoni College of Engineering and Management, Shraddha Park, B-37-39/1, MIDC, Nagpur 440016 Nagpur -----</div> <div>6)Swapnil Ganesh Gaurkar</div> <div>Address of Applicant :G.H.Raisoni College of Engineering and Management, Shraddha Park, B-37-39/1, MIDC, Nagpur 440016 Nagpur -----</div> |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

(57) Abstract :  
The present invention relates to an intelligent assistive device named VisionStick, designed to enhance the autonomy and safety of visually impaired individuals by integrating advanced technologies including speech recognition, natural language processing (NLP), real-time object detection, and ultrasonic sensing. The system is capable of functioning offline and supports multi-object recognition, obstacle detection, and voice-guided interaction. It bridges the gap between sight and touch by translating visual information into real-time auditory or tactile feedback, enabling users to navigate and interact with their environment independently. The VisionStick also includes safety features such as emergency alerts and hazard recognition, thereby addressing key challenges faced by the visually impaired in both familiar and unfamiliar settings. The invention emphasizes low-cost deployment, user-centric design, and adaptability, making it a viable solution for improving accessibility and quality of life for blind and visually impaired individuals. [To be published along with Figure 1]

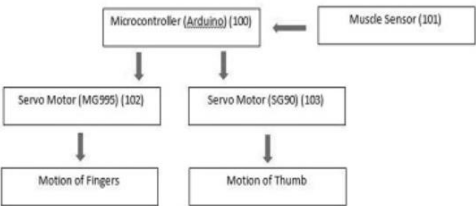


Figure 1

(54) Title of the invention : FABRICATION OF A CRADLE-BASED WATER LIFTING MECHANISM

(51) :E21B43/12,  
International F04B47/02,  
classification F04B19/08

(86)  
International :NA  
Application No :NA  
Filing :NA

Date  
(87)  
International : NA

Publication No  
(61) Patent of  
Addition to  
Application :NA  
Number :NA  
Filing

Date  
(62) Divisional  
to Application :NA  
Number :NA  
Filing  
Date

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---

(57) Abstract :

**ABSTRACT** Fabrication of a Cradle-Based Water Lifting Mechanism The present invention relates to a mechanical water lifting system, more specifically to a manually or naturally actuated cradle-based mechanism that facilitates efficient and sustainable extraction of water from wells, ponds, or similar sources. The system utilizes a pivotally mounted cradle structure integrated with a reciprocating piston pump. Through a rocking motion actuated by the user or natural forces, the cradle converts oscillatory motion into vertical reciprocating movement, thereby driving the pump to lift water. A counterweight mechanism assists the cradle's movement, significantly reducing the physical effort required for operation. The invention is particularly suited for rural, off-grid, or economically constrained regions where access to powered pumping solutions is limited or non-existent. Designed for low-cost fabrication using locally available materials, the system presents a reliable, user-friendly, and environmentally sustainable solution for domestic, agricultural, and community-level water needs. [To be published along with Figure 1]

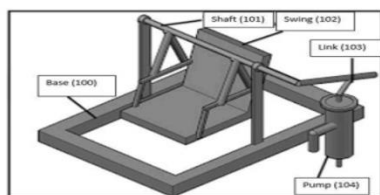


Figure 1

(51) International classification

:A61B0006460000, H04L0045420000, B62D0015020000, H04L0045000000, A01G0031060000

(86) International Application No

:NA

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: NA

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:NA

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(62) Divisional to Application Number

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Filing Date

:NA

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(57) Abstract :  
ABSTRACT AGROVISION: A Data-Driven AI Solution for Precision Farming AgroVision is an AI-powered, precision agriculture platform designed to empower farmers with intelligent, data-driven insights for optimizing crop production and farm management. By integrating real-time environmental data, market analytics, weather forecasting, and personalized AI-generated crop recommendations, AgroVision enables farmers to make informed decisions, reduce agricultural risks, and improve overall productivity. The platform includes a multilingual AI chatbot for instant agricultural guidance, a dynamic crop calendar tailored to specific geographic and soil conditions, and a centralized farm management dashboard to track multi-plot operations. AgroVision offers a scalable, user-friendly digital ecosystem that bridges the gap between traditional farming practices and smart, sustainable agriculture through the power of artificial intelligence. [To be published along with Figure 1]

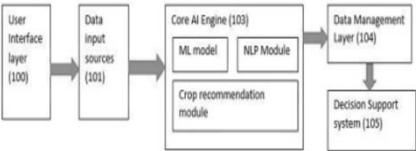


Figure 1

(54) Title of the invention : VERTICAL AXIS WIND TURBINE

(51) International classification :F03D3/00, F03D9/11, F03D7/06,  
F03D80/00  
(86) International Application No :NA  
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(87) International Publication No : NA  
(61) Patent of Addition to Application  
Number :NA  
Filing Date :NA  
(62) Divisional to Application Number :NA  
Filing Date :NA

## (71)Name of Applicant :

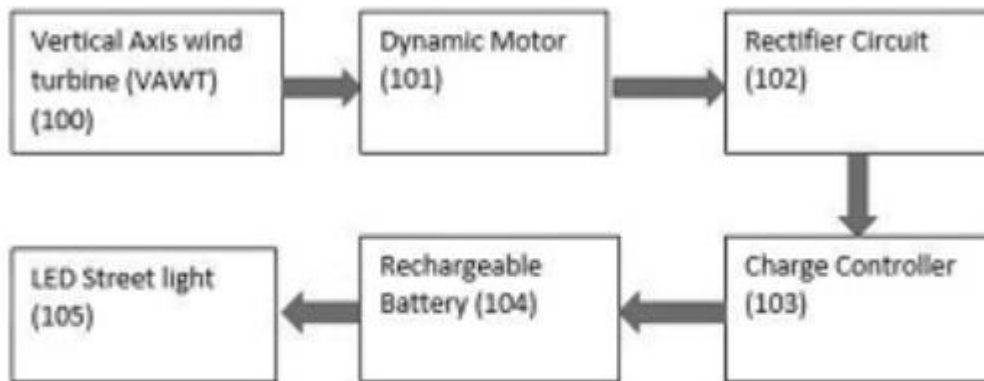
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## (57) Abstract :

The present invention relates to a self-sustaining streetlight system that harnesses wind energy through a vertical axis wind turbine (100)(VAWT) integrated with a dynamic motor (101) acting as a generator. The invention provides an eco-friendly, off-grid lighting solution ideal for urban and remote areas. The VAWT captures wind from all directions, driving the motor to generate electrical energy, which is then rectified and stored in a rechargeable battery (104). A charge controller (103) ensures optimal charging conditions while an LED driver regulates power to energy-efficient LED lamps. The system is designed to operate reliably in variable wind conditions, ensuring continuous illumination even during low wind periods through battery support. [To be published along with Figure 1]

**Figure 1**

(54) Title of the invention : An Interactive Driving Coach

(51) International classification :B61D0017040000, A63B0069000000, A63F0013533000, B60T0013680000, A63B0069320000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :  
ABSTRACT An Interactive Driving Coach The present invention relates to an interactive driving assistant system for electric vehicles (EVs), termed Smart Guide, which introduces a human-like avatar named Aura for enhancing safety, personalization, and entertainment during EV operation. Smart Guide integrates real-time feedback mechanisms, safety alerts, infotainment modules, and multi-language support within a unified dashboard interface. The system features advanced functionalities including battery leakage alerts, fire detection with action timers, accident detection with automatic emergency call initiation, and driver behavior feedback. It supports English and Hindi for broader accessibility and includes additional features such as web browsing, music playback, in-car gaming, and charging station mapping. Developed on a modular software and hardware platform, Smart Guide aims to improve driving safety, user engagement, and overall EV experience, particularly for regions with multilingual user bases like India.

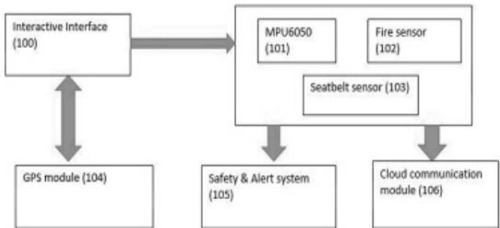


Figure 1

(54) Title of the invention : HANDS-FREE MOUSE CONTROL FOR PHYSICALLY CHALLENGED USERS

|                                               |                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|-----------------------------------------------|---------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (51) International classification             | :H04M0001600000,<br>G06F0003038000,<br>G06F0003035400,<br>A63F0013533000,<br>G01S0005020000 | (71)Name of Applicant :<br><b>1)G.H.Raisoni College of Engineering and Management</b><br>Address of Applicant :G.H.Raisoni College of Engineering and Management, Shraddha Park, B-37-39/1, MIDC, Nagpur 440016 Nagpur -----<br><b>2)GHR Labs and Research Centre</b><br><b>Name of Applicant : NA</b><br><b>Address of Applicant : NA</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
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| (87) International Publication No             | : NA                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| (61) Patent of Addition to Application Number | :NA<br>:NA                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Filing Date                                   |                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| (62) Divisional to Application Number         | :NA<br>:NA                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Filing Date                                   |                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |

(57) Abstract :  
ABSTRACT Hands-free Mouse Control for Physically Challenged Users The present invention relates to a hands-free cursor control system designed specifically for individuals with limited or no hand mobility. The system enables intuitive and independent interaction with computers using facial gestures and head movements. Leveraging real-time facial landmark detection, gesture recognition, and head pose tracking, the invention translates natural facial cues—such as eye blinks, head tilts, mouth openings, and lip expansions—into precise cursor movements and mouse commands. The system eliminates the need for conventional input devices like a mouse or keyboard, promoting digital accessibility and inclusivity for users with physical disabilities. The design emphasizes simplicity, accuracy, and responsiveness, ensuring seamless integration into daily digital activities. [To be published along with Figure 1]

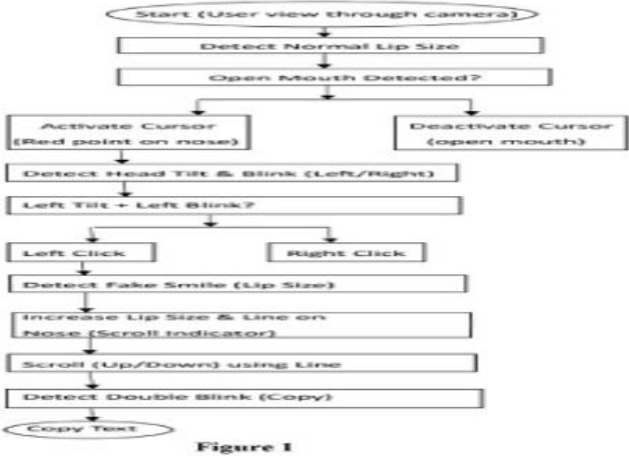


Figure 1

No. of Pages : 19 No. of Claims : 10



(54) Title of the invention : WIRELESS ENLIGHTING LAMP

(51) International classification :H05B0047190000, F21V0017120000, G08C0017020000, A01M0001040000, H02J0050000000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

**ABSTRACT WIRELESS ENLIGHTING LAMP** The present invention relates to a Wireless Enlightening of Candling System designed to modernize the traditional method of lighting candles or lamps by enabling wireless ignition and control. This system offers a contactless, safe, and intelligent solution for environments where manual lighting may be unsafe or inconvenient, such as in religious settings, smart homes, memorial events, and public installations. The system comprises a candle unit with an embedded ignition mechanism or flame-simulating LED, a wireless controller capable of transmitting activation signals via RF, Bluetooth, Wi-Fi, or IR, and an integrated microcontroller for receiving and executing commands. The invention enhances safety with features such as motion detection, overheat protection, and environmental sensing, while offering real-time feedback through audio alerts or visual indicators. This innovation enables remote operation, energy efficiency, and seamless integration with smart devices, thereby revolutionizing traditional candling practices. [To be published along with Figure 1]

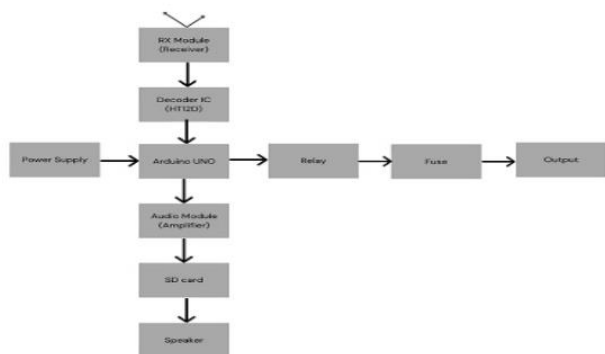


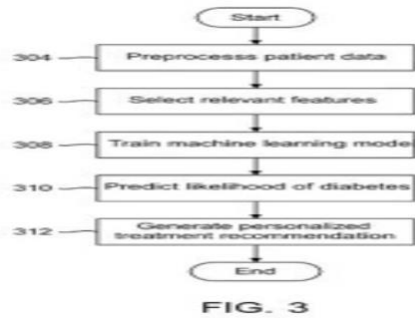
Figure 1

No. of Pages : 17 No. of Claims : 10

(54) Title of the invention : A SYSTEM AND A METHOD TO PREDICT EARLY DIABETES AND GENERATE PERSONALIZED LIFESTYLE-BASED TREATMENT RECOMMENDATIONS USING MACHINE LEARNING

|                                               |                                                                                 |                                                                                                                                                                          |
|-----------------------------------------------|---------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (51) International classification             | :G16H0050200000, G16H0050300000, G06N0020000000, G16H0050700000, G16H0010600000 | (71)Name of Applicant :<br><b>1)Darshan Madhani</b><br>Address of Applicant :suncity heaven, A wing 1101 Near ramapir chock, Opp raiyadhar, Rajkot, Gujarat Rajkot ----- |
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| Filing Date                                   | :NA                                                                             | <b>Address of Applicant : NA</b>                                                                                                                                         |
| (87) International Publication No             | : NA                                                                            | (72)Name of Inventor :                                                                                                                                                   |
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| (62) Divisional to Application Number         | :NA                                                                             |                                                                                                                                                                          |
| Filing Date                                   | :NA                                                                             |                                                                                                                                                                          |

(57) Abstract :  
ABSTRACT A SYSTEM AND A METHOD TO PREDICT EARLY DIABETES AND GENERATE PERSONALIZED LIFESTYLE-BASED TREATMENT RECOMMENDATIONS USING MACHINE LEARNING The present disclosure relates to a system and method to accurately predict diabetes risk and provide personalized treatment recommendations using advanced machine learning techniques. The system collects comprehensive clinical and lifestyle data from patients, which is preprocessed through missing value imputation, feature normalization via MinMaxScaler, and feature selection using the chi-square statistical test. To address class imbalance in medical datasets, Synthetic Minority Oversampling Technique (SMOTE) is applied, improving model fairness and sensitivity. A Random Forest Classifier is trained on the balanced dataset and validated through stratified k-Fold cross-validation to ensure robust and generalizable predictions. Based on the predicted diabetes risk score, a treatment recommendation module generates tailored intervention plans using rule-based clinical guidelines and/or machine learning-driven decision models. The system emphasizes explainability by providing feature importance metrics, enhancing clinical trust. This integrated approach enables early detection and personalized diabetes management, overcoming limitations of conventional methods and facilitating improved patient outcomes. Fig. 3.



(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :14/06/2025

(21) Application No.202521057239 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : A bioactive film composition for incorporation into sanitary pads

|                                               |                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|-----------------------------------------------|---------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
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| (51) International classification             | :A61K0008978900, A61Q0019000000, A61K0009000000, A61K0008920000, A61K0036610000 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| (86) International Application No             | :NA                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Filing Date                                   | :NA                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| (87) International Publication No             | : NA                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| (61) Patent of Addition to Application Number | :NA                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Filing Date                                   | :NA                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| (62) Divisional to Application Number         | :NA                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Filing Date                                   | :NA                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |

(57) Abstract :

A Bioactive Film Composition for Incorporation into Sanitary Pads The present invention discloses a bioactive film composition for integration into sanitary pads comprises of the film comprises of preferred ingredient Tridax procumbens extract (aqueous and/or ethanolic) taken with excipients Hydroxypropyl methylcellulose (HPMC), Polyvinyl alcohol (PVA), ethanol, PEG 400, Tween 80, tea tree oil, lavender oil, rose water, witch hazel, glycerin, citric acid, and distilled water, prepared via polymer dissolution, emulsification of essential oils, incorporation of plant extracts, and controlled drying to form a flexible film; laminated onto the absorbent core of sanitary pads and provides continuous topical release of bioactive agents to exhibit synergistic antifungal and antimicrobial activity against pathogens such as Candida albicans and Staphylococcus aureus, respectively along with skin-soothing and anti-inflammatory benefits and enhances menstrual hygiene, reduce infection risk, and improve user comfort using natural, biocompatible ingredients.

No. of Pages : 22 No. of Claims : 3

(54) Title of the invention : METHOD AND SYSTEM FOR EARLY DETECTION OF MULTIPLE CANCER

(51) International classification :G06N0003080000, G06N0003045000, G16H0050700000, G16H0050200000, G06V0010820000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA(62) Divisional to Application Number :NA  
Filing Date :NA

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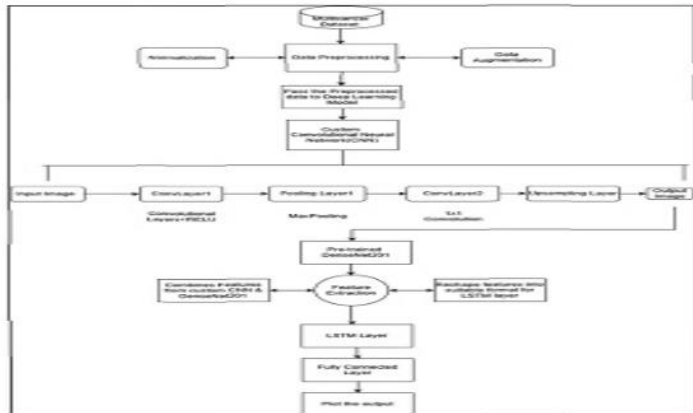
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(57) Abstract :

The present invention provides a method and system for early detection of multiple types of cancer using medical images. The system employs a hybrid deep learning model that combines a convolutional neural network (CNN) for feature extraction and a long short-term memory (LSTM) network for sequential processing. The model is trained on a large dataset of medical images labeled with various cancer types, enabling it to accurately classify new images into different cancer categories or no cancer. The invention offers improved accuracy and efficiency in cancer detection, facilitating early diagnosis and treatment.



No. of Pages : 20 No. of Claims : 11

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202521057471 A

(19) INDIA

(22) Date of filing of Application :16/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : Potassium (K<sup>+</sup>) Pre-intercalated Layered Manganese Dioxide (KMnO<sub>2</sub>) Cathode Material for High-Performance Aqueous Batteries

(51) International classification :H01M0010054000, H01M0010052500, H01M0010360000, G01N0021650000, H01M0004580000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

Abstract This study focuses on enhancing the performance of aqueous zinc-ion batteries. A newly developed cathode material—potassium-ion (K<sup>+</sup>) intercalated layered manganese dioxide (KMnO<sub>2</sub>)—will be a prominent solution for this study. Slow ion transport, structural breakdown, and limited energy capacity are the major issues that we face in traditional MnO<sub>2</sub> cathodes. To achieve greater structural integrity, increased active sites for electrochemical reactions, and smoother zinc-ion movement during charging and discharging, incorporating potassium ions into the layer of the MnO<sub>2</sub> structure is a prominent solution. The synthesis utilised a thermal decomposition technique, which is cost-effective and yields a well-structured cathode material with a high surface area. The material's composition and morphology are characterized by using XRD, SEM, EDS, and Raman spectroscopy. By electrochemical analysis, a high specific capacity of 264 mAh, robust rate performance, and excellent cycling stability were achieved. This developed cathode serves as a promising material for a sustainable, high-performance alternative for future to zinc-ion battery, aluminium-ion battery, and other metal-ion battery-based energy storage systems.

No. of Pages : 17 No. of Claims : 9

(54) Title of the invention : A SOLAR-POWERED EVAPORATION DEVICE

|                                               |                                             |                                                                                                                                                                                                                                                                                                                                                                                                                       |
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| (51) International classification             | :F24S10/95, F28D20/02, F24S60/10, F24S10/75 | (72)Name of Inventor :<br>1)RAHUL ASHOK PATIL<br>Address of Applicant :Department of Mechanical Engineering S.no. 124, Ex-Serviceman Colony, Paud Road Kothrud Pune, 411038, Maharashtra, India Pune --<br>-----<br>2)DR VAIBHAV NARENDRA DESHMUKH<br>Address of Applicant :Department of Mechanical Engineering S.no. 124, Ex-Serviceman Colony, Paud Road Kothrud Pune, 411038, Maharashtra, India Pune --<br>----- |
| (86) International Application No             | :NA                                         |                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Filing Date                                   | :NA                                         |                                                                                                                                                                                                                                                                                                                                                                                                                       |
| (87) International Publication No             | : NA                                        |                                                                                                                                                                                                                                                                                                                                                                                                                       |
| (61) Patent of Addition to Application Number | :NA                                         |                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Filing Date                                   | :NA                                         |                                                                                                                                                                                                                                                                                                                                                                                                                       |
| (62) Divisional to Application Number         | :NA                                         |                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Filing Date                                   | :NA                                         |                                                                                                                                                                                                                                                                                                                                                                                                                       |

(57) Abstract :  
ABSTRACT A SOLAR-POWERED EVAPORATION DEVICE The present invention discloses a device (100) for solar-powered refrigerant evaporation. The device (100) comprises an absorber plate (104) , a plurality of pin fins (108-1, 108-2, 108-3, , 108-n) and a refrigerant circulation assembly (300). The absorber plate (104) is configured to absorb solar radiation. The plurality of pin fins (108-1, 108-2, 108-3, , 108-n) is a hollow cylindrical structure mounted on the absorber plate (104) and filled with a phase change material. The plurality of pin fins (108-1, 108-2, 108-3, , 108-n) is configured to store latent thermal energy. The refrigerant circulation assembly (300) is positioned beneath the absorber plate (104). The refrigerant circulation assembly (300) comprises a plurality of copper tubes (302-1, 302-2, 302-3, , 302-n) arranged in a parallel configuration between a pair of header tubes (304-1, 304-2), and wherein the refrigerant circulation assembly (300) is configured to maintain refrigerant flow by thermosyphon action.

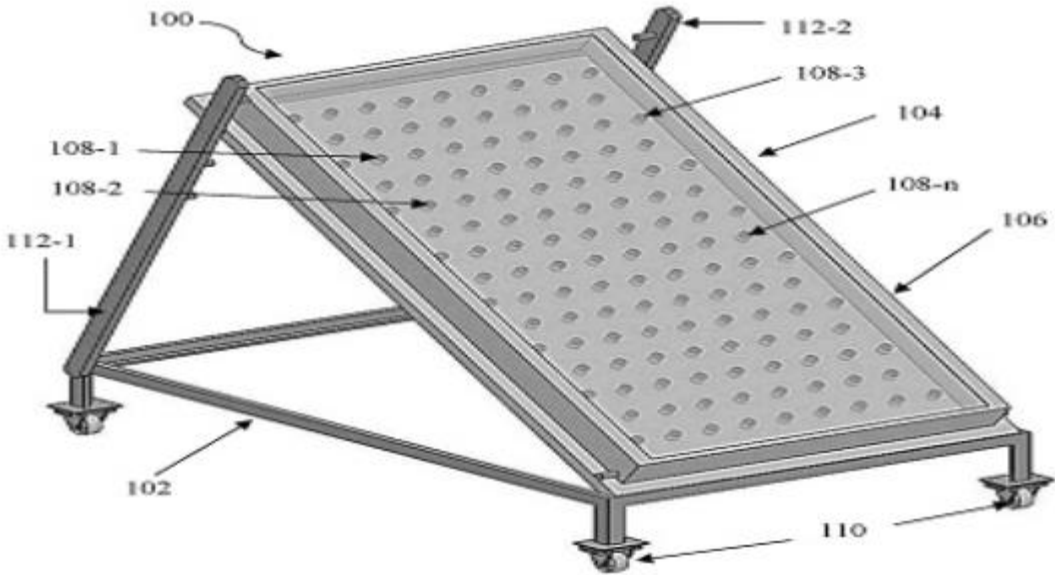


Figure 1

No. of Pages : 25 No. of Claims : 3

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :16/06/2025

(21) Application No.202521057642 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : A FREEZING SYSTEM FOR SHOCK FREEZING OF FLUID

(51) International classification :F25D31/00, F25D23/00  
(86) International Application No :NA  
Filing Date :NA  
(87) International Publication No : NA  
(61) Patent of Addition to Application Number :NA  
Filing Date :NA  
(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

ABSTRACT A FREEZING SYSTEM FOR SHOCK FREEZING OF FLUID The present disclosure provides a freezing system (100) for shock freezing of fluid. The freezing system (100) includes a freezing compartment (102) configured to freeze at least one fluid storage means (104). In addition, the freezing compartment (102) includes the plurality of slabs (106). Further, two slabs form the plurality of slabs (106) define a set (108a, 138a, 138b, 140a, 140b). Furthermore, one slab (110) configured to move in an angular direction and a linear direction. Moreover, another slab (112) configured to move in the angular direction. Also, the plurality of slabs (106) are in contact with the at least one fluid storage means (104). Further, the one slab (110) and the another slab (112) clamp and compress the at least one fluid storage means (104) between them. The set (108a, 138a, 138b, 140a, 140b) is configured to perform a back & fourth tilting motion around a fixed axis (136). (to be published with FIG. 2)

100

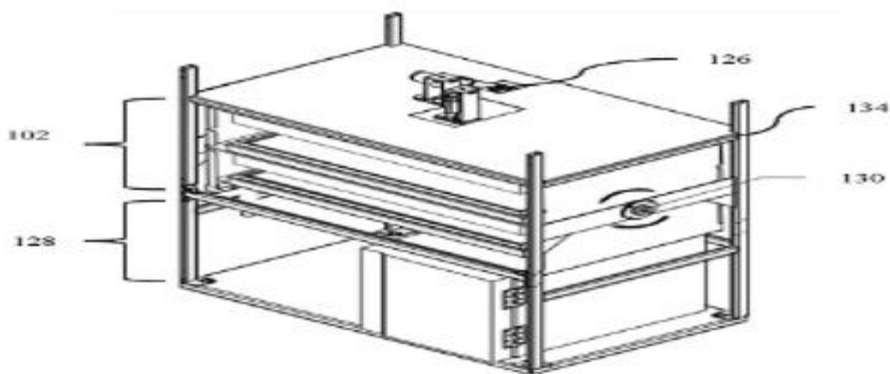


FIG. 2

No. of Pages : 30 No. of Claims : 10

(54) Title of the invention : System for early detection of cerebral palsy

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <div><div>(51) International classification</div><div>:A61B0005110000,<br/>A61B0005000000,<br/>B25J0009160000,<br/>A61B0005026000,<br/>G06F0001160000</div></div> <div><div>(86) International Application No</div><div>:NA<br/>:NA</div></div> <div><div>Filing Date</div><div>(87) International Publication No</div><div>:NA</div></div> <div><div>(61) Patent of Addition to Application Number</div><div>:NA<br/>:NA</div></div> <div><div>Filing Date</div><div>(62) Divisional to Application Number</div><div>:NA<br/>:NA</div></div> <div><div>Filing Date</div></div> | <div>(71)Name of Applicant :<br/>1)Ms. Nancy Sukhadia<br/>Address of Applicant :Jalaram Nagar, Delad Patia, Sayan, Paria, Surat 394130, Gujarat, India. -----<br/>2)Prof. (Dr.) Pariza Kamboj<br/>3)Dr. Madhavi Desai<br/>4)Prof. (Dr.) Rajan Patel<br/>5)Prof. (Dr.) Nimisha Patel<br/>6)Anuva Kamboj<br/>7)Avi Munjal<br/>Name of Applicant : NA<br/>Address of Applicant : NA<br/>(72)Name of Inventor :<br/>1)Ms. Nancy Sukhadia<br/>Address of Applicant :Jalaram Nagar, Delad Patia, Sayan, Paria, Surat 394130, Gujarat, India. -----<br/>2)Prof. (Dr.) Pariza Kamboj<br/>Address of Applicant :Professor, Computer Engineering Department, Sarvajanik College of Engineering &amp; Technology, Athwalines, Athwa, Surat, Gujarat 395001, India. -----<br/>3)Dr. Madhavi Desai<br/>Address of Applicant :Professor, R N G Patel Institute of Technology, 68, Sai Darshan row House, Shastri Road, Bardoli, Surat - 394601, Gujarat, India. -----<br/>4)Prof. (Dr.) Rajan Patel<br/>Address of Applicant :Principal, Kalol Institute of Technology and Research Center (KITRC), KIRC Campus, Kalol, Gandhinagar, Gujarat, India. -----<br/>5)Prof. (Dr.) Nimisha Patel<br/>Address of Applicant :Professor &amp; Head (CE, CSE, ICT), SAL Institute of Technology &amp; Engineering Research (067), SAL Education, Ahmedabad, Gujarat, India. -----<br/>6)Anuva Kamboj<br/>Address of Applicant :MS in Biomedical Engineer, 2800, Elliott Ave Apt-708, Seattle-98121, USA. -----<br/>7)Avi Munjal<br/>Address of Applicant :Senior Software Developer, 2800, Elliot Ave, Apt 708, Seattle-98121, USA. -----</div> |
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(57) Abstract :  
System for early detection of cerebral palsy is described herein. The system comprises computing device and a plurality of sensors. The computing device with a processor and a memory operably coupled to the processor. The plurality of sensor (10, 20) configured for placement at the infant's upper limb. The plurality of sensor (30, 40) configured for placement at the infant's lower limb. The sensor (50) configured for placement at the infant's trunk portion. The computing device receives tri-axial data of the joint angles from the plurality of sensor (10, 20, 30, 40, 50). The processor analyzes the motion data to detect a kinematic feature.

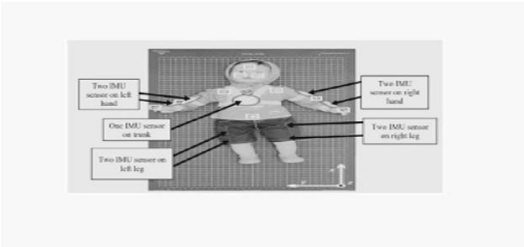


Fig. 1

No. of Pages : 30 No. of Claims : 2



(54) Title of the invention : METHOD FOR MONITORING THE SYNTHESIS QUALITY OF A METAL-ORGANIC FRAMEWORK (MOF) VIA EVAPORATIVE DRYING PATTERN

(51) International classification :C08G83/00, B01J20/28, B01J20/22, B82Y40/00, C01B37/00, B01D71/02, B01D53/22, B01D67/00  
 (86) International Application No :NA  
 Filing Date :NA  
 (87) International Publication No : NA  
 (61) Patent of Addition to Application Number :NA  
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(57) Abstract :

**ABSTRACT METHOD FOR MONITORING THE SYNTHESIS QUALITY OF A METAL-ORGANIC FRAMEWORK (MOF) VIA EVAPORATIVE DRYING PATTERN** The present disclosure provides a method for monitoring the synthesis quality of a metal-organic framework (MOF) via evaporative drying pattern. The method comprises the step providing a metal-organic framework solution comprising at least one of non-purified pore-inactivated metal-organic framework (MOF) and purified pore-activated metal-organic framework (MOF) colloidal particles, followed by dispersing at least one reaction precursor of a concentration with the metal-organic framework (MOF) solution of a concentration in water thereby forming a sample for monitoring the purity. Followed by depositing at least one drop of the sample onto a substrate and drying the at least one droplet on the substrate at the room temperature with a humidity in the range of 40 to 50% thereby forming at least one drying pattern on the substrate and analyzing the characteristics of the drying pattern of the droplet on the substrate for identifying the quality of the MOF from the analysis. Reference Figure: Figure 2.

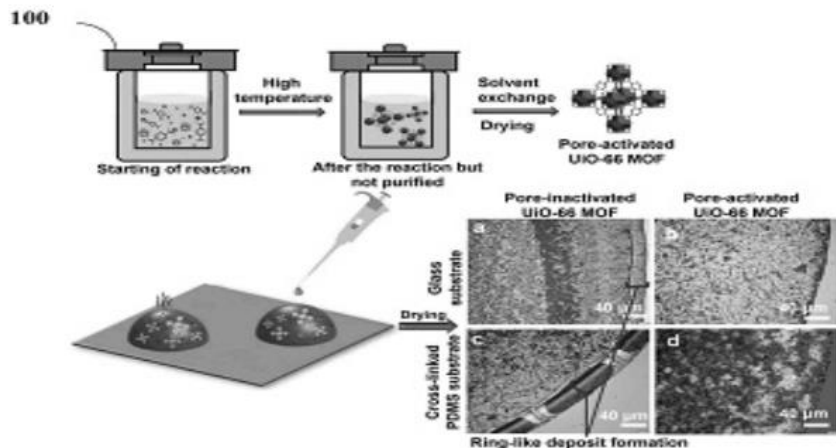


Figure 2

(54) Title of the invention : IoT AND AI-BASED COAL MINE RISK PREDICTION SYSTEM AND METHOD THEREOF

|                                                                                                                                                                                                                                                                                                   |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <div>(51) International classification :G06N20/00, H04W4/38, G06Q10/06</div> <div>(86) International Application No :NA</div> <div>(87) International Publication No : NA</div> <div>(61) Patent of Addition to Application Number :NA</div> <div>(62) Divisional to Application Number :NA</div> |  | <div>(71)Name of Applicant :<br/>1)SHRI SHANKRACHARYA INSTITUTE LLP<br/>Address of Applicant :77/14, MOTILAL NEHRU NAGAR, DURG, BHILAI-490020, CHHATTISGARH, INDIA DURG -----<br/>Name of Applicant : NA<br/>Address of Applicant : NA<br/>(72)Name of Inventor :<br/>1)Mr. Deo Prakash<br/>Address of Applicant :IDEA LAB, Shri Shankaracharya Institute of Professional Management &amp; Technology, Raipur-492015 Raipur -----<br/>2)Ms. Arya Singh<br/>Address of Applicant :IDEA LAB Shri Shankaracharya Institute of Professional Management &amp; Technology, Raipur-492015 Raipur -----<br/>3)Mr. Shubham Kumar Dubey<br/>Address of Applicant :IDEA LAB, Shri Shankaracharya Institute of Professional Management &amp; Technology, Raipur-492015 Raipur -----<br/>4)Dr. Om Sahu<br/>Address of Applicant :IDEA LAB, Shri Shankaracharya Institute of Professional Management &amp; Technology, Raipur-492015 Raipur -----<br/>5)Atul Chakraborty<br/>Address of Applicant :IDEA LAB, Shri Shankaracharya Institute of Professional Management &amp; Technology, Raipur-492015 Raipur -----<br/>6)Arun Kumar<br/>Address of Applicant :IDEA LAB, Shri Shankaracharya Institute of Professional Management &amp; Technology, Raipur-492015 Raipur -----</div> |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

(57) Abstract :  
An IoT and AI-based coal mine risk prediction system (100) and method (200) thereof is disclosed. The system (100) includes one or more sensors, and a microcontroller (102). The one or more sensors is configured to continuously collect environmental data from a coal mine. The microcontroller (102) is configured with a machine learning module and an AI module. The microcontroller (102) is configured to process and analyse the collect environmental data for patterns to predict potential accidents in the coal mine. The microcontroller (102) is configured to categorize the analysed patterns into risk levels. Further, the risk levels comprises a low, a medium, or a high/critical level based on predefined thresholds. The microcontroller (102) is configured to continuously monitor the coal mine in a loop for ensuring continuous safety assessment. FIG. 1

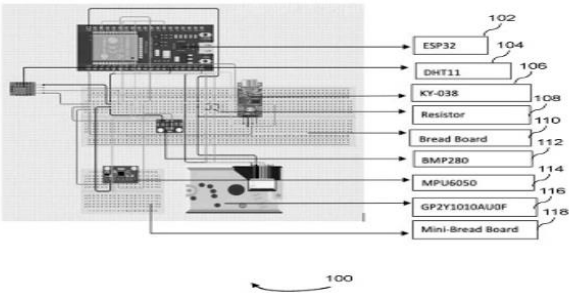


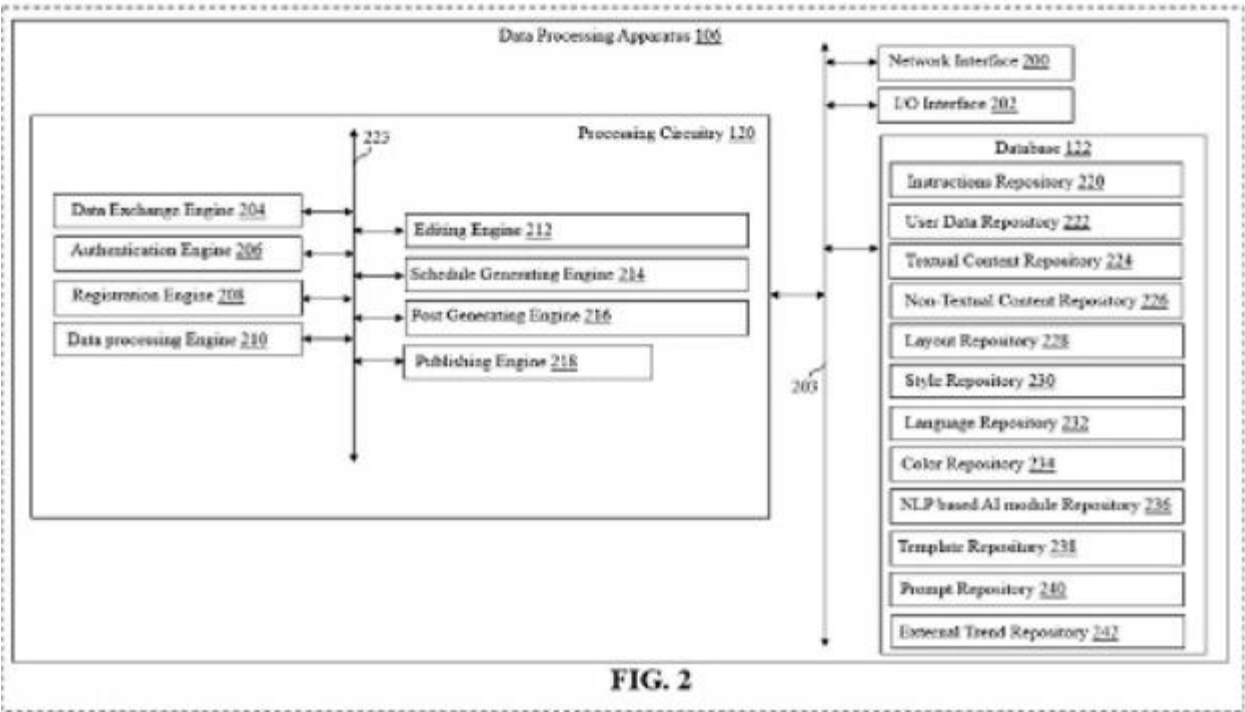
FIG. 1

No. of Pages : 20 No. of Claims : 3

(54) Title of the invention : AI-DRIVEN, TEMPLATE-BASED, ADAPTIVE, PSYCHOGRAPHIC, PSYCHOLOGICAL DIGITAL CONTENT GENERATION, SCHEDULING, AND POSTING

|                                               |                                              |                         |                                                                                                   |
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| (51) International classification             | :G06Q50/00, H04L51/52, G06Q10/10, G06F40/186 | (71)Name of Applicant : | 1)BITROX TECHNOLOGIES (OPC) PVT LTD                                                               |
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| Filing Date                                   | :NA                                          | Name of Applicant :     | NA                                                                                                |
| (87) International Publication No             | : NA                                         | Address of Applicant :  | NA                                                                                                |
| (61) Patent of Addition to Application Number | :NA                                          | (72)Name of Inventor :  | 1)Adarsh Jaiswal                                                                                  |
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| (62) Divisional to Application Number         | :NA                                          |                         |                                                                                                   |
| Filing Date                                   | :NA                                          |                         |                                                                                                   |

(57) Abstract :  
Disclosed data processing apparatus (106) includes processing circuitry (120), selects one or more first social media posts using one or more prompts, and selects textual content, layout, non-textual content, style, and language from first plurality of textual contents, second plurality of layouts, third plurality of non-textual contents, fourth plurality of styles, and fifth plurality of languages respectively, extracted from the one or more first social media posts. Furthermore, the processing circuitry (120), generates a second social media post by consolidating the textual content, the layout, the non-textual content, the style and the language within a selected template. Furthermore, the processing circuitry (120), either allows or refines the second social media post, and posts the second social media post automatically on one or more social media platforms on a generated schedule and use information of one or more post insights for future content generation. FIG. 2 is the reference figure.



(54) Title of the invention : AI Based nanomaterial Synthesizing Machine

|                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>(51) International classification :G06N0020000000, G06N0003080000, B82Y0030000000, B82Y0040000000, B22F0009240000</p> <p>(86) International Application No :NA<br/>Filing Date :NA</p> <p>(87) International Publication No : NA</p> <p>(61) Patent of Addition to Application Number :NA<br/>Filing Date :NA</p> <p>(62) Divisional to Application Number :NA<br/>Filing Date :NA</p> | <p>(71)<b>Name of Applicant :</b><br/> <b>1)Dr. Swati Agrawal</b><br/> Address of Applicant :Professor, Department of Basic Science, Oriental Institute of Science and Technology, Bhopal, Madhya Pradesh, 462022, India -----<br/> <b>2)Dr. Ritu Dwivedi</b><br/> <b>3)Pradyumna Tripathi</b><br/> <b>4)Praful Shuryawanshi</b><br/> <b>5)Nikhil Kushwaha</b><br/> <b>6)Narayani Puranik</b><br/> <b>7)Maneshwari Pawar</b><br/> <b>8)Richa Mishra</b><br/> <b>9)Avni Jain</b><br/> <b>10)Mayur Bansal</b><br/> <b>Name of Applicant : NA</b><br/> <b>Address of Applicant : NA</b><br/> <b>(72)Name of Inventor :</b><br/> <b>1)Dr. Swati Agrawal</b><br/> Address of Applicant :Professor, Department of Basic Science, Oriental Institute of Science and Technology, Bhopal, Madhya Pradesh, 462022, India -----<br/> <b>2)Dr. Ritu Dwivedi</b><br/> Address of Applicant :Professor, Department of Basic Science, Oriental Institute of Science and Technology, Bhopal, Madhya Pradesh, 462022, India -----<br/> <b>3)Pradyumna Tripathi</b><br/> Address of Applicant :Student, Department of Computer Science &amp; Engineering, Oriental Institute of Science and Technology, Bhopal, Madhya Pradesh, 462022, India -----<br/> <b>4)Praful Shuryawanshi</b><br/> Address of Applicant :Student, Department of Computer Science &amp; Engineering, Oriental Institute of Science and Technology, Bhopal, Madhya Pradesh, 462022, India -----<br/> <b>5)Nikhil Kushwaha</b><br/> Address of Applicant :Student, Department of Computer Science &amp; Engineering, Oriental Institute of Science and Technology, Bhopal, Madhya Pradesh, 462022, India -----<br/> <b>6)Narayani Puranik</b><br/> Address of Applicant :Student, Department of Computer Science &amp; Engineering, Oriental Institute of Science and Technology, Bhopal, Madhya Pradesh, 462022, India -----<br/> <b>7)Maneshwari Pawar</b><br/> Address of Applicant :Student, Department of Computer Science &amp; Engineering, Oriental Institute of Science and Technology, Bhopal, Madhya Pradesh, 462022, India -----<br/> <b>8)Richa Mishra</b><br/> Address of Applicant :Student, Department of Computer Science &amp; Engineering, Oriental Institute of Science and Technology, Bhopal, Madhya Pradesh, 462022, India -----<br/> <b>9)Avni Jain</b><br/> Address of Applicant :Student, Department of Computer Science &amp; Engineering, Oriental Institute of Science and Technology, Bhopal, Madhya Pradesh, 462022, India -----<br/> <b>10)Mayur Bansal</b><br/> Address of Applicant :Student, Department of Computer Science &amp; Engineering, Oriental Institute of Science and Technology, Bhopal, Madhya Pradesh, 462022, India -----</p> |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

(57) Abstract :

ABSTRACT AI Based nanomaterial Synthesizing Machine The present invention relates to an intelligent and automated system for synthesizing nanomaterials using advanced artificial intelligence algorithms. The AI-Based Nanomaterial Synthesizing Machine is designed to enhance the precision, efficiency, and adaptability of nanomaterial production processes. Traditional synthesis methods often suffer from inconsistencies, lack of control, and manual intervention, which limit scalability and reproducibility. This invention addresses these challenges by integrating AI-driven decision-making with real-time sensor feedback to dynamically control synthesis parameters. The system includes multiple functional modules, such as a chemical reagent dispensing unit, a synthesis reactor with environmental control, a sensor array for real-time monitoring, and an AI controller for adaptive process management. The AI module uses deep learning and reinforcement learning techniques to predict and adjust the optimal synthesis route based on the desired output properties. Throughout the reaction, data from the sensors are continuously fed back into the AI system, which then fine-tunes parameters like temperature, concentration, and reaction time to maintain optimal conditions. By combining artificial intelligence with automated nanomaterial synthesis, the proposed machine offers several advantages, including higher purity, better reproducibility, and reduced human error. It enables the customizable production of various nanomaterials such as nanoparticles, nanorods, and nanotubes for diverse applications in medicine, electronics, and environmental science. This innovation marks a significant advancement in nanotechnology, paving the way for scalable and intelligent manufacturing of next-generation materials.

No. of Pages : 14 No. of Claims : 5

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :16/06/2025

(21) Application No.202521057789 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : Price Prediction Model for Essential Agri-Horticultural Commodities

(51) International classification :G06N0020000000, G06Q0030020100, G06N0003044000, G06Q0030020000, G06N0003080000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

Abstract This invention provides a machine learning-based price prediction model specifically tailored for 22 essential agri-horticultural commodities. Leveraging Long Short-Term Memory (LSTM) neural networks, the system integrates historical pricing data with environmental variables such as temperature, rainfall, and humidity to forecast commodity prices across multiple timeframes—daily, weekly, monthly, and yearly. The model is capable of comparing price trends across 550 regional centers, offering critical insights for farmers, policymakers, and supply chain stakeholders. Implemented using Python, TensorFlow, and Keras, the system automates data ingestion, preprocessing, training, and visualization on a cloud infrastructure, ensuring scalability and real-time updates. The invention improves upon traditional statistical forecasting methods by accurately capturing long-term temporal dependencies and environmental influences. It empowers data-driven decision-making, enhances food supply chain planning, and provides a flexible tool for agricultural price monitoring and intervention.

No. of Pages : 19 No. of Claims : 7

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202521057799 A

(19) INDIA

(22) Date of filing of Application :16/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : DRAINAGE PIPE ASSEMBLIES FOR ALL TYPES OF AIR-CONTIONS AND REFRIGERATION

(51) International classification :A47C0015000000, B60H0001000000, B26D0007080000, F16L0055070000, F16L0009120000

(86) International Application No :NA

Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA

Filing Date :NA

(62) Divisional to Application Number :NA

Filing Date :NA

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(72)Name of Inventor :

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(57) Abstract :

ABSTRACT DRAINAGE PIPE ASSEMBLIES FOR ALL TYPES OF AIR-CONTIONS AND REFRIGERATION The present invention relates to the pipe Assembly between Air-condition drainage outlet pipe and drainage pipe. The present invented Assemblies are tool free, ready to use. A technician no need to cutting and pasting different pipes to make assembly at site as before. The present invented assemblies are designed in various types and in various sizes according to types of air-condition and site condition where the air-condition unit was installed, as given in detailed description. The Assemblies are so designed that by using these assemblies when drainage pipe get chocked , a technician can easily remove this assembly without cutting the pipes between Air-condition drainage outlet point and drainage pipe, clean the chockage and again reassemble the assembly between Air-condition drainage outlet point and drainage pipe. It gives satisfaction to both technician and consumer by saving time and money.

No. of Pages : 41 No. of Claims : 10

(54) Title of the invention : BIOSENTINAL – A biosensor to detect carcinogen from the surface of fruits and vegetables

|                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
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| <p>(51) International classification :A61B0005000000, G01N0033543000, G01N0021640000, G01N0033020000, G01N0033000000</p> <p>(86) International Application No :NA<br/>Filing Date</p> <p>(87) International Publication No : NA<br/>(61) Patent of Addition to Application :NA<br/>Number :NA<br/>Filing Date</p> <p>(62) Divisional Application :NA<br/>Number :NA<br/>Filing Date</p> | <p>(71)Name of Applicant :</p> <p>1)Mr. Ganesh Sadashiv Sathe<br/>Address of Applicant :Ph.D. Research Scholar Department of Microbiology Institute of Science Constituent College of Dr. Homi Bhaba State University (HBSU) 15, Madam Kama Road, Fort, District-Mumbai Maharashtra, India Pincode-400032 Mumbai -----</p> <p>2)Dr. Jyotsna Shrikant Thakaur<br/>3)Miss. Ayesha Manzoor Shaikh<br/>4)Miss. Ashlesha Balasaheb Rakhunde<br/>5)Miss. Krutika Padmakar Shirsath<br/>6)Miss. Masira Zia Hanfi<br/>7)Mr. Sandip Shripati Patil<br/>8)Mrs. Shweta Vinayak Humbarwadi<br/>9)Mr. Rahul Nitin Patil<br/>Name of Applicant : NA<br/>Address of Applicant : NA</p> <p>(72)Name of Inventor :</p> <p>1)Mr. Ganesh Sadashiv Sathe<br/>Address of Applicant :Ph.D. Research Scholar Department of Microbiology Institute of Science Constituent College of Dr. Homi Bhaba State University (HBSU) 15, Madam Kama Road, Fort, District-Mumbai Maharashtra, India Pincode-400032 Mumbai -----</p> <p>2)Dr. Jyotsna Shrikant Thakaur<br/>Address of Applicant :Associate Professor Department of Chemistry Changu Kana Thakur Arts ,Commerce and Science College ,New Panvel (Autonomous), Plot number -01,Sector-11,Khanda colony, Taluka- Panvel, District – Raigad, Maharashtra, India Pincode- 410206 Raigad -----</p> <p>3)Miss. Ayesha Manzoor Shaikh<br/>Address of Applicant :Graduation Student Department of Microbiology Changu Kana Thakur Arts , Commerce and Science College ,New Panvel (Autonomous), Plot number -01, Sector-11, Khanda colony, Taluka- Panvel, District – Raigad, Maharashtra, Pincode- 410206 Raigad ----</p> <p>4)Miss. Ashlesha Balasaheb Rakhunde<br/>Address of Applicant :Graduation Student Department of Microbiology Changu Kana Thakur Arts , Commerce and Science College ,New Panvel (Autonomous), Plot number-01,Sector-11,Khanda colony, Taluka- Panvel, District – Raigad, Maharashtra, India Pincode- 410218 Panvel -----</p> <p>5)Miss. Krutika Padmakar Shirsath<br/>Address of Applicant :Graduation Student Department of Microbiology Changu Kana Thakur Arts , Commerce and Science College ,New Panvel (Autonomous), Plot number -01,Sector-11,Khanda colony, Taluka- Panvel, District – Raigad, Maharashtra, India Pin code- 410206 Panvel -----</p> <p>6)Miss. Masira Zia Hanfi<br/>Address of Applicant :Graduation Student Department of Chemistry Changu Kana Thakur Arts ,Commerce and Science College ,New Panvel (Autonomous), Plot number- 01,Sector-11,Khanda colony, Taluka- Panvel, District – Raigad, Maharashtra, India Pin code- 410206 Panvel -----</p> <p>7)Mr. Sandip Shripati Patil<br/>Address of Applicant :Scientist E Department of Haematology and Oncology,Pediatric Research Institute Shenzhen Children's Hospital Shenzhen, China Pincode-518038 -----</p> <p>8)Mrs. Shweta Vinayak Humbarwadi<br/>Address of Applicant :Assistant Professor Department of Microbiology Changu Kana Thakur Arts ,Commerce and Science College ,New Panvel (Autonomous), Plot number -01,Sector-11,Khanda colony, Taluka- Panvel, District – Raigad, Maharashtra, Pin code- 410206 Raigad -----</p> <p>9)Mr. Rahul Nitin Patil<br/>Address of Applicant :Assistant Professor Department of Chemistry Changu Kana Thakur Arts ,Commerce and Science College ,New Panvel (Autonomous), Plot number -01,Sector-11,Khanda colony, Taluka- Panvel, District – Raigad, Maharashtra, Pincode- 410206 Raigad -----</p> |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

(57) Abstract :

ABSTRACT [505] The BIOSENTINAL carcinogen detection system presents an innovative biosensing framework for rapid pesticide residue identification that integrates advanced enzymatic recognition with electrochemical transduction mechanisms, facilitating comprehensive contaminant characterization, accurate concentration measurement, and real-time safety assessment while maintaining analytical reliability and operational simplicity for enhanced consumer protection during food safety evaluation. [510] The multifaceted biosensing architecture employs specialized biorecognition methodologies and adaptive signal processing algorithms, utilizing miniaturized electrochemical components and energy-efficient optical sensors to ensure robust pesticide detection, enhanced analytical sensitivity, and optimized performance reliability while maintaining statistically significant concordance with laboratory reference methods across diverse agricultural produce categories. [515] The integrated detection methodology combines saline-based extraction techniques with multiplexed biosensing platforms, leveraging specific enzyme-substrate interaction patterns and multi-modal signal indicators to optimize screening procedures and verification workflows for maximum detection accuracy and minimal false-negative exposure during critical consumer decision-making processes. [520] The novel responsive sensing architecture features engineered immunoassay components with specialized signal amplification protocols, enabling complex multi-analyte contaminant verification while ensuring measurement consistency and performance optimization across various fruit and vegetable matrices without compromising detection reliability. [525] The innovative analytical design incorporates strategic calibration mechanisms for enhanced pesticide detection and measurement accuracy, utilizing optimized biorecognition elements and adaptive transduction technology to ensure legitimate contaminant identification while maintaining functionality across diverse environmental conditions and varied sample preparation scenarios. [530] Implementation methodology emphasizes scalable integration and efficient detection sequences, implementing interactive user interfaces and threshold-based alarm algorithms to achieve superior identification accuracy, enhanced quantitative precision, and false-positive minimization while ensuring technological simplicity during field application. [535] The system demonstrates exceptional adaptability through comprehensive integration of electrochemical signature detection and intelligent optical recognition technologies, validating its effectiveness across various produce types and contamination scenarios while maintaining consistent analytical performance and operational efficiency under diverse testing conditions. [540] The developed framework enables sustainable and reliable identification of carcinogenic pesticide residues through streamlined, biosensor-powered analytical systems, providing significant advantages over traditional laboratory approaches through portable detection capabilities, adaptive sensing protocols, and improved accessibility while maintaining superior analytical accuracy during critical food safety assessment stages.

No. of Pages : 14 No. of Claims : 5

(51) :F03D0001060000,  
International F03D0013250000,  
classification H02J0003380000,  
A61P0009120000,  
F03D0009250000

(86)  
International  
Application :NA  
No :NA  
Filing  
Date

(87)  
International :NA  
Publication No  
(61) Patent of  
Addition to  
Application :NA  
Number :NA  
Filing  
Date

(62) Divisional  
to Application :NA  
Number :NA  
Filing  
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## (57) Abstract :

Advantages of the Invention: • Up to 20–30% increased power output in low-wind-speed conditions. • Reduced blade fatigue due to aerodynamic load balancing. • Lower maintenance due to the passive adaptation system. • Improved noise performance, making it suitable for urban and residential installations. • Environmentally sustainable materials and design methodology. \_\_\_\_\_ Industrial Application: This invention is suitable for onshore and offshore wind turbines, particularly in regions with inconsistent wind patterns. The blade design can be scaled for small-scale decentralized turbines or large utility-scale farms. \_\_\_\_\_ Conclusion: The invention presents a breakthrough in aerodynamic blade design, offering higher energy efficiency, adaptability, and durability, thereby promoting widespread adoption of sustainable wind energy technologies.

No. of Pages : 8 No. of Claims : 7



(54) Title of the invention : "A PROCESS FOR EXTRACTING A PRODUCT INCLUDES TERPENOID FROM A MICROBIAL SOURCE"

(51) International classification :C12R0001545000, G06V0040190000, G06T0003405300, A23J0003140000, A23L0033120000

(86) International Application No :NA

Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA

Filing Date :NA

(62) Divisional to Application Number :NA

Filing Date :NA

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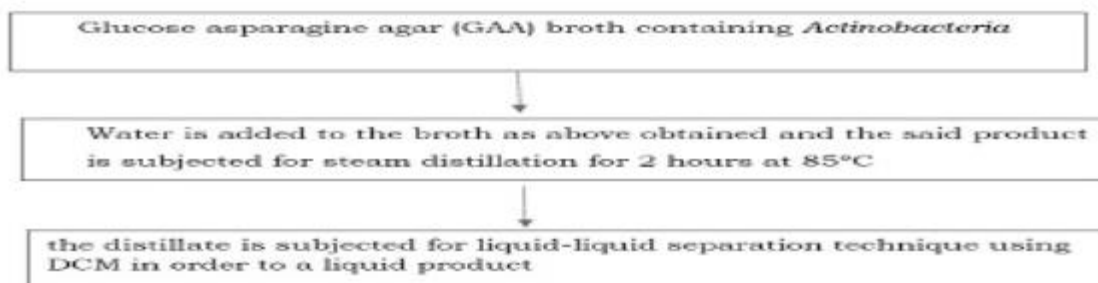
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(57) Abstract :

Disclosed is a process for extracting a product comprises terpenoid of Formula I from a microbial source [Streptomyces griseus]. Fig. 2



(a)



(b)

Fig. 2

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202521057933 A

(19) INDIA

(22) Date of filing of Application :17/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : A HOLLOW FIBER MEMBRANE EMBEDDED WITH Fe<sub>3</sub>O<sub>4</sub>/MWCNTs-COOH NANOHYBRID FOR HEAVY METALS REMOVAL FROM CONTAMINATED WATER

(51) International classification :C02F0001280000, B01D0069080000, C02F0001440000, C02F0101200000, B01D0071680000

(86) International Application No :NA

Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA

Filing Date :NA

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Filing Date :NA

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(57) Abstract :

Provided herein is a Fe<sub>3</sub>O<sub>4</sub>/MWCNTs-COOH nanohybrid incorporated into Psf Hollow Fiber membrane for As<sup>3+</sup> and Cd<sup>2+</sup> ions separation from contaminated water. Also provided herein a method for fabricating the Fe<sub>3</sub>O<sub>4</sub>/MWCNTs-COOH nanohybrid incorporated Psf Hollow Fiber membrane. The membrane has the potential to remove toxic metals from aqueous solutions, making it a promising candidate for water treatment applications.

No. of Pages : 43 No. of Claims : 20

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202521057959 A

(19) INDIA

(22) Date of filing of Application :17/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : AN TRITERPENOID GLYCOSIDAL DERIVED ANTICANCER NANOPARTICLE FORMULATION AND METHOD OF PREPARATION THEREOF

|                                                                                                                             |      |                                                                                                                                                                                                                                                                                                                                                                         |
|-----------------------------------------------------------------------------------------------------------------------------|------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (51) International classification :A61K31/7048, A61K31/337, A61K31/58, A61K39/395, A61P35/00, A61K9/107, A61K9/51, B82Y5/00 |      | (71)Name of Applicant :<br><b>1)Ms. Pooja Santosh Murkute</b><br>Address of Applicant :Y. B. Chavan College of Pharmacy, Dr. Rafiq Zakaria Campus Rauza Baug, N2, Cidco Chhatrapati Sambhajanagar (Aurangabad) Aurangabad -----<br><b>2)Dr. Mohammed Ismail Mouzam</b><br><b>3)Mr. Nakul Pandharinath Kathar</b><br>Name of Applicant : NA<br>Address of Applicant : NA |
| (86) International Application No                                                                                           | :NA  | (72)Name of Inventor :                                                                                                                                                                                                                                                                                                                                                  |
| Filing Date                                                                                                                 | :NA  | <b>1)Ms. Pooja Santosh Murkute</b>                                                                                                                                                                                                                                                                                                                                      |
| (87) International Publication No                                                                                           | : NA | Address of Applicant :Y. B. Chavan College of Pharmacy, Dr. Rafiq Zakaria Campus Rauza Baug, N2, Cidco Chhatrapati Sambhajanagar (Aurangabad) Aurangabad -----                                                                                                                                                                                                          |
| (61) Patent of Addition to Application Number                                                                               | :NA  | <b>2)Dr. Mohammed Ismail Mouzam</b>                                                                                                                                                                                                                                                                                                                                     |
| Filing Date                                                                                                                 | :NA  | Address of Applicant :Y. B. Chavan College of Pharmacy, Dr. Rafiq Zakaria Campus Rauza Baug, N2, Cidco Chhatrapati Sambhajanagar (Aurangabad) Aurangabad -----                                                                                                                                                                                                          |
| (62) Divisional to Application Number                                                                                       | :NA  | <b>3)Mr. Nakul Pandharinath Kathar</b>                                                                                                                                                                                                                                                                                                                                  |
| Filing Date                                                                                                                 | :NA  | Address of Applicant :Shirpur Education Society's R. C. Patel Institute of Pharmaceutical Education & Research Karwand Naka Shirpur, Dhule Shirpur -----                                                                                                                                                                                                                |

(57) Abstract :

“AN TRITERPENOID GLYCOSIDAL DERIVED ANTICANCER NANOPARTICLE FORMULATION AND METHOD OF PREPARATION THEREOF” The present invention relates to the field of nanoparticle formulation. Specifically, the invention relates to a triterpenoid glycoside-based nanoparticle formulation for the management of breast cancer and a method for preparing the same. The nanoparticle formulation comprises ursolic acid, 18β-glycyrrhetic acid, a nanoparticle forming agent, an oil, a surfactant, a co-surfactant and solvent.

No. of Pages : 30 No. of Claims : 11

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202521058002 A

(19) INDIA

(22) Date of filing of Application :17/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : CHITOSAN-COPPER NANOPARTICLE COMPLEX FOR PLANT PROTECTION

(51) International classification : A01N59/16, A01N59/20,  
C08B37/08

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application  
Number :NA

Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

(71)Name of Applicant :

**1)Omega Fine Chemicals**

Address of Applicant :W-231/D, MIDC Industrial Area, Phase-II, Dombivli  
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**Name of Applicant : NA**

**Address of Applicant : NA**

(72)Name of Inventor :

**1)Dr Shriram Dattatraya Shevde**

Address of Applicant :M/s. Makhija & Associates, 803, Omkar A',88, Balgovindas  
Marg, Mahim, Mumbai -400 016 Mumbai -----

(57) Abstract :

ABSTRACT The present invention provides a chitosan-copper nanoparticle complex for plant protection. The complex comprises chitosan nanoparticles having a size range of 100-700 nm, copper nanoparticles, and a cross-linking agent binding the chitosan nanoparticles and copper nanoparticles. The complex has a chitosan-to-copper ratio of 8:1 to 12:1 by weight. A method of preparing the complex includes dissolving chitosan in acetic acid, adding the copper salt, reducing the copper salt to form copper nanoparticles in-situ within the chitosan matrix, and cross-linking the chitosan and copper nanoparticles. The complex can be applied to plants or plant parts for protection against bacterial and fungal diseases.

No. of Pages : 35 No. of Claims : 14

(21) Application No.202521056016 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : MULTIMODAL LANGUAGE TRANSLATION AND COMMUNICATION WEARABLE GLASSES

Address of Applicant :Department of Information and Communication  
Technology, Marwadi University, Rajkot - Morbi Road, Rajkot 360003 Gujarat,  
India. Rajkot -----

A multimodal language translation and communication wearable glasses, comprising a transparent frame 101 developed to be worn by a user and adapted to rest on user's nose and ears, an array of directional microphones 106 configured to capture ambient sound from multiple directions, an AI-powered camera 110 integrated with facial recognition and gesture recognition capabilities, an augmented reality heads-up display (HUD) integrated into lens 103 of the frame 101, a translation module configured to provide real-time translation of spoken language, sign language, and gestures into a preferred language of user, at least two ear units 107 mounted on articulated arms connected to temple ends to enhance audio clarity and filter background noise, and a microcontroller configured to coordinate data processing from microphones 106, AI camera, sensors, translation module, and AR HUD, microcontroller facilitates real-time context-aware language translation and communication assistance for user interaction.

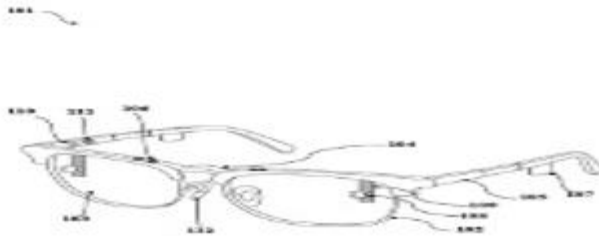


Figure 1

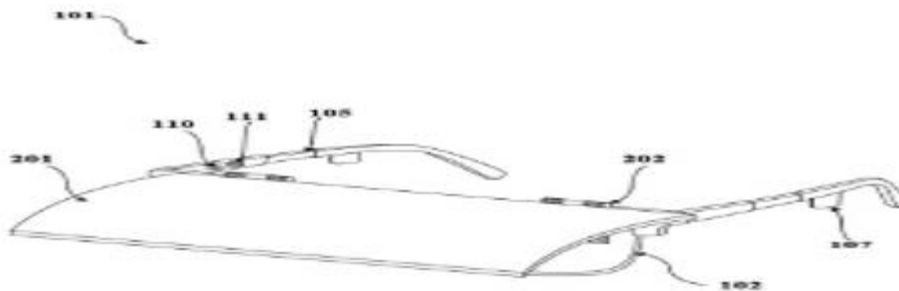


**Figure 2**

63906

(54) Title of the invention : WORKOUT SUPPORT AND SAFETY DEVICE

|                                               |                                                                                             |                                                                                                                                                                                                                                                                                              |
|-----------------------------------------------|---------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (51) International classification             | :A63B0021000000,<br>A63B0071060000,<br>A63B0024000000,<br>A63B0023040000,<br>A63B0021078000 | (71)Name of Applicant :<br>1)Marwadi University<br>Address of Applicant :Rajkot - Morbi Road, Rajkot 360003 Gujarat, India. Rajkot -----                                                                                                                                                     |
| (86) International Application No             | :NA                                                                                         | Name of Applicant : NA<br>Address of Applicant : NA                                                                                                                                                                                                                                          |
| Filing Date                                   | :NA                                                                                         | (72)Name of Inventor :<br>1)Dr. Madhu Shukla<br>Address of Applicant :Head of Department (HOD), Department of Computer Science and Engineering, Artificial Intelligence, Machine Learning, Data Science, Marwadi University, Rajkot - Morbi Road, Rajkot 360003 Gujarat, India. Rajkot ----- |
| (87) International Publication No             | :NA                                                                                         | 2)Simrin Fathima Syed<br>Address of Applicant :Department of Computer Science and Engineering, Artificial Intelligence, Machine Learning, Data Science, Marwadi University, Rajkot - Morbi Road, Rajkot 360003 Gujarat, India. Rajkot -----                                                  |
| (61) Patent of Addition to Application Number | :NA                                                                                         | 3)Vipul Ladva<br>Address of Applicant :Department of Computer Science and Engineering, Artificial Intelligence, Machine Learning, Data Science, Marwadi University, Rajkot - Morbi Road, Rajkot 360003 Gujarat, India. Rajkot -----                                                          |
| Filing Date                                   | :NA                                                                                         | 4)Dr. Nishant Kothari<br>Address of Applicant :Head of Department (HOD), Department of Electrical Engineering, Marwadi University, Rajkot - Morbi Road, Rajkot 360003 Gujarat, India. Rajkot -----                                                                                           |
| (62) Divisional to Application Number         | :NA                                                                                         | 5)Akshay Ranpariya<br>Address of Applicant :Department of Computer Science and Engineering, Artificial Intelligence, Machine Learning, Data Science, Marwadi University, Rajkot - Morbi Road, Rajkot 360003 Gujarat, India. Rajkot -----                                                     |
| Filing Date                                   | :NA                                                                                         | 6)Neel Dholakia<br>Address of Applicant :Department of Computer Science and Engineering, Artificial Intelligence, Machine Learning, Data Science, Marwadi University, Rajkot - Morbi Road, Rajkot 360003 Gujarat, India. Rajkot -----                                                        |

(57) Abstract :  
A workout support and safety device, comprising of a body 101 installed with an imaging unit 102, configured to navigate within an exercise facility, multiple Tri-Star wheels 103 for omnidirectional movement and positioning of the body 101 relative to user, a roller 104 carrying a band 105 for unrolling the band 105 to provide physical assistance, two rods 106 mounted on vertical sliders 107, include springs 108 to absorb weight and provide support by actuating beneath the user’s elbows during weightlifting, a plate 109 mounted via a ball and socket joint 110, to interpose between the user and the equipment to prevent injury, two bars 111 mounted via a spherical joint 112, each bar comprising a gripper 113, the bars 111 assists the user in lifting weights or securing exercise equipment safely, a pole 114 actuated via a pusher 115 pushes against a user’s legs during exercises to provide resistance.

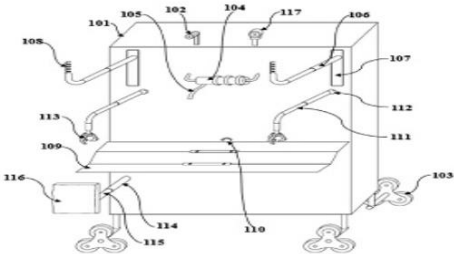


Figure 1

No. of Pages : 22 No. of Claims : 6

(54) Title of the invention : AUTOMATED PROPERTY INSPECTION AND MAINTENANCE DEVICE

(51) International classification : A47L0013200000,  
B60B0019000000,  
B01D0035020000,  
A24F0040100000,  
G06V0020100000

(86) International Application No : NA  
Filing Date : NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number : NA  
Filing Date : NA

(62) Divisional to Application Number : NA  
Filing Date : NA

## (71)Name of Applicant :

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Address of Applicant :Rajkot - Morbi Road, Rajkot 360003 Gujarat, India. Rajkot -----

## Name of Applicant : NA

## Address of Applicant : NA

## (72)Name of Inventor :

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Address of Applicant :Department of Computer Science and Engineering, Artificial Intelligence, Machine Learning, Data Science, Marwadi University, Rajkot - Morbi Road, Rajkot 360003 Gujarat, India. Rajkot -----

## 6)Vipul Ladva

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## 7)Akshay Ranpariya

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## 8)Neel Dholakia

Address of Applicant :Department of Computer Science and Engineering, Artificial Intelligence, Machine Learning, Data Science, Marwadi University, Rajkot - Morbi Road, Rajkot 360003 Gujarat, India. Rajkot -----

## (57) Abstract :

An automated property inspection and maintenance device, comprising a body 101 configured with multiple omnidirectional wheels 102 each to navigate across surface of a property, an imaging unit 104 to map the property to plan an efficient path for inspection, a clamp 105 via a rod 106 retrieves replacement LEDs from a first chamber 107 for replacing defective ones, a plate 108 with embedded bristles 109 by means of a L-shaped bar 110 for scrubbing bristles 109 against surface, multiple suction units 111 captures dust and debris for storage in a compartment 112, a circular pad 113 with multiple pneumatic pins 114 installed on a L-shaped pole 115 for pins 114 to dislodge debris, a pair of robotic arms 119 to extract and insert an air conditioning filter into a container 120, a multi-sectioned chamber 122 to store liquid paints connected to a conduit 125 for spraying during touchups.

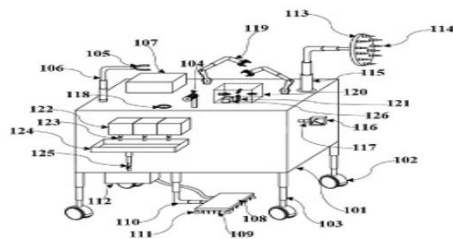


Figure 1

No. of Pages : 24 No. of Claims : 5

(54) Title of the invention : FOOD STORAGE DEVICE

(51) International classification :B65D21/02, B65D1/34, B25J18/02  
(86) International Application No :NA  
Filing Date :NA  
(87) International Publication No : NA  
(61) Patent of Addition to Application Number:NA  
Filing Date :NA  
(62) Divisional to Application Number :NA  
Filing Date :NA

(71)**Name of Applicant :**  
**1)Marwadi University**  
Address of Applicant :Rajkot - Morbi Road, Rajkot 360003 Gujarat, India.  
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**Name of Applicant : NA**  
**Address of Applicant : NA**  
(72)**Name of Inventor :**  
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**2)Chandrasinh D Parmar**  
Address of Applicant :Department of Information and Communication  
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India. Rajkot -----  
**3)Chirag Visani**  
Address of Applicant :Department of Information and Communication  
Technology, Marwadi University, Rajkot - Morbi Road, Rajkot 360003 Gujarat,  
India. Rajkot -----

(57) Abstract :  
A food storage device, comprising an enclosure 101 having multiple slidable shelves 102, a chamber 105 having a RFID scanner 106 to determine type of food item, an articulated pusher 107 push food item onto shelf 102, a communication unit generates notification via a user-interface to inform regarding unsuitable food and food items about to expire, a Peltier unit 108 maintain temperature of shelf 102, a grid of plates 109 arranged over each shelves 102 for raising the food item having earliest expiry date for consumption, a roller 111 supported over each shelves 102 via an extendable frame 112 and unroll a member across the frame 112 to cover the shelf 102, multiple ethylene sensors in combination with an artificial intelligence (AI) based camera 115 to detect rotten food item, an articulated laser pointer 116 to point at the rotten food item for reference of the user.

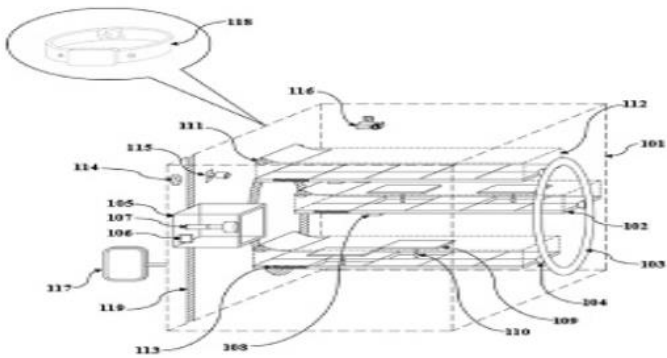


Figure 1

No. of Pages : 26 No. of Claims : 10



(54) Title of the invention : FOOTBALL SPORTS PERFORMANCE ASSESSMENT AND CAREER RECOMMENDATION SYSTEM

|                                               |                                                                                 |                                                                                                                                                                                      |
|-----------------------------------------------|---------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (51) International classification             | :A61B0005000000, A63B0063000000, A61B0005160000, A61B0005024000, G06Q0050200000 | (71)Name of Applicant :<br><b>1)Marwadi University</b><br>Address of Applicant :Rajkot - Morbi Road, Rajkot 360003 Gujarat, India. Rajkot -----                                      |
| (86) International Application No             | :NA                                                                             | Name of Applicant : NA                                                                                                                                                               |
| Filing Date                                   | :NA                                                                             | Address of Applicant : NA                                                                                                                                                            |
| (87) International Publication No             | : NA                                                                            | (72)Name of Inventor :                                                                                                                                                               |
| (61) Patent of Addition to Application Number | :NA                                                                             | <b>1)Jaymin Vimalbhai Dattani</b><br>Address of Applicant :Diploma in Computer Engineering, Marwadi University, Rajkot - Morbi Road, Rajkot 360003 Gujarat, India. Rajkot -----      |
| Filing Date                                   | :NA                                                                             | <b>2)Dasari Dimpul Lakshmi Akshaya</b><br>Address of Applicant :Diploma in Computer Engineering, Marwadi University, Rajkot - Morbi Road, Rajkot 360003 Gujarat, India. Rajkot ----- |
| (62) Divisional to Application Number         | :NA                                                                             | <b>3)Zeel S Mehta</b><br>Address of Applicant :Diploma in Computer Engineering, Marwadi University, Rajkot - Morbi Road, Rajkot 360003 Gujarat, India. Rajkot -----                  |
| Filing Date                                   | :NA                                                                             |                                                                                                                                                                                      |

(57) Abstract :  
A football sports performance assessment and career recommendation system, comprises of a rectangular evaluation field structure 101 to simulate a football testing environment, a pair of wearable units 102 including wearable shoes 102a and a wearable vest 102b to be worn by the student, a plurality of force sensors capture data regarding strike power and pressure during kicking, wearable vest 102b comprises heart rate sensors 105, respiration sensors 106, and skin conductance sensors 107 to assess stamina and stress response of the student during the session, a projection unit 108 on a horizontally movable sliding rail 109 to project one or more virtual target zones on the goalpost, an imaging unit 110 for capturing facial expressions of the student during the trial to derive psychological stress cues and integrates same into the student's performance evaluation, a display 111 or speaker 112 guides the student through each phase of the trial.

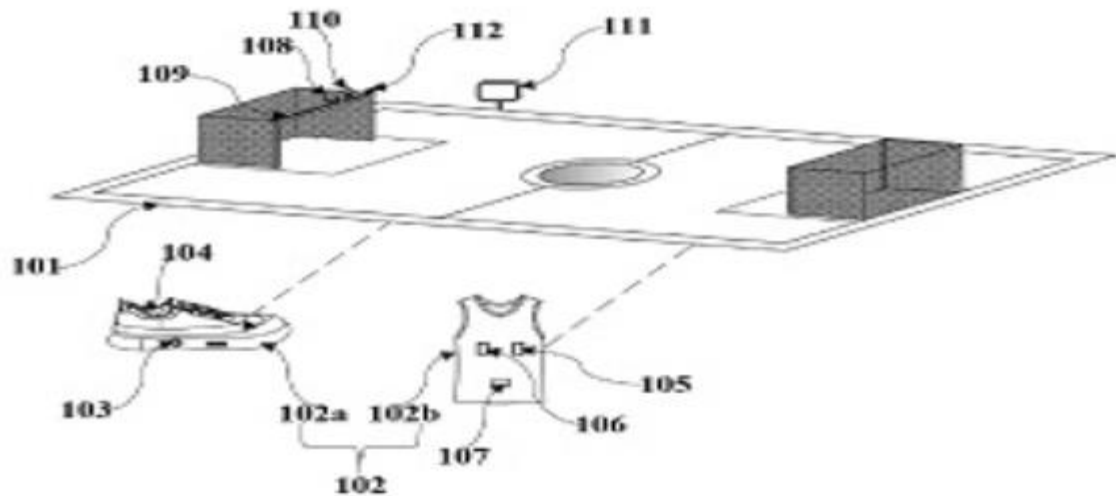


Figure 1

(54) Title of the invention : TWO-WHEELER SPEED REGULATION AND SAFETY SYSTEM

|                                               |                                                                                 |                                                                                                                                                    |
|-----------------------------------------------|---------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------|
| (51) International classification             | :B62K0023040000, G06V0040130000, A63C0005080000, B62K0023060000, G03G0015000000 | (71)Name of Applicant :<br><b>1)Marwadi University</b><br>Address of Applicant :Rajkot - Morbi Road, Rajkot 360003 Gujarat, India.<br>Rajkot ----- |
| (86) International Application No             | :NA                                                                             | Name of Applicant : NA                                                                                                                             |
| Filing Date                                   | :NA                                                                             | Address of Applicant : NA                                                                                                                          |
| (87) International Publication No             | : NA                                                                            | (72)Name of Inventor :                                                                                                                             |
| (61) Patent of Addition to Application Number | :NA                                                                             | <b>1)Dr. Shalok Bharti</b>                                                                                                                         |
| Filing Date                                   | :NA                                                                             | Address of Applicant :Department of Mechanical Engineering, Marwadi University, Rajkot - Morbi Road, Rajkot 360003 Gujarat, India. Rajkot ----- -- |
| (62) Divisional to Application Number         | :NA                                                                             | -----                                                                                                                                              |
| Filing Date                                   | :NA                                                                             |                                                                                                                                                    |

(57) Abstract :  
A two-wheeler speed regulation and safety system is comprising, a hollow cylindrical body 101 on the handlebar accelerator, gripped by first pneumatic plungers 101a and first C-shaped motorized clamps 101b, a motorized mechanical sleeve 101c controls speed and secured by a locking unit activated by a fingerprint module 101d for user authentication, a cylindrical structure 102 with second pneumatic plungers 102a and second motorized C-shaped clamps 102b mount on a left handle, a motorized clipper 102c linked to a bell crank linkage arrangement 102d presses the clutch lever, a gear shifting module 104 with curved clamps 104a and a slider crank arrangement 104b including a motorized clamp 104c, shifts gears, an AI-based imaging unit 103 captures surroundings for safe clutch engagement and acceleration control, safety indicators are displayed on a cylindrical-shaped LED screen 101e, a vibration unit 101f provides tactile alerts, an accelerometer and gyroscope sensor detect impacts.

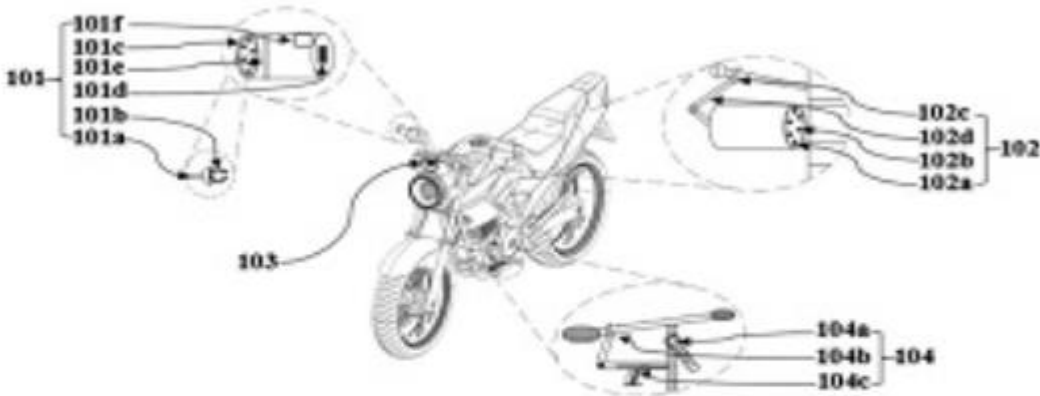


Figure 1

(54) Title of the invention : SAFETY AND COMMUNICATION INTEGRATED WATERCRAFT FOR MARINE OPERATIONS

|                                               |                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|-----------------------------------------------|---------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (51) International classification             | :H04W0004021000,<br>A61B0005110000,<br>G01D0011240000,<br>B63B0027140000,<br>G01C0021160000 | (71)Name of Applicant :<br><b>1)Marwadi University</b><br>Address of Applicant :Rajkot - Morbi Road, Rajkot 360003 Gujarat, India. Rajkot -----<br><b>Name of Applicant : NA</b><br><b>Address of Applicant : NA</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| (86) International Application No             | :NA                                                                                         | (72)Name of Inventor :<br><b>1)Simrin Fathima Syed</b><br>Address of Applicant :Department of Computer Science and Engineering - Artificial Intelligence, Machine Learning, Data Science, Marwadi University, Rajkot - Morbi Road, Rajkot 360003 Gujarat, India. Rajkot -----<br><b>2)Dr. Madhu Shukla</b><br>Address of Applicant :Head of the Department (HOD), Department of Computer Science and Engineering - Artificial Intelligence, Machine Learning, Data Science, Marwadi University, Rajkot - Morbi Road, Rajkot 360003 Gujarat, India. Rajkot -----<br><b>3)Dr. Nishant Kothari</b><br>Address of Applicant :Head of the Department (HOD), Department of Electrical Engineering, Marwadi University, Rajkot - Morbi Road, Rajkot 360003 Gujarat, India. Rajkot -----<br><b>4)Vipul Ladva</b><br>Address of Applicant :Department of Computer Science and Engineering - Artificial Intelligence, Machine Learning, Data Science, Marwadi University, Rajkot - Morbi Road, Rajkot 360003 Gujarat, India. Rajkot -----<br><b>5)Akshay Ranpariya</b><br>Address of Applicant :Department of Computer Science and Engineering - Artificial Intelligence, Machine Learning, Data Science, Marwadi University, Rajkot - Morbi Road, Rajkot 360003 Gujarat, India. Rajkot -----<br><b>6)Neel Dholakia</b><br>Address of Applicant :Department of Computer Science and Engineering - Artificial Intelligence, Machine Learning, Data Science, Marwadi University, Rajkot - Morbi Road, Rajkot 360003 Gujarat, India. Rajkot ----- |
| (87) International Publication No             | :NA                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| (61) Patent of Addition to Application Number | :NA                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Filing Date                                   | :NA                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| (62) Divisional to Application Number         | :NA                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Filing Date                                   | :NA                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |

(57) Abstract :  
A safety and communication integrated watercraft for marine operations, comprising a body 101 having a hull 102 and a deck 103, a pair of retractable hydrofoils 104 on either side of the hull 102 for altering shape in response wave-induced motion, a rack and pinion assembly 105 preloaded by a spring 106, and held by a mechanical latch 107 for preventing untended movement, a sensor suite 108 including an Inertial Measurement Unit (IMU), a pressure sensor, and wave height detectors, detecting storm condition signals, a plurality of inflatable life-pod units 109 detachably housed in a container 110, and connected to an inflating unit 111 for inflation/deflation, while the life-pod units 109 are assembled with multiple survival gears, a multi-modal communication module installed on the body 101 for facilitating direct contact with other watercrafts and concerned authorities, and dynamically switches modes in response to system failure or signal interference.

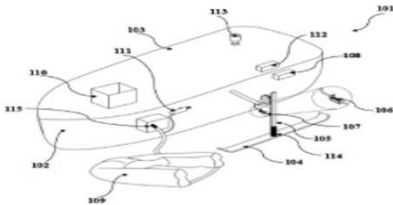


Figure 1

No. of Pages : 20 No. of Claims : 8

(54) Title of the invention : METAL PIECE QUALITY ASSESSMENT DEVICE

(51) :B25J0015100000,  
International G01N0023223000,  
classification F16C0011060000,  
G01N0003460000,  
H01M0004020000

(86) International  
Application :NA  
No :NA  
Filing  
Date

(87) International :NA  
Publication No  
(61) Patent of  
Addition to  
Application :NA  
Number :NA  
Filing  
Date

(62) Divisional  
to Application :NA  
Number :NA  
Filing  
Date

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## Name of Applicant : NA

## Address of Applicant : NA

## (72)Name of Inventor :

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## 3)Vipul Ladva

Address of Applicant :Department of Computer Science and Engineering - Artificial Intelligence, Machine Learning, Data Science, Marwadi University, Rajkot - Morbi Road, Rajkot 360003 Gujarat, India. Rajkot -----

## 4)Akshay Ranpariya

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## 5)Neel Dholakia

Address of Applicant :Department of Computer Science and Engineering - Artificial Intelligence, Machine Learning, Data Science, Marwadi University, Rajkot - Morbi Road, Rajkot 360003 Gujarat, India. Rajkot -----

## (57) Abstract :

A metal piece quality assessment device is comprising, a housing 101 is installed with a plate 102 configured to receive a metal piece, a sensing module 103 on the plate 102 measures the metal piece's weight and dimensions, a gripping unit 104 on an extendable rod 105 submerges the piece into a water-filled chamber 106, a graduated cylinder 107 connected to a tray 108 collects displaced water through a conduit 109, an artificial intelligence-based imaging unit 110 determining the volume for density calculation, an expandable flap 111 with a linear actuator 112 and heating coil 113 applies compressive force and heat, a three-finger motorized gripper 114 conducts a scratch test, a pair of clamps 118 via extendable links 119 with motorized ball and socket joints 120 holding multi-meter probes for conductivity testing, an XRF spectroscopy module 122 measures the material composition of the metal piece.

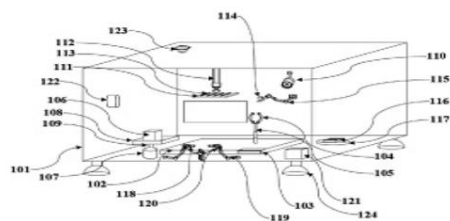


Figure 1

No. of Pages : 25 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :10/06/2025

(21) Application No.202521056038 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : A NANOFLUID COMPOSITION AND A HEAT PIPE SYSTEM FOR PASSIVE THERMAL MANAGEMENT OF HIGH-WATTAGE LIGHT- EMITTING DIODES

(51) International classification :F28D0015040000, F28D0015020000, H01L0023427000, F21Y0115100000, H01L0023373000  
(86) International Application No :NA  
Filing Date :NA  
(87) International Publication No : NA  
(61) Patent of Addition to Application Number :NA  
Filing Date :NA  
(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

ABSTRACT A nanofluid composition and a heat pipe system for passive thermal management of high-wattage light-emitting diodes A heat pipe system comprises a copper tube (102) of approx. 8 mm OD and 7.6 mm ID partitioned into evaporator (112), adiabatic (114) and condenser (116) sections in a 1:1:1.5 ratio, with a stainless-steel screen-mesh wick structure (104) lining the inner wall. A nanofluid working medium (106) containing about 1.0 wt % copper oxide or silica nanoparticles in de-ionized water fills approximately 60% of the internal volume. In operation, heat from the LED package induces boiling in the evaporator (112), vapor travels through the adiabatic section (114) to the condenser (116) where latent heat is released to an external fin array (118), and condensate returns via capillary forces in the wick (104). A vacuum/filling port (108), end caps (109), thermal interface material (122) and mounting bracket (120) enable hermetic sealing and optimized thermal contact.

No. of Pages : 30 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :10/06/2025

(21) Application No.202521056039 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : A CYLINDRICAL HEAT PIPE SYSTEM INCORPORATING AN AL<sub>2</sub>O<sub>3</sub>-ZNO HYBRID NANOFLUID WORKING MEDIUM FOR PASSIVE THERMAL MANAGEMENT

(51) International classification :F28D15/04, F28D15/02  
(86) International Application No :NA  
Filing Date :NA  
(87) International Publication No : NA  
(61) Patent of Addition to Application Number :NA  
Filing Date :NA  
(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

A cylindrical heat pipe system incorporating an Al<sub>2</sub>O<sub>3</sub>-ZnO hybrid nanofluid working medium for passive thermal management The present invention relates to the field of passive thermal management and more particularly to a cylindrical heat pipe system (10) comprising a seamless oxygen-free copper tube (10) demarcated into an evaporator region (12), an adiabatic region (14) and a condenser region (16), a two-layer capillary wick structure (20) of concentric copper screen mesh sleeves engaging the inner surface of tube (10), a hybrid nanofluid working medium (40) of deionized water carrying aluminium oxide and zinc oxide nanoparticles at a total loading of 1 wt % occupying approximately 60 % of the volume of evaporator region (12), a flexible electric heater (50) wrapped around evaporator region (12), a water-circulating cooling chamber (60) thermally bonded to condenser region (16), and end-cap assemblies (30) maintaining an internal pressure below  $1 \times 10^{-3}$  mbar; wherein vapor generated by heater (50) in evaporator region (12) travels through adiabatic region (14) to condenser region (16) for phase change and condensate returns via capillary action through wick structure (20).

No. of Pages : 30 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :10/06/2025

(21) Application No.202521056040 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : A SYSTEM AND METHOD FOR MINIMUM QUANTITY LUBRICATION INCORPORATING A DUAL-NANOPARTICLE CUTTING FLUID COMPOSITION AND ITS SYNTHESIS FOR TURNING OPERATIONS

(51) International classification :B23Q11/04, B23Q11/10  
(86) International Application No :NA  
Filing Date :NA  
(87) International Publication No : NA  
(61) Patent of Addition to Application Number :NA  
Filing Date :NA  
(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

A system for minimum quantity lubrication (MQL) incorporates a dual-nanoparticle cutting fluid composition and synthesis method that enhances turning operations. The system comprises a MQL delivery unit with a nozzle featuring a tapered orifice and a mixing chamber having first and second inlet channels receiving nano-cutting fluid from a pressurizable fluid reservoir equipped with an integrated pressure control valve and compressed air, respectively. The dual-nanoparticle cutting fluid, based on SAE-40 oil and containing predetermined weight percentages of Aluminum oxide (Al<sub>2</sub>O<sub>3</sub>) and Zinc oxide (ZnO), is synthesized via magnetic stirring followed by ultrasonic homogenization to ensure uniform dispersion. The resulting aerosol mist is delivered to the tool-workpiece interface, optimizing machining parameters during turning operations.

No. of Pages : 30 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :10/06/2025

(21) Application No.202521056041 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : A SYSTEM AND METHOD FOR INTEGRATED PASSIVE THERMAL MANAGEMENT OF LITHIUM-ION BATTERY PACKS USING A DI WATER-FILLED CYLINDRICAL HEAT PIPE

(51) International classification :H01M10/6552, H01M10/61, F28D15/02, H01M10/656  
(86) International Application No :NA  
Filing Date :NA  
(87) International Publication No : NA  
(61) Patent of Addition to Application Number :NA  
Filing Date :NA  
(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :  
ABSTRACT A SYSTEM AND METHOD FOR INTEGRATED PASSIVE THERMAL MANAGEMENT OF LITHIUM-ION BATTERY PACKS USING A DI WATER-FILLED CYLINDRICAL HEAT PIPE A passive thermal management system is disclosed for lithium-ion battery packs, comprising a battery pack assembly having a plurality of lithium-ion cells arranged in series-parallel configuration within a housing with predefined channels and an integrated cylindrical heat pipe. The heat pipe, fabricated from copper with an 8 mm outer diameter and 7.6 mm inner diameter, is segmented into an evaporator section in thermal contact with the cells, an adiabatic section for vapor transport, and a condenser section positioned toward a heat dissipation region. DI water, filled at a 30% volumetric ratio, undergoes phase change, while a single-layer stainless steel screen mesh wick promotes capillary return of condensate. Temperature sensors may be positioned near the cells to monitor operational heat, ensuring effective cyclic management of thermal energy.

No. of Pages : 30 No. of Claims : 10



(12) PATENT APPLICATION PUBLICATION

(21) Application No.202521056124 A

(19) INDIA

(22) Date of filing of Application :11/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : REAL-TIME DESTINATION-AWARE PUBLIC TRANSPORT GUIDANCE SYSTEM WITH CLOUD-BASED ROUTE FILTERING

(51) International classification :G01C0021340000, G06Q0050400000, G08G0001123000, H04W0004400000, G08G0001096800

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

Real-Time Destination-Aware Public Transport Guidance System with Cloud-Based Route Filtering This invention describes an intelligent, destination-aware, real-time public transport guidance system comprising vehicle-mounted route input devices, a cloud-based backend with directional filtering algorithms, and a mobile application for passenger interaction. Authorized personnel manually input journey start and end points into the embedded device, which, along with real-time GPS data, is transmitted to a centralized cloud server. Passengers use the mobile app to input their destination, triggering the backend to execute geospatial and vector-based route matching. The system filters and identifies only those vehicles proximate to the user and traveling toward the specified destination. Real-time Estimated Time of Arrival (ETA), vehicle details, and route overlays are displayed on the user interface, with automated proximity alerts delivered when matched vehicles approach. The invention improves commuter guidance, reduces wait times, and optimizes fleet usage, offering scalable application across public, private, and emergency transportation networks.

No. of Pages : 26 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202521056403 A

(19) INDIA

(22) Date of filing of Application :11/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : SunSmart Grid: Intelligent Energy Management System with Machine Learning Integration

(51) International classification :H02J0003320000, G06Q0050060000, H02J0003380000, H02J0007350000, H02J0003140000

(86) International Application No :NA

Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA

Filing Date :NA

(62) Divisional to Application Number :NA

Filing Date :NA

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(57) Abstract :

The present invention provides an intelligent, hybrid energy management system named "SunSmart Grid," designed for the efficient and optimized use of solar energy in coordination with battery backup and grid power. The system features a microcontroller-based switching mechanism that dynamically selects the energy source in real-time, prioritizing solar energy, followed by battery, and finally grid power. A smart energy meter monitors real-time load, voltage, and current, supplying crucial data to the control logic. Advanced machine learning models—specifically Decision Tree Regressor, Gradient Boosting Regressor, and Support Vector Regressor—are employed to forecast energy load demand. These predictions help optimize source selection before consumption peaks, ensuring minimal reliance on non-renewable power and maximum utilization of renewable energy. A web-based dashboard developed using Streamlit allows users to interactively visualize energy trends, prediction accuracy, and operational performance. The invention is validated using a hardware simulation that demonstrates energy source transitions and predictive management, making it scalable for deployment in homes, industries, and community grids. This invention significantly enhances the efficiency, reliability, and intelligence of hybrid energy systems, contributing to sustainable and cost-effective energy management.

No. of Pages : 12 No. of Claims : 7

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :12/06/2025

(21) Application No.202521056427 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : MOBILE AI-DRIVEN COMPUTER DEVICE FOR SECURE OFFLINE AND AUTOMATED DATA ANALYSIS AND VISUALIZATION TASKS IN FIELD ENVIRONMENTS

(51) International classification :G06F0021620000, G06N0020000000, H04L0009320000, G06F0009500000, G06F0008360000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

The invention presents a portable, AI-driven computer device for secure, offline, and automated data analysis and visualization. It enables professionals in remote or high-security environments to ingest data, perform real-time analytics using embedded machine learning models, and generate visual outputs without internet access. The system supports customizable workflows, secure storage, and user authentication to ensure data privacy and integrity. It provides a flexible platform for field-based intelligence gathering, decision support, and autonomous data science tasks.

No. of Pages : 9 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :12/06/2025

(21) Application No.202521056432 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : PORTABLE DEVICES FOR DYNAMIC VULNERABILITY ANALYSIS: A COMPACT SOLUTION FOR PROACTIVE INFORMATION SECURITY MANAGEMENT

(51) International classification :H04L0009400000, G06F0021570000, H04W0036140000, G06F0021550000, G06F0021540000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

The invention discloses a portable computing device for dynamic vulnerability analysis, enabling proactive information security management across diverse digital environments. It integrates offline-capable scanning tools, AI-based threat assessment, and secure data handling within a compact, mobile form factor. The device autonomously detects system vulnerabilities, evaluates exploit risks, and provides remediation guidance without relying on cloud services. It supports compliance audits, incident response, and security assessments in both enterprise and field scenarios, offering a secure, efficient, and intelligent approach to mobile cybersecurity operations.

No. of Pages : 17 No. of Claims : 1

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202521056490 A

(19) INDIA

(22) Date of filing of Application :12/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : Formulation And Method for Presumptive Bloodstain Detection Using Readily Available Household Materials

|                                               |                                                                                 |                                                                                                                                                                                                                                      |
|-----------------------------------------------|---------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (51) International classification             | :G01N0033720000, G01N0021640000, A61K0049000000, C07C0017200000, D06P0005200000 | (71)Name of Applicant :<br><b>1)SAGE University</b><br>Address of Applicant :Kailod Kartal, RAU BYPASS, Indore 452020 Indore, Madhya Pradesh India Indore -----<br><b>Name of Applicant : NA</b><br><b>Address of Applicant : NA</b> |
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| (62) Divisional to Application Number         | :NA                                                                             |                                                                                                                                                                                                                                      |
| Filing Date                                   | :NA                                                                             |                                                                                                                                                                                                                                      |

(57) Abstract :

The invention discloses a safe and cost-effective formulation and method for presumptive bloodstain detection, which utilizes readily available household materials, offering a practical and accessible alternative to conventional forensic blood detection techniques. The formulation comprises hydrogen peroxide, a pH adjusting agent, and a fluorescent dye source selected from laundry detergent with optical brighteners, tonic water with quinine, or glow-in-the-dark paint. It is characterized by a dual detection mechanism: a visible bubbling reaction occurs upon contact with hemoglobin in blood, which is complemented by a distinct fluorescent glow under ultraviolet (UV) light due to a fluorescent dye source. Its non-toxic and eco-friendly nature, high cost-effectiveness, accessibility for various settings, and minimized interference with subsequent DNA analysis makes it suitable for field application and educational use.

No. of Pages : 21 No. of Claims : 14

(54) Title of the invention : A SYSTEM AND METHOD FOR CROP MONITORING AND REAL-TIME DISEASE DETECTION USING AI AND BLOCKCHAIN

|                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
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| <p>(51) International classification :H04L0009000000, G06V0010820000, H04L0009320000, G16H0050200000, A01B0079000000</p> <p>(86) International Application No :NA<br/>Filing Date :NA</p> <p>(87) International Publication No : NA</p> <p>(61) Patent of Addition to Application Number :NA<br/>Filing Date :NA</p> <p>(62) Divisional to Application Number :NA<br/>Filing Date :NA</p> | <p>(71)Name of Applicant :<br/><b>1)PDPM Indian Institute of Information Technology, Design and Manufacturing, Jabalpur</b><br/>Address of Applicant :Dumna Airport Road, P. O. Khamaria, Jabalpur - 482005, Madhya Pradesh, India Jabalpur -----<br/><b>Name of Applicant : NA</b><br/><b>Address of Applicant : NA</b></p> <p>(72)Name of Inventor :<br/><b>1)THAKUR, Poornima Singh</b><br/>Address of Applicant :C/o PDPM Indian Institute of Information Technology, Design and Manufacturing, Jabalpur, Dumna Airport Road, P. O. Khamaria, Jabalpur - 482005, Madhya Pradesh, India Jabalpur -----<br/><b>2)PASUNURI, Adithya Vardhan</b><br/>Address of Applicant :C/o PDPM Indian Institute of Information Technology, Design and Manufacturing, Jabalpur, Dumna Airport Road, P. O. Khamaria, Jabalpur - 482005, Madhya Pradesh, India Jabalpur -----<br/><b>3)JANGID, Ritik</b><br/>Address of Applicant :C/o PDPM Indian Institute of Information Technology, Design and Manufacturing, Jabalpur, Dumna Airport Road, P. O. Khamaria, Jabalpur - 482005, Madhya Pradesh, India Jabalpur -----<br/><b>4)DUTTA, Arsh</b><br/>Address of Applicant :C/o PDPM Indian Institute of Information Technology, Design and Manufacturing, Jabalpur, Dumna Airport Road, P. O. Khamaria, Jabalpur - 482005, Madhya Pradesh, India Jabalpur -----<br/><b>5)JAIN, Samir</b><br/>Address of Applicant :C/o PDPM Indian Institute of Information Technology, Design and Manufacturing, Jabalpur, Dumna Airport Road, P. O. Khamaria, Jabalpur - 482005, Madhya Pradesh, India Jabalpur -----<br/><b>6)MISHRA, Satya Saurabh</b><br/>Address of Applicant :C/o PDPM Indian Institute of Information Technology, Design and Manufacturing, Jabalpur, Dumna Airport Road, P. O. Khamaria, Jabalpur - 482005, Madhya Pradesh, India Jabalpur -----<br/><b>7)KALAMBE, Sandesh Pramod</b><br/>Address of Applicant :C/o PDPM Indian Institute of Information Technology, Design and Manufacturing, Jabalpur, Dumna Airport Road, P. O. Khamaria, Jabalpur - 482005, Madhya Pradesh, India Jabalpur -----<br/><b>8)SHRIVASTAVA, Apurv Prakash</b><br/>Address of Applicant :C/o PDPM Indian Institute of Information Technology, Design and Manufacturing, Jabalpur, Dumna Airport Road, P. O. Khamaria, Jabalpur - 482005, Madhya Pradesh, India Jabalpur -----<br/><b>9)KABI, Mitrup</b><br/>Address of Applicant :C/o PDPM Indian Institute of Information Technology, Design and Manufacturing, Jabalpur, Dumna Airport Road, P. O. Khamaria, Jabalpur - 482005, Madhya Pradesh, India Jabalpur -----<br/><b>10)KHANNA, Pritee</b><br/>Address of Applicant :C/o PDPM Indian Institute of Information Technology, Design and Manufacturing, Jabalpur, Dumna Airport Road, P. O. Khamaria, Jabalpur - 482005, Madhya Pradesh, India Jabalpur -----<br/><b>11)GUPTA, Vijay Kumar</b><br/>Address of Applicant :C/o PDPM Indian Institute of Information Technology, Design and Manufacturing, Jabalpur, Dumna Airport Road, P. O. Khamaria, Jabalpur - 482005, Madhya Pradesh, India Jabalpur -----<br/><b>12)SHEOREY, Tanuja</b><br/>Address of Applicant :C/o PDPM Indian Institute of Information Technology, Design and Manufacturing, Jabalpur, Dumna Airport Road, P. O. Khamaria, Jabalpur - 482005, Madhya Pradesh, India Jabalpur -----<br/><b>13)OJHA, Aparajita</b><br/>Address of Applicant :C/o PDPM Indian Institute of Information Technology, Design and Manufacturing, Jabalpur, Dumna Airport Road, P. O. Khamaria, Jabalpur - 482005, Madhya Pradesh, India Jabalpur -----</p> |
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(57) Abstract :

ABSTRACT A SYSTEM AND METHOD FOR CROP MONITORING AND REAL-TIME DISEASE DETECTION USING AI AND BLOCKCHAIN The present invention provides a system for real-time crop disease detection and prediction, comprising: an image capture device (102) configured to obtain images of plants in an agricultural field; an edge-Artificial Intelligence module embedded into the image capture device (102) that enables the device to identify diseases plants for capturing images, an AI module (104) configured to analyze the images of plants and predict plant diseases; a blockchain network (106) with its ledger configured to store plant disease prediction data and provide secure access to historical disease information; a plurality of reviewer nodes (108) located within the blockchain network (106) and configured to verify and validate predictions, and provide solutions for dealing with plant diseases; a user interface component (110) configured to receive image inputs and provide functionality for plant disease analysis and management; and wherein the AI module (104) is further configured to continually learn based on new data and feedback stored in the blockchain network (106), enabling dynamic adaptation to emerging plant diseases and environmental conditions while maintaining data integrity and traceability through the distributed ledger system. Figure 1

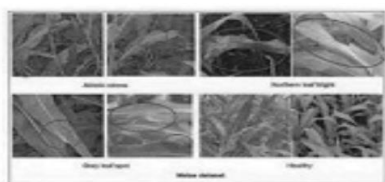


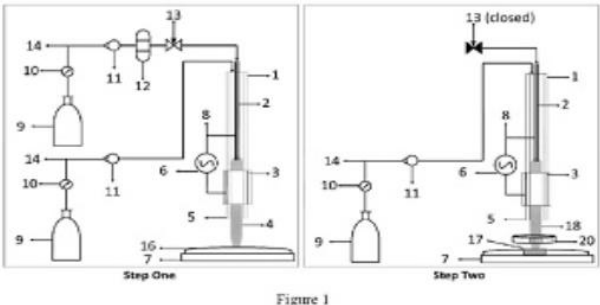
Figure 1

(54) Title of the invention : SYSTEM AND METHOD FOR MASK-FREE SUPERHYDROPHOBIC-SUPERHYDROPHILIC PATTERNING USING A DBD PLASMA JET

|                                                                                                                                                                                                                                                                                                                                                                                           |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <div>(51) International classification : H05H1/26, C23C16/02, C23C16/50</div> <div>(86) International Application No : NA</div> <div>Filing Date : NA</div> <div>(87) International Publication No : NA</div> <div>(61) Patent of Addition to Application Number : NA</div> <div>Filing Date : NA</div> <div>(62) Divisional to Application Number : NA</div> <div>Filing Date : NA</div> |  | <div>(71)Name of Applicant :<br/>1)INDIAN INSTITUTE OF TECHNOLOGY BOMBAY<br/>Address of Applicant :Powai, Mumbai - 400076, Maharashtra, India Mumbai --<br/>-----<br/>Name of Applicant : NA<br/>Address of Applicant : NA<br/>(72)Name of Inventor :<br/>1)MUJUMDAR, Soham<br/>Address of Applicant :2827 A Ward, Varuntirth Vesh, Sarvesh Complex, Kolhapur 416012, Maharashtra, India Kolhapur -----<br/>2)BAYKI, Shayan<br/>Address of Applicant :Department of Mechanical Engineering, Indian Institute of Technology Bombay, Powai, Mumbai 400076, Maharashtra, India Mumbai -----<br/>-----</div> |
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(57) Abstract :

The present invention relates to a novel plasma-based surface treatment system and method capable of inducing controlled transitions between superhydrophobic and superhydrophilic states on a substrate surface. The process utilizes a dielectric barrier discharge (DBD) plasma jet system integrated with organosilicon precursor delivery. Initially, a superhydrophobic film (16) is deposited on the substrate via DBD plasma jet-assisted deposition of organosilicon compounds. Subsequently, without altering the setup or requiring any physical masks, the same DBD plasma jet is employed to convert the surface to a superhydrophilic pattern (17) through direct plasma treatment. This dynamic wettability modification is achieved by adjusting plasma parameters and gas flow conditions alone. Furthermore, the system supports both continuous and pulsed (millisecond on/off switching) control of precursor flow, allowing fine-tuned deposition and functionalization. The invention offers a simplified, mask-free, and highly controllable platform for advanced surface engineering applications, including adhesion enhancement, microfluidics, and flexible electronics. Fig. 1



(12) PATENT APPLICATION PUBLICATION

(21) Application No.202521056571 A

(19) INDIA

(22) Date of filing of Application :12/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : A PORTABLE REPETITIVE PLATE LOAD TEST SYSTEM FOR PAVEMENTS

(51) International classification :G06F0011340000, E02D0033000000, A63B0024000000, H04W0024000000, E02D0003000000

(86) International Application No :NA

Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA

Filing Date :NA

(62) Divisional to Application Number :NA

Filing Date :NA

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(57) Abstract :

ABSTRACT A PORTABLE REPETITIVE PLATE LOAD TEST SYSTEM FOR PAVEMENTS The invention, in general, relates to a portable repetitive plate load test system which evaluates the performance of geosynthetic reinforced (geogrid, geocell) and conventional flexible pavements by conducting in-situ repetitive plate load tests, wherein cyclic loads are applied through a rigid plate, simulating the real traffic loading in the field.

No. of Pages : 20 No. of Claims : 7



(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :12/06/2025

(21) Application No.202521056599 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : PORTABLE ELECTRONIC AUSCULTATION SYSTEM

(51) International classification :A61B7/04, A61B7/00  
(86) International Application No :NA  
Filing Date :NA  
(87) International Publication No :NA  
(61) Patent of Addition to Application Number :NA  
Filing Date :NA  
(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

The present invention relates to a portable electronic auscultation system (100) to capture, process, and analyse physiological acoustic sound (102) for diagnosing and monitoring the health of patient (104), comprising an auscultation device (106) configured to capture and amplify physiological acoustic sound (102) generated within body of patient (104), comprising chest piece (202) configured to be placed directly against skin surface of patient (104) for capturing and amplifying physiological acoustic sound (102), and a tubing (204) configured to be operably connected to chest piece (202) for transmitting physiological acoustic sound (102). A transmission module (108) operatively connected to auscultation device (106) comprises an acoustic sensor (302) integrated into the tubing (204) for converting the physiological acoustic sound (102) into physiological acoustic electrical signal (110), converter (304) for generating digitized physiological acoustic signal (112), and communication module (306) for transmitting the digitized physiological acoustic signal (112) to remote computation unit (114).

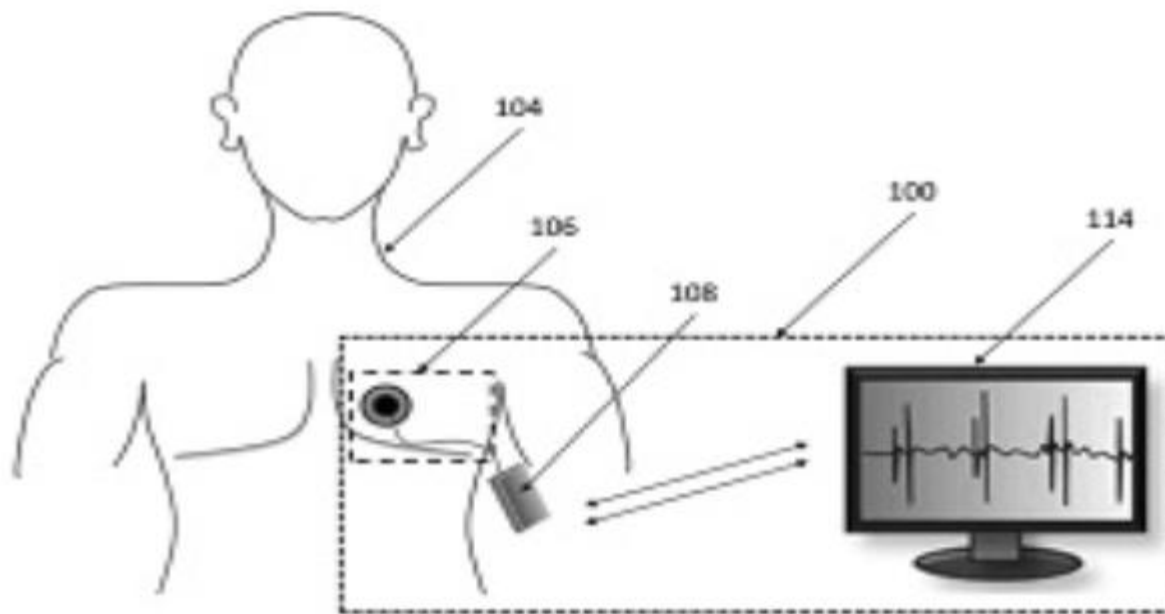


**Fig. 1**

No. of Pages : 33 No. of Claims : 7

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :12/06/2025

(21) Application No.202521056605 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : COMPUTER VISION-BASED HOME SECURITY SYSTEM WITH INTELLIGENT INTRUSION DETECTION AND THREAT ANALYSIS FOR ENHANCED RESIDENTIAL PROTECTION

(51) International classification :H04L0009400000, G06V0040160000, G08B0013196000, G08B0025000000, G08B0029180000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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**4)Dr. Deepak Kumar Rathore**

**5)Mr. Himanshu Barhaiya**

**6)Mr. Neelesh Gour**

**7)Mr Jitendra Kumar**

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(57) Abstract :

The invention provides a computer vision-based home security system capable of real-time intelligent intrusion detection and threat analysis. The system uses facial recognition, posture analysis, and object detection to identify unauthorized individuals and assess potential threats. AI-driven threat classification enables context-sensitive responses, reducing false alarms and enhancing residential safety. The system is customizable, learns from user feedback, and integrates with smart home devices and emergency services for a complete security ecosystem.

No. of Pages : 15 No. of Claims : 1

(54) Title of the invention : A COLLAPSIBLE BOTTLE WITH LOCKING MECHANISM FOR SPACE-EFFICIENT STORAGE

|                                                                      |                                                                                                                                                                                                                                                               |
|----------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (51) International classification :B65D1/02, B65D21/08               | (71)Name of Applicant :<br><b>1)PDPM Indian Institute of Information Technology, Design and Manufacturing, Jabalpur</b><br>Address of Applicant :Dumna Airport Road, P. O. Khamaria, Jabalpur - 482005, Madhya Pradesh, India Jabalpur -----                  |
| (86) International Application No :NA<br>Filing Date :NA             | <b>Name of Applicant : NA</b><br><b>Address of Applicant : NA</b>                                                                                                                                                                                             |
| (87) International Publication No : NA                               | (72)Name of Inventor :<br><b>1)KUMAR, Mayur</b><br>Address of Applicant :C/o PDPM Indian Institute of Information Technology, Design and Manufacturing, Jabalpur, Dumna Airport Road, P. O. Khamaria, Jabalpur - 482005, Madhya Pradesh, India Jabalpur ----- |
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(57) Abstract :  
ABSTRACT A COLLAPSIBLE BOTTLE WITH LOCKING MECHANISM FOR SPACE-EFFICIENT STORAGE The present invention provides a collapsible bottle comprising a base (102), a neck (104) defining an opening, and a body (106) connecting the base (102) to the neck (104). The body (106) includes a plurality of foldable panels arranged in a kresling pattern, allowing the bottle to be compressed to reduce its volume when empty and expanded to its original volume when filled; a cap (108) configured to engage with the neck, wherein the cap (108) forms an integral part of the bottle when attached; and a locking mechanism (110) comprising at least one protrusion on an inner surface of the cap (108) that engages with a corresponding recess in the body (106) when in a collapsed state. The bottle features a stabilizing structure on the base to maintain an upright position when expanded. The collapsible structure promotes proper disposal, reduces storage space, and enhances portability. Figure 1

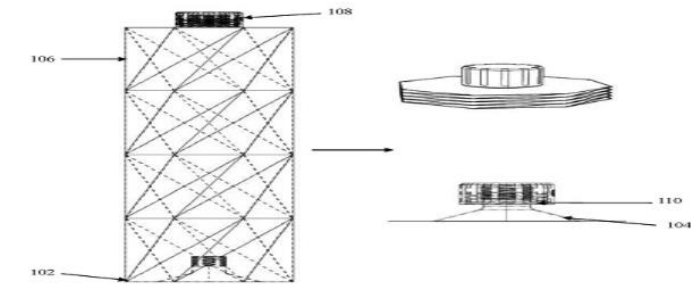


Figure 1

No. of Pages : 17 No. of Claims : 8

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202521056646 A

(19) INDIA

(22) Date of filing of Application :12/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : LORA BASED GAS MONITORING SYSTEM FOR INDUSTRIAL PURPOSE

(51) International classification :H04L0067120000, G01N0033000000, G05B0019042000, G16H0040630000, H04W0004800000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

The LoRa-Based Gas Monitoring System is a state-of-the-art solution for real-time detection of hazardous gases in industrial environments. Utilizing LoRa (Long Range) wireless technology, this system provides long-range, low-power communication, enabling effective monitoring across large industrial areas without extensive wiring. The system employs a MQ-135 ammonia sensor to detect dangerous gas concentrations and triggers alerts when levels exceed a predefined threshold. Data is wirelessly transmitted via LoRa RA-02 modules to a central receiver. The TTL-to-USB module is used to transfer data from the Arduino Uno to a laptop for further analysis and cloud integration. A user-friendly OLED display provides real-time gas readings with color-coded alerts for safe or hazardous conditions. Data is logged to an SD card for efficient record-keeping, with the option to transfer data to a laptop. This system enhances industrial safety by providing accurate, timely information for operators, minimizing risks, and ensuring quick responses to hazardous gas levels.

No. of Pages : 15 No. of Claims : 5

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :12/06/2025

(21) Application No.202521056651 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : A simple Wearable Eye-Drowsiness Detection System

(51) International classification :G08B0021060000, A61B0005000000, A61B0005180000, A61B0005110000, B60K0028060000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

[500] Road Transport is considered to be one of the most cost effective and preferred mode of transport. It is vital for economic development and social integration of the country. In India, at the first face, with huge population count, Road Transport Sector accounts for about 87% of passenger traffic due to its easy availability, adaptability, and minimum cost while on another hand day by day it is becoming risky due to heavy traffic intensities and increased frequency of accidents. Facts are dangerous if road accidents count is in concern and it is direct live loss. Driver fatigue is a major contributor to road accidents, resulting in significant injuries and fatalities globally. To resolve this serious issue, the present system provides an innovative and affordable wearable eye drowsiness detection facility through Infra-red sensor-based glasses designed for real-time detection of inattentiveness of driver's eyes which indirectly helps to avoid the chances of road accidents. These are Accident Prevention Glasses (APGs), intentionally designed to combat road accidents caused by driver fatigue. Unlike complex vehicle systems, these glasses offer real-time detection of drowsiness through eye movement monitoring. An IR sensor tracks blinks and prolonged eye closure, triggering immediate audible and tactile alerts via a buzzer and vibration motor when drowsiness is detected. The buzzer uses alternating frequencies to maximize wakefulness. An Arduino NANO microcontroller processes sensor data and manages alerts. The system is programmed using the Arduino IDE and includes predefined thresholds. A lithium-ion battery provides around 13 hours (factual testing result 13.7 hours) of operation. This hardware-based approach prioritises rapid alerts, unlike systems relying on facial recognition. The system resets after each alert, ensuring continuous monitoring. Testing confirms over 90% accuracy in detecting drowsiness under controlled conditions. This system can be also used in medical field, heavy digital screen operators, scientist, Multinational companies wherein consistent eye concentration is mandatory. It is also useful to monitor unconscious patients, detecting movement and triggering alerts and for old age people for their day-to-day activity support where in the person requires helps for his/her eye drowsiness.

No. of Pages : 9 No. of Claims : 3

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202521056673 A

(19) INDIA

(22) Date of filing of Application :12/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : A2 High Protein Milk and Method of Production Thereof

(51) International classification :A23C0009142000, A23C0009120000, A23C0009150000, A23C0001160000, A23C0009000000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
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(57) Abstract :

Abstract The invention relates to a method for producing A2 high protein, lactose-free milk that is suitable for individuals with lactose intolerance and A1 protein sensitivity. The process begins with sourcing A2-certified milk from native Indian cow breeds or buffaloes, followed by testing for purity and contaminants. The milk is then skimmed, pasteurized, and subjected to ultrafiltration at low temperatures to concentrate native proteins and reduce lactose content. The ultrafiltered milk is treated with lactase enzyme to convert residual lactose into glucose and galactose, making the product suitable for lactose-intolerant consumers. A second pasteurization is performed, and the milk is optionally flavored, bottled in retort-compliant containers, and sterilized at 121°C in a rotary retort. The resulting product is a shelf-stable, naturally high-protein milk free from added milk solids or synthetic protein powders. It retains a pleasant taste and can be used for direct consumption or in the preparation of other dairy products.

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(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :12/06/2025

(21) Application No.202521056674 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : AI based System and Method for Dynamic Pricing in E-Commerce Based on Real-Time Demand and Inventory Levels

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| <p>(51) International classification :G06Q0030020100, G06Q0010087000, G06Q0010040000, G06N0020000000, G06Q0030020400</p> <p>(86) International Application No :NA<br/>Filing Date :NA</p> <p>(87) International Publication No : NA</p> <p>(61) Patent of Addition to Application Number :NA<br/>Filing Date :NA</p> <p>(62) Divisional to Application Number :NA<br/>Filing Date :NA</p> | <p>(71)Name of Applicant :<br/><b>1)Dr Lakhnan Patidar</b><br/>Address of Applicant :Assistant Professor, Department of Mechanical Engineering, Medicaps University, Indore, Madhya Pradesh, 453331, India -----<br/>-----<br/><b>2)Dr Poonam Gupta</b><br/><b>3)Sanjeev Singh Thakur</b><br/><b>4)Ashwini D</b><br/><b>5)Richika Kedia</b><br/><b>6)Dr. Disha Rani Yadav</b><br/><b>7)Mrs. Malvika Sharma</b><br/><b>8)Dr Vasantha Kumari. K</b><br/>Name of Applicant : NA<br/>Address of Applicant : NA<br/>(72)Name of Inventor :<br/><b>1)Dr Lakhnan Patidar</b><br/>Address of Applicant :Assistant Professor, Department of Mechanical Engineering, Medicaps University, Indore, Madhya Pradesh, 453331, India -----<br/><b>2)Dr Poonam Gupta</b><br/>Address of Applicant :Associate Professor, Department of Information Technology, G H Raisoni College of Engineering and Management, Pune, Maharashtra, 412207, India -----<br/><b>3)Sanjeev Singh Thakur</b><br/>Address of Applicant :Assistant Professor Sharda School of Business Studies, Sharda University Agra, Agra, Uttar Pradesh, 282007, India -----<br/><b>4)Ashwini D</b><br/>Address of Applicant :Assistant Professor, Department of Commerce and Management, Jyoti Nivas College Autonomous, Bengaluru, Karnataka, 560095, India -----<br/><b>5)Richika Kedia</b><br/>Address of Applicant :Assistant Professor, Royal School of Commerce, The Assam Royal Global University, NH-37, opp. Tirupati Balaji Temple, Betkuchi, Guwahati, Assam, 781035, India -----<br/><b>6)Dr. Disha Rani Yadav</b><br/>Address of Applicant :Assistant Professor (Guest), Department of Commerce, Naveen Government College, Pachpedi, Bilaspur, Chhattisgarh, 495001, India -----<br/><b>7)Mrs. Malvika Sharma</b><br/>Address of Applicant :Assistant Professor, Department of Commerce, Government Degree College, Kandaghat, District Solan, Himachal Pradesh, 173215, India -----<br/><b>8)Dr Vasantha Kumari. K</b><br/>Address of Applicant :Seshadripuram First Grade College, Post Graduate Department of Commerce and Management, Yelahanka, Bengaluru, Karnataka, 560064, India -----</p> |
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(57) Abstract :

ABSTRACT AI based System and Method for Dynamic Pricing in E-Commerce Based on Real-Time Demand and Inventory Levels The present invention relates to an AI-based system and method for dynamic pricing in e-commerce environments, designed to automatically and intelligently adjust product prices in real time. The system utilizes artificial intelligence and machine learning models to analyze a wide range of real-time and historical data, including customer demand patterns, inventory levels, sales velocity, and competitor pricing. By leveraging this data, the system predicts future demand and calculates the optimal price for each product based on predefined business objectives. The system architecture comprises key modules including a real-time data acquisition engine, a demand forecasting model, an inventory analysis component, and a price optimization engine. These modules work together to provide data-driven pricing recommendations that align with inventory status and market demand. A rule validation layer ensures that all pricing decisions comply with business rules, promotional policies, and regulatory guidelines. The system also features a dashboard interface for monitoring and managing the pricing strategy with manual override capabilities. This invention offers significant benefits to online retailers by enabling responsive and intelligent pricing, reducing manual intervention, improving profitability, and maintaining competitiveness. By continuously adapting prices to market conditions, the invention ensures efficient inventory management and maximized revenue, while offering scalability and integration with existing e-commerce platforms through API interfaces.

No. of Pages : 17 No. of Claims : 1

(54) Title of the invention : Artificial Intelligence-Driven Real-Time Public Transport Optimization System for Smart Cities Using IoT Sensors and Machine Learning Techniques

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| <p>(51) International classification :G06N0003080000, G08G0001010000, G06Q0010040000, G06N0020000000, G06Q0050400000</p> <p>(86) International Application No :NA<br/>Filing Date :NA</p> <p>(87) International Publication No :NA<br/>Filing Date :NA</p> <p>(61) Patent of Addition to Application Number :NA<br/>Filing Date :NA</p> <p>(62) Divisional to Application Number :NA<br/>Filing Date :NA</p> | <p>(71)<b>Name of Applicant :</b><br/> <b>1)Shinde Harshda Rajendra</b><br/> Address of Applicant :Assistant professor Department of Electrical Adsuls Technical campus Chas,Ahemednagar Maharastra India -----<br/> <b>2)Sneh A. Nagaonkar</b><br/> <b>3)Dr. Sandip Haldar</b><br/> <b>4)Dr. Ranjita Sinha</b><br/> <b>5)Dr. L. Kiran Kumar Reddy</b><br/> <b>6)Dr Navaneet D.Deshpande</b><br/> <b>7)Dr. Deepak Sharma</b><br/> <b>8)Dr M Kathirvelu</b><br/> <b>9)Mr.K.Karthikeyan</b><br/> <b>10)Shalini M</b><br/> <b>Name of Applicant : NA</b><br/> <b>Address of Applicant : NA</b><br/> <b>(72)Name of Inventor :</b><br/> <b>1)Shinde Harshda Rajendra</b><br/> Address of Applicant :Assistant professor Department of Electrical Adsuls Technical campus Chas,Ahemednagar Maharastra India -----<br/> <b>2)Sneh A. Nagaonkar</b><br/> Address of Applicant :Assistant Professor Chhatrapati Shahu Institute of Business Education and Research (CSIBER), Kolhapur, Maharashtra, India 416004 -----<br/> <b>3)Dr. Sandip Haldar</b><br/> Address of Applicant :Professor Department of BSHU (Physics) Asansol Engineering College Kanyapur, Asansol - 710035 West Burdwan West Bengal India -----<br/> <b>4)Dr. Ranjita Sinha</b><br/> Address of Applicant :Assistant Professor Department of BS&amp;HU(Physics) Asansol Engineering College Kanyapur, Asansol-713305. Paschim Bardhaman West Bengal India -----<br/> <b>5)Dr. L. Kiran Kumar Reddy</b><br/> Address of Applicant :Professor Department of Computer Science and Engineering (Data Science) Geethanjali College of Engineering and Technology, Cheeryal. Medchal, Hyderabad Telangana India -----<br/> <b>6)Dr Navaneet D.Deshpande</b><br/> Address of Applicant :PhD Thesis Supervisor Department of Allied Health Sciences KAHER Deemed University College KLEGSHMCT Belagavi, Karnataka, India -----<br/> <b>7)Dr. Deepak Sharma</b><br/> Address of Applicant :Assistant Professor (SG) Department of Electronics and Communication Engineering Jaypee University of Engineering and Technology A. B. Road, Raghogarh Guna Madhya Pradesh India -----<br/> <b>8)Dr M Kathirvelu</b><br/> Address of Applicant :Professor, Electronics and Communication Engineering, KPR Institute of Engineering and Technology, Arasur, Coimbatore Tamilnadu India -----<br/> <b>9)Mr.K.Karthikeyan</b><br/> Address of Applicant :Assistant Professor Department of Computer Science and Engineering, SNS College Of Engineering, Coimbatore Anna University, Chennai Tamil Nadu Coimbatore India -----<br/> <b>10)Shalini M</b><br/> Address of Applicant :Assistant professor Department of Computer Science and Engineering St. Joseph's College of Engineering OMR Road, Chennai - 600119 Tamil Nadu India -----</p> |
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(57) Abstract :

Artificial Intelligence-Driven Real-Time Public Transport Optimization System for Smart Cities Using IoT Sensors and Machine Learning Techniques ABSTRACT: Urban logistics are essential for the development of smart cities, as they are designed to enhance the sustainability and efficiency of products delivery in urban settings. The demand for advanced technologies to optimise urban delivery systems is on the rise as cities encounter expanding challenges related to congestion, traffic management, and environmental impact. Transportation systems are being transformed by Artificial Intelligence (AI), Machine Learning (ML), and Deep Learning (DL), which are addressing critical challenges such as safety, efficiency, congestion, and sustainability. Urban transport is being transformed by artificial intelligence (AI), which is improving efficiency, sustainability, and the development of smart cities. Cities are confronted with an increasing amount of traffic congestion, pollution, and transportation inefficiencies as a result of accelerated urbanisation. Intelligent traffic management, autonomous vehicles, and predictive analytics are among the AI-driven solutions that have the potential to resolve these challenges. This paper suggests a novel framework that addresses these challenges by integrating artificial intelligence (AI), autonomous vehicles (AVs), and Internet of Things (IoT) technologies.

No. of Pages : 12 No. of Claims : 1



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(21) Application No.202521058543 A

(19) INDIA

(22) Date of filing of Application :18/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : A NOVAL APPROACH FOR THE EXAMINATION OF DIATOMS BY APPLYING ULTRASONICATION-ASSISTED CHEMICAL ETCHING AND STAINING (UACES) METHOD.

(51) International classification :G01N0001300000, B01J0021060000, C12N0001120000, C02F0001280000, G01N0001320000

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(57) Abstract :

ABSTRACT Diatoms are microscopic, single-celled algae characterised by their intricate silica cell walls, known as frustules. These frustules serve as valuable tools in environmental monitoring, paleolimnology, taxonomy, and nanomaterials research due to their unique morphological and chemical properties. Along with it, diatoms are also one of the forensic markers which help in the determination of ante-mortem or post-mortem drowning deaths. However, traditional methods for cleaning, etching, and staining diatoms often result in incomplete removal of organic material or damage to their delicate structures. To address these limitations, we present a standard protocol for Ultrasonication-Assisted Chemical Etching and Staining (UACES) of diatoms, designed to enhance the efficiency, reproducibility, and structural preservation of frustule preparation. This protocol employs oxalic acid as the primary etching agent due to its effectiveness in dissolving residual organic and metallic contaminants without significantly altering the silica matrix. The process is aided by low-frequency ultrasonic waves, which improve the penetration and action of oxalic acid by facilitating micro-cavitation, thereby accelerating the removal of unwanted materials while minimising mechanical damage. The controlled etching process enhances the visibility and accessibility of structural features essential for microscopic analyses. Following the etching step, the protocol incorporates a staining step. Each stain targets specific biochemical or structural components of the diatom frustule. Methylene Blue and Gentian Violet provided excellent contrast for traditional light microscopy, while Rhodamine B stood out for its superior illumination and sensitivity under the microscope. The methodology ensures minimal frustule damage, consistent staining quality, and high reproducibility across the sample batches. The versatility of this protocol makes it suitable for forensic applications and a wide range of scientific uses. In conclusion, this standardized UACES protocol represents a significant advancement in diatom preparation techniques. By integrating chemical etching with oxalic acid, ultrasound-enhanced processing, and selective staining, this method provides a robust, reproducible, and versatile approach for the detailed study and application of diatoms in diverse scientific fields. Keywords: - Drowning, Diatoms, Ultrasonication, Etching, Staining and Forensic Pathology

No. of Pages : 7 No. of Claims : 4

(54) Title of the invention : A PORTABLE DEVICE FOR INDIAN CLASSICAL RAGA IDENTIFICATION USING OPTIMIZED MULTIPLE SPECTRAL-TEMPORAL FEATURES AND DEEP CONVOLUTIONAL NEURAL NETWORK

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
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| <p>(51) International classification<br/>:G06N0003045000,<br/>G10L0025240000,<br/>G10L0025030000,<br/>G10L0025810000,<br/>G06F0016650000</p> <p>(31) Priority Document No<br/>:India</p> <p>(32) Priority Date<br/>:12/06/2025</p> <p>(33) Name of priority country<br/>:-----</p> <p>(86) International Application No<br/>Filing Date<br/>:NA<br/>:NA</p> <p>(87) International Publication No<br/>: NA</p> <p>(61) Patent of Addition to Application Number<br/>Filing Date<br/>:NA</p> <p>(62) Divisional to Application Number<br/>Filing Date<br/>:NA</p> | <p>(71)Name of Applicant :<br/><b>1)Swati Pravin Aswale</b><br/>Address of Applicant :F-301, Nakshtra Phase 1, Plot 52-59, Purnanagar,<br/>Chinchwad -----<br/><b>2)D Y Patil College of Engineering, Akurdi, Pune</b><br/><b>3)G. H. Raisonni University, Amravati</b><br/><b>Name of Applicant : NA</b><br/><b>Address of Applicant : NA</b><br/>(72)Name of Inventor :<br/><b>1)Mrs. Swati Pravin Aswale</b><br/>Address of Applicant :F-301, Nakshtra Phase 1, Plot no 52-59, Purnanagar,<br/>Chinchwad 411019 Pune -----<br/><b>2)Dr. Shrikant Chavate</b><br/>Address of Applicant :E&amp;TC Department, G. H. Raisonni university, Amravati<br/>Amravati -----<br/><b>3)Dr. Roshani Narendra Bhagat / Abdeo</b><br/>Address of Applicant :C/O Narendra Bhagat, Paramhans Colony near Swami<br/>Samarth Mandir, Rahatgaon, Amravati Amravati -----<br/><b>4)Dr. Kishor Barasu Bhangale</b><br/>Address of Applicant :C401, Lifestyle Housing society, Link Road, Chinchwad,<br/>pune 411033 Pune -----</p> |
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(57) Abstract :

Indian raga classification plays a vital role in the analysis of the different classical notes in the Indian music. It is helpful in analyzing and correcting the musical notes in the songs. This, research work presents the development of portable device for the Indian classical raga identification based on multiple audio features and deep convolution neural network and digital signal processor platform. The multiple acoustic features encompasses the spectral, temporal and voice quality features to characterize the uniqueness in the different raga voices. It uses the novel hybrid combination of Archimedes optimization algorithm and Multi-attribute utility theory algorithm for the selection of salient features. The MAUT algorithm is used for deciding the optimized weights of fitness function of the AOA based feature selection scheme. The Lightweight Deep Convolutional Neural Network is used to classify Indian Ragas which provides improved feature representation and distinctiveness. Finally, softmax classifier is used for raga classification and the performance of the proposed scheme is evaluated using accuracy, recall, precision and f1-score.

**SCHEMATIC DIAGRAM OF A PORTABLE DEVICE FOR INDIAN CLASSICAL RAGA IDENTIFICATION USING OPTIMIZED MULTIPLE SPECTRAL-TEMPORAL FEATURES AND DEEP CONVOLUTIONAL**

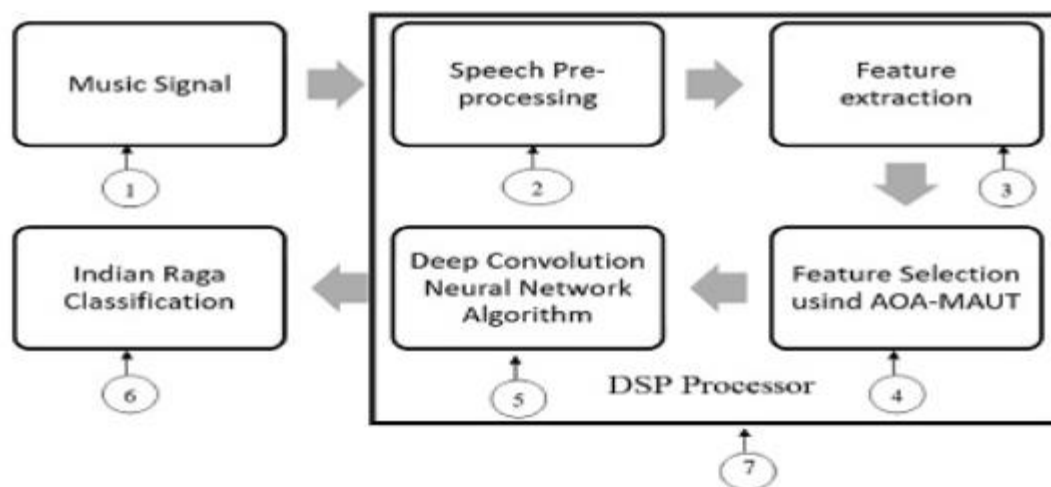


**FIGURE 1: PROCESS OF RAGA RECOGNITION**

(54) Title of the invention : IMPLEMENTING THREAD DETECTION SYSTEM IN CORPORATE NETWORKS

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| <p>(51) International classification :H04L0009400000, G06F0021560000, G06F0021550000, G06N0020000000, G06F0021570000</p> <p>(86) International Application No :NA<br/>Filing Date :NA</p> <p>(87) International Publication No : NA<br/>Filing Date :NA</p> <p>(61) Patent of Addition to Application Number :NA<br/>Filing Date :NA</p> <p>(62) Divisional to Application Number :NA<br/>Filing Date :NA</p> | <p>(71)Name of Applicant :<br/> <b>1)Dr. Vidya Sunil Gurav</b><br/> Address of Applicant :Assistant Professor, Department of Management Studies, D.K.T.E.S's Textile and Engineering Institute, Ichalkaranji, Hatkanangle, Kolhapur, Maharashtra, 416115, India. Hatkanangle -----<br/> <b>2)Dr. Preetha S</b><br/> <b>3)Dr. Pallavi G B</b><br/> <b>4)Dr. Mahalakshmi B S</b><br/> <b>5)Ms.Savita Baburao More</b><br/> <b>6)Dr. Sowmya Lakshmi B S</b><br/> <b>7)Dr Shyamala G</b><br/> <b>8)Dr Latha N R</b><br/> <b>9)Pallavi C V</b><br/> <b>10)Dr.S.Sangeetha</b><br/> <b>11)Priyanka Menon A S</b><br/> <b>12)L. Karthick</b><br/> Name of Applicant : NA<br/> Address of Applicant : NA<br/> (72)Name of Inventor :<br/> <b>1)Dr. Vidya Sunil Gurav</b><br/> Address of Applicant :Assistant Professor, Department of Management Studies, D.K.T.E.S's Textile and Engineering Institute, Ichalkaranji, Hatkanangle, Kolhapur, Maharashtra, 416115, India. Hatkanangle -----<br/> <b>2)Dr. Preetha S</b><br/> Address of Applicant :Associate Professor, Department of Information Science &amp; Engineering, BMS College of Engineering, Bull temple road, Basavanagudi, Bengaluru, Karnataka, 560019, India. Basavanagudi -----<br/> <b>3)Dr. Pallavi G B</b><br/> Address of Applicant :Professor, Department of Computer Science &amp; Engineering, BMS College of Engineering, Bull temple road, Basavanagudi, Bengaluru, Karnataka, 560019, India. Basavanagudi -----<br/> <b>4)Dr. Mahalakshmi B S</b><br/> Address of Applicant :Associate Professor, Department of Information Science &amp; Engineering, BMS College of Engineering, Bull temple road, Basavanagudi, Bengaluru, Karnataka, 560019, India. Basavanagudi -----<br/> <b>5)Ms.Savita Baburao More</b><br/> Address of Applicant :Assistant Professor, Dr.D.Y.Patil College of Engineering and Innovation, Varale Campus, Talegaon Dabhade, Pune, Maharashtra, 410507, India. Talegaon Dabhade -----<br/> <b>6)Dr. Sowmya Lakshmi B S</b><br/> Address of Applicant :Assistant Professor, Department of Machine Learning, BMS College of Engineering, Bull temple road, Basavanagudi, Bengaluru, Karnataka, 560019, India. Basavanagudi -----<br/> <b>7)Dr Shyamala G</b><br/> Address of Applicant :Professor, Department of Computer Science and Engineering, BMS College of Engineering, Bull temple road, Basavanagudi, Bengaluru, Karnataka, 560019, India. Basavanagudi -----<br/> <b>8)Dr Latha N R</b><br/> Address of Applicant :Professor, Department of Computer Science and Engineering, BMS College of Engineering, Bull temple road, Basavanagudi, Bengaluru, Karnataka, 560019, India. Basavanagudi -----<br/> <b>9)Pallavi C V</b><br/> Address of Applicant :Assistant Professor, Department of Computer Science &amp; Engineering, BNM Institute of Technology, Banashankari, Bengaluru, Karnataka , 560070, India. Banashankari -----<br/> <b>10)Dr.S.Sangeetha</b><br/> Address of Applicant :Professor, Department of Computer Science and Engineering, Karpagam College of Engineering, Othakalmandapam, Coimbatore, Tamil Nadu, 641032, India. Coimbatore -----<br/> <b>11)Priyanka Menon A S</b><br/> Address of Applicant :Assistant Professor, Electronics and Communication, VSB College of Engineering Technical Campus, Coimbatore, Tamil Nadu, 642109, India. Coimbatore -----<br/> <b>12)L. Karthick</b><br/> Address of Applicant :Assistant Professor, Department of Mechanical Engineering, Hindusthan College of Engineering and Technology, Coimbatore, Tamil Nadu, 641032, India. Coimbatore -----</p> |
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(57) Abstract :

The present invention discloses to the development of a strong, intelligent solutions that can protect corporate networks in real time are required due to the growing complexity and number of cyber threats. The deployment of a thorough thread detection system intended to proactively detect and stop harmful activity in corporate settings is presented in this study. In order to identify possible risks such as malware invasions, phishing attempts, insider threats, and unauthorized access, the system continuously analyses network traffic, user activity, and system records using machine learning algorithms and behaviour-based anomaly detection. Minimal operational impact and smooth implementation are guaranteed by integration with the current security infrastructure. The system's ability to shorten incident response times and increase network resilience is improved via real-time warnings, automated reactions, and thorough threat intelligence reporting. The system's potential as a scalable solution for contemporary organizational cybersecurity concerns is confirmed by experimental findings from implementation in simulated corporate environments, which show high detection accuracy and low false-positive rates. Proactive threat management in dynamic networked infrastructures is greatly aided by this study.

FIG.1



FIG.1

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :15/06/2025

(21) Application No.202521057344 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : A Novel Process of Sprouting and Isolation of Bioactive Peptide from Ragi/Finger Millet and Therapeutic Applications Thereof

(51) International classification :C12N0001200000, A23L0033180000, A61P0037020000, A23L0033105000, C12N0001060000

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(57) Abstract :

A Novel Process of Sprouting and Isolation of Bioactive Peptide from Ragi/Finger Millet and Therapeutic Applications Thereof The present invention provides an optimized and reproducible method for the sprouting of Eleusine coracana (ragi) and the subsequent isolation of bioactive peptides with potential therapeutic applications. Furthermore, the sprouting process involves cleaning, soaking, ambient germination for variable durations (24–96 hours), sun-drying, grinding, and sieving to produce six test samples for analysis. Bioactive peptides are isolated from these samples using an isoelectric point-based precipitation method, where protein extracts are adjusted from an initial alkaline pH (~11) with incremental addition of hydrochloric acid (0.5–1.5 M) until precipitation occurs. In overall, the invention is scalable, cost-effective, and suitable for nutraceutical and functional food applications, with potential extensions to pharmaceutical formulations.

No. of Pages : 30 No. of Claims : 3

(54) Title of the invention : INFRARED LASER-BASED FACIAL RECOGNITION ATTENDANCE SYSTEM AND METHOD THEREOF

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International G07C0001100000,  
classification G06Q0050200000,  
H04N0005330000,  
G06F0003042000

(86)  
International  
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No :NA  
Filing  
Date

(87)  
International : NA  
Publication No

(61) Patent of  
Addition to  
Application :NA  
Number :NA  
Filing  
Date

(62) Divisional  
to Application :NA  
Number :NA  
Filing  
Date

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(57) Abstract :

An infrared laser-based facial recognition attendance system (200) and method thereof is disclosed. System includes infrared laser dot projection module (102), infrared camera (202), Artificial Intelligence (AI) facial recognition module (204), dual display module (210), attendance database (212), a real-time dashboard module (214), and a notification module (216). The infrared laser dot projection module is configured at entrance of classroom. The infrared laser dot projection module emits precise dot or structured light pattern onto a face of a student. The infrared camera that is aligned by the infrared laser dot projection module to capture the student's face. The AI facial recognition module is configured to process captured student's face for face detection, and feature extraction. The AI facial recognition module matches face detected and extracted feature against pre-registered facial profiles stored in local or cloud database. If AI facial recognition module match is successful then system marks attendance of student. FIG. 2

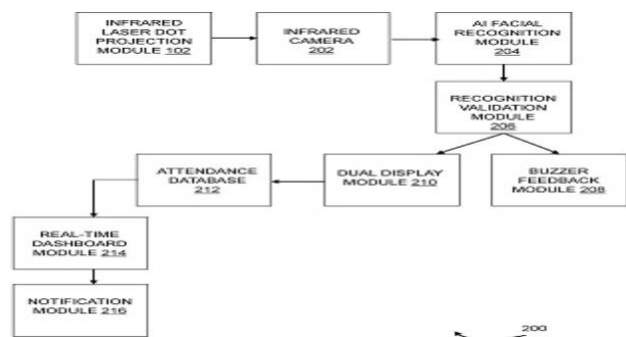


FIG. 2

No. of Pages : 18 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202521058075 A

(19) INDIA

(22) Date of filing of Application :17/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : SMART AI BADGE SYSTEM FOR PHYSICAL- DIGITAL INTERACTION AND SUSTAINABILITY STORYTELLING

|                                               |                       |
|-----------------------------------------------|-----------------------|
| (51) International classification             | :G06Q30/00, G06Q10/00 |
| (86) International Application No             | :NA                   |
| Filing Date                                   | :NA                   |
| (87) International Publication No             | : NA                  |
| (61) Patent of Addition to Application Number | :NA                   |
| Filing Date                                   | :NA                   |
| (62) Divisional to Application Number         | :NA                   |
| Filing Date                                   | :NA                   |

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Mumbai 400056, Maharashtra Mumbai -----

(57) Abstract :

The invention discloses a Smart AI Badge System that links physical products to AI-powered digital microsites via embedded QR or NFC tags. Upon scanning the badge affixed to a product, users are directed to a cloud-hosted microsite personalized to that product's identifier. The microsite includes a neural language model-based conversational assistant fine-tuned to deliver branded storytelling, sustainability metrics, care instructions, traceability data, product-specific content and anti-counterfeit validation. The system employs a no-code or low-code backend architecture enabling modular integration with CRM platforms, blockchain, and digital product passports. It facilitates real-time, product-level engagement and transparency, providing scalable, brand-customized experiences across industries including retail, packaging, hospitality, travel, wellness, fashion and gifting. The invention enhances consumer trust, supports ESG compliance, and enables secure digital interaction at the point of use, purchase, or gifting

No. of Pages : 19 No. of Claims : 13

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :11/06/2025

(21) Application No.202521056159 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : Use of Synthetic Bulking Agent with Biochar for Enhanced Aerobic Composting Efficiency

(51) International classification :C05F0017979000, C02F0003120000, C05F0017500000, C02F0003020000, C05F0017100000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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**3)Dr. Yuvaraj Lomdas Bhirud**

**4)Nitin Savalkar**

**5)Ashish Fulchand Deokar**

**6)Dr. Rajshekhar G. Rathod**

**7)Dr. Sumit Arun Hirve**

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(57) Abstract :

This invention presents a novel method for enhancing aerobic composting of organic waste using a hybrid bulking system comprising 2–8% synthetic bulking agent (perforated plastic balls) and 8% biochar within an automated in-vessel reactor. The process involves shredding and mixing organic waste with the hybrid bulking system, followed by controlled aeration (0.45 L/min) and thermophilic composting (>55°C) for 14–18 days. Results showed phosphorus loss reduction to 54.35%, TKN retention of 1.99 mg/kg, and optimal C/N ratio of 14–17. The method enhances aeration, reduces nutrient loss, ensures compost maturity, and supports sustainable decentralized waste management.

No. of Pages : 12 No. of Claims : 5

(54) Title of the invention : DEEP LEARNING SYSTEM FOR EARLY DETECTION OF MAN-IN-THE-MIDDLE ATTACKS IN AUTONOMOUS VEHICLE NETWORKS

(51) International classification :G06N0003045000, G06N0003080000, H04L0009400000, G06N0003044000, G06N0003084000

(86) International Application No :NA

(86) International Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA

(61) Patent of Addition to Filing Date :NA

(62) Divisional to Application Number :NA

(62) Divisional to Filing Date :NA

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Address of Applicant :SAGE University, Kailod Kartal, RAU BYPASS, Indore 452020, Madhya Pradesh India Indore -----

(57) Abstract :  
Disclosed is a deep learning system (200) for early detection of man-in-the-middle (MITM) attacks in autonomous vehicle networks. Said system comprises data collection layer (201) configured for real-time collection of network traffic data from V2V and V2I communication channels, preprocessing layer (202) configured for cleansing and normalizing network traffic data to ensure consistency, feature extraction layer (203) configured for utilization of Convolutional Neural Networks (CNNs) to identify spatial patterns in the communication packets, temporal analysis layer (204) configured for implementation of Recurrent Neural Networks (RNNs) to analyse sequential data for anomalies, classification layer (205) configured to be fully connected layers to aggregate extracted features and classify traffic as normal or suspicious and alert mechanism (206) for immediate notification to the network control system upon detection of an MITM attack. Further provided is a method for early detection of MITM. It provides high accuracy, adaptability and scalability. Figure 1.

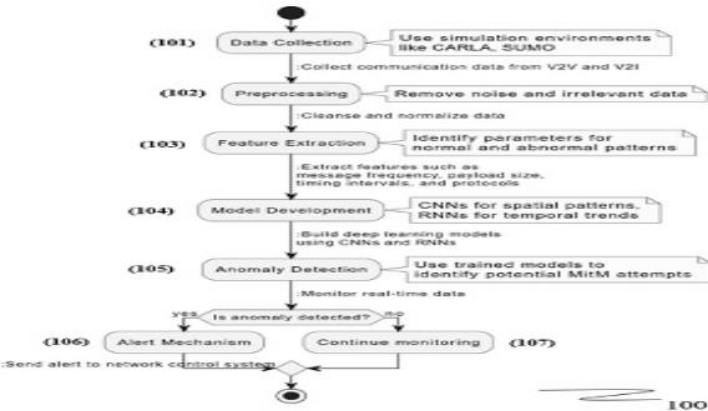


Figure – 1



(54) Title of the invention : AN IoT-BASED INTERACTIVE STORYTELLING ECOSYSTEM AND ENACTING METHOD THEREOF

|                                               |                                                                                 |                                                                                                                                                                                                                                   |
|-----------------------------------------------|---------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (51) International classification             | :G06F0003160000, G10L0015220000, A61B0005110000, G06T0013400000, G06F0003010000 | (71)Name of Applicant :<br>1)VAISHNAVI SHIURKAR<br>Address of Applicant :B-601, Ziggurat Co operative housing Society, Near Hotel Deccan Pavilion, Mumbai Katraj Bypass, Ambegaon (Bk), off Sinhgad road, Pune -411046 Pune ----- |
| (86) International Application No             | :NA                                                                             | Name of Applicant : NA                                                                                                                                                                                                            |
| Filing Date                                   | :NA                                                                             | Address of Applicant : NA                                                                                                                                                                                                         |
| (87) International Publication No             | : NA                                                                            | (72)Name of Inventor :                                                                                                                                                                                                            |
| (61) Patent of Addition to Application Number | :NA                                                                             | 1)VAISHNAVI SHIURKAR                                                                                                                                                                                                              |
| Filing Date                                   | :NA                                                                             | Address of Applicant :B-601, Ziggurat Co operative housing Society, Near Hotel Deccan Pavilion, Mumbai Katraj Bypass, Ambegaon (Bk), off Sinhgad road, Pune -411046 Pune -----                                                    |
| (62) Divisional to Application Number         | :NA                                                                             |                                                                                                                                                                                                                                   |
| Filing Date                                   | :NA                                                                             |                                                                                                                                                                                                                                   |

(57) Abstract :  
AN IoT-BASED INTERACTIVE STORYTELLING ECOSYSTEM AND ENACTING METHOD THEREOF An Internet of Things (IoT)-based interactive storytelling for a user is disclosed. The system comprises a smart speaker console configured to output audio narration, sound effects, and receive voice input. The system further comprises a plurality of NFC prompt cards, which include an NFC tag encoding data corresponding to a character, object, event, or narrative decision related to the story. A smart wearable band is operatively coupled with the smart speaker console and is worn by the user. The wearable band includes one or more motion sensors to detect a motion data. Further, a processing unit operatively coupled to the smart speaker console and the smart wearable band is configured to generate interactive narrative content in real time based on user inputs, comprising card scans, voice commands, and motion data. Finally, a mobile application generates interactive narrative content in real time based on processed data.

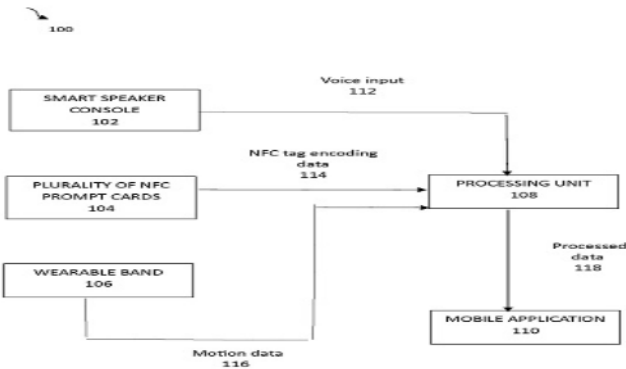


FIG. 1

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :08/05/2025

(21) Application No.202522044845 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : Composition for coating intravenous cannula, tubes and vascular devices, methods and uses thereof

(51) International classification :C10M173/02, C10M145/40, C10N30/16, C10N40/00  
(86) International Application No :NA  
Filing Date :NA  
(87) International Publication No : NA  
(61) Patent of Addition to Application Number :NA  
Filing Date :NA  
(62) Divisional to Application :202221022759  
Number :18/04/2022  
Filed on

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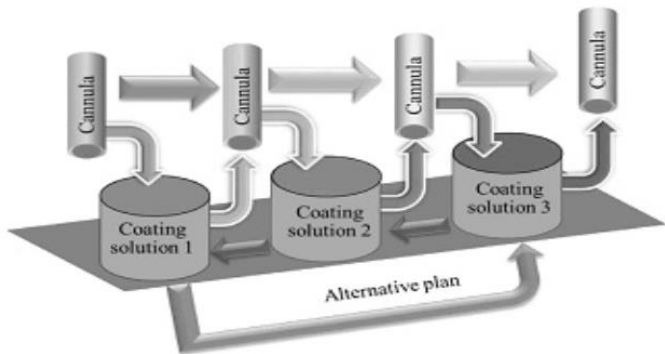
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**4)Rohit Srivastava**

Address of Applicant :Department of Biosciences and Bioengineering Indian Institute of Technology Bombay, Powai, Mumbai, Maharashtra, India - 400076 Powai -----

(57) Abstract :

Composition for coating intravenous cannula, tubes and vascular devices, methods and uses thereof. The present invention relates to composition for coating intravenous cannulas, tubes and vascular devices, methods and uses thereof. The coating composition disclosed herein is suitable for prevention of cannulization or catheterization induced thrombophlebitis. The coating composition provides sustained release of therapeutic agents and reduces health care cost by reducing the requirement for re-cannulation and treatment for thrombophlebitis associated with cannulization or catheterization. FIG. 1



No. of Pages : 44 No. of Claims : 1

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202523009880 A

(19) INDIA

(22) Date of filing of Application :06/02/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : Method of preparing a multifunctional theranostic nanofibrous formulation for targeting cancer by in vivo administration

(51) International classification :A61K41/00, A61K9/16, A61K31/337, A61K31/704, A61K47/34, A61P35/00  
(86) International Application No :NA  
Filing Date :NA  
(87) International Publication No : NA  
(61) Patent of Addition to Application Number :202421056759  
Filed on :01/01/1900  
(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

Disclosed herein is an improved method for preparation of a multifunctional theranostic nanofiber formulation for targeting cancer. The method, as disclosed herein, provides a nanofiber formulation with enhanced efficacy for both intravenous and intratumoral administration, demonstrating route independence due to the incorporation of an effective tumor-targeting peptide in the nanoformulation. The disclosed nanofiber formulation overcomes the challenges of lower efficacy typically observed during systemic administration, effectively mitigating issues related to protein corona formation and interactions with blood components. Furthermore, the nanofiber formulation enables sustained drug release, ensuring a prolonged therapeutic effect and enhancing treatment efficacy. FIG. 1

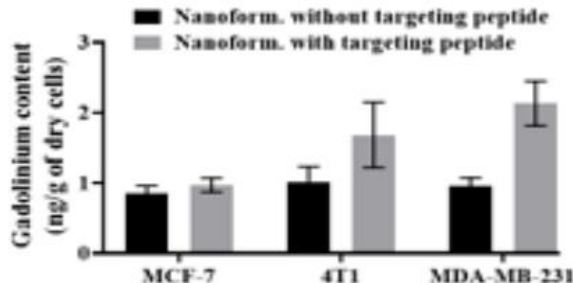


**FIG. 1**

No. of Pages : 39 No. of Claims : 18

(54) Title of the invention : SYSTEM AND METHOD FOR RECEIVING FIRST FREQUENCY BAND SIGNAL USING SECOND FREQUENCY BAND RECEIVER

|                                               |                                                                                 |                                                                                                                                                                                                                  |
|-----------------------------------------------|---------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (51) International classification             | :H03F0003240000, H03F0001220000, H03F0003190000, H03F0003450000, G01S0019340000 | (71)Name of Applicant :<br><b>1)SILIZIUM CIRCUITS PRIVATE LIMITED</b><br>Address of Applicant :FABCI, INDIAN INSTITUTE OF TECHNOLOGY- HYDERABAD, KANDI, SANGAREDDY, TELANGANA, 502285, INDIA<br>SANGAREDDY ----- |
| (86) International Application No             | :NA                                                                             | <b>Name of Applicant : NA</b>                                                                                                                                                                                    |
| Filing Date                                   | :NA                                                                             | <b>Address of Applicant : NA</b>                                                                                                                                                                                 |
| (87) International Publication No             | : NA                                                                            | (72)Name of Inventor :                                                                                                                                                                                           |
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| (62) Divisional to Application Number         | :NA                                                                             |                                                                                                                                                                                                                  |
| Filing Date                                   | :NA                                                                             |                                                                                                                                                                                                                  |

(57) Abstract :  
A system for receiving a first frequency band signal using a second frequency band receiver is provided. The system 100 includes antenna 102, frequency processing circuit 104 including low noise amplifier 110, a frequency mixer 112, a filter 116, and a receiver of the second frequency band signal 106. The frequency mixer 112 receives first frequency band signal from the antenna 102 through the low noise amplifier 110 and combines the first frequency band signal with a reference frequency signal to generate a mixer output. The mixer output includes sum frequency component and difference frequency component. The filter 116 isolates the difference frequency component by removing the sum frequency component. The difference frequency component represents the first frequency band signal shifted to the second frequency band. The receiver 106 receives the difference frequency component from filter 116, thereby receiving the first frequency band signal (S-band) using receiver 106 (L-band receiver). FIG. 1

No. of Pages : 27 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202441022730 A

(19) INDIA

(22) Date of filing of Application :11/06/2024

(43) Publication Date : 04/07/2025

(54) Title of the invention : METHOD AND SYSTEM FOR CONTINUOUS REAL-TIME MONITORING OF ASSET HEALTH IN AN INDUSTRIAL ENVIRONMENT

(51) International classification :G06N20/00, G06N3/08, H04L67/12, H04W4/38, G06T7/00  
(86) International Application No :NA  
Filing Date :NA  
(87) International Publication No : NA  
(61) Patent of Addition to Application Number :NA  
Filing Date :NA  
(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

The present invention relates to a method and system for IOT-enabled continuous real-time monitoring of asset health in an industrial environment. The system comprises at least one IOT device (100) positioned in proximity to at least one equipment of the industrial facility, the IOT device comprises a single board computer (110) comprising at least one processing unit (1110) and a memory unit (1120), a user interface unit (120) and an integrated camera unit (130) interfaced with the at least one processing unit (1110). The integrated camera unit (130) comprises at least one RGB camera (1310), at least one acoustic camera (1320) and at least one thermal camera (1330). The system is configured to capture sound waves, visual data and temperature changes in the area and the captured data is fused and analysed in real-time using machine learning algorithms to detect an anomaly in the industrial environment.

No. of Pages : 25 No. of Claims : 18

(54) Title of the invention : SYSTEM AND METHOD FOR MONITORING LONGITUDINAL SHIFTS IN NEUROBEHAVIORAL WELLNESS DUE TO THERAPEUTIC INTERVENTION

|                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <div>(51) International classification</div> <div>(86) International Application No</div> <div>Filing Date</div> <div>(87) International Publication No</div> <div>(61) Patent of Addition to Application Number</div> <div>Filing Date</div> <div>(62) Divisional to Application Number</div> <div>Filing Date</div> | <div>(71)Name of Applicant :</div> <div>1)Neuroclinical Innovative Solutions Private Limited</div> <div>Address of Applicant :No.6, Maniakara Street, Off Main Road, Cumbum, Theni, Tamil Nadu - 625516, India. Theni -----</div> <div>Name of Applicant : NA</div> <div>Address of Applicant : NA</div> <div>(72)Name of Inventor :</div> <div>1)PRAGATHI PRIYADHARSINI BALASUBRAMANI</div> <div>Address of Applicant :Chief Scientist, Neuroclinical Innovative Solutions Private Limited, No.6, Maniakara Street, Off Main Road, Cumbum, Theni, Tamil Nadu - 625516, India. Theni -----</div> <div>2)NANDINI PRIYANKA BALASUBRAMANI</div> <div>Address of Applicant :Chief Medical Officer/Consulting Neurologist, Neuroclinical Innovative Solutions Private Limited, No.6, Maniakara Street, Off Main Road, Cumbum, Theni, Tamil Nadu - 625516, India. Theni -----</div> <div>--</div> <div>3)AMAL JUDE ASHWIN</div> <div>Address of Applicant :37/1, Ground Floor, Srinivasa Apartment, Damodaramurthy Lane, Mandapam Road, Kilpauk, Chennai – 600010, Tamil Nadu, India. Chennai - -----</div> |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

(57) Abstract :

The present disclosure provides a system (100) and method (300) that are utilized for assessing uni or multimodal treatment-based intervention in many neurological disorders, such as depression like mood disorders, etc. The system (100) is designed to forecast longitudinal changes in neuro-cognitive behavioral wellness over time, particularly following a few weeks of intervention, such as targeted neuromodulation. The system (100) operates by leveraging data from two initial points: day 0 and approximately 25% into the intervention course, or 1 week, whichever is earlier. By integrating information from cognition, behavior, and brain activity, the system (100) utilizes computational neuroscience and machine learning models to predict after 100% time course of intervention wellness associated with the neuro-cognitive profile, typically of a time length 4-6 weeks. Furthermore, the system (100) possesses the capability to identify abnormal profiles characteristic of neurological and mood disorders, and recommend behavioral and medical interventions suitable for improving wellness.

No. of Pages : 31 No. of Claims : 10

(54) Title of the invention : SYSTEM AND METHOD FOR OPTIMIZED QUANTUM COMPUTING WITH SEQUENTIAL GATE TELEPORTATION

|                                               |                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|-----------------------------------------------|---------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (51) International classification             | :G06N0010000000, B82Y0010000000, A61B0005000000, G06Q0030020000, H04L0009060000 | (71)Name of Applicant :<br><b>1)QUANTUMSTATS AI GLOBAL PRIVATE LIMITED</b><br>Address of Applicant :Suite 305B, Capital Park, Capital Park Rd, VIP Hills, Jaihind Enclave, HITEC City, Hyderabad, Telangana 500081 Hyderabad -----<br>-----<br><b>Name of Applicant : NA</b><br><b>Address of Applicant : NA</b><br>(72)Name of Inventor :<br><b>1)Mr. Sanjay Chittore</b><br>Address of Applicant :Suite 305B, Capital Park, Capital Park Rd, VIP Hills, Jaihind Enclave, HITEC City, Hyderabad, Telangana 500081 Hyderabad -----<br>-----<br><b>2)Dr Avinash Chalumuri</b><br>Address of Applicant :Suite 305B, Capital Park, Capital Park Rd, VIP Hills, Jaihind Enclave, HITEC City, Hyderabad, Telangana 500081 Hyderabad -----<br>-----<br><b>3)Ms. Gopika Chaganti</b><br>Address of Applicant :Suite 305B, Capital Park, Capital Park Rd, VIP Hills, Jaihind Enclave, HITEC City, Hyderabad, Telangana 500081 Hyderabad -----<br>----- |
| (86) International Application No             | :NA                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Filing Date                                   | :NA                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| (87) International Publication No             | : NA                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| (61) Patent of Addition to Application Number | :NA                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Filing Date                                   | :NA                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| (62) Divisional to Application Number         | :NA                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Filing Date                                   | :NA                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |

(57) Abstract :  
ABSTRACT The present invention is a quantum computing system and method are disclosed. The system comprises a processing unit (102) comprising qubit processors or similar circuitry for implementing quantum operations, along with interfaces (104) facilitating communication of signals or data between different logical layers of the quantum computing system. The system further includes engines (106) comprising a combination of hardware and programming. These engines encompass a circuit reception engine (108) configured to obtain gate teleportation circuits for a predetermined number of qubits, a circuit segmentation engine (110) configured to segment the gate teleportation circuits into multiple sub-circuits based on the number of qubits, a gate teleportation engine (112) configured to perform gate teleportation operations on each of the multiple sub-circuits sequentially, and other engines (114) providing additional functionalities as required. This invention introduces a scalable, modular quantum computing system using sequential gate teleportation with circuit segmentation to optimizes depth, reduces decoherence, and improves fidelity, especially on NISQ-class processors. The figure associated with the abstract is Fig. 1.

No. of Pages : 36 No. of Claims : 10

(54) Title of the invention : A TYRE TREAD RUBBER COMPOSITION USING OIL TREATED FULLER’S EARTH AND ITS METHOD OF PREPARATION

|                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
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| <div>(51) International classification :C08L 23/22, C08L 25/10, C08K 3/011, C08K 3/04, C08K 3/22, C08K 3/36, C08L 7/00, C08L 21/00</div> <div>(86) International Application No :NA</div> <div>Filing Date :NA</div> <div>(87) International Publication No : NA</div> <div>(61) Patent of Addition to Application Number :NA</div> <div>Filing Date :NA</div> <div>(62) Divisional to Application Number :NA</div> <div>Filing Date :NA</div> | <div>(71)Name of Applicant :<br/><b>1)TVS SRICHAKRA LIMITED</b><br/>Address of Applicant :Vellarippatti, Melur, Taluk, Madurai-625122, Tamil Nadu, India. -----<br/><b>Name of Applicant : NA</b><br/><b>Address of Applicant : NA</b></div> <div>(72)Name of Inventor :<br/><b>1)BRINDHA SENTHILRAJA</b><br/>Address of Applicant :TVS Srichakra Limited, Vellarippatti, Melur Taluk, Madurai- 625122, Tamil Nadu, India -----<br/><b>2)KADAMBANATHAN THIAGARAJAN</b><br/>Address of Applicant :TVS Srichakra Limited, Vellarippatti, Melur Taluk, Madurai- 625122, Tamil Nadu, India. -----<br/><b>3)VISWANATHAN SIVARAMAKRISHNAN</b><br/>Address of Applicant :TVS Srichakra Limited, Vellarippatti, Melur Taluk, Madurai- 625122, Tamil Nadu, India. -----</div> |
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(57) Abstract :  
The present invention relates to a tyre tread rubber composition comprising oil-treated Fuller’s Earth nano clay as a reinforcing nano filler and a method for its preparation. The rubber composition includes a blend of natural rubber, neodymium catalyzed polybutadiene rubber, and solution styrene-butadiene rubber, in combination with carbon black and/or precipitated silica, resin, coupling agent, and vulcanization additives. The Fuller’s Earth nano clay is treated with process oil such as mustard oil or TDAE oil in the presence of a silane coupling agent to enhance filler–polymer interaction. The composition exhibits improved dynamic mechanical properties including enhanced wet and ice traction, reduced rolling resistance, increased hardness, and improved processing safety. The invention provides a rubber composition suitable for manufacturing tyre treads with superior durability, performance, and reduced environmental footprint.

No. of Pages : 20 No. of Claims : 9



(12) PATENT APPLICATION PUBLICATION

(21) Application No.202441045433 A

(19) INDIA

(22) Date of filing of Application :12/06/2024

(43) Publication Date : 04/07/2025

(54) Title of the invention : A WEARABLE SAFETY DEVICE SYSTEM TO DETER RAPE

(51) International classification :G08B0025010000, G08B0025100000, G08B0021040000, G08B0021020000, G08B0025080000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

7. ABSTRACT The present invention relates to a wearable safety system (100) designed to enhance personal security through integrated biometric authentication, real-time location tracking, and multi-sensor monitoring. The system comprises a wearable vest (102) with a plastic waistband and a triangular plastic plate, featuring an adjustable elastic belt mechanism for variable girth. A fingerprint sensor (106) for authorized activation and deactivation, a motion sensor (110) and infrared thermometer sensor for detecting wearer presence and unauthorized removal, and a GSM/GPRS module (112) configured to transmit alerts and GPS location data to pre-stored emergency contacts. The system further includes an audio alarm unit (114) emitting sirens and distress messages, a multi-color LED module (116) for visual alerts, an emergency push button (108), and a rechargeable lithium-ion battery (118) with a charging slot. A microcontroller-based control unit (117) processes sensor inputs and manages communications, enabling energy-efficient operation and timely alerts. The device also preserves foreign fingerprints on its plastic surface for forensic use. The figure associated with the abstract is Fig. 1.

No. of Pages : 44 No. of Claims : 10

(54) Title of the invention : Extended End Plate Composite Connection

|                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
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| <div><div>(51) International classification</div><div>(86) International Application No</div><div>(87) International Publication No</div><div>(61) Patent of Addition to Application Number</div><div>(62) Divisional to Application Number</div></div> <div><div>:E04H0009020000, E04B0001240000, E04B0001980000, E04B0001210000, G01V0001280000</div><div>:NA</div><div>:NA</div><div>: NA</div><div>:NA</div><div>:NA</div></div> | <div>(71)Name of Applicant :<br/>1)Anna University<br/>Address of Applicant :The Director, Centre for Intellectual Property Rights, CPDE Building, College of Engineering Guindy, Sardar Patel Road, Anna University, Chennai – 600 025 Chennai -----<br/>Name of Applicant : NA<br/>Address of Applicant : NA<br/>(72)Name of Inventor :<br/>1)G. Beulah Gnana Ananthi<br/>Address of Applicant :Department of Civil Engineering, College of Engineering Guindy, Sardar Patel Road, Anna University, Chennai – 600 025 Chennai -----<br/>2)G. Celine Reena<br/>Address of Applicant :Department of Civil Engineering, College of Engineering Guindy, Sardar Patel Road, Anna University, Chennai – 600 025 Chennai -----</div> |
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(57) Abstract :

TITLE: Extended End plate composite connection Extended end plate (103) connections are semi-rigid connections, offering advantages in composite structures by facilitating greater moment redistribution and improving seismic performance. However, beam-column connections (101 & 102) are often designed as rigid steel connections, neglecting the potential benefits of composite connections causing disparity between the assumed rigidity of beam column joints in the design phase and their actual behaviour during seismic events. During regular load conditions, the concrete at the top of the beam is expected to handle compression, but under seismic stress, it may experience tensile forces. The installation of extended end plate connections is straightforward, and their behaviour in composite structures demonstrates enhanced ductility and rotational characteristics. Leveraging these rotational characteristics in the design of composite frames aligns with real-world performance, bridging the gap between assumptions and actual behaviour. The rotational properties of extended end plate composite connections, structural performance can be optimized, addressing the disparity between assumptions and reality.

No. of Pages : 17 No. of Claims : 4

(54) Title of the invention : A SYSTEM AND A METHOD FOR REWARD ALLOCATION BASED ON BAGGAGE WEIGHT ALLOWANCE OPTIMIZATION

|                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <div>(51) International classification :G06Q10/08, G06Q30/02, G06Q50/26, G06Q50/40</div> <div>(86) International Application No :NA</div> <div>    Filing Date :NA</div> <div>(87) International Publication No : NA</div> <div>(61) Patent of Addition to Application :NA</div> <div>    Number :NA</div> <div>    Filing Date :NA</div> <div>(62) Divisional to Application Number :NA</div> <div>    Filing Date :NA</div> | <div>(71)Name of Applicant :<br/>    <b>1)RAMACHANDRANAIDU SURYAKALA</b><br/>    Address of Applicant :D1014, BLOCK D BRIGADE PALM SPRINGS, JP<br/>    NAGAR 7TH PHASE, BANGALORE – 560078, KARNATAKA, INDIA<br/>    BANGALORE -----</div> <div>Name of Applicant : NA</div> <div>Address of Applicant : NA</div> <div>(72)Name of Inventor :<br/>    <b>1)RAMACHANDRANAIDU SURYAKALA</b><br/>    Address of Applicant :D1014, BLOCK D BRIGADE PALM SPRINGS, JP<br/>    NAGAR 7TH PHASE, BANGALORE – 560078, KARNATAKA, INDIA<br/>    BANGALORE -----</div> |
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(57) Abstract :

A system and a method for reward allocation based on baggage weight allowance optimization is disclosed. The system (100) comprises a processor (105) and a memory (110) storing instructions executable to generate a unique passenger ID (160) upon registration using multiple authentication details via a user device (125). The processor determines average fuel consumption per unit transported mass using historical airline route data (165) and industry metrics. It computes baggage weight reduction (170) by comparing a passenger's (120) total baggage weight (157) with a threshold allowance. The processor calculates passenger fuel savings (175) as the product of weight reduction and average fuel consumption. It then evaluates a conversion rate using internal parameters, including fuel cost and predefined ratios, to translate fuel savings into reward points (180). The system assigns reward points to the passenger based on their baggage weight reduction, integrating these points with travel profile for incentivized airline operations. FIG. 1

No. of Pages : 40 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :23/06/2024

(21) Application No.202441048120 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : Novel Synergistic Insecticidal Combinations

(51) International classification :A01N43/22, A01N25/04, A01N37/22, A01N43/40, A01N43/56, A01N43/58, A01N43/76, A01N43/78  
(86) International Application No :NA  
Filing Date :NA  
(87) International Publication No : NA  
(61) Patent of Addition to Application Number :NA  
Filing Date :NA  
(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

ABSTRACT Title: Novel Synergistic Insecticidal Combinations The present invention relates to a stable oil dispersion (OD) formulation comprising Profenofos in combination with either Acetamiprid or Spinetoram, along with suitable oils, dispersing agents, wetting agents, and stabilizers. The OD formulation is designed to provide broad-spectrum control of insect pests and mites, offering both contact and systemic action. The oil-based matrix ensures superior stability, rain-fastness, and extended residual efficacy, while reducing the frequency of application. The formulation exhibits excellent physicochemical properties, including homogeneity, non-phytotoxicity, and prolonged shelf life under ambient, accelerated, and cold storage conditions. This composition is particularly effective for foliar application in a wide range of crops, contributing to improved pest management and overall crop health.

No. of Pages : 57 No. of Claims : 12

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :23/06/2024

(21) Application No.202441048121 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : Synergistic Fungicidal Combination

(51) International classification :A01N43/653, A01N47/24, A01N37/50,  
A01N43/02, A01N43/54, A01N47/44  
(86) International Application :NA  
No :NA  
Filing Date :NA  
(87) International Publication : NA  
No : NA  
(61) Patent of Addition to :NA  
Application Number :NA  
Filing Date :NA  
(62) Divisional to Application :NA  
Number :NA  
Filing Date :NA

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(57) Abstract :

ABSTRACT Title: Novel and Synergistic Fungicidal Combination The present invention relates to a synergistic fungicidal composition comprising of mandipropamid and at least one more fungicide selected from strobilurin class, cymoxanil, and propineb with at least one agriculturally acceptable excipient in WDG or WP or SC formulation. The synergy of fungicidal composition has the main effective components of mandipropamid with mode of action by inhibiting the biosynthesis of phospholipids and cell wall deposition, thus effectively inhibiting the germination and spread of fungus and with other mode of action by inhibition of ubiquinol oxidase at Qo site or conversion of isothiocyanate, which inactivates the Sulphahydral (SH) groups in enzymes of fungi that can generate efficient synergism.

No. of Pages : 36 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :23/06/2024

(21) Application No.202441048123 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : Novel Synergistic Herbicidal Combination with Improved Properties

(51) International classification :A01N43/50, A01N43/40, A01N25/02,  
A01N25/08, A01N25/14, A01N37/48  
(86) International Application No :NA  
Filing Date :NA  
(87) International Publication No : NA  
(61) Patent of Addition to Application Number :NA  
Filing Date :NA  
(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

ABSTRACT Title: Novel Synergistic Herbicidal Combination with Improved Properties The present invention relates to a synergistic herbicidal composition comprising the combination of fomesafen, haloxyfop and imazethapyr in water dispersible granules (WDGs) formulation in an amount of (1-25): (1-20): (1-15) % w/w. The present synergistic herbicidal composition provides enhanced broad-spectrum weed control against sedges, grass and broadleaf weeds. The disclosed formulation exhibits unexpected synergistic effects, leading to improved herbicidal efficacy, lower application rates, and reduced phytotoxicity. The combination is formulated as a water dispersible granule (WDGs) with optimized solvents, emulsifiers, and stabilizers to ensure long-term storage stability, preventing phase separation, crystallization, and sedimentation. The invention also provides a process for preparing the water dispersible granules (WDGs).

No. of Pages : 40 No. of Claims : 11

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :23/06/2024

(21) Application No.202441048124 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : An Improved Herbicidal Combination to Control Weeds Effectively

(51) International classification : A01N43/90, A01P13/00  
(86) International Application No :NA  
Filing Date :NA  
(87) International Publication No : NA  
(61) Patent of Addition to Application Number :NA  
Filing Date :NA  
(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

ABSTRACT Title: An Improved Herbicidal Combination to Control Weeds Effectively The present invention relates to a synergistic herbicidal composition comprising: (a) metamifop; (b) at least one acetolactate synthase (ALS) inhibiting herbicide selected from penoxsulam, bispyribac sodium, pyrazosulfuron ethyl, and metsulfuron-methyl; and (c) one or more agriculturally acceptable excipients. The composition provides enhanced post-emergent control of a broad spectrum of weeds, particularly in paddy cultivation, with improved efficacy over individual components. The synergistic interaction between metamifop and the ALS inhibitor results in reduced application dosage, improved crop selectivity, and potential delay in the development of herbicide resistance. The invention also provides methods for controlling weeds using the said composition.

No. of Pages : 39 No. of Claims : 15

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :23/06/2024

(21) Application No.202441048126 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : Novel Synergistic Insecticidal Combinations

(51) International classification :A01N43/00, A01N47/40, A01N53/00,  
A01N47/36, A01P5/00, A01P7/02, A01P7/04  
(86) International Application :NA  
No :NA  
Filing Date :NA  
(87) International Publication : NA  
No :NA  
(61) Patent of Addition to :NA  
Application Number :NA  
Filing Date :NA  
(62) Divisional to Application :NA  
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(57) Abstract :

ABSTRACT Title: Novel Synergistic Insecticidal Combinations The present invention relates to synergistic insecticidal compositions comprising broflanilide, profenofos, and at least one insecticide selected from lambda-cyhalothrin or spinetoram, along with one or more agriculturally acceptable excipients. The composition provides enhanced insecticidal efficacy against a broad spectrum of insect pests including sucking pests, chewing pests, caterpillars, and borers. The synergistic effect of the combination enables effective pest control at reduced dosages, improved resistance management, and enhanced crop protection in crops such as cotton, vegetables, pulses, and cereals.

No. of Pages : 52 No. of Claims : 17



(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :23/06/2024

(21) Application No.202441048127 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : Novel and Synergistic Fungicidal Combination

(51) International classification :A01N43/653, A01N43/56, A01N47/14, A01N43/40, A01N43/54, A01P3/00, A01N59/02  
(86) International Application No :NA  
Filing Date :NA  
(87) International Publication No : NA  
(61) Patent of Addition to Application Number :NA  
Filing Date :NA  
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(57) Abstract :

ABSTRACT Title: Synergistic Fungicidal Combination The present invention relates to a synergistic fungicidal composition comprising of trifloxystrobin and at least one fungicide selected from tricyclazole, mancozeb and chlorothalonil with at least one agriculturally acceptable excipient in WDG or SC formulations in desired percentage. The synergy of fungicidal composition has the main effective components of trifloxystrobin having mode of action by inhibition of ubiquinol oxidase at Qo site and with other mode of action of inhibition of enzymatic processes with preventive, curative and systemic activity generate efficient synergism.

No. of Pages : 36 No. of Claims : 17

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :04/07/2024

(21) Application No.202441051366 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : A METHOD FOR PREPARING A POLYHERBAL COMPOSITION FOR RELIEF FROM GASTROINTESTINAL DISORDERS

(51) International classification :A61K0036810000, A61P0001000000, A61P0001100000, A61K0036470000, A61K0036906800

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

A method for preparing a polyherbal composition for alleviating gastrointestinal disorders is disclosed. The method (100) involves selecting a plurality of plant-derived ingredients, including 5g isabgol (plantago ovata husk), 2g amla (emblica officinalis fruit), 0.3g ashwagandha (withania somnifera root), 0.2g black pepper (Piper nigrum fruit), 1g cardamom (elettaria cardamomum fruit), 1g ginger (zingiber officinale rhizome), and 5.5g oats (avena sativa seed). Each plant part is individually cleaned, dried, and pulverized into a fine powder. The powders are then sieved using a predetermined mesh size to ensure uniform particle size. The sieved powders are thoroughly mixed to create a homogeneous polyherbal composition. The final product is stored and packaged for oral administration. This composition offers a natural, synergistic remedy for irritable bowel syndrome (IBS) along with other gastrointestinal ailments through a standardized preparation process ensuring consistency and effectiveness. FIG. 1

No. of Pages : 23 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202441060946 A

(19) INDIA

(22) Date of filing of Application :12/08/2024

(43) Publication Date : 04/07/2025

(54) Title of the invention : Ti-Zr Based Superelastic Alloy Materials for Orthopaedic Implants

(51) International classification :C22C0014000000, H01M0004380000, H01M0010052500, B33Y0040000000, B33Y0030000000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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**3)S.P., Sivapirakasam**

Address of Applicant :Professor, Department of Mechanical Engineering, NIT Tiruchirappalli, Tamil Nadu - 620015, India -----

(57) Abstract :

The present invention provides ternary and quaternary alloy materials having enhanced superelastic and mechanical properties. More particularly, the present invention provides Ti-Zr/ Cu/ Zn based superelastic alloy materials and a method for preparation thereof. The alloy materials are useful in fabricating orthopaedic implants. <>

No. of Pages : 28 No. of Claims : 11

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202441064638 A

(19) INDIA

(22) Date of filing of Application :27/08/2024

(43) Publication Date : 04/07/2025

(54) Title of the invention : AN AUTOMATED PIPELINE DEVICE FOR ANALYSIS AND INFERENCE OF UAV-BASED HYPERSPECTRAL IMAGES OF CROP WATER STRESS

|                                                                                                                                                                                                                                                                                                                                                                                           |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>(51) International classification :G06T0007000000, G06V0020100000, B25H0003020000, G01N0021840000, G01N0021359000</p> <p>(86) International Application No :NA<br/>Filing Date :NA</p> <p>(87) International Publication No : NA</p> <p>(61) Patent of Addition to Application Number :NA<br/>Filing Date :NA</p> <p>(62) Divisional to Application Number :NA<br/>Filing Date :NA</p> |  | <p>(71)<b>Name of Applicant :</b><br/><b>1)NMICPS Technology Innovation Hub On Autonomous Navigation Foundation</b><br/>Address of Applicant :C/o Indian Institute of Technology Hyderabad, Kandi, Sangareddy, Telangana Kandi -----<br/><b>2)Indian Institute Of Technology Hyderabad</b><br/><b>Name of Applicant : NA</b><br/><b>Address of Applicant : NA</b></p> <p>(72)<b>Name of Inventor :</b><br/><b>1)MR. ADDURU U G SANKARARAO</b><br/>Address of Applicant :Department of Electrical Engineering, Indian Institute of Technology Hyderabad, Hyderabad, Kandi, Sangareddy, Telangana – 502284 Kandi -----<br/><b>2)MR. SAI KIRAN KOCHERLA</b><br/>Address of Applicant :Department of Artificial Intelligence, Indian Institute of Technology Hyderabad, Hyderabad, Kandi, Sangareddy, Telangana – 502284 Kandi -----<br/><b>3)PROF. RAJALAKSHMI PACHAMUTHU</b><br/>Address of Applicant :Professor, Department Electrical Engineering, Indian Institute of Technology Hyderabad and NMICPS Technology Innovation Hub on Autonomous Navigation Foundation, C/o Indian Institute of Technology Hyderabad, Kandi, Sangareddy, Telangana – 502284 Kandi -----</p> |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

(57) Abstract :

ABSTRACT AN AUTOMATED PIPELINE DEVICE FOR ANALYSIS AND INFERENCE OF UAV-BASED HYPERSPECTRAL IMAGES OF CROP WATER STRESS The present invention relates to an automated pipeline device equipped with an optimal toolbox for the analysis and inference of UAV-based hyperspectral images of crop water stress. This is an end-to-end automated toolbox, where various data pre-processing steps such as data calibrations like reflectance and geometric calibrations, image quality assessment, denoising, then running analysis algorithms on data like hyperspectral band selection, classification, and inferences generation, water stressed areas mappings in the field are automatically done. Using the device equipped with a toolbox, crop early water stress detection, varied drought stress intensities classification, and water stress areas mapping in the field can be carried out from the UAV hyperspectral images. Published with Figures 1a,1b

No. of Pages : 27 No. of Claims : 8

(54) Title of the invention : SELF-LUBRICATING FORMING TOOL FOR ROBOFORMING

(51) International classification

(86) International Application No

Filing Date

(87) International Publication No

(61) Patent of Addition to Application Number

Filing Date

(62) Divisional to Application Number

Filing Date

:B21D31/00, B21D37/18

:NA

:NA

: NA

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(57) Abstract :  
SELF-LUBRICATING FORMING TOOL FOR ROBOFORMING ABSTRACT The invention discloses a compact incremental sheet metal forming tool(100) with an integrated lubricant reservoir. The tool is configured to autonomously regulate the contact friction for incremental sheet metal forming. The forming 5 tool includes a hollow shank(101), which hosts a lubricant(102) and provides a lubricant supplying assembly(110) to channelize the lubricant towards a forming assembly(130) that includes a nozzle(134) and a rolling element(132). The lubricant is injected into the tool via a check valve(127) to ensure unidirectional flow and to avoid oil leakage. A 10 compression spring(122) of the lubricant supplying assembly is provided with an disc (125) attached to a seal (124) to exert pressure on the lubricant to maintain uninterrupted flow to a lubricant chamber (126) during forming. The tool is portable and provides reduced contact friction and localized lubrication without wastage or spillage during incremental sheet metal forming operations. 15 FIG. 1A

No. of Pages : 16 No. of Claims : 8

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :13/11/2024

(21) Application No.202441087736 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : A NARROWBAND PRINTED FLEXIBLE HYBRID PHOTODETECTOR AND A METHOD OF FABRICATION THEREOF

(51) International classification :H04W0052020000, G01J0003020000, H01L0027146000, H01L0031105000, G01N0021310000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :  
Please see attached PDF.

No. of Pages : 60 No. of Claims : 19

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202441087924 A

(19) INDIA

(22) Date of filing of Application :13/11/2024

(43) Publication Date : 04/07/2025

(54) Title of the invention : NANOCOMPOSITE AND A PROCESS FOR ITS PREPARATION

(51) International classification :B82Y0030000000, H01F0001057000, C08K0003340000, B82Y0040000000, H10K0030350000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

**ABSTRACT NANOCOMPOSITE AND A PROCESS FOR ITS PREPARATION** The present disclosure relates to a nanocomposite and a process for its preparation. The nanocomposite of the present disclosure exhibits high mechanical strength, high interaction between the surface of the biodegradable implant and bone tissues and improved physicochemical properties. The nanocomposite of the present disclosure, when used in an implant does not cause any side effects to the patient, does not require re-surgery to remove the implant, does not need resection, reduces the degradation of the biodegradable implant, avoids corrosion, and helps to improve the bone healing process. The process for the preparation of the nanocomposite is simple and environmentally friendly.

No. of Pages : 30 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202441094296 A

(19) INDIA

(22) Date of filing of Application :30/11/2024

(43) Publication Date : 04/07/2025

(54) Title of the invention : PROGRAMMABLE METAL-ION BASED HYDROGEL AND ITS SYNTHESIS THEREOF

(51) International classification :C09K0011060000, H04L0005000000, H01L0027120000, G11C0011560000, C07D0401140000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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Address of Applicant :Poumami, Manakkadavu Pantheerankavu PO Kozhikode- 673019 Kozhikode -----

(57) Abstract :

PROGRAMMABLE METAL-ION BASED HYDROGEL AND ITS SYNTHESIS THEREOF ABSTRACT The present invention provides a programmable metal-ion based hydrogel and synthesis thereof. More particularly, the invention provides a metal ion based hydrogel comprises a combination of lanthanide metal Terbium(III) nitrate [Tb(NO<sub>3</sub>)<sub>3</sub>] and L/D-Aspartic acid and a method of synthesising programmable, circularly polarized luminescent (CPL), nearly 100 % transparent and colourless aspartic acid-lanthanide hydrogels having applications in multilevel data encryption and anticounterfeiting. The exemplary hydrogel and method of the present invention provides several advantages including under the UV light irradiation, different QR codes emitted various luminescence colours depending upon the percentage of doping of Eu(III).

No. of Pages : 25 No. of Claims : 20



(54) Title of the invention : SMART WATER AND ELECTRICAL ENERGY CONSERVATION SYSTEM

|                                               |                                                                                 |                                                                                                                                                                                                   |
|-----------------------------------------------|---------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (51) International classification             | :A01G0025160000, G05B0019042000, G01D0021020000, G06F0001323400, G01N0001200000 | (71)Name of Applicant :<br><b>1)SUS TECH INNOVATIONS PVT.LTD</b><br>Address of Applicant :H.NO. 1-8-26/1/2, Laxmi Bhavan, North Kamala Nagar, ECIL Post, Kapra, Hyderabad 500062, Telangana ----- |
| (86) International Application No             | :NA                                                                             | <b>Name of Applicant : NA</b>                                                                                                                                                                     |
| Filing Date                                   | :NA                                                                             | <b>Address of Applicant : NA</b>                                                                                                                                                                  |
| (87) International Publication No             | : NA                                                                            | (72)Name of Inventor :                                                                                                                                                                            |
| (61) Patent of Addition to Application Number | :NA                                                                             | <b>1)KAKARLA VIJAYA KUMARI</b>                                                                                                                                                                    |
| Filing Date                                   | :NA                                                                             | Address of Applicant :H.No. 1-8-26/1/2, Laxmi Bhavan, North Kamala Nagar, Ecil Post, Kapra, Hyderabad 500062, Telangana -----                                                                     |
| (62) Divisional to Application Number         | :NA                                                                             | <b>2)KONDAPANENI SIVAJI</b>                                                                                                                                                                       |
| Filing Date                                   | :NA                                                                             | Address of Applicant :H.No. 1-8-26/1/2, Laxmi Bhavan, North Kamala Nagar, Ecil Post, Kapra, Hyderabad 500062, Telangana -----                                                                     |

(57) Abstract :  
ABSTRACT SMART WATER AND ELECTRICAL ENERGY CONSERVATION SYSTEM The present invention describes smart water and electrical energy conservation system designed to enable farmers to manage irrigation more efficiently without needing to be physically present in the field. The system consists of various sensors like humidity sensor, temperature sensor, rainfall sensor, soil moisture sensor, and flow control sensor connected to the MM32F3270G8P microcontroller. MM32F3270G8P is a 32-bit microcontroller product based on ARM CORTEX-M3-based microcontroller, selected for its performance, low power consumption, and flexible I/O for sensor interfacing. Reference of Figure Dated this 1st day of December, 2024 Signature Priyanka Thool Patent Agent [IN/PA-5039]

No. of Pages : 15 No. of Claims : 5

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202441095109 A

(19) INDIA

(22) Date of filing of Application :03/12/2024

(43) Publication Date : 04/07/2025

(54) Title of the invention : ELECTRICAL ENERGY CONSUMPTION ANNOUNCEMENT SYSTEM

(51) International classification :G01R0022060000, G01R0022100000, H04W0052020000, G01R0021133000, G01D0004000000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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**Name of Applicant : NA**

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(72)Name of Inventor :

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Address of Applicant :H.No. 1-8-26/1/2, Laxmi Bhavan, North Kamala Nagar , Ecil Post , Kapra, Hyderabad 500062,Telangana -----

(57) Abstract :

ABSTRACT ELECTRICAL ENERGY CONSUMPTION ANNOUNCEMENT SYSTEM An electrical energy consumption announcement system comprising of a 3-phase SMPS, RTC, Microcontroller, serial flash memory chip, GPRS modem, LCD display, four channel relay system, a PIR sensor, a battery circuit and an energy metering unit. The microcontroller actively tracks energy consumption, electrical energy usage patterns by reading energy parameters from energy metering unit, and stores this data in serial flash memory chip, and displays this electrical parameters on LCD module, and communicates this data with the server using a GPRS module through secure TCP-IP protocols. Reference of the figure Dated this 2nd day of December, 2024 Signature Priyanka Thool Patent Agent [IN/PA-5039]

No. of Pages : 13 No. of Claims : 7

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202441095688 A

(19) INDIA

(22) Date of filing of Application :04/12/2024

(43) Publication Date : 04/07/2025

(54) Title of the invention : LINEAR PROFILE APPARATUS AND METHOD FOR MANUFACTURING THEREOF

|                                                                                                                                                                                                                                                                                                                                                                                           |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>(51) International classification :B29C0048000000, F21V0008000000, G02B0005020000, B29C0048880000, B29C0048090000</p> <p>(86) International Application No :NA<br/>Filing Date :NA</p> <p>(87) International Publication No : NA</p> <p>(61) Patent of Addition to Application Number :NA<br/>Filing Date :NA</p> <p>(62) Divisional to Application Number :NA<br/>Filing Date :NA</p> |  | <p>(71)Name of Applicant :<br/><b>1)PWDS Extrusions Private Limited</b><br/>Address of Applicant :SF No 207/1B &amp; 207/1C, Selakarichal Rd, Appanaichenpatti, Suler Taluk, Coimbatore- 641402, Tamil Nadu, India Coimbatore -----</p> <p><b>Name of Applicant : NA</b><br/><b>Address of Applicant : NA</b></p> <p>(72)Name of Inventor :<br/><b>1)Mr. S Eniyan Shivam</b><br/>Address of Applicant :PWDS Extrusions Private Limited SF No 207/1B &amp; 207/1C, Selakarichal Rd, Appanaichenpatti, Suler Taluk, Coimbatore- 641402, Tamil Nadu, India Coimbatore -----</p> <p><b>2)Mr. V Shanmugavelu</b><br/>Address of Applicant :PWDS Extrusions Private Limited SF No 207/1B &amp; 207/1C, Selakarichal Rd, Appanaichenpatti, Suler Taluk Coimbatore- 641402, Tamil Nadu, India Coimbatore -----</p> <p><b>3)Mr. Paari Govindaraju</b><br/>Address of Applicant :PWDS Extrusions Private Limited SF No 207/1B &amp; 207/1C, Selakarichal Rd, Appanaichenpatti, Suler Taluk Coimbatore- 641402, Tamil Nadu, India Coimbatore -----</p> <p><b>4)Mr. Rajavenkadesh</b><br/>Address of Applicant :PWDS Extrusions Private Limited SF No 207/1B &amp; 207/1C, Selakarichal Rd, Appanaichenpatti, Suler Taluk Coimbatore- 641402, Tamil Nadu, India Coimbatore -----</p> |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

(57) Abstract :

Disclosed is a linear profile apparatus 100 that includes one or more linear profiles (102a-102n). Each of the one or more linear profiles (102a-102n) is made up of a translucent material. Each linear profile of the one or more linear profiles (102a-102n) includes a first section (202) and a second section (204). The first section (202) includes a plurality of chambers (402a-402n) such that each chamber of the plurality of chambers (402a-402n) is adapted to enclose at least one member (404). The second section is coupled to the first section (202) and adapted to enclose at least one element (212). FIG. 1

No. of Pages : 47 No. of Claims : 13

(54) Title of the invention : SKEWNESS IMPACT THROUGH DISTRIBUTIONAL EVALUATION (SITDE) METHOD: A NEW METHOD IN MULTI-CRITERIA DECISION MAKING

|                                               |                                                                                 |                                                                                                                                                                                                                                   |
|-----------------------------------------------|---------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (51) International classification             | :G06Q0010063900, G06Q0040060000, G06F0017180000, G06F0017160000, G06N0007010000 | (71)Name of Applicant :<br><b>1)Yalamanda Babu Gopisetty</b><br>Address of Applicant :VIGNAN'S FOUNDATION FOR SCIENCE, TECHNOLOGY & RESEARCH (DEEMED TO BE UNIVERSITY), GUNTUR-TENALI RD, VADLAMUDI, ANDHRA PRADESH-522213. ----- |
| (86) International Application No             | :NA                                                                             | <b>2)Hanumantha Rao Sama</b>                                                                                                                                                                                                      |
| Filing Date                                   | :NA                                                                             | Name of Applicant : NA                                                                                                                                                                                                            |
| (87) International Publication No             | : NA                                                                            | Address of Applicant : NA                                                                                                                                                                                                         |
| (61) Patent of Addition to Application Number | :NA                                                                             | (72)Name of Inventor :                                                                                                                                                                                                            |
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| Filing Date                                   | :NA                                                                             | <b>2)Hanumantha Rao Sama</b>                                                                                                                                                                                                      |
|                                               |                                                                                 | Address of Applicant :VIGNAN'S FOUNDATION FOR SCIENCE, TECHNOLOGY & RESEARCH (DEEMED TO BE UNIVERSITY), GUNTUR-TENALI RD, VADLAMUDI, ANDHRA PRADESH-522213. -----                                                                 |

## (57) Abstract :

The Skewness Impact Through Distributional Evaluation (SITDE) method introduces a groundbreaking approach in multi-criteria decision making (MCDM) by addressing the often overlooked skewness in criteria distributions. This research proposes a robust framework that enhances decision-making by incorporating asymmetry, ensuring comprehensive and accurate assessments beyond traditional methods focused solely on averages and variability. The SITDE method's application, particularly in an electric vehicle selection exercise, demonstrated its superiority in producing insightful results compared to conventional approaches. This article establishes the theoretical foundation, practical application, and statistical validation of SITDE, highlighting its effectiveness and reliability in managing complex selection scenarios in MCDM. 4 Claims, 5 Figures. REFERENCES: 1. Kang, K. I. (2016). Multi-criteria decision-making method using analytic hierarchy process (AHP) and its application. (Patent No. KR101675198B1). Korean Intellectual Property Office. <https://patents.google.com/patent/KR101675198B1/en> 2. Saaty, T. L. (2008). Decision making with the analytic hierarchy process. International Journal of Services Sciences, 1(1), 83-98. <https://doi.org/10.1504/IJSSCI.2008.017590> 3. Ishizaka, A., & Labib, A. (2011). Review of the main developments in the analytic hierarchy process. Expert Systems with Applications, 38(11), 14336-14345. <https://doi.org/10.1016/j.eswa.2011.04.143> 4. Chung, J. W. (2014). Decision-making method using entropy for weight determination in multi-criteria decision making. (Patent No. KR101418307B1). Korean Intellectual Property Office. <https://patents.google.com/patent/KR101418307B1/en> 5. Wang, T. C., & Lee, H. D. (2009). Developing a fuzzy TOPSIS approach based on subjective weights and objective weights. Expert Systems with Applications, 36(5), 8980- 8985. <https://doi.org/10.1016/j.eswa.2008.11.035> 6. Hwang, C. L., & Yoon, K. (1981). Multiple Attribute Decision Making: Methods and Applications. Springer-Verlag. <https://doi.org/10.1007/978-3-642-48318-9> 7. Cho, H. S. (2018). Decision-making method using TOPSIS in multi-criteria decisionmaking process. (Patent No. KR20180116820A). Korean Intellectual Property Office. <https://patents.google.com/patent/KR20180116820A/en> 8. Zavadskas, E. K., & Turskis, Z. (2011). Multiple criteria decision making. (MCDM) methods in economics: An overview. Technological and Economic Development of Economy, 17(2), 397-427. <https://doi.org/10.3846/20294913.2011.593291> 9. Wang, T. C., & Lee, H. D. (2009). Developing a fuzzy TOPSIS approach based on subjective weights and objective weights. Expert Systems with Applications, 36(5), 8980- 8985. <https://doi.org/10.1016/j.eswa.2008.11.035> 10. Krishnan, A. R., Kasim, M. M., Hamid, R., & Ghazali, M. F. (2021). A Modified CRITIC Method to Estimate the Objective Weights of Decision Criteria. Symmetry, 13(6), 973. <https://doi.org/10.3390/sym13060973> 11. Altuntas, F. (2024). Portfolio Analysis of COVID-19-Related Patents Using CRITICBased TOPSIS Approach. In S. Siyal (Ed.), Using Crises and Disasters as Opportunities for Innovation and Improvement (pp. 119-145). IGI Global. <https://doi.org/10.4018/978-1-6684-9522-3.ch008> 12. Diakoulaki, D., Mavrotas, G., & Papayannakis, L. (1995). Determining objective weights in multiple criteria problems: The CRITIC method. Computers & Operations Research, 22(7), 763-770. [https://doi.org/10.1016/0305-0548\(94\)00059-H](https://doi.org/10.1016/0305-0548(94)00059-H) 13. Alinezhad, A., & Khalili, J. (2019). CRITIC Method. In New Methods and Applications in Multiple Attribute Decision Making (MADM) (Vol. 277, pp. 199-203). Springer. [https://doi.org/10.1007/978-3-030-15009-9\\_26](https://doi.org/10.1007/978-3-030-15009-9_26) 14. Liu, H., & Wu, J. (2020). "MEREC: A new objective weighting method for multiple criteria decision making." Applied Mathematical Modelling, 79,601-618. 15. Wu, Z., & Liu, H. (2019). Objective weighting methods for multi-criteria decision making with grey information: A comparative study. Computers & Industrial Engineering, 133, 107-117. <https://doi.org/10.1016/j.cie.2019.05.009> 16. Huang, Z., Yue, H., & He, Q. (2023). Method of TFN-TOPSTS Based on Possibility Degree Relation Model and Its Application in the Patent Value Estimation of SelfBalancing Vehicles. U.S. Patent Application No. 15/3793. Retrieved from <https://www.mdpi.com/journal/sustainability/article/view/3793> 17. Lai, K.-K., Lin, C.-Y., Chang, Y.-H., Yang, M.-C., & Yang, W.-G. (2017). A structured approach to explore technological competencies through R&D portfolio of photovoltaic companies by patent statistics. U.S. Patent Application No. 17/1351. Retrieved from <https://link.springer.com/article/10.1007/s10796-015-9541-2>

No. of Pages : 20 No. of Claims : 4

(54) Title of the invention : RESONATORS HAVING Laterally Stacked Ferroelectric and Piezoelectric Materials

|                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <div>(51) International classification</div> <div>(86) International Application No</div> <div>(87) International Publication No</div> <div>(61) Patent of Addition to Application Number</div> <div>(62) Divisional to Application Number</div> <div>Filing Date</div> <div>Filing Date</div> <div>Filing Date</div> | <div>:H03H0009020000, H03H0009240000, H03H0003007000, H04R0017020000, H04B0010700000</div> <div>:NA</div> <div>:NA</div> <div>: NA</div> <div>:NA</div> <div>:NA</div> <div>:NA</div> <div>:NA</div> | <div>(71)Name of Applicant :</div> <div>1)INDIAN INSTITUTE OF SCIENCE</div> <div>Address of Applicant :Indian Institute of Science, Bangalore, Karnataka 560012, India -----</div> <div>Name of Applicant : NA</div> <div>Address of Applicant : NA</div> <div>(72)Name of Inventor :</div> <div>1)PILLAI, Gayathri</div> <div>Address of Applicant :FF05, Center for Nanoscience and Engineering, Indian Institute of Science, C V Raman Road, Bengaluru, Karnataka 560012, India -----</div> <div>-----</div> <div>2)CHIRANACKAL, Linet Thomas</div> <div>Address of Applicant :SF13, Center for Nanoscience and Engineering, Indian Institute of Science, C V Raman Road, Bengaluru, Karnataka 560012, India -----</div> <div>-----</div> <div>3)Praveen Kumar</div> <div>Address of Applicant :SF13, Center for Nanoscience and Engineering, Indian Institute of Science, C V Raman Road, Bengaluru, Karnataka 560012, India -----</div> <div>-----</div> |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

(57) Abstract :  
ABSTRACT RESONATORS HAVING Laterally Stacked Ferroelectric and Piezoelectric Materials Example microelectromechanical systems (MEMS) resonators incorporating laterally stacked multiple ferroelectric and piezoelectric materials and 5 methods for fabricating the same are disclosed. A MEMS resonator (100, 200, 600A, 600B, 700, 800) comprises one or more actuation layers (108, 206, 608) and one or more sensing layers (110, 208, 610) deposited laterally on a first set of electrodes (106, 204, 606). The actuation layers and the sensing layers are made of combinations of distinct ferroelectric-piezoelectric material, piezoelectric-10 ferroelectric material, ferroelectric-ferroelectric material, and piezoelectric-piezoelectric material. In addition, the MEMS resonator includes a second set of electrodes (112, 210, 212, 612) deposited on the actuation layers and the sensing layers such that the actuation layers and the sensing layers are interposed between the first set of electrodes and the second set of electrodes. 15 <> 44

No. of Pages : 55 No. of Claims : 19

(54) Title of the invention : SMART SYSTEM FOR EARLY DETECTION OF PESTS AND DISEASES IN MANGO ORCHARDS USING AI-BASED SENSORS AND COMMUNICATION MODULES

|                                                                                                                                                                                                                                                  |                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
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| <div>(51) International classification</div> <div>(86) International Application No</div> <div>(87) International Publication No</div> <div>(61) Patent of Addition to Application Number</div> <div>(62) Divisional to Application Number</div> | <div>:G06N0003080000, G06N0003045000, G06Q0050020000, G01N0033000000, G06T0007000000</div> <div>:NA</div> <div>:NA</div> <div>: NA</div> <div>:NA</div> <div>:NA</div> <div>:NA</div> <div>:NA</div> | <div>(71)Name of Applicant :</div> <div>1)SETHU INSTITUTE OF TECHNOLOGY</div> <div>Address of Applicant :PULLOOR, KARIAPATTI TK NH 45B, MADURAI, TUTICORIN HIGHWAY, VIRUDHUNAGAR (DT), TAMIL NADU, INDIA, PIN CODE-626115. -----</div> <div>Name of Applicant : NA</div> <div>Address of Applicant : NA</div> <div>(72)Name of Inventor :</div> <div>1)A. SABAH AFROZE</div> <div>Address of Applicant :Research Scholar, SETHU INSTITUTE OF TECHNOLOGY, PULLOOR, KARIAPATTI TK NH 45B, MADURAI, TUTICORIN HIGHWAY, KARIAPATTI, VIRUDHUNAGAR (DT), TAMIL NADU, INDIA, PIN CODE-626115. -----</div> <div>2)Dr. R. TAMILSELVI</div> <div>Address of Applicant :Professor, SETHU INSTITUTE OF TECHNOLOGY, PULLOOR, KARIAPATTI TK NH 45B, MADURAI, TUTICORIN HIGHWAY, KARIAPATTI, VIRUDHUNAGAR (DT), TAMIL NADU, INDIA, PIN CODE-626115. -----</div> <div>3)S.M.SEENI MOHAMED ALIAR MARAIKKAYAR</div> <div>Address of Applicant :Research Scholar, SETHU INSTITUTE OF TECHNOLOGY, PULLOOR, KARIAPATTI TK NH 45B, MADURAI, TUTICORIN HIGHWAY, KARIAPATTI, VIRUDHUNAGAR (DT), TAMIL NADU, INDIA, PIN CODE-626115. -----</div> <div>4)K. SHANMUGA PRIYA</div> <div>Address of Applicant :Assistant Professor, SETHU INSTITUTE OF TECHNOLOGY, PULLOOR, KARIAPATTI TK NH 45B, MADURAI, TUTICORIN HIGHWAY, KARIAPATTI, VIRUDHUNAGAR (DT), TAMIL NADU, INDIA, PIN CODE-626115. -----</div> <div>5)Dr. K. KALPANA</div> <div>Address of Applicant :Associate Professor, Plant Pathology, SETHU INSTITUTE OF TECHNOLOGY, PULLOOR, KARIAPATTI TK NH 45B, MADURAI, TUTICORIN HIGHWAY, KARIAPATTI, VIRUDHUNAGAR (DT), TAMIL NADU, INDIA, PIN CODE-626115. -----</div> <div>6)Dr. S. SUGANYA KANNA</div> <div>Address of Applicant :Associate Professor, Entomology, SETHU INSTITUTE OF TECHNOLOGY, PULLOOR, KARIAPATTI TK NH 45B, MADURAI, TUTICORIN HIGHWAY, KARIAPATTI, VIRUDHUNAGAR (DT), TAMIL NADU, INDIA, PIN CODE-626115. -----</div> |
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(57) Abstract :  
Title: SMART SYSTEM FOR EARLY DETECTION OF PESTS AND DISEASES IN MANGO ORCHARDS USING AI-BASED SENSORS AND COMMUNICATION MODULES The invention provides anAI-based smart system for early detection of mango pests and diseases. It uses acoustic, temperature, and humidity sensors to monitor mango s orchards. Data is processed through a deep learning classifier for anomaly detection, and pest trapping mechanisms are activated. Real-time alerts are sent to farmers via GSM or IoT platforms, enabling timely interventions. The system ensures precision agriculture, reduced crop losses, and environmental sustainability. Figure -1

No. of Pages : 6 No. of Claims : 6

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :26/01/2025

(21) Application No.202541006345 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : A WATER-SOLUBLE ECO-FRIENDLY FILM AND METHOD OF PREPARATION THEREOF

(51) International classification :B65D65/46, C08J5/18, C08K5/053, C085/05, C08L101/16, B65D65/40

(86) International Application No:NA

Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to :NA

Application Number :NA

Filing Date :NA

(62) Divisional to Application :NA

Number :NA

Filing Date :NA

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(57) Abstract :

A novel water-soluble packaging film has been developed using a biodegradable composition comprising guar gum, hydroxyethyl cellulose (HEC-1), Aloe barbadensis extract, glycerin, and sorbitol, with deionized water as the solvent. The ingredients are mixed, heated, cast, and dried under controlled conditions using a solution casting method to produce a semi-transparent, light yellowish, smooth-surfaced film. This environmentally friendly film dissolves completely in water within 45 minutes at 40°C, leaving no harmful residues, making it suitable for sustainable packaging applications. The film demonstrates optimal load-bearing capacity for items weighing up to 500 g and maintains its texture and integrity during extended storage. This innovation provides a promising eco-friendly alternative to conventional single-use plastic packaging, contributing to the reduction of plastic pollution.

No. of Pages : 15 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202541011861 A

(19) INDIA

(22) Date of filing of Application :12/02/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : A CONSTANT PRESSURE PUMP FOR MICROFLUIDIC APPLICATIONS

(51) International classification :B01L0003000000, G06F0009480000, F04B0047080000, H05K0003420000, C23C0014350000

(86) International Application No :NA

Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA

Filing Date :NA

(62) Divisional to Application Number :NA

Filing Date :NA

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**Name of Applicant : NA**

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(72)Name of Inventor :

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**2)Ajith R R**

Address of Applicant :College of Engineering Trivandrum, Engineering College P.O, Sreekaryam, Thiruvananthapuram 695016, Kerala, India Sreekaryam -----

(57) Abstract :

ABSTRACT A CONSTANT PRESSURE PUMP FOR MICROFLUIDIC APPLICATIONS The present invention provides a constant pressure pump system (100) for microfluidic applications that uses pressure of the deadweights (40) for the working of the pump system (100). The system (100) of the present invention eliminates use of power or bulky accessories. The working pressure can be changed easily by changing the deadweights (40). Reference Figure 1

No. of Pages : 15 No. of Claims : 6



(12) PATENT APPLICATION PUBLICATION

(21) Application No.202541028919 A

(19) INDIA

(22) Date of filing of Application :27/03/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : DESIGNING Gd3+-DOPED TIN TANTALUM BOROPHOSPHATE GLASS FOR DUAL APPLICATIONS IN GAMMA SHIELDING AND WHITE LIGHT EMISSION.

|                                                                                                                                                                                                                                                                                                                                                                        |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>(51) International classification :C03C4/08, C03C3/32, C03C3/12, C03C3/15, C03C3/155, C03C3/16</p> <p>(86) International Application No :NA<br/>Filing Date :NA</p> <p>(87) International Publication No : NA</p> <p>(61) Patent of Addition to Application Number :NA<br/>Filing Date :NA</p> <p>(62) Divisional to Application Number :NA<br/>Filing Date :NA</p> |  | <p>(71)Name of Applicant :<br/><b>1)SAVEETHA ENGINEERING COLLEGE</b><br/>Address of Applicant :SAVEETHA ENGINEERING COLLEGE, SAVEETHA NAGAR, THANDALAM,CHENNAI,TAMIL NADU-602105. 8667247763<br/>sivakumart@saveetha.ac.in -----</p> <p><b>Name of Applicant : NA</b><br/><b>Address of Applicant : NA</b></p> <p>(72)Name of Inventor :<br/><b>1)Dr.THIRUMURUGANANTHAM SIVAKUMAR</b><br/>Address of Applicant :Assistant Professor Department of Physics. SAVEETHA ENGINEERING COLLEGE, SAVEETHA NAGAR, THANDALAM,CHENNAI,TAMIL NADU-602105. -----</p> <p><b>2)Dr. VINOTHKUMAR PANJANATHAN</b><br/>Address of Applicant :Assistant Professor Department of Physics. SAVEETHA ENGINEERING COLLEGE, SAVEETHA NAGAR, THANDALAM,CHENNAI,TAMIL NADU-602105. -----</p> |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

(57) Abstract :

This study presents the synthesis and characterization of GdH-doped tin tantalum borophosphate (Sn-Ta-BP) glass for dual applications in gamma shielding and white light emission. Gadolinium (GdH) is chosen for its high atomic number and luminescent properties. The glass samples were prepared using the melt-quenching method and analyzed for structural, optical, and radiation shielding characteristics.X-ray diffraction (XRD) and Fourier-transform infrared spectroscopy (FTIR) confirmed the amorphous structure. UV-Vis-NIR absorption and photoluminescence (PL) studies revealed broad white light emission due to energy transfer between Gd<sup>3+</sup> ions and the glass matrix. Gamma shielding efficiency, evaluated via mass attenuation coefficients (lfp) using XCOM software, showed enhanced performance due to the presence of Gd<sup>3+</sup> and high-density elements like tantalum.The combination of efficient gamma shielding and white light emission makes this glass ideal for applications in radiation protection and optoelectronics. Future work will focus on optimizing the dopant concentration and assessing performance under varying radiation energies.

No. of Pages : 12 No. of Claims : 7

(54) Title of the invention : DEVELOPMENT OF BASALT FABRIC REINFORCED CEMENTITIOUS COMPOSITE FOR RETROFITTING HINGING ZONES IN RC STRUCTURES

|                                               |                                                                                 |                                                                                                                                                                                                                                             |
|-----------------------------------------------|---------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (51) International classification             | :C04B0111000000, C04B0028040000, B32B0027120000, B32B0005020000, C04B0020000000 | (71)Name of Applicant :<br>1)National Institute of Technology Warangal<br>Address of Applicant :National Institute of Technology Warangal, Warangal, Telangana-506004 Warangal -----<br>Name of Applicant : NA<br>Address of Applicant : NA |
| (86) International Application No             | :NA                                                                             | (72)Name of Inventor :                                                                                                                                                                                                                      |
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| Filing Date                                   | :NA                                                                             |                                                                                                                                                                                                                                             |
| (62) Divisional to Application Number         | :NA                                                                             |                                                                                                                                                                                                                                             |
| Filing Date                                   | :NA                                                                             |                                                                                                                                                                                                                                             |

(57) Abstract :  
The present disclosure relates to a basalt fabric reinforced cementitious composite (BFRC), designed for applications such as strengthening applications. The composite (100) comprises fibrous (102) and non-fibrous mortars (106), where the fibrous mortar (102) contains mono and hybrid fibers selected from basalt fibers, alkali-resistant glass fibers, or combinations thereof. The non-fibrous mortar (106) is prepared with a cement binder, optionally partially replaced with Alccofine. A fabric (104) includes bidirectional mesh with a 25 mm size and/or unidirectional mesh with a 5 mm size. The water-to-cement ratio is 0.45, and a polycarboxylic ether-based superplasticizer is used. The composite (100) is optimized for achieving improved tensile and bond strength and also durability, ensuring performance for specific application needs. Figure 1 will be the reference.

No. of Pages : 20 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :02/04/2025

(21) Application No.202541032515 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : BLOCKCHAIN NETWORK SYSTEM AND METHOD FOR SECURING DIGITAL INFORMATION

(51) International classification :H04L0009320000, H04L0009000000, H04L0009400000, H04L0009060000, H04L0009080000  
(86) International Application No :NA  
Filing Date :NA  
(87) International Publication No : NA  
(61) Patent of Addition to Application Number :NA  
Filing Date :NA  
(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

Disclosed is a blockchain network system (100) and method (200) for secure digital information, includes a plurality of nodes (102) configured to receive transaction data from users. Each node includes a cryptographic hashing engine (104) that integrates Secure Hash Algorithm (SHA) and Message Digest (MD) functions to produce unified hashes for digital signature generation. A data embedding engine (106) embeds these signatures into data using metadata injection or substitution techniques. A cryptographic encryption engine (108) encrypts digital assets before recording them onto the blockchain. A zero-trust security engine (110) enforces identity verification for all participants prior to transaction execution or data access. Additionally, a watermarking and steganographic engine (112) applies tamper-resistant watermarks and conceals data within digital media. Figure 1 will be the reference.

No. of Pages : 23 No. of Claims : 10

(54) Title of the invention : A MAGNETICALLY TUNABLE SYSTEM AND METHOD FOR THERMAL DIFFUSIVITY IN HEAT TRANSFER NANOFLUIDS

|                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
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| <div><div>(51) International classification</div><div>(86) International Application No</div><div>(87) International Publication No</div><div>(61) Patent of Addition to Application Number</div><div>(62) Divisional to Application Number</div></div> <div><div>:G01N0021170000, C09K0005100000, H01F0010320000, G02F0001010000, G01N0025180000</div><div>:NA</div><div>:NA</div><div>: NA</div><div>:NA</div><div>:NA</div></div> | <div><div>(71)Name of Applicant :</div><div>1)Dr. Minu Pius</div><div>Address of Applicant :Assistant Professor, Department of Physics, St. Teresa's College (Autonomous), Ernakulam, Park Avenue Road Kochi- 682011 Ernakulam</div><div>-----</div><div>2)Dr. Frincy Francis</div><div>3)Dr. Santhi A</div><div>Name of Applicant : NA</div><div>Address of Applicant : NA</div><div>(72)Name of Inventor :</div><div>1)Dr. Minu Pius</div><div>Address of Applicant :Assistant Professor, Department of Physics, St. Teresa's College (Autonomous), Ernakulam, Park Avenue Road Kochi- 682011 Ernakulam</div><div>-----</div><div>2)Dr. Frincy Francis</div><div>Address of Applicant :Assistant Professor, Department of Physics, St. Teresa's College (Autonomous), Ernakulam, Park Avenue Road Kochi- 682011 Ernakulam</div><div>-----</div><div>3)Dr. Santhi A</div><div>Address of Applicant :Assistant Professor, Department of Physics, St. Teresa's College (Autonomous), Ernakulam, Park Avenue Road, Kochi- 682011 Ernakulam</div><div>-----</div></div> |
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(57) Abstract :  
ABSTRACT A MAGNETICALLY TUNABLE SYSTEM AND METHOD FOR THERMAL DIFFUSIVITY IN HEAT TRANSFER NANOFLUIDS The invention relates to a magnetically tunable nanofluid system (100) for modulating thermal diffusivity, enabling selective heat dissipation or confinement via magnetically controlled thermo-optic effects (200). It provides a method for tuning thermal diffusivity in binary or ternary nanocomposites (107) dispersed in water. External magnetic fields from Neodymium magnets (108) induce alignment and aggregation of ferrimagnetic, paramagnetic, and diamagnetic nanoparticles, leading to clustering, restricted Brownian motion, and thermal percolation. A dual-beam thermal lens spectroscopy technique enables real-time diffusivity modulation. Experimental results show thermal diffusivity ranging from (0.61±0.05)×10<sup>-7</sup>m<sup>2</sup>/s to (14.50±0.20)×10<sup>-7</sup>m<sup>2</sup>/s. Optical microscopy and FESEM analyses confirm thermally conductive nanoparticle networks formed by chaining and clustering (400–800). The system supports dual-mode functionality—serving as either a thermal coolant or insulator—by adjusting nanoparticle composition and magnetic field strength. The invention enables dynamic control of heat flow in heat exchangers, electronics cooling, and medical hyperthermia applications. (Figure-1 for Abstract)

No. of Pages : 40 No. of Claims : 15

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202541044533 A

(19) INDIA

(22) Date of filing of Application :08/05/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : PROCESS FOR THE PREPARATION OF NOVEL WATER SOLUBLE FILMS FROM SEAWEED

|                                   |                                                          |                                                                                                                                                                    |
|-----------------------------------|----------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (51) International classification | :C08J 5/18, B29K 1/00, A61K 9/00, C08K 5/053, B65D 65/46 | (71)Name of Applicant :<br><b>1)Bangaru Vaishnavi</b><br>Address of Applicant :Plot No 338, Devendernagar, Pragathi Nagar, Bachupally, Rangareddy, AP-500090 ----- |
| (86) International Application No | :NA                                                      | <b>2)Bangaru Shailaja</b>                                                                                                                                          |
| Filing Date                       | :NA                                                      | <b>Name of Applicant : NA</b>                                                                                                                                      |
| (87) International Publication No | : NA                                                     | <b>Address of Applicant : NA</b>                                                                                                                                   |
| (61) Patent of Addition to        | :NA                                                      | (72)Name of Inventor :                                                                                                                                             |
| Application Number                | :NA                                                      | <b>1)Bangaru Vaishnavi</b>                                                                                                                                         |
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| Filing Date                       | :NA                                                      |                                                                                                                                                                    |

(57) Abstract :

The present invention relates to a biodegradable, water-soluble packaging film composed primarily of seaweed extract, guar gum, hydroxyethyl cellulose (HEC), aloe vera extract, sorbitol, and glycerin. The invention provides a method for preparing a homogeneous film-forming solution, casting the film, and achieving controlled drying and conditioning to produce a soluble, flexible, and mechanically stable film. The film demonstrates excellent tensile strength, tear resistance, burst resistance, and water solubility, with complete dissolution in water within 45 minutes. Its moderate water vapor transmission and permeability make it suitable for packaging applications that require both moisture resistance and breathability. The film is safe, eco-friendly, and capable of being manufactured at industrial scale using a low-cost, solvent casting method without requiring specialized equipment. Applications include sustainable packaging for food, personal care products, agricultural chemicals, and single-use dissolvable sachets.

No. of Pages : 17 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202541046859 A

(19) INDIA

(22) Date of filing of Application :15/05/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : A METHOD FOR PRODUCING FERMENTABLE SUGARS FROM CORNCOB BIOMASS

(51) International classification :C12P0019020000, C12P0019140000, C12N0009420000, C12P0007100000, C12N0009240000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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**2)DR. PRADEEP KUMAR GANDAM**

Address of Applicant :Research Scholar, Department of Biotechnology, National Institute of Technology Warangal, Warangal – 506004, Telangana, India. Warangal -----

(57) Abstract :

The present disclosure relates to a method for producing fermentable sugars, including xylo-oligosaccharides (XOS) and gluco-oligosaccharides (GOS), from corncob biomass without requiring pretreatment. The process involves separating corn-cob pith using a high-speed steel drill bit, followed by enzymatic hydrolysis using xylanase and cellulase in optimal buffer solutions, maintaining a liquid-to-solid ratio. The mixture is saccharified, which ensures efficient sugar recovery due to the low lignin content and porous structure of corn pith, with particle sizes between 0.5–2 mm and 5–10% moisture content. The enzyme concentrations range from 5–50 U/mL. This technique achieves high yields up to 89% for XOS and 98.8% for GOS equating to 40–70 g/kg and 20–50 g/kg of corn-cob pith, respectively. The invention eliminates costly pretreatment, reduces environmental impact, and enhances the industrial feasibility of bioconversion processes. Fig 1.

No. of Pages : 30 No. of Claims : 11

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202541051340 A

(19) INDIA

(22) Date of filing of Application :28/05/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : A REAL-TIME SPEECH RECOGNITION AND INTERPRETATION SYSTEM FOR INDIVIDUALS WITH SPEECH IMPAIRMENTS AND METHOD THEREOF

(51) International classification :G10L0015260000, H04L0009400000, G09B0021000000, G10L0015220000, H04M0003510000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

Disclosed is a real-time speech recognition and interpretation system aids individuals with speech impairments. The system comprises an IoT assembly with a high-fidelity microphone, push button, display, microcontroller, transmission unit and powered by battery which captures unstructured speech. A secure cloud application with multilingual models and cross-platform compatibility receives data via an IoT gateway. A real-time speech processing unit converts audio to text using Automatic Speech Recognition and linguistic refinement. Secure data transmission with encryption and access control is ensured. A performance monitoring unit tracks accuracy and optimizes functionality based on feedback, facilitating effective communication. The present invention disclosure also provides a method for real-time speech recognition and linguistic interpretation for individuals with speech impairments. Figure 1 will be the reference.

No. of Pages : 35 No. of Claims : 13

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202541052649 A

(19) INDIA

(22) Date of filing of Application :30/05/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : A DISINFECTANT THREE-WAY SYRINGE UNIT FOR DENTAL CHAIR SPITTOON HYGIENE

|                                                                                                                                                                                                                                                                                                                                                                                           |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
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| <p>(51) International classification :B41J0002165000, A61G0015140000, A61M0005310000, A61G0015160000, A61C0017020000</p> <p>(86) International Application No :NA<br/>Filing Date :NA</p> <p>(87) International Publication No : NA</p> <p>(61) Patent of Addition to Application Number :NA<br/>Filing Date :NA</p> <p>(62) Divisional to Application Number :NA<br/>Filing Date :NA</p> |  | <p>(71)Name of Applicant :<br/><b>1)JSS Dental College and Hospital, JSS Academy of Higher Education &amp; Research (Deemed to be university)</b><br/>Address of Applicant :Sri Shivarathreeshwara Nagara, Mysuru, Karnataka, India Mysore -----<br/><b>Name of Applicant : NA</b><br/><b>Address of Applicant : NA</b><br/>(72)Name of Inventor :<br/><b>1)Dr Nagabhushana Doggalli</b><br/>Address of Applicant :Department of Oral medicine and Radiology, JSS Dental College and Hospital, JSS Academy of Higher Education and Research, SS Nagar, Mysuru, Karnataka, India- 570015 Mysore -----<br/><b>2)Dr Sushma Rudraswamy</b><br/>Address of Applicant :Department of Public Health Dentistry, JSS Dental College and Hospital, JSS Academy of Higher Education and Research, SS Nagar, Mysuru, Karnataka – 570015. India. Mysore -----<br/><b>3)Dr Sowmya Srinivas</b><br/>Address of Applicant :Department of Prosthodontics &amp; crown and Bridge, JSS Dental College and Hospital, JSS Academy of Higher Education and Research, SS Nagar, Mysuru, Karnataka – 570015. India. Mysore -----<br/><b>4)Dr Balamuralidhara V</b><br/>Address of Applicant :Department of pharmaceuticals, JSS College of Pharmacy, JSS Academy of Higher Education and Research, SS Nagar, Mysuru, Karnataka – 570015. India. Mysore -----</p> |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

(57) Abstract :

A DISINFECTANT THREE-WAY SYRINGE UNIT FOR DENTAL CHAIR SPITTOON HYGIENE ABSTRACT A disinfectant three-way syringe unit (100) for dental chair spittoon 5 hygiene is provided. The disinfectant three-way syringe unit (100) includes a first three-way syringe (102a) to deliver a controlled stream of air and water, a second three-way syringe (102b) to disinfectant a spittoon (110), a first booster bottle (104) for supplying water to plurality of handpieces and the first three-way syringe (102a), a second booster bottle 10 (106) to disinfect the spittoon area, a compressor (108) for supplying compressed air to operate a plurality of handpieces, one or more air syringes, a spittoon bowl (110) for rinsing water and spitting during treatment, and an assistant instrument tray (114) for allowing a dental assistant to handle a plurality of instruments, a dental hose (112) for connecting a plurality of handpieces, air-water syringes, and suction devices to the dental chair (119), for ensuring easy and controlled delivery of air, water, and suction during treatment. [FIGs.1A-1B]

No. of Pages : 20 No. of Claims : 8



(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :03/06/2025

(21) Application No.202541053803 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : A HERBAL NANOGEL FORMULATION FOR HAIR GROWTH PROMOTION, AND A METHOD FOR PREPARING THE SAME

(51) International classification :A61K0009510000, A61K0009000000, A61Q0007000000, A61P0017140000, A61K0009060000  
(86) International Application No :NA  
Filing Date :NA  
(87) International Publication No : NA  
(61) Patent of Addition to Application Number :NA  
Filing Date :NA  
(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

The present invention relates to aherbal nanogel formulation for promoting hair growth, and a method for preparing the same. The nanogel is prepared by encapsulating the piperine in polymeric nanoparticles, demonstrating improved stability and skin permeability. The prepared nanogel formulation is subjected to characterization, wherein Particle size, morphology, encapsulation efficiency, and stability are assessed. The efficacy of the prepared nanogel formulation is evaluated using an in-vivo study, wherein sample of nanogel formulation is administrated to subject animal, for a time period 28 days, along with a control and standard group. The results from in-vivo study revealed the effect of formulation on hair growth, wherein parameters like hair length, density, and follicle count are analysed. The results revealed that the administration of prepared piperine based nanogel formulation enhanced the hair growth, facilitated faster follicle activation.

No. of Pages : 28 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :04/06/2025

(21) Application No.202541053934 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : MICROBOT SWARMS: TURNING SCI-FI INTO REAL WORLD ROBOTICS

(51) International classification :G06N0003006000, H04L0067131000, H04L0067104000, H04L0051020000, G06F0016332000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

ABSTRACT OF THE INVENTION : imagine a world where millions of tiny robots. work together \_like a hive mind, capable of building structures, performing surgeries,. or exploring dangerous environments ~ all with unmatched precision. Inspired by the sci-fi marvel Big Hero 6, Microbat Swarms bring that vision closer to reality. These micro-scale robots coordinate through wireless. control and swarm intelligence to achieve complex. tasks that are impossible. for individual bots

No. of Pages : 3 No. of Claims : 8

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202541054241 A

(19) INDIA

(22) Date of filing of Application :05/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : SMART IOT-BASED MOBILE CHARGER WITH AUTOMATIC POWER CUT-OFF ON DEVICE REMOVAL

(51) International classification :H02J7/00, H01R13/66  
(86) International Application No :NA  
Filing Date :NA  
(87) International Publication No : NA  
(61) Patent of Addition to Application Number :NA  
Filing Date :NA  
(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

The present invention relates to a smart IoT-based mobile charging system that automatically cuts off power supply when the connected mobile device is unplugged. The system comprises a standard charging interface, a current sensor module, a microcontroller (e.g., ESP32), and a relay-based power control circuit. Upon detecting zero current flow due to device removal, the microcontroller triggers the relay to disconnect power, preventing idle energy consumption. This design ensures enhanced safety, energy efficiency, and extended hardware life by eliminating unnecessary power draw. Unlike existing smart plugs, the system operates without internet connectivity or external cloud services. The compact and cost-effective design makes it ideal for households, hostels, offices, and rural areas. An optional indicator may be included to visually signal charging or disconnected states. The invention provides an autonomous, user-friendly solution for intelligent mobile charging control.

No. of Pages : 15 No. of Claims : 4

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202541054246 A

(19) INDIA

(22) Date of filing of Application :05/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : ELECTROMAGNETICALLY COUPLED MODULAR BARRICADE

(51) International  
classification

:H04L0009400000, E05B0047000000,  
G06F0001320300, G07C0009000000,  
E01F0013020000

(86) International  
Application No  
Filing Date

:NA  
:NA

(87) International  
Publication No

: NA

(61) Patent of Addition to  
Application Number  
Filing Date

:NA  
:NA

(62) Divisional to  
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Filing Date

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(57) Abstract :

The invention is a modular barricade system with electromagnetic interlocks, replacing conventional fasteners. Each module has built-in electromagnetic lock housings on multiple sides for quick, tool-free connection. A wireless control unit manages these locks remotely, ensuring security and fast emergency disengagement. Internal wire slits conceal electrical connections, while integrated power management and control logic circuits handle power delivery and remote commands. The design improves reliability, cuts maintenance, and suits crowd management, traffic control, and security needs.

No. of Pages : 15 No. of Claims : 6

(54) Title of the invention : PRIORITY-BASED INTELLIGENT SURPLUS FOOD REDISTRIBUTION AND OPTIMIZATION WITH ROUTING AND FEEDBACK

|                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <div>(51) International classification</div> <div>(86) International Application No</div> <div>(87) International Publication No</div> <div>(61) Patent of Addition to Application Number</div> <div>(62) Divisional to Application Number</div> <div>Filing Date</div> <div>Filing Date</div> <div>Filing Date</div> | <div>:G06F0016220000, G06F0016270000, H04W0036220000, H04L0065750000, H04N0007010000</div> <div>:NA</div> <div>:NA</div> <div>: NA</div> <div>:NA</div> <div>:NA</div> <div>:NA</div> <div>:NA</div> | <div>(71)Name of Applicant :</div> <div>1)NEW HORIZON COLLEGE OF ENGINEERING</div> <div>Address of Applicant :New Horizon College of Engineering New Horizon Knowledge Park Outer Ring Road, Near Marathalli Bellandur(P), Bangalore-560103 Bangalore -----</div> <div>Name of Applicant : NA</div> <div>Address of Applicant : NA</div> <div>(72)Name of Inventor :</div> <div>1)M T Vasumathi</div> <div>Address of Applicant :Associate Professor Department of MCA, New Horizon College of Engineering New Horizon Knowledge Park Outer Ring Road, Near Marathalli Bellandur(P), Bangalore-560103 Bangalore -----</div> |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

(57) Abstract :  
Fig. 1 is an exemplary embodiment of the disclosure which illustrates the working of the overall PRIOR+ redistribution framework (100), wherein the Food Donors Interface (110) and the Recipient Interface (120) serve as data intake components. These interfaces feed real-time surplus food availability and recipient demand into the PRIOR+ Redistribution Engine (130). The redistribution engine generates optimized matches and delivery strategies, which are passed to the Logistics/Delivery Platform (100) to enable efficient dispatch. A Feedback Learning Loop (140) continuously refines the redistribution logic based on delivery success and resource utilization metrics, ensuring adaptive and intelligent redistribution over time.

No. of Pages : 14 No. of Claims : 5

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202541054314 A

(19) INDIA

(22) Date of filing of Application :05/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : SYSTEM FOR WILD BOAR DETERRENCE THEREOF

(51) International classification :A01M0029100000, A01M0029160000, A61B0005110000, G02B0027010000, C02F0001000000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
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(57) Abstract :

Wild Boar Deterrence System (100) comprising a power unit (101) a control unit (102) a detection unit (103) an alert unit (104) a deterrence unit (105), an exit unit (106).

No. of Pages : 14 No. of Claims : 7

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :05/06/2025

(21) Application No.202541054316 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : Ergonomic Gripper Assisted walk stick for Even and Uneven Surfaces

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| <p>(51) International classification :A61H0003000000, A61H0003060000, A61H0003020000, A61H0001020000, A45B0009020000</p> <p>(86) International Application No :NA<br/>Filing Date :NA</p> <p>(87) International Publication No : NA</p> <p>(61) Patent of Addition to Application Number :NA<br/>Filing Date :NA</p> <p>(62) Divisional to Application Number :NA<br/>Filing Date :NA</p> |  | <p>(71)<b>Name of Applicant :</b><br/><b>1)NEW HORIZON COLLEGE OF ENGINEERING</b><br/>Address of Applicant :New Horizon College of Engineering New Horizon Knowledge Park Outer Ring Road, Near Marathalli Bellandur(P), Bangalore-560103 Bangalore -----<br/><b>Name of Applicant : NA</b><br/><b>Address of Applicant : NA</b><br/>(72)<b>Name of Inventor :</b><br/><b>1)A. KALAIVANI</b><br/>Address of Applicant :Sr. Assistant Professor Department of MCA, New Horizon College of Engineering New Horizon Knowledge Park Outer Ring Road, Near Marathalli Bellandur(P), Bangalore-560103 Bangalore -----<br/><b>2)V.ASHA</b><br/>Address of Applicant :Professor and Head Department of MCA, New Horizon College of Engineering New Horizon Knowledge Park Outer Ring Road, Near Marathalli Bellandur(P), Bangalore-560103 Bangalore -----<br/><b>3)V.Agalya</b><br/>Address of Applicant :Associate Professor Department of ECE, New Horizon College of Engineering New Horizon Knowledge Park Outer Ring Road, Near Marathalli Bellandur(P), Bangalore-560103 Bangalore -----<br/><b>4)Rahul K Kabbin</b><br/>Address of Applicant :Student Department of MCA, New Horizon College of Engineering New Horizon Knowledge Park Outer Ring Road, Near Marathalli Bellandur(P), Bangalore-560103 Bangalore -----</p> |
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(57) Abstract :

The present invention discloses a mechanically operated Ergonomic Gripper (100) designed to improve user mobility, comfort, and stability. The invention comprises an ergonomically contoured handle (101) for enhanced grip, a telescopically adjustable central shaft (102) to suit users of varying heights, a manual grip lock (104) for secure height fixation, and a base assembly (105) with stabilizing fins (103) to ensure superior balance and anti-slip performance on diverse terrains. The walk stick is constructed entirely with mechanical components and does not incorporate any electronic or sensor-based elements. It is particularly suited for elderly individuals or those requiring physical support during movement, offering a durable, lightweight, and maintenance-free solution for improved walking assistance.

No. of Pages : 14 No. of Claims : 5

(54) Title of the invention : AI-POWERED DERMATOLOGY DISPLAY SYSTEM FOR SKINSCOPE MIRROR

|                                                                                                                                                                                                                                                                                                                                                                                                               |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <div>(51) International classification :G06V0040160000, A61B0005000000, G16H0030400000, G16H0050200000, A61P0017100000</div> <div>(86) International Application No :NA<br/>Filing Date :NA</div> <div>(87) International Publication No : NA</div> <div>(61) Patent of Addition to Application Number :NA<br/>Filing Date :NA</div> <div>(62) Divisional to Application Number :NA<br/>Filing Date :NA</div> |  | <div>(71)Name of Applicant :<br/><b>1)NEW HORIZON COLLEGE OF ENGINEERING</b><br/>Address of Applicant :New Horizon College of Engineering, New Horizon Knowledge Park, Outer Ring Road, Near Marathalli, Bellandur(P), Bangalore 560103, Karnataka Bengaluru -----<br/><b>Name of Applicant : NA</b><br/><b>Address of Applicant : NA</b><br/>(72)Name of Inventor :<br/><b>1)J SATHYA</b><br/>Address of Applicant :Senior Assistant Professor, Department of MCA, New Horizon College of Engineering, New Horizon Knowledge Park, Outer Ring Road, Near Marathalli, Bellandur(P), Bangalore 560103, Karnataka Bengaluru -----<br/><b>2)RISHAB ROY</b><br/>Address of Applicant :Student/Department of MCA New Horizon College of Engineering New Horizon Knowledge Park Outer Ring Road, Near Marathalli Bellandur(P), Bangalore-560103 Bengaluru -----</div> |
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(57) Abstract :  
The present invention relates to the design of real-time skin analysis and personalized skincare recommendations. The primary purpose of the system is to enhance skincare awareness and support early detection of dermatological conditions. It features an integrated camera for capturing facial images, a facial recognition module, and a machine learning model trained for skin condition detection. The system extracts key facial features and analyzes them to identify issues such as acne, pigmentation, and dryness. Based on the analysis, it generates customized recommendations to improve skin health. Results are displayed instantly on an embedded LED screen within the mirror. This seamless and interactive solution offers users immediate, accurate, and personalized skincare insights. Figure 1 is an exemplary embodiment of the disclosure, illustrating the overall design and workflow of the AI-powered dermatology display system integrated into the Skinscope Mirror (100), including Image Capture (101), (ii) Face Recognition & Feature Extraction (102), (iii) AI Analysis (103), (iv) Recommendation Generation (104), and (v) Result Display (105).

No. of Pages : 14 No. of Claims : 6



(12) PATENT APPLICATION PUBLICATION

(21) Application No.202541054319 A

(19) INDIA

(22) Date of filing of Application :05/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : AN AUTOMATED MANTRA BASED THEURAPETIC SYSTEM WITH VOCAL RESONANCE ANALYSIS

|                                                                                                                                                                                                                                                                                                                                                                                           |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>(51) International classification :G10L0025630000, G10L0015220000, G06F0003160000, G10L0015020000, G10L0013033000</p> <p>(86) International Application No :NA<br/>Filing Date :NA</p> <p>(87) International Publication No : NA</p> <p>(61) Patent of Addition to Application Number :NA<br/>Filing Date :NA</p> <p>(62) Divisional to Application Number :NA<br/>Filing Date :NA</p> |  | <p>(71)Name of Applicant :<br/><b>1)NEW HORIZON COLLEGE OF ENGINEERING</b><br/>Address of Applicant :New Horizon College of Engineering, New Horizon Knowledge Park, Outer Ring Road, Near Marathalli, Bellandur(P), Bangalore 560103, Karnataka Bengaluru -----</p> <p><b>Name of Applicant : NA</b><br/><b>Address of Applicant : NA</b></p> <p>(72)Name of Inventor :<br/><b>1)ARPANA PRASAD</b><br/>Address of Applicant :Associate Professor, Department of MCA, New Horizon College of Engineering, New Horizon Knowledge Park, Outer Ring Road, Near Marathalli, Bellandur(P), Bangalore Bengaluru -----</p> <p><b>2)ARPITH P A</b><br/>Address of Applicant :PG Student, Department of MCA, New Horizon College of Engineering, New Horizon Knowledge Park, Outer Ring Road, Near Marathalli, Bellandur(P), Bangalore Bengaluru -----</p> <p><b>3)ADITYA TATYASO KAMATE</b><br/>Address of Applicant :PG Student, Department of MCA New Horizon College of Engineering, New Horizon Knowledge Park, Outer Ring Road, Near Marathalli, Bellandur(P), Bangalore Bengaluru -----</p> |
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(57) Abstract :

The present invention relates to a system and method for providing personalized Vedic mantra recommendations based on the analysis of a user's vocal frequencies. The system captures voice input through a microphone, processes the audio to remove noise and normalize signals, and extracts key vocal features such as pitch, tone, and resonance. An AI engine compares these features against a predefined database of Vedic mantra frequencies, identifying the most appropriate mantras based on vocal compatibility and emotional relevance. Fig. 1 is an exemplary embodiment of the disclosure which illustrates the working of the voice-based therapeutic system (100), wherein the voice feature extraction module (101) receives a user voice input and extracts a set of parameters including fundamental frequency (in Hz), spectral centroid (timbre), harmonic count, and voice texture. These extracted voice features are communicated to the speech emotion recognition module (102), which processes the input to determine the emotional state of the user, identifying indicators such as stress, calmness, sadness, energy level, and other relevant voice parameters. Based on the recognized emotional attributes and vocal characteristics, the therapeutic mantra recommendation module (103) generates a suitable mantra suggestion intended to provide a healing effect or protective influence, thereby offering personalized auditory therapy aligned with the user's emotional condition.

No. of Pages : 16 No. of Claims : 5

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :05/06/2025

(21) Application No.202541054320 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : REAL-TIME MULTIMODAL INTERFACE FOR STUDENT COMMUNICATION AND EXAMINATION ASSISTANCE

(51) International classification :G06Q0050200000, G10L0015260000, G10L0025780000, G06Q0010063900, G10L0015220000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

A Real-Time Multimodal Input-Based Assessment System (100) comprising; a student interface (110) configured to receive input via one or more modalities selected from the group consisting of speech and gestures; a processing module (120) operatively coupled to the student interface (110) for converting the received input into standardized text; and a scribe interface (130) for displaying the standardized text in real-time for human interpretation or transcription;

No. of Pages : 15 No. of Claims : 5

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :05/06/2025

(21) Application No.202541054321 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : COMPACT DOOR STOPPER WITH INTEGRATED ROOM FRESHENER DISPENSING MECHANISM

(51) International classification :E05C0017440000, H01Q0001440000, H01Q0013100000, E05C0017540000, E05C0017560000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

(71)Name of Applicant :

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(57) Abstract :

The Compact Door Stopper with Integrated Room Freshener Dispensing Mechanism is a multifunctional unit combining the functionality of a door stopper and a room freshener dispenser. In an exemplary embodiment, it is floor-mounted and includes two slots; a first slot that acts as a standard door stop, and a second slot activates a fragrance system when the door is pushed further. The system includes a refillable fragrance container, a spring, a nozzle, and a pedal lever. The compact, dual-purpose design saves space and enhances convenience, making it suitable for both residential and commercial use.

No. of Pages : 10 No. of Claims : 8

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202541054325 A

(19) INDIA

(22) Date of filing of Application :05/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : SYSTEM AND METHOD FOR REAL-TIME SWEAT ANALYSIS VIA SMART SOCKS

|                                               |  |                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|-----------------------------------------------|--|---------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (51) International classification             |  | :A61B0005000000, A61B0005145000, G16H0040670000, A61B0005010000, G16H0050300000 | (71)Name of Applicant :<br><b>1)NEW HORIZON COLLEGE OF ENGINEERING</b><br>Address of Applicant :New Horizon College of Engineering New Horizon Knowledge Park Outer Ring Road, Near Marathalli Bellandur(P), Bangalore-560103 Bangalore -----<br><b>Name of Applicant : NA</b><br><b>Address of Applicant : NA</b><br>(72)Name of Inventor :<br><b>1)DIKSHA DHIMAN</b><br>Address of Applicant :Assistant Professor Department of MCA, New Horizon College of Engineering New Horizon Knowledge Park Outer Ring Road, Near Marathalli Bellandur(P), Bangalore-560103 Bangalore -----<br><b>2)SANUTH BIBIN B</b><br>Address of Applicant :MCA 2ND SEM C New Horizon College of Engineering New Horizon Knowledge Park Outer Ring Road, Near Marathalli Bellandur(P),Bangalore-560103 Bangalore -----<br><b>3)SHARFARAJ KAMALSAB GUMNALLI</b><br>Address of Applicant :MCA -2ND SEM C New Horizon College of Engineering New Horizon Knowledge Park Outer Ring Road, Near Marathalli Bellandur(P),Bangalore-560103 Bangalore ----- |
| (86) International Application No             |  | :NA                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Filing Date                                   |  | :NA                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| (87) International Publication No             |  | : NA                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| (61) Patent of Addition to Application Number |  | :NA                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Filing Date                                   |  | :NA                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| (62) Divisional to Application Number         |  | :NA                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Filing Date                                   |  | :NA                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |

(57) Abstract :

The invention relates to a pair of smart socks designed to monitor and analyze real-time sweat and metabolic activity of the wearer. These socks incorporate integrated sensors embedded within the fabric to detect various physiological parameters, including sweat composition and skin temperature. The data captured by these sensors are transmitted wirelessly to a connected mobile application, which provides users with real-time insights into their health status. The system leverages microfluidic channels to facilitate the collection and analysis of sweat samples, enabling non-invasive monitoring of metabolic processes such as hydration levels, glucose levels, and other biomarkers. The mobile app serves as a central hub for visualizing data trends, offering personalized health recommendations based on the analysis. This invention aims to improve user well-being by providing actionable health data in a convenient and non-intrusive form.

No. of Pages : 18 No. of Claims : 5

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :05/06/2025

(21) Application No.202541054328 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : UNDER-SHELF ORGANIZER WITH ADJUSTABLE GUIDEWAYS AND INTEGRATED SANITIZATION UNIT

(51) International classification :A47J0047160000, H04L0009080000, A61L0002100000, A61J0007000000, A47G0021140000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

The Under-Shelf Organizer with Adjustable Guideways and Integrated Sanitization Unit is a multifunctional kitchen storage solution designed to securely mount beneath shelves of varying thicknesses. It features a spacious tray for general storage, an integrated spoon stand for organized utensil placement, and a built-in UV light for effective sanitization. The dual guideway system ensures enhanced stability, while the structure allows for easy access and cleaning. This design offers a compact, hygienic, and space-efficient solution ideal for modern kitchen environments.

No. of Pages : 10 No. of Claims : 5

(54) Title of the invention : MULTI-MODAL FRAMEWORK FOR EMOTIONAL ALIGNMENT AND PRODUCTIVITY ENHANCEMENT

|                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
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| <div>(51) International classification</div> <div>(86) International Application No</div> <div>(87) International Publication No</div> <div>(61) Patent of Addition to Application Number</div> <div>(62) Divisional to Application Number</div> <div>Filing Date</div> <div>Filing Date</div> | <div>:A61M0021000000, A61M0021020000, G06N0020000000, G10H0001000000, G06F0003160000</div> <div>:NA</div> <div>:NA</div> <div>: NA</div> <div>:NA</div> <div>:NA</div> <div>:NA</div> <div>:NA</div> | <div>(71)Name of Applicant :</div> <div>1)NEW HORIZON COLLEGE OF ENGINEERING</div> <div>Address of Applicant :New Horizon College of Engineering, New Horizon Knowledge Park, Outer Ring Road, Near Marathahalli, Bellandur(P), Bangalore-560103 Bangalore -----</div> <div>Name of Applicant : NA</div> <div>Address of Applicant : NA</div> <div>(72)Name of Inventor :</div> <div>1)LIPSA DASH</div> <div>Address of Applicant :Senior Assistant Professor, Department of Electronics &amp; Communication, New Horizon College of Engineering, New Horizon Knowledge Park, Outer Ring Road, Near Marathahalli, Bellandur(P), Bangalore-560103 Bangalore -----</div> <div>2)HANISHA DADI</div> <div>Address of Applicant :Department of AIML, New Horizon College of Engineering, New Horizon Knowledge Park, Outer Ring Road, Near Marathahalli, Bellandur(P),Bangalore-560103 Bangalore -----</div> |
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(57) Abstract :  
This invention introduces a Multi-modal Framework for Emotional Alignment and Productivity enhancement application that transforms auditory experiences through dynamic adaptation. By integrating user text input, psychological brainwave analysis, and reinforcement learning, the system generates real-time, emotionally intelligent music. A central Decision AI module interprets emotional and cognitive states, while a multi-modal framework fuses brainwave signals, textual data, and audio preferences without hierarchy, allowing seamless synthesis. At its core is an adaptive beat generation engine, continuously evolving the soundscape to match the user’s inner world. Unique to this invention is a reinforcement learning module that personalizes music with increasing precision based on user feedback and behavior over time. The system provides an intelligent, interactive, and evolving sonic environment—perfectly tuned to enhance productivity, induce relaxation, or deliver deeply immersive listening.

No. of Pages : 14 No. of Claims : 4

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202541054344 A

(19) INDIA

(22) Date of filing of Application :05/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : CHILD SAFETY GUARD AND STORAGE BASKET ACCESSORY KIT FOR SCOOTERS

(51) International classification :H04L0001000000, B62K0003000000, A63B0021000000, A61B0005145500, A45C0009000000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

This invention produces an accessory system consisting of safety padding for children who stands frontward on the scooter and an attached storage compartment which enhances safety measures and storage convenience. This accessory possesses adjustable elastic bands and secure fastening straps together with an integrated basket that measures about 30 cm wide. This accessory design enables users to see vital scooter controls which supports operations while reducing accidents. The solution caters specifically to scooter users with children because it is portable while remaining lightweight while also being washable and universally adaptable.

No. of Pages : 9 No. of Claims : 6

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202541054352 A

(19) INDIA

(22) Date of filing of Application :05/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : NAP DURATION AND WAKE-UP TIMING DETECTION RADAR SYSTEM

(51) International classification :A61B0005000000, A61B0005110000, A61M0021000000, A61B0005024000, A61B0005113000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

The present invention relates to a radar-based nap timer that uses continuous-wave (CW) radar technology to monitor sleep patterns and determine the optimal time to wake the user. The system comprises a radar transceiver that emits low-power radio frequency (RF) signals and analyses the reflected signals to detect micro-movements associated with respiration and body motion. A signal processing unit processes this data and transmits it to a sleep stage detection unit, which classifies the user's sleep stages and identifies the optimal wake-up point to minimize sleep inertia. The system further includes a wake-up mechanism that triggers an alert to gently wake the user and a user interface that allows manual configuration of nap duration or automatic optimization based on detected sleep patterns. By dynamically adjusting detection parameters according to user preferences, the system enhances nap efficiency and provides a non-contact, user-friendly solution for improving alertness and cognitive performance.

No. of Pages : 12 No. of Claims : 6



(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :05/06/2025

(21) Application No.202541054361 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : AN ORNAMENTAL AND FUNCTIONAL LIGHT ILLUMINATED SAFETY JHUMKA

(51) International classification :A44C7/00, A44C15/00, F21Y115/10,  
F21V33/00  
(86) International Application No :NA  
Filing Date :NA  
(87) International Publication No : NA  
(61) Patent of Addition to Application :NA  
Number :NA  
Filing Date :NA  
(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

A light-illuminating Jhumka (100) is specifically designed for young girls, integrating aesthetics with functional lighting in a wearable form. This innovative accessory features a compact electronic circuit embedded within a traditionally styled "Jhumka," consisting of a low-voltage LED (103) powered by a 3V battery (105) and controlled through a manual switch (104). A key element of the design is the use of a coconut shell-based upper casing, which serves as a natural electrical insulator, enhancing safety and comfort for the wearer. The light can be activated or deactivated with ease, offering both decorative appeal and practical utility in dimly lit or emergency situations. By combining ornamental value with user-friendly operation and safety- focused material selection, the system offers a novel, eco-conscious solution tailored for children's daily wear.

No. of Pages : 13 No. of Claims : 5

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :05/06/2025

(21) Application No.202541054365 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : HAIROILAPPLICATORWITHSCALPMASSAGER

(51) International classification :A45D34/04  
(86) International Application No :NA  
Filing Date :NA  
(87) International Publication No : NA  
(61) Patent of Addition to Application Number :NA  
Filing Date :NA  
(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

The invention (100) discloses a hair oil applicator with an integrated scalp massager designed for precise, hygienic, and controlled oil application. It features a ball (101) that dispenses oil only when pressed, minimizing friction and irritation compared to traditional roll-on applicators. An oil applicator (102) ensures even distribution of oil while providing a gentle massaging action to promote scalp health and stimulate hair growth. A spring (103) positioned beneath the ball regulates oil flow by compressing under pressure, preventing leakage and excessive application. The oil container (104) securely stores the oil and is designed for durability, portability, and ease of use. The applicator may also include a flexible tube inside the container for better maneuverability, allowing users to easily reach all scalp areas. Together, these components offer a mess-free, efficient, and user-friendly solution for hair oil application.

No. of Pages : 11 No. of Claims : 6

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :05/06/2025

(21) Application No.202541054368 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : INTELLIGENTIRRIGATIONSYSTEMFORSUSTAINABLEWATER MANAGEMENTINFARMINGANDLANDSCAPING

(51) International classification :A01G0025160000, A01G0009240000, H02J0007350000, H04L0067120000, G05B0015020000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

The intelligent irrigation system is designed to optimize water usage in agriculture and landscaping by automating the irrigation process. It consists of a control unit that monitors soil moisture and weather conditions, ensuring precise water distribution. The system is powered by a power source and an integrated solar panel for energy efficiency. The control unit includes indicators such as the power indicator, solar indicator, and full water indicator to provide real-time system status. Soil moisture sensors and weather sensors help determine irrigation needs, minimizing water wastage. A mobile app allows remote monitoring and control of irrigation schedules. The system operates through drip irrigation lines to deliver water directly to plant roots. By integrating automation and renewable energy, this system ensures sustainable water management, reduces manual labor, and enhances crop productivity while conserving water resources.

No. of Pages : 13 No. of Claims : 4

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :05/06/2025

(21) Application No.202541054370 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : A Meter for Ultimate Health Monitoring

(51) International classification :A61B0005000000, A61B0005145500, A61B0005024000, A61B0005020500, G16H0040670000  
(86) International Application No :NA  
Filing Date :NA  
(87) International Publication No : NA  
(61) Patent of Addition to Application Number :NA  
Filing Date :NA  
(62) Divisional to Application Number :NA  
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(57) Abstract :

The present invention relates to a portable health monitoring device (100) designed to measure multiple vital health parameters in one compact unit. The device is powered by a battery (101) and includes bioimpedance sensors (102) to assess body composition and hydration levels. An Arduino Uno board (103) controls the operation, collecting data from the sensors. Infrared sensors (104) enable non-contact temperature detection, while an MLX9061 thermometer (105) provides accurate body surface temperature readings. Additionally, an oximeter hole (106) is provided for measuring blood oxygen saturation (SpO2) and pulse rate. The integration of these components allows users to perform quick, reliable, and complete health checkups at home or on the move, eliminating the need for multiple separate devices. The design ensures easy use, portability, and effective health monitoring for personal or professional healthcare purposes.

No. of Pages : 11 No. of Claims : 7

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :05/06/2025

(21) Application No.202541054372 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : AN AI SYSTEM FOR YOGA MUDRA DETECTION AND CORRECTION

(51) International classification :G06N0003045000, G06F0003010000, A63B0021000000, A63B0026000000, G06V0020100000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

Yoga Mudras, a significant part of yoga, involve specific hand gestures that are believed to influence energy flow within the body, promoting healing and balance. The accurate practice of mudras is crucial for achieving desired benefits. This research proposes developing an AI-powered mobile application, "Healing Hands," to provide real-time recognition and correction of yoga mudras. The application will use CNNs to recognise and provide feedback on user-performed mudras, empowering individuals to learn and practice mudras effectively, promoting holistic well-being.

No. of Pages : 16 No. of Claims : 4

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202541054376 A

(19) INDIA

(22) Date of filing of Application :05/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : Smart Recycling System for Fabrics

(51) International classification :G06F0018241100, G06N0003080000, G06N0003045000, G06V0010820000, G06Q0010100000

(86) International Application No :NA

Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA

Filing Date :NA

(62) Divisional to Application Number :NA

Filing Date :NA

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(57) Abstract :

This invention Smart Recycling System For Fabrics presents a novel. The proposed system combines the strengths of CNN for detecting the condition of the fabric and the condition of the fabric. Then Decision tree is used for deciding the category of the clothes to be recycled either as reusable one or recyclable one .If reusable one the decision for new clothing is given to the user for deciding what type of clothes to be done. If it is a recyclable one the options of carpetbag or others option is given based on the condition. The design suggestion is given by GAN .Once the design suggestion is approved by the customer it is done and finally defect detection is done by SVM algorithm. The final logistics and distribution is taken care by the optimization algorithm Soothe elevation of complete design (100) of a model for customer side(101) data information and the AI model (107).Fig 2 is an exemplary embodiment of disclosure which illustrates the comprising steps registration (102),clothes collection (103),user feed requirement (104),user response for the model suggestion on clothes (105),payment gateway(106). Fig 3 illustrates the final component of the AI trained model to generate clothes based on the condition of the material using CNN (108), decision (109), defect detection (111) and finally logistics by PSO (112).

No. of Pages : 17 No. of Claims : 7

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :05/06/2025

(21) Application No.202541054382 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : SMART TRASH MANAGEMENT SYSTEM THROUGH E-COIN REWARDS

(51) International classification :B65F0001140000, B65F0001000000, G06Q0050000000, G06Q0010300000, H04W0004380000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

This invention provides a comprehensive waste management system by combining modern sensor technologies, app applications, and data analytics. The system implemented consists of smart dustbins with weight and odor sensors that track the amount of trash in real time and alert the user via a app application when the trash reaches 75% full or starts to smell bad. Users are able to request pickups using the application, and the back-end system will send out a crew to pick them up. After being gathered, the waste is taken to a warehouse for recycling and segregation. By enhancing waste collection procedures with no environmental damage and encouraging proper waste disposal, this approach removes the inefficiencies of the earlier waste management methods and increases user engagement.

No. of Pages : 16 No. of Claims : 5

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202541054393 A

(19) INDIA

(22) Date of filing of Application :05/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : A PORTABLE SMART PEN CUM POINTER FOR BOARD MARKER

(51) International  
classification

:G06F0003035400, G06F0003038000,  
B43K0029000000, G06F0003160000,  
G06F0003030000

(86) International  
Application No  
Filing Date

:NA  
:NA

(87) International  
Publication No

: NA

(61) Patent of Addition to  
Application Number

:NA  
:NA

Filing Date  
(62) Divisional to  
Application Number  
Filing Date

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(57) Abstract :

A portable smart pen cum pointer (200) consists of; (i) a body of the board marker; (ii) Aportable portion (230).

No. of Pages : 15 No. of Claims : 5



(12) PATENT APPLICATION PUBLICATION

(21) Application No.202541054542 A

(19) INDIA

(22) Date of filing of Application :05/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : SMART POWERED PERSONALIZED LEARNING SYSTEM

(51) International classification :G06F0003010000, G06N0020000000, G06V0040160000, G16H0050700000, G09B0005060000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

The present invention introduces an AI-powered personalized learning assistant that dynamically adapts educational content by analyzing real-time user engagement and emotional responses. The system integrates an eye-tracking module to monitor gaze patterns and a sentiment analysis module to assess emotional states through facial expression analysis. A content adaptation engine processes this data and modifies content format, difficulty, and pace to optimize learning outcomes. Additionally, a machine learning model continuously improves system performance by analyzing historical user data to refine content recommendations. The system provides an intuitive user interface that displays real-time feedback and allows manual configuration to enhance personalization. By leveraging these technologies, the invention ensures an adaptive and highly engaging learning experience, improving knowledge retention and user satisfaction.

No. of Pages : 15 No. of Claims : 6

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :06/06/2025

(21) Application No.202541054553 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : AI-AUGMENTED AUTOMATED LECTURE PROCESSING AND NOTE GENERATION SYSTEM

|                                                                                                                                                                                                                                                                                                                                                                                           |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
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| <p>(51) International classification :G06Q0050200000, G10L0015260000, G06Q0050100000, G10L0015080000, H04N0021854700</p> <p>(86) International Application No :NA<br/>Filing Date :NA</p> <p>(87) International Publication No : NA</p> <p>(61) Patent of Addition to Application Number :NA<br/>Filing Date :NA</p> <p>(62) Divisional to Application Number :NA<br/>Filing Date :NA</p> |  | <p>(71)<b>Name of Applicant :</b><br/><b>1)NEW HORIZON COLLEGE OF ENGINEERING</b><br/>Address of Applicant :New Horizon College of Engineering New Horizon Knowledge Park Outer Ring Road, Near Marathalli Bellandur(P), Bangalore-560103 Bangalore -----<br/><b>Name of Applicant : NA</b><br/><b>Address of Applicant : NA</b><br/>(72)<b>Name of Inventor :</b><br/><b>1)PRIYA THOMAS</b><br/>Address of Applicant :Sr. Asst. Professor/Department of MCA, New Horizon College of Engineering New Horizon Knowledge Park Outer Ring Road, Near Marathalli Bellandur(P), Bangalore-560103 Bangalore -----<br/><b>2)NAKSHITHA TANDEL</b><br/>Address of Applicant :Student, Department of MCA New Horizon College of Engineering New Horizon Knowledge Park Outer Ring Road, Near Marathalli Bellandur(P), Bangalore-560103 Bangalore -----<br/><b>3)NIKITHA GS</b><br/>Address of Applicant :Student, Department of MCA New Horizon College of Engineering New Horizon Knowledge Park Outer Ring Road, Near Marathalli Bellandur(P), Bangalore-560103 Bangalore -----<br/><b>4)NAZMIN N</b><br/>Address of Applicant :Student, Department of MCA New Horizon College of Engineering New Horizon Knowledge Park Outer Ring Road, Near Marathalli Bellandur(P), Bangalore-560103 Bangalore -----</p> |
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(57) Abstract :

The present invention relates to an intelligent system and method for automatically generating structured lecture notes from live faculty speech. The rapid growth of AI has increased the dependency of learning community on AI generated contents for understanding lectures. The procedure is time consuming and more tedious when multiple lectures are involved. To reduce the time invested and to improve the relevance and accuracy of notes this model captures the audio clips, extracts keywords and connect with AI tools to create enriched contents. The generated contents will be further verified, formatted by incorporating relevant formatting tools and exported to required formats. The model can be effectively used by teaching as well as learning community to make the learning process more efficient, effective and impactful.

No. of Pages : 16 No. of Claims : 4

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202541054555 A

(19) INDIA

(22) Date of filing of Application :06/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : An IoT assisted fruit freshness and ROT status detection device

(51) International classification :G08B0017120000, G08B0019000000, F24C0007080000, G08B0027000000, G08B0025000000

(86) International Application No :NA

Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA

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(57) Abstract :

The invention is a smart flame detection and emergency alert application using video processing and geo-location. It analyzes real-time footage to detect flames, then sends emergency alerts with location data to contacts and services. This system offers efficient, cost-effective fire monitoring, enabling rapid response in unattended or high-risk environments. Fig 1 is an exemplary embodiment of disclosure which illustrates the working of the IoT- based system (100), where the sensor unit and input interface (101) collects gas concentration data, temperature and humidity readings, and color/visual data, interfacing with the IoT-based system (102) for freshness and rot status detection

No. of Pages : 15 No. of Claims : 5

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202541054558 A

(19) INDIA

(22) Date of filing of Application :06/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : SMART FIRE DETECTION AND ALERT SYSTEM

(51) International classification :H04W0004900000, G08B0017120000, H04W0004020000, G08B0025000000, H04W0004029000

(86) International Application No :NA

Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA

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(57) Abstract :

The invention provides a smart flame detection and emergency alert application using real-time video analysis and geolocation. It detects fire through image recognition, captures user location, and sends alerts to contacts and emergency services. The system ensures efficient, scalable, and cost- effective fire monitoring, enhancing safety in high-risk or unattended areas. Fig 1 is an exemplary embodiment of the disclosure, illustrating the overall system (100) where the user with a mobile application and camera interface (101) communicates with the Smart Fire Detection and Alert System (102) by sending mobile video recordings and GPS coordinates, receiving response confirmation.

No. of Pages : 15 No. of Claims : 4

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202541054671 A

(19) INDIA

(22) Date of filing of Application :06/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : A PORTABLE HEAD-MOUNTED DEVICE FOR VISUAL ACUITY TEST AND A METHOD OF TESTING VISUAL ACUITY

(51) International classification :A61B0003032000, A61B0003060000, A61B0003000000, A61B0003028000, A61B0003036000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

A PORTABLE HEAD-MOUNTED DEVICE FOR VISUAL ACUITY TEST AND A METHOD OF TESTING VISUAL ACUITY ABSTRACT 5 A method (300) of testing visual acuity and colour blindness is provided. The method (300) includes switching (302) ON the portable head-mounted device (100), displaying (304) Snellen chart letters and digital colour blindness screening plates on TFT displays (102a/102b), allowing (306) a user to read Snellen chart letters displayed on the TFT displays (102a/102b), changing (308) Snellen chart letters displayed by the user using at least one of a push button (108a/b), observing (310) the displayed visual acuity measurement in an OLED display (106), testing visual acuity of the user based on reading of the Snellen chart letters by the user and determining a visual acuity of the user by recording a smallest readable line displayed on the OLED display (106), screening (312) the colour blindness of the user based on reading of one or more colour blindness images displayed to the user via one of the TFT displays (102a/102b). [FIG.3]

No. of Pages : 28 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :06/06/2025

(21) Application No.202541054689 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : SMART CEILING FAN WITH LOAD-SENSITIVE SAFETY ALERT MECHANISM

|                                               |                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|-----------------------------------------------|---------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (51) International classification             | :F04D0025080000, F04D0029340000, G05B0019042000, A61B0005110000, G01L0001220000 | (71)Name of Applicant :<br><b>1)NEW HORIZON COLLEGE OF ENGINEERING</b><br>Address of Applicant :New Horizon College of Engineering New Horizon Knowledge Park Outer Ring Road, Near Marathalli Bellandur(P), Bangalore-560103 Bangalore -----<br><b>Name of Applicant : NA</b><br><b>Address of Applicant : NA</b><br>(72)Name of Inventor :<br><b>1)N MITHILI DEVI</b><br>Address of Applicant :Associate Professor Department of MCA, New Horizon College of Engineering New Horizon Knowledge Park Outer Ring Road, Near Marathalli Bellandur(P), Bangalore-560103 Bangalore -----<br><b>2)Sai Kumar</b><br>Address of Applicant :Student/Department of MCA New Horizon College of Engineering New Horizon Knowledge Park Outer Ring Road, Near Marathalli Bellandur( P), Bangalore- 560103 Bangalore -----<br><b>3)Maheshwar Reddy Kuraparthi</b><br>Address of Applicant :Student/Department of MCA New Horizon College of Engineering New Horizon Knowledge Park Outer Ring Road, Near Marathalli Bellandur( P), Bangalore- 560103 Bangalore ----- |
| (86) International Application No             | :NA                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Filing Date                                   | :NA                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| (87) International Publication No             | : NA                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| (61) Patent of Addition to Application Number | :NA                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Filing Date                                   | :NA                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| (62) Divisional to Application Number         | :NA                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Filing Date                                   | :NA                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |

(57) Abstract :

The invention provides a smart ceiling fan system with a load-sensitive safety alert mechanism that detects abnormal load conditions using a load cell, processes data through a microcontroller, and triggers real-time alarms, enhancing safety by preventing potential structural failures and ensuring timely alerts in various environments. Fig 1 is an exemplary embodiment of disclosure which illustrates the physical setup of the smart ceiling fan system (100), which comprises a ceiling fan (101), a load cell (102) to detect weight changes, an HX711 amplifier module (103) to process the load signal, an ESP32 microcontroller (104) for data processing and communication, and an alarm unit (105) for alerting.

No. of Pages : 16 No. of Claims : 4

(54) Title of the invention : REAL-TIME EDGE-CLOUD ORCHESTRATION FOR LATENCY - SENSITIVE IOT SYSTEMS

|                                               |                                                                                 |                                                                                                                                                                                                                                               |
|-----------------------------------------------|---------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (51) International classification             | :G06F0009500000, H04W0004700000, H04L0067120000, G06F0011300000, G06F0016230000 | (71)Name of Applicant :<br><b>1)NEW HORIZON COLLEGE OF ENGINEERING</b><br>Address of Applicant :New Horizon College of Engineering New Horizon Knowledge Park Outer Ring Road, Near Marathalli Bellandur(P), Bangalore-560103 Bangalore ----- |
| (86) International Application No             | :NA                                                                             | <b>Name of Applicant : NA</b>                                                                                                                                                                                                                 |
| Filing Date                                   | :NA                                                                             | <b>Address of Applicant : NA</b>                                                                                                                                                                                                              |
| (87) International Publication No             | : NA                                                                            | (72) <b>Name of Inventor :</b>                                                                                                                                                                                                                |
| (61) Patent of Addition to Application Number | :NA                                                                             | <b>1)PRIYA THOMAS</b><br>Address of Applicant :Sr. Asst. Professor/Department of MCA, New Horizon College of Engineering New Horizon Knowledge Park Outer Ring Road, Near Marathalli Bellandur(P), Bangalore-560103 Bangalore -----           |
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| (62) Divisional to Application Number         | :NA                                                                             |                                                                                                                                                                                                                                               |
| Filing Date                                   | :NA                                                                             |                                                                                                                                                                                                                                               |

(57) Abstract :  
The rapid growth of Internet of Things (IoT) devices has necessitated the development of efficient computational architectures to manage the inherent latency challenges associated with real-time applications. This work uses a novel edge-cloud orchestration framework specifically designed for latency-sensitive IoT systems. By leveraging a hybrid architecture that seamlessly integrates edge computing resources with cloud services, our approach optimizes data processing and resource allocation based on real-time analytics and user-defined latency requirements. Hybridized meta-heuristic algorithms are used to enhance the optimization results.

No. of Pages : 17 No. of Claims : 6

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202541055777 A

(19) INDIA

(22) Date of filing of Application :10/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : MULTIPURPOSE PNEUMATIC SYSTEM FOR AGRICULTURE SPRAYING, TIRE INFLATION AND FIELD CLEANING

|                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>(51) International classification : F04B17/05, F04B35/00, B60S5/04, B08B3/02, A01M7/00</p> <p>(86) International Application No : NA<br/>Filing Date : NA</p> <p>(87) International Publication No : NA</p> <p>(61) Patent of Addition to Application Number : NA<br/>Filing Date : NA</p> <p>(62) Divisional to Application Number : NA<br/>Filing Date : NA</p> | <p>(71)Name of Applicant :<br/><b>1)DR.P.VIJAYAKUMAR</b><br/>Address of Applicant :ASSOCIATE PROFESSOR DEPARTMENT OF AERONAUTICAL ENGINEERING, NEHRU INSTITUTE OF TECHNOLOGY (AN AUTONOMOUS INSTITUTION)THIRUMALAYAMPALAYAM,COIMBATORE,TAMIL NADU Countrv INDIA Pin code 641105 -----</p> <p><b>2)S.J.ELPHEJ CHURCHIL</b><br/><b>3)A.SIVARAMAN</b><br/><b>4)Dr.V.S.AJITH</b><br/><b>5)P.RINCHU</b><br/><b>6)Dr.D.SANGUPANDY</b><br/><b>7)R.CHINNADURAI</b><br/><b>8)K.NEHRU</b></p> <p>Name of Applicant : NA<br/>Address of Applicant : NA</p> <p>(72)Name of Inventor :<br/><b>1)DR.P.VIJAYAKUMAR</b><br/>Address of Applicant :ASSOCIATE PROFESSOR, DEPARTMENT OF AERONAUTICAL ENGINEERING, NEHRU INSTITUTE OF TECHNOLOGY (AN AUTONOMOUS INSTITUTION), THIRUMALAYAMPALAYAM, COIMBATORE-641105 -----</p> <p><b>2)S.J.ELPHEJ CHURCHIL</b><br/>Address of Applicant :ASSISTANT PROFESSOR DEPARTMENT OF AERONAUTICAL ENGINEERING, J.J. COLLEGE OF ENGINEERING AND TECHNOLOGY AMMAPETTAI City TRICHY State TAMILNADU Country INDIA Pin code 620009 --</p> <p><b>3)A.SIVARAMAN</b><br/>Address of Applicant :ASSISTANT PROFESSOR DEPARTMENT OF AERONAUTICAL ENGINEERING, NEHRU INSTITUTE OF ENGINEERING AND TECHNOLOGY,THIRUMALAYAMPALAYAM City COIMBATORE State TAMIL NADU Country INDIA Pin code 641105 -----</p> <p><b>4)Dr.V.S.AJITH</b><br/>Address of Applicant :ASSOCIATE PROFESSOR DEPARTMENT OF AERONAUTICAL ENGINEERING, JAWAHARLAL COLLEGE OF ENGINEERING AND TECHNOLOGY,PALAKKAD City PALAKKAD State KERALA Country INDIA Pin code 679301 -----</p> <p><b>5)P.RINCHU</b><br/>Address of Applicant :ASSOCIATE PROFESSOR DEPARTMENT OF AERONAUTICAL ENGINEERING, JAWAHARLAL COLLEGE OF ENGINEERING AND TECHNOLOGY,PALAKKAD City PALAKKAD State KERALA Country INDIA Pin code 679301 -----</p> <p><b>6)Dr.D.SANGUPANDY</b><br/>Address of Applicant :DEPARTMENT OF MECHANICAL ENGINEERING,SUDHARSAN ENGINEERING COLLEGE,SATHYAMANGALAM,TAMILNADU,INDIA. PIN:622501. -----</p> <p><b>7)R.CHINNADURAI</b><br/>Address of Applicant :DEPARTMENT OF MECHANICAL ENGINEERING, TAGORE INSTITUTE OF ENGINEERING AND TECHNOLOGY,DEVYAKURICHI,SALEM,TAMILNADU,INDIA. -----</p> <p><b>8)K.NEHRU</b><br/>Address of Applicant :DEPT.OF AEROSPACE ENGINEERING,SNS COLLEGE OF TECHNOLOGY,SARAVANAMPATTI,TAMILNADU,INDIA. -----</p> |
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(57) Abstract :

Abstract The primary objective is to overcome common challenges encountered during agricultural cultivation and transportation, particularly those related to time consumption and operational cost Specific problems addressed include the high cost and time involved in spraying pesticides and tire deflation in agricultural fields. A pneumatic system is developed using a compressor that converts mechanical power from an engine into pressurized air. The compressed air is stored in a tank and utilized for multiple purposes. Primarily, the air is used to inflate deflated tires in the field. Additionally, it is employed to spray pesticides, fertilizers, and herbicides through sprayer nozzles connected to a 20-litre storage tank. The system is implemented on a mobile trolley setup consisting of an engine, air compressor, pesticide storage tank, and spraying unit This setup serves as a prototype to evaluate the performance characteristics of the system. The compressed air can also be redirected for use as a pressure washer for cleaning agricultural vehicles or equipment and for small-scale spray painting. The air storage tank (1 0 litres) takes approximately 42 seconds to reach a pressure of 70 kg/cm2• The spraying system is capable of covering approximately 1.4 acres of farmland in one hour .

No. of Pages : 6 No. of Claims : 6



(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :10/06/2025

(21) Application No.202541055800 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : A SYSTEM AND METHOD FOR RETROFITTING GAS STOVE KNOBS WITH REMOTE AND AUTOMATED CONTROL

(51) International classification :F24C0003120000, A61B0005020500, A61B0005000000, A61B0005318000, A61B0017320000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

The invention relates to a modular control apparatus designed to retrofit conventional gas stove knobs for automated and remote operation. The system features a servo-driven dynamic rotor that mechanically depresses and rotates the knob to enable ignition, addressing limitations of existing smart knobs that lack press-to-ignite capability. A custom modular knob with interchangeable couplers ensures compatibility with various stove types. Integrated sensors, including flame, temperature, and microphone modules, enable real-time monitoring for features such as boiling detection and whistle counting. Controlled via a mobile application, the system offers programmable cooking, safety alerts, and automated shutoff, all without modifying the stove's internal structure. The invention provides a cost-effective, non-intrusive solution for enhancing kitchen safety, convenience, and intelligent cooking control

No. of Pages : 30 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202541055835 A

(19) INDIA

(22) Date of filing of Application :10/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : HIGH EFFICIENCY POWERTRAIN AND BRAKING SYSTEM FOR ALL-TERRAIN OFF-ROAD VEHICLE

(51) International classification :B60K17/06, B60K17/34,  
B60T1/06  
(86) International Application No :NA  
Filing Date :NA  
(87) International Publication No : NA  
(61) Patent of Addition to Application  
Number :NA  
Filing Date :NA  
(62) Divisional to Application Number :NA  
Filing Date :NA

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**6)V.SORNA MUGASH**

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(57) Abstract :

Abstract The primary objective is to design and fabricate the Powertrain system of an All-Terrain Vehicle (A TV) along with its Wheels and Braking system. The main focus is to develop a single-seater, high-performance off-road vehicle capable of handling rugged terrains while ensuring maximum safety and driver comfort. The vehicle is engineered to generate sufficient power to traverse . rough landscapes with minimal effort. With the growing adoption of alternative powertrains, selecting the most appropriate configuration for a specific vehicle class becomes a significant challenge. The powertrain is constructed to tow up to 1 ton and is designed and validated through analytical calculations. Physical analysis determined the suitable gear reduction required to achieve the targeted top speed and torque. The braking system is engineered, analyzed, and integrated to deliver high-efficiency performance with minimal driver input, regardless of terrain conditions. It plays a crucial role in the vehicle's overall drivability. The brake design process involves evaluating various operating conditions to ensure optimal effectiveness. The A TV also emphasizes efficiency in multiple aspects, including driver safety, costeffectiveness, durability, ease of maintenance, and suitability as a robust transportation solution in off-road environments.

No. of Pages : 7 No. of Claims : 5

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202541056168 A

(19) INDIA

(22) Date of filing of Application :11/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : SYSTEM AND METHODS FOR PREDICTING COGNITIVE BEHAVIOURAL PATTERNS AMOUND SOCIAL MEDIA USERS ENGAGED IN DIGITAL LEARNING

(51) International classification :G06N0003080000, G06Q0050000000, A61B0005160000, G06F0040300000, G06N0003045000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

ABSTRACT: The present invention relates to systems and methods for predicting cognitive and behavioural patterns among social media users engaged in digital learning. The system captures and analyses multimodal data, including textual posts, comments, interaction metrics, and visual media from multiple social media platforms such as YouTube, Instagram, Twitter, and Reddit. Utilizing a hybrid artificial intelligence model that integrates Natural Language Processing (NLP), facial emotion recognition, and time-series deep learning, the system generates a dynamic Learner Profile Vector (LPV) that reflects real-time cognitive engagement, emotional state, and behavioural trajectories. The hardware-software architecture comprises a Multi-Channel Data Acquisition Unit interfaced through APIs for continuous data extraction, an Edge AI Processing Module or cloud-based engine for realtime preprocessing and noise reduction, and a Deep Learning Processor Core equipped with GPUs or TPUs to execute LSTM and attention-based neural networks. Secure Storage employing relational or NoSQL databases maintains learner histories and pattern logs. An Adaptive Recommendation Engine delivers personalized learning interventions via preferred social media channels, while a Visualization and Alert Dashboard provides actionable insights to educators and stakeholders. The invention supports scalable, privacy-aware, and adaptive monitoring, ensuring cognitive alignment and emotional wellbeing in decentralized social media learning environments.

No. of Pages : 8 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :11/06/2025

(21) Application No.202541056176 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : REAL-TIME IMAGE DESCRIPTION AND AUDIO NARRATION FOR VISUALLY IMPAIRED USERS

(51) International classification :G09B0021000000, G06F0003160000, G06V0020200000, G07F0007100000, A61F0009080000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

No. of Pages : 6 No. of Claims : 6

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :11/06/2025

(21) Application No.202541056189 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : NAVIGATION-GUIDED TURN SIGNALING SYSTEM FOR VEHICLES

(51) International classification :G01C0021360000, G08G0001096800, G08G0001096900, G08G0001096700, B62H0005200000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

The present invention provides a smart, automated turn signalling system that is designed for bicycles and small vehicles which enhances road safety by using navigation data to activate directional indicators. The system consists of an ESP32 microcontroller, a mobile application, and LED indicators. The mobile application allows the user to select a destination and fetches route data including turning points using a navigation API such as OpenRouteService. The ESP32 continuously receives live GPS coordinates from the mobile app and compares them to the upcoming turn nodes. When the vehicle approaches a turn, the ESP32 activates the corresponding LED indicator and buzzer. After the turn is completed, the system automatically turns off the signal. This hands-free solution removes the need for manual input. The system is housed within a lightweight structure attached to the bicycle which is powered by a portable power source and includes an LCD for live feedback. It is scalable and energy efficient. It is also customizable for multiple vehicle types. By automating turn signalling, the invention reduces the distraction of drivers and enhances safety while navigating in a urban or high traffic environments.

No. of Pages : 13 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202541056205 A

(19) INDIA

(22) Date of filing of Application :11/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : DEVELOPMENT OF LESS TOXIC NON-CONJUGATED POLYMER DOT AS AN ANTIBACTERIAL AND ANTICANCER AGENT

(51) International classification :A61P0031040000, A61P0035000000, C07F0015000000, A61K0033380000, B82Y0030000000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

Abstract Polymer-based fluorescent nanomaterials have been broadly in the spotlight because of their variability, biocompatibility, and fluorescent properties that formulate them highly appropriate for a broad array of biomedical applications. The emergence of antibiotic-resistant bacteria and the urgency to find cancer therapies specifically targeting call for the synthesis of multifunctional nanomaterials that combine fluorescence with antibacterial and anticancer activity. These materials represent a significant milestone, bringing together traditional therapies and cutting-edge nanotechnology to enable future therapeutic and diagnostic functions, functionalized fluorescent polymer dots were also prepared in this research work through a single-step hydrothermal process from a polyvinyl alcohol (PVA) precursor. Morphological examination confirmed that they are spherical particles with diameters smaller than 10 nm. Optical characterisation demonstrated significant UV-blue light absorbance and extensive visible light emission. The nanodots synthesised showed effective bactericidal activity against gram-positive and gram-negative bacteria. They also expressed anticancer activity against A549 lung cancer cells with minimal cytotoxicity against HEK 293 cells. Their optical properties also render them good prospects for application in diagnostic imaging as well as light-based medical devices.

No. of Pages : 22 No. of Claims : 6

(54) Title of the invention : AI OPTIMIZED DEMAND FORECASTING AND INVENTORY BALANCING SYSTEM FOR RESILIENT SUPPLY CHAINS

|                                                                                                                                                                                                                                                  |                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <div>(51) International classification</div> <div>(86) International Application No</div> <div>(87) International Publication No</div> <div>(61) Patent of Addition to Application Number</div> <div>(62) Divisional to Application Number</div> | <div>:G06Q0010087000, G06Q0030020200, G06Q0010040000, G06Q0010063700, G06N0005045000</div> <div>:NA</div> <div>:NA</div> <div>: NA</div> <div>:NA</div> <div>:NA</div> <div>:NA</div> <div>:NA</div> | <div>(71)Name of Applicant :</div> <div>1)SAVEETHA ENGINEERING COLLEGE</div> <div>Address of Applicant :SAVEETHA NAGAR, THANDALAM, CHENNAI-602105, TAMILNADU -----</div> <div>Name of Applicant : NA</div> <div>Address of Applicant : NA</div> <div>(72)Name of Inventor :</div> <div>1)Dr.VIMALNATH.V</div> <div>Address of Applicant :Assistant Professor (Senior Grade), Department of Management Studies, Saveetha Engineering College, Saveetha Nagar, Thandalam, Chennai-6021 05, Tamilnadu, India -----</div> |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

(57) Abstract :

The present invention discloses an AI Optimized Demand Forecasting and Inventory Balancing System designed to enhance the resilience, agility, and efficiency of modern supply chains. It addresses critical limitations in traditional forecasting and inventory planning systems by introducing a unified, intelligent platform that integrates machine learning, predictive analytics, and adaptive optimization techniques. The system is capable of ingesting and processing high-volume, high-velocity data from diverse internal and external sources including sales history, inventory records, supplier performance, market trends, seasonal factors, and real-time disruptions to generate highly accurate, context-aware demand forecasts across multiple levels of a supply network. The core of the invention comprises a hybrid AI forecasting engine, combining time series models, deep learning architectures, and causal inference algorithms to predict demand patterns under volatile and uncertain conditions. These forecasts are linked to a dynamic inventory optimization engine, which computes ideal inventory levels, reorder points, and transfer strategies by considering service-level targets, holding costs, warehouse capacities, lead times, and stock variability. A distinctive feature of the system is its reinforcement learning-based feedback loop, which continuously updates model parameters based on actual performance outcomes such as forecast errors, stockout rates, and customer satisfaction scores, thereby ensuring continuous self-improvement. The invention also features a decision explainability module that provides transparent, user-friendly insights into forecasts and inventory recommendations, fostering greater trust in AI-assisted decision-making. Its modular design allows seamless integration with ERP, WMS, and SCM platforms and is scalable across industries including retail, manufacturing, e-commerce, and healthcare logistics. This invention enables organizations to shift from reactive, manual supply chain operations to proactive, data-driven, and resilient planning, transforming volatility into opportunity through intelligent automation and strategic foresight.

(54) Title of the invention : GENERATIVE AI AUGMENTED SUPPLIER EVALUATION AND RISK MITIGATION PLATFORM

|                                               |                                                                                 |                                                                                                                                                                                               |
|-----------------------------------------------|---------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (51) International classification             | :G05D0001000000, G01C0021340000, B60W0050140000, G08G0001090000, G08G0001127000 | (71)Name of Applicant :<br>1)SAVEETHA ENGINEERING COLLEGE<br>Address of Applicant :SAVEETHA NAGAR, THANDALAM, CHENNAI-602105, TAMILNADU -----                                                 |
| (86) International Application No             | :NA                                                                             | Name of Applicant : NA                                                                                                                                                                        |
| Filing Date                                   | :NA                                                                             | Address of Applicant : NA                                                                                                                                                                     |
| (87) International Publication No             | : NA                                                                            | (72)Name of Inventor :<br>1)Dr.VIMALNATH.V                                                                                                                                                    |
| (61) Patent of Addition to Application Number | :NA                                                                             | Address of Applicant :Assistant Professor (Senior Grade), Department of Management Studies, Saveetha Engineering College, Saveetha Nagar, Thandalam, Chennai.-6021 05, Tamilnadu; India ----- |
| Filing Date                                   | :NA                                                                             |                                                                                                                                                                                               |
| (62) Divisional to Application Number         | :NA                                                                             |                                                                                                                                                                                               |
| Filing Date                                   | :NA                                                                             |                                                                                                                                                                                               |

(57) Abstract :  
The present invention provides a novel and intelligent supplier evaluation and risk mitigation platform powered by Generative Artificial Intelligence (AI). The platform is designed to enhance the accuracy, depth, and responsiveness of supplier assessment in complex, dynamic supply chain environments. By aggregating and processing structured internal procurement data and unstructured external sources-, including regulatory filings, ESG disclosures, realtime news feeds, and social. media insights- the system constructs comprehensive and continuously up"dated supplier profiles. At the core of the invention is a generative risk simu-lation engine capable of forecasting supplier behavior and generating hypothetical. risk scenarios under diverse operational, geopolitical, and economic conditions. The platform enables procurement professionals to proactively identify vulnerabilities, evaluate alternate sourcing :>trategies, and implement mitigation -plans before actual disruptions occur. Advanced N LP, and machine learning techniques extract insights from non-traditional data sources, while the generative AI models simulate responses to supply chain stressors. The system incorporates a multi-criteria scoring mechanism that dynamically ranks suppliers based on factors such as strategic fit, compliance history, em·ironmental responsibility, financial stability, and adaptability. It features an intuitive, real-tim~ decision dashboard and a feedback-driven learning loop to improve accuracy and performa,1ce over time. By shifting from a static, backward-looking evaluation model to a predictive, generative, and adaptive framework, the invention significantly improves supplier governan~e, supply chain resilience, and strategic sourcing outcomes. This platform is scalable, cloud-cbmpatible, and suitable for deployment across manufacturing, retail, healthcare, and other indllStries with complex vendor ecosystems.

No. of Pages : 9 No. of Claims : 6



(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :12/06/2025

(21) Application No.202541056545 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : ADAPTIVE AUTOMATED WORKFLOW ALLOCATION AND TRAINING SYSTEM USING AUGMENTED REALITY

(51) International classification :G06Q0010063100, G06N0020000000, G16H0040200000, G06Q0010063900, G06F0018240000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
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(57) Abstract :

The invention discloses an intelligent, integrated system that revolutionizes workforce allocation and training through the synergistic use of Artificial Intelligence (AI), real-time analytics, and Augmented Reality (AR). It is designed to automate the process of assigning tasks to personnel based on dynamic factors such as employee skill levels, task complexity, environmental conditions, and real-time operational demands. The system ensures that each allocation decision is informed, adaptive, and optimized for both efficiency and workforce development. At the core of the system is a Workforce Intelligence Engine, which leverages predic

No. of Pages : 6 No. of Claims : 5

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :13/06/2025

(21) Application No.202541056883 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : SCAN2DINE: AN AUTOMATED SOLUTION FOR ENFORCING THE ONE PLATE PER PERSON POLICY

(51) International classification :G16H0040200000, G06F0021620000, G06Q0050260000, G07C0009280000, G06Q0030018000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

ABSTRACT "Scan2Dine: An Automated Solution for Enforcing the One Plate Per Person Policy" Scan2Dine is an automated system designed to enforce the One Plate Per Person policy in institutional and corporate mess facilities. Using barcode-based authentication, the system verifies a person's eligibility before dispensing a plate, preventing unauthorized access. and reducing food wastage. It integrates an online payment gateway for day scholars and guests while maintaining a real-time plate count monitoring system that alerts staff when refills are needed. Additionally, a hosteller absence database, updated by the warden, prevents misuse of ID cards. With data analytics tracking consumption trends, Scan2Dine optimizes food preparation, ensuring efficiency, security, and fairness in mess management.

No. of Pages : 6 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :13/06/2025

(21) Application No.202541056905 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : FPGA BASED BILLING MACHINE TO REDUCE THE CROWD

(51) International classification :G06Q0020100000, G06Q0030040000, G06Q0040030000, G06Q0020140000, G06Q0040120000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

Abstract We're a member of a growing internet-dependent innovation team. A significant increase in the number of people making purchases online has made nearly every area of life easier. The vast majority of individuals now conduct all of their business and personal affairs online. When it comes to processes, digital media processes follow a pattern. A rapid manner of billing machine is needed to avoid crowds and preserve social distance, and the suggested work is a Self-Billing Machines that can detect barcodes from items with the help of the buyer, generate bills. collect electronic payments using credit and debit cards, pack and seal the parcel, and distribute to a customer. We could implement an auto-spraying feature after each payment to keep the user experience region clean, much like a keyboard. Maximize effectiveness while minimising net maintenance costs.

No. of Pages : 14 No. of Claims : 2

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202541056912 A

(19) INDIA

(22) Date of filing of Application :13/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : DYNAMIC RESOURCE ALLOCATION AND WASTE REDUCTION IN LANDFILLS USING MACHINE LEARNING

|                                                                                                                                                                                                                                                                                                                                                                                           |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>(51) International classification :G06Q0050260000, G06Q0010300000, B09B0001000000, G06Q0010060000, C04B0111000000</p> <p>(86) International Application No :NA<br/>Filing Date :NA</p> <p>(87) International Publication No : NA</p> <p>(61) Patent of Addition to Application Number :NA<br/>Filing Date :NA</p> <p>(62) Divisional to Application Number :NA<br/>Filing Date :NA</p> |  | <p>(71)<b>Name of Applicant :</b><br/><b>1)Dr. R. MEENAKSHI</b><br/>Address of Applicant :PROFESSOR, DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING, CHENNAI INSTITUTE OF TECHNOLOGY, SARATHY NAGAR, KUNDRATHUR, CHENNAI, MALAYAMBAKKAM, TAMILNADU, 600069 -----<br/><b>2)Dr. R. LATHA</b><br/><b>3)DEEPALAKSHMLR</b><br/><b>4)Dr. ANGELIN S. KIRUBA</b><br/><b>Name of Applicant : NA</b><br/><b>Address of Applicant : NA</b><br/><b>(72)Name of Inventor :</b><br/><b>1)Dr. R. MEENAKSHI</b><br/>Address of Applicant :PROFESSOR, DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING, CHENNAI INSTITUTE OF TECHNOLOGY, SARATHY NAGAR, KUNDRATHUR, CHENNAI, MALAYAMBAKKAM, TAMILNADU, 600069 -----<br/><b>2)Dr. R. LATHA</b><br/>Address of Applicant :PROFESSOR, DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING, Ramakrishnan College of Engineering (KRCE), Samayapuram -Kariyamanickam Road, Tiruchirappalli, Tamilnadu, India, 621112 --<br/>-----<br/><b>3)DEEPALAKSHMLR</b><br/>Address of Applicant :Assistant Professor, Department of Electronics and Communication Engineering, CARE College of Engineering, #27, Dindugal Main Road, Thayanur, Tiruchirappalli, TamilNadu, India, 620009 -----<br/><b>4)Dr. ANGELIN S. KIRUBA</b><br/>Address of Applicant :Associate Professor, Department of Management Studies, St. Joseph's College of Engineering, Old Mahabalipuram Road, Chennai, tamilnadu, india 600119 -----</p> |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

(57) Abstract :

Abstract The growing environmental problems of landfills, such as limited space, pollution, and greenhouse gas emissions, necessitate new waste management methods. Machine learning (ML) represents a viable way to optimising resource allocation and reducing waste in 5 landfills. ML can anticipate waste composition, optimise landfill space, and improve waste segregation, resulting in increased recycling and composting activities. Furthermore, ML models may dynamically assign resources like labour, 'equipment, and landfill space based on real-time data, resulting in more efficient operations. Predictive models can also estimate landfill life cycles, allowing early interventions to increase landfill capacity while minimising 10 environmental damage. Additionally, ML algorithms can monitor pollutants such as methane, allowing for effective control and mitigation strategies. Significant reductions in trash volume and environmental harm can be realised by using ML into landfill management, hence promoting sustainable waste disposal practices. This method not only enhances operating efficiency but also helps to achieve global waste reduction and climate change 15 mitigation goals.

No. of Pages : 16 No. of Claims : 5

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :13/06/2025

(21) Application No.202541056922 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : IDENTIFICATION OF DEFLECTABLE GLASS BOTTLE USING FPGA

(51) International classification :G01N0021900000, H01R0024600000, G05B0019404000, G06F0003048200, B65D0023080000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

Abstract Glass bottles play an essential part in everyday life since they are recyclable and perform well in hotels, malls, and bars, among other places. The creation of glass bottles, on the other hand, appears to be more complex, with a greater rate of manufacturing defects. To address this problem, FPGA spartan controller proposes an innovative solution. A gyroscope is utilized in 10 this approach and is installed in each bottle; if any of the bottles collide, the gyroscope pushes the bottle back to its original position using a DC motor. All the data is being sent to the cloud server, and in the future, we will be able to reduce the fault at any cost.

No. of Pages : 16 No. of Claims : 5

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :13/06/2025

(21) Application No.202541056928 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : IOT ENABLED SMART BANDAGE WITH MACHINE LEARNING FOR REAL TIME WOUND ASSESSMENT AND HEALING MONITORING

(51) International classification :A61B0005110000, A61B0005000000, G16H0010600000, G16H0050200000, A61B0005020500

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

Abstract Timely and precise wound monitoring is crucial for optimal healing and complication avoidance. Conventional methods often depend on visual examination and intermittent evaluation, which may be subjective and result in delayed reactions. A smart bandage solution is presented to tackle this difficulty, integrating Internet of Things (IoT) technology with ML for continuous and real-time wound evaluation. The intelligent bandage incorporates sensors that monitor essential wound parameters like temperature, moisture, pH, and exudate levels. Data gathered from the wound site is wirelessly communicated to a linked platform for analysis, facilitating the monitoring of healing process and the detection of infection or inflammation. The ML algorithm analyses sensor data to identify patterns linked to various healing phases, enabling early alarms and data-driven insights. An intuitive interface enables healthcare practitioners and carers to remotely get information and react promptly when intervention is required. This technique facilitates individualised treatment, minimises the need for recurrent hospital visits, and is especially advantageous in home or rural healthcare environments. The amalgamation of advanced sensors and intelligent analysis signifies progress in wound care and digital health solutions.

No. of Pages : 17 No. of Claims : 5

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :13/06/2025

(21) Application No.202541056930 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : IOT-INTEGRATED RESTAURANT FOOD ORDERING SYSTEM USING AI FOR REAL-TIME MENU CUSTOMIZATION

(51) International classification :G06Q0050120000, G06Q0030060100, G06F0003041000, G06F0003048800, A47B0031000000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
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(62) Divisional to Application Number :NA  
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(57) Abstract :

Abstract In hotels, people sometimes have to wait for a waiter to take our food order. This causes issues at busy times in hotels, particularly during festival seasons and typically at weekends. The traditional restaurant meal ordering system is being replaced with IoT-based solutions. Restaurants are increasingly adding touch screen displays on tables in place of paper menu cards so that guests can 10 simply place orders for food by selecting the items directly from the screen. Our project's primary goals are to prevent these issues and provide solutions for them. Each table in this project will have a touch screen panel. Customers will choose the preferred order menus from the touch screen whenever they arrive at their table. Here, the order is placed using a TFT touch screen, and the data is sent to the controller using an RF module. All the data is uploaded to the cloud server, which serves as an IoT 15 platform that can be accessed from any location in the world.

No. of Pages : 17 No. of Claims : 7

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202541056931 A

(19) INDIA

(22) Date of filing of Application :13/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : AI POWERED DYNAMIC TEMPERATURE CONTROL FOR ELECTRIC VEHICLE BATTERIES

(51) International classification :G01R0031392000, H01M0010613000, H01M0010625000, H01M0010615000, B60L0058240000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

Abstract Temperature changes have a substantial impact on the performance and longevity of electric vehicle (EV) batteries, requiring the use of effective thermal management systems. It describes an 5 AI-powered dynamic temperature management system that optimizes battery temperature in real time. The system uses powerful machine learning algorithms to predict thermal behaviour under different operating situations and changes cooling or heating mechanisms appropriately. By including IoT sensors for continuous monitoring of battery temperature, voltage, and current, the AI model dynamically regulates the thermal environment, assuring optimum battery health and 10 efficiency. The method improves EV performance, lowers energy consumption, and increases battery life by solving major issues in EV battery temperature management.

No. of Pages : 16 No. of Claims : 6



(12) PATENT APPLICATION PUBLICATION

(21) Application No.202541056935 A

(19) INDIA

(22) Date of filing of Application :13/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : AUTONOMOUS IOT FLEET MANAGEMENT SOLUTION FOR LOGISTICS OPERATIONS

(51) International classification :G06Q0010080000, G06Q0010063100, G06Q0010083500, G05B0013040000, G06Q0010063500

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

Abstract An autonomous IoT fleet management solution improves logistics operations by combining real-time monitoring, intelligent route planning, and predictive analytics. The system collects essential data from cars using integrated IoT sensors, GPS tracking, and on board diagnostics, such as position, speed, fuel levels, engine health, and cargo conditions. This data is handled on cloud platforms and edge computing to enable dynamic decision-making and autonomous reactions. Artificial intelligence systems provide adaptive route optimisation, early identification of mechanical faults, and automated scheduling, resulting in considerable reductions in delivery delays and operating expenses. The device also tracks driver behaviour to promote safety and maintain regulatory compliance. Enhanced communication modules guarantee that data is sent seamlessly between vehicles and control centres. The technology helps to make fleet operations more environmentally friendly and sustainable by lowering fuel usage and idle time. This holistic solution boosts overall efficiency, decreases human intervention, and offers real-time insight into fleet performance, making it appropriate for contemporary logistics and supply chain networks.

No. of Pages : 17 No. of Claims : 6

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202541056937 A

(19) INDIA

(22) Date of filing of Application :13/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : AI BASED CHARGING STATION FOR ELECTRIC WHEELCHAIRS WITH ADAPTIVE POWER SUPPLY AND USAGE FORECASTING

(51) International classification :A61G0005040000, A61G0005100000, H02J0007000000, G06F0001320300, G06Q0010040000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

Abstract The AI-Driven charging station for electric wheelchairs presents an advanced method aimed at enhancing the charging efficiency for electric wheelchairs. This system enhances charging efficiency, prolongs battery lifespan, and minimises energy consumption via the integration of adaptive power supply technology with AI-driven demand forecasts. The adaptive power supply modifies the charging output according to the wheelchair's battery status, use trends, and ambient factors. Simultaneously, the use forecasting system anticipates the wheelchair's charging requirements by examining prior usage data, including daily mobility demands and distances covered. This allows the system to prioritise charging cycles, guaranteeing the 10 wheelchair is consistently prepared for usage while reducing superfluous energy use. The AI element persistently assimilates user behaviour, enhancing its forecasts and optimisation methodologies. This unique device offers tailored charging alternatives for wheelchair users while promoting energy conservation and environmental sustainability. The AI-Based charging station improves user experience by providing dependable and efficient charging for 15 electric wheelchair users.

No. of Pages : 16 No. of Claims : 5

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :13/06/2025

(21) Application No.202541056943 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : INTERACTIVE SMART NOTICE BOARD WITH IOT CONTROL FOR EDUCATION

(51) International classification :G06Q0050200000, G06F0021620000, G06V0040160000, H04L0067120000, G09B0021000000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

ABSTRACT An IoT-enabled interactive smart notice board system for educational institutions integrates digital communication, biometric attendance, and device control functionalities into a unified platform. The system comprises a dynamic display module driven by a microcontroller (Raspberry Pi) that renders real-time notices based on role-based access using RFID and NFC technologies. A biometric verification module employing fingerprint and facial recognition enables secure, automated attendance logging. The system further includes a voice interface utilizing speech recognition and text-to-speech conversion to enhance accessibility, particularly for visually impaired users. Communication with IoT devices such as lights, projectors, and environmental sensors is facilitated through MQTT and Node-RED protocols, allowing centralized device management and event-triggered automation. A web-based content management system enables administrators to remotely publish and prioritize notices, including emergency alerts, academic updates, and user-specific announcements. The architecture features a multi-layered design comprising presentation, application, data, and edge layers to ensure modularity, scalability, and low-latency performance. The system encrypts all biometric and user data in compliance with privacy standards and supports offline functionality during network outages. Real-time updates are distributed via a priority-based notice scheduling engine with confirmation and acknowledgment tracking. The hardware is enclosed in a dual-purpose mirror-display chassis allowing unobtrusive integration into institutional environments. The invention significantly reduces administrative workload, eliminates paper-based processes, and enhances real-time communication, offering a sustainable and scalable smart campus solution compatible with future upgrades such as AI-driven analytics, mobile access, and expanded sensor integration.

No. of Pages : 13 No. of Claims : 5

(54) Title of the invention : SYSTEM AND METHOD FOR AI-BASED FRESH PRODUCE CLASSIFICATION AND PRICING USING YOLOV8, KERNEL DENSITY ESTIMATION AND IOT SENSORS

|                                                                                                                                                                                                                                                  |                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <div>(51) International classification</div> <div>(86) International Application No</div> <div>(87) International Publication No</div> <div>(61) Patent of Addition to Application Number</div> <div>(62) Divisional to Application Number</div> | <div>:G06Q0030020100, G06F0018232130, G06Q0030028300, G06N0003045000, G06Q0040040000</div> <div>:NA</div> <div>:NA</div> <div>: NA</div> <div>:NA</div> <div>:NA</div> <div>:NA</div> <div>:NA</div> | <div>(71)Name of Applicant :</div> <div>1)PANIMALAR ENGINEERING COLLEGE</div> <div>Address of Applicant :BANGALORE TRUNK ROAD, POONAMALLEE, CHENNAI-600123, INDIA. -----</div> <div>Name of Applicant : NA</div> <div>Address of Applicant : NA</div> <div>(72)Name of Inventor :</div> <div>1)P. Kavitha</div> <div>Address of Applicant :BANGALORE TRUNK ROAD, POONAMALLEE, CHENNAI-600123, INDIA. -----</div> <div>2)Manikandan Vasantha Kumar</div> <div>Address of Applicant :BANGALORE TRUNK ROAD, POONAMALLEE, CHENNAI-600123, INDIA. -----</div> <div>3)Jayakaran P</div> <div>Address of Applicant :BANGALORE TRUNK ROAD, POONAMALLEE, CHENNAI-600123, INDIA. -----</div> <div>4)Mohamed Arshad M</div> <div>Address of Applicant :BANGALORE TRUNK ROAD, POONAMALLEE, CHENNAI-600123, INDIA. -----</div> <div>5)A. Babisha</div> <div>Address of Applicant :BANGALORE TRUNK ROAD, POONAMALLEE, CHENNAI-600123, INDIA. -----</div> <div>6)B. Bala Abirami</div> <div>Address of Applicant :BANGALORE TRUNK ROAD, POONAMALLEE, CHENNAI-600123, INDIA. -----</div> <div>7)K. Saranya</div> <div>Address of Applicant :BANGALORE TRUNK ROAD, POONAMALLEE, CHENNAI-600123, INDIA. -----</div> |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

(57) Abstract :

Abstract The presert invention discloses a comprehensive, AI-driven system and method for automating the classification, weight estimation, and dynamic pricing of fresh produce, with a primary focus on vegetables. The system integrates advanced computer vision models, IoT-enabled hardware, and intelligent pricing algorithms to enhance the efficiency, accuracy, and transparency of fresh produce handling in retail and agricultural markets. At the core of the invention is a YOLOv8-based deep learning model trained to perform real-time classification and defect detection of 'vegetables using image data captured from embedded camera modules. The classified produce is further segmented by size using unsupervised clustering techniques such as DBSCAN and K-Means. For physical quantification, the system employs precision load cell sensors connected to microcontrollers (e.g., ESP32 or Raspberry Pi) to estimate the weight of each item, which is crucial for price calculation. The pricing mechanism is driven by a Kernel Density Estimation (KDE) approach applied to historical and real-time market data, enabling adaptive, demand-responsive pricing. Cloud-based A Pis, such as Google Market A Pis, are integrated to fetch current pricing trends, ensuring that price recommendations reflect real-world conditions. A cloud synchronization framework supports real-time transaction handling, automated billing, data storage, and visualization dashbvards for users. This invention addresses inefficiencies in traditional produce retailing, reducing manual errors, labor dependency, and price manipulati.on. It benefits retailers, tarmers, and supply chain operators by providing an end-to-end intelligent system for real-time produce evaluation and pricing. The system's modularity allows for scalability across various retail formats and agricultural ecosystems.

No. of Pages : 13 No. of Claims : 3

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :13/06/2025

(21) Application No.202541057195 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : SYSTEM FOR CONTINUOUS IN-SITU MONITORING OF DISTRIBUTED TEMPERATURE OF MOLTEN MEDIUMS IN CORROSIVE ENVIRONMENTS

(51) International classification :G01N0021410000, G01J0005040000, G01K0011320000, G01J0005000000, G01N0021770000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

According to the present disclosure, a system (100) for in-situ continuous monitoring of distributed temperature of a molten metal inside a melting furnace is disclosed. The system (100) comprises a sensor mounting clamp unit (10) fitted at an end of the melting furnace (200) and a waveguide sensor unit (20) fitted to the sensor mounting clamp unit (10). The sensor mounting clamp unit (10) comprises an external slider unit (16) holding a horizontal support pipe (12) outside the vessel unit and supports the waveguide sensor unit (20) mechanism for precise sensor adjustments. A depth adjuster (18) is attached to the horizontal support pipe (12) via a top mount at a height, allowing the waveguide to slide and mount at different heights. The present invention provides a real time continuous measurement values helping industries to make critical decisions and control damage.

No. of Pages : 24 No. of Claims : 18

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202541057374 A

(19) INDIA

(22) Date of filing of Application :15/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : PROFILE RECTIFICATION SYSTEM AND METHOD THEREOF

(51) International classification :B65G0015080000, G05G0005030000, G08B0013196000, F04C0015000000, A63B0021012000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

Disclosed is a profile rectification system (100) for a pipe conveyor (202) includes a rotation assembly (102) that rotates selectively in a clockwise or counterclockwise direction, featuring a plurality of teeth (108) along its outer periphery (104). A series of clamps (110A-N), connected to the inner periphery (106) of the rotation assembly (102), house bushes (112A-N) that interface with the pipe conveyor (202) to generate friction. Springs (114A-N) coupled to each bush (112A-N) maintain controlled tension, ensuring consistent frictional engagement with the conveyor. A drive mechanism (116), comprising motor-driven gears (118), imparts rotational motion to the rotation assembly (102). The interaction of the clamps, bushes, springs, and conveyor facilitates profile rectification, providing adjustable and efficient movement for improved operation. The present disclosure also relates to a method (400) for rectifying the profile of a pipe conveyor using a profile rectification system (100). Figure 1A will be the reference.

No. of Pages : 29 No. of Claims : 9

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202541057375 A

(19) INDIA

(22) Date of filing of Application :15/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : BRUSH SYSTEM AND METHOD FOR DISLODGING ADHERED PARTICLES IN WAGON

(51) International classification :A61B0017290000, A61B0008120000, B08B0009032000, A61B0005010000, B25J0015000000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

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(57) Abstract :

Disclosed is a brush system (100) for cleaning an internal surface of a wagon (102) includes one or more articulated arms (104A–C) configured for precise three-dimensional positioning of an end effector (110). The end effector (110) comprises a rotating element (112) and one or more flexible chain elements (114A–N) mounted on its periphery. Upon bidirectional rotation of the rotating element (112), the chain elements (114A–N) undergo centrifugal expansion to generate impact forces that dislodge adhered particles. The system further integrates position sensors (106) for capturing real-time spatial data of the wagon (102) and a processor (108) for analyzing this data, controlling the movement of the articulated arms (104A–C), and adjusting the end effector (110) to optimize cleaning. The present disclosure further relates to a method (200) for cleaning the wagon (102) by way of the system (100). Figure 1A will be the reference.

No. of Pages : 23 No. of Claims : 10

(54) Title of the invention : EMDRNET: A DEEP LEARNING BASED APPROACH FOR EARLY DETECTION AND CLASSIFICATION OF DIABETIC RETINOPATHY

|                                               |                                                                                 |                                                                                                                                                          |
|-----------------------------------------------|---------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|
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| (86) International Application No             | :NA                                                                             | 2)SANTHOSH.M                                                                                                                                             |
| Filing Date                                   | :NA                                                                             | 3)SURENDHAN.A                                                                                                                                            |
| (87) International Publication No             | : NA                                                                            | 4)SUKIN RAJ M                                                                                                                                            |
| (61) Patent of Addition to Application Number | :NA                                                                             | 5)SIBI                                                                                                                                                   |
| Filing Date                                   | :NA                                                                             | Name of Applicant : NA                                                                                                                                   |
| (62) Divisional to Application Number         | :NA                                                                             | Address of Applicant : NA                                                                                                                                |
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(57) Abstract :  
ABSTRACT: A leading cause of vision impairment worldwide is diagnosed as Diabetic retinopathy (DR). Accurate and early detection is necessary to prevent irreversible blindness. The study presents an automated DR detection and classification system that leverages deep learning techniques applied to retinal fundus images. The EMDRNET system integrates a transformer backend architecture, pretrained for medical applications, with a multi-level convolutional neural network to harness complementary feature extraction capabilities. The model was trained on a publicly available, multi-class dataset representing the five standard DR stages and incorporates image preprocessing and augmentation to enhance robustness against variations in illumination, resolution, and noise. Performance metrics, including classification loss, Recall, F !-Score, Precision and Accuracy, demonstrating effective discrimination across severity levels of DR. The system supports real-time inference and optimized for deployment in diverse clinical, mobile, and remote healthcare environments, facilitating scalable and cost-effective DR screening. Additionally, it incorporates Grad-CAM method, an explainable AI approach, which provide visual interpretability by highlighting the retinal regions that influence the model's decisions. This aids in clinical validation .

No. of Pages : 6 No. of Claims : 8



(12) PATENT APPLICATION PUBLICATION

(21) Application No.202541057390 A

(19) INDIA

(22) Date of filing of Application :16/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : COLLEGE HALL BOOKING SYSTEM WITH CHATBOT ASSISTANT

|                                                                                                                                                                                                                                                                                                                                                                |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>(51) International classification :G06Q10/02, G06Q50/10, G06Q10/00, G06F40/20</p> <p>(86) International Application No :NA</p> <p>Filing Date :NA</p> <p>(87) International Publication No : NA</p> <p>(61) Patent of Addition to Application Number :NA</p> <p>Filing Date :NA</p> <p>(62) Divisional to Application Number :NA</p> <p>Filing Date :NA</p> |  | <p>(71)Name of Applicant :<br/><b>1)K GAYATHRI</b><br/>Address of Applicant :SRI SHAKTHI INSTITUTE OF ENGINEERING &amp; TECHNOLOGY, SRI SHAKTHI NAGAR, L&amp;T BY-PASS, CHINNIYAMPALAYAM POST, COIMBATORE-641062. -----</p> <p><b>2)V.Pravin</b><br/><b>3)S.Nithish Kumar</b><br/><b>4)T.Killivalavan</b><br/>Name of Applicant : NA<br/>Address of Applicant : NA</p> <p>(72)Name of Inventor :<br/><b>1)K GAYATHRI</b><br/>Address of Applicant :SRI SHAKTHI INSTITUTE OF ENGINEERING &amp; TECHNOLOGY, SRI SHAKTHI NAGAR, L&amp;T BY-PASS, CHINNIYAMPALAYAM POST, COIMBATORE-641062. -----</p> <p><b>2)V.Pravin</b><br/>Address of Applicant :SRI SHAKTHI INSTITUTE OF ENGINEERING &amp; TECHNOLOGY, SRI SHAKTHI NAGAR, L&amp;T BY-PASS, CHINNIYAMPALAYAM POST, COIMBATORE-641062 -----</p> <p><b>3)S.Nithish Kumar</b><br/>Address of Applicant :SRI SHAKTHI INSTITUTE OF ENGINEERING &amp; TECHNOLOGY, SRI SHAKTHI NAGAR, L&amp;T BY-PASS, CHINNIYAMPALAYAM POST, COIMBATORE-641062 -----</p> <p><b>4)T.Killivalavan</b><br/>Address of Applicant :SRI SHAKTHI INSTITUTE OF ENGINEERING &amp; TECHNOLOGY, SRI SHAKTHI NAGAR, L&amp;T BY-PASS, CHINNIYAMPALAYAM POST, COIMBATORE-641062 -----</p> |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

(57) Abstract :

Abstract The present invention relates to an autonomous, AI-driven college hall reservation system designed to streamline the booking of institutional resources such as classrooms, seminar halls, and laboratories. Integrating advanced chatbot technology, the system leverages natural language processing (NLP), real-time scheduling algorithms, and Internet of Things (IoT) sensors for occupancy detection. The system enables users (students, faculty, and staff) to interact via a conversational chatbot interface for seam less reservation, cancellation, and status inquiries. The AI engine processes user requests, checks real-time availability, resolves scheduling conflicts, and provides instant «...unlirmatiuns ur alternative suggestions. IoT sensors monitor actual hall usage and update the system to prevent double-booking and optimize resource utilization. Notifications and alerts are sent to users via SMS, email, or app notifications in case of schedule changes or conflicts. The fully integrated design minimizes administrative workload, reduces human error, and ensures efficient, transparent, and user-friendly management of college facilities.

No. of Pages : 14 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202541057391 A

(19) INDIA

(22) Date of filing of Application :16/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : BIODEGRADABLE AGAR-BASED CELLULOSE BIO-NANO COMPOSITE FILM FROM PALMYRA SPROUT PEEL AND ONION SKIN FOR PACKAGING

(51) International classification :H01L0029660000, B29D0007010000, D21H0011180000, H04L0009400000, B01D0069120000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

ABSTRACT 5 Embodiments disclose a utility model is related to a system that can provide complete bio-degradable formulation and solution for replacing the current Poly ethylene (PE) based films. The agar based films are prepared by de ligninated, cellulose nanofibers from two recyclable materials (Palmyra sprout peel and onion skin), treated with plasticizers and additives in order to derive the end-use specified 10 applicability. The invention includes complete use of surface un-treated, surface treated, and other degradable material as a base towards the process of obtaining an initial polymeric film with controlled coating parameters of supramolecular structures. This combinatorial approach offers technically a feasible process able to obtain a film with complete biodegradability. The novel approach in developing 15 the agar-based cellulose Bio-Nano composite Film coated material, where the formulation of film is completely based on Palmyra sprout peel and onion skin.

No. of Pages : 24 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :16/06/2025

(21) Application No.202541057395 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : REVOLT REBUILDER - SMART BATTERY REFRESHER & EQUALIZER

(51) International classification :H01M10/42, H01M10/48,  
H02J7/00  
(86) International Application No :NA  
Filing Date :NA  
(87) International Publication No : NA  
(61) Patent of Addition to Application  
Number :NA  
Filing Date :NA  
(62) Divisional to Application Number :NA  
Filing Date :NA

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NADU, INDIA-641062 -----

(57) Abstract :

The ReVolt Rebuilder is a smart battery maintenance and equalization system designed to monitor, refresh, and extend the lifespan of rechargeable battery packs. Unlike standard Battery Management Systems (BMS), this project focuses on individual cell health by continuously measuring voltages, balancing overcharged cells using passive resistive discharge, and gently recharging weak or underperforming cells. The system utilizes an Arduino Uno for real-time control, data logging in EEPROM, and visual feedback through a display or serial interface. Optional temperature sensing and load testing enhance safety and help in early detection of deteriorating cells. This cost-effective solution is applicable in electric vehicles, renewable energy storage, UPS systems, and other battery-powered devices. By maintaining balance and identifying faulty cells early, the ReVolt Rebuilder increases battery efficiency, reliability, and safety while reducing maintenance costs.

No. of Pages : 6 No. of Claims : 5

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :16/06/2025

(21) Application No.202541057398 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : STOCK PRICE PREDICTION

(51) International classification :G06Q0040040000, G06Q0040060000, G06Q0010040000, G06Q0030020100, G06Q0040000000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

ABSTRACT: The stock market plays a crucial role in economic development, but investors often face challenges in making informed decisions due to market volatility and the complexity of financial data. The Stock Price Prediction System is designed to support better investment strategies by providing intelligent forecasts based on real-time and historical market data.

No. of Pages : 8 No. of Claims : 7

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :16/06/2025

(21) Application No.202541057399 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : EXPERIMENTAL STUDY ON CONCRETE USING COW DUNG POWDER BY PARTIAL REPLACEMENT OF CEMENT

(51) International classification :C04B0028040000, C04B0028020000, C04B0014020000, C04B0007020000, C04B0111700000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

ABSTRACT The construction industry heavily relies on cement, which is not only costly and resource-intensive but also contributes significantly to CO<sub>2</sub> emissions. The experiments were designed to study the effects of adding Cow Dung Powder (COP) in various percentages by weight (10%, 13%, 16% and 20%) of cement and cure for the periods of 1, 14, and 28 days respectively before testing for the Compressive strengths. It also involves determination of setting time, Bulk Density, and Workability of Cow Dung Powder in various percentages by mixing with Portland cement. The Compressive test results are 22.00 N/mm<sup>2</sup>, 20.22 N/mm<sup>2</sup>, 19.55 N/mm<sup>2</sup>, 13.78 N/mm<sup>2</sup> and 12.13 N/mm<sup>2</sup> for 0%, 10%, 13%, 16% and 20% replacement of cement with COP respectively at 28 days. The Workability results gives 112mm, 127mm, 130mm, 72mm and 80mm respectively for 0%, 10%, 13%, 16% and 20% replacement of cement with COP. Test results indicated that the consistency limits increased up to an optimum content and decreased further with the increase in the % of COP in cement. COP has an advantage that offers lightness of weight and low thermal conductivity, Cow Dung Powder concrete is recommended for use only when a thirteen percentage (10%) of Cow Dung Powder is added. The increasing demand for sustainable and eco-friendly construction materials has led to the exploration of alternative binders and cementitious materials. This study investigates the feasibility of using cow dung powder as a partial replacement for cement in concrete production. Cow dung, a natural waste product rich in organic and fibrous content, is processed into a fine powder and incorporated into cement at varying replacement levels (e.g., 5%, 10%, 15%, and 20%). The mechanical properties of the modified concrete, including compressive strength, workability, and setting time, are analysed and compared with conventional concrete.

No. of Pages : 6 No. of Claims : 6

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202541057402 A

(19) INDIA

(22) Date of filing of Application :16/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : ULTRASONIC-ASSISTED CATALYTIC SYSTEM USING TEXTILE WASTE-DERIVED CHAR FOR SIMULTANEOUS WATER PURIFICATION AND CARBON DIOXIDE CONVERSION

|                                               |                                                                                 |                                                                                                                                                                                                                                             |
|-----------------------------------------------|---------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (51) International classification             | :G01N0021350400, C02F0101300000, C02F0001000000, B01D0053000000, B01D0053620000 | (71)Name of Applicant :<br><b>1)PSG INSTITUTE OF TECHNOLOGY AND APPLIED RESEARCH</b><br>Address of Applicant :THE PRINCIPAL, PSG INSTITUTE OF TECHNOLOGY AND APPLIED RESEARCH, AVINASHI ROAD, NEELAMBUR, COIMBATORE-641062, TAMILNADU ----- |
| (86) International Application No             | :NA                                                                             | <b>Name of Applicant : NA</b>                                                                                                                                                                                                               |
| Filing Date                                   | :NA                                                                             | <b>Address of Applicant : NA</b>                                                                                                                                                                                                            |
| (87) International Publication No             | : NA                                                                            | (72)Name of Inventor :                                                                                                                                                                                                                      |
| (61) Patent of Addition to Application Number | :NA                                                                             | <b>1)Dr. Deepannita Chakraborty</b>                                                                                                                                                                                                         |
| Filing Date                                   | :NA                                                                             | Address of Applicant :21, Sri Nandavanam Thevampalayam, Avinashi Tiruppur Tamilnadu India Pin code 641654 -----                                                                                                                             |
| (62) Divisional to Application Number         | :NA                                                                             | <b>2)Dr. G. Bhavani</b>                                                                                                                                                                                                                     |
| Filing Date                                   | :NA                                                                             | Address of Applicant :4 Sri sivasakthi illam, Kannan Nagar, Ondipudur Coimbatore Tamilnadu India Pin code 641 016 -----                                                                                                                     |
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(57) Abstract :

6. Abstract of the invention: Title: Ultrasonic-Assisted Catalytic System Using Textile Waste-Derived Char for Simultaneous Water Purification and Carbon Dioxide Conversion The invention relates to an ultrasonic-assisted catalytic system utilizing char derived from textile micro-waste for simultaneous water purification and carbon dioxide (CO<sub>2</sub>) conversion. The system comprises a modular reactor integrated with fluid and gas inflow controllers, an ultrasonic wave generator; and catalytic coated removable substrates. The char is synthesized from textile waste via pyrolysis in a nitrogen or ammonia-rich atmosphere and is functionalized for enhanced catalytic performance. Ultrasonic energy (20-40 kHz) is applied to induce cavitation, promoting the degradation of organic pollutants in water and facilitating the catalytic reduction of CO<sub>2</sub> into value-added gases such as methane. The system includes monitoring units such as flow meters, pH/DO sensors, and NDIR sensors. The design enables concurrent treatment of gaseous and aqueous streams within a compact chamber, supporting sustainable waste management and circular economy principles. The invention offers a scalable, energy-efficient solution for environmental remediation and integrated pollution control using textile industry waste.

No. of Pages : 12 No. of Claims : 7

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :16/06/2025

(21) Application No.202541057403 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : LAKE GUARDIAN : AUTONOMOUS ROBOTIC BOATS FOR DEBRIS CLEANUP AND POLLUTION PREVENTION

(51) International classification :G08B0021020000, C02F0103000000, B25J0009160000, E21B0037000000, B63B0035320000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

Abstract Lake Guardian: Autonomous Robotic Boats for Debris Cleanup and Pollution Prevention - The growing concentration of floating debris and Water pollution in freshwater habitats is a critical environmental issue to both aquatic organisms and human health. Lake Guardian is an autonomous robotic boat system to scout, avoid pollution and recover debris, as it is applicable to this issue. The Lake Guardian system utilizes an ESP32 microcontroller [7] as its component and employs GPS[IO] and GSM[II] models of the microcontroller-specific to get an accurate location and serve for remote communication processing as requirement needed while programming. The system has a pre-scheduled outdoor platform, and ultrasound sensors to detect obstruction and uses an ESP32 camera module[14] for necessary object detection and recognition. The whole system uses object classification methods and image pre-processing methods to detect waste material and classify it. The drive board provides control of the DC motors[9,13] for both navigating and the collection mechanisms on-board. The system proposal has an optimal scan setting for best area coverage in its movement. It uses an LCD interface[S], to show real-time updates on the system and detected object. The compact and energy-efficient system is powered 50% via solar energy, and can operate remotely, which reduces operational cost and offers a baseline for smart environmental cleanup alternative. Lake Guardian has promised its design and operation that automates processes with vision systems it can assist in the sustainability of water management.

No. of Pages : 12 No. of Claims : 4

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202541057407 A

(19) INDIA

(22) Date of filing of Application :16/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : 4-BIT BINARY TO GRAY CODE CONVERTER USING QUANTUM DOT CELLULAR AUTOMATA

|                                               |                                                                                 |                                                                                                                                                                                                                                                                                        |
|-----------------------------------------------|---------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (51) International classification             | :B82Y0010000000, G06N0010000000, H01L0021265000, H01M0008027300, H10N0070000000 | (71)Name of Applicant :<br><b>1)The Principal, Mepco Schlenk Engineering College</b><br>Address of Applicant :The Principal, MEPCO SCHLENK ENGINEERING COLLEGE (PO), SIVAKASI-626005, VIRUDHUNAGAR DT, -----<br>-<br><b>Name of Applicant : NA</b><br><b>Address of Applicant : NA</b> |
| (86) International Application No             | :NA                                                                             | (72)Name of Inventor :                                                                                                                                                                                                                                                                 |
| Filing Date                                   | :NA                                                                             | <b>1)Dr. S.Arivazhagan</b><br>Address of Applicant :Principal, Mepco Schlenk Engineering College, Sivakasi, Tamilnadu, India- 626005 -----                                                                                                                                             |
| (87) International Publication No             | : NA                                                                            | <b>2)Dr.W.Sylvia Lilly Jebarani</b><br>Address of Applicant :Professor, Mepco Schlenk Engineering College, Sivakasi, Tamilnadu India- 626005 -----                                                                                                                                     |
| (61) Patent of Addition to Application Number | :NA                                                                             | <b>3)Devanandha J</b><br>Address of Applicant :Mepco Schlenk Engineering College, Sivakasi, Tamilnadu, India- 626005 -----                                                                                                                                                             |
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| (62) Divisional to Application Number         | :NA                                                                             |                                                                                                                                                                                                                                                                                        |
| Filing Date                                   | :NA                                                                             |                                                                                                                                                                                                                                                                                        |

(57) Abstract :

Quantum Dot Cellular Automata (QCA) is a future technology for nanometer scale computing. QCA technology is extremely important for switching speeds with high density and very low power consumption of devices. In this article, the circuit is verified using knickenergy calculations. We designed the binary to gray converter with four Inputs. The function between different QCA structures operates at very low temperatures with a metal dot structure about 1 kelvin, whereas here the operating range of temperature increased up to 9.4 K. A reduction in the distance between two consecutive cells in the metal point-QCA to 1 nm gives an output shaft better than the standarci cell distance of 2 nm. In QCA, the distance between the output cell and the cell decreases between cells and between cells, and the increase in knot energy improves instability.

No. of Pages : 6 No. of Claims : 6



(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :16/06/2025

(21) Application No.202541057411 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : VEHICLE ACTIVATED TOLL GATE BAY WIDENING SYSTEM BY ELECTRONICALLY EVALUATING WIDTH OF THE VEHICLE

(51) International classification :G07B0015060000, E01F0013060000, H01J0009240000, E01F0015000000, E01F0009669000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

The tollgate bay (1) includes width entrance (2) where the distance sensor (dual) (4) are planted for evaluating the width of vehicles such as oversized structure or widened io body type. The widening systems includes a barrier walls (3) with supporting pole (6) and traction wheels (8) that are engaged in every guiding rails (5) provided in the bay and they are powered by drive motor (7) integrated separately for every barriers. Each barriers are connected with one another using barrier interlinks (9). The processing system includes a microcontroller interface (10) engaged with timer control (11) that 15 holds every barriers for few seconds upto the vehicles passes out completely. The sensor data inputs are processed into signals which is provided for motors to drive every barriers to slide over guiding rails (5) using wheels (8) facilitates opening or closing of barrier walls (3) whenever vehicle passes through the system, improves quick passing and minimizes delay or waiting time in tollgate lanes.

No. of Pages : 17 No. of Claims : 9

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202541057412 A

(19) INDIA

(22) Date of filing of Application :16/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : UNIVERSAL SIZED SILICON WEARING GLOVES WITH WRIST ADJUSTABLE SLEEVE

(51) International classification

:A41D0019015000, A63B0071140000, G06F0003010000, A61B0034300000, A41D0019000000

(86) International Application No

:NA

Filing Date

:NA

(87) International Publication No

: NA

(61) Patent of Addition to Application Number

:NA

Filing Date

:NA

(62) Divisional to Application Number

:NA

Filing Date

:NA

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(57) Abstract :

The invention relates to a universal-sized silicon glove system comprising a silicon glove body (4), palm insert (1), finger inserts (2), and a wrist sleeve (3). The glove body (4) includes internal slots to accommodate the palm insert (1) and finger inserts (2), allowing adjustment to various hand shapes and sizes. The palm insert (1) provides additional support and grip in the palm area. Finger inserts (2) enable finetuned fit and comfort within each finger compartment. The wrist sleeve (3) features an adjustable fastening mechanism to secure the glove on wrists of different sizes. All components are reusable and made of washable silicon. The glove offers a customizable fit, improved control, and reusability for multiple environments.

No. of Pages : 13 No. of Claims : 5

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202541057413 A

(19) INDIA

(22) Date of filing of Application :16/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : DIGITAL POURED LIQUID VOLUME MEASURING FUNNEL WITH INTEGRAL LCD DISPLAY

(51) International classification :G01F0001660000, G01F0022000000, G01F0019000000, G01N0015060000, H02M0007217000

(86) International Application No :NA

Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA

Filing Date :NA

(62) Divisional to Application Number :NA

Filing Date :NA

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(57) Abstract :

The invention relates to a digital liquid volume measuring funnel that allows accurate measurement during pouring. It includes a funnel (1) with a liquid pour inlet (2), leading to a stem (3) and a liquid outlet (4). A flow sensor (5) is installed within the stem (3) to detect the volume of liquid passing through. The sensor data is processed by a micro controller interface (6) located inside the funnel body. An LCD display (7) mounted externally shows real-time volume measurements. The device is powered by a battery (8) integrated within the funnel. This design enables simultaneous pouring and measuring of liquids without additional tools.

No. of Pages : 16 No. of Claims : 6

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202541057414 A

(19) INDIA

(22) Date of filing of Application :16/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : REMOTELY CONFIGURABLE ROBOTIC PATHWAY MARKERS FOR TRAFFIC AND PEDESTRIAN CONTROL REGULATION IN LARGE

(51) International classification :H04W0084120000, G05D0001000000, B25J0009160000, H04L0041080000, H04W0004800000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

invention discloses a remotely configurable robotic pathway markers for traffic and pedestrian control regulation in large spaces. Each robotic chassis (1) includes a traction wheels (2) for mobility, solar panel (3), LED path way lights (4), distance sensors (8) and a microcontroller interface (5). The WiFi communication io modules includes a Wi-Fi transceiver (6) for robot chassis (1), a Wi-Fi transceiver (7) for control unit (10) and a Wi-Fi antenna (9) integrated in each robot chassis for enhanced signal strength for seamless communications. The robots can move and position themselves based on commands sent from the master control unit (10). They automatically arrange into formations to create temporary paths, barriers, or 15 boundaries without the need for manual setup. The system allows remote monitoring and quick reconfiguration, making it suitable for use in warehouse arena or industrial sites. This system reduces the need for labour, increases flexibility, and improves safety through better visibility and automation.

No. of Pages : 19 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :16/06/2025

(21) Application No.202541057415 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : AUTO ADJUSTING WELDING SHIELD WITH ELECTROMAGNETIC SLIDING DARK GLASS WITH SPARK DETECTION CONTROL

(51) International classification :F16P1/06, A61F9/06, A61F9/02  
(86) International Application No :NA  
Filing Date :NA  
(87) International Publication No : NA  
(61) Patent of Addition to Application Number :NA  
Filing Date :NA  
(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

No. of Pages : 17 No. of Claims : 9

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :16/06/2025

(21) Application No.202541057430 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : SMART HAT FOR THE VISUALLY CHALLENGED

(51) International classification :A61H0003060000, A61F0009080000, G08B0021020000, G08B0007060000, G09B0021000000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

This invention relates to a smart hat for the visually challenged. This invention typically includes a tp4056 (1), a hat (2),an ultrasonic sensor (3), an arduino uno (4),a switch (5),a buzzer (6), and a battery (7). This invention is for the visually challenged significantly enhances user safety and independence by providing hands-free, realtime obstacle detection and intuitive audio alerts, all within a comfortable, affordable, and easy-to-use design. This invention has diverse applications, including enhancing safe navigation for the visually impaired, aiding in social distancing efforts, improving industrial worker safety, and serving as a tool in various training scenarios.

No. of Pages : 15 No. of Claims : 8

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :16/06/2025

(21) Application No.202541057431 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : SMART RECYCLING SYSTEM FOR CONVERTING DEMOLISHED BUILDING WASTE INTO CONSTRUCTION BRICKS

|                                               |                                                                                 |                                                                                                                                                                                                                                                                             |
|-----------------------------------------------|---------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (51) International classification             | :C04B0018160000, E04G0023080000, C04B0020020000, B09B0005000000, C04B0018167000 | (71)Name of Applicant :<br><b>1)KALASALINGAM ACADEMY OF RESEARCH AND EDUCATION</b><br>Address of Applicant :KALASALINGAM ACADEMY OF RESEARCH AND EDUCATION ANAND NAGAR, KRISHNANKOIL, SRIVILLIPUTTUR ( VIA ), VIRUDUNAGAR(DT), TAMILNADU-626126 jaijat07@gmail.com ----- -- |
| (86) International Application No             | :NA                                                                             | <b>Name of Applicant : NA</b>                                                                                                                                                                                                                                               |
| Filing Date                                   | :NA                                                                             | <b>Address of Applicant : NA</b>                                                                                                                                                                                                                                            |
| (87) International Publication No             | : NA                                                                            | (72)Name of Inventor :<br><b>1)A.LAWRENCE SAHAYA SUNDAR</b>                                                                                                                                                                                                                 |
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| Filing Date                                   | :NA                                                                             | -----                                                                                                                                                                                                                                                                       |
| (62) Divisional to Application Number         | :NA                                                                             | <b>2)Dr. K. VIJAYAKUMAR</b>                                                                                                                                                                                                                                                 |
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|                                               |                                                                                 | -----                                                                                                                                                                                                                                                                       |

(57) Abstract :

The invention discloses a smart recycling system for converting construction and 5 demolition waste into construction bricks. The system includes a Demolition Waste Collection Unit (1) for receiving debris, followed by a Primary Crushing Unit (2) and Secondary Crushing Unit (3) for size reduction. A Vibrating Sieve Separator (4) filters fine particles, which are then cleaned in a Washing Tank (5). The slurry is processed through a Filtration System (6) to recover reusable materials and water. Cleaned 10 particles are dried in a Drying Chamber (7) and stored in a Recycled Sand Storage Bin (8). The material is then molded into bricks using a Brick Moulding Machine (9). The entire operation is controlled by a Municipal Control and Monitoring Unit (10) integrated with the city's building approval system.

No. of Pages : 14 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :16/06/2025

(21) Application No.202541057432 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : ECO-FRIENDLY BLACKBOARD CHALK USING EGG SHELLS

(51) International classification :C08K0003260000, C08L0067040000, C09D0013000000, B43L0021000000, A23K0010260000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

This invention relates to an eco-friendly blackboard chalk using egg shells. This invention typically an eggshell powder (1), a plaster of paris (2), a natural binders (3), a water (4), and additives (5). This invention offers advantages by significantly reducing environmental impact from limestone mining and landfill waste, while providing a healthier, low-dust, and biodegradable writing solution. This invention is primarily applied as a sustainable, low-dust, and non-toxic writing tool for blackboards in educational settings, with potential extended uses in art, industrial marking, and outdoor recreational activities.

No. of Pages : 16 No. of Claims : 8



(12) PATENT APPLICATION PUBLICATION

(21) Application No.202541057433 A

(19) INDIA

(22) Date of filing of Application :16/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : AI-POWERD COMPACT VOICE ASSISTIVE DEVICE FOR MUTE INVIDUALS USING MULTILINGUAL TEXT-TO-SPEECH CONVERSION

(51) International classification :G06F0003160000, G06F0040300000, G10L0015260000, H04M0003420000, G10L0013000000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

The invention relates to a compact AI-powered voice assistive device for mute 5 individuals, comprising a touchscreen display unit (1) for multilingual text input and a microcontroller with AI processing module (2) to handle predictive typing and system functions. The text-to-speech conversion module (4) transforms the text into natural voice output, while the emotion detection and voice modulation unit (5) adjusts the speech tone based on user intent. The internal speaker (6) delivers the output, 10 powered by a rechargeable battery unit (7). Stored language and voice data are maintained in the storage memory (8). The offline language processing system (9) ensures full functionality without internet connectivity. The entire system is housed in a portable protective casing (10), offering speech-impaired users real-time verbal communication in their native language.

No. of Pages : 15 No. of Claims : 7

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :16/06/2025

(21) Application No.202541057434 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : VACUUM CLEANER ATTACHMENT WITH INTEGRATED BRUSHES FOR FAN BLADE CLEANING

(51) International classification :F04D0025080000, B33Y0080000000, A47L0011400000, A47L0005220000, A47L0009060000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :  
The invention relates to a vacuum cleaning attachment (1) designed for efficient cleaning of ceiling fan blades. It features a hollow, rectangular tubular enclosure (1) with internal soft brushes (4) that contact both sides of the blade simultaneously. A flexible connecting tube (3) links the enclosure to a compact 12V air pump motor (2) that creates suction to draw dust into a dust collection chamber (5). The device includes an adjustable extension handle (6) for safe, ladder-free operation. The attachment is lightweight, reusable, and 3D-printed for custom fit. This system minimizes dust exposure and physical effort during cleaning. It can also be adapted for other elevated horizontal surfaces.

No. of Pages : 15 No. of Claims : 7

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202541057435 A

(19) INDIA

(22) Date of filing of Application :16/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : AUTOMATIC NATURAL FLOWER ARRANGEMENT MACHINE WITH MOBLIE DESIGN INTEGRATION

(51) International classification :A01G0005040000, G06F0008380000, A01H0005020000, G06F0009480000, B65D0085500000

(86) International Application No :NA

Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA

Filing Date :NA

(62) Divisional to Application Number :NA

Filing Date :NA

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(57) Abstract :

The invention discloses an automatic natural flower arrangement machine integrated 5 with a mobile application interface (1) for design selection or upload. The system receives floral design patterns via a wireless communication module (8) and processes them through a central control unit (2) using a design pattern recognition system (7). A flower storage module (3), equipped with a freshness preservation unit (9), holds assorted real flowers. A robotic arm with picker mechanism (4) gently selects 10 and places flowers onto the arrangement platform (5) with precision. The platform supports accurate alignment and movement for design replication. A binding and securing module (6) fixes the flowers using thread, wire, or adhesive. The machine operates without manual effort, enabling consistent, customizable floral arrangements using natural flowers.

No. of Pages : 15 No. of Claims : 7

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202541057472 A

(19) INDIA

(22) Date of filing of Application :16/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : SMART DUAL POLE LASER BARRIER SYSTEM WITH IOT ENABLED ALERT AND WARNING MECHANISM FOR CHILD SAFETY

(51) International classification :B60N0002280000, G08B0021020000, E01F0013020000, E01B0023040000, F21S0008080000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

This present invention discloses a "Smart Dual Pole Laser Barrier System with IoT Enabled Alert and Warning Mechanism for Child Safety" ensures child's safety and enhances the working efficiency of the barrier system through various alert mechanisms implemented. The barrier system is comprised with a dual poles (1) made with material which provides stability when placed anywhere in the living area. One 10 pole is embedded with the laser light sensor (2) which projects thin, invisible laser beam towards the laser receiver sensor (3) located in the opposite pole to maintain proper alignment of laser beam, creating an invisible fencing barrier which detects interruption of a child when they breaches the boundaries that are hazard. A pair of beacon light (4) are mounted on each pole which flashes red light by alerting people 15 nearby when a child crossed the barrier system. A detachable guiding track (5) facilitates movement of a shuttle car (6) which can be inserted with the track via hollow pipe mounted with bottom section of it to avoid picking up of the car by a child. This car (6) enabled with a motorized system, moves along the track without any deviation, which helps in distracting the child from breaching the barrier system. To alert the 20 . people around the living area when their child interrupts the system, a cloud based interface is implemented which is a IoT interface (7) sends immediate warning alerts through SMS, Email or calls to their remote. devices like smartphones connected with the interface, ensures immediate action and response in protecting the child from hazardous situations. This IoT works in conjunction with laser receiver sensor (3) 25 enhancing automation and real time monitoring. A battery interface (8) provided as a power management system which supplies necessary power to the shuttle car (6) as well as IoT interface (7) for continuous functioning of the barrier system. Both interfaces are integrated within the shuttle car (6) to avoid damages of any kind

No. of Pages : 15 No. of Claims : 9

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202541057473 A

(19) INDIA

(22) Date of filing of Application :16/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : TABLET EXPIRY DATE INFORMER APPARATUS WITH IOT FEED BACK

(51) International classification :A61B0005000000, G08B0025100000, G06F0003041000, G06Q0010087000, G08B0021020000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

The invention relates to a tablet expiry date informer apparatus comprising an 5 enclosure (1) containing storage shelves (2) that hold multiple dosette boxes (3). Each dosette box (3) includes tablet holders (4) covered with lids (5) for secure storage. A container identity mark (6) is affixed to each dosette box or holder to store expiry information. A scanner camera (7) reads these identity marks to extract and store expiry data. An IoT interface (8) is connected to transmit alerts to external devices I O when expiry dates approach or pass. A control interface (9) allows users to configure settings and view tablet status. The system ensures safe medicine consumption by automating expiry tracking and notifications

No. of Pages : 16 No. of Claims : 9

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202541057474 A

(19) INDIA

(22) Date of filing of Application :16/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : REMOTE ACTIVATED WATER FLOW CONTROL VALVE WITH INTEGRAL MANUAL DRIVEN TAP HANDLE

(51) International classification :F16K0001226000, F16K0001220000, F16K0035020000, E03C0001040000, F16K0031600000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

The titled invention discloses a hybrid water tap system for residential, industrial, and agricultural settings to be operated both manually and remotely. Water enters the tap through the water tap inlet (1) and exits through the spout (2). The butterfly valve (11) 10 . regulates water flow by rotating a disc between closed and open position. The butterfly valve (11) is operated through the cartridge axle (5) that connects the manually operated tap handle (10) and the remotely operated servomotor (4). The servomotor (4) is triggered to rotate the butterfly valve (11) disc in clockwise. The tap handle (10) is turned to rotate the butterfly valve (11) disc in anti-clockwise direction. The cartridge 15 axle (5) is divided and equipped with upper part one-way gear (9) and lower part oneway gear (8) to ensure unidirectional rotation, preventing unintentional overriding of one mode over another.

No. of Pages : 18 No. of Claims : 8

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202541057475 A

(19) INDIA

(22) Date of filing of Application :16/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : TRANSPORTABLE DRY MIXING CHAMBER FOR CEMENT MORTAR WITH INTEGRATED DRAIN BUCKET

(51) International classification :B01F0035710000, B01F0033502000, B01F0035320000, B01F0027808000, B01F0033501000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

The titled invention discloses transportable dry mixing chamber for the mixing of cement mortar ingredients and the efficient collection of the mixed material. The system comprises a compact and transportable setup mounted on mobile chassis (1) 10 with wheels (2) and pulling handle (3), allowing it to be easily moved to various locations. The cement, sand, and other dry ingredients are mixed in the mixing chamber. drum (4). The rotating blade axle (6) driven by drive motor (7) is positioned centrally within the chamber and is equipped with two mixing blades (5) that rotate to ensure uniform blending of the contents. Spatula is mounted near the inner wall of the 15 mixing chamber drum (4) to scrape residual mortar from the drum walls. The mixed ingredients are discharged through the door (9) located on the front side of the chamber. The mixed ingredients from the mixing chamber drum (4) are directed through the drain channel (8) into the drain bucket (1 0). The controller (11) unit allows the user to operate and regulate the mixing process.

No. of Pages : 17 No. of Claims : 9

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202541057476 A

(19) INDIA

(22) Date of filing of Application :16/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : WHEEL CHAIR WITH WATER COOLED LINER SEAT AND BACK REST FOR HEALING BED SORE OF THE PATIENT

(51) International classification :A61G0005100000, A61F0007000000, A61F0007020000, A47J0027040000, A61H0009000000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

The invention relates to a wheelchair (1) integrated with a therapeutic water circulation system (5) designed to prevent and heal pressure ulcers. It comprises a sitting pad (3) and back resting pad (4) embedded with water liners (5) through which temperaturecontrolled water flows. A water tank (6) stores the water, which is heated using a warm water chamber (7) as required. A water circulating pump (8) drives the water through a discharge pipe line (9) into the liners (5) and returns it via a return pipe line (10). I/O Control settings (11) allow regulation of temperature and flow based on user needs. The system is compactly built into the wheelchair without affecting mobility. This design provides localized thermal therapy for patients who remain seated for long durations.

No. of Pages : 16 No. of Claims : 7



(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :16/06/2025

(21) Application No.202541057483 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : SMART IR HUB

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| <p>(51) International classification :B33Y0080000000, B33Y0010000000, H04W0004800000, G05B0015020000, H05K0001160000</p> <p>(86) International Application No :NA<br/>Filing Date :NA</p> <p>(87) International Publication No : NA</p> <p>(61) Patent of Addition to :NA<br/>Application Number :NA<br/>Filing Date :NA</p> <p>(62) Divisional to :NA<br/>Application Number :NA<br/>Filing Date :NA</p> | <p>(71)Name of Applicant :<br/><b>1)KALASALINGAM ACADEMY OF RESEARCH AND EDUCATION</b><br/>Address of Applicant :ANAND NAGAR, KRISHNANKOIL, SRIVILLIPUTTUR ( VIA ), VIRUDUNAGAR(DT), TAMILNADU-626126 -----</p> <p><b>Name of Applicant : NA</b><br/><b>Address of Applicant : NA</b></p> <p>(72)Name of Inventor :<br/><b>1)P VENKATA SAI</b><br/>Address of Applicant :Computer Science and Engineering, KALASALINGAM ACADEMY OF RESEARCH AND EDUCATION, ANAND NAGAR, KRISHNANKOIL, SRIVILLIPUTTUR ( VIA ), VIRUDUNAGAR(DT), TAMILNADU-626126 -----</p> <p><b>2)P SAIGANESH YADAV</b><br/>Address of Applicant :Computer Science and Engineering, KALASALINGAM ACADEMY OF RESEARCH AND EDUCATION, ANAND NAGAR, KRISHNANKOIL, SRIVILLIPUTTUR ( VIA ), VIRUDUNAGAR(DT), TAMILNADU-626126 -----</p> <p><b>3)P BHAVITHA</b><br/>Address of Applicant :Computer Science and Engineering, KALASALINGAM ACADEMY OF RESEARCH AND EDUCATION, ANAND NAGAR, KRISHNANKOIL, SRIVILLIPUTTUR ( VIA ), VIRUDUNAGAR(DT), TAMILNADU-626126 -----</p> <p><b>4)POTLA MOKSHAGNA CHOWDARY</b><br/>Address of Applicant :Computer Science and Engineering, KALASALINGAM ACADEMY OF RESEARCH AND EDUCATION, ANAND NAGAR, KRISHNANKOIL, SRIVILLIPUTTUR ( VIA ), VIRUDUNAGAR(DT), TAMILNADU-626126 -----</p> <p><b>5)MADEPALLI RAMKUMAR</b><br/>Address of Applicant :Information Technology, KALASALINGAM ACADEMY OF RESEARCH AND EDUCATION, ANAND NAGAR, KRISHNANKOIL, SRIVILLIPUTTUR ( VIA ), VIRUDUNAGAR(DT), TAMILNADU-626126 -----</p> <p><b>6)BORRU PALLAVI</b><br/>Address of Applicant :Computer Science and Engineering, KALASALINGAM ACADEMY OF RESEARCH AND EDUCATION, ANAND NAGAR, KRISHNANKOIL, SRIVILLIPUTTUR ( VIA ), VIRUDUNAGAR(DT), TAMILNADU-626126 -----</p> <p><b>7)NAVYA SREE</b><br/>Address of Applicant :Computer Science and Engineering, KALASALINGAM ACADEMY OF RESEARCH AND EDUCATION, ANAND NAGAR, KRISHNANKOIL, SRIVILLIPUTTUR ( VIA ), VIRUDUNAGAR(DT), TAMILNADU-626126 -----</p> <p><b>8)Dr. ANGSHUMAN CHATTOPADHYAY</b><br/>Address of Applicant :Associate Professor, Mechanical Engineering, KALASALINGAM ACADEMY OF RESEARCH AND EDUCATION, ANAND NAGAR, KRISHNANKOIL, SRIVILLIPUTTUR ( VIA ), VIRUDUNAGAR(DT), TAMILNADU-626126 -----</p> |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

(57) Abstract :

This invention relates to a smart ir hub. This invention typically includes a microcontroller (1),an ir leds (2),an ir receiver (3),a dht11 sensor (4),a resistors (5),a 5 capacitors (6),an uln2003 vdr (7),a pcb board (8),a pia 3d-printed enclosure (9),a top plate (10),a main body (11),a bottom plate (12).a rechargeable Battery (13). This invention intelligently automates and controls I R-based appliances, enhancing comfort and energy efficiency through real-time environmental sensing and mobile control, all within a sustainable, cost-effective design. This applies to automating IR-controlled 10 devices like air conditioners, TVs, and media systems in homes and small commercial spaces, enhan.cing comfort and energy efficiency through intelligent environmental sensing and mobile control.

No. of Pages : 17 No. of Claims : 8

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :16/06/2025

(21) Application No.202541057484 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : DIGITAL LOCK SYSTEM FOR TRUCK'S FUEL TANK

(51) International classification :G07C0005000000, G08B0021020000, E05B0047000000, G06F0021500000, G07C0005080000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

This invention relates to a digital lock system for truck's fuel tank. This invention typically includes a microcontroller (1), a digital lock/servo motor mechanism (2), a keypad/number pad (3), a power supply (4), an alarm system (5), a tilt sensor (6), a tamper switch (7), a display screen (8), an outer box (9). This invention offers enhanced security, real-time theft prevention, and improved fleet management by 10 replacing vulnerable mechanical locks with a smart, password-protected electronic system featuring instant alarms and remote monitoring capabilities. This invention is primarily applicable to commercial truck fleets, construction and mining vehicles, agricultural equipment, and military and government vehicles to prevent fuel theft and enhance security.

No. of Pages : 15 No. of Claims : 9

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202541057485 A

(19) INDIA

(22) Date of filing of Application :16/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : AADHAAR-POWERED AI VOTING SYSTEM FOR SMART, SECURE, AND INSTANT ELECTIONS

(51) International classification :G06V0040160000, G06F0011140000, G06F0021320000, G07C0013000000, G06F0009540000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

This invention discloses an Aadhaar-powered smart voting system that automates 5 identity verification and vote casting using AI and biometric technologies. The voter inserts their Aadhaar card into the Aadhaar Card Reader (1) to verify age and identity. Facial recognition is performed through the Facial Recognition Camera (2), and fingerprint authentication is done via the Biometric Fingerprint Scanner (3), both processed by the AI-Based Authentication Module (5). Upon successful verification, I 0 the Touchscreen Voting Interface (4) displays a Multilingual User Interface (6) for selecting state, district, ward, and candidate. The vote is encrypted and stored in the Encrypted Vote Storage Unit (7), and simultaneously transmitted to a central database through the Central Server Connectivity Module (8) using the Network Communication Module (9). In the event of a system failure, the Emergency Data Backup System (1 0) 15 20 ensures vote preservation. This system ensures secure, instant, and tamper-resistant elections with minimal manpower.

No. of Pages : 15 No. of Claims : 9

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202541057486 A

(19) INDIA

(22) Date of filing of Application :16/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : AI-POWERD VOICE-BASED EXAMINATION SYSTEM FOR VISUALLY&NBSP;IMPAIRED CANDIDATES

(51) International classification :G10L0015260000, G10L0015220000, G06V0030100000, G06Q0010060000, G16H0010200000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
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(57) Abstract :

The invention provides an AI-powered voice-based examination system designed for 5 visually impaired candidates to take written exams independently without a human scribe. It uses an Optical Character Recognition module (1) to scan printed or digital question papers and a Text-to-Speech converter (2) to read the questions aloud through a Headphone Output (5). The candidate responds verbally using a Microphone Unit (4), and the Speech-to-Text engine (3) transcribes the spoken I O answers into text. The process is controlled via a User Interface Console (6) with tactile buttons. All responses are managed and processed by an Embedded Processor Board (7), then saved securely in a Storage Module (8). Upon completion, answers are printed using a Printer Interface (9). The entire system operates on a Rechargeable Power Bank Module (10), ensuring portability and uninterrupted 15 function during exams.

No. of Pages : 16 No. of Claims : 7

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202541057487 A

(19) INDIA

(22) Date of filing of Application :16/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : TRIPLE INFLATABLE LUMBAR SUPPORT CHAIR FOR POSTURE COMFORT WITH SPINAL ALIGNMENT AND MUSCLE FATIGUE

(51) International classification :A47C7/46, B60N2/66  
(86) International Application No :NA  
Filing Date :NA  
(87) International Publication No : NA  
(61) Patent of Addition to Application Number :NA  
Filing Date :NA  
(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

The titled invention discloses a triple inflatable lumbar support chair for posture comfort with spinal alignment and muscle fatigue reduction. The sitting chair (1) includes user comfort features such as seat (2) with attachments of arm rest (3) on both sides of chair and back rest frame (4) to the rear of the seat base. The air inflation system 10 includes air inflation pump (9) integrated with the solenoid valve (10) for upper lumbar support pad (5), another solenoid valve (11) for middle lumbar support pad (6) and the solenoid valve (12) for lower lumbar support pad (7) connected with each other. These three sections of lumbar pads are designed with inflatable humps (8) in an organized structure which are housed into the back rest frame (4). The user control systems 15 includes pad selector control (13) for inflating the pads and pad selector control (14) for deflating the pads. Both are embedded in a single panel for ease of access by the user to adjust the pad inflation with controlled airflow, based on their desired region of lumbar support.

No. of Pages : 19 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202541057488 A

(19) INDIA

(22) Date of filing of Application :16/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : SMART COLLABORATIVE PLUCKING CART ENHANCES TEA HARVESTING

(51) International classification :B25J0009160000, G01N0033240000, G05B0019418000, B62D0027020000, H01H0083200000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

This invention relates to a smart collaborative plucking cart that enhances tea harvesting. This invention typically includes a Mobile Platform/Chassis (1), a Perception and Sensing System (2), a Plucking Mechanism/Robotic Arm (3), a Collection System (4),a Control and Processing Unit (5),a Human-Machine Interface (HMI) I User Interface (6),a Power System (7), Safety Features (8). This invention 10 enhances tea harvesting by significantly increasing productivity, ensuring precise "two leaves and a bud" quality, reducing labour strain, and providing valuable data for optimized yield management. This invention can be applied in various tea estates globally to address labour shortages, improve tea quality and yield, and enhance the sustainability and efficiency of tea cultivation

No. of Pages : 19 No. of Claims : 9

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202541057489 A

(19) INDIA

(22) Date of filing of Application :16/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : LASER BEAM GUIDED BARRIER FENCING BAY TEMPORARY CAR PARKING IN LARGE OPEN SPACES

(51) International classification :B23K0026060000, F21Y0115100000, B23K0026700000, B23K0026082000, B23K0026064000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

The titled invention discloses a laser beam guided barrier fencing bay for temporary car parking in large open spaces. This laser barrier device includes structural stability and support features such as base pedestal (1) and vertical pole (2) on it. The laser systems built over the vertical pole (2) includes a quadruple laser beam lens (3) embedded in a swiveling laser holder hub (4) which are controlled by using the laser 1 0 beam control switches (5) and the each laser beam's intensity and distance of laser passing along the parking bay can be adjusted using the beam length adjuster knobs (6) provided around each laser lens. The power supplying features for battery in battery housing (1 0) inside the vertical pole (2) includes a solar panel (8), charging power port (9) and the device activation/deactivation based on usage requirement can 15 be done using the power switch (7). This system of fencing prevents traffic congestion and ensures more space providing for vehicles to be parked over the bay in large open spaces.

No. of Pages : 16 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :16/06/2025

(21) Application No.202541057491 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : PARTIAL REPLACEMENT OF CEMENT WITH NANO-SILICA AND COARSE AGGREGATE WITH COCONUT SHELL

|                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>(51) International classification :C04B0040000000, G06Q0050080000, C04B0028020000, C04B0024280000, C04B0014020000</p> <p>(86) International Application No :NA<br/>Filing Date :NA</p> <p>(87) International Publication No : NA</p> <p>(61) Patent of Addition to Application Number :NA<br/>Filing Date :NA</p> <p>(62) Divisional to Application Number :NA<br/>Filing Date :NA</p> | <p>(71)Name of Applicant :<br/><b>1)SAMUEL ABRAHAM. D</b><br/>Address of Applicant :SRI SHAKTHI INSTITUTE OF ENGINEERING &amp; TECHNOLOGY, COIMBATORE-641062 -----</p> <p><b>Name of Applicant : NA</b><br/><b>Address of Applicant : NA</b></p> <p>(72)Name of Inventor :<br/><b>1)Jaya Prakash.K</b><br/>Address of Applicant :LA, Ashokar street, near by pink beauty parlour, Vellalore Coimbatore tamil Nadu India 641111 -----</p> <p><b>2)Kalaiselvam.S</b><br/>Address of Applicant :132, Maruthi street, kalanivasal, Karaikudi, Tamilnadu, India, 630002 -----</p> <p><b>3)Nishandhini.R</b><br/>Address of Applicant :2/384, Muthunagar, Ranjit petrol bunk near, Vembakottai, sivakasi, tamilnadu, india,626131 -----</p> <p><b>4)Veerakumar.K</b><br/>Address of Applicant :333/15, sreenivasapuram covai main road, avinashi, tiruppur, tamilnadu, india,641654 -----</p> <p><b>5)Samuel Abraham. D</b><br/>Address of Applicant :SRI SHAKTHI INSTITUTE OF ENGINEERING &amp; TECHNOLOGY, COIMBATORE-641062 -----</p> |
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(57) Abstract :

ABSTRACT The increasing demand for sustainable construction materials has driven the need for innovative alternatives to conventional concrete components. This study explores the partial replacement of cement with nano-silica and coarse aggregate with coconut shell to develop an eco-friendly and cost-effective concrete mix. Nano-silica, known for its high pozzolanic activity and fine particle size, improves the mechanical strength and durability of concrete. Coconut shells, an agricultural waste product, offer a lightweight and sustainable substitute for conventional coarse aggregates. The objective of this project is to analyse the workability, compressive strength, and durability characteristics of concrete containing varying percentages of nano-silica (e.g., 2%) and coconut shell (e.g., 10%). The results demonstrate the potential of this hybrid replacement technique to reduce environmental impact, minimize construction costs, and promote the use of renewable materials in civil engineering applications. This study explores the properties of concrete as a sustainable substitute for cement through the use of nano-silica in an eco-friendly aggregate system. Daily life generates a larger amount of coconut shell waste from the tropical zone. In India, the yearly deposition of coconut shell is about 80,000 tonnes, which is 6.7% of total agricultural waste. Crushing gravel production emits CO<sub>2</sub>, which is an environmental concern. Nano-silica in concrete improves the strength properties of concrete, which satisfies the various structural properties of concrete like compressive strength and tensile strength. It is expected that the final outcome of the project will have an overall beneficial effect on the utility of Nano-silica concrete in the field of civil engineering construction work.

No. of Pages : 6 No. of Claims : 8



(54) Title of the invention : SMART ELECTRIC VEHICLE CHARGING INFRASTRUCTURE WITH GRID INTEGRATION AND AI-OPTIMIZED ENERGY DISTRIBUTION

|                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <div><div>(51) International classification</div><div>(86) International Application No</div><div>(87) International Publication No</div><div>(61) Patent of Addition to Application Number</div><div>(62) Divisional to Application Number</div></div> <div><div>:G06Q0050060000, G06N0020000000, B60L0053630000, B60L0053660000, H02J0003320000</div><div>:NA</div><div>:NA</div><div>: NA</div><div>:NA</div><div>:NA</div><div>:NA</div></div> | <div><div>(71)Name of Applicant :</div><div>1)Dr. T. KANTHIMATHI</div><div>Address of Applicant :ASSISTANT PROFESSOR, DEPARTMENT OF MECHANICAL ENGINEERING, KONERU LAKSHMAIAH EDUCATION FOUNDATION, GREEN FIELDS, VADDESWARAM-522302, GUNTUR DISTRICT, ANDHRA PRADESH -----</div><div>2)B. VENNILAPRIYA</div><div>3)GANESH N</div><div>Name of Applicant : NA</div><div>Address of Applicant : NA</div><div>(72)Name of Inventor :</div><div>1)Dr. T. KANTHIMATHI</div><div>Address of Applicant :ASSISTANT PROFESSOR, DEPARTMENT OF MECHANICAL ENGINEERING, KONERU LAKSHMAIAH EDUCATION FOUNDATION, GREEN FIELDS, VADDESWARAM-522302, GUNTUR DISTRICT, ANDHRA PRADESH -----</div><div>2)B. VENNILAPRIYA</div><div>Address of Applicant :Assistant Professor, Department of Electronics and Communication Engineering, Meenakshi College of Engineering, 12, Vembuliamman Koil St, Annaji Nagar, KK Nagar West, K. K. Nagar Chennai,Tamilnadu,India, 600078 -----</div><div>3)GANESH N</div><div>Address of Applicant :Assistant Professor, Department of Mechanical Engineering, CARE College of Engineering, #27, Dindugal Main Road, Thayanur, Tiruchirapalli, Tamilnadu,India, 620009 -----</div></div> |
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(57) Abstract :  
Abstract The fast rise of electric vehicles (EVs) means that we need a strong, smart charging system that can handle power distribution well while keeping the grid stable. Charging patterns that aren't coordinated can lead to power imbalances, higher peak. loads, and not enough use of 5 renewable energy. This system creates a smart EV charging infrastructure that works perfectly with the power grid and uses artificial intelligence (AI) to make sure that energy flows in the best way possible. We use real-time data from EVs, the grid, and energy markets to predict demand and change charging schedules on the fly. The system can balance loads, lower peak demand, and lower energy costs thanks to AI methods like machine learning and 10 reinforcement learning. The infrastructure is also built to make it easier to use renewable energy and to use demand response strategies to make the grid more flexible. The results of the simulation show that energy efficiency has gone up a lot, grid stress has gone down, and the system is better aligned with the availability of low-cost, low-carbon energy. This smart charging framework not only makes charging easier for users, but it also helps build a 15 sustainable and strong energy ecosystem for future mobility.

No. of Pages : 16 No. of Claims : 5

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202541057895 A

(19) INDIA

(22) Date of filing of Application :17/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : A SYSTEM AND METHODS THEREOF FOR ARTIFICIAL GRAVITATIONAL ANCHOR BASED ON MASS ROTATION AND FRAME D

(51) International classification :F03G0003000000, H01J0049420000, H05H0003020000, H04W0080040000, A01G0031060000

(86) International Application No :NA

Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA

Filing Date :NA

(62) Divisional to Application Number :NA

Filing Date :NA

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(57) Abstract :

This invention relates to systems and methods for generating localized gravitational time dilation effects using a rapidly rotating high-density toroidal mass, suspended via advanced magnetic or superconducting techniques, within a controlled vacuum environment. It specifically pertains to a compact, terrestrial system and methods for apparatus designed to produce measurable spacetime curvature through rotational frame-dragging phenomena. A compact gravitational anchor system employs a high-density toroidal mass, rotated at > 100,000 RPM within a vacuum via superconducting or feedback system optimizes spacetime curvature, measured by spatially arranged atomic clocks detecting localized time dilation from frame-dragging effects. This tunable, terrestrial proposed methodologies of apparatus will enable applications in precision timing, quantum research, and time-buffered data storage.

No. of Pages : 14 No. of Claims : 5

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202541057896 A

(19) INDIA

(22) Date of filing of Application :17/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : ENHANCEMENT OF UNDERGRADUATE STUDENTS LANGUAGE COMPETENCE THROUGH PRAGMATIC PRACTICES

|                                               |                                                                                 |                                                                                                                                                                                                                                                                 |
|-----------------------------------------------|---------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (51) International classification             | :G09B0019060000, G06F0040300000, G06Q0050200000, G06F0040253000, G09B0005060000 | (71)Name of Applicant :<br><b>1)PRASAD V.POTLURI SIDDHARTHA INSTITUTE OF TECHNOLOGY</b><br>Address of Applicant :KANURU, VIJAYAWADA, KRISHNA DISTRICT, ANDHRA PRADESH, 520007, INDIA -----<br><b>Name of Applicant : NA</b><br><b>Address of Applicant : NA</b> |
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| Filing Date                                   | :NA                                                                             |                                                                                                                                                                                                                                                                 |

(57) Abstract :

English is undoubtedly an international language today. Due to its global presence, it has become more important today than ever before. Students need English speaking in professional life and education. Several methods are observed in teaching of English to Indian students of different ages, social backgrounds, cultures, and learners of different needs. Until 1970's, Grammar Translation method was employed by teaching linguistic structures and linguistic forms which aimed at improving grammatical competence by memorizing rules to understand the syntax of L2. But it neglects the role of language functions and socio-cultural aspects. Learning linguistic competence like grammar, direct utterances hardly have any scope for hidden or implied meanings. But in everyday conversation speakers convey most of the communicational content by way of implication rather than by explicit statements. In fact it is not possible to have a conversation without the use of implicit meaning. So the pragmatic potential or contextually hidden meanings of utterances are to be taken into consideration. In other words, pragmatics are contextually because every utterance is not alone, the intention and the way it was uttered has socio-cultural inference. Speech acts such as requesting, greeting, inviting and apologizing are included in communicative actions like conversation, discussion and different types of discourses. This paper focuses on self-learning of the students by enriching their pragmatic linguistics.

No. of Pages : 26 No. of Claims : 9

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202541057897 A

(19) INDIA

(22) Date of filing of Application :17/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : XCCELERATEDL A SYSTEM AND METHOD THEREOF FOR FASTER DOWNLOAD FROM INTERNET

(51) International classification :H04L0009080000, G06N0020000000, H04L0009300000, G06F0021620000, H04L0067104000

(86) International Application No :NA

Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA

Filing Date :NA

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(57) Abstract :

The current invention A subsystem named XccelerateDL and its methods allow for quicker internet content downloads (text with multimedia items). XccelerateDL optimizes download manager speed using machine learning and artificial intelligence\_(AI/ML)-techniques.-Its-----uniqueness is further increased by features like quantum-resistant encryption, decentralized storage integration, and blockchain verification. With considerable technological knowledge and ingenuity, the integration of AI/ML with download management has been accomplished with success, particularly for predictive speed optimization. When P2P networks, hybrid cloud-local -Cll models, and sophisticated privacy features are combined, an obscure solution that surpasses the C) Ill state of the art is revealed. D.. Cll The current idea has obvious industrial applications in a number of fields, including enterprises, -1- organizations, and individual users. it is useful in sectors including media, software development, -N and content distribution because of its capacity to optimize down loads for speed, dependability, and privacy. As a result, XccelerateDL fills important gaps in the current download manager technology (from internet) with its unique and non-obvious characteristics, as detailed in its technical explanation. It satisfies the utility criteria for patentability due to its industrial usefulness also

No. of Pages : 14 No. of Claims : 5

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202541057898 A

(19) INDIA

(22) Date of filing of Application :17/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : ULTRASOUND ASSISTED NONTOXIC NATURAL HAIR DYE FROM INDIGOFERA TINCTORIA & LAWSONIA INERMIS

(51) International classification :A61K0008978900, A61K0036480000, A61K0036185000, A61K0036886000, A61Q0005060000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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**3)Dr. K.M.Veerabadran**  
**4)Dr. J.Ramajothi**  
**5)Dr. R. Jayaprakash**  
**6)A. Aravindhhan**  
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(57) Abstract :

This invention synthesised the skin protective antidandruff natural hair dye using ultrasound from Lawsonia inermis and Indigofera tinctoria with minor ingredients such as raw green tea, triphala, black cumin, aloe vera, and hibiscus.

No. of Pages : 25 No. of Claims : 5

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202541057900 A

(19) INDIA

(22) Date of filing of Application :17/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : NEBULIZER DEVICE WITH INTEGRATED UV-C LIGHT MASK DISINFECTION

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                 |                                                                                 |                                   |     |             |     |                                   |      |                                               |     |             |     |                                       |     |             |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------|---------------------------------------------------------------------------------|-----------------------------------|-----|-------------|-----|-----------------------------------|------|-----------------------------------------------|-----|-------------|-----|---------------------------------------|-----|-------------|-----|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <table><tr><td>(51) International classification</td><td>:A61L0002100000, A61M0016060000, A41D0013110000, A61L0009200000, G06F0001160000</td></tr><tr><td>(86) International Application No</td><td>:NA</td></tr><tr><td>Filing Date</td><td>:NA</td></tr><tr><td>(87) International Publication No</td><td>: NA</td></tr><tr><td>(61) Patent of Addition to Application Number</td><td>:NA</td></tr><tr><td>Filing Date</td><td>:NA</td></tr><tr><td>(62) Divisional to Application Number</td><td>:NA</td></tr><tr><td>Filing Date</td><td>:NA</td></tr></table> | (51) International classification                                               | :A61L0002100000, A61M0016060000, A41D0013110000, A61L0009200000, G06F0001160000 | (86) International Application No | :NA | Filing Date | :NA | (87) International Publication No | : NA | (61) Patent of Addition to Application Number | :NA | Filing Date | :NA | (62) Divisional to Application Number | :NA | Filing Date | :NA | <p>(71)<b>Name of Applicant :</b><br/><b>1)SRI MANAKULA VINAYAGAR MEDICAL COLLEGE AND HOSPITAL</b><br/>Address of Applicant :SRI MANAKULA VINAYAGAR MEDICAL COLLEGE AND HOSPITAL, MADAGADIPET, PUDUCHERRY-605107, INDIA -----<br/><b>Name of Applicant : NA</b><br/><b>Address of Applicant : NA</b><br/>(72)<b>Name of Inventor :</b><br/><b>1)Dr. PRAVEEN. R</b><br/>Address of Applicant :Professor, Respiratory Medicine, SRI MANAKULA VINAYAGAR MEDICAL COLLEGE AND HOSPITAL, MADAGADIPET, PUDUCHERRY-605107, INDIA -----<br/><b>2)Dr. SRIRAM.S</b><br/>Address of Applicant :Respiratory Medicine, SRI MANAKULA VINAYAGAR MEDICAL COLLEGE AND HOSPITAL, MADAGADIPET, PUDUCHERRY-605107, INDIA -----</p> |
| (51) International classification                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | :A61L0002100000, A61M0016060000, A41D0013110000, A61L0009200000, G06F0001160000 |                                                                                 |                                   |     |             |     |                                   |      |                                               |     |             |     |                                       |     |             |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| (86) International Application No                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | :NA                                                                             |                                                                                 |                                   |     |             |     |                                   |      |                                               |     |             |     |                                       |     |             |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Filing Date                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | :NA                                                                             |                                                                                 |                                   |     |             |     |                                   |      |                                               |     |             |     |                                       |     |             |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| (87) International Publication No                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | : NA                                                                            |                                                                                 |                                   |     |             |     |                                   |      |                                               |     |             |     |                                       |     |             |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| (61) Patent of Addition to Application Number                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | :NA                                                                             |                                                                                 |                                   |     |             |     |                                   |      |                                               |     |             |     |                                       |     |             |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Filing Date                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | :NA                                                                             |                                                                                 |                                   |     |             |     |                                   |      |                                               |     |             |     |                                       |     |             |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| (62) Divisional to Application Number                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | :NA                                                                             |                                                                                 |                                   |     |             |     |                                   |      |                                               |     |             |     |                                       |     |             |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Filing Date                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | :NA                                                                             |                                                                                 |                                   |     |             |     |                                   |      |                                               |     |             |     |                                       |     |             |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |

(57) Abstract :

The invention discloses a Nebulizer Device with Integrated UV-C Light Mask Disinfection that combines medication delivery and automated hygiene. It includes a nebulizer unit (1) connected to a mask body (2) for administering aerosolized medication. After use, the mask (2) is placed in a designated mask storage compartment (4) containing a UV-C light module (3). A microcontroller (5) activates the 10 UV-C light for disinfection, with exposure duration managed by a timer circuit (6). A safety sensor (7) ensures the compartment is closed before activation. User interaction is enabled through control buttons (8) and feedback via a display screen -A power-supply-unit (-10)-supports AC-or-battery operation,-making-the-system suitable for various settings

No. of Pages : 15 No. of Claims : 6

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :17/06/2025

(21) Application No.202541057903 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : ROAD BOT: AN AGENTIC AI AND EDGE IOT BASED ROAD SURVEILLANCE AND POTHOLE SCORING SYSTEM USING CONNECTED VEHICLES

(51) International classification :E01C0023060000, H04W0084120000, G08G0001010000, B60W0040060000, G08G0001096700

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :  
"RoadBot: An Agentic AI and Edge-IoT Based Road Surveillance and Pothole Scoring System Using Connected Vehicles" presents an innovative approach to road safety and maintenance. This system leverages the Sharp GP2YOA02YKOF infrared sensor and the SparkFun AOXL345 accelerometer to detect road anomalies, specifically potholes. Sensor data is processed through an Arduino UNO ADC unit, which triggers two key actions upon detecting a pothole: the vehicle's speed is reduced, and GPS coordinates are recorded. Over the course of a trip, the frequency of pothole encounters is analyzed by an Agentic AI, which assigns a road quality score. This scoring mechanism aids in proactive road maintenance and enhances overall driving safety by providing real-time feedback and data-driven insights

No. of Pages : 23 No. of Claims : 5

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202541057904 A

(19) INDIA

(22) Date of filing of Application :17/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : SYNTHESIS AND ANTICANCER ACTIVITY OF THIOPHENE, PYRROLE AND QUINOLINE BASED SCHIFF BASES

(51) International classification :A61P0035000000, A61P0031200000, A61P0029000000, C12N0005090000, B64D0043000000  
(86) International Application No :NA  
Filing Date :NA  
(87) International Publication No : NA  
(61) Patent of Addition to Application Number :NA  
Filing Date :NA  
(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :  
This invention synthesized the three heterocycles, such as pyrrole, thiophene, and quinoline, connected Schiff bases for cancer cell inhibition. Derived compounds showed excellent inhibition against both Hela and MCF7 cancer cell lines

No. of Pages : 10 No. of Claims : 5



(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :17/06/2025

(21) Application No.202541057906 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : LOW COST BLIND SPOT DETECTION AND WARNING SYSTEM USING CAMERA, LIDAR SENSORS AND RASPBERRY PI 4B FOR ROAD SAFETY

(51) International classification :A61K0036730000, G05D0001000000, G01S0017890000, H04L0009320000, B60R0001000000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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**5)R Ashwath**

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(57) Abstract :

Vehicle accidents that take place due to the insufficient awareness of the driver about the surrounding vehicles are very wide-spread events in a country like India where the road traffic is so congested and the roads themselves are not in proper condition. In this kind of a situation, the accidents that take place due to the vehicles in a blind spot to the driver of another vehicle is increasing as time goes along. Also, the current systems available for Blind Spot Warning are significantly expensive. We propose a low-cost, effective Warning System to alert the drivers about other moving vehicles in their surroundings which they, naturally, are not able to see on their own while driving. We, therefore, use USB Camera sensors and a LiDAR sensor to get the images and to derive the physical parameters of the surrounding vehicles from an ego vehicle. These parameters and images are then processed using a Broadcom microprocessor placed on the Raspberry Pi V4 board. The novelty of the work is to acquire the parameters using the Broadcom Microprocessor, placed in Raspberry Pi 4 Model B board, LiDAR and Camera sensors. The driver is alerted according to the results that are produced from the code written for the USB Camera sensor and the LiDAR improves the probability of producing more reliable output and thereby the conclusions drawn from this system becomes more accurate and efficient.

No. of Pages : 7 No. of Claims : 5

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202541057908 A

(19) INDIA

(22) Date of filing of Application :17/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : BIOLOGICAL APPLICATIONS OF 1-(1-METHYL-3, 4, 5-TRI(PIPERIDIN-1-YL)-1H-PYRROL-2-YL) PIPERIDINE AND MORPHOLINE DERIVATIVES

(51) International classification :A61K0031400000, A61P0035000000, C07D0207337000, A61P0043000000, C08G0061120000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

This invention synthesised, 1 H-pyrrol-2-yl)piperidine characterized the 1-(1-methyl-3, 4, 5-tri(piperidin-1-yl)and 1-(1-methyl-3,4,5-tri(piperidin-1-yl)-1 H-pyrrol-2-yl)piperidine for the antibacterial inhibition and all kinds of biological activities. The compounds of pyrrole were prepared by using iodinated pyrrole with piperidine and morpholine. The derived compounds showed good result against the bacterial strains and cancer cell lines.

No. of Pages : 9 No. of Claims : 5

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :17/06/2025

(21) Application No.202541057910 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : DESIGN AND IMPLEMENTATION OF A SLOT ANTENNA FOR MICROWAVE DIATHERMY APPLICATIONS

|                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
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| <p>(51) International classification :H01Q0001380000, H01Q0001240000, H01Q0009040000, A61N0001400000, A61P0025180000</p> <p>(86) International Application No :NA<br/>Filing Date :NA</p> <p>(87) International Publication No : NA</p> <p>(61) Patent of Addition to Application Number :NA<br/>Filing Date :NA</p> <p>(62) Divisional to Application Number :NA<br/>Filing Date :NA</p> | <p>(71)Name of Applicant :<br/><b>1)VEL TECH MULTI TECH Dr.RANGARAJAN Dr. SAKUNTHALA ENGINEERING COLLEGE</b><br/>Address of Applicant :#42, AVADI-VEL TECH ROAD, POONAMALLEE-AVADI HIGH RD, VEL NAGAR, CHENNAI, TAMILNADU, 600062 ----- -<br/>-----<br/><b>2)D.Ruban Thomas</b><br/><b>3)Dr.V.Prabhu</b><br/><b>4)Balaji S</b><br/><b>5)Ragul M</b><br/><b>6)Yuvaraja A</b><br/><b>Name of Applicant : NA</b><br/><b>Address of Applicant : NA</b><br/>(72)Name of Inventor :<br/><b>1)D.Ruban Thomas</b><br/>Address of Applicant :#42, AVADI-VEL TECH ROAD, POONAMALLEE-AVADI HIGH RD, VEL NAGAR, CHENNAI, TAMILNADU, 600062 ----- -<br/>-----<br/><b>2)Dr.V.Prabhu</b><br/>Address of Applicant :#42, AVADI-VEL TECH ROAD, POONAMALLEE-AVADI HIGH RD, VEL NAGAR, CHENNAI, TAMILNADU, 600062 ----- -<br/>-----<br/><b>3)Balaji S</b><br/>Address of Applicant :#42, AVADI-VEL TECH ROAD, POONAMALLEE-AVADI HIGH RD, VEL NAGAR, CHENNAI, TAMILNADU, 600062 ----- -<br/>-----<br/><b>4)Ragul M</b><br/>Address of Applicant :#42, AVADI-VEL TECH ROAD, POONAMALLEE-AVADI HIGH RD, VEL NAGAR, CHENNAI, TAMILNADU, 600062 ----- -<br/>-----<br/><b>5)Yuvaraja A</b><br/>Address of Applicant :#42, AVADI-VEL TECH ROAD, POONAMALLEE-AVADI HIGH RD, VEL NAGAR, CHENNAI, TAMILNADU, 600062 ----- -<br/>-----</p> |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

(57) Abstract :

To design a Double H-Slot Microstrip Antenna for diathermy treatment, ensuring efficient electromagnetic wave penetration and controlled heating of biological tissues. The antenna operates at I GHz, optimizing energy transfer for hyperthermia applications. The antenna structure incorporates vertical and ~orizontal slot cuts, forming a double H-slot configuration with equal spacing between slots, ensuring uniform current distribution and improved resonance characteristics. This enhances impedance matching, bandwidth, and radiation efficiency, minimizing power loss and ensuring precise thermal distribution. The design is compact, lightweight, and adaptable, making it suitable for wearable medical devices and biomedical imaging applications. It integrates easily with RF medical equipment, supporting multi-band operation and tunability for various medical treatments. The optimized feeding lnetwork ensures stable power delivery, improving efficiency and patient safety

No. of Pages : 8 No. of Claims : 3

(54) Title of the invention : ENHANCING EPILEPTIC SEIZURE DETECTION USING DEEP NEURAL NETWORK

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <div><div>(51) International classification</div><div>:A61B0005000000, G06N0003006000, G06N0003045000, G06N0003080000, A61P0025080000</div></div> <div><div>(86) International Application No</div><div>:NA</div><div>Filing Date</div><div>:NA</div></div> <div><div>(87) International Publication No</div><div>: NA</div></div> <div><div>(61) Patent of Addition to Application Number</div><div>:NA</div><div>Filing Date</div><div>:NA</div></div> <div><div>(62) Divisional to Application Number</div><div>:NA</div><div>Filing Date</div><div>:NA</div></div> |  | <div><div>(71)Name of Applicant :</div><div>1)VEL TECH MULTI TECH Dr.RANGARAJAN Dr. SAKUNTHALA ENGINEERING COLLEGE</div><div>Address of Applicant :# 42, AVADI VEL TECH ROAD POONAMALLE AVADI HIGH ROAD, VEL NAGAR, CHENNAI, TAMIL NADU 600062 -----</div><div>-----</div><div>2)Dr.V.Prabhu</div><div>3)Ashwin Emmanuel L</div><div>4)Prakash Raj D</div><div>5)Praveen V</div><div>Name of Applicant : NA</div><div>Address of Applicant : NA</div><div>(72)Name of Inventor :</div><div>1)Dr.V.Prabhu</div><div>Address of Applicant :# 42, AVADI VEL TECH ROAD POONAMALLE AVADI HIGH ROAD, VEL NAGAR, CHENNAI, TAMIL NADU 600062 -----</div><div>-----</div><div>2)Ashwin Emmanuel L</div><div>Address of Applicant :#42, AVADI-VEL TECH ROAD, POONAMALLEE-AVADI HIGH RD, VEL NAGAR, CHENNAI, TAMILNADU, 600062 -----</div><div>-----</div><div>3)Prakash Raj D</div><div>Address of Applicant :#42, AVADI-VEL TECH ROAD, POONAMALLEE-AVADI HIGH RD, VEL NAGAR, CHENNAI, TAMILNADU, 600062 -----</div><div>-----</div><div>4)Praveen V</div><div>Address of Applicant :#42, AVADI-VEL TECH ROAD, POONAMALLEE-AVADI HIGH RD, VEL NAGAR, CHENNAI, TAMILNADU, 600062 -----</div><div>-----</div></div> |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

(57) Abstract :

The proposed Optimized Deep Neural Computing (ODNC) model enhances seizure detection accuracy by combining the Whale Optimization Algorithm and Deep Bayesian Neural Networks. Trained on the CHB-MIT dataset, the model leverages Discrete Wavelet Transform (DWT) for feature extraction, removing noise and artifacts. Whale Optimization fine-tunes neural network weights for optimal learning, while the Bayesian layer estimates prediction uncertainty, crucial for medical reliability. This system outperforms traditional methods by improving accuracy, precision, recall, and F1 score. By delivering continuous, accurate monitoring, the ODNC model represents a breakthrough in medical AI for epilepsy management, providing a robust and adaptable tool for detecting seizures and supporting better patient outcomes

No. of Pages : 16 No. of Claims : 3

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :17/06/2025

(21) Application No.202541057912 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : EFFECTS OF PARTICULATE MATTER POLLUTION ON ACUTE AND CHRONIC HEALTH IMPACT IN MICRO-ENVIRONMENT USING SMART SENSORS

(51) International classification :A61B0005000000, G16H0050200000, G16H0010200000, A61B0005024000, A61Q0017000000  
(86) International Application No :NA  
Filing Date :NA  
(87) International Publication No : NA  
(61) Patent of Addition to Application Number :NA  
Filing Date :NA  
(62) Divisional to Application Number :NA  
Filing Date :NA

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**3)Dr.V.Prabhu**  
**4)JayaKumar M**  
**5)Naveenraj K**  
**6)Mugesh R**  
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(57) Abstract :

At Chennai, Kodungaiyur, the current study investigates the health effects of air pollution with specific reference to the common pollutants, i.e., carbon monoxide (CO), particulate matter (PM2.5), temperature, and humidity. The monitoring operations were carried out during the months of October and December (OND) with the assistance of a smart sensor system that utilized an Arduino UNO board and a display device. This observation technique provides required information on the post-monsoon period, which is characterized by increased variability in the atmosphere. Along with environmental observations, health interviews were conducted on traffic police officers who had been exposed to air pollution due to traffic for a long duration of time. Self-reported symptoms elicited included difficulty in breathing, headache, chronic coughing, eye irritation, and drowsiness; these symptoms are linked with well-documented adverse effects of air pollution. Similarly, as variability in pollution levels determines reported prevalence as well as symptom intensity, the current study is evident in linking environmental observations with health effects. Results identify areas that require strengthening under the guise of implementing stronger emissions controls, improving green cover, and employing eco-friendly vehicles. Moreover, the results provide evidence of the need to reduce pollution levels in high-exposure areas such as Kodungaiyur for protecting the health of the public. The current study encourages healthier, cleaner, and greener urban environments by solving the problem of air quality.

No. of Pages : 11 No. of Claims : 3

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :17/06/2025

(21) Application No.202541057915 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : DESIGN AND IMPLEMENTATION OF HIGH-SPEED ADAPTIVE FILTER FOR EEG SIGNAL ENHANCEMENT

(51) International classification :A61B0005000000, A61B0005369000, H03H0021000000, A61B0005291000, G06F0119120000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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**3)Dr.V.Prabhu**

**4)Ashwini S**

**5)Kavitha A**

**6)Usha Nandhini S**

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(57) Abstract :

ABSTRACT OF THE INVENTION The present invention relates to a high-speed, hard ware-efficient VLSI architecture for - adaptive-filtering-aimed-at-enhancing-electroencephalogram (EEG)\_signals. The proposed system incorporates multiple adaptive filtering algorithms, including the conventional Least Mean Squares (LMS), Delayed LMS, Pipelined LMS, and Unfolded LMS, each optimized using retiming techniques to improve convergence speed and reduce mean square error (MSE). The design is implemented at the register-transfer level (RTL), employing parallel processing and pipelining methodologies to support real-time signal enhancement with minimal latency. Simulation results validate the effectiveness of the proposed system in denoising EEG signals, confirming its suitability for integration into biomedical monitoring devices. The architecture is scalable, power-efficient, and adaptable to various signal environments, making it an ideal solution for portable EEG acquisition systems and wearable health monitoring platform

No. of Pages : 16 No. of Claims : 3

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202541057921 A

(19) INDIA

(22) Date of filing of Application :17/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : FIRE PREVENTION AND RISK MITIGATION SYSTEM FOR AIR CONDITIONERS (SUPERSPECIALITY OPD)

|                                                                                                                   |      |                                                                                                                                                                                                                                  |
|-------------------------------------------------------------------------------------------------------------------|------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (51) International classification :G08B0021180000, G06F0021570000, B60K0035000000, G06F0030200000, G05B0009020000 |      | (71)Name of Applicant :<br><b>1)SRI MANAKULA VINAYAGAR MEDICAL COLLEGE AND HOSPITAL</b><br>Address of Applicant :SRI MANAKULA VINAYAGAR MEDICAL COLLEGE AND HOSPITAL Madagadipet Puducherry-605107 Puducherry India 605107 ----- |
| (86) International Application No                                                                                 | :NA  | <b>Name of Applicant : NA</b>                                                                                                                                                                                                    |
| Filing Date                                                                                                       | :NA  | <b>Address of Applicant : NA</b>                                                                                                                                                                                                 |
| (87) International Publication No                                                                                 | : NA | (72)Name of Inventor :                                                                                                                                                                                                           |
| (61) Patent of Addition to Application Number                                                                     | :NA  | <b>1)Dr. P. SANJAY</b>                                                                                                                                                                                                           |
| Filing Date                                                                                                       | :NA  | Address of Applicant :SRI MANAKULA VINAYAGAR MEDICAL COLLEGE AND HOSPITAL Madagadipet Puducherry-605107 Puducherry India 605107 COLLEGE AND HOSPITAL -----                                                                       |
| (62) Divisional to Application Number                                                                             | :NA  | <b>2)Dr. M. PRAGASH</b>                                                                                                                                                                                                          |
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(57) Abstract :

This invention provides a fire prevention and risk mitigation system for air conditioners in clinical consultation rooms. It includes a temperature monitoring module (1) to detect 5 prolonged low-temperature operation, and door monitoring sensors (2) to record door activity affecting cooling efficiency. An operational timer (3) tracks continuous AC usage. Data from these modules is processed by a control logic unit (4) that identifies unsafe conditions. When risk is detected, an alarm and shut-off mechanism (5) activates to disconnect the AC and alert nearby staff. A power supply with battery io backup (6) ensures uninterrupted function. A wireless communication module (7) sends real-time alerts to maintenance personnel.

No. of Pages : 12 No. of Claims : 8

(54) Title of the invention : DESIGN OF HIGH-SPEED COUNTER WITH HYBRID LFSR FOR ADVANCED APPLICATIONS IN TESTING AND FAULT DETECTI

|                                                                                                                                                                                                                                                                                                                                                                                                               |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
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| <div>(51) International classification :G06F0007580000, H04L0009060000, H04L0009400000, G06F0119060000, G06F0030300000</div> <div>(86) International Application No :NA<br/>Filing Date :NA</div> <div>(87) International Publication No : NA</div> <div>(61) Patent of Addition to Application Number :NA<br/>Filing Date :NA</div> <div>(62) Divisional to Application Number :NA<br/>Filing Date :NA</div> |  | <div>(71)Name of Applicant :<br/><b>1)VEL TECH MULTI TECH DR.RANGARAJAN DR.SAKUNTHALA ENGINEERING COLLEGE</b><br/>Address of Applicant :# 42, AVADI VEL TECH ROAD POONAMALLE AVADI HIGH ROAD, VEL NAGAR, CHENNAI, TAMIL NADU 600062<br/>vishnuvardhan@veltechmultitech.org 9566157408 -----<br/><b>2)G. Vishnu Vardhan Rao</b><br/><b>3)Dr.V.Prabhu</b><br/><b>4)Ramiya.K</b><br/><b>5)Subhashini.G</b><br/><b>6)Subipriyaa.B</b><br/><b>Name of Applicant : NA</b><br/><b>Address of Applicant : NA</b><br/>(72)Name of Inventor :<br/><b>1)G. Vishnu Vardhan Rao</b><br/>Address of Applicant :# 42, AVADI VEL TECH ROAD POONAMALLE AVADI HIGH ROAD, VEL NAGAR, CHENNAI, TAMIL NADU 600062<br/>vishnuvardhan@veltechmultitech.org -----<br/><b>2)Dr.V.Prabhu</b><br/>Address of Applicant :# 42, AVADI VEL TECH ROAD POONAMALLE AVADI HIGH ROAD, VEL NAGAR, CHENNAI, TAMIL NADU 600062 -----<br/>----<br/><b>3)Ramiya.K</b><br/>Address of Applicant :# 42, AVADI VEL TECH ROAD POONAMALLE AVADI HIGH ROAD, VEL NAGAR, CHENNAI, TAMIL NADU 600062 -----<br/>----<br/><b>4)Subhashini.G</b><br/>Address of Applicant :# 42, AVADI VEL TECH ROAD POONAMALLE AVADI HIGH ROAD, VEL NAGAR, CHENNAI, TAMIL NADU 600062 -----<br/>----<br/><b>5)Subipriyaa.B</b><br/>Address of Applicant :# 42, AVADI VEL TECH ROAD POONAMALLE AVADI HIGH ROAD, VEL NAGAR, CHENNAI, TAMIL NADU 600062 -----<br/>----</div> |
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(57) Abstract :  
ABSTRACT OF THE INVENTION This invention presents a modified hybrid counter architecture that combines a Galois Linear Feedback Shift Register (LFSR) with a conventional binary counter to enhance performance and randomness. The proposed 64-bit design is optimized for high-speed and low-power applications using RTL-level modeling and advanced pipelining techniques. The hybrid approach improves pseudorandom number generation while maintaining accurate counting functionality. Simulation results confirm the correctness and robustness of the design. Power analysis reveals reduced consumption compared to traditional counters. The architecture is scalable, making it adaptable to various digital systems. Efficient hardware utilization is demonstrated through RTL and technology schematics. The system is ideal for applications in cryptography, embedded systems, and communication protocols. Overall, the invention provides a reliable, compact, and high-performance

No. of Pages : 13 No. of Claims : 3



(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :17/06/2025

(21) Application No.202541057924 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : DETECTION OF FAKE BANK CURRENCY USING MACHINE LEARNING ALGORITHMS

(51) International classification :G06T0007000000, G06N0003045000, G06N0020000000, G07D0007120000, G06F0018240000  
(86) International Application No :NA  
Filing Date :NA  
(87) International Publication No : NA  
(61) Patent of Addition to Application Number :NA  
Filing Date :NA  
(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

The invention relates to a machine learning-based system for counterfeit currency detection, designed to accurately classify currency notes as genuine or counterfeit through advanced image analysis. The system comprises an image acquisition module for capturing high-resolution images of banknotes, a preprocessing module for normalizing, resizing, and enhancing image quality, and a feature extraction module utilizing computer vision techniques to identify visual, structural, and texture-based characteristics. The core of the system incorporates deep learning models, specifically AlexNet and VGG16, trained on diverse datasets of authentic and counterfeit notes, enabling robust classification under varying conditions. The architecture enhances detection accuracy, improves generalization across currency types, and reduces false positives. A Django-based web interface facilitates real-time user interaction, image upload, and result display, making the system practical for deployment in financial institutions, retail sectors, and security checkpoints. The design is scalable, efficient, and adaptable, ensuring secure and reliable counterfeit detection across multiple currency formats and environments.

No. of Pages : 11 No. of Claims : 3

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :17/06/2025

(21) Application No.202541057927 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : ADVERSARIAL ROBUST AND ACCURATE MACHINE LEARNING FOR IMAGE CLASSIFICATION

(51) International classification :G06N0003045000, G06N0003080000, G06T0007110000, G06T0007000000, G06V0020690000  
(86) International Application No :NA  
Filing Date :NA  
(87) International Publication No : NA  
(61) Patent of Addition to Application Number :NA  
Filing Date :NA  
(62) Divisional to Application Number :NA  
Filing Date :NA

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**5)Muthu Vijaya Raj T**  
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-----

(57) Abstract :

The present invention- relates to-a-robust and-accurate machine learning-system-for-medical image- - classification, designed to defend against adversarial attacks. It introduces gradient-free trained sign activation neural networks optimized via stochastic coordinate descent, enhancing resilience by requiring high distortion to mislead classifiers. A dual-path residual convolutional neural network processes MRI tumor segmentation and pathology images in parallel, significantly improving classification accuracy. Additionally, an adaptive adversarial detection module is proposed, employing entropy-based smoothing to reconstruct perturbed inputs without modifying the base model. The integrated framework ensures high performance, transferability resistance, and practical applicability across diverse medical imaging tasks.

No. of Pages : 8 No. of Claims : 3

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202541057928 A

(19) INDIA

(22) Date of filing of Application :17/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : SYNTHESIS,CHARACTERIZATION, ANTIBIOTIC AND ANICANCER ACTIVITIES OF 1,3-BENZOTHAZOL-2-AMINE CONDENSED AMIDE DERIVATIVES

(51) International classification :A61P0035000000, G06F0016280000, C07D0249120000, H10K0085600000, G06Q0030018000  
(86) International Application No :NA  
Filing Date :NA  
(87) International Publication No : NA  
(61) Patent of Addition to Application Number :NA  
Filing Date :NA  
(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

This invention synthesised, characterized the 1, 3-benzothiazol-2-amine condensed secondary amide derivatives for the antibiotic and anticancer investigations. The derived compounds showed good results against the selected pathogens and target cancer cell lines.

No. of Pages : 12 No. of Claims : 6

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :17/06/2025

(21) Application No.202541057929 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : SENSOR BASED FLOOR MAT SYSTEM FOR PREVENTING PATIENT FALLS

(51) International classification :A61G0007050000, A61B0005000000, G16H0040670000, G08B0025100000, G08B0021180000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

The invention relates to a sensor-based fall prevention system for hospital patients. It includes two floor mats (1,2) placed on either side of the bed, each embedded with a pressure sensor (3) calibrated to detect human weight. When a patient steps onto either mat, the sensor activates a wireless transmitter module (4). This module sends a signal to an audible alarm unit (5) and a visual indicator unit (6) located at the nurse station or caregiver area. The alarm and indicator immediately alert staff for intervention. The system is powered by a rechargeable battery (7) enclosed within the mat. This setup enables early detection and reduces fall-related risks.

No. of Pages : 13 No. of Claims : 6

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202541057938 A

(19) INDIA

(22) Date of filing of Application :17/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : SYNTHESIS OF BENZOTHAZOLE AND HETEROCYCLIC ALDEHYDES CONDENSED SCHIFF BASES FOR AN ALTERNATE OF ANTIBIOTICS

(51) International classification :G06F0016280000, A61Q0011000000, H10K0085600000, H03M0013000000, G06Q0030018000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

Abstract This invention synthesised, characterized the 2-{(Z)-[(1,3-benzothiazol-2-yl)imino]methyl}-4,6-dibromoaniline condensed Schiff bases with different cyclic aldehydes for the antibiotic applications. The derived compounds showed good results against the selected pathogens.

No. of Pages : 13 No. of Claims : 1

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :17/06/2025

(21) Application No.202541057940 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : GREEN-ENGINEERED ELECTROCHEMICAL SENSOR BASED ON NAFION/CNS@AGNPS FOR SUCRALOSE DETECTION

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| <p>(51) International classification :G01N0027480000, B82Y00300000000, G01N0027300000, A61K0033380000, A61B0005000000</p> <p>(86) International Application No :NA<br/>Filing Date :NA</p> <p>(87) International Publication No : NA</p> <p>(61) Patent of Addition to Application Number :NA<br/>Filing Date :NA</p> <p>(62) Divisional to Application Number :NA<br/>Filing Date :NA</p> |  | <p>(71)Name of Applicant :<br/><b>1)CHRIST UNIVERSITY</b><br/>Address of Applicant :DEPARTMENT OF CHEMISTRY SCHOOL OF SCIENCES CHRIST (DEEMED TO BE UNIVERSITY), HOSUR MAIN ROAD, BHAVANI NAGAR, S.G.PALYA BENGALURU 560074, KARNATAKA, INDIA, 9441252489, suvardhan.k@christuniversity.in -----</p> <p><b>Name of Applicant : NA</b><br/><b>Address of Applicant : NA</b></p> <p>(72)Name of Inventor :<br/><b>1)MANJU MANUEL</b><br/>Address of Applicant :RESEARCH SCHOLAR, DEPARTMENT OFCHEMISTRY, SCHOOL OF SCIENCES, CHRIST (DEEMED TO BE UNIVERSITY) HOSUR MAIN ROAD, bhavani NAGAR, S.G. PALYA, BENGALURU KARNATAKA INDIA 560029 -----</p> <p><b>2)SUVARDHAN KANCHI</b><br/>Address of Applicant :RESEARCH SCHOLAR, DEPARTMENT OFCHEMISTRY, SCHOOL OF SCIENCES, CHRIST (DEEMED TO BE UNIVERSITY) HOSUR MAIN ROAD, bhavani NAGAR, S.G. PALYA, BENGALURU KARNATAKA INDIA 560029 -----</p> |
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(57) Abstract :

Carbon, one of the most abundant and versatile elements, is pivotal in material science and nanotechnology due to its exceptional structural and functional adaptability. This study reports the first simultaneous photogenic synthesis of silver nanoparticles (AgNPs) and carbon nanospheres (CNS) using Coriandrum sativum extract on activated carbon as a green and sustainable platform for sucralose detection. The formation of the CNS@AgNPs hybrid material, facilitated by oleic acid present in the plant extract, was confirmed through comprehensive characterization techniques including scanning electron microscopy (SEM), transmission electron microscopy (TEM), X-ray diffraction (XRD), Raman spectroscopy, Brunauer-Emmett- Teller (BET) surface area analysis, gas chromatography-mass spectrometry (GC-MS), diffuse reflectance spectroscopy (DRS), and thermogravimetric analysis (TGA). The graphite electrode modified with Nafion and CNS@AgNPs (GE/Nafion/CNS@AgNPs) exhibited a distinct oxidation peak for sucralose at +0.7 V. Differential pulse voltammetry (DPV) demonstrated a linear detection range of 2-14 pM, with a detection limit (LOD) of 0.2 pM and a quantification limit (LOQ) of 0.62 pM (R2 = 0.998). This eco-friendly sensor design underscores the potential of sustainable nanomaterials for developing efficient, sensitive, and selective electrochemical platforms for detecting artificial sweeteners in real-world samples

No. of Pages : 21 No. of Claims : 3

(54) Title of the invention : MECHANICAL DOOR LOCK WITH INTERNAL EMERGENCY RELEASE AND PRIVACY PROTECTION MECHANISM

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| <p>(51) International classification :G07C0009000000, G06V0040100000, E05B0047000000, C01B0032000000, G07F0017000000</p> <p>(86) International Application No :NA<br/>Filing Date :NA</p> <p>(87) International Publication No :NA</p> <p>(61) Patent of Addition to Application Number :NA<br/>Filing Date :NA</p> <p>(62) Divisional to Application Number :NA<br/>Filing Date :NA</p> | <p>(71)Name of Applicant :<br/> <b>1)FEDERAL INSTITUTE OF SCIENCE AND TECHNOLOGY</b><br/> Address of Applicant :ASSISTANT PROFESSOR FEDERAL INSTITUTE OF SCIENCE AND TECHNOLOGY MOOKKANNOOR P O, ANGAMALY, KERALA 683577 9497285094 gnable30@gmail.com -----<br/> <b>2)Noble G</b><br/> <b>3)Dr. RESHMI. R</b><br/> <b>Name of Applicant : NA</b><br/> <b>Address of Applicant : NA</b><br/> (72)Name of Inventor :<br/> <b>1)NOBLE G</b><br/> Address of Applicant :ASSISTANT PROFESSOR FEDERAL INSTITUTE OF SCIENCE AND TECHNOLOGY MOOKKANNOOR P O, ANGAMALY, KERALA 683577 9497285094 gnable30@gmail.com -----<br/> <b>2)Dr.RESHMI R</b><br/> Address of Applicant :ASSISTANT PROFESSOR FEDERAL INSTITUTE OF SCIENCE AND TECHNOLOGY Mookkannoor P O, Angamaly, Kerala-683577 -----<br/> <b>3)ASHER THOMAS</b><br/> Address of Applicant :B.Tech Student FEDERAL INSTITUTE OF SCIENCE AND TECHNOLOGY Mookkannoor P O, Angamaly, Kerala-683577 -----<br/> <b>4)ASHIKA K</b><br/> Address of Applicant :ASSISTANT PROFESSOR FEDERAL INSTITUTE OF SCIENCE AND TECHNOLOGY MOOKKANNOOR P O, ANGAMALY, KERALA 683577 -----<br/> <b>5)ASNA SHAMEER N A P</b><br/> Address of Applicant :ASSISTANT PROFESSOR FEDERAL INSTITUTE OF SCIENCE AND TECHNOLOGY MOOKKANNOOR P O, ANGAMALY, KERALA 683577 -----<br/> <b>6)AUSTIN WILBERT</b><br/> Address of Applicant :B.Tech Student FEDERAL INSTITUTE OF SCIENCE AND TECHNOLOGY Mookkannoor P O, Angamaly, Kerala-683577 -----<br/> <b>7)BASIL JOSEPH BIJU</b><br/> Address of Applicant :ASSISTANT PROFESSOR FEDERAL INSTITUTE OF SCIENCE AND TECHNOLOGY MOOKKANNOOR P O, ANGAMALY, KERALA 683577 -----<br/> <b>8)DANY SIBIN</b><br/> Address of Applicant :ASSISTANT PROFESSOR FEDERAL INSTITUTE OF SCIENCE AND TECHNOLOGY MOOKKANNOOR P O, ANGAMALY, KERALA 683577 -----<br/> <b>9)DATHATHREVAN M N</b><br/> Address of Applicant :ASSISTANT PROFESSOR FEDERAL INSTITUTE OF SCIENCE AND TECHNOLOGY MOOKKANNOOR P O, ANGAMALY, KERALA 683577 -----<br/> <b>10)DEVADARSH A S</b><br/> Address of Applicant :ASSISTANT PROFESSOR FEDERAL INSTITUTE OF SCIENCE AND TECHNOLOGY MOOKKANNOOR P O, ANGAMALY, KERALA 683577 -----<br/> <b>11)DEVIKA MENON</b><br/> Address of Applicant :ASSISTANT PROFESSOR FEDERAL INSTITUTE OF SCIENCE AND TECHNOLOGY MOOKKANNOOR P O, ANGAMALY, KERALA 683577 -----</p> |
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(57) Abstract :

ABSTRACT The present invention discloses a purely mechanical door lock mechanism designed to address the issue of accidental lock-ins. The system includes an internal emergency release feature that allows users inside the room to unlock the door even if it has been inadvertently locked from the outside. This innovation is particularly useful in residential, commercial, and public environment's such as homes, theaters, malls, and changing rooms, where unintentional confinement poses a safety risk. The mechanism operates without the need for electricity or batteries, making it a reliable, low-maintenance, and cost-effective solution. By combining enhanced safety with mechanical simplicity, the invention offers a significant improvement over traditional locking systems.

No. of Pages : 14 No. of Claims : 6

(54) Title of the invention : BI-DIRECTIONAL WIRELESS ITEM TRACKING SYSTEM WITH MUTUAL SIGNALLING CAPABILITY

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| <p>(51) International classification :H04W0004029000, G08B0021240000, H04W0004800000, H04W0004020000, A61B0005000000</p> <p>(86) International Application No :NA<br/>Filing Date :NA<br/>(87) International Publication No :NA<br/>(61) Patent of Addition to Application Number :NA<br/>Filing Date :NA<br/>(62) Divisional to Application Number :NA<br/>Filing Date :NA</p> | <p>(71)<b>Name of Applicant :</b><br/> <b>1)FEDERAL INSTITUTE OF SCIENCE AND TECHNOLOGY</b><br/> Address of Applicant :ASSISTANT PROFESSOR, FIDERAL INSTITUTE OF SCIENCE AND TECHNOLOGY, MOOKKANNOOR P O, ANGAMALY , KERALA-683577, gnoble30@gmail.com 9497285094 -----<br/> <b>2)Noble G</b><br/> <b>3)Soumya S Raj</b><br/> <b>Name of Applicant : NA</b><br/> <b>Address of Applicant : NA</b><br/> (72)<b>Name of Inventor :</b><br/> <b>1)Noble G</b><br/> Address of Applicant :ASSISTANT PROFESSOR, FIDERAL INSTITUTE OF SCIENCE AND TECHNOLOGY, MOOKKANNOOR P O, ANGAMALY , KERALA-683577, gnoble30@gmail.com 9497285094 -----<br/> <b>2)Soumya S Raj</b><br/> Address of Applicant :FIDERAL INSTITUTE OF SCIENCE AND TECHNOLOGY, MOOKKANNOOR P O, 9497285094 - -----<br/> <b>3)T S KEERTHI LAKSHMI</b><br/> Address of Applicant :FIDERAL INSTITUTE OF SCIENCE AND TECHNOLOGY, MOOKKANNOOR P O, ANGAMALY , KERALA-683577, 9497285094 -----<br/> <b>4)UNNIMAYA P M</b><br/> Address of Applicant :FEDERAL INSTITUTE OF SCIENCE AND TECHNOLOGY, Mookkannoor P O, Angamaly Kerala India. -----<br/> <b>5)VAIDEHI SAJEESH</b><br/> Address of Applicant :FIDERAL INSTITUTE OF SCIENCE AND TECHNOLOGY, MOOKKANNOOR P O, ANGAMALY , KERALA-683577, -----<br/> <b>6)VAISALI M</b><br/> Address of Applicant :FIDERAL INSTITUTE OF SCIENCE AND TECHNOLOGY, MOOKKANNOOR P O, ANGAMALY , KERALA-683577, gnoble30@gmail.com 9497285094 -----<br/> <b>7)VANIDEVI THULASIDAS T</b><br/> Address of Applicant :FIDERAL INSTITUTE OF SCIENCE AND TECHNOLOGY, MOOKKANNOOR P O, ANGAMALY , KERALA-683577, gnoble30@gmail.com 9497285094 -----<br/> <b>8)VARSHNI H</b><br/> Address of Applicant :FIDERAL INSTITUTE OF SCIENCE AND TECHNOLOGY, MOOKKANNOOR P O, ANGAMALY , KERALA-683577, gnoble30@gmail.com 9497285094 -----<br/> <b>9)VIJAY SIVADAS V S</b><br/> Address of Applicant :FEDERAL INSTITUTE OF SCIENCE AND TECHNOLOGY, Mookkannoor P O, Angamaly Kerala, India 683577 -----<br/> <b>10)VISHNU J J</b><br/> Address of Applicant :B.Tech Student FEDERAL INSTITUTE OF SCIENCE AND TECHNOLOGY, Mookkannoor P O, Angamaly Kerala, India 683577 -----<br/> <b>11)VISMAYA SUNIL KUMAR</b><br/> Address of Applicant :FEDERAL INSTITUTE OF SCIENCE AND TECHNOLOGY, Mookkannoor P O, Angamaly Kerala,India. 683577 -----</p> |
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## (57) Abstract :

A bi-directional smart tracking system comprising a central base unit and multiple remote tag units is disclosed, designed to facilitate the location of misplaced items and the central unit itself. The system operates on a low-power, direct wireless communication protocol that enables peer-to-peer signalling without the need for an active Wi-Fi infrastructure. The base unit includes multiple push buttons, each mapped to a specific tag unit. When a button is pressed, a wireless signal is transmitted to the corresponding tag, which activates audible and visual indicators to aid in locating the attached item. Each tag unit also features a reverse-locate function: upon activation, the tag sends a signal to the base unit, triggering its own alert mechanisms to help locate the base when misplaced. Both base and tag units are independently powered and equipped with rechargeable power sources and integrated charging modules to ensure safe and efficient recharging. To conserve energy, the processing components on both units enter a low-power state during inactivity. The system supports modular expansion and can be upgraded to include additional features such as user interfaces, mobile app connectivity, or signal-based directional assistance. This invention provides a compact, energy-efficient, and cost-effective solution for two-way item tracking, suitable for personal, commercial, and institutional use.

No. of Pages : 14 No. of Claims : 5



(54) Title of the invention : SELF-DISPENSING TOOTHBRUSH WITH REPLACEABLE HEAD AND INTEGRATED ORAL CARE KIT

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| <p>(51) International classification :A46B0005000000, A46B0015000000, A46B0011000000, A61C0017220000, A46B0007040000</p> <p>(86) International Application No :NA<br/>Filing Date :NA</p> <p>(87) International Publication No :NA<br/>Patent of Addition to Application Number :NA<br/>Filing Date :NA</p> <p>(62) Divisional to Application Number :NA<br/>Filing Date :NA</p> | <p>(71)Name of Applicant :<br/><b>1)FEDERAL INSTITUTE OF SCIENCE AND TECHNOLOGY</b><br/>Address of Applicant :FEDERAL INSTITUTE OF SCIENCE AND TECHNOLOGY, MOOKKANNOOR P O, ANGAMALY, KERALA-683577 9497285094 -----</p> <p><b>2)Noble G</b><br/><b>3)Dr. Prasad J C</b><br/>Name of Applicant : NA<br/>Address of Applicant : NA</p> <p>(72)Name of Inventor :<br/><b>1)Noble G</b><br/>Address of Applicant :ASSISTANT PROFESSOR FEDERAL INSTITUTE OF SCIENCE AND TECHNOLOGY, MOOKKANNOOR P O, ANGAMALY, KERALA-683577 9497285094 -----</p> <p><b>2) Dr. Prasad J C</b><br/>Address of Applicant :ASSISTANT PROFESSOR FEDERAL INSTITUTE OF SCIENCE AND TECHNOLOGY, MOOKKANNOOR P O, ANGAMALY, KERALA-683577 9497285094 -----</p> <p><b>3)PAULOSE AJI</b><br/>Address of Applicant :ASSISTANT PROFESSOR FEDERAL INSTITUTE OF SCIENCE AND TECHNOLOGY, MOOKKANNOOR P O, ANGAMALY, KERALA-683577 9497285094 -----</p> <p><b>4)POOJA SURESH</b><br/>Address of Applicant :ASSISTANT PROFESSOR FEDERAL INSTITUTE OF SCIENCE AND TECHNOLOGY, MOOKKANNOOR P O, ANGAMALY, KERALA-683577 9497285094 -----</p> <p><b>5)PRANATHA PRADEEP</b><br/>Address of Applicant :ASSISTANT PROFESSOR FEDERAL INSTITUTE OF SCIENCE AND TECHNOLOGY, MOOKKANNOOR P O, ANGAMALY, KERALA-683577 9497285094 -----</p> <p><b>6)PRANAVKA</b><br/>Address of Applicant : ASSISTANT PROFESSOR FEDERAL INSTITUTE OF SCIENCE AND TECHNOLOGY, MOOKKANNOOR P O, ANGAMALY, KERALA-683577 9497285094 -----</p> <p><b>7)PRANA V PRINCE</b><br/>Address of Applicant :ASSISTANT PROFESSOR FEDERAL INSTITUTE OF SCIENCE AND TECHNOLOGY, MOOKKANNOOR P O, ANGAMALY, KERALA-683577 9497285094 -----</p> <p><b>8)P T VYSHAKH</b><br/>Address of Applicant :ASSISTANT PROFESSOR FEDERAL INSTITUTE OF SCIENCE AND TECHNOLOGY, MOOKKANNOOR P O, ANGAMALY, KERALA-683577 9497285094 -----</p> <p><b>9)ROHAN RENJIT SIMON</b><br/>Address of Applicant :ASSISTANT PROFESSOR FEDERAL INSTITUTE OF SCIENCE AND TECHNOLOGY, MOOKKANNOOR P O, ANGAMALY, KERALA-683577 9497285094 -----</p> |
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## (57) Abstract :

The present invention relates to a multifunctional toothbrush system that integrates a self-dispensing toothpaste mechanism, a replaceable brush head, and an internal storage compartment for essential oral hygiene tools. The toothbrush features a built-in reservoir and a user-operated actuator, such as a screw or press mechanism, that delivers a controlled amount of toothpaste directly to the bristles, eliminating the need for separate tubes and reducing mess. A removable brush head allows for easy replacement, enhancing hygiene and extending the device's lifespan. The base of the toothbrush incorporates a compact storage compartment configured to hold items such as a tongue cleaner, flosser, and an extra brush head, ensuring that all oral care essentials are readily accessible in a single unit. Designed for convenience, portability, and ease of use, this all-in-one toothbrush is particularly suitable for children, the elderly, individuals with limited mobility, and frequent travellers. The invention improves oral hygiene practices by simplifying the brushing process, promoting better accessibility, and minimizing waste through modular and refillable components.

No. of Pages : 12 No. of Claims : 5

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(19) INDIA

(22) Date of filing of Application :17/06/2025

(21) Application No.202541057950 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : MULTIFUNCTIONAL INFLATABLE HEADREST CONVERTIBLE INTO A HANDBAG

(51) International classification :A45F3/04, A47C7/38, A45F4/02  
(86) International Application No :NA  
Filing Date :NA  
(87) International Publication No : NA  
(61) Patent of Addition to Application Number :NA  
Filing Date :NA  
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(57) Abstract :

The present invention discloses a multifunctional travel accessory that combines the utility of an inflatable ergonomic headrest with the convenience and style of a personal 5 handbag. Constructed from lightweight, water-resistant TPU material, the invention serves dual purposes—when inflated, it functions as a contoured headrest that supports the neck and shoulders during travel or sedentary use; when deflated, it transforms into a compact, zippered handbag designed to carry daily essentials. The headrest's shape provides ergonomic support, while the handbag configuration offers sufficient internal 10 volume for personal items. This transformable design reduces the need to carry separate accessories, promoting convenience, comfort, and minimalism for travellers, --commuters,-and mobile-professionals. The,, invention is lightweight, durable, stylish, and suitable for both indoor and outdoor environments, offering a practical and aesthetic solution for on-the-go individuals.

No. of Pages : 11 No. of Claims : 5

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :17/06/2025

(21) Application No.202541057960 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : VEHICLE TO VEHICLE COMMUNICATION USING ESP-NOW TECHNOLOGY

(51) International classification :H04W0004400000, H04W0004440000, B60W0050000000, H04L0067120000, G06N0003080000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

The present invention discloses ESP-NOW, an intelligent and modular vehicle communication and coordination system designed to enhance road safety, traffic efficiency, and vehicle-to-everything (V2X) connectivity. ESP-NOW integrates hardware and software components into a unified framework that facilitates real-time data acquisition, wireless communication, and centralized traffic management. The system features modular architecture comprising sensor integration units, low-latency communication protocols, real-time data analytics, and cloud-based control systems.

No. of Pages : 17 No. of Claims : 8

(54) Title of the invention : VOICE RECOGNIZING ELEVATOR SYSTEM

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| <p>(51) :G10L0015220000,<br/>International B66B0001340000,<br/>classification B66B0001460000,<br/>B66B0005000000,<br/>G10L0015070000</p> <p>(86)<br/>International :NA<br/>Application No :NA<br/>Filing Date</p> <p>(87)<br/>International : NA<br/>Publication No<br/>(61) Patent of<br/>Addition to :NA<br/>Application :NA<br/>Number<br/>Filing Date</p> <p>(62) Divisional<br/>to Application :NA<br/>Number :NA<br/>Filing Date</p> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |

(57) Abstract :  
Abstract This invention discloses an intelligent, voice-activated elevator control system designed to enhance accessibility, user convenience, and operational efficiency through advanced speech recognition and user personalization technologies. The system incorporates high-sensitivity microphones, strategically positioned within the elevator cab and near floor call buttons, to ensure precise voice command capture. It employs state-of-the-art speech recognition algorithms capable of interpreting a wide range of voice inputs across various accents, dialects, and languages. Users can issue intuitive commands such as "Call elevator to floor 5" or "Go to floor 10," which are reliably executed in real time. To further optimize user interaction, the system allows the creation of individual user profiles, enabling recognition of frequent users and their preferences. Personalized settings can include commonly visited floors, frequently used commands, and specific user instructions. Feedback is provided through visual display screens showing recognized commands and system status, as well as audio confirmations for clarity and assurance. Error handling mechanisms prompt users for clarification when misinterpretations occur. Over time, integrated machine learning continuously enhances system performance by adapting to user behavior and improving command accuracy. This comprehensive solution offers a modern, user-centric approach to elevator operation, ideal for a wide demographic, including individuals with mobility or sensory challenges.

No. of Pages : 16 No. of Claims : 8

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :17/06/2025

(21) Application No.202541057981 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : DUAL BAND CIRCULARLY POLARIZED ANTENNA: A METHOD AND DEVICE THEREOF

(51) International classification :H01Q0001380000, H01Q0009040000, H01Q0001500000, H01Q0001480000, H01Q0013100000  
(86) International Application No :NA  
Filing Date :NA  
(87) International Publication No : NA  
(61) Patent of Addition to Application Number :NA  
Filing Date :NA  
(62) Divisional to Application Number :NA  
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(57) Abstract :

ABSTRACT DUAL-BAND CIRCULARLY POLARIZED IMPLANTABLE ANTENNA: A METHOD AND DEVICE THEREOF A dual-band circularly polarized implantable antenna (100) for neuromuscular implant applications, operating at 915 MHz and 2450 MHz ISM bands, is disclosed. The antenna comprises a metallic patch (103), Rogers RT/Duroid 6010 LM substrate (104), and ground plane (113), exhibiting an ultra-miniaturized size of 0.0122/..o x 0.01225/..o x 0.00099/..o. The patch includes an outer tilted re-shaped slot (105) with a vertical slot (110) forming two resonators. An inner hook shaped T-slot (106) and asymmetrically placed L-shaped slots (107, 108), enables resonance and circular polarization at 915 MHz. A separate open-ended trapezoidal slot ( 1 09), mirrored Y-slot (111 ), and L-shaped slot (112) generate resonance and ~-----c-,ir:\_c\_u'la\_r\_p-o1arization-at-2450-MHz. The antenna exhibits 94 MHz and 166 MHz reflection coefficient bandwidths, 90 MHz and !54 MHz axial ratio bandwidths, and peak simulated-of-19.2 dBi and -18.7 dBi.

No. of Pages : 15 No. of Claims : 7

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :17/06/2025

(21) Application No.202541057984 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : AI DRIVEN PANCREATIC CANCER DETECTION

(51) International classification :G06N0005045000, G16H0050200000, G06N0003045000, G16H0010600000, G06N0020200000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

ABSTRACT: Pancreatic cancer remains one of the most lethal forms of cancer due to its asymptomatic progression, limited treatment options, and poor prognosis. The invention, "AI-Based Early Diagnosis of Pancreatic Cancer," introduces an integrative, data-driven system that leverages advanced artificial intelligence techniques to enable timely detection and improved survival outcomes. This system unifies heterogeneous data sources, including clinical records and medical imaging, into a cohesive diagnostic framework powered by deep learning and ensemble machine learning methods. At the core of the architecture are convolutional neural networks and random forest classifiers, engineered to identify early-stage indicators of pancreatic malignancy with high precision. The system features a robust explainability layer through Explainable AI (XAI) techniques, enhancing clinical trust by providing interpretable insights into model decisions. Designed for seamless integration into clinical workflows, the system empowers healthcare professionals with accessible, intelligible diagnostic support. To ensure reliability and generalizability, the model undergoes rigorous performance evaluation across multiple validation metrics. This invention not only enables early detection but also fosters informed decision-making, setting a new standard in AI-assisted oncology diagnostics and offering significant potential to improve patient outcomes through early intervention.

No. of Pages : 8 No. of Claims : 7

(54) Title of the invention : SUSTAINABLE CONCRETE WITH FLY ASH, GGBS, AND SUPERPLASTICIZER FOR ENHANCED WORKABILITY AND STRENGTH

|                                                                                                                                                                                                                                                  |                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <div>(51) International classification</div> <div>(86) International Application No</div> <div>(87) International Publication No</div> <div>(61) Patent of Addition to Application Number</div> <div>(62) Divisional to Application Number</div> | <div>:C04B0028080000, C04B0111000000, C04B0028040000, C04B0040000000, C04B0028020000</div> <div>:NA</div> <div>:NA</div> <div>: NA</div> <div>:NA</div> <div>:NA</div> <div>:NA</div> <div>:NA</div> | <div>(71)Name of Applicant :</div> <div>1)Hindusthan College of Engineering and Technology</div> <div>Address of Applicant :Hindusthan College of Engineering and Technology, VALLEY CAMPUS, POLLACHI HIGHWAY, COIMBATORE-641032. -----</div> <div>Name of Applicant : NA</div> <div>Address of Applicant : NA</div> <div>(72)Name of Inventor :</div> <div>1)Dr. Akil K</div> <div>Address of Applicant :Hindusthan College of Engineering and Technology, VALLEY CAMPUS, POLLACHI HIGHWAY, COIMBATORE-641032. -----</div> <div>2)Sakthivel R</div> <div>Address of Applicant :Hindusthan College of Engineering and Technology, VALLEY CAMPUS, POLLACHI HIGHWAY, COIMBATORE-641032. -----</div> <div>3)Parthasaarathi R</div> <div>Address of Applicant :Hindusthan College of Engineering and Technology, VALLEY CAMPUS, POLLACHI HIGHWAY, COIMBATORE-641032. -----</div> <div>4)Arunkumar S</div> <div>Address of Applicant :Hindusthan College of Engineering and Technology, VALLEY CAMPUS, POLLACHI HIGHWAY, COIMBATORE-641032. -----</div> <div>5)Hariharan K</div> <div>Address of Applicant :Hindusthan College of Engineering and Technology, VALLEY CAMPUS, POLLACHI HIGHWAY, COIMBATORE-641032. -----</div> <div>6)Sivaraman T</div> <div>Address of Applicant :Hindusthan College of Engineering and Technology, VALLEY CAMPUS, POLLACHI HIGHWAY, COIMBATORE-641032. -----</div> |
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(57) Abstract :

ANNEXURE -III The present invention relates to a sustainable concrete composition in which Ordinary Portland Cement (OPC) is partially replaced by industrial by-products-Fly Ash and Ground Granulated Blast Furnace Slag (GGBS)-to reduce cement consumption and environmental impact. The concrete is designed to achieve standard-grade performance, targeting M40-level compressive strength (approximately 40 MPa at 28 days), and is intended for general construction use without requiring specialized curing or placement techniques. To counteract the potential loss of workability due to cement replacement, a polycarboxylate ether (PCE)-based superplasticizer is incorporated at a controlled dosage (0.5-1.0% by weight of binder). This ensures the mix maintains adequate slump and flow characteristics suitable for conventional concrete casting and compaction methods. The optimal cement replacement level ranges between 20% and 30%, with typical combinations such as 15% Fly Ash and 15% GGBS. The water-to-binder ratio is maintained at 0.45 to balance strength and workability. The invention results in a concrete mix that is easy to prepare, place, and cure using standard practices, while also contributing to environmental sustainability through reduced OPC usage.

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :17/06/2025

(21) Application No.202541058001 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : SUSTAINABLE CONCRETE COMPOSITION USING FOUNDRY SAND AND HIGH-RANGE WATER-REDUCING ADMIXTURES

(51) International classification :C04B0028020000, C04B0018140000, C04B0111720000, C04B0028360000, C08K0003220000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

Concrete is the most widely used construction material due to its strength, durability, and availability of raw materials. Fine aggregate, commonly sourced from river sand, is now in unsustainable demand due to rapid urbanization, leading to environmental issues. Alternatives like manufactured sand (M-sand) have gained popularity, but more eco-friendly substitutes are still being explored. Waste foundry sand (WFS), a by-product of the metal casting industry, offers promise due to its fine particle size and high silica content, making it suitable for partial replacement of fine aggregates. This study investigates the use of WFS as a partial substitute for M-sand in concrete at replacement levels of 0%, 10%, 20%, 30%, and 40%. Key properties such as workability, compressive strength, split tensile strength, flexural strength, and durability were examined. Conplast SP430, a high-range water-reducing admixture, was incorporated to address the reduced workability caused by the fine texture and water absorption of WFS. Results indicated that workability decreased with increasing WFS content, but the use of Conplast SP430 mitigated this effect. Mechanical strengths were maintained or improved up to a 20%-30% replacement level, beyond which performance declined due to excessive fines. The use of WFS offers dual advantages-reducing industrial waste and conserving natural sand. The findings confirm WFS as a viable, sustainable alternative in concrete production when used within optimal limits and paired with suitable admixtures.

No. of Pages : 7 No. of Claims : 4



(12) PATENT APPLICATION PUBLICATION

(21) Application No.202541058019 A

(19) INDIA

(22) Date of filing of Application :17/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : LOCALIZED 16 GHZ NEAR-FIELD ANTENNA FOR DIELECTRIC CHARACTERIZATION OF PRINTED CIRCUIT BOARDS

(51) International classification :H01Q0001380000, H01Q0009040000, H05K0003460000, H02J0050230000, H01Q0001500000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

ABSTRACT The-present invention relates to a compact planar near-field antenna configured to operate at 16 GHz for localized dielectric characterization of printed circuit boards (PCBs). The antenna comprises a dielectric substrate with a ground plane on its bottom surface and patterned metallic resonator structures on the top surface. A 15 coaxial feed excites the antenna to generate a spatially confined electric field in (i) the near-field region. The high operating frequency ensures improved spatial resolution and enhanced field confinement, enabling sensitive, non-contact dielectric interaction. The resonator geometry is optimized for sub-wavelength field localization, and the antenna exhibits impedance matching near 50 ohms, 20 with return loss less than -13 dB at 16 GHz. Electromagnetic simulations confirm the near-field electric field remains confined within a few millimetres from the surface. The invention focuses solely on the antenna structure and its electromagnetic behaviour, excluding any measurement instrumentation or mounting provisions.

No. of Pages : 18 No. of Claims : 5

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :17/06/2025

(21) Application No.202541058020 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : SNAP COUNT

(51) International classification :G06N0003045000, G06N0003080000, G06Q0010087000, G06V0010250000, G06V0010820000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
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(57) Abstract :

ABSTRACT: In recent years, object detection and counting have become pivotal tasks in computer vision, with applications spanning across surveillance, traffic monitoring, inventory management, healthcare, and crowd analysis. This project presents a robust and efficient object detection and counting system leveraging deep learning techniques. By integrating convolutional neural networks (CNNs) with state-of-the-art object detection algorithms such as YOLO (You Only Look Once), SSD (Single Shot Detector), and Faster R-CNN, our system is capable of identifying and quantifying multiple object classes in real-time with high accuracy.

No. of Pages : 8 No. of Claims : 6

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|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>(51) International classification :H02J0007000000, H02J0050100000, H02J0050000000, H04B0015000000, H04B0005240000</p> <p>(86) International Application No :NA<br/>Filing Date :NA</p> <p>(87) International Publication No :NA<br/>(61) Patent of Addition to Application Number :NA<br/>Filing Date :NA</p> <p>(62) Divisional to Application Number :NA<br/>Filing Date :NA</p> | <p>(71)<b>Name of Applicant :</b><br/> <b>1)DR.SATHIYAMURTHI P</b><br/> Address of Applicant :Associate Professor, Department of ECE, Bannari Amman Institute of Technology,Sathyamangalam,Erode,Tamil Nadu,India. -----<br/> <b>2)VIJAYAKUMAR M</b><br/> <b>3)RAMAMOORTHIL.R</b><br/> <b>4)DEVIPRIY A C</b><br/> <b>5)SUGANY A B</b><br/> <b>6)Dr.MADESWARAN D</b><br/> <b>7)Dr. MURUGAN K</b><br/> <b>8)Dr.RAJAN S</b><br/> <b>9)Dr. KAMALRAJ D</b><br/> <b>10)SAGUNTHALA S</b><br/> <b>Name of Applicant : NA</b><br/> <b>Address of Applicant : NA</b><br/> <b>(72)Name of Inventor :</b><br/> <b>1)DR.SATHIYAMURTHI P</b><br/> Address of Applicant :Associate Professor, Department of ECE, Bannari Amman Institute of Technology,Sathyamangalam,Erode,Tamil Nadu,India. -----<br/> <b>2)VIJAYAKUMAR M</b><br/> Address of Applicant :Assistant Professor, Department of ECE,Government College of Engineering,Dharmapuri State Tamil Nadu Country India Pin code 636704 -----<br/> <b>3)RAMAMOORTHIL.R</b><br/> Address of Applicant :Assistant Professor, Department of ECE,Government College of Engineering,SALEM State Tamil Nadu Country India Pin code 636011 -----<br/> <b>4)DEVIPRIY A C</b><br/> Address of Applicant :Assistant Professor (SS), Department of CSE,Dr.Mahalingam College of Engg. &amp; Tech,Pollachi Tamil Nadu India 642003 -----<br/> <b>5)SUGANY A B</b><br/> Address of Applicant :Assistant Professor (SS), Department of CSE,Dr.Mahalingam College of Engg. &amp; Tech.Pollachi Tamil Nadu India 642003 -----<br/> <b>6)Dr.MADESWARAN D</b><br/> Address of Applicant :Associate Professor, Department of EEE,SSM College of Engineering,Komarapalayam,Tamil Nadu India 638183 -----<br/> <b>7)Dr. MURUGAN K</b><br/> Address of Applicant :Associate Professor, Department of ECE, Bannari Amman Institute of Technology,Sathyamangalam,Erode Tamil Nadu India 642003. -----<br/> <b>8)Dr.RAJAN S</b><br/> Address of Applicant :Professor - ECE, Velalar College of Engineering and Technology,Thindal Erode Tamil Nadu India 642003 -----<br/> <b>9)Dr. KAMALRAJ D</b><br/> Address of Applicant :Associate Professor, School of Design, Presidency University,Yelahanka, Ranjankunte,Bangalore State Kama taka Country India Pin code 560064 -----<br/> <b>10)SAGUNTHALA S</b><br/> Address of Applicant :Chief Executive Director, 3SM Technical Solutions,Chinnampalayam, Pollachi,Coimbatore State Tamil Nadu country India Pin code 642003 -----</p> |
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## (57) Abstract :

ABSTRACT: The present invention discloses a next-generation wireless charging system for electric vehicles (EV s) that integrates multiple innovations to address the limitations of conventional wired and existing wireless chargers. This system leverages a highefficiency resonant inductive coupling mechanism, enhanced by a smart alignment and positioning subsystem utilizing a combination of inachine vision, infrared triangulation, and ultrasonic sensin~. These technologies collaboratively ensure precise coil alignment between the transmitter and receiver, thereby significantly improving energy transfer efficiency and minimizing charging losses due to lateral or angular misalignment. The innovation further includes a dynamic impedance matching network, which adapts in real time to changes in coil distance, load impedance, and battery state-of-charge, thereby optimizing power delivery and extending battery health. A modular EMI shielding framework-employing advanced materials such as mu-metal and embedded ferrite tiles-ensures compliance with global safety standards while preventing interference with nearby electronic devices. A cloud-enabled smart control unit, compliant with ISO 15118 ai:J.d Open Charge Point Protocol

No. of Pages : 13 No. of Claims : 9

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :17/06/2025

(21) Application No.202541058061 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : DEEP LEARNING-BASED SYSTEM FOR HUMAN ATTRIBUTE AND OBJECT SIZE ESTIMATION USING 2D IMAGES

(51) International classification :G06N0003045000, G06V0040160000, G06N0003080000, G06T0019000000, G06V0020200000  
(86) International Application No :NA  
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(87) International Publication No : NA  
(61) Patent of Addition to Application Number :NA  
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(62) Divisional to Application Number :NA  
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(57) Abstract :  
ABSTRACT DEEP LEARNING-BASED SYSTEM FOR HUMAN ATTRIBUTE AND OBJECT SIZE ESTIMATION USING 2D IMAGES I The present invention relates to a method for estimating human physical attributes and object dimensions from a single two-dimensional image using deep learning techniques. The method involves the detection and classification of human subjects and non-human objects within the image, followed by the estimation of human attributes such as height, weight, body mass index (BMI), and age. Additionally, the method predicts the physical dimensions of non-human objects. A key feature of the method is the use of scale inference, which infers real-world scale information from facial landmarks and body proportions without the need for external calibration or multiple image captures. The method also includes an optional augmented reality (AR) overlay to display the predicted attributes and dimensions in real-time. This approach ensures privacy through encryption of sensitive data and provides a scalable, efficient solution for a variety of applications, including healthcare, retail, fitness, and augmented reality systems. The method leverages advanced deep learning models, including convolutional neural networks (CNNs) and attention-based mechanisms, to enhance prediction accuracy, even in cases of partial occlusions or non-standard poses. By processing images locally on the device, the method ensures minimal data transmission, enhancing privacy and efficiency. This innovation provides a robust, privacy-conscious tool for diverse industries, enabling precise, real-time human and object attribute estimation from simple 2D images .

No. of Pages : 30 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :17/06/2025

(21) Application No.202541058078 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : CAREER GUIDANCE SYSTEM FOR PERSONALIZED CAREER PATHWAYS

(51) International classification :H04L0051212000, G06Q0010063100, G06N0005022000, H04L0041021300, G06Q0010063900  
(86) International Application No :NA  
Filing Date :NA  
(87) International Publication No : NA  
(61) Patent of Addition to Application Number :NA  
Filing Date :NA  
(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

ABSTRACT: The present invention relates to the field of enterprise automation and artificial intelligence, specifically in the domain of automated communication systems, email task automation, and business process optimization. It integrates Excel-based databases, natural language personalization, and email dispatch systems (SMTP/APIs) for internal operations and client outreach .

No. of Pages : 9 No. of Claims : 8

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :17/06/2025

(21) Application No.202541058094 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : TRANSFORMING ELT THROUGH ICT: CONTEMPORARY PRACTICES AND FUTURE DIRECTIONS

(51) International classification :G06Q0050200000, G09B0007020000, G09B0019000000, G09B0019060000, G06Q0010063700

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

Abstract:· The invention Transforming ELT through JCT: Contemporary Practices and Future Directions pertains t'o a comprehensive system and methodological framework designed to analyze,' ! evaluate, and enhance the integration of Information and Communication Technology (ICT) tools in English Language Teaching (ELT) across academic institutions. This study introduces a research-oacked approach that incorporates data-driven survey instruments, adaptive feedback loops, and localized implementation strategies to assess the effectiveness of ICT in classroom language instruction. Conducted across three key districts in Andhra Pradesh-Guntur, Vijayawa'da, and Prakasam-the system collects and interprets quantitative and qualitative insights using· a 50-item instrument, addressing both pre-exist and emergent challenges, particularly those intensified during the COVID-19 pandemic. Core components include the examination of digital learning platforms, teacher and student ICT readiness, and institutional support structures. The proposed framework enables targeted improvements in instructional design, learner engagement, and technology adoption. By offering scalable solutions and actionable recommendations, this innovation empowers educators, policy-makers, and learners to cultivate technologically enriched, communicative competent learning environments, thus equipping1stakeholders with sustainable strategies for future-oriented ELT ecosystems .

No. of Pages : 15 No. of Claims : 6

(54) Title of the invention : AN INTELLIGENT IOT BASED FRESHWATER RECIRCULATING AND FISH COUNTING AQUAPONICS SYSTEM WITH FISH DISEASE DETECTION USING CNN

|                                                                                                                                                                                                                                                                                                                                                                                                               |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
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| <div>(51) International classification :G06N0003045000, G06N0003080000, G06V0010820000, A01K0063040000, G06V0010764000</div> <div>(86) International Application No :NA<br/>Filing Date :NA</div> <div>(87) International Publication No : NA</div> <div>(61) Patent of Addition to Application Number :NA<br/>Filing Date :NA</div> <div>(62) Divisional to Application Number :NA<br/>Filing Date :NA</div> |  | <div>(71)Name of Applicant :<br/><b>1)MEPCO SCHLENK ENGINEERING COLLEGE</b><br/>Address of Applicant :Principal, MEPCO SCHLENK ENGINEERING COLLEGE MEPCO SCHLENK ENGINEERING COLLEGE(PO), SIVAKASI 626005 VIRUDHUNAGAR DT -----<br/><b>Name of Applicant : NA</b><br/><b>Address of Applicant : NA</b></div> <div>(72)Name of Inventor :<br/><b>1)Dr.S.Arivazhagan</b><br/>Address of Applicant :Principal, MEPCO SCHLENK ENGINEERING COLLEGE MEPCO SCHLENK ENGINEERING COLLEGE(PO), SIVAKASI 626005 -----<br/>-----<br/><b>2)Dr. W.Sylvia Lilly Jebarani</b><br/>Address of Applicant :Professor, MEPCO SCHLENK ENGINEERING COLLEGE MEPCO SCHLENK ENGINEERING COLLEGE(PO), SIVAKASI 626005 -----<br/>-----<br/><b>3)S.Dhanusri</b><br/>Address of Applicant :MEPCO SCHLENK ENGINEERING COLLEGE MEPCO SCHLENK ENGINEERING COLLEGE(PO), SIVAKASI 626005 -----<br/>-----<br/><b>4)J.R.Harinie</b><br/>Address of Applicant :MEPCO SCHLENK ENGINEERING COLLEGE MEPCO SCHLENK ENGINEERING COLLEGE(PO), SIVAKASI 626005 -----<br/>-----</div> |
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(57) Abstract :  
ABSTRACT: This invention introduces an intelligent, IoT-enabled freshwater n::circulating and fish counting aquaponics system that integrates Convolutional Neural Networks (CNNs) for real-time fish disease detection and environmental monitoring. Designed to support sustainable and efficient fanning, the system continuously collects data on key water parameters such as temperature, pH and ammonia levels through IoT sensors. Using image-based analysis powered by CNNs, it identifies early signs of fish illness, enabling prompt intervention to maintain aquatic health. The system also features automated controls for adjusting water flow, aeration and feeding based on sensor input, ensuring optimal conditions for both plant and fish growth. Remote access via mobile or web platforms allows users to monitor and manage the system from any location. Scalable and data-driven, the invention supports various applications from small urban farms to large commercial operations, promoting eco-friendly food production while optimizing resource use and reducing environmental impact.

No. of Pages : 9 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202541058329 A

(19) INDIA

(22) Date of filing of Application :18/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : CONSTRUCTING THE EMOTIONAL AGILITY FRAMEWORK: A THEMATIC ANALYSIS USING BRAUN AND CLARK'S METHOD

(51) International classification :A61B0005160000, G16H0020700000, A63B0005220000, A61K0036740000, G06N0003006000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

ABSTRACT 1 The present invention explores the factors that contribute to emotional agility. A qualitative exploration among experts and young adults in India is employed for the qualitative exploration. This is a construct which is novel in the field of psychology and enables individuals to navigate emotions in a rapidly changing dynamic environment. But the clarity of how young adults in India view emotional agility is a gap. This invention discloses the factors that constitute a systematic processing of emotions by recognising them and responding more resiliently. The three components of cognitive, affective and behavioural elements constitute the basic framework from which the emotional agility framework is operationalised. The specific dimensions that constitute emotional agility include emotional awareness, detachment from emotions, adaptability, flexibility, value-aligned action and emotional expression. This framework is developed in the Indian context, exploring and incorporating perspectives by a qualitative enquiry. These models can be applied in various domains like professional development, personnel development, the clinical field, corporate training, organisation training, leadership training and mental health and well-being fields. This structure provides an innovative and novel method to access and enhance emotional agility for the young adults in India.

No. of Pages : 20 No. of Claims : 7



(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :18/06/2025

(21) Application No.202541058341 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : SOLAR POWERED GEAR PUMP DRIVEN PAINT SUPPLY SYSTEM

(51) International classification :H02J0007000000, B05B0013020000, B05B0009040000, H02J0007350000, F04C0002180000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

The invention discloses a solar-powered gear pump-driven paint supply system designed for continuous and uniform paint delivery in roller-based painting applications. The system comprises a solar panel, a rechargeable battery, a charge controller, a compact gear pump, a sealed paint reservoir, flexible tubing, and a roller handle with an integrated paint channel and micro-perforated sleeve. Upon user activation, the gear pump draws paint from the reservoir and delivers it directly to the roller head, enabling efficient; mess-free painting without the need for manual dipping. The invention is portable, eco-friendly, and suitable for both indoor and outdoor environments, particularly in off-grid or power-limited locations

No. of Pages : 15 No. of Claims : 10

(54) Title of the invention : SELF-ACTIVATING LIGHT CAPSULE USING PASSIVE AIRFLOW-RESPONSIVE UNBALANCED BALL MECHANISM FOR CONTROLLED CHEMICAL REACTION WITHOUT ELECTRICITY

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| <p>(51) International classification :A61B0005000000, A61B0018200000, A61B0001040000, A61N0005100000, G08B0005360000</p> <p>(86) International Application No :NA<br/>Filing Date</p> <p>(87) International Publication No : NA<br/>(61) Patent of Addition to Application :NA<br/>Number :NA<br/>Filing Date</p> <p>(62) Divisional to Application :NA<br/>Number :NA<br/>Filing Date</p> | <p>(71)Name of Applicant :<br/> <b>1)KONGUNADU COLLEGE OF ENGINEERING AND TECHNOLOGY</b><br/> Address of Applicant :THOLURPATTI POST, TRICHY DT, TAMILNADU-621215 -----<br/> <b>2)Dr. T.Rajamanikandan</b><br/> <b>3)Dr.P.Arul</b><br/> <b>4)Dr. S. A. Sahaaya Arul Mary</b><br/> <b>5)Dr. T. Sengolrajan</b><br/> <b>6)T.Ashok</b><br/> <b>7)K. Karthick</b><br/> <b>8)N.Sarmiladevi</b><br/> <b>9)K. M. Swarna Devi</b><br/> <b>10)Dr.V.Bharathi</b><br/> <b>11)T.Beni Steena</b><br/> <b>12)L. Nivetha</b><br/> Name of Applicant : NA<br/> Address of Applicant : NA<br/> (72)Name of Inventor :<br/> <b>1)Dr. T.Rajamanikandan</b><br/> Address of Applicant :Assistant Professor Department of EEE KONGUNADU COLLEGE OF ENGINEERING AND TECHNOLOGY NAMAKKAL-TRICHY MAIN ROAD, THOLURPATTI POST, THOTTIYAM TALUK, TRICHY DT, TAMILNADU-621215 -----<br/> <b>2)Dr.P.Arul</b><br/> Address of Applicant :Professor Department of EEE KONGUNADU COLLEGE OF ENGINEERING AND TECHNOLOGY NAMAKKAL-TRICHY MAIN ROAD, THOLURPATTI POST, THOTTIYAM TALUK, TRICHY DT, TAMILNADU-621215 -----<br/> <b>3)Dr. S. A. Sahaaya Arul Mary</b><br/> Address of Applicant :Professor Department of Artificial Intelligence and Data Science KONGUNADU COLLEGE OF ENGINEERING AND TECHNOLOGY NAMAKKAL-TRICHY MAIN ROAD, THOLURPATTI POST, THOTTIYAM TALUK, TRICHY DT, TAMILNADU-621215 -----<br/> <b>4)Dr. T. Sengolrajan</b><br/> Address of Applicant :Associate Professor Department of EEE KONGUNADU COLLEGE OF ENGINEERING AND TECHNOLOGY NAMAKKAL-TRICHY MAIN ROAD, THOLURPATTI POST, THOTTIYAM TALUK, TRICHY DT, TAMILNADU-621215 -----<br/> <b>5)T.Ashok</b><br/> Address of Applicant :Associate Professor Department of Bio Medical Engineering KONGUNADU COLLEGE OF ENGINEERING AND TECHNOLOGY THOLURPATTI POST, THOTTIYAM TALUK, TRICHY DT, TAMILNADU-621215 -----<br/> <b>6)K. Karthick</b><br/> Address of Applicant :Assistant Professor Department of CSE KONGUNADU COLLEGE OF ENGINEERING AND TECHNOLOGY THOLURPATTI POST, THOTTIYAM TALUK, TRICHY DT, TAMILNADU-621215 -----<br/> <b>7)N.Sarmiladevi</b><br/> Address of Applicant :Assistant Professor Department of ADS Kongunadu College of Engineering and Technology, Tholurpatti Post, Trichy- 621 215, Tamil NADU -----<br/> <b>8)K. M. Swarna Devi</b><br/> Address of Applicant :Assistant Professor Department of CSE Kongunadu College of Engineering and Technology, Tholurpatti Post Trichy- 621 215, Tamil Nadu -----<br/> <b>9)Dr.V.Bharathi</b><br/> Address of Applicant :Associate Professor Department of ECE Kongunadu College of Engineering and Technology, Tholurpatti Post, Trichy- 621 215, Tamil Nadu -----<br/> <b>10)T.Beni Steena</b><br/> Address of Applicant :Assistant Professor Department of ECE Kongunadu College of Engineering and Technology, Tholurpatti Post, Trichy- 621 215, Tamil Nadu -----<br/> <b>11)L. Nivetha</b><br/> Address of Applicant :Assistant Professor Indian Department of CSE Kongunadu College of Engineering and Technology, Tholurpatti Post, Trichy- 621 215, Tamil Nadu -----</p> |
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(57) Abstract :

ABSTRACT The invention relates to a non-electric, mechanically triggered light-generating capsule that emits visible light through a controlled chemical reaction. The capsule comprises two separate chemical chambers isolated by a movable separator and a central mixing zone where the reaction occurs. Positioned above the capsule are one or more air-filled, unbalanced balls placed on a platform. These balls respond to ambient airflow variations. caused by natural ventilation or human movement. When displaced, the balls activate a mechanical linkage that shifts the separator, allowing the chemicals to mix and generate light without electricity or manual contact. The system operates autonomously, is optionally reusable, and may be constructed using biodegradable materials. It is suitable for applications in emergency lighting, decorative use, spiritual settings, and off-grid environments. The invention offers a sustainable, low-cost, and passive lighting solution ideal for rural and energy-deficient regions

No. of Pages : 15 No. of Claims : 8

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202541058344 A

(19) INDIA

(22) Date of filing of Application :18/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : AI-CONTROLLED REFLECTIVE BIRD DETTERENT DEVICE WITH SOLAR-POWERED ILLUMINATION AND ROATING MIRROR MECHANISM

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| <p>(51) :A01M29/10,<br/>International A01M29/08,<br/>classification A01M29/06<br/>(86)<br/>International :NA<br/>Application No :NA<br/>Filing :NA<br/>Date :NA<br/>(87)<br/>International : NA<br/>Publication No :NA<br/>(61) Patent of<br/>Addition to :NA<br/>Application :NA<br/>Number :NA<br/>Filing :NA<br/>Date :NA<br/>(62) Divisional<br/>to Application :NA<br/>Number :NA<br/>Filing :NA<br/>Date :NA</p> | <p>(71)Name of Applicant :<br/><b>1)KONGUNADU COLLEGE OF ENGINEERING AND TECHNOLOGY</b><br/>Address of Applicant :THOLURPATTI POST, TRICHY, TAMILNADU-621215 -----<br/><b>2)Dr. T.Rajamanikandan</b><br/><b>3)Dr.R.Asokan</b><br/><b>4)Dr. J. Preetha</b><br/><b>5)Dr. S. Dhanabal</b><br/><b>6)Dr. P. Preethi</b><br/><b>7)Dr.K.Amudha,</b><br/><b>8)T.Meenal</b><br/><b>9)Dr.N.Sridhar</b><br/><b>10)A.Mohanadevi</b><br/><b>11)S. Manikandan</b><br/>Name of Applicant : NA<br/>Address of Applicant : NA<br/>(72)Name of Inventor :<br/><b>1)Dr. T.Rajamanikandan</b><br/>Address of Applicant :Assistant Professor Department of EEE Kongunadu College of Engineering and Technology, Tholurpatti Post, Trichy- 621 215, headinr@kongunadu.ac.in -----<br/><b>2)Dr.R.Asokan</b><br/>Address of Applicant :Professor Department of ECE Kongunadu College of Engineering and Technology. Tholurpatti Post Trichy Tamil nadu- 621 215 -----<br/><b>3)Dr. J. Preetha</b><br/>Address of Applicant :Professor Department of Information Technology Kongunadu College of Engineering and Technology, Tholurpatti Post, Trichy- 621 215, Tamil Nadu -----<br/><b>4)Dr. S. Dhanabal</b><br/>Address of Applicant :Associate Professor Department of CSE Kongunadu College of Engineering and Technology, Tholurpatti Post, Trichy- 621 215, Tamil Nadu -----<br/><b>5)Dr. P. Preethi</b><br/>Address of Applicant :Associate Professor Department of Information Technology Kongunadu College of Engineering and Technology, Tholurpatti Post, Trichy- 621215, Tamil Nadu -----<br/><b>6)Dr.K.Amudha,</b><br/>Address of Applicant :Associate Professor Department of ECE Kongunadu College of Engineering and Technology, Tholurpatti Post, Trichy- 621 215, Tamil Nadu -----<br/><b>7)T.Meenal</b><br/>Address of Applicant :Assistant Professor Department of ECE Kongunadu College of Engineering and Technology, Tholurpatti Post, Trichy- 621 215, Tamil Nadu -----<br/><b>8)Dr.N.Sridhar</b><br/>Address of Applicant :Assistant Professor Department of Civil Engineering Kongunadu College of Engineering and Technology, Tholurpatti Post, Trichy- 621 215, Tamil Nadu -----<br/><b>9)A.Mohanadevi</b><br/>Address of Applicant :Assistant Professor Department of Information Technology Kongunadu College of Engineering and Technology, Tholurpatti Post, Trichy- 621 215, Tamil Nadu -----<br/><b>10)S. Manikandan</b><br/>Address of Applicant :Assistant Professor Department of CSE Kongunadu College of Engineering and Technology, Tholurpatti Post, Trichy- 621 215, Tamil Nadu -----</p> |
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(57) Abstract :

ABSTRACT The invention discloses an AI-controlled bird deterrent device comprising a rotating spherical mirror made of multiple small reflective surfaces, illuminated by solarpowered LED lamps. The system uses a DC motor and gear setup to rotate the mirror, scattering light in multiple directions to deter birds. An AI-based controller processes sensor inputs to activate the system only when needed, enhancing energy efficiency. The device includes a wireless communication module for remote monitoring and a mobile alert system for user notifications. Designed for agricultural and open-field applications, the system offers an intelligent, eco-friendly, and automated solution for bird control.

No. of Pages : 19 No. of Claims : 8

(54) Title of the invention : NON-DESTRUCTIVE SYSTEM AND METHOD FOR EXTRACTING CORE AND SHEATH WATER FROM LIVING BANANA PLANTS

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| <p>(51) International classification :G06Q0050020000, G05B0019042000, G06Q0050260000, E21B0043120000, H04W0084180000</p> <p>(86) International Application No :NA<br/>Filing Date :NA</p> <p>(87) International Publication No :NA</p> <p>(61) Patent of Addition to Application Number :NA<br/>Filing Date :NA</p> <p>(62) Divisional to Application Number :NA<br/>Filing Date :NA</p> | <p>(71)<b>Name of Applicant :</b><br/> <b>1)KONGUNADU COLLEGE OF ENGINEERING AND TECHNOLOGY</b><br/> Address of Applicant :NAMAKKAL-TRICHY MAIN ROAD, THOLURPATTI POST, TRICHY DT, TAMILNADU-621215 mvtbharatham@mail.com -----<br/> <b>2)Dr. T.Rajamanikandan</b><br/> <b>3)Dr. R,Shankar</b><br/> <b>4)Dr.T.Yuvaraja</b><br/> <b>5)Dr.M.Suganthi</b><br/> <b>6)M.Thangadurai</b><br/> <b>7)Dr. P. Kalaichelvi</b><br/> <b>8)C. Radhakrishnan</b><br/> <b>9)R. Premkumar</b><br/> <b>10)Dr.G.Kiruthika</b><br/> <b>11)N.Jayapal</b><br/> <b>12)S.Parthiban</b><br/> <b>Name of Applicant : NA</b><br/> <b>Address of Applicant : NA</b><br/> <b>(72)Name of Inventor :</b><br/> <b>1)Dr. T.Rajamanikandan</b><br/> Address of Applicant :Assistant Professor Department of EEE Kongunadu College of Engineering and Technology, Tholurpatti Post, Trichy- 621 215, Tamil Nadu headir@konunadu.ac.in -----<br/> <b>2)Dr. R,Shankar</b><br/> Address of Applicant :Professor Department of EEE Kongunadu College of Engineering and Technology, Tholurpatti Post, Trichy - 621 215 Tamil Nadu -----<br/> <b>3)Dr.T.Yuvaraja</b><br/> Address of Applicant :Associate Professor Department of ECE Kongunadu College of Engineering and Technology, Tholurpatti Post, Trichy - 621 215 Tamil Nadu -----<br/> <b>4)Dr.M.Suganthi</b><br/> Address of Applicant :Associate Professor Department of CSE Kongunadu College of Engineering and Technology, Tholurpatti Post, Trichy- 621 215, Tamil Nadu -----<br/> <b>5)M.Thangadurai</b><br/> Address of Applicant :Assistant Professor Department of CSE Kongunadu College of Engineering and Technology, Tholurpatti Post, Trichy- 621215, Tamil Nadu -----<br/> <b>6)Dr. P. Kalaichelvi</b><br/> Address of Applicant :Associate Professor Department of CSE Kongunadu College of Engineering and Technology, Tholurpatti Post, Trichy- 621 215, Tamil Nadu -----<br/> <b>7)C. Radhakrishnan</b><br/> Address of Applicant :Assistant Professor Department of CSE Kongunadu College of Engineering and Technology, Tholurpatti Post, Trichy- 621 215, Tamil Nadu -----<br/> <b>8)R. Premkumar</b><br/> Address of Applicant :Assistant Professor Department of CSE Kongunadu College of Engineering and Technology, Tholurpatti Post, Trichy- 621 215, Tamil Nadu -----<br/> <b>9)Dr.G.Kiruthika</b><br/> Address of Applicant :Assistant professor Department of Agricultural Engineering Kongunadu College of Engineering and Technology, Tholurpatti Post, Trichy- 621 215, Tamil Nadu -----<br/> <b>10)N.Jayapal</b><br/> Address of Applicant :Assistant Professor Department of ECE Kongunadu College of Engineering and Technology, Tholurpatti Post, Trichy- 621 215, Tamil Nadu -----<br/> <b>11)S.Parthiban</b><br/> Address of Applicant :assistant Professor Department of Indian INFORMATION TECHNOLOGY Kongunadu College of Engineering and Technology, Tholurpatti Post, Trichy- 621 215, Tamil Nadu -----</p> |
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## (57) Abstract :

ABSTRACT The present invention relates to a non-destructive system and method for extracting inner core and outer sheath water from a living banana plant, using a dual-channel hollow needle and washer-based fluid separation mechanism. The system enables simultaneous collection of two types of water from the pseudostem without cutting or killing the plant. The invention further integrates an AI-based electronic control module equipped with sensors to monitor needle depth, flow rate, internal stem pressure, and plant moisture. The system transmits real-time data to a mobile application via wireless communication (Bluetooth/Wi-Fi/Lora), enabling intelligent monitoring, decision-making, and traceability. The collected water is directed through separate flexible pipes into two airtight glass bottles for further use in nutraceutical, cosmetic, or agricultural applications. The invention addresses the need for sustainable, zero-waste agricultural practices and adds value to standing banana crops through smart, eco-friendly water extraction

No. of Pages : 20 No. of Claims : 8

(54) Title of the invention : AI-INTEGRATED SOLAR-POWERED DESALINATION SYSTEM USING ECO-FRIENDLY MATERIALS FOR PORTABLE DRINKING WATER GENERATION

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| <p>(51) International classification :C02F0103080000, C02F0001440000, B01D0005000000, C02F0001140000, H01M0010615000</p> <p>(86) International Application No :NA<br/>Filing Date :NA</p> <p>(87) International Publication No : NA<br/>Addition to Application Number :NA<br/>Filing Date :NA</p> <p>(62) Divisional to Application Number :NA<br/>Filing Date :NA</p> | <p>(71)Name of Applicant :<br/><b>1)KONGUNADU COLLEGE OF ENGINEERING AND TECHNOLOGY</b><br/>Address of Applicant :THOLURPATTI POST, TRICHY DT, TAMILNADU-621215 mvtbharatham@gmail.com -----</p> <p><b>2)Dr. T.Rajamanikandan</b><br/><b>3)Dr.S.Kavipriya</b><br/><b>4)Dr. R. Saravanan</b><br/><b>5)R.V.Viswanathan</b><br/><b>6)Dr.M.Senthilkumar</b><br/><b>7)Ms.G.Veera Karunya</b><br/><b>8)S.Revathi</b><br/><b>9)M.Santhanaraj</b><br/><b>10)S. Revathi</b><br/><b>11)J.Sathiskumar</b><br/><b>Name of Applicant : NA</b><br/><b>Address of Applicant : NA</b></p> <p>(72)Name of Inventor :<br/><b>1)Dr. T.Rajamanikandan</b><br/>Address of Applicant :Assistant Professor Department of EEE Kongunadu College of Engineering and Technology, Tholurpatti Post, Trichy- 621 215, Tamil Nadu headipri9kong_unadu.ac.in -----</p> <p><b>2)Dr.S.Kavipriya</b><br/>Address of Applicant :Professor Department of Civil Engineering Kongunadu College of Engineering and Technology, Tholurpatti Post, Trichy- 621 215, Tamil Nadu -----</p> <p><b>3)Dr. R. Saravanan</b><br/>Address of Applicant :Associate Professor Department of Civil Engineering Kongunadu College of Engineering and Technology, Tholurpatti Post, Trichy- 621 215, Tamil Nadu -----</p> <p><b>4)R.V.Viswanathan</b><br/>Address of Applicant :Assistant Professor Department of Information Technology Kongunadu College of Engineering and Technology, Tholurpatti Post, Trichy- 621 215, Tamil Nadu -----</p> <p><b>5)Dr.M.Senthilkumar</b><br/>Address of Applicant :Associate Professor Department of ADS Kongunadu College of Engineering and Technology, Tholurpatti Post, Trichy- 621 215, Tamil Nadu -----</p> <p><b>6)Ms.G.Veera Karunya</b><br/>Address of Applicant :Assistant professor Department of Agricultural Engineering Kongunadu College of Engineering and Technology, Tholurpatti Post, Trichy- 621 215, Tamil Nadu -----</p> <p><b>7)S.Revathi</b><br/>Address of Applicant :Assistant Professor Department of EEE Kongunadu College of Engineering and Technology, Tholurpatti Post, Trichy- 621 215, Tamil Nadu -----</p> <p><b>8)M.Santhanaraj</b><br/>Address of Applicant :Assistant Professor Department of Information Technology Kongunadu College of Engineering and Technology, Tholurpatti Post, Trichy- 621 215, Tamil Nadu -----</p> <p><b>9)S. Revathi</b><br/>Address of Applicant :Assistant Professor Department of CSE Kongunadu College of Engineering and Technology, Tholurpatti Post, Trichy- 621 215, Tamil Nadu -----</p> <p><b>10)J.Sathiskumar</b><br/>Address of Applicant :Assistant Professor/ Department of Information Technology Kongunadu College of Engineering and Technology, Tholurpatti Post, Trichy- 621 215, Tamil Nadu -----</p> |
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## (57) Abstract :

ABSTRACT The invention relates to an AI-integrated, solar-powered desalination system that converts saltwater into potable water using thermal evaporation and condensation. It comprises a solar panel, battery, heating coil, saltwater chamber, condensation zone, and freshwater collector, enclosed in an eco-friendly casing made of banana sheath or coir. An AI unit monitors temperature, salinity, water level, and TDS via sensors and controls the heating process. Realtime data is accessible through a mobile app or cloud interface. The system operates off-grid without RO membranes or chemicals, making it ideal for rural, coastal, or remote regions requiring sustainable, intelligent water purification.

No. of Pages : 18 No. of Claims : 10

(54) Title of the invention : SMART MULTI-FUNCTIONAL LED LAMP WITH INTEGRATED MOTION DETECTION AIR&NBSP;QUALITY MONITORING ALARM SYSTEM CLOUD CONNECTIVITY AND MOBILE APP CONTROL

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| <p>(51) International classification :F21Y0115100000, F21V0023040000, H04W0076270000, A61B0005000000, G05B0015020000</p> <p>(86) International Application No :NA<br/>Filing Date :NA</p> <p>(87) International Publication No : NA<br/>Addition to Application Number :NA<br/>Filing Date :NA</p> <p>(62) Divisional to Application Number :NA<br/>Filing Date :NA</p> | <p>(71)Name of Applicant :<br/> <b>1)KONGUNADU COLLEGE OF ENGINEERING AND TECHNOLOGY</b><br/> Address of Applicant :THOLURPATTI POST, TRICHY DT, TAMIL NADU, INDIA-621215 -----<br/> <b>2)Dr. T.Rajamanikandan</b><br/> <b>3)Dr.P.Arul</b><br/> <b>4)Dr. S. Dhanabal</b><br/> <b>5)V. Krishnakumar</b><br/> <b>6)Dr.P.Elayaraja</b><br/> <b>7)Dr. R.Sathya</b><br/> <b>8)Dr. T. Sengolrajan</b><br/> <b>9)R. Deepika</b><br/> <b>10)T. Tamilnesan</b><br/> <b>11)J. Karthikeyan</b><br/> <b>12)C.Gowrishankar</b><br/> Name of Applicant : NA<br/> Address of Applicant : NA<br/> (72)Name of Inventor :<br/> <b>1)Dr. T.Rajamanikandan</b><br/> Address of Applicant :Assistant Professor Department of EEE Kongunadu College of - Engineering and Technology, Tholurpatti Post, Trichy- 621 215, Tamil Nadu headipr@kongunadu.ac.in -----<br/> <b>2)Dr.P.Arul</b><br/> Address of Applicant :Professor Department of EEE Kongunadu College of Engineering and Technology, Tholurpatti Post, Trichy- 621 215, Tamil Nadu -----<br/> <b>3)Dr. S. Dhanabal</b><br/> Address of Applicant :Associate Professor Professor Department of CSE Kongunadu College of Engineering and Technology, Tholurpatti Post, Trichy- 621 215, Tamil Nadu -----<br/> <b>4)V. Krishnakumar</b><br/> Address of Applicant :Assistant Professor Department of ECE Kongunadu College of Engineering and Technology, Tholurpatti Post, Trichy- 621 215, Tamil Nadu -----<br/> <b>5)Dr.P.Elayaraja</b><br/> Address of Applicant :Associate Professor/ Department of ECE Kongunadu College of Engineering and Technology, Tholurpatti Post, Trichy- 621 215, Tamil Nadu -----<br/> <b>6)Dr. R.Sathya</b><br/> Address of Applicant :Associate Professor/Department of INFORMATION TECHNOLOGY Kongunadu College of Engineering and Technology, Tholurpatti Post, Trichy- 621 215, Tamil Nadu -----<br/> <b>7)Dr. T. Sengolrajan</b><br/> Address of Applicant :Associate Professor/Department of EEE Kongunadu College of Engineering and Technology, Tholurpatti Post, Trichy- 621 215, TamilNadu -----<br/> <b>8)R. Deepika</b><br/> Address of Applicant :Assistant Professor Department of EEE Kongunadu College of Engineering and Technology, Tholurpatti Post, Trichy- 621 215, TamilNadu -----<br/> <b>9)T. Tamilnesan</b><br/> Address of Applicant :Assistant Professor Department of EEE Kongunadu College of Engineering and Technology, Tholurpatti Post, Trichy- 621 215, TamilNadu -----<br/> <b>10)J. Karthikeyan</b><br/> Address of Applicant :Assistant Professor Department of EEE Kongunadu College of Engineering and Technology, Tholurpatti Post, Trichy- 621 215, TamilNadu -----<br/> <b>11)C.Gowrishankar</b><br/> Address of Applicant :Assistant Professor Department of EEE Kongunadu College of Engineering and Technology, Tholurpatti Post, Trichy- 621 215, Tamil Nadu -----</p> |
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## (57) Abstract :

ABSTRACT The present invention relates to a smart multi-functional LED lamp system that integrates adaptive lighting control, motion sensing, air quality monitoring, audio alarm functionality, and wireless connectivity within a single compact unit. The system comprises a microcontroller, LED light source, motion sensor, air quality sensor, alarm buzzer, Wi-Fi module, and mobile application interface. The device operates in dual lighting modes full brightness during occupancy and night mode when idle and provides real-time air quality alerts through both a buzzer and a mobile app. A wake-up alarm feature synchronizes gradual light increase with audio signalling. Cloud connectivity enables data storage, remote configuration, and behaviour-based adaptation. The invention offers a plug-and-play smart lighting solution that enhances energy efficiency, user comfort, and environmental awareness, making it suitable for homes, healthcare, offices, and IoT-based infrastructures.

No. of Pages : 20 No. of Claims : 8

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202541058353 A

(19) INDIA

(22) Date of filing of Application :18/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : AI ENABLED SPIDER TYPE ROBOTIC DEVICE FOR WALL SURFACE CLEANING AND AUTOMATED PLASTER REPAIR WITH MOBILE APP CONTROL AND RECHARGEABLE BATTERY OPERATION

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|                                                                                                                                                                                                                                           | (71)Name of Applicant :<br>1)KONGUNADU COLLEGE OF ENGINEERING AND TECHNOLOGY<br>Address of Applicant :THOLURPATTI POST, TRICHY DT, TAMIL NADU, INDIA-621215 -----<br>2)Dr. T.Rajamanikandan<br>3)Dr. P.Arul<br>4)Dr. R.Shankar<br>5)Dr.K.Muthumanickam<br>6)R.Gopalakrishnan<br>7)Dr. R. Saravanan<br>8)S. Suganya<br>9)Dr.M.Paranthaman<br>10)S.Kumaravel<br>11)R.Aruna<br>12)L. Nivetha<br>13)A.Mohan Kumar<br>Name of Applicant : NA<br>Address of Applicant : NA<br>(72)Name of Inventor :<br>1)Dr. T.Rajamanikandan<br>Address of Applicant :Assistant Professor Department of EEE Kongunadu College of Engineering and Technology, Tholurpatti Post, Trichy- 621 215, Tamil Nadu headipr@kongunadu.ac.in -----<br>2)Dr. P.Arul<br>Address of Applicant :Assistant Professor Department of EEE Kongunadu College of Engineering and Technology, Tholurpatti Post, Trichy- 621 215, TamilNadu -----<br>3)Dr. R.Shankar<br>Address of Applicant :Professor Department of EEE Kongunadu College of Engineering and Technology, Tholurpatti Post, Trichy- 621 215, Tamil Nadu -----<br>4)Dr. K.Muthumanickam<br>Address of Applicant :Professor Department of Information Technology Kongunadu College of Engineering and Technology, Tholurpatti Post, Trichy- 621 215, Tamil Nadu -----<br>5)R.Gopalakrishnan<br>Address of Applicant :Assistant Professor Department of EEE Kongunadu College of Engineering and Technology, Tholurpatti Post, Trichy- 621 215, Tamil Nadu -----<br>6)Dr. R. Saravanan<br>Address of Applicant :Associate Professor Department of Civil Engineering Kongunadu College of Engineering and Technology, Tholurpatti1 Post, Trichy- 621 215, Tamil Nadu -----<br>7)S. Suganya<br>Address of Applicant :Assistant Professor Department of CSE Kongunadu College of Engineering and Technology, Tholurpatti Post, Trichy- 621 215, Tamil Nadu -----<br>8)Dr.M.Paranthaman<br>Address of Applicant :Associate Professor Department of ECE Kongunadu College of Engineering and Technology, Tholurpatti Post, Trichy- 621 215, TamilNadu -----<br>9)S.Kumaravel<br>Address of Applicant :Assistant Professor Department of Mechanical Engineering Kongunadu College of Engineering and Technology, Tholurpatti Post, Trichy- 621 215, TamilNadu -----<br>10)R.Aruna<br>Address of Applicant :Assistant Professor Department of Information Technology Kongunadu College of Engineering and Technology, Tholurpatti Post, Trichy- 621 215, Tamil Nadu -----<br>11)L. Nivetha<br>Address of Applicant :Department of CSE Kongunadu College of Engineering and Technology, Tholurpatti Post, Trichy- 621 215, TamilNadu -----<br>12)A.Mohan Kumar<br>Address of Applicant :Assistant Professor Department of ECE Kongunadu College of Engineering and Technology, Tholurpatti Post, Trichy- 621 215, Tamil Nadu ----- |
| (51) International classification<br>:H02J0007000000,<br>H04N0007180000,<br>B25J0009160000,<br>E04G0023020000,<br>H04W0072230000                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| (86) International Application No<br>:NA<br>Filing Date<br>(87) International Publication No<br>:NA<br>(61) Patent of Addition to Application Number<br>:NA<br>Filing Date<br>(62) Divisional to Application Number<br>:NA<br>Filing Date |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |

(57) Abstract :

ABSTRACT The invention relates to anAI-enabled, spider-type robotic device for automated wall surface cleaning and plaster repair. The device is equipped with multiple articulated legs or suctionbased climbing mechanisms to navigate vertical walls. A vision sensor powered by an AI module detects wall defects such as dirt, cracks, and damaged plaster. Based on the defect type, the robot activates either a cleaning module or a plaster injection module to perform surface maintenance. The system is powered by a rechargeable battery unit and can be controlled via a mobile application that provides live video feed, task scheduling, and battery monitoring. The invention eliminates the need for manual wall repair in difficult-to-reach areas, improves safety, ensures consistent quality, and is suitable for use in domestic and commercial building maintenance. The integration of AI, mobility, automation, and mobile app support makes the invention novel, non-obvious, and industrially applicable.

No. of Pages : 20 No. of Claims : 9

(54) Title of the invention : METHOD FOR PRODUCING NATURAL FIBER BASED BIO COMPOSITES FROM BANANA LEAF WASTE FOR SMART TOY AND DECORATIVE APPLICATIONS

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| <p>(51) International classification :D21B0001060000, C09B0061000000, G06F0001200000, B32B0037020000, B44C0005000000</p> <p>(86) International Application No :NA<br/>Filing Date :NA</p> <p>(87) International Publication No : NA</p> <p>(61) Patent of Addition to Application Number :NA<br/>Filing Date :NA</p> <p>(62) Divisional to Application Number :NA<br/>Filing Date :NA</p> | <p>(71)Name of Applicant :<br/> <b>1)KONGUNADU COLLEGE OF ENGINEERING AND TECHNOLOGY</b><br/> Address of Applicant :THOLURPATTI POST, TRICHY DT, TAMIL NADU, INDIA-621215 -----<br/> <b>2)Dr. T.Rajamanikandan</b><br/> <b>3)Dr. J. Yogapriya</b><br/> <b>4)Dr. C. Saravanabhavan</b><br/> <b>5)Dr.M.Dharmalingam</b><br/> <b>6)K.Mohanraj</b><br/> <b>7)Dr.B.Umarani</b><br/> <b>8)Dr A.Sampath</b><br/> <b>9)R.Palanikumar</b><br/> <b>10)Dr. P. Prabhu</b><br/> <b>11)M.Sundharan</b><br/> Name of Applicant : NA<br/> Address of Applicant : NA</p> <p>(72)Name of Inventor :<br/> <b>1)Dr. T.Rajamanikandan</b><br/> Address of Applicant :Assistant Professor Department of EEE Kongunadu College of Engineering and Technology, Tholurpatti Post, Trichy- 621 215, Tamil Nadu headipr@kongunadu.ac.in -----<br/> <b>2)Dr. J. Yogapriya</b><br/> Address of Applicant :Professor/ Department of CSE Kongunadu College of Engineering and Technology, Tholurpatti Post, Trichy- 621 215, Tamil Nadu -----<br/> <b>3)Dr. C. Saravanabhavan</b><br/> Address of Applicant :Professor/ Department of CSE Kongunadu College of Engineering and Technology, Tholurpatti Post, Trichy- 621 215, Tamil Nadu -----<br/> <b>4)Dr.M.Dharmalingam</b><br/> Address of Applicant :Professor/ Department of ESE Kongunadu College of Engineering and Technology, Tholurpatti Post, Trichy- 621 215, Tamil Nadu -----<br/> <b>5)K.Mohanraj</b><br/> Address of Applicant :Assistant Professor/ Department of EEE Kongunadu College of Engineering and Technology, Tholurpatti Post, Trichy- 621 215, Tamil Nadu -----<br/> <b>6)Dr.B.Umarani</b><br/> Address of Applicant :Professor/ Department of ECE Kongunadu College of Engineering and Technology, Tholurpatti Post, Trichy- 621 215, Tamil Nadu -----<br/> <b>7)Dr A. Sampath</b><br/> Address of Applicant :Associate Professor/ Department of Bio Medical Engineering Kongunadu College of Engineering and Technology, Tholurpatti Post, Trichy- 621215, Tamil Nadu -----<br/> <b>8)R.Palanikumar</b><br/> Address of Applicant :Assistant Professor/ Department of Information Technology Kongunadu College of Engineering and Technology, Tholurpatti Post, Trichy- 621 215, Tamil Nadu -----<br/> <b>9)Dr. P. Prabhu</b><br/> Address of Applicant :Associate Professor I Department of Civil Engineering Kongunadu College of Engineering and Technology, Tholurpatti Post, Trichy- 621 215, Tamil Nadu -----<br/> <b>10)M.Sundharan</b><br/> Address of Applicant :Assistant Professor/ Department of Agricultural Engineering, Kongunadu College of Engineering and Technology, Tholurpatti Post, Trichy- 621 215, Tamil Nadu -----<br/> <b>11)M.Sundharan</b><br/> Address of Applicant :Assistant Professor/ Department of Agricultural Engineering, Kongunadu College of Engineering and Technology, Tholurpatti Post, Trichy- 621 215, Tamil Nadu -----</p> |
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(57) Abstract :

ABSTRACT The present invention discloses a sustainable method for producing natural fiberbased bio-composite materials using post-harvest banana leaf and sheath waste. The method include~ steps such as cleaning, crushing, pulping, sheet formation, dehydration, pulverizing the dehydrated sheets into powder, and blending with natural bio-resins such as papaya latex. The resulting composite is moldable and can be shaped into toys, decorative items, and enclosures for functional products. A unique feature of the invention is the integration of electronic components including LEDs, sensors, and buzzers into the molded biodegradable structures, enabling the development of eco-friendly smart toys and home décor items. This process provides a scalable, cost-effective, and environmentally responsible solution for agricultural residue valorisation and sustainable manufacturing. The invention is particularly applicable for rural-based enterprises, SHGs, and micro-manufacturing units.

No. of Pages : 15 No. of Claims : 8



(12) PATENT APPLICATION PUBLICATION

(21) Application No.202541058359 A

(19) INDIA

(22) Date of filing of Application :18/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : ANTI MAGIC LABELING ON ANTI FUZZY CYCLE AND COMB GRAPH

(51) International classification :A61K0036894500, G06F0016901000, G06N0003043000, G06T0007120000, G06N0007020000

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Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

Abstract A fuzzy graph IS a mathematical structure that incorporates the concept of uncertainty, or fuzziness, into traditional graphs. Classical graph theory depicts edges between nodes as binary relationships, showing the presence or absence of a connection between them. In contrast, fuzzy graphs can represent degrees of connection or membership, providing a more realistic and nexible framework for describing real-world systems with ambiguous or imprecise relationships. The idea of fuzzy graph labeling is to extend traditional graph labeling to handle vague information associated with vc1tices, edges, or both. Using this extension, relationships within a graph can be represented in a more nuanced manner, acknowledging that not all connections or characteristics arc absolute. This paper aims to study the concepts of anti-magic labeling for anti-fuzzy graphs. FUJthermore, we determine the edge anti-magic (EAM) and vertex anti-magic (YAM) for some classes of anti-fuzzy graphs, like cycle and comb, and derive the properties for the same

No. of Pages : 12 No. of Claims : 4

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :18/06/2025

(21) Application No.202541058384 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : AI-BASED CARBON EMISSION AUDIT AND TRADING PLATFORM FOR INDUSTRIES

(51) International classification :G06Q0030018000, H04L0009000000, G06Q0040040000, H04L0065110100, B01D0053600000  
(86) International Application No :NA  
Filing Date :NA  
(87) International Publication No : NA  
(61) Patent of Addition to Application Number :NA  
Filing Date :NA  
(62) Divisional to Application Number :NA  
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(57) Abstract :

Abstract The invention discloses an integrated, intelligent platform for real-time carbon emission monitoring, automated auditing, and blockchain-enabled carbon credit trading, specifically designed for industrial applications. The system utilizes a network of IoT-based environmental sensors to continuously measure emission levels such as CO<sub>2</sub>, NO<sub>x</sub>, SO<sub>x</sub>, and particulate matter. Collected data is transmitted to an AI-powered analytics engine that performs real-time analysis, anomaly detection, regulatory compliance checks, and emission forecasting. Based on audit outcomes, a carbon credit allocation module dynamically calculates credits or penalties for each industrial entity. These credits are managed and transacted through a blockchain-based trading system employing smart contracts to ensure secure, transparent, and tamper-proof transactions. A user-friendly dashboard allows stakeholders to visualize emissions, manage credits, receive alerts, and access compliance reports. The invention provides an end-to-end solution to support industries in achieving sustainability goals, regulatory compliance, and active participation in carbon markets.

No. of Pages : 18 No. of Claims : 5

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :18/06/2025

(21) Application No.202541058402 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : ENHANCEMENT OF DIESEL ENGINE PISTON PERFORMANCE THROUGH PLASMA SPRAY COATING OF FUSED ZIRCONIA-ALUMINA CERAMIC COMPOSITE

(51) International classification :F02B0003060000, F02F0003000000, C23C0004020000, F02B0075020000, F02B0033040000  
(86) International Application No :NA  
Filing Date :NA  
(87) International Publication No : NA  
(61) Patent of Addition to Application Number :NA  
Filing Date :NA  
(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

Abstract This invention relates to a revolutionary technique for extending the lifespan of diesel engine pistons, augmenting overall engine performance, and mitigating hazardous emissions by the application of a ceramic coating consisting of 60% fused. zirconia and 40% alumina. The coating is specifically applied to the crown region of aluminum pistons utilizing the plasma spray process. The fused ceramic composite markedly enhances wear resistance and diminishes heat losses during combustion. These enhancements facilitate a more efficient and thorough burning of the air-fuel mixture within the combustion chamber. Consequently, there is a significant improvement in thermal efficiency, a decrease in unburnt hydrocarbons and particle emissions, and an extended service life of the piston in high-temperature working circumstances. This technology offers an economical and resilient solution for contemporary CII diesel engines aiming for enhanced efficiency and compliance with rigorous emission standards.

No. of Pages : 12 No. of Claims : 6

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :18/06/2025

(21) Application No.202541058403 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : AI-BASED SYSTEM FOR PREDICTING INSURANCE CLAIMS FROM VEHICLE ACCIDENT DAMAGE

(51) International classification :G06Q40/00, G06Q40/08,  
G06N20/00  
(86) International Application No :NA  
Filing Date :NA  
(87) International Publication No : NA  
(61) Patent of Addition to Application  
Number :NA  
Filing Date :NA  
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Filing Date :NA

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(57) Abstract :

ABSTRACT The assessment process for automobile accident insurance claims is frequently intricate, · labor-intensive, and susceptible to errors or fraudulent activities owing to manual review techniques. This innovation presents an AT-driven system that employs deep learning techniques to autonomously evaluate the degree of vehicle damage after an accident. The technology utilizes image recognition and analysis to precisely assess damage severity, which is subsequently employed to determine a fair and objective insurance claim value. A Genetic Algorithm (GA) is employed to optimize the prediction ·process and improve accuracy. This invention utilizes artificial intelligence and evolutionary computation to enidicate false claims, underclaims, and overclaims, so assuring a transparent, efficient, and reliable insurance assessment process.

No. of Pages : 12 No. of Claims : 6

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :18/06/2025

(21) Application No.202541058404 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : REAL-TIME EARTHQUAKE EARLY WARNING AND AGRICULTURAL SAFETY SYSTEM USING RTOS AND NODEMCU WITH INTEGRATED LANDSLIDE RISK ASSESSMENT

(51) International classification :G08B0021100000, G01V0001010000, G01V0001220000, G01V0001180000, G01V0001280000

(86) International Application No :NA

Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA

Filing Date :NA

(62) Divisional to Application Number :NA

Filing Date :NA

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(57) Abstract :

Abstract This innovation introduces a Real-Time Earthquake Early Warning System (EEWS) based on a Real-Time Operating System (RTOS) framework, intended to provide swift, accurate, and directional seismic detection. This system employs embedded technologies like NodeMCU with built-in Wi-Fi, enabling immediate data collecting, processing, and wireless alert transmission to pertinent stakeholders, including farmers, disaster response teams, and local authorities. This system, unlike traditional EEWS solutions that provide broad alerts, features directional seismic wave detection, allowing for the identification of both the epicenter's direction and intensity. This information facilitates dynamic risk mapping and prioritization of evacuation tactics according to the anticipated severity in designated zones. The system incorporates a landslide susceptibility assessment module alongside seismic detection, which evaluates topography parameters, soil moisture, and seismic activity to predict landslide likelihood in susceptible agricultural areas. This feature is especially beneficial in mountainous regions and areas with substantial precipitation, where landslides present considerable risks after earthquake occurrences. The system transmits real-time notifications via Wi-Fi using NodeMCU, ensuring that farmers and rural communities typically the most impacted and least connected receive prompt warnings to safeguard their lives, livestock, and agricultural resources. The system prioritizes Health, Safety, and Environmental (HSE) protocols, incorporating alarms, evacuation instructions, and emergency power backup to ensure uninterrupted operation during power outages. The invention enhances the sustainability of agricultural practices by reducing disruptions from natural disasters and bolsters food security and economic stability by maintaining farmland productivity. This integrated system addresses seismic and geotechnical hazards in real-time, bridging a crucial gap in rural disaster preparedness and providing a scalable, cost-effective, and efficient solution for disaster-prone agricultural ... areas.

No. of Pages : 14 No. of Claims : 6

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202541058405 A

(19) INDIA

(22) Date of filing of Application :18/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : IOT-ENABLED AUTOMATIC MOVABLE SMART DUSTBIN WITH 360° VACUUM SUCTION AND AUTONOMOUS WASTE DISPOSAL FOR EFFECTIVE URBAN STREET CLEANING

(51) International classification :B65F0001140000, B65F0001160000, G06Q0050260000, G06Q0010063100, B65F0001120000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

B\_S\_T\_R\_A\_C T\_ ~~~~~ Urban waste management is a complex and resource-demanding endeavor, particularly in heavily populated urban areas. This proposal proposes the creation of a Smart Automatic Movable Dustbin to resolve this issue and enhance garbage collecting efficiency. This advanced waste receptacle is engineered to navigate urban streets autonomously, utilizing a 360-degree vacuum suction system to gather dispersed refuse. The trashcan features motorized wheels and a tracking system that permits 360-degree movement, facilitating access to rubbish from all angles. The motion is regulated via intelligent sensors and energized by a rechargeable battery system, rendering it energy-efficient and appropriate for uninterrupted operation during designated hours. The dustbin functions from 12:00 AM to 5:00AM, a timeframe characterized by limited human and vehicular traffic, hence assuring optimal cleaning with diminished risk and interruption. An inbuilt infrared sensor assesses the interior fill level of the trashcan. Upon reaching about 70% capacity, the bin transmits an automatic notification to the waste collection personnel via a GSM module. Furthermore, IoT technology facilitates the transmission of this status to the centralized waste management system for real-time oversight. The dustbin may autonomously navigate to the nearest disposal location where a garbageman will ,unload the gathered waste, either according to a timetable or when it is full. This system integrates intelligent .mobility, vacuum-based garbage collection, real-time monitoring, and autonomous disposal, therefore substantially diminishing manual labor requirements, enhancing operational efficiency, and fostering a cleaner, more intelligent, and sustainable urban environment. Multiple smart trashcans will be deployed to ensure more effective results. The initial implementation will begin in a remote rural area, such as a village. Following successful outcomes, the project is expected to gain government interest, leading to wider recognition and potential global adoption

No. of Pages : 10 No. of Claims : 6

(54) Title of the invention : HYBRID PASSIVE VEHICLE CABIN COOLING SYSTEM UTILIZING ADIABATIC EXPANSION AND THERMOELECTRIC AUGMENT

|                                               |                                                                                 |                                                                                                                                             |
|-----------------------------------------------|---------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------|
| (51) International classification             | :B60H0001000000, B01D0053260000, F24F0005000000, B60K0016000000, A47C0007740000 | (71)Name of Applicant :<br><b>1)B. Ganeshkumar</b><br>Address of Applicant :PLOT NO 16 3RD STREET PRIYA NAGAR III<br>URAPAKKAM 603210 ----- |
| (86) International Application No             | :NA                                                                             | <b>Name of Applicant : NA</b>                                                                                                               |
| Filing Date                                   | :NA                                                                             | <b>Address of Applicant : NA</b>                                                                                                            |
| (87) International Publication No             | : NA                                                                            | (72)Name of Inventor :                                                                                                                      |
| (61) Patent of Addition to Application Number | :NA                                                                             | <b>1)B. Ganeshkumar</b>                                                                                                                     |
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| (62) Divisional to Application Number         | :NA                                                                             |                                                                                                                                             |
| Filing Date                                   | :NA                                                                             |                                                                                                                                             |

(57) Abstract :

ABSTRACT This invention presents a hybrid passive and active vehicle cabin cooling system designed to deliver effective thermal comfort without relying on traditional engine-driven air conditioning. The system is particularly suited for commercial vehicles operating in hot and humid environments, where conventional cooling solutions are energy-intensive and expensive. At the core of the invention is an integrated architecture that harnesses the kinetic energy from vehicle motion, transforming natural airflow into a multi-stage cooling mechanism independent of engine power. The system utilizes a combination of passive airflow harnessing, thermodynamic expansion, thermoelectric fine-tuning and humidity control to deliver localized, efficient cooling. The process begins with aerodynamically optimized air intake ducts, positioned strategically at the vehicle's front or side panels to capture ambient airflow generated during motion. These ducts, equipped with adjustable louvers and debris filtration, funnel the incoming air into a roof-integrated flexible bladder. Constructed from multilayer polymer composites, this bladder serves both as a compressed air reservoir and as a buffer for noise, vibration and harshness (NVH). As the vehicle moves, air accumulates and compresses within this bladder. When cooling is needed, a controlled Qj expansion valve, actuated by a central control unit, releases the compressed air into the CI m system's ductwork. The valve precisely modulates air flow and pressure drop, ensuring optimal adiabatic expansion. This rapid expansion triggers a temperature drop, yielding cool air without the need for refrigerants. Downstream of the expansion process, a dedicated moisture removal unit utilizing either desiccant absorption or condensate separation extracts excess humidity from the cooled air, preventing cabin fogging and improving comfort. The dehumidified, chilled air then passes through an array of thermoelectric Peltier modules situated near the air outlets. These modules, powered by low-voltage electricity, provide targeted, responsive cooling that creates localized micro-climates for occupants. Finally, a system of ceiling-mounted ducts and adjustable vents distributes the conditioned air efficiently throughout the cabin. A low-power blower ensures continuous air circulation when the vehicle is stationary, drawing from the bladder's stored air supply. A centralized control unit governs all system operations by monitoring real-time data on bladder pressure, temperature differentials and vehicle motion. It dynamically coordinates valve actuation, ~ blower operation and Peltier activation.

No. of Pages : 20 No. of Claims : 10

(54) Title of the invention : SOURCE-LEVEL PLASTIC REFORMING DEVICE FOR UNSORTED WASTE UTILIZING SUB-MELTING SCREW-BASED DENSIFICATION INTO DISC-SHAPED BLOCKS

|                                               |                                                                                 |                                                                                                                                             |
|-----------------------------------------------|---------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------|
| (51) International classification             | :B29B0017000000, G06F0009500000, B09B0003000000, B29B0017040000, B30B0009300000 | (71)Name of Applicant :<br><b>1)B. Ganeshkumar</b><br>Address of Applicant :PLOT NO 16 3RD STREET PRIYA NAGAR III<br>URAPAKKAM 603210 ----- |
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| (87) International Publication No             | : NA                                                                            | (72)Name of Inventor :                                                                                                                      |
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| (62) Divisional to Application Number         | :NA                                                                             |                                                                                                                                             |
| Filing Date                                   | :NA                                                                             |                                                                                                                                             |

(57) Abstract :  
The present invention discloses a compact, decentralized device for reforming mixed plastic packaging waste such as films, wrappers, multilayered packaging directly at the point of generation. The device utilizes thermomechanical densification via controlled heating and mechanical compression within a screw conveyor system, eliminating the need for pre-sorting by polymer type. Key components include a feed hopper for unsorted input, a screw conveyor within a heated barrel for conveying and softening plastic, a compression zone for densification, a cutting mechanism producing disc-shaped blocks and a cooling section for stabilization. The device operates without melting or extrusion, the process transforms waste into dense, solid, inert blocks that are non-toxic, non-leaching and odor-free. This results in significant volume reduction, facilitating efficient storage, transportation, and simplified downstream recycling. The device incorporates safety features such as thermal insulation, emergency shutoff, child lock, energy-efficient operation, and user-friendly controls suitable for domestic and shared environments. By enabling source-level decentralization of plastic waste management, this Q) approach provides a scalable solution to reduce littering, free storage space, prevent climate pollution and improve feedstock logistics for recyclers, fundamentally differing from conventional centralized sorting-grinding-melting-extrusion recycling systems.

No. of Pages : 13 No. of Claims : 10



(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :18/06/2025

(21) Application No.202541058468 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : HAND WRITING DETECTION AND EVALUATION

(51) International classification :G06N0003045000, G06N0003080000, G06V0030320000, G06F0018214000, G06N0003048000  
(86) International Application No :NA  
Filing Date :NA  
(87) International Publication No : NA  
(61) Patent of Addition to Application Number :NA  
Filing Date :NA  
(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

ARSTRACT OF THE INVENTION L~ A ~j. ~ ~,.)f'"· Mr.V S.Nikyn Mr.S.Narran This project presents a handwriting prediction system that utilizes deep learning techniques to recognize handwritten digits in real time. The system features a user-friendly web interface developed with HTML and JavaScript, allowing users to draw digits on a digital canvas. The backend, built with Python and Flask, processes the input image and uses a Convolutional Neural Network (CNN) trained on the MNIST dataset to predict the digit. The application demonstrates the practical use of artificial intelligence in handwriting recognition, offering potential applications in education, automated assessments, and digital form processing. The project emphasizes accuracy, speed, and scalability for future enhancements. project presents a handwriting prediction system that utilizes deep learning techniques to recognize handwritten digits in real time. The system features a user-friendly web interface developed with HTML and JavaScript, allowing users to draw digits on a digital canvas. The backend, built with Python and Flask, processes the input image and uses a Convolutional Neural Network (CNN) trained on the MNIST dataset to predict the digit. The application demonstrates the practical use of artificial intelligence in handwriting recognition, offering potential applications in education, automated assessments, and digital form processing. The project emphasizes accuracy, speed, and scalability for future enhancements.

No. of Pages : 3 No. of Claims : 1

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202541058564 A

(19) INDIA

(22) Date of filing of Application :18/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : BUOYANT FORCE DRIVEN RENEWABLE ENERGY GENERATION SYSTEM USING MULTI-STAGE GEAR MECHANISM AND CONTROLLED WATER TRANSFER

(51) International classification :F03B0017020000, F03B0013060000, F03D0009000000, F03B0017000000, F03B0013180000

(86) International Application No :NA

Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA

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(62) Divisional to Application Number :NA

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(57) Abstract :

The invention discloses a system for generating electricity by utilizing buoyant force produced by floating containers in water tanks. The system comprises one or more water tanks, buoyant containers, a rope-and-pulley mechanism, a gear assembly, and an electric generator. As water levels rise in the tank, the buoyant containers ascend and pull the rope, thereby rotating a shaft connected to a gear system. The gear assembly amplifies the mechanical motion, achieving high rotational speed suitable for electricity generation. Water transfer between tanks is managed through a water motor or siphoning mechanism to enable continuous operation. The system functions independently of solar, wind, or hydro sources, providing a compact and location-independent renewable energy solution.

No. of Pages : 11 No. of Claims : 9

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :19/06/2025

(21) Application No.202541058728 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : METHOD FOR JEWELLERY CASTING USING 3D PRINTED PROTOTYPES AND VACUUM INVESTMENT PROCESS

(51) International classification :B22C0009040000, B22C0007020000, A44C0027000000, B22D0018060000, B22C0009100000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

With the rising complexity of manufacturing processes driven by advanced technological demands, particularly in the handicraft sector, traditional jewellery production faces limitations in meeting international market dynamics. Intricate jewellery designs are increasingly difficult to produce manually. However, advanced technologies like 3D printing are revolutionizing jewellery design and manufacturing, enabling the creation of high-quality products with reduced labour and production time. This study explores the use of investment casting integrated with 3D printed prototypes in jewellery manufacturing. Using the 'Angled Ring' design as a case study, the research outlines the complete process, from digital prototyping to vacuum-assisted lost wax casting, utilizing vacuum casting machines and burnout ovens. The casting process was analyzed in detail to evaluate outcomes. The findings contribute to a deeper understanding of modern casting techniques and highlight the future potential of integrating digital fabrication technologies in the jewellery industry

No. of Pages : 5 No. of Claims : 6

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :19/06/2025

(21) Application No.202541058732 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : IOT-ENABLED AUTONOMOUS FOOD WASTE COMPOSITING POD WITH SENSOR-BASED MICROBIAL OPTIMIZATION

(51) International classification :A61B0005000000, C05F0009020000, C05F0017500000, B09B0003000000, C05F0017200000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

Abstract The novelty and technical feasibility of this invention are illustrated by an IoTEnabled Autonomous Food Waste Composting Pod with Sensor-Based Microbial Optimization, which will solve the current global food waste problem by composting the food waste to be utilized as a fertilizer, all to be done automatically and efficiently. The system combines complicated sensor technology with smart control algorithms and connectivity through the Internet of Things (IoT) to provide an optimum microbial environment to decompose. In the composting pod, the composting chamber/reactor is durable where wastes of food are left to be processed. There is a hi-tech Sensor Array that constantly checks key parameters inside of this chamber, such as temperature, water, and gas compositions (e.g., CO<sub>2</sub>, methane, oxygen), and pH, giving instant feedback on the process of composting and microbe wellness. This data is in turn relayed through an IoT Connectivity Module to a Microcontroller/Processing Unit. Being the brain of the system, this unit will analyze the data collected by the sensors through the readyprogrammed algorithms to establish the optimum conditions to activate microbe. On the basis of this analysis the processing unit instructs an Actuation System for Optimization to do fine-tunings. This actuating mechanism allows controlling the degree of aeration with the help of fans, moisture content with the help of pumps or misters, and the activation of mixing or turning processes in order to maintain an even composition and a good distribution of oxygen. The computer control closedloop feedback system has the potential of automatically optimizing the composting environment, causing the compost to decompose rapidly, and producing excellent quality compost. The integration of IoT also allows remote control and observance, which provides ultimate convenience and effectiveness in terms of food waste management. This invention offers a long-term and automatic means of minimizing land fill trash and creates a useful soil amendment.

No. of Pages : 8 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202541058738 A

(19) INDIA

(22) Date of filing of Application :19/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : DOOR COLLISION AVOIDING SYSTEM&NBSP;FOR HUMAN BEINGS

(51) International classification

:G08G0001160000, B60Q0001320000, E05F0015720000, E05F0015730000, E05G0005020000

(86) International Application No  
Filing Date

:NA  
:NA

(87) International Publication No

: NA

(61) Patent of Addition to Application Number  
Filing Date

:NA  
:NA

(62) Divisional to Application Number  
Filing Date

:NA  
:NA

(71)Name of Applicant :

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(57) Abstract :

Accidents are happened to human beings by various reasons. One of the n1ajor hazards often overlooked in many workplaces is, opening a door which could be so dangerous. If a door is pushed, it's swing along a set path can be observed. Anyone standing in that path way will be hit by the door, due to the swing and may results in terrible injuries. Unfortunately, tliere is no provisions to see the persons coming either side, as most facilities have solid doors that do not have windows. To overcome this problem, the present work aims to construct a safety device to eliminate the accident caused by door collision. The objective of the proposed device is fulfilled by employing sensors to avoid injury to the person on the other side of door when the door is opeiled. The ultra-sonic sensor helps to detect the person who is going to open the door and the information is send in the form of signal or alarm. The indication is kept on the other side, so that the person on the other side will able to recognize that someone is about to open the door, so that he will remain alert and any possible collision can be avoided

No. of Pages : 10 No. of Claims : 1

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202541058842 A

(19) INDIA

(22) Date of filing of Application :19/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : HAND OPERATED LIFTING JACK USING BEVEL GEARS

(51) International classification :B66F3/16, B66F7/12  
(86) International Application No :NA  
Filing Date :NA  
(87) International Publication No : NA  
(61) Patent of Addition to Application Number :NA  
Filing Date :NA  
(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

Lifting and rising of loads is a part of regular activity in industry for various reasons. It requires adequate skill, expertise and attention while rising the load to avoid any incidents. Operators may inadvertently exceed the maximum load capacity risking equipment damage, and safety hazards, necessitating additional effort to address the situation. Further, two or more members are required to rise the load and the workers may become fatigue quickly. To overcome these limitations, a user-friendly device has been proposed and fabricated. The device is a hand operated lifting jack with a bevel gear arrangement identical to that of a screw jack. It is used to lift the weights back and forth from the bottom to the top. Bevel gears are used in this setup rather than worm gears that were used in screw jacks. This setup does not harm the screw threads quickly. The bevel gear design of the lifting jack makes it exceedingly portable. The hand operated lifting jack is used to lift heavy loads vertically by converting rotational motion into linear motion. It is designed to effortlessly lift heavy loads by applying relatively smaller forces.

No. of Pages : 9 No. of Claims : 1

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202541058881 A

(19) INDIA

(22) Date of filing of Application :19/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : HYBRID ENERGY DRYER MACHINE FOR MATCHSTICK DRYING

(51) International classification :C06F0005000000, F26B0021000000, F26B0025000000, F26B0021040000, B60L0015200000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

ABSTRACT A hybrid energy dryer machine for matchstick drying, an energy-efficient, fully automatic hybrid dryer machine designed for industrial-scale matchstick drying. It utilizes a dual energy system combining wood-fire:l heat and electricity-powered blowers and conveyors. A dual conveyor mechanism enables bi-directional heat application for complete and uniform drying. The system features an innovative heat recycling process that redirects partially spent air back into the heat exchanger, reducing fresh fuel requirements by up to 50%. Additionally, matchstick production waste serves as fuel, promoting a zero-waste manufacturing process. This design lowers operational costs, minimizes environmental impact, and improves drying efficiency and product quality

No. of Pages : 10 No. of Claims : 5

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202541058892 A

(19) INDIA

(22) Date of filing of Application :19/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : WEARABLE WILDLIFE DETERRENT SYSTEM FOR HUMAN SAFETN SAFETY IN TIGER-PRONE REGIONS

(51) International classification :A61B0005000000, G08B0025010000, A01M0029160000, G08B0015000000, A01M0029100000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

ABSTRACT OF THE INVENTION The present invention relates to a wearable wildlife deterrent system specifically designed to enhance human safety in regions prone to tiger \_ encounters. The system integrates multi-sensory deterrent technologies 15 including ultrasonic emitters, strobe lighting, and directional sound within a compact, wearable module suitable for attachment to clothing, belts, or backpacks. Triggered either manually or automatically through a proximitybased motion sensor and thermal detection module, the device emits stimuli proven to deter large predators without causing them harm. The invention 20 also incorporates a GPS-enabled alert system that transmits the wearer's location and danger signal to nearby forest patrol units or emergency contacts via a connected mobile application. Designed for forest workers, villagers, and trekkers, the system ensures non-invasive deterrence, realtime tracking, and enhanced situational awareness in wildlife-human conflict 25 zones, thereby reducing the risk of fatal encounters and supporting conservation efforts.

No. of Pages : 11 No. of Claims : 5



(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :19/06/2025

(21) Application No.202541058893 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : DEEP LEARNING-BASED RECOGNITION AND ANALYSIS OF TAMIL ANCIENT INSCRIPTIONS

|                                               |                                                                                 |                                                                                                                                                               |
|-----------------------------------------------|---------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (51) International classification             | :G06V0030100000, G06V0030148000, G06V0030400000, G06V0020620000, G06V0030280000 | (71)Name of Applicant :<br><b>1)EASWARI ENGINEERING COLLEGE</b><br>Address of Applicant :162,BHARATHI SALAI,RAMAPURAM CHENNAI, TAMILNADU, INDIA-600089. ----- |
| (86) International Application No             | :NA                                                                             | <b>Name of Applicant : NA</b>                                                                                                                                 |
| Filing Date                                   | :NA                                                                             | <b>Address of Applicant : NA</b>                                                                                                                              |
| (87) International Publication No             | : NA                                                                            | (72)Name of Inventor :                                                                                                                                        |
| (61) Patent of Addition to Application Number | :NA                                                                             | <b>1)Dr. R. Anand</b><br>Address of Applicant :162,BHARATHI SALAI,RAMAPURAM CHENNAI, TAMILNADU, INDIA-600089. -----                                           |
| Filing Date                                   | :NA                                                                             | <b>2)M. Abhimanyu</b><br>Address of Applicant :162,BHARATHI SALAI,RAMAPURAM CHENNAI, TAMILNADU, INDIA-600089. -----                                           |
| (62) Divisional to Application Number         | :NA                                                                             | <b>3)A.Ashvinraja</b><br>Address of Applicant :162,BHARATHI SALAI,RAMAPURAM CHENNAI, TAMILNADU, INDIA-600089. -----                                           |
| Filing Date                                   | :NA                                                                             | <b>4)S. Dinakar Raj Pandian</b><br>Address of Applicant :162,BHARATHI SALAI,RAMAPURAM CHENNAI, TAMILNADU, INDIA-600089. -----                                 |

(57) Abstract :

ABSTRACT OF THE INVENTION "Deep Learning-Based Recognition and Analysis of Tamil Ancient Inscriptions" provides a novel algorithmic approach for character recognition and contextual analysis of temple inscriptions, specifically focusing on Tamil ancient script. The methodology combines advanced preprocessing techniques, deep learning models, and contextual analysis to address the challenges posed by noisy images, script variations and historical context understanding. The proposed method employs image preprocessing techniques such as noise reduction, edge detection, and contrast enhancement to improve text recognition accuracy. This process involves character recognition, historical script comparison and linguistic translation to bridge the gap between ancient and modern Tamil language formats. The model's ability to recognize characters from multiple scripts underscores its adaptability to diverse inscriptions. It provides a comprehensive and efficient solution for character recognition and contextual analysis of temple inscriptions in Tamil ancient script. It advances the field of epigraphy and historical research, facilitating the digital preservation and exploration of historical and cultural heritage contained within these inscriptions.

No. of Pages : 12 No. of Claims : 7

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202541058894 A

(19) INDIA

(22) Date of filing of Application :19/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : ROADWAY-INTEGRATED MECHANICAL POWER GENERATOR FOR VEHICULAR ENERGY HARVESTING

|                                                                                                                                                                                                                                                                                                                                                                                           |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>(51) International classification :H02N0002180000, G07B0015060000, F03B0013100000, F03G0005060000, F03G0007080000</p> <p>(86) International Application No :NA<br/>Filing Date :NA</p> <p>(87) International Publication No : NA</p> <p>(61) Patent of Addition to Application Number :NA<br/>Filing Date :NA</p> <p>(62) Divisional to Application Number :NA<br/>Filing Date :NA</p> |  | <p>(71)<b>Name of Applicant :</b><br/><b>1)EASWARI ENGINEERING COLLEGE</b><br/>Address of Applicant :162,BHARATHI SALAI,RAMAPURAM CHENNAI, TAMILNADU, INDIA-600089. -----</p> <p><b>Name of Applicant : NA</b><br/><b>Address of Applicant : NA</b></p> <p>(72)<b>Name of Inventor :</b><br/><b>1)Dr R M Sathiya Moorthy</b><br/>Address of Applicant :162,BHARATHI SALAI,RAMAPURAM CHENNAI, TAMILNADU, INDIA-600089. -----</p> <p><b>2)Dr H Vinoth kumar</b><br/>Address of Applicant :162,BHARATHI SALAI,RAMAPURAM CHENNAI, TAMILNADU, INDIA-600089. -----</p> <p><b>3)S.Vishnuvenugopal</b><br/>Address of Applicant :162,BHARATHI SALAI,RAMAPURAM CHENNAI, TAMILNADU, INDIA-600089. -----</p> <p><b>4)S Rishi</b><br/>Address of Applicant :162,BHARATHI SALAI,RAMAPURAM CHENNAI, TAMILNADU, INDIA-600089. -----</p> <p><b>5)S Srinath</b><br/>Address of Applicant :162,BHARATHI SALAI,RAMAPURAM CHENNAI, TAMILNADU, INDIA-600089. -----</p> |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

(57) Abstract :

ABSTRACT OF THE INVENTION The invention relates to a roadway-based energy harvesting system designed to convert vehicle-induced mechanical motion into electrical energy. It features a compressible platform (101) that activates a rack and pinion mechanism (102), which transmits motion through a bevel gear (103) and flywheel (104) to a generator (105). The generated power is stored in a battery unit (106). The system is supported by a frame (107) and includes a servo reset mechanism (108). Optimized for speed breakers and toll plazas, the design is modeled using CATIA. It provides a decentralized, sustainable power solution for roadside infrastructure.

No. of Pages : 10 No. of Claims : 6

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :19/06/2025

(21) Application No.202541058895 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : REAL-TIME FAULT IDENTIFICATION IN INDUCTION MOTORS USING WIRELESS SENSOR NETWORKS

|                                               |      |                                                                                 |                                                                                                                                                               |
|-----------------------------------------------|------|---------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (51) International classification             |      | :H04W0084180000, G05B0023020000, H04W0024040000, G01M0013040000, G01R0031340000 | (71)Name of Applicant :<br><b>1)EASWARI ENGINEERING COLLEGE</b><br>Address of Applicant :162,BHARATHI SALAI,RAMAPURAM CHENNAI, TAMILNADU, INDIA-600089. ----- |
| (86) International Application No             | :NA  |                                                                                 | <b>Name of Applicant : NA</b>                                                                                                                                 |
| Filing Date                                   | :NA  |                                                                                 | <b>Address of Applicant : NA</b>                                                                                                                              |
| (87) International Publication No             | : NA |                                                                                 | (72)Name of Inventor :<br><b>1)HARIHARANB</b><br>Address of Applicant :162,BHARATHI SALAI,RAMAPURAM CHENNAI, TAMILNADU, INDIA-600089. -----                   |
| (61) Patent of Addition to Application Number | :NA  |                                                                                 | <b>2)NIHILAN U N</b><br>Address of Applicant :162,BHARATHI SALAI,RAMAPURAM CHENNAI, TAMILNADU, INDIA-600089. -----                                            |
| Filing Date                                   | :NA  |                                                                                 | <b>3)SHIRTHIK S</b><br>Address of Applicant :162,BHARATHI SALAI,RAMAPURAM CHENNAI, TAMILNADU, INDIA-600089. -----                                             |
| (62) Divisional to Application Number         | :NA  |                                                                                 | <b>4)SURESH V</b><br>Address of Applicant :162,BHARATHI SALAI,RAMAPURAM CHENNAI, TAMILNADU, INDIA-600089. -----                                               |
| Filing Date                                   | :NA  |                                                                                 |                                                                                                                                                               |

(57) Abstract :

ABSTRACT OF THE INVENTION 10 The invention presents a wireless sensor network (WSN) system for real-time monitoring and fault detection of three-phase induction motors. The system integrates temperature, vibration, current, and voltage sensors, which wirelessly transmit data to a central unit for analysis. The central unit uses advanced algorithms, including machine learning techniques, to identify and 15 classify potential faults, such as electrical issues (e.g., overload, single phasing) and mechanical failures (e.g., bearing wear, rotor imbalance). The system provides early fault detection, enabling proactive maintenance, reducing downtime, and extending motor lifespan. Additionally, it offers a user-friendly graphical interface for remote monitoring, allowing operators to 20 25 30 track motor health and receive real-time alerts. The wireless nature of the system simplifies installation and maintenance, while its scalable design allows for monitoring multiple motors in industrial environments. This solution enhances motor reliability, reduces maintenance costs, and improves operational efficiency in industries utilizing three-phase induction motors.

No. of Pages : 21 No. of Claims : 2

(54) Title of the invention : REVOLUTIONIZING ANGIOGRAPHY-AI BASED DIAGNOSTICS

|                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <div>(51) International classification</div> <div>(86) International Application No</div> <div>Filing Date</div> <div>(87) International Publication No</div> <div>(61) Patent of Addition to Application Number</div> <div>Filing Date</div> <div>(62) Divisional to Application Number</div> <div>Filing Date</div> | <div>:G06N0003045000, G06N0003080000, G16H0050200000, A61B0005000000, G06T0007000000</div> <div>:NA</div> <div>:NA</div> <div>: NA</div> <div>:NA</div> <div>:NA</div> <div>:NA</div> <div>:NA</div> | <div>(71)Name of Applicant :</div> <div>1)EASWARI ENGINEERING COLLEGE</div> <div>Address of Applicant :162,BHARATHI SALAI,RAMAPURAM CHENNAI, TAMILNADU, INDIA-600089. -----</div> <div>Name of Applicant : NA</div> <div>Address of Applicant : NA</div> <div>(72)Name of Inventor :</div> <div>1)Dr. V. Nirmala</div> <div>Address of Applicant :162,BHARATHI SALAI,RAMAPURAM CHENNAI, TAMILNADU, INDIA-600089. -----</div> <div>2)Dr. V. Vidhya</div> <div>Address of Applicant :162,BHARATHI SALAI,RAMAPURAM CHENNAI, TAMILNADU, INDIA-600089. -----</div> <div>3)Dr. K.P.Revathi</div> <div>Address of Applicant :162,BHARATHI SALAI,RAMAPURAM CHENNAI, TAMILNADU, INDIA-600089. -----</div> <div>4)Akshara C V</div> <div>Address of Applicant :162,BHARATHI SALAI,RAMAPURAM CHENNAI, TAMILNADU, INDIA-600089. -----</div> <div>5)Kavya V</div> <div>Address of Applicant :162,BHARATHI SALAI,RAMAPURAM CHENNAI, TAMILNADU, INDIA-600089. -----</div> <div>6)Varsha I</div> <div>Address of Applicant :162,BHARATHI SALAI,RAMAPURAM CHENNAI, TAMILNADU, INDIA-600089. -----</div> |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

(57) Abstract :  
ABSTRACT OF THE INVENTION This invention discloses a system (1 00) for non-invasive, AI-d riven diagnosis of cardiovascular diseases using angiographic images from heart CT scans. The system utilizes a convolutional neural network (CNN)-based deep learning architecture (105) to analyze vascular structures and detect abnormalities such as blockages, aneurysms, and stenosis. The model training process (106) incorporates expert-annotated datasets and is optimized using data augmentation (107) and cross-validation techniques (108) to enhance prediction accuracy. Input images undergo preprocessing steps including contrast enhancement (102), noise reduction (103), and edge detection (104) using MATLAB-based tools to ensure clarity and consistency. The system outputs real-time diagnostic reports with severity scoring (109) and AI-generated treatment recommendations (110), providing clinicians with actionable insights to support timely and effective medical decisions. The final output includes visual overlays and probability scores that indicate the severity of vascular conditions, enabling early intervention and improved patient outcomes.

No. of Pages : 10 No. of Claims : 4

(54) Title of the invention : ROBUST DRONE FRAME DESIGN WITH MODAL ANALYSIS FOR VIBRATION RESISTANT FLIGHT

|                                                                                                                                                                                                                                                                                                                                                                                                               |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <div>(51) International classification :G06F0030230000, B64C0039020000, G06F0030170000, G06F0030150000, G06F0111040000</div> <div>(86) International Application No :NA<br/>Filing Date :NA</div> <div>(87) International Publication No : NA</div> <div>(61) Patent of Addition to Application Number :NA<br/>Filing Date :NA</div> <div>(62) Divisional to Application Number :NA<br/>Filing Date :NA</div> |  | <div>(71)Name of Applicant :<br/>1)Dr.S.GNANASEKARAN<br/>Address of Applicant :ASSOCIATE PROFESSOR, DEPARTMENT OF MECHANICAL ENGINEERING, SRI SHAKTHI INSTITUTE OF ENGINEERING AND TECHNOLOGY, SRI SHAKTHI NAGAR, L&amp;T BY-PASS, CHINNIYAMPALAYAM POST, COIMBATORE - 641062 -----<br/>-----<br/>2)C.NITHYADHARAN<br/>3)D.VIVEK<br/>4)Dr.A.ARUN NEGEMIYA<br/>Name of Applicant : NA<br/>Address of Applicant : NA<br/>(72)Name of Inventor :<br/>1)Dr.S.GNANASEKARAN<br/>Address of Applicant :ASSOCIATE PROFESSOR, DEPARTMENT OF MECHANICAL ENGINEERING, SRI SHAKTHI INSTITUTE OF ENGINEERING AND TECHNOLOGY, SRI SHAKTHI NAGAR, L&amp;T BY-PASS, CHINNIYAMPALAYAM POST, COIMBATORE - 641062 -----<br/>-----<br/>2)C.NITHYADHARAN<br/>Address of Applicant :PG STUDENT M.E CAD/CAM ENGINEERING, SRI SHAKTHI INSTITUTE OF ENGINEERING AND TECHNOLOGY, SRI SHAKTHI NAGAR, L&amp;T BY-PASS, CHINNIYAMPALAYAM POST, COIMBATORE - 641062 -----<br/>3)D.VIVEK<br/>Address of Applicant :PG STUDENT M.E CAD/CAM ENGINEERING, SRI SHAKTHI INSTITUTE OF ENGINEERING AND TECHNOLOGY, SRI SHAKTHI NAGAR, L&amp;T BY-PASS, CHINNIYAMPALAYAM POST, COIMBATORE - 641062 -----<br/>4)Dr.A.ARUN NEGEMIYA<br/>Address of Applicant :ASSOCIATE PROFESSOR, DEPARTMENT OF AEROSPACE ENGINEERING, SNS COLLEGE OF TECHNOLOGY (AN AUTONOMOUS INSTITUTION), SARAVANAMPATTI COIMBATORE TAMIL NADU INDIA 641035 -----</div> |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

(57) Abstract :  
The growing integration of drones in diverse industries necessitates a structurally robust frame to ensure operational safety and reliability during dynamic flight. This study presents a detailed design and vibrational analysis of a quadcopter drone frame to evaluate its behavior under flight-induced conditions. The frame was parametrically designed in SolidWorks with a focus on achieving a lightweight yet mechanically resilient structure. Carbon fiber, with a high stiffness-to-weight ratio and a Young's modulus of 230 GPa, was chosen as the material. The 3D CAD model was analyzed using ANSYS Workbench for both modal and harmonic response evaluations. A high-resolution mesh, consisting of over 97,000 nodes and 52,000 elements, ensured precision in the results. The first six mode shapes, observed at frequencies below 0.01 Hz, indicated negligible or rigid body motion, while the primary elastic modes occurred at 765.5 Hz, 790.47 Hz, and 841.16 Hz-safely above the operational rotor frequency range, thus eliminating the risk of resonance. Harmonic response analysis simulated aerodynamic loads over a frequency range of 0-800 Hz. Results indicated a maximum deformation of 1.1443 mm and a peak von Mises stress of 201.34 MPa, both within the safety limits of the selected material. Strain and stress distribution confirmed the structural integrity under dynamic loading conditions. This comprehensive analysis validates the drone frame's resilience and safety for aerial operations, highlighting the critical role of modal analysis in early-stage drone design for ensuring performance reliability and structural durability.

No. of Pages : 6 No. of Claims : 4

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202541058915 A

(19) INDIA

(22) Date of filing of Application :19/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : ZOO-MEDIATED SILVER NANOPARTICLES MOUTHWASH FORMULATION FOR ANTI-ORAL CANCER ACTIVITY

|                                                                                                                                                                                                                                                                                                                                                                                           |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>(51) International classification :A61Q0011000000, A61K0033380000, A61K0009510000, A61K0008190000, A61P0035000000</p> <p>(86) International Application No :NA<br/>Filing Date :NA</p> <p>(87) International Publication No : NA</p> <p>(61) Patent of Addition to Application Number :NA<br/>Filing Date :NA</p> <p>(62) Divisional to Application Number :NA<br/>Filing Date :NA</p> |  | <p>(71)<b>Name of Applicant :</b><br/><b>1)SRM Dental College</b><br/>Address of Applicant :162,BHARATHI SALAI, CHENNAI, TAMILNADU, INDIA,600089 -----<br/><b>Name of Applicant : NA</b><br/><b>Address of Applicant : NA</b><br/>(72)<b>Name of Inventor :</b><br/><b>1)Dr R.SHUNMUGA VADIVU</b><br/>Address of Applicant :Department of Biochemistry, SRM Dental College, 162,BHARATHI SALAI, CHENNAI, TAMILNADU, INDIA,600089 -----<br/>-----<br/><b>2)Dr.R.KARNAN</b><br/>Address of Applicant :Harman institute of research and technology, 92 baskarapuram Thanjavur TAMILNADU INDIA 613005 -----<br/><b>3)M.S KISHORE</b><br/>Address of Applicant :Department of Biochemistry, SRM Dental College, Bharathi Salai, Ramapuram Chennai,Tamilnadu, 600089 -----<br/><b>4)K.THIVYA THARSENI</b><br/>Address of Applicant :Department of Biochemistry, SRM Dental College, Bharathi Salai, Ramapuram CHENNAI TAMILNADU India, 600089 -----<br/><b>5)Dr.S.NIRMALA</b><br/>Address of Applicant :Department of Biochemistry, SRM Dental College, Bharathi Salai, Ramapuram CHENNAI State TAMILNADU Country INDIA Pin code 600089 -----</p> |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

(57) Abstract :

Abstract The biosynthesis of silver nanoparticles (AgNPs) offers a sustainable, eco-friendly alternative to conventional synthesis methods. This study utilized the marine sponge Hyattella intestinalis for the green synthesis of zoo-mediated AgNPs, leveraging its zoochemicals to reduce Ag<sup>+</sup> ions to Ag<sup>0</sup>. The biologically synthesized AgNPs were incorporated into a novel mouthwash formulation with potential anti-oral cancer properties. The cytotoxicity of the AgNP mouthwash was assessed against human oral squamous carcinoma (OECM-1) cells, showing a dose-dependent inhibition with a high correlation (R<sup>2</sup> = 0.99). These findings demonstrate the mouthwash's strong anticancer efficacy. The use of H. intestinalis also ensures minimal environmental impact, avoiding toxic byproducts associated with chemical synthesis. This study highlights the therapeutic potential of zoo-mediated AgNPs as a targeted, environmentally benign treatment for oral cancer, offering a promising alternative to conventional therapies and contributing to advancements in green nanotechnology for biomedical applications.

No. of Pages : 15 No. of Claims : 7

(54) Title of the invention : TRANSPARENT OLED WEARABLE FOR COAL MINERS USING MACHINE LEARNING

|                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <div>(51) International classification</div> <div>(86) International Application No</div> <div>(87) International Publication No</div> <div>(61) Patent of Addition to Application Number</div> <div>(62) Divisional to Application Number</div> <div>Filing Date</div> | <div>:G06Q0010063500, G08B0021140000, G08B0021020000, G08B0025010000, G08B0021180000</div> <div>:NA</div> <div>:NA</div> <div>: NA</div> <div>:NA</div> <div>:NA</div> <div>:NA</div> <div>:NA</div> | <div>(71)Name of Applicant :</div> <div>1)Easwari Engineering College</div> <div>Address of Applicant :BHARATHI SALAI,CHENNAI,TAMILNADU,INDIA. PIN:600089. -----</div> <div>Name of Applicant : NA</div> <div>Address of Applicant : NA</div> <div>(72)Name of Inventor :</div> <div>1)PRIYADHARSHINI R</div> <div>Address of Applicant :Department of Information Technology, Easwari Engineering College, BHARATHI SALAI,CHENNAI,TAMILNADU,INDIA. PIN:600089. -----</div> <div>2)SAUNDARIYA C</div> <div>Address of Applicant :Department of Information Technology, Easwari Engineering College, BHARATHI SALAI,CHENNAI,TAMILNADU,INDIA. PIN:600089. -----</div> <div>3)DR. MARIA KALAVATHY.G</div> <div>Address of Applicant :Department of Information Technology, Easwari Engineering College, BHARATHI SALAI,CHENNAI,TAMILNADU,INDIA. PIN:600089. -----</div> |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

(57) Abstract :  
ABSTRACT OF THE INVENTION This Invention develops a machine learning-based Transparent OLED wearable system for real-time safety monitoring in hazardous environments like coal mines. It continuously analyses environmental data and worker conditions to detect dangers such as harmful gas exposure and temperature fluctuations, providing instant alerts. Equipped with high-sensitivity sensors for temperature, humidity, and gas "detection, it displays real-time data on a transparent OLED screen without obstructing vision. An intelligent alert mechanism, including audible and visual notifications, warns users of threats for prompt action. IoT connectivity via LoRa enables remote monitoring by supervisors. A predictive safety model, trained on historical and real-time data, enhances hazard detection by identifying risks early. Lightweight and wearable, the system ensures situational awareness with minimal distraction. Aligning with SDG 8 and SDG 9, this innovation improves risk management, accident prevention, and worker protection in high-risk industries.

No. of Pages : 20 No. of Claims : 8

(54) Title of the invention : HYBRID ADDITIVE MANUFACTURING SYSTEM INTEGRATING LASER POWDER BED FUSION AND LAYER WISE SANDBLASTING

|                                               |                                                                                 |                                                                                                                                                               |
|-----------------------------------------------|---------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (51) International classification             | :B33Y0010000000, B33Y0030000000, B22F0010280000, B33Y0080000000, B33Y0040000000 | (71)Name of Applicant :<br><b>1)Easwari Engineering College</b><br>Address of Applicant :162,BHARATHI SALAI,RAMAPURAM CHENNAI, TAMILNADU, INDIA-600089. ----- |
| (86) International Application No             | :NA                                                                             | <b>Name of Applicant : NA</b>                                                                                                                                 |
| Filing Date                                   | :NA                                                                             | <b>Address of Applicant : NA</b>                                                                                                                              |
| (87) International Publication No             | : NA                                                                            | (72)Name of Inventor :                                                                                                                                        |
| (61) Patent of Addition to Application Number | :NA                                                                             | <b>1)M.D. Barath Kumar</b><br>Address of Applicant :162,BHARATHI SALAI,RAMAPURAM CHENNAI, TAMILNADU, INDIA-600089. -----                                      |
| Filing Date                                   | :NA                                                                             | <b>2)K. Bragadeeshwaran</b><br>Address of Applicant :162,BHARATHI SALAI,RAMAPURAM CHENNAI, TAMILNADU, INDIA-600089. -----                                     |
| (62) Divisional to Application Number         | :NA                                                                             | <b>3)S. Abhishek Kumar</b><br>Address of Applicant :162,BHARATHI SALAI,RAMAPURAM CHENNAI, TAMILNADU, INDIA-600089. -----                                      |
| Filing Date                                   | :NA                                                                             | <b>4)S. Gnanavel</b><br>Address of Applicant :162,BHARATHI SALAI,RAMAPURAM CHENNAI, TAMILNADU, INDIA-600089. -----                                            |

(57) Abstract :  
ABSTRACT OF THE INVENTION 10 The invention pertains to a hybrid additive manufacturing system that integrates a LPBF process with an in-situ, layer-by-layer sandblasting module. In this configuration, each stratum of metal powder is selectively fused by a high-precision laser, followed by an in-situ sandblasting treatment that cleans and textures the freshly formed surface before to the application of the subsequent powder layer. Th~ design comprises a 15 precision laser scanner, a recoating system, an integrated abrasive nozzle, and a media recovery subsystem contained within an inert chamber. The new technology enhances surface quality, structural integrity, and mechanical performance in 3D-printed metal components. The hybrid system provides substantial benefits for sectors like aerospace, medical, and high-stress engineering components.

No. of Pages : 13 No. of Claims : 6



(12) PATENT APPLICATION PUBLICATION

(21) Application No.202541058935 A

(19) INDIA

(22) Date of filing of Application :19/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : SMART BENCH WITH SENSOR-BASED ATTENDANCE, POSTURE TRACKING, AND LEARNING BEHAVIOUR ANALYTICS

(51) International classification :G06Q0050200000, A61B0005000000, A61B0005110000, G09B0019000000, A61B0005103000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(72)Name of Inventor :

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**2)Dr. V. GOKULA KRISHNAN**

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(57) Abstract :

ABSTRACT OF THE INVENTION This invention presents a smart classroom bench system embedded with sensors to automate student attendance, monitor posture, and analyze learning-related behavior. The bench utilizes load sensors and pressure-mapping arrays to detect seat occupancy and assess postural states such as slouching, leaning, or shifting. A microcontroller 315 processes real-time data locally and communicates with a cloud-based dashboard, enabling educators to view attendance logs, posture heatmaps, and engagement trends. The system includes alert mechanisms to notify instructors when students exhibit prolonged inattention or improper posture. All data acquisition is contactless, non-invasive, and privacy-compliant-no biometric or image-based identification is required. Designed for modular scalability and minimal disruption to classroom routines, 325 this invention transforms passive furniture into an active educational tool that supports well-being, improves monitoring accuracy, and enhances learning outcomes through data-driven insights.

No. of Pages : 15 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202541058936 A

(19) INDIA

(22) Date of filing of Application :19/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : IOT BASED INDOOR LOCALISATION AND SMART MINE MONITORING SYSTEM

|                                               |                                                                                 |                                                                                                                                                               |
|-----------------------------------------------|---------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (51) International classification             | :A61B0005000000, H04L0009400000, H04W0052020000, G08B0021140000, A61B0005024000 | (71)Name of Applicant :<br><b>1)Easwari Engineering College</b><br>Address of Applicant :162,BHARATHI SALAI,RAMAPURAM CHENNAI, TAMILNADU, INDIA-600089. ----- |
| (86) International Application No             | :NA                                                                             | <b>Name of Applicant : NA</b>                                                                                                                                 |
| Filing Date                                   | :NA                                                                             | <b>Address of Applicant : NA</b>                                                                                                                              |
| (87) International Publication No             | : NA                                                                            | (72)Name of Inventor :<br><b>1)VISHNU.P</b><br>Address of Applicant :162,BHARATHI SALAI,RAMAPURAM CHENNAI, TAMILNADU, INDIA-600089. -----                     |
| (61) Patent of Addition to Application Number | :NA                                                                             | <b>2)VASUDEVAN.m</b><br>Address of Applicant :162,BHARATHI SALAI,RAMAPURAM CHENNAI, TAMILNADU, INDIA-600089. -----                                            |
| Filing Date                                   | :NA                                                                             | <b>3)GOKULA VASAN A S</b><br>Address of Applicant :162,BHARATHI SALAI,RAMAPURAM CHENNAI, TAMILNADU, INDIA-600089. -----                                       |
| (62) Divisional to Application Number         | :NA                                                                             | <b>4)Dr. K.V.THILAGAR</b><br>Address of Applicant :162,BHARATHI SALAI,RAMAPURAM CHENNAI, TAMILNADU, INDIA-600089. -----                                       |
| Filing Date                                   | :NA                                                                             |                                                                                                                                                               |

(57) Abstract :

ABSTRACT OF THE INVENTION This project presents an advanced safety alert and real-time monitoring system for coal mines using MIoT technology. The system integrates sensors such as DHT11 (temperature), pressure, heart rate (SP02), and gas sensors to monitor both environmental conditions and 1 o miners' health. A microcontroller collects sensor data and transmits it to a mobile application, enabling real-time tracking. If any sensor detects unsafe levels, an instant alert is sent to a server station. Additionally, an embedded buzzer in miners' helmets provides immediate on-site warnings. To enhance safety, the system automatically triggers a servo motor to open an oxygen 15 cylinder when hazardous gas levels are detected. This proactive approach 20 ensures a rapid response to potential threats, minimizing risks in coal mining operations. By providing continuous monitoring and automated safety measures, the system significantly improves worker safety and operational efficiency in mining environments.

No. of Pages : 16 No. of Claims : 7

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :19/06/2025

(21) Application No.202541058937 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : DEALER DETECT

(51) International classification :H04L0009400000, G06Q0050180000, G06N0020000000, G06F0040300000, H04L0009320000

(86) International Application No :NA

Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA

Filing Date :NA

(62) Divisional to Application Number :NA

Filing Date :NA

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(57) Abstract :

ABSTRACT OF THE INVENTION This solution tackles drug trafficking by using ethical phishing to monitor illicit activities on communication platforms. It starts by ethically phishing drug consumers to install a stealth application that captures text, voice, video, images, and keystrokes. This data is securely uploaded and analyzed by a pre-trained Language Model (LLM) to detect drug-related communications. The system generates real-time reports and dashboards for the cybersecurity department, providing insights into drug trafficking networks. Upon judicial confirmation of a target's involvement, the system extracts the location and contact details using enhanced authentication. This information helps disrupt trafficking activities and identify other potential consumers and dealers. 15 The process adheres to legal and ethical standards, ensuring privacy and rights are protected. By leveraging advanced data analysis and visualization, this solution offers law enforcement a robust framework to combat drug trafficking effectively.

No. of Pages : 12 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202541058938 A

(19) INDIA

(22) Date of filing of Application :19/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : AID TO BLIND: BRAILLE TO TEXT USING BRAILLE KEYWORD AND A SOFTWARE APPLICATION FOR MOBILE

(51) International classification :G09B0021000000, G06F0003010000, G10L0013080000, G06F0040580000, G06F0003160000

(86) International Application No :NA

Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA

Filing Date :NA

(62) Divisional to Application Number :NA

Filing Date :NA

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Name of Applicant : NA

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**3)MADHU MITHRA. J**

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(57) Abstract :

ABSTRACT OF THE INVENTION Ensuring accessibility for visually impaired individuals is a crucial challenge in the modern digital landscape. This invention focuses on the development of an innovative Braille device integrating a 3x2 key matrix keyboard with a dynamic Braille display, supported by mobile software with multilingual capabilities. The device allows users to input Braille 20 characters via a tactile keyboard, which are then processed by an Arduino-based microcontroller and transmitted via Bluetooth to the mobile application. The mobile app, embedded with Text-to-Speech (TTS) technology, provides real-time auditory feedback, enabling seamless interaction. To enhance usability, the device incorporates natural language processing (NLP) for accurate text translation and tactile feedback to confirm inputs. It is designed to be portable, cost-effective, and energy-efficient, making it a viable solution for independent learning and communication. The system ensures compatibility with modern digital platforms, promoting inclusivity and empowering visually impaired users with efficient real-time text conversion and speech output.

No. of Pages : 9 No. of Claims : 3

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :19/06/2025

(21) Application No.202541058944 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : REAL-TIME EMOTION AWARE AI COUNSELING MECHANISM WITH MEMORY RETENTION

(51) International classification :G10L0015260000, G10L0015220000, A61B0005160000, G16H0010600000, G16H0080000000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

(71)Name of Applicant :

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Address of Applicant :BHARATHI SALAI,CHENNAI,TAMILNADU,INDIA.  
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Name of Applicant : NA

Address of Applicant : NA

(72)Name of Inventor :

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**3)Hariharan G A**

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(57) Abstract :

ABSTRACT OF THE INVENTION: This invention presents an advanced AI-driven system tailored for real-time, emotional support and counseling, designed to offer immediate and personalized mental health assistance through voice interaction. The system combats common challenges in mental health support, such as the lack of immediate access, difficulty in interpreting complex emotional states, and the provision of generic, non-personalized responses. Utilizing a machine learning framework that incorporates Natural Language Processing (NLP) and Emotional Recognition, the system detects and analyzes user emotions from voice inputs, enabling real-time, customized communication tailored to each user's specific needs. The system integrates advanced speech-to-text (STT) and text-to-speech (TIS) technologies to ensure fluent and empathetic voice interactions. Additional features include a data management module that stores interaction histories to enhance learning and adaptation to individual preferences, a user feedback mechanism to refine response strategies, and a privacy preservation module to ensure the confidentiality of personal data.

No. of Pages : 9 No. of Claims : 5

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202541058946 A

(19) INDIA

(22) Date of filing of Application :19/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : WOMEN SAFETY ENHANCEMENT TOOL USING RASPBERRY PI

|                                               |      |                                                                                 |                                                                                                                                                                                                                               |
|-----------------------------------------------|------|---------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (51) International classification             |      | :A61B0005000000, A61B0005024000, G08B0025010000, H04W0004900000, G08B0025000000 | (71)Name of Applicant :<br><b>1)Easwari Engineering College</b><br>Address of Applicant :BHARATHI SALAI,CHENNAI,TAMILNADU,INDIA. PIN:600089. -----                                                                            |
| (86) International Application No             | :NA  |                                                                                 | <b>Name of Applicant : NA</b>                                                                                                                                                                                                 |
| Filing Date                                   | :NA  |                                                                                 | <b>Address of Applicant : NA</b>                                                                                                                                                                                              |
| (87) International Publication No             | : NA |                                                                                 | (72)Name of Inventor :<br><b>1)Dr.M.Priyadharshni</b><br>Address of Applicant :Department of Electronics and Communication Engineering, Easwari Engineering College BHARATHI SALAI,CHENNAI,TAMILNADU,INDIA. PIN:600089. ----- |
| (61) Patent of Addition to Application Number | :NA  |                                                                                 | <b>2)N Shriram</b><br>Address of Applicant :Department of Electronics and Communication Engineering, Easwari Engineering College BHARATHI SALAI,CHENNAI,TAMILNADU,INDIA. PIN:600089. -----                                    |
| Filing Date                                   | :NA  |                                                                                 | <b>3)R Tarroon</b><br>Address of Applicant :Department of Electronics and Communication Engineering, Easwari Engineering College BHARATHI SALAI,CHENNAI,TAMILNADU,INDIA. PIN:600089. -----                                    |
| (62) Divisional to Application Number         | :NA  |                                                                                 |                                                                                                                                                                                                                               |
| Filing Date                                   | :NA  |                                                                                 |                                                                                                                                                                                                                               |

(57) Abstract :  
ABSTRACT OF THE INVENTION Women Safety Enhancement Tool Using Raspberry Pi will provide a dependable, easyto- use safety tool for women when they are at night or in risky situations. It allows users to send emergency alerts along with pre-recorded audio messages to the care taker, law 10 enforcement, and family with the help of GPS tracking, cloud-based audio transmission, and real-time heart rate monitoring. The heart rate sensor indicates raised pulse rates, indicating stress or panic, allowing responders to determine the extent of the situation. More than that, though, it provides a network of supportive community members and emergency responders that help minimize violence and harassment. It also seeks to 15 promote scalable solutions that may partner with law enforcement agencies in an effort to m•k• womoo'• •••~ ""~ "" "" "" • bott" •ootot•t ooo.otoij

No. of Pages : 11 No. of Claims : 8

(54) Title of the invention : Experimental Studies on the Behavior of Fermionic Lithium-6 Atoms Confined in Two-Dimensional Traps Using Atom-Resolved Microscopy Towards Quantum Simulator Chip Development”

|                                               |                                                                                 |                                                                                                                                                                          |
|-----------------------------------------------|---------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (51) International classification             | :B82Y0010000000, G01N0021650000, G21K0001000000, G02B0021000000, G11B0011105000 | (71)Name of Applicant :<br><b>1)Chennai Institute of Technology</b><br>Address of Applicant :Chennai Institute of Technology, Kundrathur, Chennai – 600069 CHENNAI ----- |
| (86) International Application No             | :NA                                                                             | <b>Name of Applicant : NA</b>                                                                                                                                            |
| Filing Date                                   | :NA                                                                             | <b>Address of Applicant : NA</b>                                                                                                                                         |
| (87) International Publication No             | : NA                                                                            | (72)Name of Inventor :                                                                                                                                                   |
| (61) Patent of Addition to Application Number | :NA                                                                             | <b>1)Dr. P. Elaiyaraja</b><br>Address of Applicant :Assistant professor Centre for Applied Nanomaterials Chennai Institute of Technology, Chennai – 600069 CHENNAI ----- |
| Filing Date                                   | :NA                                                                             | <b>2)Dr.R. RAJALKSHMI</b><br>Address of Applicant :Assistant professor Department of Physics Chennai Institute of Technology, Chennai – 600069 CHENNAI -----             |
| (62) Divisional to Application Number         | :NA                                                                             |                                                                                                                                                                          |
| Filing Date                                   | :NA                                                                             |                                                                                                                                                                          |

(57) Abstract :  
The present invention discloses a highly integrated and programmable quantum simulation platform utilizing ultracold fermionic Lithium-6 atoms confined in a two-dimensional optical lattice, combined with atom-resolved quantum gas microscopy and a chip-scale control architecture. The system enables the real-time emulation of strongly correlated quantum systems, condensed matter phenomena, and quantum information dynamics with unprecedented precision. In this method, Lithium-6 atoms are first cooled to quantum degeneracy using a synergistic combination of evaporative cooling, Raman sideband cooling, and magneto-optical trapping. These atoms are then loaded into a dynamically configurable 2D optical lattice formed by interference of precisely phase-locked laser beams. The lattice potential depth, geometry, and inter-site spacing are tunable in situ, supporting multiple topologies including square, triangular, and honeycomb lattices. A quantum gas microscope with a high numerical aperture objective lens is employ

No. of Pages : 20 No. of Claims : 1

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202541059097 A

(19) INDIA

(22) Date of filing of Application :20/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : SUSTAINABLE ECO-FRIENDLY CONCRETE USING GLASS WASTE AND ZEOLITE

|                                               |                                                                                 |                                                                                                                                                                                                                                               |
|-----------------------------------------------|---------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (51) International classification             | :G01N0003080000, C04B0028020000, C04B0028000000, G11C0029400000, C04B0014220000 | (71)Name of Applicant :<br><b>1)Chennai institute of Technology</b><br>Address of Applicant :Chennai Institute of Technology, Kundrathur, Chennai – 600069 CHENNAI -----<br><b>Name of Applicant : NA</b><br><b>Address of Applicant : NA</b> |
| (86) International Application No             | :NA                                                                             | (72)Name of Inventor :<br><b>1)Mrs.R. Swathi Rekha</b><br>Address of Applicant :Assistant professor Department of Civil Engineering, Chennai institute of Technology, Chennai – 600069 CHENNAI -----                                          |
| (87) International Publication No             | : NA                                                                            | <b>2)Dr. P.Vasanthi</b><br>Address of Applicant :Associate professor Department of Civil Engineering, Chennai institute of Technology, Chennai – 600069 CHENNAI -----                                                                         |
| (61) Patent of Addition to Application Number | :NA                                                                             | <b>3)Dr.P.Partheeban</b><br>Address of Applicant :Professor Department of Civil Engineering Chennai Institute of Technology, Chennai – 600069 CHENNAI -----                                                                                   |
| (62) Divisional to Application Number         | :NA                                                                             | <b>4)Dr. M. Priyanka</b><br>Address of Applicant :Assistant professor Department of Civil Engineering, Chennai institute of Technology, Chennai – 600069 CHENNAI -----                                                                        |
| Filing Date                                   | :NA                                                                             | <b>5)Mr.S. Karthikeyan</b><br>Address of Applicant :Assistant Professor Department of Civil Engineering Chennai Institute of Technology Chennai-600069 CHENNAI -----                                                                          |

(57) Abstract :

This research aimed to investigate the use of zeolite and waste glass aggregate as a viable partial replacement for cement and sand in concrete. The mechanical properties of fresh and hardened concrete were noted to determine the feasibility of waste glass in concrete and to study the materials in concrete. Concrete produced with waste glass aggregate replacing sand 15% and natural zeolite replacing cement in 5 %, 10 %, 15 %, 20 %, 25 % addition of each, in these tests the waste soda glass bottles are used. Compression test, flexural test, and microstructural investigation were performed on the specimens. The findings indicate that desired strength is produced in 15 % replacement of waste glass aggregate and 10 % replacement of zeolite in cement. The experimental results suggest that the use of waste glass aggregate and zeolite will provide good alternatives to sand and cement and can be used effectively in industrial applications. Keyword: Zeolite, Waste glass aggregate, Compression test, Split tensile test,

No. of Pages : 14 No. of Claims : 1



(12) PATENT APPLICATION PUBLICATION

(21) Application No.202541059098 A

(19) INDIA

(22) Date of filing of Application :20/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : "Design and Analysis of wear properties of Composite Leaf Spring"

(51) International classification :G01N0003560000, A61K0036886000, C10N0050000000, G01N0027300000, A61K0036185000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(72)Name of Inventor :

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(57) Abstract :

This invention investigates the three layers of natural fibers were sandwiched between glass fibers to make the hybrid laminates to get four different stacking sequences, i.e., GAAAG, GRRRG, GARAG and GRARG respectively. Wear test were carried out to test their tribological properties. It is observed that the GRRRG hybrid laminate exhibited very high coefficient of friction compared to GAAAG, GARAG and GRARG hybrid laminates used for this research. The epoxy resin that acted as the matrix element occupied the outer surface as well as the intermediate layers that separate and bind the reinforcement fibers. The relatively high coefficient of friction of the hybrid laminate GRRRG is related to the change in chemical properties of the epoxy resin while it reacted with the roselle fibers. The intense frictional force increased the rate of material removal which resulted in the sudden reduction of the frictional force. The presence of aloe vera fibers interrupted the reaction that occurred between the roselle fibre

No. of Pages : 15 No. of Claims : 1

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :20/06/2025

(21) Application No.202541059099 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : SENSE COOK: AI-DRIVEN REAL-TIME NUTRITIONAL MONITORING AND ANALYSIS SYSTEM

(51) International classification :G16H0020600000, G16H0010600000, G16H0050300000, G06T0007500000, G06N0003045000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

SENSE-COOK is an AI-powered smart kitchen innovation that brings real-time nutritional monitoring directly into the cooking environment. It integrates an edge AI camera with a powerful microcontroller to detect ingredients, estimate weight through monocular depth, and calculate nutritional values such as calories, carbohydrates, proteins, and fats—all on-device without cloud dependency. This solution eliminates the need for kitchen scales or manual food logging, offering a hands-free and privacy-focused alternative to existing health-tech applications. Traditional food-tracking solutions are limited by manual input, static image analysis, and reliance on cloud services, leading to inaccuracies, delays, and privacy risks. SENSE-COOK addresses these issues through on-device AI inference and real-time analysis. By estimating the volume of ingredients from camera-captured dimensions and combining it with a built-in nutrition database (per 1g basis), the system delivers instant and personalized health feedback d

No. of Pages : 12 No. of Claims : 1

(54) Title of the invention : FLASK-BASED MOVIE RECOMMENDATION SYSTEM

(51) International classification :G06F0016953500, H04N0021466000, G06Q0030020000, G06F0016435000, H04N0021482000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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## (57) Abstract :

Personalized recommendation systems have become keys to enhancing user experience in the digital world, where users are definitely subjected to information overload through vast amounts of movies available. The work here will develop a movie recommendation system based on Python and Flask. Users will be able to input their preferences such as preferred performers, genres, and ratings of previously seen films for personalized recommendations. With its use of content-based filtering techniques, it identifies similar movies in features and ensures relevance in the recommended results it gives. It does not use complex libraries or huge amounts of data and relies on the lightweight Flask framework that makes it user-friendly, efficient, and simple for scalability. The recommendation logic delivers suggestions with minimal computing overhead by concentrating on such basic characteristics as genre, director, and user ratings. Feedback by users in terms of commenting about recommended movies allows improving over

No. of Pages : 19 No. of Claims : 1

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :20/06/2025

(21) Application No.202541059101 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : Enhancing Digital Security: A Comprehensive Approach to Password Management System

(51) International classification :G06F21/46, G06F21/30,  
G06F21/31  
(86) International Application No :NA  
Filing Date :NA  
(87) International Publication No : NA  
(61) Patent of Addition to Application  
Number :NA  
Filing Date :NA  
(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

In the modern digital world, people have been more and more asked to memorize various passwords to use different applications online. Such a trend leads to some vulnerability such as password fatigue, weak or reused passwords, and a risk of increased data breaches. The proposed Password Manager project is a holistic, secure, and user-friendly solution for password management in the effort to eliminate these vulnerabilities. The critical functionalities of the application involve generating strong, randomly potent passwords, safe storage of sensitive credentials with advanced algorithms in encryption such as AES-256 and access to password with a single highly secured master password. The Advanced functionalities such as cross-device syncing support, autofill for the web browsers, strength of analysis of passwords, and alert features about real-time breaches help strengthen the usability and security of the system. The project uses a strong technological stack: Python is used in the backend, and React.js for

No. of Pages : 18 No. of Claims : 1

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :20/06/2025

(21) Application No.202541059102 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : "Enhancing WhatsApp Polls: A Browser Extension for Identifying Unresponsive Participants"

(51) International classification :G06Q10/10, G06Q30/0201,  
G06N20/00  
(86) International Application No :NA  
Filing Date :NA  
(87) International Publication No : NA  
(61) Patent of Addition to Application :NA  
Number :NA  
Filing Date :NA  
(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

Automated tracking and management system for poll responses in a efficient This is real-time monitoring, automated data comparison, and structured report generation the the accuracy of response tracking and engagement management the expected The real-time monitoring module captures poll data dynamically, extracts response information from volatile memory to identify and notify immediately if unavailable participants respond. The system an automated log analysis engine to match the participants' response data with that of the uploaded participant list (CSV file) to identify high-precision non-responders. Furthermore, the system an AI-driven detection mechanism to enabling predictive analysis of engagement trends. The system is also to privacy and security frameworks and Chrome Content Security Policy (CSP) user data and unauthorized access. Thnction enables users to structured reports in CSV format, improving record-keeping processes and integration with other external tools. Designed for scalability and adapt

No. of Pages : 14 No. of Claims : 1

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :20/06/2025

(21) Application No.202541059103 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : SMART IOT SYSTEM FOR VEHICLE HEALTH, DRIVER BEHAVIOUR AND CABIN MONITORING

|                                                                                                                                                                                                                                                                                                                                                                                           |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>(51) International classification :G06V0020590000, B60W0040080000, G06V0040180000, B60K0028060000, A61B0005080000</p> <p>(86) International Application No :NA<br/>Filing Date :NA</p> <p>(87) International Publication No : NA</p> <p>(61) Patent of Addition to Application Number :NA<br/>Filing Date :NA</p> <p>(62) Divisional to Application Number :NA<br/>Filing Date :NA</p> |  | <p>(71)<b>Name of Applicant :</b><br/><b>1)Chennai institute of Technology</b><br/>Address of Applicant :Chennai Institute of Technology, Kundrathur, Chennai – 600069 CHENNAI -----<br/><b>Name of Applicant : NA</b><br/><b>Address of Applicant : NA</b><br/>(72)<b>Name of Inventor :</b><br/><b>1)Mr. PRAVEEN K</b><br/>Address of Applicant :Assistant Professor Department of Electronic and communication Chennai Institute of technology, Chennai -600069 CHENNAI -----<br/><b>2)Mr. EDWARD PAUL RAJ J</b><br/>Address of Applicant :Assistant Professor Department of Electronics and Communication Engineering Chennai Institute of Technology Kundrathur, Chennai- 600 069 CHENNAI -----<br/><b>3)Mr. JITHESH S</b><br/>Address of Applicant :Student Department of Electronics and Communication Chennai institute of Technology, Chennai – 600069 CHENNAI -----<br/><b>4)Ms. BRINDA UMESH</b><br/>Address of Applicant :Student Department of Electronics and Communication Chennai institute of Technology, Chennai – 600069 CHENNAI -----<br/><b>5)Mr. DIWAKAR</b><br/>Address of Applicant :Student Department of Electronic and communication Chennai Institute of technology, Chennai -600069 CHENNAI -----<br/><b>6)Ms. CHITRA P</b><br/>Address of Applicant :Student Department of Electronic and communication Chennai Institute of technology, Chennai -600069 CHENNAI -----<br/><b>7)Ms. ROSHINI S</b><br/>Address of Applicant :Student Department of Electronic and communication Chennai Institute of technology, Chennai -600069 CHENNAI -----</p> |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

(57) Abstract :

This project presents an innovative Cockpit Intelligence System designed to improve vehicle safety, optimize driving performance, and maintain cabin well-being. The system continuously gathers and analyzes real-time data from various onboard sensors to assess the mechanical state of the vehicle and monitor operational parameters. Simultaneously, it evaluates driver patterns and physiological indicators to detect any deviations that may affect safe driving. The integrated vision module observes driver attentiveness and cognitive state, while specialized sensors track in-cabin environmental quality to ensure passenger comfort. By combining data-driven analytics with proactive alerts, the system aims to minimize risks, support timely interventions, and contribute to a more intelligent, responsive driving experience.

No. of Pages : 15 No. of Claims : 1

(54) Title of the invention : Low-Power, High-Stability SRAM Using Fully Depleted Silicon-On-Insulator (FDSOI) Technology

|                                               |                                                                                 |                                                                                                                                                                                                                                 |
|-----------------------------------------------|---------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (51) International classification             | :H01L0027120000, H03K0019000000, H01L0029786000, G11C0011413000, H01L0021840000 | (71)Name of Applicant :<br><b>1)CVR COLLEGE OF ENGINEERING</b><br>Address of Applicant :CVR COLLEGE OF ENGINEERING, Vastunagar, Mangalpalli (V), Ibrahimpatnam (M), Rangareddy (Dist), Telangana 501510, India. Hyderabad ----- |
| (86) International Application No             | :NA                                                                             | <b>Name of Applicant : NA</b>                                                                                                                                                                                                   |
| Filing Date                                   | :NA                                                                             | <b>Address of Applicant : NA</b>                                                                                                                                                                                                |
| (87) International Publication No             | : NA                                                                            | (72)Name of Inventor :                                                                                                                                                                                                          |
| (61) Patent of Addition to Application Number | :NA                                                                             | <b>1)Mrs. Soujanya Saraswathi</b>                                                                                                                                                                                               |
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| (62) Divisional to Application Number         | :NA                                                                             |                                                                                                                                                                                                                                 |
| Filing Date                                   | :NA                                                                             |                                                                                                                                                                                                                                 |

(57) Abstract :  
We disclose a novel SRAM architecture that uses Fully Depleted Silicon-On-Insulator (FDSOI) technology with dynamic back-biasing for real-time threshold voltage modulation. The invention features an optimized 6-transistor cell where forward body bias enhances performance during active mode and reverse body bias minimizes leakage during standby. The architecture improves static noise margins and ensures robust read/write operations under process-voltage-temperature variations. A hierarchical array organization integrates peripheral circuits for efficient control and supports power gating idle blocks. The cell layout leverages FDSOI's reduced well spacing to minimize area. Simulations at the 22nm FDSOI node demonstrate a 30% leakage reduction, a 25% SNM improvement, and a 40% area savings over conventional CMOS SRAM.

No. of Pages : 11 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202541059109 A

(19) INDIA

(22) Date of filing of Application :20/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : IOT ENABLED AGRICULTURAL MONITORING SYSTEM FOR GREENHOUSE ENVIRONMENT

(51) International classification :G05D0001000000, A01B0079000000, A01G0025160000, G16H0040670000, G06Q0010060000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

This work presents the design and implementation of an AI powered agricultural monitoring system using IoT based automation and environmental sensing. The system incorporates an array of environmental sensors (100) to collect real time data, including soil moisture (101), temperature (102), and gas concentration (103). The AI model (110) processes this data to monitor plant health and recommend actions. The collected data is transmitted to a central control unit via an IoT module (108), which further analyzes trends and issues alerts when necessary. A web based platform (109) provides users with real-time updates on environmental conditions and irrigation needs. A mobile robot equipped with ultrasonic sensors (104) autonomously navigates a monitored area, capturing diverse data points while avoiding obstacles. A motorized irrigation system (106) ensures optimal water distribution. The system enhances agricultural efficiency, reduces labor dependency, and improves overall crop management by continuously monitoring environmental conditions and automating essential processes,.

No. of Pages : 12 No. of Claims : 5



(12) PATENT APPLICATION PUBLICATION

(21) Application No.202541059110 A

(19) INDIA

(22) Date of filing of Application :20/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : TWO TRANSISTOR FORWARD CONVERTER WITH SINGLE INPUT MULTI OUTPUT FOR EV CHARGING STATIONS

|                                                                                                                                                                                                                                                                                                                                                                                               |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>(51) International classification :H02M3/155, H02J7/00, B60L53/51, H02M1/00, H02M3/155, H02J7/00, B60L53/51, H02M1/00</p> <p>(86) International Application No :NA<br/>Filing Date :NA</p> <p>(87) International Publication No : NA</p> <p>(61) Patent of Addition to Application Number :NA<br/>Filing Date :NA</p> <p>(62) Divisional to Application Number :NA<br/>Filing Date :NA</p> |  | <p>(71)<b>Name of Applicant :</b><br/><b>1)Easwari Engineering College</b><br/>Address of Applicant :162 Bharathi Salai, Ramapuram Chennai Tamil Nadu India 600089 -----<br/><b>Name of Applicant : NA</b><br/><b>Address of Applicant : NA</b></p> <p>(72)<b>Name of Inventor :</b><br/><b>1)Prathanya kumar P</b><br/>Address of Applicant :Department of Electrical and Electronics Engineering, Easwari Engineering College Bharathi Salai, Ramapuram Chennai TAMILNADU INDIA 600089 Chennai -----<br/><b>2)Santhosh Krishnan S</b><br/>Address of Applicant :Department of Electrical and Electronics Engineering, Easwari Engineering College Bharathi Salai, Ramapuram Chennai TAMILNADU INDIA 600089 -----<br/><b>3)Thasleema Nasreen S</b><br/>Address of Applicant :Department of Electrical and Electronics Engineering, Easwari Engineering College Bharathi Salai, Ramapuram Chennai TAMILNADU INDIA 600089 -----<br/><b>4)Dr.C.R.Raghavendran</b><br/>Address of Applicant :Department of Electrical and Electronics Engineering, Easwari Engineering College Bharathi Salai, Ramapuram Chennai TAMILNADU INDIA 600089 -----</p> |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

(57) Abstract :

An energy-efficient Single Input Multi Output (SIMO) Two-Transistor Forward Converter-based EV charging system is disclosed. It supports simultaneous charging of multiple battery modules from a single power input, preferably sourced from renewable energy. Key innovations include pulse-shift control via MOSFET switching, a high-frequency charge controller, and real-time microcontroller-based monitoring. The system minimizes thermal losses, enhances battery life, and adapts dynamically to load conditions, offering a scalable and sustainable solution for EV charging infrastructure.

No. of Pages : 15 No. of Claims : 7

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202541059113 A

(19) INDIA

(22) Date of filing of Application :20/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : Transforming Banking with AI and Machine Learning Innovations in Financial Services

(51) International classification :H04L0009400000, G06N0020000000, G06Q0040000000, G06Q0040020000, G06F0021620000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

(71)Name of Applicant :

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(72)Name of Inventor :

**1)Prem Kumar Sholapurapu**

Address of Applicant :Research Associate and Senior Consultant, CGI, Katy, Texas, USA -----

(57) Abstract :

The integration of Artificial Intelligence (AI) and Machine Learning (ML) into the banking and financial services sector is revolutionizing traditional operations, enhancing efficiency, and fostering innovation. The adoption of AI and ML also facilitates compliance with evolving regulatory requirements by automating reporting processes and monitoring transactions for suspicious activities. This proactive approach not only ensures adherence to legal standards but also reduces the risk of human error and operational costs. Despite the promising advancements, the implementation of AI and ML in banking presents challenges, including data privacy concerns, ethical considerations, and the need for robust cybersecurity measures. Financial institutions must navigate these complexities to harness the full potential of these technologies responsibly. The transformative impact of AI and ML in banking is evident across various domains, from enhancing customer interactions to streamlining internal operations.

No. of Pages : 14 No. of Claims : 8

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :20/06/2025

(21) Application No.202541059115 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : SMART LORAWAN BASED FISHERMAN BORDER ALERT SYSTEM WITH GPS TRACKING AND REAL-TIME DATA LOGGING

(51) International classification :G06Q0050000000, G06Q0010087000, G06F0003048200, H04M0003510000, G06Q0030024100

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(72)Name of Inventor :

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**3)P. Deepika**

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(57) Abstract :

ABSTRACT OF THE INVENTION This study proposes an IoT-based Fisherman Border Alerting System to enhance maritime safety using LoRaWAN, ultrasonic sensors, and real-time data management. Traditional vessel monitoring near restricted maritime boundaries is labor-intensive and error-prone. This system integrates data from both a buoy and a fishing boat to detect, log, and alert when vessels approach predefined boundaries. An ultrasonic sensor, acting as a radar, accurately measures distance and angle. When the boat is within 500 meters of the buoy, it transmits a unique vessel ID via LoRaWAN for secure, long-range communication. Real-time alerts and data are logged using Google Sheets and the Blynk app, enabling fast response and high reliability. A mobile-friendly interface enhances accessibility for users. The system offers a scalable and efficient solution to reduce accidental border crossings. Future enhancements include GPS integration, additional sensors, and expanded coverage, contributing to a more robust and intelligent maritime safety infrastructure for fishing communities.

No. of Pages : 11 No. of Claims : 6

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202541059118 A

(19) INDIA

(22) Date of filing of Application :20/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : Smart and Sustainable EV Charging Station Using Hybrid Renewable Energy Harvesting with Intelligent Power Management

(51) International classification :B60L53/51, B60L53/52, H02N2/18, G16Y40/10, H02J7/00

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to :NA  
Application Number :NA

Filing Date :NA

(62) Divisional to Application :NA  
Number :NA

Filing Date :NA

(71)Name of Applicant :

**1)CVR COLLEGE OF ENGINEERING**

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(57) Abstract :

This invention presents an intelligent energy management framework for electric vehicle (EV) charging systems powered by hybrid renewable sources, including solar, wind, and piezoelectric energy. Sensor data is continuously monitored to evaluate the available power from each source. Based on real-time efficiency and priority, the system selects the optimal energy source for charging the EV or storing surplus energy in the battery. Additionally, an IoT module transmits operational data to the cloud for monitoring and analytics. This approach ensures efficient power utilization, reduced dependency on the grid, and enhanced sustainability of EV infrastructure using smart, renewable-driven charging mechanisms.

No. of Pages : 9 No. of Claims : 5

(54) Title of the invention : NEURAL NETWORK BASED WORKFORCE ALLOCATION OPTIMIZER FOR MULTI SKILLED ENVIRONMENTS

|                                               |                                                                                 |                                                                                                                                                                                      |
|-----------------------------------------------|---------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (51) International classification             | :G06Q0010063100, G06Q0010063900, H04M0003523000, G06N0003080000, G06Q0010063700 | (71)Name of Applicant :<br><b>1)SAVEETHA ENGINEERING COLLEGE</b><br>Address of Applicant :SAVEETHA NAGAR, THANDALAM, CHENNAI-602105, TAMILNADU -----                                 |
| (86) International Application No             | :NA                                                                             | <b>Name of Applicant : NA</b>                                                                                                                                                        |
| Filing Date                                   | :NA                                                                             | <b>Address of Applicant : NA</b>                                                                                                                                                     |
| (87) International Publication No             | : NA                                                                            | (72)Name of Inventor :<br><b>1)Dr.VIMALNATH.V</b>                                                                                                                                    |
| (61) Patent of Addition to Application Number | :NA                                                                             | Address of Applicant :Assistant Professor (Senior Grade), Department of Management Studies, SAVEETHA ENGINEERING COLLEGE, SAVEETHA NAGAR, THANDALAM, CHENNAI-602105, TAMILNADU ----- |
| Filing Date                                   | :NA                                                                             |                                                                                                                                                                                      |
| (62) Divisional to Application Number         | :NA                                                                             |                                                                                                                                                                                      |
| Filing Date                                   | :NA                                                                             |                                                                                                                                                                                      |

(57) Abstract :  
The present invention discloses an intelligent, adaptive system for optimizing workforce allocation in environments where employees possess multiple, overlapping skill sets and tasks . . vary dynamically in complexity and urgency. The invention introduces a neural networkbased optimizer that leverages historical performance data,, real-time operational inputs, and advanced learning algorithms to assign personnel to tasks in an efficient, scalable, and contextaware manner. The system comprises a multi-layered deep learning architecture combined with a reinforcement learning loop, enabling continuous improvement of task-employee mapping strategies based on outcome feedback. It accounts for complex factors such as employee skill matrices, task interdependencies , shift constraints, resource availability, and employee workload balance. By modeling both hard constraints (e.g., certification requirements, availability) and soft constraints (e.g., preferences, learning potential), the optimizer ensures high task coverage, minimal idle time, and enhanced workforce engagement. A key innovation lies in the system's ability to evolve over time-learning from successful and unsuccessful allocations, responding to organizational changes, and improving with each iteration. The invention also includes a user-friendly dashboard interface, which allows human managers to monitor recommendations, override allocations, and interact with the AI engine in a transparent manner. This invention is applicable across multiple sectors, including manufacturing, healthcare, logistics, IT services, and customer support, offering organizations a robust and intelligent solution to maximize workforce productivity in multi-skilled operational environments

No. of Pages : 9 No. of Claims : 6

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :20/06/2025

(21) Application No.202541059120 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : SKY SENTINEL: AI DRIVEN OPTIMIZATION AND PRECISION IN LOW COST UAV AND GUIDED MISSILE SYSTEMS

(51) International classification :G05D0001000000, G06N0003045000, G06N0003080000, B64C0039020000, G06N0003047000

(86) International Application No :NA

Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA

Filing Date :NA

(62) Divisional to Application Number :NA

Filing Date :NA

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**Name of Applicant : NA**

**Address of Applicant : NA**

(72)Name of Inventor :

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**3)P.Rohit**

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(57) Abstract :

ABSTRACT: The invention introduces an AI-enabled unmanned aerial vehicle (UAV) and missile system that integrates Generative Adversarial Networks (GANs) and YOLOv8-based computer vision with thermal detection to achieve high precision, autonomy, and cost efficiency. This system is designed to adapt to dynamic environments, providing real-time object detection, obstacle avoidance, and intelligent flight path correction. GANs are used to automate the aerodynamic and structural design of UAV components, enabling rapid prototyping through AI-optimized 3D models. These designs are directly fed into a monitored 3D printing system, where an AI agent adjusts print parameters in real-time to ensure structural quality, reduce material waste, and allow fast manufacturing even in low-resource environments. The onboard YOLOv8 model processes visual and thermal inputs to detect obstacles, heat signatures, and targets in real time. Trained on both standard and thermal datasets, this enables reliable navigation and target recognition in low-visibility or GPS-denied areas. The fusion of visual and infrared data ensures the missile or UAV can make decisions independently during missions, increasing operational success. For missile applications, the system employs deep reinforcement learning to correct trajectories mid-flight using sensor fusion from IMUs and visual data. This reduces targeting error and ensures high strike accuracy. Logical separation between the UAV flight control and missile guidance systems enhances performance reliability under complex mission conditions. The entire platform supports secure over-the-air firmware updates with encryption and rollback protection, ensuring adaptability for long-term deployment. The combination of generative design, intelligent navigation, and efficient manufacturing offers a powerful solution for both civilian and defense applications, delivering a low-cost, modular, and intelligent aerial system.

No. of Pages : 9 No. of Claims : 7

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :20/06/2025

(21) Application No.202541059121 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : IOT ENABLED RSSI BASED OVERBOARD DETECTION AND TRACKING SYSTEM FOR MARITIME SAFETY

|                                                                                                                   |      |                                                                                                                                                                                                     |
|-------------------------------------------------------------------------------------------------------------------|------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (51) International classification :H04B0017318000, H04W0084180000, H04W0004020000, G05D0001000000, G08B0021020000 |      | (71) <b>Name of Applicant :</b><br><b>1)Easwari Engineering College</b><br>Address of Applicant :BHARATHI SALAI, CHENNAI, TAMILNADU, INDIA. PIN:600089. 9789996247 head.ipr@eec.srmrmp.edu.in ----- |
| (86) International Application No                                                                                 | :NA  | <b>Name of Applicant : NA</b>                                                                                                                                                                       |
| Filing Date                                                                                                       | :NA  | <b>Address of Applicant : NA</b>                                                                                                                                                                    |
| (87) International Publication No                                                                                 | : NA | (72) <b>Name of Inventor :</b>                                                                                                                                                                      |
| (61) Patent of Addition to Application Number                                                                     | :NA  | <b>1)Dr.V Balaji</b>                                                                                                                                                                                |
| Filing Date                                                                                                       | :NA  | Address of Applicant :Department of Electronics and Communication Engineering, Easwari Engineering College Bharathi Salai, Ramapuram Chennai TAMILNADU INDIA 600089 -----                           |
| (62) Divisional to Application Number                                                                             | :NA  | <b>2)S L Sabareesh</b>                                                                                                                                                                              |
| Filing Date                                                                                                       | :NA  | Address of Applicant :Department of Electronics and Communication Engineering, Easwari Engineering College Bharathi Salai, Ramapuram CHENNAI TAMILNADU INDIA 600089 -----                           |
|                                                                                                                   |      | <b>3)Shashank S Konnur</b>                                                                                                                                                                          |
|                                                                                                                   |      | Address of Applicant :Department of Electronics and Communication Engineering,Easwari Engineering College Bharathi Salai, Ramapuram -----                                                           |

(57) Abstract :

ABSTRACT OF THE INVENTION 15 Life is invaluable, yet deep-sea rescues remain significantly more challenging than land- based operations due to low recovery rates and prolonged response times. To address this critical issue, this research presents an advanced Man-Over-Board (MOB) detection and tracking system that leverages RSSI (Received Signal Strength Indicator), cutting- edge sensors, and wireless communication technologies to enhance rescue efficiency. 20 The system integrates wearable and embedded MEMS sensors that continuously transmit real-time data via RSSI, enabling precise location tracking. A responsive GUI provides instant alerts to the crew, ensuring rapid intervention. Additionally, predictive AI algorithms and inter-IoT frameworks facilitate seamless communication between vessels and rescue teams, optimizing coordination and minimizing delays. By 25 combining intelligent monitoring with automated and manual activation mechanisms, this innovative approach significantly improves mid-sea rescue success rates, making maritime operations safer and more responsive to emergencies.

No. of Pages : 9 No. of Claims : 5

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :20/06/2025

(21) Application No.202541059122 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : SECURE STOCK: AN AUTOMATED PUBLIC DISTRIBUTION SYSTEM

|                                               |                                                                                 |                                                                                                                                                                                                                                                                      |
|-----------------------------------------------|---------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (51) International classification             | :G06Q0040030000, G06Q0040000000, G06Q0040080000, G06Q0010100000, G06Q0030060100 | (71)Name of Applicant :<br><b>1)Easwari Engineering College</b><br>Address of Applicant :162 BHARATHI SALAI, CHENNAI, TAMILNADU, INDIA. PIN:600089. 9789996247 head.ipr@eec.srmrmp.edu.in -----<br><b>Name of Applicant : NA</b><br><b>Address of Applicant : NA</b> |
| (86) International Application No             | :NA                                                                             | (72)Name of Inventor :<br><b>1)Dinesh V</b><br>Address of Applicant :Department of ECE, College name: Easwari Engineering College Bharathi Salai Chennai TamilNadu India 600089 -----                                                                                |
| Filing Date                                   | :NA                                                                             | <b>2)Gautam Thiagarajan</b><br>Address of Applicant :Department of ECE, College name: Easwari Engineering College Bharathi Salai Chennai India 600089 TamilNadu -----                                                                                                |
| (87) International Publication No             | : NA                                                                            | <b>3)Annika Jenifer D</b><br>Address of Applicant :Department of ECE, College name: Easwari Engineering College Bharathi Salai Chennai TamilNadu India 600089 -----                                                                                                  |
| (61) Patent of Addition to Application Number | :NA                                                                             | <b>4)Dr. Praveen Kumar R</b><br>Address of Applicant :Department of ECE, College name: Easwari Engineering College Bharathi Salai Chennai TamilNadu India 600089 -----                                                                                               |
| Filing Date                                   | :NA                                                                             |                                                                                                                                                                                                                                                                      |
| (62) Divisional to Application Number         | :NA                                                                             |                                                                                                                                                                                                                                                                      |
| Filing Date                                   | :NA                                                                             |                                                                                                                                                                                                                                                                      |

(57) Abstract :

ABSTRACT OF THE INVENTION 5 The Public Distribution System (PDS) plays a critical role in ensuring equitable access to resources in India, a country with a vast and densely populated population. Managing the PDS manually is highly complex and inefficient, necessitating automation for effective operation. While some level of automation exists in the current PDS, it primarily focuses on revenue-based processes, leaving commodity-based automation to underdeveloped. Regional variations in food preferences, quality, and quantity of commodities, coupled with affordability challenges for low-income beneficiaries, further complicate the system. Many individuals cannot purchase their entire monthly rations due to financial constraints, requiring a flexible system where rations can be collected incrementally based on earnings and requirements. To address these issues, this 15 project proposes an automated system integrating mechanical systems, electronic devices, and computing technologies to enable both cost-based and quantity-based dispensing of rations. Centralized monitoring will allow authorities to track consumption patterns in real -time, ensuring efficient resource management, affordability, and enhanced service delivery. This modernization aims to transform India's PDS for better 20 equity and operational effectiveness.

No. of Pages : 12 No. of Claims : 6



(54) Title of the invention : ADAPTIVE ENSEMBLE LEARNING FOR TRAFFIC FLOW OPTIMIZATION: A DECISION MAKING APPROACH BASED ON TIME

|                                               |                                                                                 |                                                                                                                                                                                      |
|-----------------------------------------------|---------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (51) International classification             | :G08G0001010000, G06Q0010047000, G06N0003080000, G06Q0050400000, H04W0028020000 | (71)Name of Applicant :<br>1)Easwari Engineering College<br>Address of Applicant :BHARATHI SALAI, CHENNAI, TAMILNADU, INDIA. PIN:600089. 9789996247 head.ipr@eec.srmrmp.edu.in ----- |
| (86) International Application No             | :NA                                                                             | Name of Applicant : NA                                                                                                                                                               |
| Filing Date                                   | :NA                                                                             | Address of Applicant : NA                                                                                                                                                            |
| (87) International Publication No             | : NA                                                                            | (72)Name of Inventor :                                                                                                                                                               |
| (61) Patent of Addition to Application Number | :NA                                                                             | 1)Dr GUNAVATHIE M A                                                                                                                                                                  |
| Filing Date                                   | :NA                                                                             | Address of Applicant :Department of Information Technology, Easwari Engineering College Bharathi Salai, Ramapuram Chennai TAMILNADU INDIA 600089 -----                               |
| (62) Divisional to Application Number         | :NA                                                                             | 2)AMREETHA B                                                                                                                                                                         |
| Filing Date                                   | :NA                                                                             | Address of Applicant :Department of Information Technology , Easwari Engineering College Bharathi Salai, Ramapuram Chennai TAMILNADU INDIA 600089 -----                              |
|                                               |                                                                                 | 3)KIRTHANA R                                                                                                                                                                         |
|                                               |                                                                                 | Address of Applicant :Department of Information Technology , Easwari Engineering College Bharathi Salai, Ramapuram Chennai TAMILNADU INDIA 600089 -----                              |

(57) Abstract :  
Urban traffic congestion poses challenges to mobility and route optimization. This invention introduces a machine learning-based traffic prediction and optimization system integrating CNNs for spatial analysis, LSTMs for temporal trends, SVR for traffic volume estimation, and HA for baseline reference. The system processes GPS, traffic camera, and historical data, applying noise reduction and feature extraction for improved accuracy: A route optimization module dynamically evaluates congestion levels and suggests efficient paths using traffic scores and geographic mapping services. Adaptive learning mechanisms refine predictions in real-time, while visualization techniques like congestion heatmaps enhance decision-making. Designed with a scalable cloud-based architecture, the system integrates with smart city infrastructure for real-time communication with traffic centers. An interactive dashboard provides live congestion forecasts and optimized route recommendations, enabling data-driven traffic management and enhanced urban mobility.

No. of Pages : 12 No. of Claims : 6

(54) Title of the invention : COGNITIVE DIVERSITY MAPPING SYSTEM USING FEDERATED AI FOR INCLUSIVE RECRUITMENT

|                                               |                                                                                 |                                                                                                                                                                       |
|-----------------------------------------------|---------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (51) International classification             | :G06N0020000000, G06Q0010105300, G06F0021620000, G06N0020200000, G06N0003080000 | (71)Name of Applicant :<br><b>1)SAVEETHA ENGINEERING COLLEGE</b><br>Address of Applicant :SAVEETHA NAGAR,THANDALAM,CHENNAI,TAMILNADU,INDIA. PIN:602105 -----<br>----- |
| (86) International Application No             | :NA                                                                             | <b>Name of Applicant : NA</b>                                                                                                                                         |
| Filing Date                                   | :NA                                                                             | <b>Address of Applicant : NA</b>                                                                                                                                      |
| (87) International Publication No             | : NA                                                                            | (72)Name of Inventor :                                                                                                                                                |
| (61) Patent of Addition to Application Number | :NA                                                                             | <b>1)Dr.V.RAMAR</b>                                                                                                                                                   |
| Filing Date                                   | :NA                                                                             | Address of Applicant :Associate Professor, Department of Management Studies, SAVEETHA ENGINEERING COLLEGE, SAVEETHA NAGAR, THANDALAM, CHENNAI-602105, TAMILNADU ----- |
| (62) Divisional to Application Number         | :NA                                                                             |                                                                                                                                                                       |
| Filing Date                                   | :NA                                                                             |                                                                                                                                                                       |

(57) Abstract :  
The present invention discloses a Cognitive Diversity Mapping System (CDMS) that utilizes Federated Artificial Intelligence (FAI) to enable inclusive, privacy-preserving recruitment by identifying and evaluating diverse cognitive styles among job candidates. Unlike traditional AI-based recruitment systems that rely on centralized data processing and surface-level qualifications, this invention introduces a decentralized architecture that maintains data privacy while analyzing rich, behavioral, and psychometric indicators from distributed sources. The system comprises a Federated Learning Engine that trains localized AI models across various data nodes-such as educational platforms, corporate HR systems, and candidate assessment platforms-without aggregating sensitive personal data. Candidate profiles are processed by a Cognitive Profiling Module, which extracts and interprets multiple dimensions of cognition including reasoning styles, decision-making behavior, and problem-solving approaches. A central Cognitive Matchmaking & Diversity Mapping Engine aligns these profiles with rolespecific or team-specific cognitive diversity goals, generating a Cognitive Diversity Index (CDI) to guide fair and innovation-oriented recruitment. The system is reinforced by an Adaptive Learning Loop that incorporates post-hire feedback and evolving team dynamics, enhancing predictive accuracy over time. Additionally, a robust Privacy and Compliance Layer ensures adherence to global data protection laws through differential privacy, encryption, and consent-driven data protocols. A dynamic dashboard interface allows recruiters and hiring managers to visualize cognitive maps, analyze diversity patterns, and simulate team configurations.

No. of Pages : 8 No. of Claims : 6

(54) Title of the invention : SMART NANO COATED FILMS FOR SELF-REGULATING THERMAL INSULATION IN SPACE APPLICATIONS

|                                               |                                                                                 |                                                                                                                                                                                                                                 |
|-----------------------------------------------|---------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (51) International classification             | :B64G0001220000, B64G0001500000, B64G0001400000, B64G0001580000, B64G0001100000 | (71)Name of Applicant :<br><b>1)SAVEETHA ENGINEERING COLLEGE</b><br>Address of Applicant :SAVEETHA ENGINEERING COLLEGE, SAVEETHA NAGAR, THANDALAM,CHENNAI,TAMILNADU,INDIA. PIN:602105, skalpana@saveetha.ac.in 9080496844 ----- |
| (86) International Application No             | :NA                                                                             | <b>Name of Applicant : NA</b>                                                                                                                                                                                                   |
| Filing Date                                   | :NA                                                                             | <b>Address of Applicant : NA</b>                                                                                                                                                                                                |
| (87) International Publication No             | : NA                                                                            | (72)Name of Inventor :                                                                                                                                                                                                          |
| (61) Patent of Addition to Application Number | :NA                                                                             | <b>1)Dr.S.KALPANA</b>                                                                                                                                                                                                           |
| Filing Date                                   | :NA                                                                             | Address of Applicant :Professor, Department of Physics, Saveetha Engineering College, Saveetha Nagar, Thandalam, Chennai-602105, Tamilnadu, India -----                                                                         |
| (62) Divisional to Application Number         | :NA                                                                             |                                                                                                                                                                                                                                 |
| Filing Date                                   | :NA                                                                             |                                                                                                                                                                                                                                 |

(57) Abstract :  
The present invention relates to a novel smart nano-coated film system engineered for selfregulating thermal insulation, specifically designed for extreme and dynamic thermal environments encountered in space applications. The invention comprises a multilayered thin film structure that integrates thermoresponsive nanoparticles, phase-modulating polymers, and infrared-reflective nanocoatings, allowing the film to autonomously modulate its thermal conductivity and emissivity in real time. The core functionality is enabled by nanoparticles such as doped vanadium dioxide (VO2) that undergo temperature-induced phase transitions, enabling the material to switch between insulating and radiative states based on ambient thermal conditions. An embedded infrared- reflective nanolayer, constructed using materials like indium tin oxide (ITO) or silver nanowires, reflects excess solar infrared radiation at high temperatures while permitting absorption and retention at lower temperatures. The outermost layer is composed of self- healing, radiation-resistant polymers that protect the film from micrometeoroid impacts, UV degradation, and atomic oxygen erosion. The system operates passively without the need for electrical input or mechanical components, reducing energy consumption and payload weight. It can be applied to satellite surfaces, spacecraft exteriors, modular space habitats, and other space infrastructure requiring intelligent, lightweight, and autonomous thermal protection. The film is compatible with roll- to-roll manufacturing, ensuring scalability and integration flexibility across diverse aerospace platforms. This invention addresses a significant technological gap by introducing a fully passive, adaptive, and intelligent thermal insulation solution, enhancing the efficiency, resilience, and operational lifespan of space missions, while also enabling future applications in terrestrial sectors exposed to harsh or variable climatic conditions.

No. of Pages : 10 No. of Claims : 6

|                                                                                                          |                                                                                 |                                                                                                                                                                                                                                         |
|----------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (12) PATENT APPLICATION PUBLICATION                                                                      |                                                                                 | (21) Application No.202541059127 A                                                                                                                                                                                                      |
| (19) INDIA                                                                                               |                                                                                 |                                                                                                                                                                                                                                         |
| (22) Date of filing of Application :20/06/2025                                                           |                                                                                 | (43) Publication Date : 04/07/2025                                                                                                                                                                                                      |
| (54) Title of the invention : QUANUM DRIVEN WORKFORCE SCHEDULING OPTIMIZER FOR HYPER AGILE ORGANIZATIONS |                                                                                 |                                                                                                                                                                                                                                         |
| (51) International classification                                                                        | :G06Q0010063100, G06Q0010060000, G06N0010000000, G06Q0010040000, G06N0005010000 | (71) <b>Name of Applicant :</b><br><b>1)SAVEETHA ENGINEERING COLLEGE</b><br>Address of Applicant :SAVEETHA ENGINEERING COLLEGE, SAVEETHA NAGAR, THANDALAM,CHENNAI,TAMILNADU,INDIA. PIN:602105, skalpana@saveetha.ac.in 9080496844 ----- |
| (86) International Application No                                                                        | :NA                                                                             | <b>Name of Applicant : NA</b>                                                                                                                                                                                                           |
| Filing Date                                                                                              | :NA                                                                             | <b>Address of Applicant : NA</b>                                                                                                                                                                                                        |
| (87) International Publication No                                                                        | : NA                                                                            | (72) <b>Name of Inventor :</b>                                                                                                                                                                                                          |
| (61) Patent of Addition to Application Number                                                            | :NA                                                                             | <b>1)Dr.KARTHICK.K.K</b>                                                                                                                                                                                                                |
| Filing Date                                                                                              | :NA                                                                             | Address of Applicant :Associate Professor, Department of Management Studies, Saveetha Engineering College, Saveetha Nagar, Thandalam, Chennai-602105, Tamilnadu, India -----                                                            |
| (62) Divisional to Application Number                                                                    | :NA                                                                             |                                                                                                                                                                                                                                         |
| Filing Date                                                                                              | :NA                                                                             |                                                                                                                                                                                                                                         |

(57) Abstract :

The present invention discloses a Quantum Driven Workforce Scheduling Optimizer specifically designed for hyper-agile organizational environments where traditional scheduling systems fall short due to high variability, real-time decision needs, and multidimensional constraints. This intelligent scheduling platform harnesses the computational capabilities of quantum annealing and hybrid quantum-classical optimization to dynamically allocate workforce resources in response to rapidly changing operational conditions. The system comprises five integral components: (1) an Input Acquisition Layer that gathers real-time workforce data; (2) a Preprocessing and Constraint Modeling Engine that enuudcj\* organizational rules and scheduling parameters into a quantum-compatible format; (3) a Quantum Optimization Core that transforms the scheduling problem into a QUBO matrix and computes optimal solutions using quantum logic; (4) an Adaptive Feedback Loop that integrates performance data to improve future scheduling decisions; and.(5) a User Interaction Interface that enables managerial oversight, scenario simulation, and real-time decision \* control. By converting workforce scheduling challenges into solvable quantum optimization problems, the invention enables superior allocation outcomes that consider employee skills, availability, ft cost-efficiency, compliance, and satisfaction in a single framework. Unlike AI-only systems that rely heavily on past data or traditional rule-based software that struggles with scale, this optimizer delivers rapid, high-fidelity workforce schedules in volatile, multi-project, cross-functional, and decentralized work environments. This innovation establishes a new paradigm in human resource planning by enabling quantum-accelerated, learning-based, and scenario-sensitive workforce scheduling, paving the way for highly adaptive and future-ready organizational operations.

No. of Pages : 9 No. of Claims : 6

(54) Title of the invention : AI POWERED LONG SHORT STRATEGY GENERATOR WITH REAL TIME NEW FEED OPTIMIZATION

|                                               |                                                                                 |                                                                                                                                                                                                                                 |
|-----------------------------------------------|---------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (51) International classification             | :G06Q0040060000, G06Q0040040000, G06F0040300000, G06Q0050000000, G06N0020000000 | (71)Name of Applicant :<br><b>1)SAVEETHA ENGINEERING COLLEGE</b><br>Address of Applicant :SAVEETHA ENGINEERING COLLEGE, SAVEETHA NAGAR, THANDALAM,CHENNAI,TAMILNADU,INDIA. PIN:602105, skalpana@saveetha.ac.in 9080496844 ----- |
| (86) International Application No             | :NA                                                                             | <b>Name of Applicant : NA</b>                                                                                                                                                                                                   |
| Filing Date                                   | :NA                                                                             | <b>Address of Applicant : NA</b>                                                                                                                                                                                                |
| (87) International Publication No             | : NA                                                                            | (72)Name of Inventor :                                                                                                                                                                                                          |
| (61) Patent of Addition to Application Number | :NA                                                                             | <b>1)Dr.M.GANESAN ALIAS KANAGARAJ</b>                                                                                                                                                                                           |
| Filing Date                                   | :NA                                                                             | Address of Applicant :Assistant Professor (Senior Grade), Department of Management Studies, Saveetha Engineering College, Saveetha Nagar, Thandalam, Chennai-602105, Tamilnadu, India -----                                     |
| (62) Divisional to Application Number         | :NA                                                                             |                                                                                                                                                                                                                                 |
| Filing Date                                   | :NA                                                                             |                                                                                                                                                                                                                                 |

(57) Abstract :  
ABSTRACT The present invention discloses an AI-powered long-short trading strategy generator with realtime news feed optimization, designed to enhance alpha generation in financial markets through advanced machine learning and natural language processing techniques. The system introduces a novel, adaptive framework that dynamically processes unstructured news data, evaluates market sentiment, and generates optimized trading signals with superior speed and accuracy compared to conventional quantitative models. Key innovations include: 1. Areal-time NLP engine incorporating domain-specific transformer models (e.g., FinBERT) for context-aware sentiment scoring, capable of processing news, social media, and earnings transcripts with sub-second latency. 2. A hybrid machine learning architecture combining supervised learning for asset selection and reinforcement learning for dynamic portfolio optimization, enabling continuous adaptation to shifting market regimes. 3. A closed-loop execution system featuring sentiment-aware order routing, real-time risk adjustments, and automated hedging based on news-driven volatility triggers. 4. A self-optimizing AI core that employs online learning and genetic algorithm components to evolve trading strategies without look-ahead bias. The invention addresses critical limitations of existing systems—including delayed news processing, static factor models, and overfitting risks—by introducing real-time information integration and adaptive decision-making. Backtested results demonstrate 15-25% annual return enhancement for market-neutral strategies with 30-40% reduced drawdowns during volatility spikes. Designed for institutional investors, hedge funds, and proprietary trading firms, this system establishes a new standard for AI-driven quantitative trading by bridging the gap between unstructured news data and executable trading strategies. The patent covers the unique system architecture, methodology, and applications across equities, commodities, and derivatives markets.

No. of Pages : 9 No. of Claims : 6

(54) Title of the invention : CAUSAL AI MODEL FOR IDENTIFYING HIDDEN DRIVERS OF VARIANCE IN MANAGEMENT ACCOUNTING

|                                               |                                                                                 |                                                                                                                                                                                                      |
|-----------------------------------------------|---------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (51) International classification             | :G06N0005045000, G06N0005040000, G06N0007010000, G06N0005010000, G06N0020000000 | (71)Name of Applicant :<br>1)SAVEETHA ENGINEERING COLLEGE<br>Address of Applicant :SAVEETHA NAGAR,THANDALAM,CHENNAI,TAMILNADU,INDIA. PIN:602105 -----<br>-----                                       |
| (86) International Application No             | :NA                                                                             | Name of Applicant : NA                                                                                                                                                                               |
| Filing Date                                   | :NA                                                                             | Address of Applicant : NA                                                                                                                                                                            |
| (87) International Publication No             | : NA                                                                            | (72)Name of Inventor :                                                                                                                                                                               |
| (61) Patent of Addition to Application Number | :NA                                                                             | 1)Dr.M.GANESAN ALIAS KANAGARAJ                                                                                                                                                                       |
| Filing Date                                   | :NA                                                                             | Address of Applicant :Assistant Professor (Senior Grade), Department of Management Studies, SAVEETHA ENGINEERING COLLEGE,SAVEETHA NAGAR,THANDALAM,CHENNAI,TAMILNADU,INDIA. PIN:602105 -----<br>----- |
| (62) Divisional to Application Number         | :NA                                                                             |                                                                                                                                                                                                      |
| Filing Date                                   | :NA                                                                             |                                                                                                                                                                                                      |

(57) Abstract :  
The present invention introduces a Causal AI Model for Identifying Hidden Drivers of Variance in Management Accounting, a groundbreaking framework that transforms traditional variance analysis into an explainable, prescriptive decision-support system. By integrating causal artificial intelligence (AI) with domain-specific accounting knowledge, this model overcomes the critical limitations of conventional approaches that rely on correlation-based analytics or black-box machine learning. Technical Field The invention resides at the intersection of management accounting, causal inference, and explainable AI (XAI), specifically addressing the challenge of identifying root-cause drivers behind financial and operational variances in business performance. Core Innovation The model employs a multi-layered analytical architecture combining: 1. Hybrid Causal Discovery- Leveraging Bayesian networks, structural causal models (SCMs), and Granger causality tests to uncover latent relationships between accounting variances and operational, behavioral, and external factors. 2. Dynamic Variance Decomposition- Utilizing Shapley value attribution and hierarchical clustering to separate controllable vs. uncontrollable variance components while quantifying interaction effects. 3. Counterfactual Simulation- Enabling "what-if" scenario testing with accounting-aware constraints to evaluate potential corrective actions. 4. Explainable AI Integration- Generating interpretable causal graphs and natural language reports that translate statistical findings into actionable managerial insights.

No. of Pages : 9 No. of Claims : 6

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202541059132 A

(19) INDIA

(22) Date of filing of Application :20/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : DIGITAL FINANCIAL TWIN WITH AI RISK AUDITING FOR STRATEGIC CORPORATE FINANCE DECISIONS

(51) International classification

:G06N0020000000, G06Q0010063500, G06Q0040060000, G16H0050200000, G06Q0040030000

(86) International

:NA

Application No

:NA

Filing Date

(87) International

: NA

Publication No

(61) Patent of Addition to

:NA

Application Number

:NA

Filing Date

(62) Divisional to

:NA

Application Number

:NA

Filing Date

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(72)Name of Inventor :

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Address of Applicant :Assistant Professor (Senior Grade), Department of Management Studies, SAVEETHA ENGINEERING COLLEGE, SAVEETHA NAGAR, THANDALAM, CHENNAI-602105, TAMILNADU -----

(57) Abstract :

The invention. discloses an intelligent, real-time decision-support system that integrates a Digital Financial Twin (OFT) with AI-driven risk auditing capabilities to enable more accurate, agile, and compliant corporate financial decision-making. The OFT replicates an organization's financial structure-including balance sheets, income statements, cash flows, and financial ratios-in a dynamic digital environment that updates in real time through continuous ingestion of internal and external data sources. At its core, the invention features a machine learning-based risk auditing module that autonomously analyzes transactional data, identifies anomalies, flags compliance risks, and provides predictive insights into potential financial disruptions. The system also incorporates a scenario simulation engine that allows finance professionals to test the impact of various strategic decisions, such as restructuring, acquisitions, or regulatory changes, under varying macroeconomic conditions. The OFT is equipped with a smart interface that translates complex outputs into intuitive dashboards, providing decision-makers with forward-looking risk assessments, optimization recommendations, and audit trails. The system continuously evolves through feedback loops and historical learning, making it capable of adjusting to new financial patterns and regulatory updates with minimal manual intervention. This invention addresses major limitations in traditional financial planning, which is often reactive, fragmented, and static. By unifying simulation, compliance, and intelligence within a single, adaptive digital framework, the proposed system transforms financial management into a strategic, predictive, and risk-aware function, offering a groundbreaking shift in how corporations navigate uncertainty and complexity in financial environments.

No. of Pages : 9 No. of Claims : 6

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202541059134 A

(19) INDIA

(22) Date of filing of Application :20/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : SMART LEDGER ANALYZER FOR FORECASTING WORKING CAPITAL REQUIREMENTS

(51) International classification

:G06Q0040120000, G06N0020000000,  
G06Q0040000000, G06Q0020400000,  
G06Q0040030000

(86) International Application No

:NA

Filing Date

:NA

(87) International Publication No

: NA

(61) Patent of Addition to Application Number

:NA

Filing Date

:NA

(62) Divisional to Application Number

:NA

Filing Date

:NA

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**Name of Applicant : NA**

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(72)Name of Inventor :

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Address of Applicant :SAVEETHA ENGINEERING COLLEGE SAVEETHA NAGAR, THANDALAM, CHENNAI-602105 TAMILNADU, INDIA. 602105 ---  
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(57) Abstract :

The present invention discloses a Smart Ledger Analyzer-an intelligent, automated system developed to forecast working capital requirements by analyzing financial ledger data in real time. The system leverages machine learning, financial analytics, and contextual business intelligence to transform traditional ledger entries into predictive insights that assist businesses in short-term liquidity planning and strategic decision-making. The invention comprises a multi-layered architecture featuring a data ingestion layer that extracts transactional information from various ledgers, including accounts receivable, accounts payable, inventory, and cash flows. A preprocessing module then cleanses and standardizes the data, while a feature engineering module derives critical financial indicators such as DSO, DPO, inventory turnover, and cash cycle efficiency. At its core lies an adaptive forecasting engine powered by AI algorithms capable of detecting historical patterns, modeling financial behavior, and projecting future working capital needs with high accuracy. The system continuously learns from deviations between projected and actual outcomes, refining its predictions over time. It incorporates business-specific variables such as credit terms, vendor reliability, customer payment trends, seasonal variations, and operational growth cycles. An integrated risk detection module triggers alerts for potential cash shortages, collection delays, or inventory mismatches. All forecasts and recommendations are displayed on a userfriendly dashboard that provides real-time visualizations, actionable insights, and decision support for finance professionals. This invention surpasses existing systems by offering a fully automated, intelligent, and adaptive tool that eliminates manual forecasting errors and enhances liquidity management across enterprises of all sizes. It is particularly valuable for small and mid-sized businesses lacking dedicated financial planning infrastructure. By enabling proactive control over working capital, the Smart Ledger Analyzer helps organizations improve financial agility, reduce operational risk, and achieve sustainable growth.

No. of Pages : 9 No. of Claims : 6



(54) Title of the invention : SWARM AI BASED WAREHOUSE ORCHESTRATION SYSTEM FOR DECENTRALIZED ASSET MOVEMENT

|                                               |                                                                                 |                                                                                                                                                                                                      |
|-----------------------------------------------|---------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (51) International classification             | :G06Q0010087000, G06N0003006000, G06F0016270000, H04L0067100000, H04L0067107400 | (71)Name of Applicant :<br>1)SAVEETHA ENGINEERING COLLEGE<br>Address of Applicant :SAVEETHA<br>NAGAR,THANDALAM,CHENNAI,TAMILNADU,INDIA. PIN:602105 -----<br>-----                                    |
| (86) International Application No             | :NA                                                                             | Name of Applicant : NA                                                                                                                                                                               |
| Filing Date                                   | :NA                                                                             | Address of Applicant : NA                                                                                                                                                                            |
| (87) International Publication No             | : NA                                                                            | (72)Name of Inventor :                                                                                                                                                                               |
| (61) Patent of Addition to Application Number | :NA                                                                             | 1)Dr.VIMALNATH.V                                                                                                                                                                                     |
| Filing Date                                   | :NA                                                                             | Address of Applicant :Assistant Professor (Senior Grade), Department of Management Studies, SAVEETHA ENGINEERING COLLEGE,SAVEETHA NAGAR,THANDALAM,CHENNAI,TAMILNADU,INDIA. PIN:602105 -----<br>----- |
| (62) Divisional to Application Number         | :NA                                                                             |                                                                                                                                                                                                      |
| Filing Date                                   | :NA                                                                             |                                                                                                                                                                                                      |

(57) Abstract :

The present invention discloses a Swarm AI Based Warehouse Orchestration System that revolutionizes warehouse logistics through a decentralized, intelligent, and adaptive framework for autonomous asset movement. Unlike traditional warehouse management systems that rely on centralized control, the proposed system employs a network of autonomous mobile units (AMUs), each embedded with lightweight artificial intelligence and swarm behavior protocols. Inspired by natural swarm systems such as ant colonies and bird flocks, each AMU independently senses its environment, communicates with neighboring units, and makes realtime navigation and task decisions based on local stimuli and shared cues. The system utilizes a distributed architecture wherein decision-making is decentralized, enabling the entire network of agents to collectively coordinate tasks such as picking, sorting, transporting, and restocking inventory. The invention introduces a swarm intelligence engine within each AMU that governs behavior through local rules including dynamic task bidding, path selection, obstacle avoidance, and stigmergic coordination. These units interact over a peer-to-peer mesh communication layer and leverage environmental markers, digital trails, and feedback loops to achieve emergent global optimization without human intervention or central command. The system interfaces with existing Warehouse Management Systems (WMS) through a middleware module, facilitating seamless integration, task synchronization, and real-time inventory updates. It is highly scalable, fault-tolerant, and adaptive to warehouse layout changes, varying workloads, and operational anomalies. Over time, AMUs improve their efficiency through local learning mechanisms and experience-driven adaptation. This invention delivers a disruptive, intelligent orchestration solution that enhances throughput, minimizes latency, reduces infrastructure rigidity, and empowers flexible, resilient warehouse automation through a biologically inspired, decentralized AI framework

No. of Pages : 9 No. of Claims : 6

(54) Title of the invention : QUANTUM OPTIMIZATION ENGINE FOR HIGH DENSITY WAREHOUSE SLOTTING AND PICKING SYSTEMS

|                                               |                                                                                 |                                                                                                                                                                                                 |
|-----------------------------------------------|---------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (51) International classification             | :G06Q0010087000, G06N0010000000, G06N0007010000, G06N0010600000, G06Q0010080000 | (71)Name of Applicant :<br><b>1)SAVEETHA ENGINEERING COLLEGE</b><br>Address of Applicant :SAVEETHA NAGAR, THANDALAM, CHENNAI-602105 TAMILNADU, INDIA. 602105 -----                              |
| (86) International Application No             | :NA                                                                             | <b>Name of Applicant : NA</b>                                                                                                                                                                   |
| Filing Date                                   | :NA                                                                             | <b>Address of Applicant : NA</b>                                                                                                                                                                |
| (87) International Publication No             | : NA                                                                            | (72)Name of Inventor :                                                                                                                                                                          |
| (61) Patent of Addition to Application Number | :NA                                                                             | <b>1)Dr.VIMALNATH.V</b>                                                                                                                                                                         |
| Filing Date                                   | :NA                                                                             | Address of Applicant :Assistant Professor (Senior Grade), Department of Management Studies, SAVEETHA ENGINEERING COLLEGE SAVEETHA NAGAR, THANDALAM, CHENNAI-602105 TAMILNADU, INDIA. 602105 --- |
| (62) Divisional to Application Number         | :NA                                                                             | -----                                                                                                                                                                                           |
| Filing Date                                   | :NA                                                                             |                                                                                                                                                                                                 |

(57) Abstract :  
The present invention discloses a Quantum Optimization Engine designed to enhance the efficiency of warehouse operations by simultaneously optimizing item slotting and order picking in high-density storage environments. Leveraging quantum annealing and hybrid quantum-classical algorithms, the engine transforms complex logistics problems into solvable quantum models, enabling real-time decision-making at scale. It integrates predictive analytics, real-time inventory data, and SKU-level intelligence to recommend optimal item placements and picker routes, significantly reducing travel time, congestion, and operational costs. The system comprises four core components: a Quantum Optimization Core, Slotting-Picking Integration Module, Data Acquisition and Feedback Layer, and Warehouse System Interface. These modules work together to provide continuous self-optimization, adapting dynamically to changing order profiles, SKU behaviors, and physical layout constraints. The invention interfaces seamlessly with existing Warehouse Management Systems (WMS) and offers a user dashboard for monitoring, simulation, and control. By unifying slotting and picking processes under a quantum-enhanced framework, this invention delivers a scalable, intelligent, and adaptive solution for modern warehouses, capable of handling the growing complexity of e-commerce and high-throughput logistics environments.

No. of Pages : 9 No. of Claims : 6

(54) Title of the invention : A HOLOMOMIC OMNI DIRECTIONAL ROBOT FOR NUTRITIONAL DEFICIENCY DETECTION THROUGH MULTI-SPECTRAL IMAGING IN VERTICAL FARMING

|                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <div>(51) International classification</div> <div>(86) International Application No</div> <div>(87) International Publication No</div> <div>(61) Patent of Addition to Application Number</div> <div>(62) Divisional to Application Number</div> <div>Filing Date</div> <div>Filing Date</div> | <div>:B25J0005000000, G05D0001000000, H04N0023620000, G06V0020100000, A61B0034200000</div> <div>:NA</div> <div>:NA</div> <div>: NA</div> <div>:NA</div> <div>:NA</div> <div>:NA</div> <div>:NA</div> | <div>(71)Name of Applicant :</div> <div>1)B.M.S COLLEGE OF ENGINEERING</div> <div>Address of Applicant :PO BOX 1908, BULL TEMPLE RD, BASAVANAGUDI, BENGALURU, KARNATAKA 560019, INDIA Bangalore Urban -----</div> <div>Name of Applicant : NA</div> <div>Address of Applicant : NA</div> <div>(72)Name of Inventor :</div> <div>1)DR. NALINA V</div> <div>Address of Applicant :B.M.S COLLEGE OF ENGINEERING, PO BOX 1908, BULL TEMPLE RD, BASAVANAGUDI, BENGALURU, KARNATAKA 560019, INDIA Bangalore Urban -----</div> <div>2)AMIT CHANDRASHEKHAR HEGDE</div> <div>Address of Applicant :B.M.S COLLEGE OF ENGINEERING, PO BOX 1908, BULL TEMPLE RD, BASAVANAGUDI, BENGALURU, KARNATAKA 560019, INDIA Bangalore Urban -----</div> <div>3)AMRUTHA BHAT T P</div> <div>Address of Applicant :B.M.S COLLEGE OF ENGINEERING, PO BOX 1908, BULL TEMPLE RD, BASAVANAGUDI, BENGALURU, KARNATAKA 560019, INDIA Bangalore Urban -----</div> <div>4)DEEKSHITHA R</div> <div>Address of Applicant :B.M.S COLLEGE OF ENGINEERING, PO BOX 1908, BULL TEMPLE RD, BASAVANAGUDI, BENGALURU, KARNATAKA 560019, INDIA Bangalore Urban -----</div> |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

(57) Abstract :  
Disclosed herein is a holonomic omni directional robot system (100) for nutritional deficiency detection through multi-spectral imaging in vertical farming, comprising a structural frame and chassis (102). The system (100) also comprising a housing (104) further comprising a processing unit (106), a holonomic drive unit (108) further including at least three stepper motors (116) mounted 120° apart, a camera unit (118) and a plurality of temperature and humidity sensor (120). The system (100) comprising a motor control assembly (110) further comprising a computer numerical control shield (124), and a stepper motor driver (126). The system (100) comprising an imaging module (112) configured to process the multispectral images captured from the camera unit (118). The system (100) comprising a mobile user interface (134) configured to provide real-time monitoring, control, and display of processed plant health imagery and operational status.

No. of Pages : 28 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :20/06/2025

(21) Application No.202541059144 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : TEXT MINING AND LYRICS-BASED EMOTION CLASSIFICATION SYSTEM AND METHOD THEREOF

(51) International classification :G06F0016350000, G06N0020000000, G06F0040300000, G06F0040284000, G10L0025630000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

Disclosed herein is a text mining and lyrics-based emotion classification system and method thereof (100) that comprises a lyrics dataset network (102), a real-time lyrics input network (104), and a keyboard lyrics entry unit (106) for collecting song lyrics, and a biometric sentiment input unit (108) for capturing physiological emotional responses. A communication network (110) transmits data to a preprocessing unit (112) comprising a lyrics data acquisition module (114), a text preprocessing module (116), a natural language toolkit integration module (118), a bag of words matrix generation module (120), a term frequency-inverse document frequency vectorization module (122), and a part-of-speech tagging module (124). A microcontroller (126) executes classification using feature extraction (128), training (130), tuning (132), validation (134), and visualization (136-142). Outputs are displayed via a graphical display unit (144), and stored in a central storage unit (152).

No. of Pages : 59 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :20/06/2025

(21) Application No.202541059147 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : Smart Optimization and prediction of Power Generation Cost Using Differential Evolution and ML Technique

(51) International classification :G06Q0010040000, G06N0020000000, G06Q0050060000, H01M0008045370, G06F0111060000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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**7)Dr.Ch.Hariprasad**

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--

(57) Abstract :

With the rapid increase in power demand and the rising fuel costs at power generation stations, optimizing fuel expenditure has become a critical concern. To address this issue, machine learning models are employed to predict and optimize fuel costs effectively. This paper proposes a multi-linear regression approach for accurate fuel cost prediction based on historical data. For optimization, a Differential evaluation machine learning model is utilized, offering an efficient solution to the multi-objective optimization problem. Comparative analysis reveals that while traditional algorithms and Bees provide viable solutions, the Bat algorithm demonstrates superior efficiency in optimizing fuel cost in power systems.

No. of Pages : 23 No. of Claims : 2

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202541059149 A

(19) INDIA

(22) Date of filing of Application :20/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : SYSTEM AND METHOD FOR QUANTUM INDUCED PHOTOTHERMAL DETECTION IN NANOMATERIALS USING FIBER BRAGG INTERFEROMETER TECHNIQUE

|                                               |                                                                                 |                                                                                                                                                                                                                                                                                                    |
|-----------------------------------------------|---------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (51) International classification             | :G01L0001240000, G02B0006020000, G01B0011160000, G01K0011320600, A61B0034200000 | (71)Name of Applicant :<br><b>1)INDIAN INSTITUTE OF TECHNOLOGY MADRAS (IIT Madras)</b><br>Address of Applicant :The Dean, Industrial Consultancy & Sponsored Research [IC&SR], Indian Institute of Technology Madras, Sardar Patel Road, IIT P.O, Chennai 600 036, Tamil Nadu, India Chennai ----- |
| (86) International Application No             | :NA                                                                             | <b>Name of Applicant : NA</b>                                                                                                                                                                                                                                                                      |
| Filing Date                                   | :NA                                                                             | <b>Address of Applicant : NA</b>                                                                                                                                                                                                                                                                   |
| (87) International Publication No             | : NA                                                                            | (72)Name of Inventor :                                                                                                                                                                                                                                                                             |
| (61) Patent of Addition to Application Number | :NA                                                                             | <b>1)Bannur Nanjunda, Shivananju</b>                                                                                                                                                                                                                                                               |
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| (62) Divisional to Application Number         | :NA                                                                             | <b>2)Rath, Sweta</b>                                                                                                                                                                                                                                                                               |
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(57) Abstract :

Disclosed herein is a system (100) and a method (1600) for detecting quantum-induced photothermal characteristics of a nanomaterial. The method (1600) comprises exciting an optical Fiber Bragg Gratings (FBG) photosensor (102), by a broadband excitation source (104), at an incident wavelength. The optical FBG photosensor (102) includes a plurality of FBG elements and a fluorescent photosensitive nanomaterial having photothermal conversion properties. InfraRed (IR) light is illuminated by an IR source (110) into the optical FBG photosensor (102). A photodetector (112) receives the IR light reflected by each FBG element of the plurality of FBG elements. A determination unit (118) determines a shift in a Bragg wavelength of the reflected IR light received by the photodetector (112). Photothermal characteristics of the optical FBG photosensor (102) are detected based on the shift in the Bragg wavelength and a change in the interference pattern of the Bragg wavelength of the reflected IR light. (Representative Figure: FIG. 1)

No. of Pages : 58 No. of Claims : 17

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :20/06/2025

(21) Application No.202541059158 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : THE EFFECTIVENESS OF IMPLEMENTING AN INFORMATION TECHNOLOGY RISK ASSESSMENT SYSTEM IN IMPROVING THE PERFORMANCE OF THE AI-MISK ORGANIZATION

(51) International classification :G06Q0010063500, G16H0050200000, H04L0009400000, G06N0003040000, G06F0021570000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

THE EFFECTIVENESS OF IMPLEMENTING AN INFORMATION TECHNOLOGY RISK ASSESSMENT SYSTEM IN IMPROVING THE PERFORMANCE OF THE AI-MISK ORGANIZATION ABSTRACT The present invention discloses an adaptive Information Technology Risk Assessment System aimed at improving organizational performance in AI-centric enterprises like AI-Misk. The system uses machine learning algorithms, real-time monitoring, and risk impact modeling to identify and mitigate IT-related vulnerabilities across infrastructure and AI systems. Key components include automated risk scoring, predictive threat analytics, and governance alignment tools. Implementation of this system results in enhanced resilience, operational agility, and decision-making accuracy. It addresses the limitations of traditional risk methods by offering a scalable, intelligent, and responsive framework, ensuring proactive risk mitigation and sustained organizational growth.

No. of Pages : 12 No. of Claims : 7

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :20/06/2025

(21) Application No.202541059162 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : MAGNETO-ELECTRO-MECHANICAL CHARACTERIZATION APPARATUS FOR MAGNETIC SAMPLES

(51) International classification :G01N0003080000, G06F0011340000, G01R0033120000, H01M0010420000, G11C0029500000  
(86) International Application No :NA  
Filing Date :NA  
(87) International Publication No : NA  
(61) Patent of Addition to Application Number :NA  
Filing Date :NA  
(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

**MAGNETO-ELECTRO-MECHANICAL CHARACTERIZATION APPARATUS FOR MAGNETIC SAMPLES** The present invention provides an apparatus and a method for testing material property of a magnetic sample under a composite load. The apparatus comprises at least two load testing platform arrangements and a fixed base. Each load testing platform arrangement includes a movable part and a stationary part. The fixed base mounts the at least two load testing platform arrangements, and is configured to provide basic positioning and mechanical stability for the load testing platform arrangements. The load testing platform arrangements are configured to apply the composite load to the magnetic sample in a first direction and a second direction simultaneously, where the first direction and the second direction are mutually perpendicular to each other. Concurrently, the load testing platform arrangements are configured to precisely detect a load signal and a magnetoelectric voltage signal to realize a property of the test sample under the composite load. Reference Fig. 1

No. of Pages : 40 No. of Claims : 15



(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :20/06/2025

(21) Application No.202541059174 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : ARTIFICIAL INTELLIGENCE FOR ENVIRONMENTAL PROTECTION: OPPORTUNITIES AND CHALLENGES

|                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
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| <p>(51) International classification :G06N0003080000, G06N0020000000, G06Q0010067000, G06Q0050260000, G06N0005045000</p> <p>(86) International Application No :NA<br/>Filing Date :NA</p> <p>(87) International Publication No : NA</p> <p>(61) Patent of Addition to Application Number :NA<br/>Filing Date :NA</p> <p>(62) Divisional to Application Number :NA<br/>Filing Date :NA</p> | <p>(71)Name of Applicant :<br/><b>1)Dr. R. Rajalakshmi</b><br/>Address of Applicant :Professor, Department of AI &amp; DS, Trichy Engineering College, Sivananam Nagar, Konalai, Trichy, Tamil Nadu-621105, India. Trichy ---<br/>-----<br/><b>2)Dr. Sheryl Radley</b><br/><b>3)Dr. Aakriti Shukla</b><br/><b>4)Dr. Aruna V</b><br/><b>5)Dr. Kriti Singh</b><br/><b>6)Dr. Krishna C. P</b><br/><b>7)Dr. Shalini Saxena</b><br/><b>8)Dr. Ashish Verma</b><br/>Name of Applicant : NA<br/>Address of Applicant : NA<br/>(72)Name of Inventor :<br/><b>1)Dr. R. Rajalakshmi</b><br/>Address of Applicant :Professor, Department of AI &amp; DS, Trichy Engineering College, Sivananam Nagar, Konalai, Trichy, Tamil Nadu-621105, India. Trichy ---<br/>-----<br/><b>2)Dr. Sheryl Radley</b><br/>Address of Applicant :Professor, Department of IT, Meenakshi College of Engineering, No 12, Vembuliamman Kovil Street, West KK Nagar, Chennai, Tamil Nadu-600078, India. Chennai -----<br/><b>3)Dr. Aakriti Shukla</b><br/>Address of Applicant :Assistant Professor, Department of Law, Symbiosis Law School Hyderabad, Survey No. 292, Off Bangalore Highway, Modallaguda, Nandigama, Rangareddy, Telangana-509217, India. Rangareddy -----<br/>-<br/><b>4)Dr. Aruna V</b><br/>Address of Applicant :Assistant Professor, Department of MBA, St. Joseph's Institute of Technology, Chennai, Tamil Nadu-600119, India. Chennai -----<br/>-----<br/><b>5)Dr. Kriti Singh</b><br/>Address of Applicant :Assistant Professor, Department of LAW, K. R. Mangalam University, Gurugram road, Sohna Rural, Gurugram, Haryana- 122103, India. Gurugram -----<br/><b>6)Dr. Krishna C. P</b><br/>Address of Applicant :Associate Professor, Department of Commerce, Government Womens College, Maddur, Mandya, Karnataka-571428, India. Maddur -----<br/>-----<br/><b>7)Dr. Shalini Saxena</b><br/>Address of Applicant :Associate Professor, Faculty of Law, SRM University Delhi NCR Sonapat, Haryana-131029, India. Sonapat -----<br/><b>8)Dr. Ashish Verma</b><br/>Address of Applicant :Professor and Dean, Department of Law, School of Law, IMS Unison University, Dehradun-248001, India. Dehradun -----</p> |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

(57) Abstract :  
ARTIFICIAL INTELLIGENCE FOR ENVIRONMENTAL PROTECTION: OPPORTUNITIES AND CHALLENGES ABSTRACT This invention presents a novel Artificial Intelligence (AI)-driven framework for environmental protection that utilizes advanced algorithms to monitor, predict, and mitigate ecological threats. By integrating AI with environmental data sources such as satellite imagery, IoT sensors, and atmospheric models, the system enables real-time analysis of pollution, deforestation, climate change, and biodiversity loss. The AI engine is capable of anomaly detection, predictive modeling, and decision optimization, thereby enhancing proactive environmental management. Designed with modular architecture, the framework supports easy integration with existing infrastructure and ensures ethical compliance through explainable AI and privacy-aware protocols. It addresses both opportunities and challenges of deploying AI in environmental contexts, such as data scarcity, model interpretability, and algorithmic fairness. The invention provides scalable, intelligent solutions to empower environmental agencies, policy-makers, and communities in their efforts toward ecological conservation and sustainable development. It represents a forward-looking approach to combating environmental degradation through technology-driven innovation.

No. of Pages : 14 No. of Claims : 7

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202541059181 A

(19) INDIA

(22) Date of filing of Application :20/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : TINY YOLO OBJECT DETECTION USING RASPBERRY PI

|                                                                                                                                                                                                                                                                                                                                                                                           |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>(51) International classification :G06N0003080000, H04N0007180000, H04W0004380000, G06V0040100000, A61K0036730000</p> <p>(86) International Application No :NA<br/>Filing Date :NA</p> <p>(87) International Publication No : NA</p> <p>(61) Patent of Addition to Application Number :NA<br/>Filing Date :NA</p> <p>(62) Divisional to Application Number :NA<br/>Filing Date :NA</p> |  | <p>(71)<b>Name of Applicant :</b><br/><b>1)KG REDDY COLLEGE OF ENGINEERING &amp; TECHNOLOGY</b><br/>Address of Applicant :CHILKUR VILLAGE, MOINABAD MANDAL HYDERABAD., RR-501504 Ranga Reddy -----</p> <p><b>Name of Applicant : NA</b><br/><b>Address of Applicant : NA</b></p> <p>(72)<b>Name of Inventor :</b><br/><b>1)Dr. Jhade Srinivas</b><br/>Address of Applicant :Associate Professor, Dept of CSE-Data Science, Chilkur Village, Moinabad Mandal Hyderabad., RR-501504 Ranga Reddy -----</p> <p>---</p> <p><b>2)Mahesh Mahendrakar</b><br/>Address of Applicant :Dept of CSE-Data Science, Chilkur Village, Moinabad Mandal Hyderabad., RR-501504 Ranga Reddy -----</p> <p><b>3)Venkatesh Annarapu</b><br/>Address of Applicant :Dept of CSE-Data Science, Chilkur Village, Moinabad Mandal Hyderabad., RR-501504 Ranga Reddy -----</p> <p><b>4)Shambhuni Prabhakar</b><br/>Address of Applicant :Dept of CSE-Data Science, Chilkur Village, Moinabad Mandal Hyderabad., RR-501504 Ranga Reddy -----</p> <p><b>5)Prabhas Veeraveni</b><br/>Address of Applicant :Dept of CSE-Data Science, Chilkur Village, Moinabad Mandal Hyderabad., RR-501504 Ranga Reddy -----</p> |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

(57) Abstract :

Tiny yolo object detection using raspberry PI is the proposed invention. Wildlife conservation and human-wildlife conflict mitigation are critical concerns in forested and rural areas. This project proposes a Wildlife Detection and Alert System utilizing Tiny YOLO (You Only Look Once) on Raspberry Pi to detect animals in real-time and alert concerned authorities or individuals in proximity. The system leverages computer vision techniques and deep learning algorithms to identify wildlife species, helping in preventing human-wildlife conflicts, tracking endangered species, and monitoring biodiversity. The existing wildlife monitoring systems mostly rely on manual surveillance, motion sensors, or large-scale expensive camera networks. These systems face several challenges such as high costs, maintenance issues, and limited real-time detection capabilities. Our system addresses these limitations by utilizing a low-cost, energy- efficient embedded solution with edge AI processing, enabling real-time wildlife detection without dependency on cloud-based computations.

No. of Pages : 16 No. of Claims : 5

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202541059182 A

(19) INDIA

(22) Date of filing of Application :20/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : A FRAMEWORK FOR LEAD TIME REDUCTION IN CUSTOMIZED MEDICAL PRODUCT SUPPLY CHAINS USING ADDITIVE MANUFACTURING

(51) International classification :G16H0010600000, B33Y0080000000, B33Y0010000000, G16H0020100000, B33Y0050020000

(86) International Application No :NA

Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA

Filing Date :NA

(62) Divisional to Application Number :NA

Filing Date :NA

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(57) Abstract :

Additive Manufacturing (AM) has emerged as a disruptive technology that is transforming the healthcare industry by enabling the production of complex, patient-specific medical products with a level of precision and customization previously unattainable using traditional manufacturing techniques. Its impact spans across patient care, rehabilitation, and overall treatment outcomes. AM supports rapid prototyping, facilitates iterative design modifications, and allows for adaptation to individual anatomical and functional requirements—ushering in a more patient-centered approach to medical product development. Leveraging these capabilities, healthcare providers and manufacturers can deliver personalized solutions that improve treatment effectiveness, comfort, and quality of life. This research investigates the influence of AM on lead time in healthcare supply chains, specifically in the context of manufacturing customized medical products. A comprehensive literature review was conducted to explore the necessity

No. of Pages : 16 No. of Claims : 6

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :20/06/2025

(21) Application No.202541059190 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : ASTRA - Automated System for Translating Recognition Actions

(51) International classification :H04L0051040000, G06F0003010000, H04L0065403000, G09B0021000000, H04N0007140000

(86) International Application No :NA

Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA

Filing Date :NA

(62) Divisional to Application Number :NA

Filing Date :NA

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(57) Abstract :

Many individuals with speech or hearing impairments face significant barriers when it comes to effective communication, particularly in digital and remote settings. Traditional video conferencing tools and assistive technologies often lack real-time, gesture-based communication support, limiting inclusivity and accessibility. The Astra project addresses this challenge by offering a real-time gesture recognition system that seamlessly translates hand movements into both text and speech outputs. This system enables intuitive and instant communication, removing dependency on spoken language or external devices. With a user-friendly interface and responsive design, Astra operates smoothly across multiple platforms and devices, providing an inclusive communication channel for users with diverse needs. Astra stands out with its unique dual output mode, delivering both text and synthesized speech to accommodate diverse communication needs. Optimized for real-time gesture detection and response, it ensures a seamless, natural conversation experience. Its platform-agnostic and modular design allows effortless integration with any web-based platform, enhancing digital accessibility without dependence on specific conferencing tools. As an open- source solution, Astra fosters transparency and invites innovation in inclusive technology. Most importantly, it empowers individuals with speech and hearing impairments by offering an accessible communication alternative, promoting equal participation in virtual environments and functioning effectively even in noise-sensitive or silent settings.

No. of Pages : 24 No. of Claims : 5

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :20/06/2025

(21) Application No.202541059200 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : SYSTEM AND METHOD OF CONVERSION OF AGRO WASTE TO ACTIVATED CARBON AND ITS EFFICACY ON METHYLENE BLUE ABSORPTION

(51) International classification :C02F0001000000, F23G0005027000, C02F0001280000, H01L0021670000, C07K0014395000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

The system (100) includes a raw material feeding unit (102), a pre-treatment unit (104), a pyrolysis chamber (106), an activation unit (108), a cooling unit (110), a crushing and sieving unit (112), a storage unit (114), a methylene blue absorption analysis unit (116), and a control unit (118). The raw material feeding unit (102) is configured to feed agro waste into the pre-treatment unit (104) in a regulated manner. The pre-treatment unit (104) is adapted to clean and dry the agro waste to remove moisture and impurities. The pyrolysis chamber (106) is configured to thermally decompose the dried agro waste under limited oxygen to form char. The activation unit (108) utilizes steam or chemical agents at elevated temperatures to activate the char and develop porosity. The cooling unit (110) reduces the temperature of activated carbon to ambient level post activation.

No. of Pages : 14 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202541059218 A

(19) INDIA

(22) Date of filing of Application :20/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : SMART SOIL NUTRIENT MAPPING SYSTEM USING AI AND IOT

(51) International  
classification

:G01N0033240000, H04L0009400000,  
G06Q0050020000, H04W0004380000,  
H04W0084180000

(86) International  
Application No  
Filing Date

:NA  
:NA

(87) International  
Publication No

: NA

(61) Patent of Addition to  
Application Number  
Filing Date

:NA  
:NA

(62) Divisional to  
Application Number  
Filing Date

:NA  
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(57) Abstract :

Abstract- By integrating state-of-the-art technology, the "Smart Soil Nutrient Mapping System Using AI and IoT" provides a new approach to precision farming with the aim of revolutionizing traditional soil testing. The system employs an IoT-sensing network complemented by AI-driven data analytics to provide real-time location-based soil nutrient information. It enables farmers and agricultural specialists to dynamically monitor and manage soil fertility, which optimizes crop growth, minimizes fertilizer overuse, and enhances sustainable agriculture practices. Traditional methods of soil nutrient analysis often involve laboratory analysis and manual sampling, which are time-consuming, labor-intensive, and unsuitable for large agricultural fields. This concept, however, puts intelligent, wireless sensor nodes along the field to collect data constantly on important factors such as pH, moisture, temperature, electrical conductivity, phosphorus (P), potassium (K), and nitrogen (N) of soil. The sensors employ secure Internet of Things connection protocols, to transfer data to a centralized cloud platform.

No. of Pages : 8 No. of Claims : 5

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202541059219 A

(19) INDIA

(22) Date of filing of Application :20/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : AI ENABLED IOT-BASED WAREHOUSE CLIMATE MANAGEMENT SYSTEM

(51) International classification :G06Q0010040000, F24F0011300000, F24F0011000000, F24F0110100000, A01G0009240000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(72)Name of Inventor :

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(57) Abstract :

Abstract-Employing the combined strengths of artificial intelligence (AI) and Internet of Things (IoT), the present invention is an intelligent climate management system designed particularly for warehouses. Pharmaceuticals, sensitive electronics, perishable products, and materials requiring special climatic conditions for safe storage are just some of the numerous products that are commonly stored in warehouses. Traditional climatic control systems rely on manual intervention or programmed schedules, often leading to wasteful use of energy and product deterioration as they respond slow or unsuitably to environmental changes. This innovation puts forward a dynamic, data-driven, real-time system that constantly senses and smartly regulates warehouse climatic conditions. Temperature, humidity, CO levels, air quality, light intensity, and particle matter are all tracked by the system's scattered network of Internet of Things-enabled environmental sensors placed intelligently throughout the warehouse. A library of AI algorithms trained on previous climatic conditions, product-specific storage requirements, and energy efficiency prediction models and product integrity preservation is contained within a central processing unit that takes in sensor data wirelessly transmitted. Upon analysis, the AI engine generates control signals for actuators that are mounted on exhaust fans, dehumidifiers, HVAC units, and other environmental control devices. The internal climate is automatically regulated through these actuators. The AI models continue to learn in order to grow productivity and prediction accuracy in the long run, and the system contains a feedback loop to ensure that the changes have the desired effect. Additionally, warehouse managers may view historical and current climate data, receive alerts, and override the AI control when needed thanks to the invention's cloud-based dashboard, which is available via online and smartphone interfaces. By seeing early indicators of temperature control equipment failure and alerting users beforehand, the system .also provides predictive maintenance capabilities. Therefore, the proposed AI-IoT hybrid system presents a comprehensive, scalable, dynamic, and highly adaptive intelligent solution for warehouse climate control. Product safety is considerably increased, human intervention is reduced, energy efficiency is improved, and some level of automation and intelligence that was not possible before using conventional systems is brought about by the invention.

No. of Pages : 8 No. of Claims : 5

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :20/06/2025

(21) Application No.202541059240 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : AUTOMATED MILK SPILLAGE PREVENTION DEVICE WHILE BOILING USING ESP32, PNEUMATIC LINEAR ACTUATORS, RIMS AND SENSORS

(51) International classification :G08B0021180000, A61B0005000000, G08B0021240000, A61M0005172000, G08B0027000000  
(86) International Application No :NA  
Filing Date :NA  
(87) International Publication No : NA  
(61) Patent of Addition to Application Number :NA  
Filing Date :NA  
(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

Milk spillage during boiling is a common issue in Indian households, leading to wastage, safety hazards, and additional cleaning efforts. Manual supervision is often required, making the process inefficient and timeconsuming. Existing solutions lack automation, requiring continuous monitoring to prevent overboiling and spillage. This invention provides an automated system to prevent milk from boiling over and spilling by utilizing pneumatic actuators, temperature sensors, and liquid sensors. The system is designed to detect critical - boiling conditions and -lift the milk vessel, preventing overflow and reducing milk wastage. An ESP32 microcontroller processes real-time data from the sensors and activates the actuators when necessary. Additionally, a beeper alert system notifies users before the vessel is lifted, ensuring an extra layer of intervention. The device is powered by a compact 12V Tadiran heat-resistant battery, ensuring wireless operation and energy efficiency. Future improvements include the integration of a thermistor to absorb heat from the stove flame, which will enhance temperature monitoring and reduce external power dependency. Key features include an automated spill prevention mechanism, real-time monitoring with temperature and liquid sensors, ESP32 microcontroller-controlled operation, a beeper alert system for user notification, and a heat-resistant battery for reliable power, making the system highly efficient, safe, and hassle-free for household and commercial kitchens.

No. of Pages : 9 No. of Claims : 8



(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :20/06/2025

(21) Application No.202541059244 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : AN EFFICIENT TOD/TOU BASED SOLAR TARIFF PLATFORM

(51) International classification :G06Q0050060000, G05B0015020000, H02J0003140000, F24F0011620000, F24F0011300000

(86) International Application No :NA

Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA

Filing Date :NA

(62) Divisional to Application Number :NA

Filing Date :NA

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(57) Abstract :

This invention introduces Ecowatt, a smart platform that helps users reduce electricity costs and manage power consumption more efficiently. It combines artificial intelligence (AI) with IoT-based device control to monitor energy usage in real time, especially for homes or businesses that use both grid and renewable sources like solar power. A key feature of Ecowatt is its ability to automatically pre-schedule the use of electrical appliances based on real-time electricity pricing (Time-of-Use tariffs), forecasted energy needs, and available solar energy. The system uses AI models to analyze past consumption patterns and predict optimal times to run high-energy devices such as washing machines or air conditioners. With the help of IoT sensors, Ecowatt keeps track of how and when appliances are used. It also includes a module that balances solar and grid usage smartly to reduce dependency on the grid when solar power is available. The platform offers users a visual dashboard with energysaving tips, alerts, and insights, making energy management simple and sustainable.

No. of Pages : 22 No. of Claims : 8

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :20/06/2025

(21) Application No.202541059245 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : Development of High-Power Ku-Band WR-75 Waveguide Load using Silicon Adhesive Material

(51) International classification :H04W0028020000, H05B0006700000, H01P0001260000, C09J0183040000, H01P0001220000  
(86) International Application No :NA  
Filing Date :NA  
(87) International Publication No : NA  
(61) Patent of Addition to Application Number :NA  
Filing Date :NA  
(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

The proposed invention relates to development of High-Power Ku-Band WR-75 Waveguide Load using Room Temperature Vulcanized (RTV) Silicon Adhesive Material, which is normally used as adhesive/bonding material for solar panels onboard the spacecrafts and is found to be a good absorbing material at microwave frequencies, especially at Ku-band frequency in the ranges from 10 GHz to 15 GHz, where its dissipation factor (or loss tangent) is quite high. More specifically, the present invention relates to development of a high-power waveguide attenuator and high-power waveguide loads at Ku-band and high-power waveguide loads, attenuators at ka-band frequency also. Figure 4a & 4b

No. of Pages : 26 No. of Claims : 7

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :20/06/2025

(21) Application No.202541059251 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : System and Method for AI-Driven Dynamic Pricing to Reduce Food Waste in Retail Environments

(51) International classification :G06Q30/02, G06Q50/12,  
G06N20/00  
(86) International Application No :NA  
Filing Date :NA  
(87) International Publication No : NA  
(61) Patent of Addition to Application  
Number :NA  
Filing Date :NA  
(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

ABSTRACT OF THE INVENTION: 240 245 250 255 260 Title: System and Method for AI-Driven Dynamic Pricing to Reduce Food Waste in Retail Environments  
The invention relates to an AI-powered system for optimizing the pricing of perishable goods in supermarkets to minimize food waste and enhance profitability. The system comprises modules for real-time data collection, freshness evaluation, and machine learning-based pricing adjustment. It dynamically alters prices based on shelf life, demand, inventory levels, and competitor pricing while ensuring transparency and customer trust. The system also includes a feedback loop for continuous AI retraining based on actual waste outcomes, thereby contributing to sustainable retail operations.

No. of Pages : 19 No. of Claims : 1

(51) International classification :G06N0003080000, G16H0010600000, G06N0003045000, G16H0050200000, G16H0080000000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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## (57) Abstract :

In most parts of the world, particularly in rural and under-resourced regions, medical systems face numerous challenges including inadequate medical staffing, limited access to specialized healthcare, long wait times, and misdiagnosis due to overwhelming workloads. "Dr. Curion" is a comprehensive Artificial Intelligence (AI)-powered healthcare assistant developed to overcome these barriers by combining deep learning and Natural Language Processing (NLP) to provide accessible and accurate preliminary medical diagnoses. The invention comprises two primary AI models: 1. A deep convolutional neural network (CNN) trained to analyze chest Xray images and diagnose pneumonia with high accuracy. 2. An NLP model trained to interpret and process patient-reported symptoms entered in natural language. It outputs a detailed medical report with probable diagnoses, drug recommendations based on Indian pharmacopoeia, and basic health advice. The system maintains a digital patient record, reduces diagnostic delays, and can be accessed via web interfaces, mobile apps, or integrated with hospital systems. It is designed to scale by adding new disease classifiers and multilingual support for broader reach in India and similar regions

No. of Pages : 7 No. of Claims : 8

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :20/06/2025

(21) Application No.202541059274 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : Design and fabrication of Bluetooth control electric cultivator

(51) International classification :H04M0001724120, H04W0004800000, G05B0019042000, G06Q0050020000, A01G0009240000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

Abstract This project outlines the design and creation of a Bluetooth-operated electric cultivator intended to improve agricultural productivity through automation and remote control capabilities. Conventional soil cultivation techniques typically involve considerable manual effort and the use of fuel-driven machinery, which can be labor-intensive and detrimental to the environment. The suggested system offers a sustainable, electric- powered cultivator that can be managed wirelessly through a smartphone application utilizing Bluetooth technology. The primary elements consist of a cultivator blade mechanism powered by a DC motor, a microcontroller (like Arduino or ESP32), a motor driver, and a Bluetooth module (HC-05/HC-06). This system facilitates real-time control over movement and functionality, enabling users to operate the cultivator remotely with ease. Such a method greatly minimizes manual labor and enhances accuracy in small-scale agricultural and gardening activities. Furthermore, the electric power supply guarantees quieter operation and eliminates emissions, thereby supporting sustainable farming practices.

No. of Pages : 10 No. of Claims : 4

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202541059276 A

(19) INDIA

(22) Date of filing of Application :20/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : A BLUETOOTH AUSCULTATION SYSTEM FOR EARLY DETECTION OF CONGENITAL HEART DISEASE OF CHILDREN

(51) International classification :A61B0007040000, A61B0007000000, A61B0005000000, H04W0004800000, A61B0007020000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

**ABSTRACT A BLUETOOTH AUSCULTATION SYSTEM FOR EARLY DETECTION OF CONGENITAL HEART DISEASE OF CHILDREN** The present invention discloses a Bluetooth auscultation system (10) for early detection of congenital heart disease in offline condition. The system comprises a MEMS microphone is configured to capture low frequency heart sounds for detecting the heart murmurs and other. The signal conditioning unit (13) houses the low noise amplifiers and analog filters to pre-process the raw heart sounds before digitalization. The analog to digital converter is configured to convert analog heart sound signals into digital data for data transmission and processing. The BLE module (15) is configured to enable wireless transmission of digitized heart sound signals to one or more paired android devices. The data acquisition module is configured to capture raw heart sound signals from the Bluetooth low energy module and transmit it to the processing platform. The pre-processing module (18) is configured to prepare raw audio data for the classification by enhancing signal quality and extracting meaningful features. The classification module is configured to analyse the pediatric heart sound using the plurality of convolution layers. The post processing module comprises a threshold calibration module and a confidence scoring module. The interface module (21) is configured to serve as the user interaction and processing platform by means of receiving, analysing and displaying heart sound data. The present invention (10) eliminates the need of medical workers to check the heart diseases in remote areas and emergency situations. Fig 1

No. of Pages : 28 No. of Claims : 6

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202541059277 A

(19) INDIA

(22) Date of filing of Application :20/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : SOLAR POWERED ANIMAL REPELLENT SYSTEM

(51) International classification :A01M0029180000, A01M0029100000, A01M0029160000, F21Y0115100000, A01M0029120000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

Abstract This solar-powered animal repellent system offers an eco-friendly and humane solution to deter unwanted animals from gardens, farms, and properties. Harnessing solar energy, the system emits ultrasonic frequencies and flashing LED lights to create an unpleasant environment for pests, effectively repelling them without causing harm. With its weather-resistant design and adjustable settings, this system provides a reliable and customizable solution for protecting crops and property from animal damage, promoting a safe and sustainable coexistence between humans and wildlife.

No. of Pages : 9 No. of Claims : 5

(54) Title of the invention : ISOLATION AND MOLECULAR DOCKING ANALYSIS OF BERBERINE FROM BERBERIS ARISTATA: TARGETING KEY ENZYMES IN GLUCOSE METABOLISM FOR ANTI- DIABETIC THERAPY

(51) International classification :A61P0003100000, A61K0031437500, A61K0036290000, A61P0005500000, G16B0015300000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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## (57) Abstract :

The isolation of berberine from Berberis aristata and its molecular docking analysis introduces a promising strategy for advancing anti-diabetic therapeutics through natural plant-based compounds. Berberine, a potent iso-quinoline alkaloid, is widely recognized for its hypoglycemic effects, primarily through its interaction with key metabolic enzymes. The compound is extracted using methanolic Soxhlet extraction and further purified and characterized to ensure high bioactive integrity. Molecular docking studies reveal that berberine exhibits significant binding affinities to enzymes such as  $\alpha$ -glucosidase and hexokinase, which are critically involved in glucose metabolism and insulin sensitivity. These enzyme interactions suggest berberine's potential to regulate postprandial glucose levels, enhance glucose uptake, and improve insulin signaling pathways. This research highlights the compound's ability to serve as a multi-targeted therapeutic agent, offering a safer and more natural alternative to conventional synthetic drugs. By integrating traditional phytochemical techniques with computational drug discovery tools, this approach supports the development of novel anti-diabetic formulations that are both effective and biocompatible, contributing to more holistic diabetes management.

No. of Pages : 8 No. of Claims : 6



(54) Title of the invention : SELF-LEARNING ROBOTIC CONTROL SYSTEM USING ADAPTIVE NEURAL NETWORK ARCHITECTURES

|                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
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| <p>(51) International classification :G06N0003080000, G06N0003045000, G06N0020000000, B25J0009160000, G06N0003044000</p> <p>(86) International Application No :NA<br/>Filing Date :NA</p> <p>(87) International Publication No : NA</p> <p>(61) Patent of Addition to Application Number :NA<br/>Filing Date :NA</p> <p>(62) Divisional to Application Number :NA<br/>Filing Date :NA</p> | <p>(71)Name of Applicant :<br/> <b>1)Dr. V. Navya</b><br/> Address of Applicant :Associate Professor, Department of Electronics and Communication Engineering, East Point College of Engineering and Technology, Bengaluru – 560049, Karnataka, India -----<br/> <b>2)Geetha Priyadharisini</b><br/> <b>3)M. Syed Rabiya</b><br/> <b>4)Sandhya N</b><br/> <b>5)Nilu Mishra</b><br/> <b>6)Malini V. L</b><br/> <b>7)Kavitha A</b><br/> <b>8)Parvati Patil</b><br/> <b>9)Hemavathi N. V</b><br/> <b>10)Asha S</b><br/> Name of Applicant : NA<br/> Address of Applicant : NA<br/> (72)Name of Inventor :<br/> <b>1)Dr. V. Navya</b><br/> Address of Applicant :Associate Professor, Department of Electronics and Communication Engineering, East Point College of Engineering and Technology, Bengaluru – 560049, Karnataka, India -----<br/> <b>2)Geetha Priyadharisini</b><br/> Address of Applicant :Assistant Professor, Department of Electronics and Communication Engineering, East Point College of Engineering and Technology, Bengaluru – 560049, Karnataka, India -----<br/> <b>3)M. Syed Rabiya</b><br/> Address of Applicant :Assistant Professor, Department of Computer Science and Engineering, Vel Tech Rangarajan Dr. Sagunthala R&amp;D Institute of Science and Technology, Chennai – 600062, Tamil Nadu, India -----<br/> <b>4)Sandhya N</b><br/> Address of Applicant :Assistant Professor, Department of Electronics and Communication Engineering, East Point College of Engineering and Technology, Bengaluru – 560049, Karnataka, India -----<br/> <b>5)Nilu Mishra</b><br/> Address of Applicant :Assistant Professor, Department of Electronics and Communication Engineering, East Point College of Engineering and Technology, Bengaluru – 560049, Karnataka, India -----<br/> <b>6)Malini V. L</b><br/> Address of Applicant :Assistant Professor, Department of Electronics and Communication Engineering, East Point College of Engineering and Technology, Bengaluru – 560049, Karnataka, India -----<br/> <b>7)Kavitha A</b><br/> Address of Applicant :Assistant Professor, Department of Electronics and Communication Engineering, East Point College of Engineering and Technology, Bengaluru – 560049, Karnataka, India -----<br/> <b>8)Parvati Patil</b><br/> Address of Applicant :Assistant Professor, Department of Electronics and Communication Engineering, East Point College of Engineering and Technology, Bengaluru – 560049, Karnataka, India -----<br/> <b>9)Hemavathi N. V</b><br/> Address of Applicant :Assistant Professor, Department of Electronics and Communication Engineering, East Point College of Engineering and Technology, Bengaluru – 560049, Karnataka, India -----<br/> <b>10)Asha S</b><br/> Address of Applicant :Assistant Professor, Department of Electronics and Communication Engineering, East Point College of Engineering and Technology, Bengaluru – 560049, Karnataka, India -----</p> |
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(57) Abstract :

029] The present invention discloses a self-learning robotic control system utilizing adaptive neural network architectures for real-time decision-making and task execution. The system comprises a sensor interface for acquiring environmental and internal state data, a neural learning engine for processing inputs and generating control commands, an actuator interface for executing said commands, a reward evaluation module for continuous feedback based on performance, and a dynamic architecture controller capable of modifying the neural network's structure in response to operational conditions. Unlike traditional robotic systems with fixed models, this invention supports real-time structural evolution of the neural network, enabling autonomous optimization of both network topology and learning parameters. The system also supports modular learning subcomponents for subtasks such as perception, navigation, and manipulation, and includes a simulation sandbox for validating models before real-world deployment. The invention facilitates lifelong learning, enhanced autonomy, and improved adaptability across diverse environments, offering a scalable and intelligent solution for next-generation robotic systems. Accompanied Drawing [FIGS. 1-2]

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(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :20/06/2025

(21) Application No.202541059286 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : DESIGN AND FABRICATION OF AUTOMATED SEED SOWING MACHINE

(51) International classification :A01C0007200000, A01C0005060000, E02D0029000000, G06Q0050020000, A01C0007100000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

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(57) Abstract :

Abstract Traditional manual seed sowing methods are labor-intensive, time-consuming, and often lead to issues such as uneven seed distribution, inconsistent depth, and unnecessary wastage. Addressing these challenges is crucial for enhancing agricultural efficiency, especially in the context of small and medium-scale farming. This project presents the design and fabrication of an Automated Seed Sowing Machine aimed at improving sowing accuracy, reducing human effort, and promoting sustainable agricultural practices. The developed machine features a motor-driven seed metering mechanism, enabling precise seed dispensing and uniform sowing. An integrated system allows for adjustable seed spacing and sowing depth, catering to various crop requirements. The machine is built on a lightweight, durable chassis designed for easy handling, mobility, and operation across different terrains and soil types. Key features include: • Interchangeable seed plates to support multiple crop varieties. • User-friendly control system for easy operation and configuration. • Cost-effective and energy-efficient design, suitable for small and medium-sized farms. • Low-maintenance architecture, making it practical for long-term rural use. By automating critical aspects of the sowing process, the machine ensures optimal seed placement, enhances germination rates, and contributes to improved crop yields. Ultimately, this solution supports the shift toward mechanized and sustainable farming, reducing dependency on manual labor and improving agricultural productivity

No. of Pages : 12 No. of Claims : 5

(54) Title of the invention : System and Method for Sparse Matrix Factorization Using Reinforcement Learning for Large-Scale Recommender Systems

|                                               |                                                                                 |                                                                                                                                                                                                                  |
|-----------------------------------------------|---------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
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| Filing Date                                   | :NA                                                                             | <b>Name of Applicant : NA</b>                                                                                                                                                                                    |
| (87) International Publication No             | : NA                                                                            | <b>Address of Applicant : NA</b>                                                                                                                                                                                 |
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(57) Abstract :  
ABSTRACT Title: System and Method for Sparse Matrix Factorization Using Reinforcement Learning for Large-Scale Recommender Systems 380 385 390 395 400 405 The present invention introduces a novel hybrid recommender system architecture that synergistically combines reinforcement learning (RL) with sparse matrix factorization to significantly enhance the performance and adaptability of recommendation engines in large scale and dynamic data environments. Traditional recommendation approaches that rely solely on matrix factorization often struggle to deliver optimal results in scenarios characterized by high levels of data sparsity or rapid shifts in user preferences. By integrating reinforcement learning into the matrix factorization process, the invention overcomes these limitations and delivers intelligent, context-aware recommendations. At the core of the invention is a policy-driven reinforcement learning agent that learns to make informed updates to the latent vectors representing users and items in a sparse matrix. These latent vectors are critical in capturing the underlying structure of user-item interactions. Unlike conventional systems that rely on static optimization techniques, the proposed agent uses feedback-derived reward signals—such as clicks, ratings, dwell time, or engagement rates—to guide its decision-making process. Each action taken by the agent corresponds to an update in the latent feature space, with the objective of minimizing prediction error and maximizing user satisfaction. The system continuously monitors incoming feedback and adapts the recommendation strategy in real time. Through deep reinforcement learning models, such as Deep Q-Networks (DQN) or Proximal Policy Optimization (PPO), the policy network evolves to improve its performance in diverse user scenarios. The inclusion of both explicit and implicit feedback ensures that the model is sensitive to nuanced patterns in user behavior, leading to more accurate and relevant content delivery. Furthermore, the invention is designed to function effectively even under extreme sparsity conditions, such as those involving new users (cold start) or rarely rated items. By leveraging the decision-making capabilities of reinforcement learning, the system dynamically explores latent feature adjustments that conventional factorization algorithms may overlook. This results in higher personalization, better generalization, and greater robustness across a variety of recommendation use cases. 13 410 In summary, the invention represents a significant advancement in the field of intelligent recommendation systems. By fusing the structured learning capability of matrix factorization with the adaptive, feedback-driven intelligence of reinforcement learning, it establishes a powerful framework capable of delivering scalable, accurate, and personalized recommendations in real-world, data-intensive environments.

No. of Pages : 22 No. of Claims : 1

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202541059302 A

(19) INDIA

(22) Date of filing of Application :20/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : PREPARATION OF GRAPHITIC-CARBON-NITRIDE (g-C3N4)/RUST/PVDF NANOCOMPOSITE FOAM AND THEIR APPLICATIONS THEREOF FOR OIL/WATER SEPARATION

(51) International classification :B01J0027240000, B01J0035390000, B82Y0030000000, B01D0067000000, B01D0071340000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

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(57) Abstract :

ABSTRACT PREPARATION OF GRAPHITIC-CARBON-NITRIDE (g-C3N4)/RUST/PVDF NANOCOMPOSITE FOAM AND THEIR APPLICATIONS THEREOF FOR OIL/WATER SEPARATION The present invention provides a method for the preparation of graphitic-carbon-nitride (g-C3N4)/Rust/PVDF nanocomposite foam comprising the following steps: (a) transferring a melamine precursor to a receiver and calcinating said precursor, (b) cooling down the product to ambient temperature, collecting the same, and grinding it to a fine powder, (c) sieving the rust so obtained from step b) to remove debris, washing the same suitably and drying it, (d) subjecting the product obtained from step (c) to further calcination to obtain  $\alpha$ -Fe2O3, (e) mixing calcinated rust, g-C3N4, PVDF powder, and table salt and heating the mixture, (f) subjecting the heated mixture to hot water for a prolonged period till obtaining template-free graphitic-carbon-nitride (g-C3N4)/Rust/PVDF nanocomposite foam. A graphitic-carbon-nitride (g-C3N4)/Rust/PVDF nanocomposite foam with enhanced traits is also disclosed. FIG. 3

No. of Pages : 15 No. of Claims : 6

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :20/06/2025

(21) Application No.202541059308 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : Image Processing for Monitoring and Optimizing the Drying Stages of Agricultural Products

(51) International classification :A23B0007020000, G06Q0050020000, D21H0021240000, A23L0003400000, H04N0001210000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

This work evaluates the usefulness of image analysis to describe the stages of agricultural product drying, with the aim of optimizing the process and improving final product quality. Using a laboratory-scale dryer, continuous digital image capture was performed through a small double-glazed window. Other variables of the drying process were monitored, including changes in air temperature and humidity, and product weight. The HSV color model was used for image analysis, and the average value and standard deviation of the hue (H), saturation (S), and brightness (V) channels of a cropped image were tracked over time to correlate them with variations in product texture. The Scilab programming language and its SIVP image processing tool were used for this purpose. Two loads of Virginia tobacco and two loads of paprika were dried. Based on these experiments, it was determined that the average value of H and its standard deviation are good indicators of the evolution of the drying process for these agricultural products. Further experiments are still needed to clearly define the benefits of using it as a control and optimization tool. If confirmed, its potential would lie not only in a qualitative improvement of dried products but also in a more efficient use of energy resources. Accompanied Drawing [FIG. 1] [FIG. 2] [FIG. 3] [FIG. 4] [FIG. 5] [FIG. 6] [FIG. 7] [FIG. 8] [FIG. 9] [FIG. 10] [FIG. 11] [FIG. 12][FIG. 13][FIG. 14][FIG. 15]

No. of Pages : 24 No. of Claims : 6

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :20/06/2025

(21) Application No.202541059312 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : A steering arm for a heavy-duty vehicle

(51) International classification :B62D0007180000, B60G0007000000, B62D0007160000, B62D0007200000, B62D0007100000  
(86) International Application No :NA  
Filing Date :NA  
(87) International Publication No : NA  
(61) Patent of Addition to Application Number :NA  
Filing Date :NA  
(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

A steering arm for a heavy-duty vehicle [0026] The present invention relates to a steering arm (101) for a heavy-duty vehicle. The steering arm (101) comprises a first end (201) with a rectangular cross-section and a through-hole (202) for connection to a ball stud of a drag link, and a second end (203) adapted to connect to a steering knuckle (102). The second end (203) is having a T-shaped cross-section with a laterally extending top flange (204) matching the width of the steering knuckle (102). The steering arm (101) comprises a main body (206) that connects the first and second ends, transitioning from the rectangular to the T-shaped profile. The top flange (204) is having mounting holes (205) to receive bolts for attachment. The steering arm (101) reduces stress concentrations and improves load distribution across the steering knuckle (102). (Figure 2)

No. of Pages : 16 No. of Claims : 6

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :20/06/2025

(21) Application No.202541059331 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : HEALTH MONITORING AND EMERGENCY RESPONSE SYSTEM AND METHOD THEREOF

(51) International classification :A61B0005000000, A61B0005020500, A61B0005110000, A61B0005024000, A61B0005145000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
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(57) Abstract :

Disclosed herein is a health monitoring and emergency response system and method thereof (100) that comprises a wearable device (102) configured to detect and monitor physiological and physical conditions of a user, the wearable device (102) comprising; a heart rate sensor (104), a body temperature sensor (106), a blood oxygen level sensor (108), a fall detection sensor (110), a movement sensor (112), a processing unit (114) being located inside the wearable device (102), a communication network (116), a cloud storage management unit (118) configured to receive the analysed sensor data from the processing unit (114) through the communication network (116), an alert generation unit (120) configured to receive the stored data from the cloud storage management unit (118), a user device (122) configured to receive the generated alerts from the alert generation unit (120) over the communication network (116), a user interface (124) inside the user device (122).

No. of Pages : 40 No. of Claims : 10

(54) Title of the invention : AUTOMATED PATROLLING SYSTEM FOR DETECTING VEHICLE IN UNAUTHORIZED PARKING AREA AND A METHOD THEREOF

|                                                                                                                                                                                                                                                                                                                                                                                                               |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <div>(51) International classification :G06V0030100000, G08G0001054000, G08G0001017000, G06V0020620000, G08G0001140000</div> <div>(86) International Application No :NA<br/>Filing Date :NA</div> <div>(87) International Publication No : NA</div> <div>(61) Patent of Addition to Application Number :NA<br/>Filing Date :NA</div> <div>(62) Divisional to Application Number :NA<br/>Filing Date :NA</div> |  | <div>(71)Name of Applicant :<br/><b>1)B.M.S COLLEGE OF ENGINEERING</b><br/>Address of Applicant :PO BOX 1908, BULL TEMPLE RD, BASAVANAGUDI, BENGALURU, KARNATAKA 560019, INDIA Bangalore Urban -----</div> <div>Name of Applicant : NA<br/>Address of Applicant : NA</div> <div>(72)Name of Inventor :<br/><b>1)DR. NALINA V</b><br/>Address of Applicant :B.M.S COLLEGE OF ENGINEERING, PO BOX 1908, BULL TEMPLE RD, BASAVANAGUDI, BENGALURU, KARNATAKA 560019, INDIA Bangalore Urban -----</div> <div><b>2)MONIKA K</b><br/>Address of Applicant :B.M.S COLLEGE OF ENGINEERING, PO BOX 1908, BULL TEMPLE RD, BASAVANAGUDI, BENGALURU, KARNATAKA 560019, INDIA Bangalore Urban -----</div> <div><b>3)MUKUND RAO</b><br/>Address of Applicant :B.M.S COLLEGE OF ENGINEERING, PO BOX 1908, BULL TEMPLE RD, BASAVANAGUDI, BENGALURU, KARNATAKA 560019, INDIA Bangalore Urban -----</div> <div><b>4)NITHYASHREE</b><br/>Address of Applicant :B.M.S COLLEGE OF ENGINEERING, PO BOX 1908, BULL TEMPLE RD, BASAVANAGUDI, BENGALURU, KARNATAKA 560019, INDIA Bangalore Urban -----</div> |
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(57) Abstract :  
Disclosed herein is an Internet of Things (IoT)-based automated patrolling system (100) and method (200) for detecting vehicles in unauthorized parking areas. The system (100) includes a patrolling unit (102) that comprises a location detection unit (104) and a camera (106) for capturing geographic coordinates and real-time video evidence. An edge processing unit (108) on the patrolling unit (102) includes a data input module (110), a data processing module (112), a violation verification module (114), and a communication module (116) to transmit verified violation data via a communication network (118) to a data center (126). The processing unit (128) comprising violation input module (130), a violation data processing module (132), a number plate detection module (134), an optical character recognition (OCR) module (136), a validation module (138), a fine issuance module (140), a notification module (142), and an output module (144). The system (100) also includes a user device (122) with a user interface (124).

No. of Pages : 56 No. of Claims : 10



(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :20/06/2025

(21) Application No.202541059340 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : Waste Plastic–Reinforced Structural Brick with Interlocking Geometry for Low–Cost Housing

(51) International classification :C10G0001100000, C10G0001000000, C12N0009160000, C08L0101000000, E04B0002020000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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**3)H. Geetha**

**4)Dr. T. Srividya**

**5)Dr. V. Jaladevi**

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(57) Abstract :

ABSTRACT: Title: Waste Plastic–Reinforced Structural Brick with Interlocking Geometry for Low–Cost Housing A new type of brick, made from plastic waste and different fillers, is described and its design with precise interlocking edges allows units to interlock, without cement mortar. Using bricks enhances the building’s ability to bear weight, insulate from heat and maintain its shape and also lowers the environmental impact. The linking system guarantees all walls are aligned and look the same which makes it useful for low-priced, quick and sustainable homes. Because it recycles plastic waste into useful materials, this invention supports circular economy in the construction industry.

No. of Pages : 23 No. of Claims : 2

(54) Title of the invention : Gamified Error Detection Engine for English Sentence Correction

|                                               |                                                                                 |                                                                                                                                                                                                                                                                                        |
|-----------------------------------------------|---------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (51) International classification             | :G06Q0050200000, G09B0019060000, G06F0040253000, G09B0005020000, G09B0005060000 | (71) <b>Name of Applicant :</b><br><b>1)Majji Rama Rao</b><br>Address of Applicant :Assistant Professor, Department of Humanities and Social Sciences, College of Engineering C/o Dr.B. R. Ambedker University, Etcherla – 532410, Srikakulam, Andhra Pradesh, India. Srikakulam ----- |
| (86) International Application No             | :NA                                                                             |                                                                                                                                                                                                                                                                                        |
| Filing Date                                   | :NA                                                                             |                                                                                                                                                                                                                                                                                        |
| (87) International Publication No             | : NA                                                                            | <b>Name of Applicant : NA</b>                                                                                                                                                                                                                                                          |
| (61) Patent of Addition to Application Number | :NA                                                                             | <b>Address of Applicant : NA</b>                                                                                                                                                                                                                                                       |
| Filing Date                                   | :NA                                                                             | (72) <b>Name of Inventor :</b>                                                                                                                                                                                                                                                         |
| (62) Divisional to Application Number         | :NA                                                                             | <b>1)Majji Rama Rao</b>                                                                                                                                                                                                                                                                |
| Filing Date                                   | :NA                                                                             | Address of Applicant :Assistant Professor, Department of Humanities and Social Sciences, College of Engineering C/o Dr.B. R. Ambedker University, Etcherla – 532410, Srikakulam, Andhra Pradesh, India. Srikakulam -----                                                               |

(57) Abstract :  
ABSTRACT: Title: Gamified Error Detection Engine for English Sentence Correction The invention provides a gamified digital learning platform for English sentence correction, designed to improve grammar skills through interactive engagement. The system generates sentences with deliberate grammatical, punctuation, or syntactical errors and allows learners to identify and correct them via an intuitive interface. Using drag-and-drop features, typing, or selection tools, users modify the sentence and receive real-time feedback. The feedback engine offers explanations, grammar rules, and examples to reinforce learning. A scoring and reward system promotes user motivation, while adaptive difficulty ensures personalized learning paths. The platform supports classroom integration, educator customization, and individual self-paced learning. It offers cloud-based progress tracking, secure data storage, and scalable modules for additional grammar topics or language expansions. This invention enhances traditional language education by fostering active participation, critical thinking, and mastery of grammar in a game-like environment.

No. of Pages : 14 No. of Claims : 10

(54) Title of the invention : MICRO-HARDNESS TESTING SYSTEM AND METHOD FOR PREDICTING VICKERS HARDNESS NUMBER (VHN) OF METAL MATRIX COMPOSITES

|                                               |                                                                                 |                                                                                                                                                                                                                  |
|-----------------------------------------------|---------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (51) International classification             | :G06N0020000000, G01S0005020000, G01N0003420000, G16B0040000000, C23C0026000000 | (71)Name of Applicant :<br><b>1)VELLORE INSTITUTE OF TECHNOLOGY, CHENNAI</b><br>Address of Applicant :Vandalur - Kelambakkam Road, Chennai, Tamil Nadu - 600127, India. Chennai -----                            |
| (86) International Application No             | :NA                                                                             | <b>Name of Applicant : NA</b>                                                                                                                                                                                    |
| Filing Date                                   | :NA                                                                             | <b>Address of Applicant : NA</b>                                                                                                                                                                                 |
| (87) International Publication No             | : NA                                                                            | (72)Name of Inventor :                                                                                                                                                                                           |
| (61) Patent of Addition to Application Number | :NA                                                                             | <b>1)SUNIL KUMAR PRADHAN</b>                                                                                                                                                                                     |
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| (62) Divisional to Application Number         | :NA                                                                             | <b>2)TRILOK NATH PANDEY</b>                                                                                                                                                                                      |
| Filing Date                                   | :NA                                                                             | Address of Applicant :Assistant Professor, School of Computer Science and Engineering, Vellore Institute of Technology, Chennai, Vandalur - Kelambakkam Road, Chennai, Tamil Nadu - 600127, India. Chennai ----- |

(57) Abstract :  
The present disclosure relates to a micro-hardness testing system (102) and method (500) for predicting vickers hardness number (VHN) of metal matrix composites (MMCs). The system (102) includes a micro-hardness tester (222) and a digital interface (224). The micro-hardness tester (222) is configured to measure a VHN of MMC samples up to a predefined reinforcement percentage (X%). The digital interface (224) is configured to display measured and predicted VHN results in real-time. VHN is measured up to a predefined reinforcement level (X%). Machine learning models selected from ten algorithmic baskets are trained using VHN data. The models are evaluated using Mean Squared Error (MSE), Root Mean Squared Error (RMSE), and R-squared (R²). The best-performing models are selected and a stacking method is applied. VHN values are predicted for MMCs with reinforcement levels beyond said X%, and displaying the predicted VHN on the digital interface (224).

No. of Pages : 27 No. of Claims : 10

(54) Title of the invention : SYSTEM AND METHOD FOR DESIGN AND IMPLEMENTATION OF COMPUTATIONALLY EFFICIENT, LOW-POWER, 64-POINT BRUUN FFT PROCESSOR

|                                                                                                                                                                                                                                                                                                                                                                                                               |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <div>(51) International classification :G06F0017140000, G06F0009300000, H03M0013410000, G10K0011340000, H01L0021823400</div> <div>(86) International Application No :NA<br/>Filing Date :NA</div> <div>(87) International Publication No : NA</div> <div>(61) Patent of Addition to Application Number :NA<br/>Filing Date :NA</div> <div>(62) Divisional to Application Number :NA<br/>Filing Date :NA</div> |  | <div>(71)Name of Applicant :<br/><b>1)VELLORE INSTITUTE OF TECHNOLOGY, CHENNAI</b><br/>Address of Applicant :Vandalur - Kelambakkam Road, Chennai, Tamil Nadu - 600127, India. Chennai -----<br/><b>Name of Applicant : NA</b><br/><b>Address of Applicant : NA</b><br/>(72)Name of Inventor :<br/><b>1)AUGUSTA SOPHY BEULET P</b><br/>Address of Applicant :Professor, Centre for Nanoelectronics and VLSI Design, School of Electronics Engineering, Vellore Institute of Technology, Chennai, Vandalur - Kelambakkam Road, Chennai, Tamil Nadu - 600127, India. Chennai ---<br/>-----<br/><b>2)M.AVINASH</b><br/>Address of Applicant :PG Student, School of Electronics Engineering, Vellore Institute of Technology, Chennai, Vandalur - Kelambakkam Road, Chennai, Tamil Nadu - 600127, India. Chennai -----<br/><b>3)S.UMADEVI</b><br/>Address of Applicant :Associate Professor, Centre for Nanoelectronics and VLSI Design, School of Electronics Engineering, Vellore Institute of Technology, Chennai, Vandalur - Kelambakkam Road, Chennai, Tamil Nadu - 600127, India. Chennai -----</div> |
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(57) Abstract :

The present disclosure relates to a Fast Fourier Transform (FFT) processor comprising a plurality of butterfly units (202) configurable in three operational modes. A Type 1 butterfly processes two input samples using a pair of adders. A Type 2 butterfly processes three input samples and one real twiddle coefficient using a delay module (106) providing 1-cycle and 2-cycle delays, a real multiplier, and multiple adders. A Type 3 butterfly processes two real input samples and a pair of complex twiddle coefficients using multiple real multipliers and adders. A control unit (110) dynamically selects the butterfly mode based on the FFT stage. A twiddle factor generator (118) provides real and complex coefficients to the second and third modes, respectively. A memory unit (108) supports in-place addressing for input-output storage. A pipelined architecture with pipeline registers (112) enables stage-wise parallelism. The processor further includes a floating-point arithmetic unit (114) supporting 32-bit single-precision operations and a Vedic multiplier unit (116) for efficient multiplication.

No. of Pages : 29 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202541059372 A

(19) INDIA

(22) Date of filing of Application :20/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : APPARATUS FOR GENERATING ELECTRICITY FROM WASTE HEAT GENERATED IN CHIMNEYS

(51) International classification :H10N0010130000, B01D0053500000, H02K0007180000, H10N0010100000, H02J0050120000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

An apparatus (100) for generating electricity from waste heat generated in chimneys is provided. The apparatus (100) involves a heat extracting unit (102) configured to increase heat extraction from chimney. The apparatus (100) also involves one or more thermoelectric generator (TEG) modules (112) to receive heat from the chimney and convert to electric energy due to temperature gradient between a hot side (110) and a cold side (114) of the one or more TEG modules (112) based on a Seebeck effect. The apparatus (100) is modular, allowing easy installation on existing chimneys, wood stoves, or LPG units. The apparatus (100) also includes a flue gas filtration unit (124) to remove particulate matter and toxic gases like nitrogen and sulfur oxides, improving air quality. The generated electricity is stored in a rechargeable battery (120), providing a reliable power source. The invention offers a sustainable, cost-effective solution for rural energy needs, promoting cleaner air and efficient energy use.

No. of Pages : 19 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :20/06/2025

(21) Application No.202541059380 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : SYSTEM TO HARVEST ELECTRIC ENERGY FROM SUSPENSION OF A VEHICLE

(51) International classification :H02N0001040000, B60G0011040000, F16D0013700000, B60G0011100000, B60G0011107000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

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(57) Abstract :

A system 100 to produce electric energy from leaf-type suspension assembly 102 of a vehicle includes a first set of leaf springs 104 coated with a first triboelectric material; and a second set of leaf springs 106 coated with a second triboelectric material. The one leaf spring from the first set of leaf-springs 104 is placed above one leaf spring from the second set of leaf-springs 106 to form a pair of leafs and such pairs are staked to form the suspension assembly 102 such that when the vehicle moves with the assembled suspension assembly 102 over uneven terrain or carries varying loads, mechanical vibrations generates to causes the first leaf 104 and the second leaf 106 with different triboelectric materials slides against each other to transfer electrons and creating triboelectric charge, which is collected and stored for applications.

No. of Pages : 17 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202541059383 A

(19) INDIA

(22) Date of filing of Application :20/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : A Non-Invasive Multi-Parametric Optical Device for Real-Time Blood Analysis Using Arduino-Based Processing

(51) International classification :A61B0005000000, A61B0005145500, A61B0005145000, A61B0005150000, G06V0010820000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

Abstract A Non-Invasive Multi-Parametric Optical Device for Real-Time Blood Analysis Using Arduino-Based Processing Purpose: This invention aims to develop a non-invasive, real-time diagnostic device capable of estimating key blood parameters—hemoglobin, red blood cells, white blood cells, and platelets—without the need for blood extraction. Methodology: The device uses an optical sensing module based on near-infrared light sources and photodetectors, integrated with a microcontroller for signal processing. As the user places a fingertip on the sensor, light absorption patterns from capillary blood are detected and processed. Embedded algorithms interpret the data and output physiological estimates on a display. Machine learning models are used to calibrate and improve the accuracy of predictions. Results: Testing on multiple human subjects demonstrated that the device can estimate all four blood parameters with high accuracy, consistently maintaining a deviation of less than  $\pm 5\%$  compared to standard laboratory results. Real-time values are displayed on an LCD screen, with audible alerts for abnormal readings. Conclusions: The proposed system offers a compact, user-friendly, and non-invasive solution for blood analysis. It reduces the need for invasive procedures and laboratory infrastructure, making it especially valuable in remote and resource-limited settings. This innovation supports rapid screening and continuous monitoring, enhancing patient comfort and expanding access to essential diagnostics.

No. of Pages : 22 No. of Claims : 6

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :20/06/2025

(21) Application No.202541059433 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : PRESERVA SUSTAINABLE AND SMART AGRO STORAGE

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| <p>(51) International classification :G06Q0050020000, G06Q0010083300, G16Y0010050000, H04L0067120000, A01B0079000000</p> <p>(86) International Application No :NA<br/>Filing Date :NA</p> <p>(87) International Publication No : NA</p> <p>(61) Patent of Addition to Application Number :NA<br/>Filing Date :NA</p> <p>(62) Divisional to Application Number :NA<br/>Filing Date :NA</p> |  | <p>(71)Name of Applicant :<br/><b>1)FRANCIS XAVIER ENGINEERING COLLEGE</b><br/>Address of Applicant :103/G2, Bypass Road, Vannarpettai, Tirunelveli - 627003, Tamil Nadu, India Tirunelveli -----<br/><b>Name of Applicant : NA</b><br/><b>Address of Applicant : NA</b><br/>(72)Name of Inventor :<br/><b>1)Mr. BENHUR LEE.A.K</b><br/>Address of Applicant :Student, Department of Electronics and Communication Engineering, Francis Xavier Engineering College, 103/G2, Bypass Road, Vannarpettai, Tirunelveli - 627003, Tamilnadu, India Tirunelveli -----<br/>--<br/><b>2)Mr. NAGARJUNA R</b><br/>Address of Applicant :Student, Department of Electronics and Communication Engineering, Francis Xavier Engineering College, 103/G2, Bypass Road, Vannarpettai, Tirunelveli - 627003, Tamilnadu, India Tirunelveli -----<br/>--<br/><b>3)Mr. JOHN SAMUEL.J</b><br/>Address of Applicant :Student, Department of Electronics and Communication Engineering, Francis Xavier Engineering College, 103/G2, Bypass Road, Vannarpettai, Tirunelveli - 627003, Tamilnadu, India Tirunelveli -----<br/>--<br/><b>4)Mr. MUTHURAMAN K</b><br/>Address of Applicant :Student, Department of Electronics and Communication Engineering, Francis Xavier Engineering College, 103/G2, Bypass Road, Vannarpettai, Tirunelveli - 627003, Tamilnadu, India Tirunelveli -----<br/>--<br/><b>5)Mrs. M.RADHA</b><br/>Address of Applicant :Assistant Professor, Department of Electronics and Communication Engineering, Francis Xavier Engineering College, 103/G2, Bypass Road, Vannarpettai, Tirunelveli - 627003, Tamilnadu, India Tirunelveli ----- --<br/>-----</p> |
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(57) Abstract :

Agricultural post-harvest losses remain a significant global challenge, with millions of tons of produce wasted annually due to inefficient storage, poor climate control, and lack of real-time monitoring. Farmers, especially in rural and developing regions, face economic losses due to the unavailability of cost-effective storage solutions. Preserva is a cutting-edge Sustainable and Smart Agro Storage system designed to tackle this issue by integrating Internet of Things (IoT), Artificial Intelligence (AI), and Renewable Energy. The core objective of Preserva is to enhance food security, minimize wastage, and optimize storage conditions for agricultural produce. The system leverages a network of environmental sensors to monitor temperature, humidity, gas composition (ethylene), and moisture levels in real-time. To ensure sustainability and energy efficiency, Preserva is powered by solar panels and energy-efficient cooling mechanisms, reducing reliance on traditional electricity sources. The storage unit is designed to be scalable and cost-effective, catering to small-scale farmers as well as large agricultural enterprises. With wireless connectivity options such as Wi-Fi, farmers can monitor the storage unit through their smartphones or computers. The implementation of Preserva is expected to significantly reduce post-harvest losses, increase economic stability for farmers, and promote sustainable agricultural practices. Future enhancements to the system include blockchain-based inventory tracking, AI-driven market insights, and automated pest control mechanisms. By harnessing modern technology and renewable energy, Preserva presents a transformative solution for the agricultural sector, ensuring efficient, sustainable, and intelligent food storage that benefits both farmers and consumers alike.

No. of Pages : 17 No. of Claims : 6



(54) Title of the invention : ARTIFICIAL INTELLIGENCE (AI)-DRIVEN CONSUMER TRUST BIAS MITIGATION SYSTEM

|                                               |                                    |                                                                                                                                                                                                                |
|-----------------------------------------------|------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (51) International classification             | :G06Q30/00, G06Q30/0601, G06N20/00 | (71)Name of Applicant :<br><b>1)Woxsen University</b><br>Address of Applicant :Kamkole Village, Sadasivpet, Sangareddy District, Hyderabad, Telangana, India – 502345. Hyderabad -----                         |
| (86) International Application No             | :NA                                | <b>Name of Applicant : NA</b>                                                                                                                                                                                  |
| Filing Date                                   | :NA                                | <b>Address of Applicant : NA</b>                                                                                                                                                                               |
| (87) International Publication No             | : NA                               | (72)Name of Inventor :                                                                                                                                                                                         |
| (61) Patent of Addition to Application Number | :NA                                | <b>1)Dr. Hemachandran K</b><br>Address of Applicant :Professor, AI Research Centre, Woxsen University, Kamkole Village, Sadasivpet, Sangareddy District, Hyderabad, Telangana, India – 502345. Hyderabad ----- |
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| (62) Divisional to Application Number         | :NA                                |                                                                                                                                                                                                                |
| Filing Date                                   | :NA                                |                                                                                                                                                                                                                |

(57) Abstract :  
An artificial intelligence (AI)-driven consumer trust bias mitigation system, comprising a bias-free adaptive recommendation module 101, which includes multiple explainable AI (XAI) models for generating transparent justifications for each recommendation to a user and a diversity-aware AI model for ensuring fair content and product suggestions to the user, a trust-based consumer interaction module 102, which includes trustworthiness score generation for evaluating AI-driven personalization based on ethical fairness metrics and Block chain-backed data transparency for storing AI decision logs on a decentralized ledger for verifiability, a multimodal consumer sentiment analysis module 103, which employs emotion-aware sentiment processing, automated trust-driven user interface (UI) adjustments for adapting recommendation style, an adaptive ethical decision module 104, which includes generation of a bias sensitivity index (BSI) for constantly assessing the risk of biased personalization, adaptive ethical filtering and real-time regulatory compliance monitoring: Aligns AI recommendations with GDPR, CPRA, and Indian Data Protection Laws.

No. of Pages : 19 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202541059439 A

(19) INDIA

(22) Date of filing of Application :20/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : A NEURO-SYMBOLIC COGNITIVE SYSTEM

(51) International classification :G06N0003080000, G06N0020000000, G06N0003045000, G06N0003042000, G06N0005045000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

A neuro-symbolic cognitive system comprises of an adaptive neuro-symbolic trust optimization module that employs multi-layer trust modelling for integrating historical AI accuracy, real-time feedback and behavioral analysis and generation of explainability-driven confidence thresholds for ensuring high-risk AI decisions require human validation, a cognitive load-aware AI task allocation module that includes a cognitive workload prediction model employing neural embeddings and knowledge graphs to anticipate task complexity, a neuro-symbolic AI decision proxy for allocating tasks between AI-only, human-assisted AI and human-only workflows, an explainable neuro-symbolic reasoning module employs hybrid neural G symbolic interpretability engine to provide a step-by-step logical reasoning for AI-generated outputs, a multimodal visualization dashboard for showing human-comprehensible justifications for AI decisions, a self-optimizing human-AI synergy module employs human intent understanding model for contextual analysis of queries of the user, task performance benchmarking for evaluating efficiency, accuracy, and cognitive effort of the user in hybrid AI-human workflows.

No. of Pages : 19 No. of Claims : 9

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202541059464 A

(19) INDIA

(22) Date of filing of Application :20/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : A PHARMACEUTICAL COMPOSITION HAVING MECLIZINE FOR TREATING TUBERCULOSIS, AND METHODS THEREOF

(51) International classification :A61K31/00, A61K31/4409, A61K9/30, A61K31/496, A61K33/30, A61P31/06

(86) International Application No :NA

Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA

Filing Date :NA

(62) Divisional to Application Number :NA

Filing Date :NA

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(57) Abstract :

ABSTRACT A PHARMACEUTICAL COMPOSITION HAVING MECLIZINE FOR TREATING TUBERCULOSIS, AND METHODS THEREOF The present disclosure provides a pharmaceutical composition comprising: 5 (a) Meclizine; and (b) at least one anti-tuberculosis drug. The present disclosure also provides Meclizine for use in treating Tuberculosis, or symptoms thereof, in a subject. Further, the present disclosure provides a combination comprising Meclizine and at least one anti-tuberculosis drug. Furthermore, the present disclosure also provides a method for 10 reprogramming metabolism in Mycobacterium infected macrophage, the method comprising: contacting macrophages with the pharmaceutical composition as disclosed herein. Additionally, the present disclosure provides a method of treating tuberculosis and a kit thereof.

No. of Pages : 45 No. of Claims : 24

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202541059467 A

(19) INDIA

(22) Date of filing of Application :20/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : BIO-INSPIRED WHALE FLIPPER

(51) International classification :B64C0021100000, B64C0023060000, B64C0003140000, F15D0001000000, B64C0005020000

(86) International Application No :NA

Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA

Filing Date :NA

(62) Divisional to Application Number :NA

Filing Date :NA

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(57) Abstract :

ABSTRACT BIO-INSPIRED WHALE FLIPPER This invention relates to a bio-inspired rocket control system utilizing sinusoidal tubercles on aerodynamic fins to enhance flight stability and maneuverability. The fins incorporate mathematically defined sinusoidal tubercles along the leading edge, which generate streamwise vortices that energize the boundary layer, delay flow separation, and improve lift-to-drag ratio at high angles of attack. The system includes independently controlled servo motors for three-axis attitude adjustments, optimized for a broad range of Reynolds numbers. The fins are fabricated from lightweight composite materials with a smooth surface finish to promote laminar flow. This passive vortex generation provides energy-efficient control, reduces stall risk, and extends operational envelope, making it suitable for low-power rockets, UAVs, and marine applications. The invention offers scalable, retrofit-ready solutions with enhanced aerodynamic performance, durability, and control authority. Fig. 1

No. of Pages : 35 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :20/06/2025

(21) Application No.202541059470 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : Pyrolyzed egg shell based adsorbent for Fluoride removal from water

(51) International classification :C02F0001280000, B01J0020200000, C02F0101200000, B01J0020280000, C02F0101100000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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**4)A Vijaya Bhaskar Reddy**

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Address of Applicant :Department of Environmental studies, School of Sciences at GITAM University, Visakhapatnam. Vishakhapatnam -----

(57) Abstract :

This study evaluates the effectiveness of eggshell biochar, a low-cost and eco-friendly adsorbent, for removing fluoride ions from wastewater. The biochar was produced through pyrolysis of eggshell waste and its adsorption performance was investigated. Key parameters, including initial fluoride concentration, adsorbent dosage, solution pH, and contact time, were examined for their impact on adsorption efficiency. The Langmuir, Freundlich, and Temkin isotherm models were applied to understand the adsorption mechanism, with the Langmuir model providing the best fit and yielding a maximum adsorption capacity of 522.31 mg/g for fluoride ions (120 min contact time, 150 rpm agitation speed). The adsorption process was influenced by solution pH, electrostatic interactions, physisorption, and pore-filling, with functional groups (C=O, –COOH, –OH) on the eggshell biochar playing a crucial role. The Langmuir model outperformed other isotherm models, and the pseudo-second-order kinetics model accurately described the adsorption process. The findings suggest that waste eggshell-derived biochar holds promise as a sustainable adsorbent for water purification applications, particularly for fluoride removal.

No. of Pages : 16 No. of Claims : 1

(54) Title of the invention : A Topical pharmaceutical Hydrogel composition comprising Acyclovir and a process for its preparation

|                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
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| <p>(51) International classification :A61K47/02, A61K47/10, A61K47/32, A61K47/38, A61P29/00, A61P31/04, A61P31/12, A61K47/02</p> <p>(86) International Application No :NA<br/>Filing Date :NA<br/>(87) International Publication No : NA</p> <p>(61) Patent of Addition to Application Number :NA<br/>Filing Date :NA<br/>(62) Divisional to Application Number :NA<br/>Filing Date :NA</p> | <p>(71)Name of Applicant :<br/> <b>1)Dr. SHAIK HARUN RASHEED</b><br/> Address of Applicant :Professor , School of Pharmacy, Guru Nanak Institutions Technical Campus, Khanapur, Ibrahimpatnam, 501506, Ranga Reddy -----<br/> <b>2)Mr.Ch.Suresh</b><br/> <b>3)Dr.Kommu Pradeep</b><br/> <b>4)Mr. Talluri Malyadri</b><br/> <b>5)Ms. Vallavoju Sai Meghana</b><br/> <b>6)Ms. Kothamasi Priyarini</b><br/> <b>7)Dr. Padarthy Radhika</b><br/> <b>8)Mr. Merugu Mahesh</b><br/> <b>9)Naveena Rapaka</b><br/> <b>10)Mrs.G.Buela Priyanka</b><br/> Name of Applicant : NA<br/> Address of Applicant : NA<br/> (72)Name of Inventor :<br/> <b>1)Dr. SHAIK HARUN RASHEED</b><br/> Address of Applicant :Professor , School of Pharmacy, Guru Nanak Institutions Technical Campus, Khanapur, Ibrahimpatnam, 501506, Ranga Reddy -----<br/> <b>2)Dr.Kommu Pradeep</b><br/> Address of Applicant :Assistant Professor, Faculty of Health Sciences, Villa College, Kaafu Atoll, Male, Maldives - 20002 Male -----<br/> <b>3)Mr. Talluri Malyadri</b><br/> Address of Applicant :Associate Professor, Qis college of pharmacy, vengamukkalapalem, Ongole , Andhra Pradesh – 523001, India Ongole -----<br/> <b>4)Ms. Vallavoju Sai Meghana</b><br/> Address of Applicant :Assistant Professor, Guru Nanak institutions Technical Campus-School of Pharmacy, Khanapur, Ranga Reddy, Ibrahimpatnam, Telangana -501506, India. Ibrahimpatnam -----<br/> <b>5)Ms. Kothamasi Priyarini</b><br/> Address of Applicant :Assistant Professor, Guru Nanak institutions Technical Campus-School of Pharmacy, Khanapur, Ranga Reddy, Ibrahimpatnam, Telangana -501506, India. Ibrahimpatnam -----<br/> <b>6)Dr. Padarthy Radhika</b><br/> Address of Applicant :Associate Professor Moonray Institute of pharmaceutical sciences, Shadnagar, Telangana, 509216, India Shadnagar -----<br/> <b>7)Mr. Merugu Mahesh</b><br/> Address of Applicant :Assistant Professor, Marri Laxman Reddy Institute of Pharmacy, Medchal, Malkajgiri, Telangana, Hyderabad, 500043, India Hyderabad -----<br/> <b>8)Naveena Rapaka</b><br/> Address of Applicant :Assistant Professor, Marri Laxman Reddy Institute of Pharmacy, Medchal, Malkajgiri, Telangana, Hyderabad, 500043, India Hyderabad -----<br/> <b>9)Mrs.G.Buela Priyanka</b><br/> Address of Applicant :Associate Professor, Guru Nanak institutions Technical Campus-School of Pharmacy, Khanapur, Ranga Reddy, Ibrahimpatnam, Telangana -501506, India Ibrahimpatnam -----<br/> <b>10)Mr.Ch.Suresh</b><br/> Address of Applicant :Assistant Professor, Guru Nanak institutions Technical Campus-School of Pharmacy, Khanapur, Ranga Reddy, Ibrahimpatnam, Telangana -501506, India Ibrahimpatnam -----</p> |
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## (57) Abstract :

The present invention provides a topical pharmaceutical hydrogel composition comprising Acyclovir, intended for the treatment of viral skin infections such as herpes simplex. The composition includes Acyclovir as the active pharmaceutical ingredient in a pharmaceutically acceptable hydrogel base containing one or more gelling agents, humectants, penetration enhancers, preservatives, and pH-adjusting agents. The hydrogel offers improved skin permeability, sustained drug release, enhanced stability, and better patient compliance due to its non-greasy, easily spreadable nature. The invention also discloses a novel and efficient process for the preparation of the hydrogel composition, which involves uniform dispersion of ingredients, controlled pH adjustment, and homogenization under specific temperature and mixing conditions. The resulting formulation ensures optimal drug delivery, prolonged residence time on the skin, and enhanced therapeutic efficacy. This invention addresses limitations associated with conventional topical Acyclovir formulations, such as poor skin penetration and limited bioavailability.

No. of Pages : 24 No. of Claims : 5

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :20/06/2025

(21) Application No.202541059486 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : Real-Time Badminton Action Recognition Based on MediaPipe and Motion Bidirectional Encoder Representation Transformer

|                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
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| <p>(51) International classification :G06V0040200000, G06V0020400000, H04N0019577000, A63B0102040000, A63B0024000000</p> <p>(86) International Application No :NA<br/>Filing Date :NA</p> <p>(87) International Publication No : NA</p> <p>(61) Patent of Addition to Application Number :NA<br/>Filing Date :NA</p> <p>(62) Divisional to Application Number :NA<br/>Filing Date :NA</p> | <p>(71)<b>Name of Applicant :</b><br/><b>1)Ravi Teja Thutari</b><br/>Address of Applicant :Ravi Teja Thutari Arizona State University, United States. Email: raviteja.thutari@gmail.com -----<br/><b>2)Vinod Veeramachaneni</b><br/><b>3)Dr. Piyush Kumar Pareek</b><br/><b>4)Nitte Meenakshi Institute of Technology</b><br/><b>Name of Applicant : NA</b><br/><b>Address of Applicant : NA</b><br/><b>(72)Name of Inventor :</b><br/><b>1)Ravi Teja Thutari</b><br/>Address of Applicant :Ravi Teja Thutari Arizona State University, United States. Email: raviteja.thutari@gmail.com -----<br/><b>2)Vinod Veeramachaneni</b><br/>Address of Applicant :Vinod Veeramachaneni Research Graduate, Department of Information Technology, Colorado Technical University, USA Email Id: veeru80918@gmail.com;vinod@vinodveeramachaneni.com -----<br/><b>3)Dr. Piyush Kumar Pareek</b><br/>Address of Applicant :Dr. Piyush Kumar Pareek Professor and Head (AI-ML) Nitte Meenakshi Institute of Technology Yelahanka, Bengaluru-560064, Karnataka, India Piyush.kumar@nmit.ac.in -----<br/><b>4)Nitte Meenakshi Institute of Technology</b><br/>Address of Applicant :Nitte Meenakshi Institute of Technology Yelahanka, Bengaluru-560064, Karnataka, India -----</p> |
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(57) Abstract :

ABSTRACT OF THE INVENTION: Title: Real-Time Badminton Action Recognition Based on MediaPipe and Motion-BERT The invention relates to a real-time action recognition system for badminton that utilizes pose estimation and bidirectional motion encoding. The system comprises a pose extraction engine using MediaPipe, a Motion Bidirectional Encoder Representation Transformer (Motion BERT) for understanding motion across time, and a classification module to predict badminton-specific actions. The invention provides low-latency, accurate, and efficient recognition of athletic movements for use in coaching, live annotation, and performance monitoring applications.

No. of Pages : 17 No. of Claims : 1

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202541059487 A

(19) INDIA

(22) Date of filing of Application :20/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : AN INSTANT AND PORTABLE WATER HEATING DEVICE AND A METHOD THEREOF

(51) International classification :C02F0001000000, F24H0001100000, F22B0001280000, F24H0009200000, F24H0009181800

(86) International Application No :NA

Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA

Filing Date :NA

(62) Divisional to Application Number :NA

Filing Date :NA

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(57) Abstract :

ABSTRACT AN INSTANT AND PORTABLE WATER HEATING DEVICE AND A METHOD THEREOF The present disclosure discloses an instant and portable water heating device and a method thereof. The system (100) comprises a plastic molded outer casing (102) housing a power supply unit (104), an inlet chamber (106) with a water level sensor (110), and a heating element (114) embedded in a thermally conductive aluminum housing (116) filled with quartz sand and mineral oil for efficient heat transfer and retention. Cold water enters through an inlet nozzle (108), is rapidly heated in the inlet chamber (106), and flows into an outlet chamber (118) before being dispensed via a water tap (120) at the wash basin outlet (122). A flow sensor (124) monitors real-time water flow and deactivates the heating element (114) when no flow is detected, ensuring safety and energy efficiency. The sequential operation of sensors and heating components guarantees rapid, safe, and controlled delivery of hot water in a compact, user-friendly device.

No. of Pages : 32 No. of Claims : 10



(12) PATENT APPLICATION PUBLICATION

(21) Application No.202541059491 A

(19) INDIA

(22) Date of filing of Application :20/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : "System and Method for Personalized Pregnancy Support Using Retrieval-Augmented Generation-Based Conversational AI"

(51) International  
classification

:G06F0040300000, H04L0051020000,  
G06F0016330000, G06F0016332000,  
G16H0050200000

(86) International  
Application No  
Filing Date

:NA  
:NA

(87) International  
Publication No

: NA

(61) Patent of Addition to  
Application Number  
Filing Date

:NA  
:NA

(62) Divisional to  
Application Number  
Filing Date

:NA  
:NA

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-----

(57) Abstract :

The present invention relates to a system and method for providing personalized, clinically reliable pregnancy-related information through a conversational chatbot platform powered by Retrieval-Augmented Generation (RAG) architecture. The system comprises a user interface for receiving natural language queries from pregnant individuals, a semantic query processor for intent classification and normalization, a retrieval engine configured to fetch medically authoritative content from structured and unstructured pregnancy-specific knowledge sources, and a transformer-based language model that generates contextual responses based on both the user input and retrieved content. The system provides evidence-linked outputs, and ensures safe guidance across all pregnancy stages. The invention improves upon existing chatbots by delivering personalized, evidence-based, and trimester-sensitive pregnancy support with clinical awareness.

No. of Pages : 7 No. of Claims : 3

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202541059492 A

(19) INDIA

(22) Date of filing of Application :20/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : PORTABLE ONE TOUCH TWO-WHEELER SEAT COVER WITH 360° PROTECTION

(51) International classification :F21V0019000000, H04M0001020000, H05K0001020000, G11B0033120000, B60N0002020000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

The invention discloses portable, one touch seat cover which provides 360° protection to two-wheeler seat from the sunlight and the rain. The cover consists of a U-shaped enclosure (1), plurality of thermal radiation insulating and waterproof sheets (2), plurality of sheet rollers (3), plurality of circular springs (4), plurality of roller holding rods (5), a lock button (6), plurality of L-shaped support rods (7), a U-shaped cover for the U-shaped enclosure (8), a pull tab on the U shaped cover for the U-shaped enclosure (9), plurality of connecting rods (10), plurality of sliding mechanism (11), a thermal radiation insulating and waterproof sheet (12), a mounting clamp (13). The variable length of cover which can be operated with one touch and retains its shape at any length extraction ensuring 360° protection against sunlight and rain to two-wheeler seat and fuel tank.

No. of Pages : 13 No. of Claims : 4

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :20/06/2025

(21) Application No.202541059493 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : System and Method for Real-Time Vehicle Collision Detection and Location-Based Alert Transmission

(51) International classification :H04W0004900000, G08B0025010000, B60W0030090000, G07C0005000000, G08G0001160000  
(86) International Application No :NA  
Filing Date :NA  
(87) International Publication No : NA  
(61) Patent of Addition to Application Number :NA  
Filing Date :NA  
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(57) Abstract :

System and Method for Real-Time Vehicle Collision Detection and Location-Based Alert Transmission The present invention relates to a system and method for automatic vehicle accident detection and emergency alerting. The system comprises a plurality of sensors configured to detect sudden impacts or collisions in a vehicle. Upon detection of an accident, a microcontroller processes sensor signals and activates a GPS module to obtain real-time location coordinates of the vehicle. A GSM module is subsequently triggered to send an automated alert message containing location details to pre-configured emergency contacts. The system is designed to enable rapid response from emergency services, thereby potentially reducing fatalities and injuries resulting from vehicular accidents. The invention is cost-effective, energy-efficient, and suitable for integration into various types of vehicles, facilitating real-world deployment in diverse environments.

No. of Pages : 14 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :20/06/2025

(21) Application No.202541059497 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : Artificial Intelligence Operated and coupled with a six pair of Legged Spider Robot

(51) International classification :B25J0009160000, B25J0009000000, G05B0019418000, B62D0057032000, B25J0019000000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

The independent six-legged robot is a huge step forward in robotics technology. It uses advanced materials, sensors, and AI algorithms to make a robotic system that can do a lot of different things and adapt to different situations. This robot is going to change many fields, like search and rescue, research, and industrial automation. It can move through complicated terrain, adapt to changes in its surroundings, and make decisions on its own using real-time data. The robot's ability to work alone in uncertain settings means that it can do important jobs without help from a person, which increases safety and efficiency. This project looks into how this robot was designed and built, looking at important parts like tests, software systems, hardware setup, and sensor integration. The robot is able to work in tough environments like disaster zones, rough terrain, or remote research sites because it uses advanced sensor technologies like LIDAR and computer vision, as well as complex motion mechanisms. Because it is independent, it can make decisions in real time and change its actions and jobs based on what is going on around it. This robot can be used for a lot of different things, such as saving lives in disaster-stricken areas, exploring the environment from afar, like on planets or underground, and automating jobs in factories. A lot of different businesses can benefit from using it because it can do complicated tasks on its own in places that are dangerous, hard to get to, or not good for human help. This project shows how combining hardware, software, and sensing technologies can let robots work independently, adaptably, and intelligently in changing real-world settings, which goes beyond what is currently possible in autonomous robotics.

No. of Pages : 17 No. of Claims : 8

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202541059499 A

(19) INDIA

(22) Date of filing of Application :20/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : Deep Learning-Based Method for Classifying Earth Regions Using Satellite Images

(51) International classification :G06N0003080000, G06N0003045000, G06V0020100000, G06V0010764000, G06V0020130000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

The present invention relates to a deep learning-based method for classifying earth regions from satellite images. This method utilizes advanced neural network algorithms, specifically Convolutional Neural Networks (CNNs), to automate the process of identifying and categorizing various earth regions, such as forests, urban areas, water bodies, agricultural lands, and barren regions, from satellite imagery. The invention offers an efficient, scalable, and highly accurate solution to satellite image classification, eliminating the need for manual intervention and significantly reducing processing time. The deep learning model is trained on a large dataset of labeled satellite images, enabling it to learn complex spatial and spectral features associated with different land types. The model can handle variations in satellite image quality, lighting, weather conditions, and geographical features, ensuring reliable classification results. Additionally, the method integrates multi-spectral and multi-temporal data, enhancing classification accuracy by considering various wavelengths of light and changes over time. This invention supports real-time or near real-time analysis, making it ideal for dynamic applications such as environmental monitoring, disaster management, urban planning, and agriculture. By automating the classification process, the method improves efficiency, scalability, and precision in large-scale satellite image analysis, offering a cost-effective solution for global-scale monitoring and decision-making. Key words: Deep Learning, Satellite Image Classification, Convolutional Neural Networks (CNN), Earth Region Classification

No. of Pages : 19 No. of Claims : 1

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :20/06/2025

(21) Application No.202541059500 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : Development Of Raspberry Pi Humanoid Robot

(51) International classification :B25J0009160000, A61K0036730000, B25J0009100000, G06F0008200000, G06N0003008000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

The goal of the Raspberry Pi humanoid robot project is to use a Raspberry Pi microcontroller to design, build, and program a fully functional humanoid robot. To create a versatile and interactive robotic system, this project entails a thorough investigation of robotics, electronics, and programming methodologies. To sense its environment, move effectively, and interact with humans, the robot will be equipped with a variety of sensors, actuators, and vision systems. Designing hardware, creating software, and incorporating cutting-edge AI algorithms for decision-making and human-robot interaction are all steps in the development process. In order to demonstrate the possibilities of accessible and reasonably priced robotics solutions driven by the Raspberry Pi platform, the project will culminate with a demonstration of the robot's capabilities, including its ability to travel, finish tasks, and react to user orders. Key words : Raspberry Pi, Humanoid Robot, Design, Build, Program

No. of Pages : 25 No. of Claims : 1

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :20/06/2025

(21) Application No.202541059502 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : EVAC-RD Frame

(51) International classification :A61C0017080000, A61C0005820000, A61C0017060000, G16H0040200000, E02B0007000000  
(86) International Application No :NA  
Filing Date :NA  
(87) International Publication No : NA  
(61) Patent of Addition to Application Number :NA  
Filing Date :NA  
(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

The EVAC-RD Frame is a novel dental device designed to enhance endodontic and restorative procedures by integrating advanced suction technology with a traditional rubber dam frame. It features a hollow, U-shaped metallic tube with strategically placed suction inlets on the vertical and horizontal arms for effective simultaneous intracanal and intraoral suctioning, ensuring a dry and clean operating field. The frame includes inlets to suction spilled water or irrigants, preventing soiling of the patient's clothing, and connects to a high-vacuum dental suction system for efficient drainage. By minimizing the need for manual suctioning, the EVAC-RD Frame streamlines dental procedures, improves workflow, and reduces the need for additional staff. It enhances patient comfort by preventing moisture accumulation under the rubber dam, providing a more comfortable, efficient, and hygienic treatment experience. This device offers a practical, cost-effective solution for dental practices, improving both procedural efficiency and treatment outcomes.

No. of Pages : 27 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :21/06/2025

(21) Application No.202541059505 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : 2D SIGN LANGUAGE RECOGNITION USING INDIAN SIGN LANGUAGE DATASET WITH CONVOLUTIONAL NEURAL NETWORK

(51) International classification :G06N0003080000, G06N0003045000, G06V0040200000, G06V0010820000, G09B0021000000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
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(57) Abstract :

ABSTRACT OF THE INVENTION Sign Language Recognition (SLR) is the process of automatically interpreting sign gestures into text or speech using computational models. Deep learning enhances SLR by learning complex spatial patterns from video or image data. This study focuses on 2D sign language recognition for deaf and mute individuals. The existing method utilizes a 2D Convolutional Neural Networks (2D CNNs) trained on the Rheinisch-Westfälische Technische Hochschule Aachen (RWTH) and American Sign Language (ASL) datasets for recognizing sign language sequences. Although effective, this method shows limited performance when applied to region-specific sign languages such as Indian Sign Language (ISL). To address this gap, we propose a novel approach based on 2D Sign Language Recognition (2D SLR) using Convolutional Neural Network (CNN) trained on an Indian Sign Language dataset. In sign language recognition (SLR), CNNs are used to extract spatial features from video frames They typically process RGB images, depth maps, or optical flow to capture the visual patterns essential for sign recognition. CNNs handle variations in lighting, background, and signer appearance better than hand-crafted features and Some architectures use spatial attention or focus mechanisms to better capture relevant signing regions (like hands). capturing hand shapes and movements with text and speech. Keywords: Sign Language Recognition (SLR), American Sign Language (ASL) dataset, Convolutional Neural Network (CNN), Indian Sign Language (ISL), Spatial- Modelling.

No. of Pages : 13 No. of Claims : 2



(54) Title of the invention : Event-Driven Distributed Data Mesh for Real-Time Contextual Intelligence Across Physical and Digital Assets

|                                               |                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
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| (86) International Application No             | :NA                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Filing Date                                   | :NA                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| (87) International Publication No             | : NA                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| (61) Patent of Addition to Application Number | :NA                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Filing Date                                   | :NA                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| (62) Divisional to Application Number         | :NA                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Filing Date                                   | :NA                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |

(57) Abstract :  
ABSTRACT OF THE INVENTION Title: Event-Driven Distributed Data Mesh for Real-Time Contextual Intelligence Across Physical and Digital Assets The invention discloses a distributed, event-driven data-mesh architecture that federates domain-specific nodes across operational-technology and information-technology environments. Each node exposes streaming data products under strict contracts, while a central Contextual Intelligence Engine unifies events into a semantic graph for millisecond-level reasoning. A governance layer embeds zero-trust security, lineage, and compliance, and an actuation interface converts insights into automated controls or alerts. The invention delivers scalable, low-latency, policy-compliant intelligence without relying on monolithic data lakes, thereby enabling predictive maintenance, supply-chain resilience, digital-twin synchronisation, and other cross-domain real-time applications.

No. of Pages : 25 No. of Claims : 1

(54) Title of the invention : PREDICTIVE INCIDENT MANAGEMENT SYSTEM USING CROSS-SENSOR TEMPORAL PATTERNS AND SCALABLE RULE ENGINES

|                                                                                                                                                                                                                                                  |                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <div>(51) International classification</div> <div>(86) International Application No</div> <div>(87) International Publication No</div> <div>(61) Patent of Addition to Application Number</div> <div>(62) Divisional to Application Number</div> | <div>:G06N0020000000, G06N0005025000, G06N0005047000, G06N0005040000, H04N0019310000</div> <div>:NA</div> <div>:NA</div> <div>: NA</div> <div>:NA</div> <div>:NA</div> <div>:NA</div> | <div>(71)Name of Applicant :</div> <div>1)Ravi Teja Thutari</div> <div>Address of Applicant :Ravi Teja Thutari Arizona State University, United States. Email: raviteja.thutari@gmail.com -----</div> <div>2)Vinod Veeramachaneni</div> <div>3)Veeranna Kotagi</div> <div>4)Nitte Meenakshi Institute of Technology</div> <div>Name of Applicant : NA</div> <div>Address of Applicant : NA</div> <div>(72)Name of Inventor :</div> <div>1)Ravi Teja Thutari</div> <div>Address of Applicant :Ravi Teja Thutari Arizona State University, United States. Email: raviteja.thutari@gmail.com -----</div> <div>2)Vinod Veeramachaneni</div> <div>Address of Applicant :Vinod Veeramachaneni Research Graduate, Department of Information Technology, Colorado Technical University, USA Email Id: veeru80918@gmail.com;vinod@vinodveeramachaneni.com -----</div> <div>3)Veeranna Kotagi</div> <div>Address of Applicant :Veeranna Kotagi Department of ISE Nitte Meenakshi Institute of Technology, Bengaluru veeranna.ak@nmit.ac.in -----</div> <div>4)Nitte Meenakshi Institute of Technology</div> <div>Address of Applicant :Nitte Meenakshi Institute of Technology Yelahanka, Bengaluru-560064, Karnataka, India -----</div> |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

(57) Abstract :  
ABSTRACT OF THE INVENTION Title: Predictive Incident Management System Using Cross-Sensor Temporal Patterns and Scalable Rule Engines Abstract: The invention relates to a predictive incident management system designed to anticipate failures and anomalies by leveraging temporal correlation across multi-sensor data streams and executing intelligent rules through a scalable rule engine. The system includes components for sensor data ingestion, time-series correlation, complex event processing, rule-based decisioning, and automated incident response. By combining AI-driven pattern recognition with customizable rule logic, the invention ensures minimal downtime, contextual alerting, and proactive remediation across industrial or IT environments. The invention is adaptable to various deployment scenarios including cloud, fog, and edge, ensuring scalability and resilience.

No. of Pages : 19 No. of Claims : 1

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :21/06/2025

(21) Application No.202541059554 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : SMART HUMAN PRESENCE SENSOR FOR HOME AUTOMATION SYSTEM

|                                                                                                                                                                                                                                                                                                                                                                                           |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
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| <p>(51) International classification :H05B0047115000, H05B0047190000, H05B0047105000, G06F0001323100, G05B0015020000</p> <p>(86) International Application No :NA<br/>Filing Date :NA</p> <p>(87) International Publication No : NA</p> <p>(61) Patent of Addition to Application Number :NA<br/>Filing Date :NA</p> <p>(62) Divisional to Application Number :NA<br/>Filing Date :NA</p> |  | <p>(71)<b>Name of Applicant :</b><br/><b>1)Dr.M.Senthil Kumaran</b><br/>Address of Applicant :Associate Professor, Department of Computer Science and Engineering, Sri Chandrasekharendra Saraswathi Viswa Mahavidyalaya, Enathur, Kanchipuram, Tamilnadu – 631561. Email: senth.kumaran2000@gmail.com -----</p> <p><b>2)Dr.R.Govindarajan</b><br/><b>Name of Applicant : NA</b><br/><b>Address of Applicant : NA</b></p> <p>(72)<b>Name of Inventor :</b><br/><b>1)Dr.M.Senthil Kumaran</b><br/>Address of Applicant :Associate Professor, Department of Computer Science and Engineering, Sri Chandrasekharendra Saraswathi Viswa Mahavidyalaya, Enathur, Kanchipuram, Tamilnadu – 631561. Email: senth.kumaran2000@gmail.com -----</p> <p><b>2)Dr.R.Govindarajan</b><br/>Address of Applicant :Lab Instructor, Department of Computer Science and Engineering, Sri Chandrasekharendra Saraswathi Viswa Mahavidyalaya, Enathur, Kanchipuram, Tamilnadu – 631561. Email: govind@kanchiuniv.ac.in -----</p> |
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(57) Abstract :

The present invention relates to a smart human presence sensor for a home automation system. The system (100) comprises a smart sensor module (102), a signal conditioning unit (104), a microcontroller unit (106), a presence detection algorithm unit (108), a device control module (110), a user configuration interface (112), a communication interface (114), and a power supply unit (116). The smart sensor module (102) detects both static and dynamic human presence through micro-movement sensing technologies. The signal conditioning unit (104) filters and amplifies the sensor signals received from the smart sensor module (102). The microcontroller unit (106) processes the conditioned signals in real-time to detect occupancy. The presence detection algorithm unit (108) analyzes signal patterns to differentiate between actual human presence and noise. The device control module (110) sends control signals to home appliances based on detected presence. The user configuration interface (112) allows the user to adjust parameters like sensitivity, detection range, and delay time. The communication interface (114) transmits presence data and device status to external systems. The power supply unit (116) provides electrical power to all components of the system. The invention enhances precision in detecting subtle human presence and facilitates energy-saving automation in smart home environments.

No. of Pages : 18 No. of Claims : 10

(54) Title of the invention : FABRECS AI - CLOTHING RECOMMENDATION SYSTEM

|                                                                                                                                                                                                                                                  |                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
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| <div>(51) International classification</div> <div>(86) International Application No</div> <div>(87) International Publication No</div> <div>(61) Patent of Addition to Application Number</div> <div>(62) Divisional to Application Number</div> | <div>:G06Q0030060100, G06N0003045000, G06F0040284000, G06V0020520000, G06Q0030020000</div> <div>:NA</div> <div>:NA</div> <div>: NA</div> <div>:NA</div> <div>:NA</div> <div>:NA</div> <div>:NA</div> | <div>(71)Name of Applicant :</div> <div>1)KESHAV MEMORIAL INSTITUTE OF TECHNOLOGY</div> <div>Address of Applicant :3-5-1026, NARAYANAGUDA, HYDERABAD, TELANGANA, INDIA, 500029 Hyderabad -----</div> <div>Name of Applicant : NA</div> <div>Address of Applicant : NA</div> <div>(72)Name of Inventor :</div> <div>1)Dr. KISHOREBABU DASARI</div> <div>Address of Applicant :ASSISTANT PROFESSOR, DEPARTMENT OF CSE(AI&amp;ML), KESHAV MEMORIAL INSTITUTE OF TECHNOLOGY, 3-5-1026, NARAYANAGUDA, HYDERABAD, TELANGANA, INDIA, 500029 Hyderabad -----</div> <div>2)Mr. VENU THUMMA</div> <div>Address of Applicant :ASSISTANT PROFESSOR, DEPARTMENT OF CSE(AI&amp;ML), KESHAV MEMORIAL INSTITUTE OF TECHNOLOGY, 3-5-1026, NARAYANAGUDA, HYDERABAD, TELANGANA, INDIA, 500029 Hyderabad -----</div> <div>3)Ms. RASHIQUA TAUFIQ MUNSHI</div> <div>Address of Applicant :DEPARTMENT OF CSE(AI&amp;ML), KESHAV MEMORIAL INSTITUTE OF TECHNOLOGY, 3-5-1026, NARAYANAGUDA, HYDERABAD, TELANGANA, INDIA, 500029 Hyderabad -----</div> <div>4)Ms. ALLEPPEY CHIDRUPA VYSHNAVI NAYAK</div> <div>Address of Applicant :DEPARTMENT OF CSE(AI&amp;ML), KESHAV MEMORIAL INSTITUTE OF TECHNOLOGY, 3-5-1026, NARAYANAGUDA, HYDERABAD, TELANGANA, INDIA, 500029 Hyderabad -----</div> <div>5)Mr. GAMAN SAI NALLAMOTHU</div> <div>Address of Applicant :DEPARTMENT OF CSE(AI&amp;ML), KESHAV MEMORIAL INSTITUTE OF TECHNOLOGY, 3-5-1026, NARAYANAGUDA, HYDERABAD, TELANGANA, INDIA, 500029 Hyderabad -----</div> <div>6)Mr. SHAIK MOHAMMED FARHAN</div> <div>Address of Applicant :DEPARTMENT OF CSE(AI&amp;ML), KESHAV MEMORIAL INSTITUTE OF TECHNOLOGY, 3-5-1026, NARAYANAGUDA, HYDERABAD, TELANGANA, INDIA, 500029 Hyderabad -----</div> |
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(57) Abstract :

The Clothing Recommendation System is an AI-powered platform designed to assist users in selecting and pairing clothing items efficiently through the analysis of input images and natural language prompts. The system comprises modules for image captioning, context-aware recommendation, and wardrobe integration, enabling three primary functionalities: suggesting compatible items for potential purchase, recommending combinations from a user’s existing wardrobe, and generating complete outfit suggestions tailored to specific contexts or events. The platform utilizes vision-language models to extract descriptive data from images, which are processed by a language model to provide relevant and personalized recommendations. Real-time retrieval of publicly available product data ensures up-to-date suggestions, while integration with the user’s wardrobe enhances reuse and promotes sustainable clothing practices. The modular and scalable architecture supports seamless user interaction, accommodates a variety of style preferences, and integrates smoothly into everyday use, offering a new approach to personal clothing selection.

No. of Pages : 13 No. of Claims : 4

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :21/06/2025

(21) Application No.202541059556 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : RFID ATTENDANCE TRACKING SYSTEM

|                                                                                                                                                                                                                                                                                                                                                                                           |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
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| <p>(51) International classification :G06K0017000000, G06Q0030025100, H04M0003220000, G06Q0050400000, H04N0021475000</p> <p>(86) International Application No :NA<br/>Filing Date :NA</p> <p>(87) International Publication No : NA</p> <p>(61) Patent of Addition to Application Number :NA<br/>Filing Date :NA</p> <p>(62) Divisional to Application Number :NA<br/>Filing Date :NA</p> |  | <p>(71)<b>Name of Applicant :</b><br/><b>1)Dr.M.Saraswathi</b><br/>Address of Applicant :Assistant Professor, Department of Computer Science and Engineering, Sri Chandrasekharendra Saraswathi Viswa Mahavidyalaya, Enathur, Kanchipuram, Tamilnadu – 631561. Email: msaraswathi@kanchiuniv.ac.in -----<br/><b>2)Mr.V.Balu</b><br/><b>Name of Applicant : NA</b><br/><b>Address of Applicant : NA</b><br/><b>(72)Name of Inventor :</b><br/><b>1)Dr.M.Saraswathi</b><br/>Address of Applicant :Assistant Professor, Department of Computer Science and Engineering, Sri Chandrasekharendra Saraswathi Viswa Mahavidyalaya, Enathur, Kanchipuram, Tamilnadu – 631561. Email: msaraswathi@kanchiuniv.ac.in -----<br/>-----<br/><b>2)Mr.V.Balu</b><br/>Address of Applicant :Assistant Professor, Department of Computer Science and Engineering, Sri Chandrasekharendra Saraswathi Viswa Mahavidyalaya, Enathur, Kanchipuram, Tamilnadu – 631561. Email: balukanchi@kanchiuniv.ac.in -----<br/>-----</p> |
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(57) Abstract :

The present invention relates to an RFID-based attendance tracking system utilizing a microcontroller or embedded processor as the central processing unit. The system (100) comprises a RFID tag (102), a RFID reader unit (104), a processing unit (106), a verification module (108), a database/storage unit (110), a real-time clock module (112), a display and notification unit (114), a communication interface (116), and a power supply unit (118). The RFID tag (102) is assigned to individual users and carries a unique identification code. The RFID reader unit (104) detects and reads the identification code from the RFID tag (102) when brought within proximity. The processing unit (106) receives the data and initiates verification through the verification module (108). The database/storage unit (110) stores user records, attendance logs, and configurations. The real-time clock module (112) timestamps each record. The display and notification unit (114) provides feedback to the user. The communication interface (116) enables transmission to external systems or cloud services. The power supply unit (118) ensures operation of all modules. The invention facilitates contactless, accurate, and real-time attendance management while promoting system adaptability and integration with institutional infrastructure.

No. of Pages : 13 No. of Claims : 10

(54) Title of the invention : AeroGrid: Decentralized Swarm Drone Framework for Environmental Surveillance and Response.

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| <div><div>(51) International classification</div><div>(86) International Application No</div><div>(87) International Publication No</div><div>(61) Patent of Addition to Application Number</div><div>(62) Divisional to Application Number</div></div> <div><div>:B64C0039020000, B64U0101300000, G05D0001000000, H04L0067109500, G06N0020000000</div><div>:NA</div><div>:NA</div><div>: NA</div><div>:NA</div><div>:NA</div><div>:NA</div><div>:NA</div></div> | <div>(71)Name of Applicant :<br/><b>1)CVR COLLEGE OF ENGINEERING</b><br/>Address of Applicant :CVR COLLEGE OF ENGINEERING, Vastunagar, Mangalpalli (V), Ibrahimpatnam (M), Rangareddy (Dist), Telangana 501510, India. Hyderabad -----<br/><b>Name of Applicant : NA</b><br/><b>Address of Applicant : NA</b><br/>(72)Name of Inventor :<br/><b>1)S Anupkant</b><br/>Address of Applicant :Department of Information Technology, CVR COLLEGE OF ENGINEERING, Vastunagar, Mangalpalli (V), Ibrahimpatnam (M), Rangareddy (Dist), Telangana 501510, India Hyderabad -----<br/><b>2)M Pavan Kumar Reddy</b><br/>Address of Applicant :Department of Computer Science &amp; Engineering, CVR COLLEGE OF ENGINEERING, Vastunagar, Mangalpalli (V), Ibrahimpatnam (M), Rangareddy (Dist), Telangana 501510, India Hyderabad -----</div> |
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(57) Abstract :  
This invention introduces AeroGrid, a decentralized drone swarm framework designed for real-time environmental surveillance through intelligent coordination and mesh-IoT communication. Each drone operates autonomously, collaboratively electing a leader based on dynamic health and performance metrics to ensure robust swarm management. The system leverages edge-AI modules embedded on the drones to process environmental data locally, enabling rapid detection of threats such as wildfires, gas leaks, or chemical hazards. To maintain communication resilience in variable network conditions, AeroGrid incorporates a LORA-based fallback mechanism. Its modular and scalable architecture allows for flexible deployment across diverse applications including disaster response, precision agriculture, and military reconnaissance. The adaptive nature of the framework ensures continuous operation even in infrastructure-deficient or high-risk environments, making it an ideal solution for next-generation autonomous aerial surveillance and decision-making systems.

No. of Pages : 13 No. of Claims : 5

(54) Title of the invention : Sentinel Skin: AI-Driven Tactical Combat Vest with Predictive Health and Threat Analytics.

|                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
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| <div>(51) International classification</div> <div>(86) International Application No</div> <div>(87) International Publication No</div> <div>(61) Patent of Addition to Application Number</div> <div>(62) Divisional to Application Number</div> <div>Filing Date</div> <div>Filing Date</div> <div>Filing Date</div> | <div>:A61B0005000000, A61B0005024000, A61B0005020500, A61B0005160000, G16H0050200000</div> <div>:NA</div> <div>:NA</div> <div>: NA</div> <div>:NA</div> <div>:NA</div> <div>:NA</div> <div>:NA</div> | <div>(71)Name of Applicant :</div> <div>1)CVR COLLEGE OF ENGINEERING</div> <div>Address of Applicant :CVR COLLEGE OF ENGINEERING, Vastunagar, Mangalpalli (V), Ibrahimpatnam (M), Rangareddy (Dist), Telangana 501510, India. Hyderabad -----</div> <div>Name of Applicant : NA</div> <div>Address of Applicant : NA</div> <div>(72)Name of Inventor :</div> <div>1)Valiveti Dattatreya</div> <div>Address of Applicant :Department of Computer Science &amp; Engineering, CVR COLLEGE OF ENGINEERING, Vastunagar, Mangalpalli (V), Ibrahimpatnam (M), Rangareddy (Dist), Telangana 501510, India. Hyderabad -----</div> <div>2)M Pavan Kumar Reddy</div> <div>Address of Applicant :Department of Computer Science &amp; Engineering, CVR COLLEGE OF ENGINEERING, Vastunagar, Mangalpalli (V), Ibrahimpatnam (M), Rangareddy (Dist), Telangana 501510, India. Hyderabad -----</div> |
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(57) Abstract :

The invention presents Sentinel Skin, an advanced AI-powered combat vest engineered to enhance soldier safety and situational awareness during high-risk operations. Integrated with a network of biosensors and environmental analytics modules, the system continuously monitors vital signs such as heart rate, body temperature, and stress indicators, alongside external threats including temperature extremes, toxic gases, and ballistic impact. Leveraging machine learning algorithms, Sentinel Skin calculates a real-time Combat Stress Index to evaluate a soldier's physiological and psychological state, enabling early detection of trauma or critical health deterioration. The vest also features blockchain-enabled communication protocols to ensure secure and tamper-proof transmission of tactical and biometric data across defense networks. Furthermore, the system offers autonomous triage support by identifying and prioritizing critical cases in the field. Designed for defense personnel and first responders, Sentinel Skin significantly improves survivability and mission efficiency through proactive, intelligent decision-making support.

No. of Pages : 14 No. of Claims : 5

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :21/06/2025

(21) Application No.202541059613 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : SMART BATTERY MONITORING SYSTEM WITH BUZZER ALERTS

(51) International classification :H02J0007000000, H01M0010420000, G01R0031392000, H01M0010480000, H01M0010440000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

Smart battery monitoring system with buzzer alerts is the proposed invention. Ordinary problem that smartphone users encounter-the-effective management of battery life to extend the usability of the gadget. Smartphones, that rely on lithium-ion batteries, are susceptible to some deterioration resultant from charging cycles. Overcharging combined with continuous power supply when the gadget is fully charged in most instances accelerates deterioration to its unavailability. This Android app reduces the problem by providing real time updates on the status of the battery through customizable voice notifications. Leverage Android's Battery Manager API and the Text-to-Speech (TTS) engine, keeping a user informed of key events in the battery such as when the charging starts, battery gets disconnected from charging, and once the full charge is complete.

No. of Pages : 14 No. of Claims : 5



(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :21/06/2025

(21) Application No.202541059614 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : AUTOMATED ENERGY SUPPLY INTERRUPTION AND RESTORATION SYSTEM BASED ON PREPAID METERING FOR LOW TENSION CONSUMERS

(51) International classification :H02J0013000000, H04N0007180000, G06Q0050060000, H04M0017000000, G08C0017020000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(72)Name of Inventor :

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Address of Applicant :SRIWIN ELECTRIC, 212-4, INDIAN BANK COLONY, NARASOTHIPPATTI, SALEM- 636 004. TAMILNADU. INDIA. Salem -----  
-----

(57) Abstract :

The present invention relates to an automated energy supply interruption and restoration system for low-tension three-phase consumers based on prepaid metering. The system comprises a low-voltage power entry terminal [102], a load monitoring transformer [104], and a prepaid digital power meter [106] for tracking energy consumption and prepaid credit. Upon credit depletion, a distributed remote interface controller [110] issues a command through a remote actuation channel [114] to operate an automated circuit breaker module [108], interrupting the supply to the consumer power outlet interface [116]. A wireless data transmission module [118], cloud communication backbone [120], edge-side secure access gateway [122], and core server protection gateway [126] enable remote control from a central monitoring and control server [124]. A local control display unit [112] provides manual override, while client-side control interfaces [128] support user interaction. The system enables secure, reliable, and autonomous energy flow control in prepaid LT environments.

No. of Pages : 22 No. of Claims : 9

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202541059616 A

(19) INDIA

(22) Date of filing of Application :21/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : English Language Conversion System using the AI-Assisted tool for Mass Spectrometry-Based Metabolomic Research by Native Language Scholars.

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|-----------------------------------------------|---------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (51) International classification             | :G01N0030720000, G01N0030060000, H01J0049000000, G06F0040580000, G16B0040000000 | (71) <b>Name of Applicant :</b><br><b>1)CVR COLLEGE OF ENGINEERING</b><br>Address of Applicant :CVR COLLEGE OF ENGINEERING, Vastunagar, Mangalpalli (V) Ibrahimpatnam(M), Rangareddy (Dist), Telangana 501510, India. Hyderabad ----- |
| (86) International Application No             | :NA                                                                             | <b>Name of Applicant : NA</b>                                                                                                                                                                                                         |
| Filing Date                                   | :NA                                                                             | <b>Address of Applicant : NA</b>                                                                                                                                                                                                      |
| (87) International Publication No             | : NA                                                                            | (72) <b>Name of Inventor :</b>                                                                                                                                                                                                        |
| (61) Patent of Addition to Application Number | :NA                                                                             | <b>1)Dr. Madupu Sreenivas</b>                                                                                                                                                                                                         |
| Filing Date                                   | :NA                                                                             | Address of Applicant :English Division, Department of H&S, CVR COLLEGE OF ENGINEERING, Vastunagar, Mangalpalli (V) Ibrahimpatnam(M), Rangareddy (Dist), Telangana 501510, India. Hyderabad -----                                      |
| (62) Divisional to Application Number         | :NA                                                                             | <b>2)Dr. Hussain Shaik</b>                                                                                                                                                                                                            |
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(57) Abstract :

Taking the support of an existing AI-based program, helping researchers who speak local languages to write scientific papers in English, especially for metabolomics studies using mass spectrometry (GC-MS and LC-MS). The system translates research notes from native languages into clear, correct scientific English. It uses special metabolomics databases like HMDB and KEGG to add accurate technical terms. The tool also formats the writing into various sections. It supports interpreting complex mass spectrometry data and provides feedback to improve English writing skills. This invention makes it easier for non-English-speaking scientists to share their research globally and participate in international science.

No. of Pages : 9 No. of Claims : 5

(54) Title of the invention : "Comparative Analysis of Traditional and Stabilized Shata Dhauta Ghrita: Addressing Hydrolytic Degradation"

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| <p>(51) International classification :A61K0036185000, A61K0009000000, A61Q0019000000, A61K0008670000, A61K0047180000</p> <p>(86) International Application No :NA<br/>Filing Date :NA</p> <p>(87) International Publication No :NA<br/>Patent of Addition to Application Number :NA<br/>Filing Date :NA</p> <p>(62) Divisional to Application Number :NA<br/>Filing Date :NA</p> | <p>(71)Name of Applicant :<br/> <b>1)Dr. BHUVANESHWARI R. SHARANNAVAR</b><br/> Address of Applicant :Department of Pharmaceutical Quality Assurance, KLE College of Pharmacy, KLE Academy of Higher Education and Research, Nehru Nagar, Belagavi-590010, Karnataka, India. -----<br/> <b>2)Ms. RADHIKA FALDU</b><br/> <b>3)Mr. SAMARTH DESAI</b><br/> <b>4)Mr. ADIL BELAWADI</b><br/> <b>5)CHANCHAL TAPDIYA</b><br/> <b>6)Ms. SHRIGOURI PATIL</b><br/> <b>7)Dr. NITHYANANDA SASTRY DARBHA</b><br/> <b>8)Dr. PARIXIT BHANDURGE</b><br/> <b>9)Mr. VEERKUMAR P. JAPTI</b><br/> <b>10)Ms. SAKSHI SHAHAPURMATH</b><br/> Name of Applicant : NA<br/> Address of Applicant : NA<br/> (72)Name of Inventor :<br/> <b>1)Dr. BHUVANESHWARI R. SHARANNAVAR</b><br/> Address of Applicant :Department of Pharmaceutical Quality Assurance, KLE College of Pharmacy, KLE Academy of Higher Education and Research, Nehru Nagar, Belagavi-590010, Karnataka, India. -----<br/> <b>2)Ms. RADHIKA FALDU</b><br/> Address of Applicant :KLE College of Pharmacy, KLE Academy of Higher Education and Research, Nehru Nagar, Belagavi-590010, Karnataka, India. Belgaum -----<br/> <b>3)Mr. SAMARTH DESAI</b><br/> Address of Applicant :KLE College of Pharmacy, KLE Academy of Higher Education and Research, Nehru Nagar, Belagavi-590010, Karnataka, India. Belgaum -----<br/> <b>4)Mr. ADIL BELAWADI</b><br/> Address of Applicant :KLE College of Pharmacy, KLE Academy of Higher Education and Research, Nehru Nagar, Belagavi-590010, Karnataka, India. Begaum -----<br/> <b>5)CHANCHAL TAPDIYA</b><br/> Address of Applicant :KLE College of Pharmacy, KLE Academy of Higher Education and Research, Nehru Nagar, Belagavi-590010, Karnataka, India. Belgaum -----<br/> <b>6)Ms. SHRIGOURI PATIL</b><br/> Address of Applicant :KLE College of Pharmacy, KLE Academy of Higher Education and Research, Nehru Nagar, Belagavi-590010, Karnataka, India. Belgaum -----<br/> <b>7)Dr. NITHYANANDA SASTRY DARBHA</b><br/> Address of Applicant :Department of Pharmacognosy, KLE College of Pharmacy, KLE Academy of Higher Education and Research, Nehru Nagar, Belagavi-590010, Karnataka, India. Balgaum -----<br/> <b>8)Dr. PARIXIT BHANDURGE</b><br/> Address of Applicant :Department of Pharmaceutical Chemistry, KLE College of Pharmacy, KLE Academy of Higher Education and Research, Nehru Nagar, Belagavi-590010, Karnataka, India. Belgaum -----<br/> <b>9)Mr. VEERKUMAR P. JAPTI</b><br/> Address of Applicant :Department of Pharmaceutical Quality Assurance, KLE College of Pharmacy, KLE Academy of Higher Education and Research, Nehru Nagar, Belagavi-590010, Karnataka, India. Belgaum -----<br/> <b>10)Ms. SAKSHI SHAHAPURMATH</b><br/> Address of Applicant :Department of Pharmaceutical Quality Assurance, KLE College of Pharmacy, KLE Academy of Higher Education and Research, Nehru Nagar, Belagavi-590010, Karnataka, India. Belgaum -----</p> |
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## (57) Abstract :

The present invention relates to a stabilized topical formulation of Shata Dhauta Ghrita (SDG), traditionally prepared by washing cow ghee 100 times with purified water. To overcome the limitations of oxidative instability, poor shelf life, and microbial susceptibility associated with the conventional preparation, selected pharmaceutical excipients were incorporated. The stabilized formulation includes cow ghee, ascorbic acid, stearic acid, sodium benzoate, vitamin E, and sandalwood oil. The optimized formulation demonstrated improved physicochemical stability, enhanced thermal resistance, and acceptable dermatological pH. Characterization by FTIR and DSC confirmed the absence of hydrolytic degradation and improved thermal behaviour. The formulation is suitable for dermatological applications such as moisturizing, skin repair, and anti-aging treatment, offering a scientifically validated enhancement of a classical Ayurvedic product.

No. of Pages : 35 No. of Claims : 1

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202541059641 A

(19) INDIA

(22) Date of filing of Application :21/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : Green Method for the Synthesis of Phenothiazine incorporated Hantzsch Pyridine Derivatives Catalyzed by Bi-Functionalized Ionic Liquid.

(51) International classification :A61K0038000000, A61K0039080000, B01J0031020000, A61K0039000000, A61L0002200000

(86) International Application No :NA

Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA

Filing Date :NA

(62) Divisional to Application Number :NA

Filing Date :NA

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(57) Abstract :

The present invention discloses a green, one-pot multicomponent method for synthesizing phenothiazine-incorporated Hantzsch pyridine derivatives using recyclable ionic liquids, such as BIL as eco-friendly catalysts. The reaction involves the condensation of N-alkylated phenothiazine-3-carbaldehyde, a  $\beta$ -keto ester, dimedone, and ammonium acetate under mild conditions, affording high yields with simplified work-up. The ionic liquid catalyst is reusable over multiple cycles without significant loss of activity, minimizing environmental impact. Significant biological activity was demonstrated by the produced compounds, which were evaluated using spectroscopic techniques, highlighting their potential as bioactive molecules for pharmaceutical applications.

No. of Pages : 13 No. of Claims : 6

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :21/06/2025

(21) Application No.202541059642 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : VIRTUAL VOICE ASSISTANT

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| <p>(51) International classification :G10L0015220000, H04W0004020000, G06F0003160000, G06N0020000000, G06F0040300000</p> <p>(86) International Application No :NA<br/>Filing Date :NA</p> <p>(87) International Publication No : NA</p> <p>(61) Patent of Addition to Application Number :NA<br/>Filing Date :NA</p> <p>(62) Divisional to Application Number :NA<br/>Filing Date :NA</p> | <p>(71)Name of Applicant :<br/><b>1)KESHAV MEMORIAL INSTITUTE OF TECHNOLOGY</b><br/>Address of Applicant :3-5-1026, NARAYANAGUDA, HYDERABAD, TELANGANA, INDIA, 500029 Hyderabad -----</p> <p><b>Name of Applicant : NA</b><br/><b>Address of Applicant : NA</b></p> <p>(72)Name of Inventor :<br/><b>1)Mr. MADDINENI NARESH</b><br/>Address of Applicant :ASSISTANT PROFESSOR, DEPARTMENT OF CSE(AI&amp;ML), KESHAV MEMORIAL INSTITUTE OF TECHNOLOGY, 3-5-1026, NARAYANAGUDA, HYDERABAD, TELANGANA, INDIA, 500029 Hyderabad -----</p> <p><b>2)Ms. ALLEGAPALLY SAHITHI</b><br/>Address of Applicant :DEPARTMENT OF CSE(AI&amp;ML), KESHAV MEMORIAL INSTITUTE OF TECHNOLOGY, 3-5-1026, NARAYANAGUDA, HYDERABAD, TELANGANA, INDIA, 500029 Hyderabad -----</p> <p><b>3)Ms. GOSHIKA HEERVANI</b><br/>Address of Applicant :DEPARTMENT OF CSE(AI&amp;ML), KESHAV MEMORIAL INSTITUTE OF TECHNOLOGY, 3-5-1026, NARAYANAGUDA, HYDERABAD, TELANGANA, INDIA, 500029 Hyderabad -----</p> <p><b>4)Ms. MUPPIDI SUSHMA</b><br/>Address of Applicant :DEPARTMENT OF CSE(AI&amp;ML), KESHAV MEMORIAL INSTITUTE OF TECHNOLOGY, 3-5-1026, NARAYANAGUDA, HYDERABAD, TELANGANA, INDIA, 500029 Hyderabad -----</p> |
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(57) Abstract :

The Virtual Voice Assistant project seeks to redefine the way users interact with technology by offering a comprehensive, AI-driven digital assistant. This advanced system leverages natural language processing (NLP) and voice recognition technologies to facilitate seamless communication and task execution. Equipped with features like weather updates, news headlines, system monitoring, and multimedia control, the assistant caters to both practical and entertainment needs. It employs real-time capabilities such as performing Google searches, providing brief information on topics, generating images from text, and even managing system operations like opening files, switching tabs, and taking screenshots. Integrated with platforms like YouTube and Google Maps, it enhances user convenience with functionalities such as playing music, calculating distances, and navigating destinations. The assistant is designed with a robust architecture, ensuring high performance and user-friendly interaction. Future development will focus on expanding its abilities, refining user experience, and incorporating personalized recommendations to create a truly intelligent, all-in-one virtual companion.

No. of Pages : 16 No. of Claims : 7

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :21/06/2025

(21) Application No.202541059645 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : System and Process of Closed-Chamber Steam Curing for Concrete Performance Enhancement.

(51) International classification

(86) International Application No

(87) International Publication No

(61) Patent of Addition to Application Number

(62) Divisional to Application Number

Filing Date

Filing Date

Filing Date

Filing Date

Filing Date

:B28B0011240000, G01N0003020000, C04B0040020000, C04B0040000000, B28C0005000000

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(57) Abstract :  
The invention discloses a closed-chamber steam curing system for enhancement of concrete strength. The system comprises a sealed curing chamber, steam generator, and a control unit that maintains optimal temperature and pressure conditions. This enables rapid hydration, high early strength gain, and improved productivity in precast and prestressed concrete manufacturing. The experimental investigation results indicated that development of compressive strength under 9 hours vacuum curing is 10.6 % and 7.9 % more than the 28 days conventional curing compressive strength for M20 and M40 grade concretes respectively. The system reduces time, prevents thermal cracking, and ensures uniform strength distribution.

No. of Pages : 14 No. of Claims : 8

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202541059655 A

(19) INDIA

(22) Date of filing of Application :21/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : BIOACTIVE ELECTROSPUN NANOFIBERS FOR TISSUE ENGINEERING APPLICATIONS

(51) International classification :D01D0005000000, A61P0017020000, A61L0027560000, C12N0005071000, A61K0009700000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

The present invention discloses about the preparation of bioactive electrospun nanofibers for tissue engineering applications. The nanofibers had continuous, string-like morphology with occasional bead formation. They were highly porous and displayed a well-interconnected network of interlaced fibers. The nanofibers were biocompatible and possess the ability to heal wounds within 48 hours which was evident using in vitro cell culture experiments. The nanofibers can be used for tissue regeneration, drug delivery, and wound treatment.

No. of Pages : 17 No. of Claims : 9

(54) Title of the invention : ABSTRACTION-BASED RUNTIME PROPERTY VERIFICATION SYSTEM AND METHOD THEREOF

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| <div>(51) International classification</div> <div>(86) International Application No</div> <div>(87) International Publication No</div> <div>(61) Patent of Addition to Application Number</div> <div>(62) Divisional to Application Number</div> <div>Filing Date</div> <div>Filing Date</div> <div>Filing Date</div> | <div>:H04L0001000000, G06F0030332300, G06F0011360000, G06N0003063000, G06F0013420000</div> <div>:NA</div> <div>:NA</div> <div>: NA</div> <div>:NA</div> <div>:NA</div> <div>:NA</div> <div>:NA</div> | <div>(71)Name of Applicant :</div> <div><b>1)Amrita Vishwa Vidyapeetham</b></div> <div>Address of Applicant :Amrita Vishwa Vidyapeetham, Coimbatore Campus, Coimbatore - 641112, Tamil Nadu, India. Coimbatore -----</div> <div><b>Name of Applicant : NA</b></div> <div><b>Address of Applicant : NA</b></div> <div>(72)Name of Inventor :</div> <div><b>1)KP, Jevitha</b></div> <div>Address of Applicant :6, Velappa Gounder Nagar, Saravanampatti, Coimbatore - 641035, Tamil Nadu, India. Coimbatore -----</div> <div><b>2)JAYARAMAN, Bharat</b></div> <div>Address of Applicant :41 Prestonwood Lane, East Amherst, New York 14051, United States of America. -----</div> <div><b>3)SETHUMADHAVAN, M.</b></div> <div>Address of Applicant :Madathil, Pallikurup PO, Palakkad - 678593, Kerala, India. Palakkad -----</div> |
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(57) Abstract :

The present disclosure provides a system (100) for abstraction-based runtime property verification and a method for real-time safety monitoring of embedded controllers. The system processes execution traces (101) from target controllers, constructing linear state models (104), distinct state models (106), and abstract state models (109) using Boolean (111), multi-valued (112), and path (113) abstraction functions (107). Property verification (110) evaluates safety properties on abstract models with 100x state space reduction. Hardware acceleration includes FPGA-based instrumentation interfaces (103) capturing memory operations, verification processors (110) on application-specific integrated circuits (111), property transformation circuits (604), and parallel verification engines (605). This integrated approach achieves sub-millisecond verification latency for control systems operating up to one kilohertz, enabling deployment in safety-critical automotive braking systems, industrial robot controllers, and aircraft flight control systems. Unlike software-only approaches, the combination of abstraction-based model construction and hardware acceleration provides real-time property verification suitable for resource-constrained embedded controllers.

No. of Pages : 35 No. of Claims : 10



(12) PATENT APPLICATION PUBLICATION

(21) Application No.202541059661 A

(19) INDIA

(22) Date of filing of Application :21/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : LIGHTWEIGHT ML-INTEGRATED PREGNANCY MONITORING WEARABLE FOR MATERNAL AND POSTPARTUM HEALTH

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|-----------------------------------------------|------|---------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (51) International classification             |      | :A61B0005000000, A61B0005110000, A61B0005020500, A61B0005145000, A61B0005024000 | (71)Name of Applicant :<br><b>1)Ramanarao Venkata Jakka</b><br>Address of Applicant :Flat D204, Shriram Samruddhi, Varthur Main road, tubarahalli, Bangalore-560066, mobile: 9845588940 -----<br><b>2)Vakula Rani J</b><br><b>3)Aishwarya Jakka</b><br><b>4)Gunasheela J</b><br><b>5)Daniel Gladson B</b><br><b>6)Charan R</b><br><b>7)Kethan R</b><br>Name of Applicant : NA<br>Address of Applicant : NA |
| (86) International Application No             | :NA  |                                                                                 | (72)Name of Inventor :                                                                                                                                                                                                                                                                                                                                                                                     |
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| (87) International Publication No             | : NA |                                                                                 | <b>2)Vakula Rani J</b><br>Address of Applicant :CMR Institute of Technology , 132 AECS Layout, ITPL Main Road, Kundalahalli, Bangalore Karnataka, Pin Code :560037 Bangalore -----                                                                                                                                                                                                                         |
| (61) Patent of Addition to Application Number | :NA  |                                                                                 | <b>3)Aishwarya Jakka</b><br>Address of Applicant :Vathur Main Road, Thubarahalli, Near KundanbaHalli D204, Sriram Samruddhi, Bangalore -----                                                                                                                                                                                                                                                               |
| Filing Date                                   | :NA  |                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                            |
| (62) Divisional to Application Number         | :NA  |                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                            |
| Filing Date                                   | :NA  |                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                            |

(57) Abstract :

The present invention discloses a lightweight, machine learning-integrated wearable device in the form of smart footwear for real-time, non-invasive monitoring and management of maternal and postpartum health. The device incorporates embedded physiological, biomechanical, and environmental sensors to track parameters such as heart rate, temperature, blood flow, hydration levels, fatigue, weight distribution, swelling patterns, gait, joint function, and micro-movements. Advanced features include dynamic pressure analysis and gait irregularities detection. A lightweight edge-computing module enables on-device ML inference using optimized models for immediate health insights, anomaly detection, and alerts without reliance on cloud processing. IoT connectivity facilitates periodic data synchronization with a cloud platform for trend analysis, long-term health tracking, and personalized recommendations. The wearable dynamically adapts to both pregnancy and postpartum phases, providing proactive care, early risk identification, and recovery monitoring. By integrating comfort, convenience, and intelligent analytics, the invention offers an innovative solution for enhanced maternal well-being.

No. of Pages : 24 No. of Claims : 9

(54) Title of the invention : Identifying Location Using GSM Technology in Machine Learning for the Blind People

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| <p>(51) International classification :A61H0003060000, G09B0021000000, G01S0015930000, G01S0015931000, A61F0009080000</p> <p>(86) International Application No :NA<br/>Filing Date :NA</p> <p>(87) International Publication No : NA</p> <p>(61) Patent of Addition to Application Number :NA<br/>Filing Date :NA</p> <p>(62) Divisional to Application Number :NA<br/>Filing Date :NA</p> | <p>(71)Name of Applicant :<br/><b>1)Dr.S.Ganeshmoorthy</b><br/>Address of Applicant :Associate Professor, School of Computer Applications, Karpagam College of Engineering, Coimbatore-641032, Tamilnadu,India -----</p> <p><b>2)Dr.M.Bhuvaneswari</b><br/><b>3)Dr R S Padma Priya</b><br/><b>4)Dr.E.Jasmin Suganthi</b><br/><b>5)Mrs.N.S.Rani Selvanayage</b><br/><b>6)Dr P Pirakatheeswari</b><br/><b>7)Dr R Padmavathi</b><br/><b>8)Ms.R.Greeshma</b><br/><b>9)Dr T Deepa</b><br/><b>10)Dr A Anuradha</b><br/>Name of Applicant : NA<br/>Address of Applicant : NA</p> <p>(72)Name of Inventor :<br/><b>1)Dr.S.Ganeshmoorthy</b><br/>Address of Applicant :Associate Professor, School of Computer Applications, Karpagam College of Engineering, Coimbatore-641032, Tamilnadu,India -----</p> <p><b>2)Dr.M.Bhuvaneswari</b><br/>Address of Applicant :Professor,Department of Management Sciennces,Hindusthan College of Engineering and Technology,Coimbatore-641032, Tamilnadu,India -----</p> <p><b>3)Dr R S Padma Priya</b><br/>Address of Applicant :Assistant Professor, Department of Computer Applications Vignan's Foundation for Science Technology and Research Vadlamudi, Guntur, Andhra Pradesh -----</p> <p><b>4)Dr.E.Jasmin Suganthi</b><br/>Address of Applicant :Assistant Professor Department of Accounting and Finance Dharmamurthi Rao Bahadur calavala cunnam chetty's Hindu college Pattabiram, chennai 72, Tamilnadu,India -----</p> <p><b>5)Mrs.N.S.Rani Selvanayage</b><br/>Address of Applicant :Assistant Professor, Department of Mathematics, Erode Sengunthar Engineering college ,Perundurai-638057, Erode, Tamilnadu,India -----</p> <p><b>6)Dr P Pirakatheeswari</b><br/>Address of Applicant :Associate Professor, Department of B Com PA, Sri Ramakrishna College of Arts &amp; Science, Nava India, Coimbatore 641006, Tamilnadu,India ---</p> <p><b>7)Dr R Padmavathi</b><br/>Address of Applicant :Assistant professor, PG &amp; Research Department of Mathematics, Sri Ramakrishna College of Arts &amp; Science, Nava India, Coimbatore 641006, TamilNadu. -----</p> <p><b>8)Ms.R.Greeshma</b><br/>Address of Applicant :Assistant Professor Department of BCom-A&amp;F Sri Ramakrishna College of Arts &amp; Science Coimbatore-641006, TamilNadu. -----</p> <p><b>9)Dr T Deepa</b><br/>Address of Applicant :Assistant professor, PG &amp; Research Department of Mathematics, Sri Ramakrishna College of Arts &amp; Science, Nava India, Coimbatore 641006, TamilNadu. -----</p> <p><b>10)Dr A Anuradha</b><br/>Address of Applicant :Assistant professor, PG &amp; Research Department of Mathematics, Sri Ramakrishna College of Arts &amp; Science, Nava India, Coimbatore 641006, TamilNadu. -----</p> |
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(57) Abstract :

Identifying Location Using GSM Technology in Machine Learning for the Blind People ABSTRACT In order to help visually impaired people scan their environment and recognize hazards without the use of outside help, blind sticks are a useful tool. For improved topic support, the mechanical blind stick form now in use has to be upgraded. As a result, this project suggests modifying these sticks by adding sensors, micro-controllers, and buzzers to help the subject better navigate their surroundings and improve their mobility experience. The sensors detect the hurdles and obstacles from a safe distance and the micro-controller activates a buzzer to alert the user in case of threats. The model employs another unit to send location updates to kith and kins of the subject in emergency conditions with the help of GPS and GSM units Any abnormal changes in these readings result in an automated text message sent to the mentioned contacts along with the GPS location. The model is aimed to be a cost- effective and user-friendly device for aiding the visually challenged people that guarantees highly reliable navigation performance and greater user experience by offering various additional features. The PID (proportional–integral–derivative) algorithm applied in order to avoid overlapping of distance range from three sensor placed in the stick. As per the obstacles, the algorithm stops the working of corresponding ultrasonic sensor and therefore the visually challenged person can get an intimation in a accurate manner. Index Terms- PID, GPS, GSM, Ultrasonic Sensor he proposal to upgrade traditional mechanical blind sticks by incorporating sensors, microcontrollers, and buzzers aligns well with ongoing advancements in assistive technology aimed at enhancing the spatial awareness and autonomous navigation of visually impaired people. Traditional white canes, despite being reliable primary mobility tools, mainly provide tactile feedback limited to ground-level obstacles, which can result in missed detections of hazards such as overhanging objects, drop-offs, or complex environmental features. Thus, sensor integration substantially improves their hazard detection capabilities and the overall mobility experience. A robust design would incorporate ultrasonic sensors, which are widely used for obstacle detection due to their cost-effectiveness and reliable range in various environments. Ultrasonic sensors such as the HC-SR04 are proven to detect obstacles accurately at distances from around 7 cm up to 35 cm or more, providing timely alerts to users .These sensors can be arranged at strategic heights along the cane to detect obstacles both on the ground and at elevated positions, effectively reducing missed hazards. Microcontrollers such as Arduino or PIC microcontrollers serve as ideal processing units to collect sensor data, perform obstacle detection algorithms, and manage user feedback mechanisms. Low-power embedded systems employing such microcontrollers have been validated in assistive devices to enable obstacle detection, environment mapping, and control of feedback outputs .Additionally, integrating Bluetooth modules can extend functionality by connecting the stick to smartphones for GPS-enabled navigation or emergency services, as demonstrated in systems like InWalker. Feedback modalities critically influence the ease of use and user acceptance of smart canes. Vibrational (haptic) feedback and auditory signals (such as buzzer tones or voice prompts) have been widely adopted to convey proximity or hazard information without overwhelming the user. The combination of intuitive vibration patterns and audio feedback enables users to interpret environmental cues efficiently and without distraction, thereby enhancing independent mobility confidence .Studies have further shown that tailoring feedback parameters, such as the speed or intensity of voice broadcasts, can optimize obstacle avoidance performance depending on the user's perceptual preferences Ergonomics and portability remain essential design considerations to ensure that the smart stick does not impose additional physical or cognitive burdens on the user. Lightweight materials (e.g., PVC frameworks) and compact sensor modules have been successfully incorporated to maintain the usability of the device.Moreover, the mechanical design can be further enhanced by hybrid configurations, for instance, integrating wheeled wing apparatuses to improve detection of small obstacles and drop-offs without substantially increasing the device's bulk From a broader perspective, it is important to consider limitations inherent to various sensing technologies. Ultrasonic sensors have limited range and can be affected by the surface characteristics of obstacles, whereas laser-based systems, though more precise, pose safety risks if misdirected. Electromagnetic sensors, including microwave radars, are emerging as alternatives offering longer detection ranges and noise tolerance, yet miniaturization and cost remain challenges. In conclusion, the addition of ultrasonic sensors, microcontrollers, and feedback systems to the traditional blind stick is a validated and practical approach to improving hazard detection and environmental scanning for visually impaired individuals. Successful prototypes demonstrate enhanced obstacle avoidance, detection of complex obstacles (including hollowed structures), and integration with assistive technologies such as GPS .Future developments should emphasize customizable feedback settings aligned with user perceptual patterns, ergonomic design for ease of use, and expansion towards multi-sensor systems to overcome limitations of single sensor modalities. Such smart blind sticks effectively reduce reliance on external assistance, promote independent mobility, and contribute to the inclusivity of visually impaired individuals.

No. of Pages : 13 No. of Claims : 9

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202541059666 A

(19) INDIA

(22) Date of filing of Application :21/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : "Synergistic Herbal Formulation of Turmeric, Black Pepper, Dry Ginger, Long Pepper, and Brahmakamal for Enhancing Immunity and Combating Infections"

|                                               |                                                                                 |                                                                                                                                                                                                                                                                                               |
|-----------------------------------------------|---------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (51) International classification             | :A61K0036670000, A61K0036906800, A61K0036906600, A61P0031100000, A61K0031120000 | (71)Name of Applicant :<br><b>1)Narayana Ayur Pharma</b><br>Address of Applicant :121, 1 st floor, Manjeera Majestic commercial Mall, JNTU Road, Beside Rythu Bazaar,KPHB colony, Hyderabad-500072 Hyderabad --<br>-----<br><b>Name of Applicant : NA</b><br><b>Address of Applicant : NA</b> |
| (86) International Application No             | :NA                                                                             | (72)Name of Inventor :<br><b>1)PAMARTHI SRIDIVYA</b>                                                                                                                                                                                                                                          |
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| (61) Patent of Addition to Application Number | :NA                                                                             | Address of Applicant :121, 1 st floor, Manjeera Majestic commercial Mall, JNTU Road, Beside Rythu Bazaar,KPHB colony, Hyderabad-500072 Hyderabad -----<br>-----                                                                                                                               |
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(57) Abstract :

"Synergistic Herbal Formulation of Turmeric, Black Pepper, Dry Ginger, Long Pepper, and Brahmakamal for Enhancing Immunity and Combating Infections" The present invention relates to a synergistic herbal composition comprising Turmeric (*Curcuma longa*), Black Pepper (*Piper nigrum*), Dry Ginger (*Zingiber officinale*), Long Pepper (*Piper longum*), and Brahmakamal (*Saussurea lappa*), formulated to combat bacterial, viral, and fungal infections while simultaneously enhancing the body's immune response. The composition offers a broad-spectrum antimicrobial activity through synergistic interactions between the active phytoconstitu-ents—such as curcumin, piperine, gingerols, and unique bioactive compounds of Brahmakamal like methyl palmitate, linalyl acetate, and beta-sitosterol. The formulation also demonstrates immuno-modulatory effects, enhancing the activity of immune cells (e.g., macrophages, lymphocytes, and natural killer cells) and regulating cytokine responses. The invention optimizes herb ratios and dosage forms (churna, tablets, and capsules) to improve bioavailability, stability, and efficacy while ensuring safety and long-term use without synthetic addi-tives or risk of antimicrobial resistance. The invention provides a cost-effective, scalable, and stand-ardized approach for managing infections and supporting immunity, suitable for pharmaceutical, nutraceutical, and Ayurvedic applications. The composition is validated through phytochemical anal-ysis, in vitro antimicrobial studies, and literature-supported evidence of synergistic interactions and bioactivities.

No. of Pages : 21 No. of Claims : 11

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :21/06/2025

(21) Application No.202541059670 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : DYNAMIC LED PROPELLER DISPLAY SYSTEM WITH REAL-TIME DATA SYNCHRONIZATION AND VISUAL OUTPUT

(51) International classification :G09G3/32, G09F9/33, G09F13/30,  
G09F11/10, G09G5/12  
(86) International Application No :NA  
Filing Date :NA  
(87) International Publication No : NA  
(61) Patent of Addition to :NA  
Application Number :NA  
Filing Date :NA  
(62) Divisional to Application :NA  
Number :NA  
Filing Date :NA

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(57) Abstract :

ABSTRACT The present invention relates to a dynamic LED propeller display system (100) that utilizes persistence of vision (POV) to render visual content in mid-air through high-speed rotation of a rotatable support structure (102). The system comprises a matrix of light emitting diodes (LEDs) (104) mounted on a rotating perfboard, controlled by a microcontroller (106) that processes incoming data to generate dynamic content including text, images, and low-resolution animations. A motor assembly (108) facilitates high-speed rotation, while a position sensing unit (110) comprising a Hall effect sensor and magnet ensures frame synchronization by detecting a reference angular position. A data interface module (112), such as USB, Wi-Fi, or Bluetooth, allows for real-time content updates from external sources. The system further includes a power supply circuit (114) with appropriate resistors and a thermal management mechanism (116) to ensure reliable and efficient operation. The microcontroller (106) coordinates the timing of LED (104) illumination based on rotational speed and angular position, creating a visually coherent display observable to the human eye. The figure associated with the abstract is Fig.1

No. of Pages : 18 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202541059672 A

(19) INDIA

(22) Date of filing of Application :21/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : A SYSTEM AND METHOD FOR INDEXING DENTAL MODELS

|                                               |      |                                                                                 |                                                                                                                                                                                                                                                                                  |
|-----------------------------------------------|------|---------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (51) International classification             |      | :A61C0009000000, A61C0007000000, A61C0011080000, A61C0007080000, B60C0011130000 | (71) <b>Name of Applicant :</b><br><b>1)Chettinad Academy of Research and Education</b><br>Address of Applicant :Chettinad Hospital and Research Institute, Chettinad Academy of Research and Education, Rajiv Gandhi Salai, Kelambakkam, Chengalpattu Tamil Nadu, Indian. ----- |
| (86) International Application No             | :NA  |                                                                                 | <b>Name of Applicant : NA</b>                                                                                                                                                                                                                                                    |
| Filing Date                                   | :NA  |                                                                                 | <b>Address of Applicant : NA</b>                                                                                                                                                                                                                                                 |
| (87) International Publication No             | : NA |                                                                                 | (72) <b>Name of Inventor :</b>                                                                                                                                                                                                                                                   |
| (61) Patent of Addition to Application Number | :NA  |                                                                                 | <b>1)Abirami V</b><br>Address of Applicant :Chettinad Dental College and Research Institute; Rajiv Gandhi Salai, Kelambakkam Tamil Nadu, India-603103 Kelambakkam ----- --                                                                                                       |
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| Filing Date                                   | :NA  |                                                                                 | -----                                                                                                                                                                                                                                                                            |
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(57) Abstract :

The present disclosure relates to a system for indexing dental models to enable accurate repositioning of sectioned cast segments. The system comprises a maxillary indexing template (102) and a mandibular indexing template (104), each adapted to form defined indexing grooves on dental casts during fabrication. The maxillary indexing template (102) includes a transverse groove (106) and a longitudinal groove (108) arranged to intersect, creating a cross-shaped pattern on a maxillary cast. The mandibular indexing template (104) includes a left ridge (110) and a right ridge (112) arranged to form angular or V-shaped grooves on a mandibular cast. The templates are designed to be placed over unset dental plaster or stone and removed after setting, leaving behind precise groove patterns. These grooves function as physical references to allow accurate realignment of dental cast sections during prosthetic or orthodontic workflows.

No. of Pages : 15 No. of Claims : 6

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202541059674 A

(19) INDIA

(22) Date of filing of Application :21/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : EEG Based Human Stress Level Predictor Headband

(51) International classification :A61B5/369, A61B5/291, A61B5/16, G16H20/70, H04W4/00, G16H50/20, G06N20/00

(86) International Application No :NA

Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA

Filing Date :NA

(62) Divisional to Application Number :NA

Filing Date :NA

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(57) Abstract :

ABSTRACT EEG BASED HUMAN STRESS LEVEL PREDICTOR HEADBAND The present invention relates to a wearable EEG-based headband designed for real-time human stress level prediction using a simplified two-electrode configuration positioned at the T7 and T8 scalp locations. The device integrates dry-contact electrodes, advanced signal acquisition hardware, Bluetooth Low Energy communication, and a mobile interface. EEG data is processed using a custom deep learning model (EEGNet) deployed on a backend server, enabling accurate stress classification. The system achieves low-latency inference, high comfort, and user-specific adaptability, offering a portable, non-invasive, and clinically validated solution for continuous stress monitoring in everyday environments. Fig. 1

No. of Pages : 24 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202541059675 A

(19) INDIA

(22) Date of filing of Application :21/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : SMART BRICK DRYING SYSTEM WITH EDGE-BASED LIGHTWEIGHT DEEP LEARNING AND SOLAR-POWERED IOT INTEGRATION

(51) International classification :G06F0009500000, H04L0067000000, G06N0003080000, F26B0021120000, G06Q0030020100

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

ABSTRACT The invention discloses a smart brick drying system that integrates solar-powered thermal energy, IoT-enabled environmental sensing, and edge-based lightweight deep learning for autonomous operation. The system comprises a drying chamber, a solar thermal unit, and a network of sensors configured to measure temperature, humidity, and brick moisture levels. Sensor data is processed in real time by one or more edge computing devices running a lightweight deep learning model to determine optimal drying conditions. A control module dynamically adjusts heat, airflow, and drying duration based on model output. The system includes a user interface to display real-time metrics and alerts, ensuring enhanced energy efficiency, defect reduction, and suitability for off-grid environments. The invention is particularly beneficial for sustainable and decentralized construction applications.

No. of Pages : 21 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :21/06/2025

(21) Application No.202541059679 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : AN AUTOMATED SYSTEM AND METHOD FOR CONVEYING, INSPECTING AND SORTING HIGH ASPECT-RATIO OBJECTS

(51) International classification :G01N0021880000, G06T0007000000, G06F0021310000, B25J0011000000, G06V0020580000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

AN AUTOMATED SYSTEM AND METHOD FOR CONVEYING, INSPECTING AND SORTING HIGH ASPECT-RATIO OBJECTS The present invention relates to a system (100, 600) and method for conveying, inspecting, and sorting high aspect-ratio objects in automated quality control processes. The system (100, 600) comprises a feeder unit (102) for introducing objects, a belt conveyor unit (104) with a continuous loop driven by a motorized drive pulley (404) and tension-rotated driven pulley (406), and image sensors (106A-B) positioned along the conveyor path to capture multiple views of each object. A microcontroller (110) receives and processes the captured image data in real-time to detect surface defects. Upon identifying defective objects, the microcontroller (110) triggers a separator unit (108) with a flip plate mechanism to redirect such objects to a reject path. The invention addresses the labor shortage challenges in industries like incense sticks manufacturing by offering a cost-effective solution capable of improving quality assurance. FIG. 1

No. of Pages : 23 No. of Claims : 10



(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :21/06/2025

(21) Application No.202541059683 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : Machine Learning-Driven Visual Data Interpretation in IoT Sensor Networks

(51) International classification :G06N0003080000, G06V0010764000, H04L0067120000, G06F0009500000, G08B0013196000  
(86) International Application No :NA  
Filing Date :NA  
(87) International Publication No : NA  
(61) Patent of Addition to Application Number :NA  
Filing Date :NA  
(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

Traditional centralized processing approaches suffer from high latency, bandwidth limitations, and privacy concerns. To overcome these challenges, the proposed system integrates lightweight deep learning models, adaptive edge computing, and distributed inference strategies to enable context-aware visual analytics directly at or near the point of data capture. The system supports a wide range of tasks such as object detection, behavior recognition, and anomaly identification, while dynamically adapting to environmental changes, device constraints, and network conditions. By transforming visual sensors into autonomous, intelligent agents capable of real-time interpretation and collaborative learning, the invention significantly enhances the performance, privacy, and scalability of IoT deployments. This solution offers a robust foundation for next-generation applications in public safety, smart infrastructure, and responsive environmental systems.

No. of Pages : 17 No. of Claims : 6

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202541059688 A

(19) INDIA

(22) Date of filing of Application :21/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : MULTI-SENSOR AND AI-BASED PORTABLE ANALYZER DEVICE FOR HONEY ADULTERATION DETECTION

|                                                                                                                   |      |                                                                                                                                                                                                              |
|-------------------------------------------------------------------------------------------------------------------|------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (51) International classification :G06N0020000000, G01N0021359000, G01N0021650000, G01N0021310000, G01N0021410000 |      | (71)Name of Applicant :<br><b>1)Ramanarao Venkata Jakka</b><br>Address of Applicant :Flat D204, Shriram Samruddhi, Varthur Main road, tubarahalli, Bangalore-560066, mobile: 9845588940 -----                |
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| (87) International Publication No                                                                                 | : NA | <b>4)CMR Institute of Technology</b>                                                                                                                                                                         |
| (61) Patent of Addition to Application Number                                                                     | :NA  | <b>5)Vedant Vijay gurav</b>                                                                                                                                                                                  |
| Filing Date                                                                                                       | :NA  | <b>Name of Applicant : NA</b>                                                                                                                                                                                |
| (62) Divisional to Application Number                                                                             | :NA  | <b>Address of Applicant : NA</b>                                                                                                                                                                             |
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(57) Abstract :

ABSTRACT The present invention discloses a Multi-Sensor and AI-Based Portable Analyzer Device for Honey Adulteration Detection that enables real-time, non-destructive, and field-deployable analysis of honey quality. The system comprises a compact, handheld housing integrating a multi-sensor array including UV-VIS, near-infrared (NIR), digital refractometer, pH, and conductivity sensors, which together capture both spectral and physicochemical signatures of honey samples. A microcontroller unit preprocesses the acquired data and transmits it to an embedded artificial intelligence (AI) engine configured with machine learning models trained on validated datasets of pure and adulterated honey. The AI engine performs sensor fusion and inference to classify the authenticity of the sample and identify the presence of adulterants. Results are visualized through a mobile or cloud-connected dashboard that provides real-time alerts, risk scores, and personalized advisories. The device supports offline operation, data logging, and periodic synchronization with regulatory databases. This invention overcomes the limitations of traditional laboratory-based, destructive testing methods by offering a rapid, accurate, and user-friendly solution for on-site honey adulteration detection, thereby enabling greater transparency, traceability, and consumer safety.

No. of Pages : 18 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :21/06/2025

(21) Application No.202541059692 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : INTELLIGENT MEDICAL REPORT ANALYSIS AND HEALTH RECOMMENDATION SYSTEM

(51) International classification :G16H0015000000, G16H0010600000, G16H0050200000, G06V0030100000, G06F0040300000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

The invention relates to an intelligent medical report analysis and health recommendation system (100) comprising an image acquisition module (101) configured to receive medical reports in image or scanned format, an image preprocessing module (102) for enhancing image quality, an OCR module (103) to extract machine readable text and a text processing module (104) uses natural language processing to clean and structure the extracted text. A user input module (105) collects contextual data such as age, sex, symptoms and lifestyle habits and an AI module (106) comprising a language interaction framework and a large language model processes these inputs to generate personalized health recommendations. A chat interaction module (107) enables multi-turn, context-aware responses and a user interface module (108) user interaction and output display. The system is configured to operate locally on a computing device (D), providing real-time interpretation and personalized health recommendation without reliance on medical professionals.

No. of Pages : 25 No. of Claims : 14

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202541059699 A

(19) INDIA

(22) Date of filing of Application :22/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : MELODIVIBE - SOCIALLY ENHANCED MUSIC APP

(51) International classification :G06Q0050000000, G10H0001360000, G06Q0010101000, G11B0027031000, A61M0021000000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

This project introduces Melodivibe, a socially enhanced music streaming application that redefines how users interact with music. Built using a robust tech stack comprising React-Native, Expo Libraries and firebase service, it offers seamless song search, playlist creation, and real-time streaming via cloud storage of firebase and CDNs. Secure Firebase authentication login ensures personalized and protected user experiences. The app stands out with innovative features like Music Rooms which work just like YouTube live where music enthusiasts can create public or private spaces for shared music listening. Karaoke mode allows users to sing along, record, and share performances, while real-time liked folders, friend's interaction section via an interaction focused system of firebase add a social dimension to the music experience. Powered by scalable architecture, Melodivibe supports future enhancements like personalized recommendations. Designed as a cross-platform app using react native, it offers seamless functionality, delivering an immersive, creative, and community driven music experience.

No. of Pages : 14 No. of Claims : 5

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :22/06/2025

(21) Application No.202541059702 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : A Smart Irrigation System

(51) International classification :A01G0025160000, G05B0019042000, H04W0004800000, G05B0013040000, G05D0001000000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

A smart irrigation system is disclosed for automated and optimized agricultural environment management. The system comprises an ESP32 microcontroller with integrated Wi-Fi and Bluetooth capabilities, serving as the central control hub. It includes a soil moisture sensing module, a temperature and humidity sensor (DHT11), a light intensity sensor (LDR), and a waterlogging detection sensor (IR), all configured to collect real-time environmental data. The system further comprises a threshold control unit—adjustable manually via a potentiometer or digitally through a mobile application—for controlling irrigation sensitivity. An irrigation actuator operates based on soil moisture thresholds, while a PIR-based motion detection module and ultrasonic emitter deter wildlife non-lethally. A filtration unit ensures water purity, and a solar-powered power supply supports off-grid operation. A mobile application enables real-time data visualization, multilingual interface, and remote/manual control. The modular architecture allows scalability. The microcontroller manages energy via sleep mode and orchestrates system functions for efficient, adaptive irrigation control.

No. of Pages : 18 No. of Claims : 9

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202541059703 A

(19) INDIA

(22) Date of filing of Application :22/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : Micronutrient Nanoparticle Consortia for Nutrition and Disease Management

(51) International classification :A01N0025040000, C05D0009020000, C05F0011000000, C05G0005270000, A01N0065400000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

This invention relates to a green-synthesized micronutrient nanoparticle consortia designed for sustainable agriculture. Utilizing green synthesis methods, the invention synthesizes nine agriculturally significant nanoparticles CaO, CuO, FeO, MnO, MgO, MoO, NiO, SO, and ZnO in specific ratios to create a synergistic, colloiddally stable formulation. The resulting nanoparticle blend is prepared as a concentrated suspension, readily diluted in water for application via seed priming, foliar spray, or soil drenching. This novel system addresses common soil micronutrient deficiencies, enhances plant growth, and imparts intrinsic antimicrobial properties for crop disease management. The method minimizes environmental impact by avoiding hazardous chemicals and leveraging renewable green synthesis based extracts, ensuring compatibility with a broad range of crops and farming practices. The invention offers an effective, eco-friendly alternative to conventional fertilizers and pesticides, supporting higher agricultural productivity and improved soil health.

No. of Pages : 19 No. of Claims : 10

(54) Title of the invention : ENHANCING OCCUPANCY FLOW PREDICTION FOR AUTONOMOUS DRIVING: A SCALABLE FRAMEWORK WITH ADVANCED SPATIAL-TEMPORAL MODELING

|                                                                                                                                                                                                                                                                                                                                                                                                               |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
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| <div>(51) International classification :B60W0060000000, G06Q0010040000, G06N0003080000, G06V0010820000, G06V0010800000</div> <div>(86) International Application No :NA<br/>Filing Date :NA</div> <div>(87) International Publication No : NA</div> <div>(61) Patent of Addition to Application Number :NA<br/>Filing Date :NA</div> <div>(62) Divisional to Application Number :NA<br/>Filing Date :NA</div> |  | <div>(71)Name of Applicant :<br/>1)RAJARAJESWARI S<br/>Address of Applicant :DEPT. OF COMPUTER SCIENCE AND ENGINEERING RAMAIAH INSTITUTE OF TECHNOLOGY, BANGALORE, INDIA Bangalore -----<br/>2)H S HARSHA<br/>3)TEJAS HEGDE<br/>4)SIDDARTH BHETARIYA<br/>5)SANJANA C<br/>6)MIDHUN SREEKUMAR MENON<br/>7)VISWANATH VEERA<br/>8)CHINMAY SHINDE HEGDE<br/>Name of Applicant : NA<br/>Address of Applicant : NA<br/>(72)Name of Inventor :<br/>1)RAJARAJESWARI S<br/>Address of Applicant :DEPT. OF COMPUTER SCIENCE AND ENGINEERING RAMAIAH INSTITUTE OF TECHNOLOGY, BANGALORE, INDIA Bangalore -----<br/>2)H S HARSHA<br/>Address of Applicant :DEPT. OF COMPUTER SCIENCE AND ENGINEERING RAMAIAH INSTITUTE OF TECHNOLOGY, BANGALORE, INDIA Bangalore -----<br/>3)TEJAS HEGDE<br/>Address of Applicant :DEPT. OF COMPUTER SCIENCE AND ENGINEERING RAMAIAH INSTITUTE OF TECHNOLOGY, BANGALORE, INDIA Bangalore -----<br/>4)SIDDARTH BHETARIYA<br/>Address of Applicant :DEPT. OF ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING RAMAIAH INSTITUTE OF TECHNOLOGY, BANGALORE, INDIA Bangalore -----<br/>5)SANJANA C<br/>Address of Applicant :DEPT. OF ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING RAMAIAH INSTITUTE OF TECHNOLOGY, BANGALORE, INDIA Bangalore -----<br/>6)MIDHUN SREEKUMAR MENON<br/>Address of Applicant :SAMSUNG RESEARCH INSTITUTE, BANGALORE, INDIA Bangalore -----<br/>7)VISWANATH VEERA<br/>Address of Applicant :SAMSUNG RESEARCH INSTITUTE, BANGALORE, INDIA Bangalore -----<br/>8)CHINMAY SHINDE HEGDE<br/>Address of Applicant :SAMSUNG RESEARCH INSTITUTE, BANGALORE, INDIA Bangalore -----</div> |
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(57) Abstract :  
Enhancing occupancy flow prediction for autonomous driving: a scalable framework with advanced spatial-temporal modeling is the proposed invention. Accurate prediction of traffic agents’ future states is essential for safe and efficient autonomous driving, especially in dynamic and occluded urban environments. Traditional methods often struggle to model spatial-temporal dependencies, motion continuity, and directional dynamics, leading to suboptimal decision-making and increased safety risks. To address these challenges, this study enhances the Occupancy Flow Field (OFF) framework, integrating occupancy and motion flow predictions into a unified Bird’s-Eye View (BEV) representation. The STrajNet architecture is augmented with a Swin Transformer-based visual encoder, trajectory-aware cross-attention mechanisms, and a feature pyramid decoder (PyrDecoder) for multi-scale spatial-temporal feature fusion

No. of Pages : 12 No. of Claims : 4

(54) Title of the invention : Method &amp; Apparatus for improving vehicle suspension system using advanced kinematics &amp; Dynamics

|                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
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| <p>(51) International classification :B60G0017018000, B60G0017016500, B60G0007000000, G01M0017040000, B60G0017019000</p> <p>(86) International Application No :NA<br/>Filing Date :NA</p> <p>(87) International Publication No :NA<br/>Addition to Application Number :NA<br/>Filing Date :NA</p> <p>(62) Divisional to Application Number :NA<br/>Filing Date :NA</p> | <p>(71)Name of Applicant :<br/> <b>1)Dr. Kallepalli Santosh Kumar ,</b><br/> Address of Applicant :Dr. Kallepalli Santosh Kumar ,Assistant Professor, Department of Mechanical Engineering, Mahatma Gandhi Institute of Technology, Hyderabad-500075 santoshmech09@gmail.com ,9963903196 -----<br/> <b>2)Dr. M. Kanaka Durga ,</b><br/> <b>3)Mr. Sachin Vilas vanjari</b><br/> <b>4)Dr.Ramu Garugubilli</b><br/> <b>5)Mr. Gadhave Atul Ramdas</b><br/> <b>6)Mr B. Bhavsingh</b><br/> <b>7)Dr. Ravi Kumar Nagula</b><br/> <b>8)Vivek .V.M</b><br/> <b>9)Dr.Sunil Kumar</b><br/> <b>10)Mr. Gore Sanket Raosaheb</b><br/> Name of Applicant : NA<br/> Address of Applicant : NA<br/> (72)Name of Inventor :<br/> <b>1)Dr. Kallepalli Santosh Kumar ,</b><br/> Address of Applicant :Dr. Kallepalli Santosh Kumar ,Assistant Professor, Department of Mechanical Engineering, Mahatma Gandhi Institute of Technology, Hyderabad-500075 santoshmech09@gmail.com ,9963903196 -----<br/> <b>2)Dr. M. Kanaka Durga ,</b><br/> Address of Applicant :Dr. M. Kanaka Durga , Associate Professor, Department of Freshman Engineering, Geethanjali College of Engineering and Technology , Cheryal, Medchal Malkajgiri, Telangana -501301, drkanakadurga.fe@gcet.edu.in -----<br/> <b>3)Mr. Sachin Vilas vanjari</b><br/> Address of Applicant :Mr. Sachin Vilas vanjari , Head of department, Department of Mechanical Engineering, SSPM,COE, kankavli, Maharashtra- 4166 20, sachinvanjari@rediffmail.com kankavli -----<br/> <b>4)Dr.Ramu Garugubilli</b><br/> Address of Applicant :Dr.Ramu Garugubilli , Associate Professor, Department of Mechanical Engineering, Avanthi Institute of Engineering and Technology , Cherukupally , Vizianagaram, Andhra Pradesh-531162 ram.garugubilli@gmail.com -----<br/> <b>5)Mr. Gadhave Atul Ramdas</b><br/> Address of Applicant :Mr. Gadhave Atul Ramdas , Assistant Professor, Department of Mechanical Engineering, Jaihind college of Engineering, Kuran, Junnar , Pune - 410511 State:Mmaharashtra, Email: atulgadhave19902gmail.com -----<br/> <b>6)Mr B. Bhavsingh</b><br/> Address of Applicant :Mr B. Bhavsingh , Assistant Professor ,Department of Mechanical Engineering, Geethanjali College of Engineering and Technology, Cheeryal, Keesara ,Medchal, Hyderabad,Telangana-501301,bbhavsingh.me@gcet.edu.in -----<br/> <b>7)Dr. Ravi Kumar Nagula</b><br/> Address of Applicant :Dr. Ravi Kumar Nagula , Assistant Professor, Department of Mechanical Engineering, JNTUH University College of Engineering , Science &amp; Technology Hyderabad, Kukatpally, Hyderabad – 500085,ravikumarnagula145@gmail.com -----<br/> <b>8)Vivek .V.M</b><br/> Address of Applicant :Vivek .V.M , Assistant Professor, Department of Mechanical Engineering, NSS College Of Engineering, Palakkad, Kerala-678008,viveknambodiripad@gmail.com -----<br/> <b>9)Dr.Sunil Kumar</b><br/> Address of Applicant :Dr.Sunil Kumar , Associate Professor, Department of Mechanical Engineering, GEC Palamu, Lesligang, Jharkhand-822118, skumar.mc@bitsindri.ac.in -----<br/> <b>10)Mr. Gore Sanket Raosaheb</b><br/> Address of Applicant :Mr. Gore Sanket Raosaheb , Assistant Professor Department of Mechanical Engineering, Jaihind College of Engineering, Kuran, Junnar, Dist-Pune Pin: 410511,State:Maharashtra,, goresanket19@gmail.com -----<br/> --</p> |
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(57) Abstract :

ABSTRACT The present invention discloses a novel method and a sophisticated apparatus designed for significantly enhancing vehicle suspension systems through the application of advanced kinematic principles and dynamic analyses. The apparatus incorporates a multi-link suspension mechanism seamlessly integrated with adaptive dampers and an intelligent control unit that employs real-time kinematic and dynamic computations. The method entails optimizing suspension geometry through rigorous mathematical modeling of vehicle dynamics, dynamically adjusting damper characteristics in response to varying road conditions, and leveraging comprehensive sensor feedback for precise and accurate control. This innovative invention markedly improves ride comfort, enhances handling stability, and boosts energy efficiency by dynamically adapting to diverse terrains and driving scenarios. The system is versatile and applicable to both passenger vehicles and commercial vehicles, offering a scalable and adaptable solution to meet the demands of modern automotive suspension requirements.

No. of Pages : 9 No. of Claims : 6



|                                                                                                                                                |                                                                                 |                                                                                                                                                                                        |
|------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (12) PATENT APPLICATION PUBLICATION                                                                                                            |                                                                                 | (21) Application No.202541059712 A                                                                                                                                                     |
| (19) INDIA                                                                                                                                     |                                                                                 |                                                                                                                                                                                        |
| (22) Date of filing of Application :22/06/2025                                                                                                 |                                                                                 | (43) Publication Date : 04/07/2025                                                                                                                                                     |
| (54) Title of the invention : A Deep Learning-Based System and Method for Early Prediction of Heart Disease Using Clinical and Behavioral Data |                                                                                 |                                                                                                                                                                                        |
| (51) International classification                                                                                                              | :G06N0003080000, G16H0050300000, G16H0050200000, G06N0005020000, G16H0010600000 | (71) <b>Name of Applicant :</b><br><b>1)SR University, Warangal</b><br>Address of Applicant :Ananthasagar, Hasanparthy(M), Warangal Urban-506371, Telangana, INDIA Warangal -----      |
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| Filing Date                                                                                                                                    | :NA                                                                             |                                                                                                                                                                                        |
| (62) Divisional to Application Number                                                                                                          | :NA                                                                             |                                                                                                                                                                                        |
| Filing Date                                                                                                                                    | :NA                                                                             |                                                                                                                                                                                        |

(57) Abstract :  
The invention discloses a deep learning-based system and method for early prediction of heart disease using integrated clinical and behavioral data. It includes modules for data collection, preprocessing, feature integration, deep model training, and risk prediction. The system leverages advanced neural network architectures to process heterogeneous data and generate accurate, interpretable predictions. Designed for deployment in clinical environments, the invention supports real-time decision-making and preventive healthcare interventions, offering improved accuracy and usability compared to traditional models.

No. of Pages : 11 No. of Claims : 5

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202541059718 A

(19) INDIA

(22) Date of filing of Application :22/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : A SELF-CALIBRATING 1-BIT PHASE SHIFTER FOR REFLECTED ARRAY ANTENNAS

(51) International classification :H04B0010556000, H03G0003300000, H01P0005220000, H02M0003335000, H04B0010500000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

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(57) Abstract :

The present subject matter includes a method (1000) to maintain an 1800 phase difference between two switch states. The method (1000) includes receiving, by a switch unit, power being provided by a differential antenna (104). The power is allowed a passage to a differential quadrature hybrid coupler (110). The method (1000) includes splitting, by the differential quadrature hybrid coupler (110), the power equally into two-halves. The method (1000) includes generating, by a short replica switch unit (112a), and an open replica switch unit (112b), a first reflected output and a second reflected output based on the two-halves of the power. The open replica switch unit (112b) consistently undergoes a change within a predetermined range of a gate voltage in a uniformly incremental manner by consistently receiving a voltage from a control switch (114). The method (1000) includes transmitting, by the plurality of replica switch units (112), the first reflected output and the second reflected output to the differential quadrature hybrid coupler (110) that generates a first output. The method (1000) includes generating, by a plurality of peak detectors (116), a plurality of signals based on the first output to be compared to determine the voltage required to be provided to the open replica switch unit (112b) within the predetermined range for maintaining the relative 1800 phase difference between the short replica switch unit (112a) and the open replica switch unit (112b).

No. of Pages : 34 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :22/06/2025

(21) Application No.202541059722 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : System and Method for Real-Time Audiovisual Deepfake Detection Using Lip Reading and Audio Feature Fusion

(51) International classification :G06N0003045000, G06N0003080000, G06N0003044000, G06F0018250000, G06V0040160000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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**4)Anurag Vivek Deshmukhe**  
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(57) Abstract :

This invention proposes a multimodal framework designed to enhance deepfake detection by integrating visual lip-reading analysis and audio signal processing for real-time applications. Leveraging LipNet—a deep learning model pre-trained on the GRID dataset—the system employs 3D convolutional neural networks (CNNs) combined with bidirectional long short-term memory (Bi-LSTM) layers to interpret lip movements and decode spoken words from visual inputs. Simultaneously, audio analysis modules evaluate acoustic features to detect synthetic or manipulated speech. By independently training these components and combining their outputs, the framework identifies inconsistencies between visual and auditory modalities, such as mismatched lip-audio synchronization or unnatural speech patterns. Experimental results demonstrate robust performance in both word-level lip-reading accuracy and deepfake detection reliability, achieving high precision in flagging fraudulent content. The system's effectiveness in detecting audiovisual anomalies positions it as a practical tool for digital forensics and security applications, with potential to foster trust in digital media. Future work will expand the model's adaptability to diverse datasets, including multilingual contexts, and refine its integration into real-world media authentication and accessibility tools

No. of Pages : 27 No. of Claims : 3

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202541059724 A

(19) INDIA

(22) Date of filing of Application :23/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : IMPACT OF WATER QUALITY ON FISH GROWTH: A STUDY ON CATLA CATLA, LABEO ROHITA AND CIRRHINUS MRIGALA IN ANDHRA PRADESH AND TELANGANA

(51) International classification :G01N0033180000, G06Q0050020000, A01K0063040000, A01K0061000000, A01K0061100000

(86) International Application No :NA

Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA

Filing Date :NA

(62) Divisional to Application Number :NA

Filing Date :NA

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(57) Abstract :

This study presents a method for the development of the water quality influences the fish's growth, which is vital in Andhra Pradesh and Telangana, to some extent in other places where fishes like Catla catla, Labeo rohita, Cirrhinus mrigala, etc., are raised. The review analyses the effects of temperature, dissolved oxygen, pH, ammonia, and turbidity on the growth performance of these species in the region. Information obtained on various aquaculture farms within the two states shows that variability in water quality is rather large and that it impacts on growth, health, and yield of the fish. The results of the study support the fact that water condition is a critical factor in maintaining and enhancing profitable aquaculture and provide specific guidelines for water quality control to enhance the production of aquaculture farms. Furthermore, the article discusses local factors such as irregularities in monitoring and poor farmer information and underlines the presence of a requirement to apply interventions to boost water quality management locally. FIG.1

No. of Pages : 21 No. of Claims : 1

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202541059731 A

(19) INDIA

(22) Date of filing of Application :23/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : PREVENT THE CAR FROM HEAVY WATER FLOOD

(51) International  
classification

:G06Q0020100000, G06F0009540000,  
E21B0043200000, G06Q0020380000,  
G06K0019077000

(86) International  
Application No  
Filing Date

:NA  
:NA

(87) International  
Publication No

: NA

(61) Patent of Addition to  
Application Number  
Filing Date

:NA  
:NA

(62) Divisional to  
Application Number  
Filing Date

:NA  
:NA

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ST.THOMAS MOUNT, CHENNAI, TAMIL NADU, INDIA-600016 -----

(57) Abstract :

This product is made for peoples use, It is more useful and more benefited. This Invention product is made safe and secure system. When we use the product, it will precent the car from Heavy Water Flood damage. This product is made with an New Technic and well Mechanism. The technic and mechanism makes very good performance in every time usage. All this made by Iron and Mechanism only. Purely it is working with Non-Electrical. No Hydraulic or Air compression.

No. of Pages : 15 No. of Claims : 5

(54) Title of the invention : Implementation of AI-Powered Robotic Chatbot for Intelligent Customer Interaction

|                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <div>(51) International classification :G06Q50/12, H04L51/02, G06N20/00, G06Q30/01</div> <div>(86) International Application No :NA</div> <div>    Filing Date :NA</div> <div>(87) International Publication No : NA</div> <div>(61) Patent of Addition to Application Number :NA</div> <div>    Filing Date :NA</div> <div>(62) Divisional to Application Number :NA</div> <div>    Filing Date :NA</div> | <div>(71)Name of Applicant :<br/>    <b>1)KPR Institute of Engineering and Technology</b><br/>    Address of Applicant :KPR Institute of Engineering and Technology, Arasur, Coimbatore Coimbatore -----<br/>    <b>Name of Applicant : NA</b><br/>    <b>Address of Applicant : NA</b></div> <div>(72)Name of Inventor :<br/>    <b>1)Mr.Premkumar D</b><br/>    Address of Applicant :Assistant Professor - II, Department of Computer Science and Engineering, KPR Institute of Engineering and Technology, Arasur, Coimbatore Coimbatore -----<br/>    <b>2)Mr Jeevanandhan A</b><br/>    Address of Applicant :Department of Computer Science and Engineering, KPR Institute of Engineering and Technology, Arasur, Coimbatore Coimbatore -----<br/>    -----<br/>    <b>3)Mr Gokul C</b><br/>    Address of Applicant :Department of Computer Science and Engineering, KPR Institute of Engineering and Technology, Arasur, Coimbatore Coimbatore -----<br/>    -----<br/>    <b>4)Mr. Shirthik Ram S</b><br/>    Address of Applicant :Department of Computer Science and Engineering, KPR Institute of Engineering and Technology, Arasur, Coimbatore Coimbatore -----<br/>    -----<br/>    <b>5)Ms. Jeevitha R</b><br/>    Address of Applicant :Assistant Professor - I Department of Computer Science and Engineering, KPR Institute of Engineering and Technology, Arasur, Coimbatore Coimbatore -----</div> |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

(57) Abstract :  
Abstract: The present invention is an implementation of AI-powered robotic chatbot for intelligent customer interaction. An AI-powered robotic chatbot system designed to facilitate and automate food ordering and delivery-related interactions. An utilizing natural language processing through Dialogflow, backend integration with MySQL for data persistence, and FastAPI for seamless API communication, the chatbot provides an intelligent interface for users to place new orders, check delivery status, modify existing orders, and cancel orders in real time and the system enhances user experience by simulating human-like conversations while ensuring fast, accurate, and efficient processing of customer requests. A scalable, customizable for different restaurant platforms, and supports both text and voice-based interactions, making it suitable for diverse food service environments.

No. of Pages : 6 No. of Claims : 1

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :23/06/2025

(21) Application No.202541059733 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : SMART FARMING ASSISTANT

(51) International classification :G06V0040160000, G06N0003080000, G06Q0050260000, G06F0018220000, G06F0021320000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

Abstract: Face Trace AI is a facial recognition-based web application designed to verify and trace human faces from uploaded images using deep learning techniques. The system is built using the Flask web framework and leverages the Deep Face library to perform face detection and verification. Users can upload a photo, which is then matched against a pre-existing image database to identify and trace the individual. The application ensures robust performance by validating file types and image quality, supporting real-time face analysis through a user-friendly interface. Face Trace AI has practical applications in identity verification, surveillance, and automated attendance systems, making it a valuable tool in both security and administrative contexts. Face Recognition, DeepFace, Image Matching, Facial Verification, AI-Based Identification, Face Detection, Opencv, Flask Web App, Face Embedding, Static Image Comparison, Identity Verification, Deep Learning, Python, Face Trace AI, Face Search System, User-Friendly Interface, Face Analysis

No. of Pages : 12 No. of Claims : 7

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202541059735 A

(19) INDIA

(22) Date of filing of Application :23/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : A Method for the Production of Biofuels and Other Products from Used Sanitary Napkin Waste

(51) International classification :C02F0011040000, C12P0007060000, B09B0003000000, C12P0005020000, C12P0007100000

(86) International Application No :NA

Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA

Filing Date :NA

(62) Divisional to Application Number :NA

Filing Date :NA

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(57) Abstract :

Title: A method for the production of biofuels and other products from Used Sanitary Napkin waste. The present invention relates to a sustainable method for the treatment and disposal of Used Feminine Sanitary Napkin waste (USNW) (1), enabling complete resource recovery. The process involves sterilization (2) and segregation of used sanitary napkin waste into biodegradable and non-biodegradable fractions (3). The biodegradable portion undergoes a single-stage biological pretreatment using the EBS-45 bacterial strain, achieving saccharification (4). The resulting solubilized liquid is fermented using *Saccharomyces cerevisiae* for bioethanol production (5) with a high conversion yield. The remaining solid fraction is anaerobically digested to produce biogas containing approximately 65.5% methane (7). The liquid digestate from digestion is used as fertilizer to enhance Napier grass growth (8), while the solid digestate is composted with Napier biomass (9). Non-biodegradable components are subjected to pyrolysis at 450°C to recover fuel oil and biochar (10). This method ensures a zero-waste system with production of bioethanol (6), biogas, compost, fertilizer, fuel oil, and biochar from used sanitary napkin waste. Figure 1

No. of Pages : 24 No. of Claims : 10



(54) Title of the invention : SALES PREDICTION USING ML

|                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <div>(51) International classification</div> <div>(86) International Application No</div> <div>(87) International Publication No</div> <div>(61) Patent of Addition to Application Number</div> <div>(62) Divisional to Application Number</div> <div>:G06Q0030020200, G06N0020000000, G06Q0030020400, G06N0020200000, G06Q0030025100</div> <div>:NA</div> <div>:NA</div> <div>: NA</div> <div>:NA</div> <div>:NA</div> <div>:NA</div> <div>:NA</div> | <div>(71)Name of Applicant :</div> <div>1)R.AMARNATH</div> <div>Address of Applicant :SRI SHAKTHI INSTITUTE OF ENGINEERING AND TECHNOLOGY L&amp;T BY-PASS, COIMBATORE, TAMIL NADU, INDIA-641062 -----</div> <div>2)S Guhan</div> <div>3)G Dhamotharan</div> <div>4)S Jayasuriya</div> <div>Name of Applicant : NA</div> <div>Address of Applicant : NA</div> <div>(72)Name of Inventor :</div> <div>1)R.AMARNATH</div> <div>Address of Applicant :SRI SHAKTHI INSTITUTE OF ENGINEERING AND TECHNOLOGY L&amp;T BY-PASS, COIMBATORE, TAMIL NADU, INDIA-641062 -----</div> <div>2)S Guhan</div> <div>Address of Applicant :SRI SHAKTHI INSTITUTE OF ENGINEERING AND TECHNOLOGY L&amp;T BY-PASS, COIMBATORE, TAMIL NADU, INDIA-641062 -----</div> <div>3)G Dhamotharan</div> <div>Address of Applicant :SRI SHAKTHI INSTITUTE OF ENGINEERING AND TECHNOLOGY L&amp;T BY-PASS, COIMBATORE, TAMIL NADU, INDIA-641062 -----</div> <div>4)S Jayasuriya</div> <div>Address of Applicant :SRI SHAKTHI INSTITUTE OF ENGINEERING AND TECHNOLOGY L&amp;T BY-PASS, COIMBATORE, TAMIL NADU, INDIA-641062 -----</div> |
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(57) Abstract :

ABSTRACT In today's competitive market, accurate sales forecasting is essential for effective business planning, inventory management, and strategic decision-making. This project explores the use of machine learning (ML) techniques to predict future sales based on historical data and key influencing factors such as pricing, promotions, seasonal trends, and economic indicators. The proposed system utilizes various supervised learning algorithms including Linear Regression, Decision Trees, and Random Forests to model sales data and identify patterns. Data preprocessing, feature engineering, and model evaluation techniques are employed to enhance prediction accuracy. By comparing the performance of different models using metrics such as Mean Absolute Error (MAE) and Root Mean Squared Error (RMSE), the most suitable algorithm for sales prediction is selected. The results demonstrate that machine learning can significantly improve the accuracy of sales forecasts, enabling businesses to make data-driven decisions and optimize their operations. This study provides a scalable and automated approach to sales prediction, offering valuable insights for retailers and enterprises seeking to enhance their forecasting capabilities.?

No. of Pages : 9 No. of Claims : 7

(54) Title of the invention : MURBURN CONCEPT:DRIVEN SYNERGISTIC SOIL REMEDIATION FOR ORGANIC POLLUTANT DEGRADATION AND BIOMASS TRANSFORMATION

|                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <div>(51) International classification</div> <div>(86) International Application No</div> <div>(87) International Publication No</div> <div>(61) Patent of Addition to Application Number</div> <div>(62) Divisional to Application Number</div> <div>:B09C0001080000, B09C0001100000, B09C0001000000, B09C0001060000, C02F0101300000</div> <div>:NA</div> <div>:NA</div> <div>: NA</div> <div>:NA</div> <div>:NA</div> <div>:NA</div> <div>:NA</div> | <div>(71)Name of Applicant :</div> <div>1)Adhish R K</div> <div>Address of Applicant :L&amp;T BY-PASS, SRI SHAKTHI NAGAR, POST, SRI SHAKTHI UNIVERSITY, CHINNIYAMPALAYAM COIMBATORE TAMIL NADU - 641062 -----</div> <div>2)SANTHIYA Rø</div> <div>3)Subhikshaø</div> <div>4)Sushmitha M</div> <div>5)Jenstina J</div> <div>Name of Applicant : NA</div> <div>Address of Applicant : NA</div> <div>(72)Name of Inventor :</div> <div>1)Adhish R K</div> <div>Address of Applicant :L&amp;T BY-PASS, SRI SHAKTHI NAGAR, POST, SRI SHAKTHI UNIVERSITY, CHINNIYAMPALAYAM COIMBATORE TAMIL NADU - 641062 -----</div> <div>2)SANTHIYA Rø</div> <div>Address of Applicant :L&amp;T BY-PASS, SRI SHAKTHI NAGAR, POST, SRI SHAKTHI UNIVERSITY, CHINNIYAMPALAYAM COIMBATORE TAMIL NADU - 641062 -----</div> <div>3)Subhiksha</div> <div>Address of Applicant :L&amp;T BY-PASS, SRI SHAKTHI NAGAR, POST, SRI SHAKTHI UNIVERSITY, CHINNIYAMPALAYAM COIMBATORE TAMIL NADU - 641062 -----</div> <div>4)Sushmitha M</div> <div>Address of Applicant :L&amp;T BY-PASS, SRI SHAKTHI NAGAR, POST, SRI SHAKTHI UNIVERSITY, CHINNIYAMPALAYAM COIMBATORE TAMIL NADU - 641062 -----</div> <div>5)Jenstina J</div> <div>Address of Applicant :L&amp;T BY-PASS, SRI SHAKTHI NAGAR, POST, SRI SHAKTHI UNIVERSITY, CHINNIYAMPALAYAM COIMBATORE TAMIL NADU - 641062 -----</div> |
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(57) Abstract :

Murburn-driven soil remediation presents a groundbreaking, synergistic methodology for the degradation of organic pollutants and transformation of biomass, thereby restoring soil health and ecosystem balance. By harnessing the oxidative power of Murburn reactions, this innovative strategy facilitates the efficient breakdown of complex pollutants, while concurrently transforming biomass into valuable resources. This approach holds significant promise for sustainable, cost-effective remediation of contaminated soils: mitigating environmental risks: promoting ecosystem resilience) and supporting long-term ecological sustainability. By leveraging the Murburn concept, this technology provides a novel paradigm for addressing organic pollution in soil, with potential applications in environmental remediation, agriculture, and ecosystem conservation

No. of Pages : 6 No. of Claims : 7

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :23/06/2025

(21) Application No.202541059738 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : SMART DEVICE FOR CLOTH PROTECTION FROM RAIN

(51) International classification :B60S0001080000, H04N0021422000, D06F0053040000, D06F0057120000, D06F0057040000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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**3)V Kondusamy**

**4)Anbu Thamilarasam P**

**5)Sidhaart K**

**6)Madhan M**

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(57) Abstract :

Abstract The Automated Clothesline System is an intelligent, sensor-based device designed to detect rain and automatically relocate clothes to a sheltered area. This innovation eliminates the need for manual intervention by using a smart mechanism that pulls the clothesline or washing line without human effort. The system is built using a rainwater sensor, a PIC16F877 microcontroller, and a DC motor. The rain sensor detects the presence of precipitation, and upon detection, signals the microcontroller to activate the motor circuit. This action pulls the clothesline to a protected area, thereby preventing the clothes from getting wet. All electronic circuits were constructed and tested individually before being integrated into a fully functional prototype. The microcontroller was programmed to control the motor operation based on input from the water sensor. The final prototype, developed on a miniature scale, successfully demonstrated the feasibility and effectiveness of the system. In an enhanced version of the system, an Arduino microcontroller replaces the PIC for added functionality. Two DC motors are used to move the clothes rack between indoor and outdoor locations, depending on weather conditions. The Arduino is equipped with Wi-Fi connectivity and integrated with the Blynk mobile application, which allows users to: • Remotely control the movement of the clothesline • Monitor real-time sensor data (rain detection, rack position, etc.) • Receive notifications on weather changes and rack status Additional advanced features include: • Manual remote control of wheel movement • Path recording and playback, enabling the rack to follow predefined routes • Reverse path execution for returning to the original position • Storage of all paths and settings in EEPROM, preserving data across power cycles This smart clothesline system is not only suitable for household use but can also be integrated into clothing bags, backpacks, and outdoor furniture. Its compact design, smart automation, and user-friendly interface make it a convenient solution for commuters, travelers, and outdoor enthusiasts to protect their clothes from unexpected rain showers.

No. of Pages : 14 No. of Claims : 5

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202541059739 A

(19) INDIA

(22) Date of filing of Application :23/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : Multi-Modal Scalp Therapy Comb with Integrated LED, RF, EMS, Ultrasonic Vibration, and Magnetic Fluid Delivery System

(51) International classification

:A61N0001360000, A61N0001040000, A61N0005060000, A61H0023020000, A61M0035000000

(86) International Application No  
Filing Date

:NA  
:NA

(87) International Publication No

: NA

(61) Patent of Addition to Application Number  
Filing Date

:NA  
:NA

(62) Divisional to Application Number  
Filing Date

:NA  
:NA

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(72)Name of Inventor :

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(57) Abstract :

The present invention relates to a multifunctional scalp treatment device comprising a handheld housing with a comb head incorporating therapeutic and fluid delivery modules. The device includes a plurality of comb teeth (104) embedded with light-emitting elements (402) for red and violet phototherapy, electrodes connected to a radiofrequency generator (504) and an electrical muscle stimulation unit (505), an ultrasonic vibration motor (506), and a fluid dispensing system. The fluid system comprises a removable cartridge (300), a microfluidic pump (507), and a plurality of dispensing catheters (201) with magnetic ball elements (202) for scalp-directed fluid release during combing. A control interface (103) and microcontroller (502) coordinate the activation of individual modules. The device enables customizable therapy for hair stimulation, scalp nourishment, and transdermal serum delivery. The integration of programmable, multimodal stimulation with controlled topical application distinguishes the invention over conventional scalp therapy systems.

No. of Pages : 29 No. of Claims : 11

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :23/06/2025

(21) Application No.202541059741 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : IOT-BASED PORTABLE SPIROMETER FOR LUNG HEALTH TRACKING

|                                               |                                                                                 |                                                                                                                                                                                                                                               |
|-----------------------------------------------|---------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (51) International classification             | :A61B0005087000, A61B0005000000, A61B0005091000, A61B0005080000, G16H0040670000 | (71)Name of Applicant :<br><b>1)Chennai Institute of Technology</b><br>Address of Applicant :Chennai Institute of Technology, Kundrathur, Chennai – 600069 CHENNAI -----<br><b>Name of Applicant : NA</b><br><b>Address of Applicant : NA</b> |
| (86) International Application No             | :NA                                                                             | (72)Name of Inventor :                                                                                                                                                                                                                        |
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| (62) Divisional to Application Number         | :NA                                                                             |                                                                                                                                                                                                                                               |
| Filing Date                                   | :NA                                                                             |                                                                                                                                                                                                                                               |

(57) Abstract :

Respiratory health is a critical aspect of overall well- being, especially in the wake of adding air pollution and the global frequency of respiratory conditions similar as asthma, COPD, and post-COVID complications. Traditional spirometry bias, while effective, frequently warrant the portability, connectivity, and real- time data analysis capabilities needed for nonstop and remote health monitoring. This design proposes the development of an IoT- enabled Smart Spirometer designed to give accurate, real- time lung function assessment while enabling flawless data transmission to healthcare providers. The proposed device measures crucial respiratory parameters similar as Forced Vital Capacity (FVC), Forced Expiratory Volume in 1 alternate (FEV 1), and Peak Expiratory Flow (PEF) using advanced detector technology. Integrated with a microcontroller and IoT module, the spirometer transmits data to a secure pall platform where it can be covered, anatomized, and participated with clinicians. A companion mobile opera

No. of Pages : 14 No. of Claims : 1

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202541059742 A

(19) INDIA

(22) Date of filing of Application :23/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : "Graphene-Enhanced Red Oxide Coating for High-Efficiency Corrosion Protection on Mild Steel Substrates"

(51) International classification :G01N0017020000, C09D0005080000, C09D0163000000, C09D0183040000, C25B0001040000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

The present invention relates to a novel corrosion-inhibiting coating composition comprising red oxide pigment synergistically enhanced with graphene nanosheets for the protection of mild steel substrates. The coating exhibits superior electrochemical performance, forming a uniform and adherent barrier that inhibits corrosion reactions even under aggressive environmental conditions. Graphene, due to its exceptional impermeability, mechanical strength, and electrical conductivity, acts as a nano-reinforcement within the red oxide matrix, significantly extending the diffusion path of corrosive agents and improving the protective properties of the film. Electrochemical techniques such as Tafel polarization, linear polarization resistance (LPR), and electrochemical impedance spectroscopy (EIS) confirm a marked reduction in corrosion current density and increased polarization resistance, demonstrating mixed-type inhibition behavior. The adsorption of inhibitor species follows Langmuir isotherm kinetics, predominan

No. of Pages : 21 No. of Claims : 1

(54) Title of the invention : "Pattern-Guided Biohybrid Actuation: Structured Integration of Plant and Fungal Tissues for Adaptive Soft Robotics"

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|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <div>(51) International classification</div> <div>(86) International Application No</div> <div>(87) International Publication No</div> <div>(61) Patent of Addition to Application Number</div> <div>(62) Divisional to Application Number</div> <div>:A61L0027580000, B25J0009140000, A61L0027380000, B25J0015000000, B25J0009160000</div> <div>:NA</div> <div>:NA</div> <div>: NA</div> <div>:NA</div> <div>:NA</div> <div>:NA</div> <div>:NA</div> | <div>(71)Name of Applicant :</div> <div>1)Chennai institute of Technology</div> <div>Address of Applicant :Chennai Institute of Technology, Kundrathur, Chennai – 600069 CHENNAI -----</div> <div>Name of Applicant : NA</div> <div>Address of Applicant : NA</div> <div>(72)Name of Inventor :</div> <div>1)M. Vennila</div> <div>Address of Applicant :Assistant professor Department of Physics Chennai Institute of Technology, Chennai – 600069 CHENNAI -----</div> <div>2)S. Senthil</div> <div>Address of Applicant :Assistant professor Department of Physics Chennai Institute of Technology, Chennai – 600069 CHENNAI -----</div> <div>3)Dr. P. Elaiyaraja</div> <div>Address of Applicant :Assistant professor Centre for Applied Nanomaterials Chennai Institute of Technology, Chennai – 600069 CHENNAI -----</div> |
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(57) Abstract :

The invention relates to a novel biohybrid robotic system that integrates living plant or fungal tissues into soft robotic platforms through a patterned scaffold design. The system utilizes engineered biocompatible patterns—such as microchannels, surface textures, or biochemical gradients—to direct the spatial growth and alignment of biological tissues within or on robotic substrates. These living tissues serve functional roles such as actuation, structural support, or environmental sensing. By leveraging natural growth behaviors and stimuli-responsive properties of organisms like mycelium or tendril-forming plants, the invention enables programmable, self-growing, and biodegradable robotic structures. The biohybrid system offers significant advantages in sustainability, adaptability, and energy efficiency over conventional robotics, and can be applied in eco-robotics, environmental monitoring, soft medical devices, and agricultural automation. A fabrication method is also disclosed, involving scaffold prepar

No. of Pages : 21 No. of Claims : 1

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :23/06/2025

(21) Application No.202541059744 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : Structure–Solubility–Degradation Pathway of Eco-Friendly Plastics

|                                               |      |                                                                                 |                                                                                                                                                                                                                                               |
|-----------------------------------------------|------|---------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (51) International classification             |      | :C08L0067040000, C08K0005000000, B65D0065460000, C08J0005180000, C08L0097020000 | (71)Name of Applicant :<br><b>1)Chennai Institute of Technology</b><br>Address of Applicant :Chennai Institute of Technology, Kundrathur, Chennai – 600069 CHENNAI -----<br><b>Name of Applicant : NA</b><br><b>Address of Applicant : NA</b> |
| (86) International Application No             | :NA  |                                                                                 | (72)Name of Inventor :                                                                                                                                                                                                                        |
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| (61) Patent of Addition to Application Number | :NA  |                                                                                 | <b>3)Dr. S. Rubesh Ashok Kumar</b><br>Address of Applicant :Centre for Applied Nanomaterials Chennai Institute of Technology, Kundrathur, Chennai – 600069 CHENNAI -----                                                                      |
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| (62) Divisional to Application Number         | :NA  |                                                                                 |                                                                                                                                                                                                                                               |
| Filing Date                                   | :NA  |                                                                                 |                                                                                                                                                                                                                                               |

(57) Abstract :

The present invention relates to an environmentally friendly, water-soluble plastic composition comprising biodegradable polymers and functional additives or dopants. The formulation is designed to achieve controlled water solubility ranging from a few seconds to several hours, depending on environmental conditions and additive concentration. Upon dissolution, the material degrades into non-toxic byproducts such as carbon dioxide, water, lactic acid, or microbial biomass, eliminating microplastic residue. The biodegradable base polymers include, but are not limited to, polyvinyl alcohol (PVA), polylactic acid (PLA), and starch-based compounds. Additives such as glycerol, polyethylene glycol (PEG), and natural fibers are used to modulate solubility rate, mechanical properties, and eco-safety. The invention is applicable to single-use consumer products, detergent pods, agricultural films, and medical packaging. This invention provides a scalable, cost-effective, and sustainable alternative to conventional plast

No. of Pages : 17 No. of Claims : 1



(54) Title of the invention : "Dopant-Engineered 2D Hybrid Quantum Materials for Enhanced Multi-Modal Sensor Applications"

|                                               |                                                                                 |                                                                                                                                                                          |
|-----------------------------------------------|---------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (51) International classification             | :H01L0029780000, G06N0007010000, C04B0035645000, B82Y0010000000, H01L0021020000 | (71)Name of Applicant :<br><b>1)Chennai Institute of Technology</b><br>Address of Applicant :Chennai Institute of Technology, Kundrathur, Chennai – 600069 CHENNAI ----- |
| (86) International Application No             | :NA                                                                             | <b>Name of Applicant : NA</b>                                                                                                                                            |
| Filing Date                                   | :NA                                                                             | <b>Address of Applicant : NA</b>                                                                                                                                         |
| (87) International Publication No             | : NA                                                                            | (72)Name of Inventor :                                                                                                                                                   |
| (61) Patent of Addition to Application Number | :NA                                                                             | <b>1)Dr. P. Elaiyaraja</b>                                                                                                                                               |
| Filing Date                                   | :NA                                                                             | Address of Applicant :Assistant professor Centre for Applied Nanomaterials                                                                                               |
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| Filing Date                                   | :NA                                                                             |                                                                                                                                                                          |

(57) Abstract :  
The present invention relates to dopant-engineered hybrid quantum materials based on two-dimensional (2D) systems for use in multi-modal sensor applications. The invention discloses a method for precisely doping 2D materials, such as graphene, MoS<sub>2</sub>, WS<sub>2</sub>, h-BN, or black phosphorus, with selected transition metals or rare-earth elements to modulate key quantum properties, including bandgap energy, spin polarization, valley splitting, and carrier mobility. The resulting doped hybrid material exhibits enhanced quantum effects and is integrated into sensor platforms capable of detecting chemical, optical, magnetic, biological, and pressure stimuli with high sensitivity, fast response, low power consumption, and ambient-temperature operation. The invention also provides a fabrication process for controlled dopant incorporation and device integration, enabling scalable production of quantum-enhanced sensors for advanced electronic, environmental, biomedical, and wearable applications.

No. of Pages : 21 No. of Claims : 1

(54) Title of the invention : "Geology-Guided Selective Extraction System for Marine Rare Earth Elements (REEs) from the Rio Grande Rise Using AI-Driven Parent Rock-REE-Application Mapping Pattern"

|                                                                                                                                                                                                                                                                                                                                                                                                               |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <div>(51) International classification :C22B0059000000, G06N0003080000, G01V0001380000, B63G0008000000, H02J0003320000</div> <div>(86) International Application No :NA<br/>Filing Date :NA</div> <div>(87) International Publication No : NA</div> <div>(61) Patent of Addition to Application Number :NA<br/>Filing Date :NA</div> <div>(62) Divisional to Application Number :NA<br/>Filing Date :NA</div> |  | <div>(71)Name of Applicant :<br/><b>1)Chennai Institute of Technology</b><br/>Address of Applicant :Chennai Institute of Technology, Kundrathur, Chennai – 600069 CHENNAI -----<br/><b>Name of Applicant : NA</b><br/><b>Address of Applicant : NA</b><br/>(72)Name of Inventor :<br/><b>1)Dr. P. Elaiyaraja</b><br/>Address of Applicant :Assistant professor Centre for Applied Nanomaterials Chennai Institute of Technology, Chennai – 600069 CHENNAI -----<br/><b>2)Dr. E. NANDHAKUMAR</b><br/>Address of Applicant :Centre for Applied Nanomaterials Chennai Institute of Technology, Kundrathur, Chennai – 600069 CHENNAI -----<br/><b>3)Dr. S. Rubesh Ashok Kumar</b><br/>Address of Applicant :Centre for Applied Nanomaterials Chennai Institute of Technology, Kundrathur, Chennai – 600069 CHENNAI -----<br/><b>4)Dr. S. Senthil</b><br/>Address of Applicant :Department of Physics Chennai Institute of Technology, Kundrathur, Chennai – 600069 CHENNAI -----</div> |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

(57) Abstract :  
The present invention provides a novel, AI-assisted, pattern-based system for the selective identification, mapping, and eco-friendly extraction of rare earth elements (REEs) from marine geological formations, particularly targeting seafloor deposits such as those found in the Rio Grande Rise. The system integrates geological analysis, pattern recognition, and industrial application mapping into a unified framework that correlates parent rock types with associated REE types, relevant technological applications, and optimized, low-impact extraction methods. Key components of the system include a geological analysis module, a pattern-matching engine, an AI-based REE prediction model, and an environmentally guided extraction recommendation unit. Remote sensing technologies such as autonomous underwater vehicles (AUVs) and seafloor spectrometers provide real-time input, while an intelligent dashboard interface connects REE resource data with market-specific demands. The invention addresses the growing need for su

No. of Pages : 20 No. of Claims : 1

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :23/06/2025

(21) Application No.202541059748 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : Carbon-Capturing Cement Alternative Using Reactive Magnesium Silicate for Ambient and Curing-Based CO<sub>2</sub> Sequestration.

(51) International classification :C04B40/02, B28B11/24, C04B28/04, C04B14/38, C04B16/06, C04B28/30

(86) International Application No :NA

Filing Date :NA

(87) International Publication No: NA

(61) Patent of Addition to Application Number :NA

Filing Date :NA

(62) Divisional to Application Number :NA

Filing Date :NA

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(57) Abstract :

A novel cement alternative comprising reactive magnesium silicate and optional activators capable of capturing CO<sub>2</sub> during and after curing. The composition reacts with CO<sub>2</sub> via mineral carbonation, forming stable magnesium carbonates. The system offers substantial carbon sequestration potential while retaining structural integrity comparable to traditional Portland cement. This invention provides a scalable, low-carbon alternative for green construction and carbon-negative infrastructure.

No. of Pages : 15 No. of Claims : 4

(54) Title of the invention : AI-ML-IOT INTEGRATED FRAMEWORK FOR REINFORCEMENT LEARNING-BASED OPTIMIZATION OF DISTRIBUTED ENERGY RESOURCES IN SMART GRIDS

|                                                                                                                                                                                                                                                  |                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <div>(51) International classification</div> <div>(86) International Application No</div> <div>(87) International Publication No</div> <div>(61) Patent of Addition to Application Number</div> <div>(62) Divisional to Application Number</div> | <div>:H02J0003000000, H02J0003380000, G06Q0050060000, H02J0013000000, H02J0003140000</div> <div>:NA</div> <div>:NA</div> <div>: NA</div> <div>:NA</div> <div>:NA</div> <div>:NA</div> <div>:NA</div> | <div>(71)Name of Applicant :</div> <div>1)SAVEETHA ENGINEERING COLLEGE</div> <div>Address of Applicant :Saveetha Nagar, Thandalam, Chennai - 602105, Tamil Nadu, India Chennai -----</div> <div>Name of Applicant : NA</div> <div>Address of Applicant : NA</div> <div>(72)Name of Inventor :</div> <div>1)Dr. E. POOVANNAN</div> <div>Address of Applicant :Assistant Professor, Dept. of ECE, Saveetha Engineering College, Saveetha Nagar, Thandalam, Chennai - 602105, Tamil Nadu, India Chennai -----</div> <div>2)Dr. R. HEMA</div> <div>Address of Applicant :Associate Professor, Dept. of ECE, Saveetha Engineering College, Saveetha Nagar, Thandalam, Chennai - 602105, Tamil Nadu, India Chennai -----</div> <div>3)Dr. RESMI R NAIR</div> <div>Address of Applicant :Associate Professor Dept. of CSE, Saveetha Engineering College, Saveetha Nagar, Thandalam, Chennai – 602105, Tamil Nadu, India Associate Professor Dept. of CSE, Saveetha Engineering College, Saveetha Nagar, Thandalam, Chennai – 602105, Tamil Nadu, India Chennai -----</div> <div>4)Dr. S. SANDHIYAA</div> <div>Address of Applicant :Assistant Professor, Dept. of ECE, Saveetha Engineering College, Saveetha Nagar, Thandalam, Chennai – 602105, Tamil Nadu, India Chennai -----</div> <div>5)Dr. S. P. MANIKANDAN</div> <div>Address of Applicant :Assistant Professor, Dept. of ECE, Saveetha Engineering College, Saveetha Nagar, Thandalam, Chennai - 602105, Tamil Nadu, India Chennai -----</div> <div>6)Mr. P. SANKAR</div> <div>Address of Applicant :Assistant Professor, Dept. of CSE, Saveetha Engineering College, Saveetha Nagar, Thandalam, Chennai - 602105, Tamil Nadu, India Chennai -----</div> |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

(57) Abstract :

The present invention discloses an intelligent framework that integrates Artificial Intelligence (AI), Machine Learning (ML), Internet of Things (IoT), and Reinforcement Learning (RL) for real-time optimization of Distributed Energy Resources (DERs) within smart grid environments. The system utilizes IoT-enabled sensors and edge computing to monitor and control solar panels, wind turbines, battery storage units, electric vehicles, and responsive loads. A reinforcement learning-based control agent continuously interacts with the environment to learn optimal energy dispatch strategies, enhancing system reliability, cost efficiency, and adaptability. The invention includes a digital twin for simulation and pre-deployment training of RL agents, ensuring robustness against variability in load demand and renewable generation. The architecture supports decentralized operation, dynamic load balancing, fault resilience, and integration with peer-to-peer energy markets. The proposed solution enables scalable and autonomous energy management in hybrid AC/DC microgrids, making it ideal for smart campuses, industrial parks, residential grids, and utility networks. Fig.2

No. of Pages : 11 No. of Claims : 4

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202541059750 A

(19) INDIA

(22) Date of filing of Application :23/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : VOLUMETRICALLY EFFICIENT WATER GEYSER WITH IMPROVED BEADING TO HOLD END PLATE

(51) International classification :H01M0050107000, B01D0029210000, F24T0010300000, H01M0050152000, B60N0002000000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

The embodiments of the present invention provide a volumetrically efficient water geyser comprising a beading, a storage tank, a bottom end plate and a service plate. The beading is an elastomeric T-shaped structure with a surface adhesive. The storage tank is a cylindrical hollow structure with open ends. The bottom end plate is mated with a bottom opening of the storage tank through the beading. A bent rim structure is provided on the bottom plate for mating into the beading. The bottom end plate allows a pair of passage of water inlet and outlet. The top end plate is mated with the storage tank through the beading. The service plate mounted onto the bottom end plate. The service plate houses an electronic and electrical circuits for power and communication control.

No. of Pages : 17 No. of Claims : 9

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :23/06/2025

(21) Application No.202541059751 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : Robotic Finger Detection using YOLOv10

(51) International classification :B25J0009160000, A61B0005000000, G06N0003080000, G06V0020580000, B25J0009100000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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**4)Mrs.C.Sasikala**

Address of Applicant :Assistant Professor - II Department of Computer Science and Engineering, KPR Institute of Engineering and Technology, Arasur, Coimbatore Coimbatore -----

(57) Abstract :

Abstract: The present invention is a robotic finger detection using YOLOv10, a method claim, a robotic fingers are critical in the realization of precision and flexibility when dealing with object handling tasks. A combining YOLOv10, the latest real-time object detection model, with robotic systems enhances detection, handling, and responsivity and the focus of this project is to endow robotic fingers with intelligent recognition ability for handling varied objects with enhanced accuracy. With YOLOv10's high performance, the system hopes to transform object interaction in industry and real-world applications.

No. of Pages : 6 No. of Claims : 1

(54) Title of the invention : E-Learning System for Empowering Education Through Engagement and Personalization

|                                                                                                                                                                                                                                                                                                                                                                                                               |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <div>(51) International classification :G09B0005060000, G06Q0050200000, G06Q0050000000, G09B0007000000, G06N0005040000</div> <div>(86) International Application No :NA<br/>Filing Date :NA</div> <div>(87) International Publication No : NA</div> <div>(61) Patent of Addition to Application Number :NA<br/>Filing Date :NA</div> <div>(62) Divisional to Application Number :NA<br/>Filing Date :NA</div> |  | <div>(71)Name of Applicant :<br/><b>1)KPR Institute of Engineering and Technology</b><br/>Address of Applicant :KPR Institute of Engineering and Technology, Arasur, Coimbatore Coimbatore -----<br/><b>Name of Applicant : NA</b><br/><b>Address of Applicant : NA</b></div> <div>(72)Name of Inventor :<br/><b>1)Mr.Premkumar D</b><br/>Address of Applicant :Assistant Professor -II, Department of Computer Science and Engineering, KPR Institute of Engineering and Technology, Arasur, Coimbatore Coimbatore -----<br/><b>2)Ms Kavya Sri B</b><br/>Address of Applicant :Department of Computer Science and Engineering, KPR Institute of Engineering and Technology, Arasur, Coimbatore Coimbatore -----<br/>-----<br/><b>3)Mr Kishore Ram B</b><br/>Address of Applicant :Department of Computer Science and Engineering, KPR Institute of Engineering and Technology, Arasur, Coimbatore Coimbatore -----<br/>-----<br/><b>4)Ms Monisha Chitharthana S</b><br/>Address of Applicant :Department of Computer Science and Engineering, KPR Institute of Engineering and Technology, Arasur, Coimbatore Coimbatore -----<br/>-----<br/><b>5)Dr. Primya T</b><br/>Address of Applicant :Assistant Professor -III, Department of Computer Science and Engineering, KPR Institute of Engineering and Technology, Arasur, Coimbatore Coimbatore -----</div> |
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(57) Abstract :  
Abstract: The present invention is an e-learning system for empowering education through engagement and personalization. A web-based platform designed to enhance digital education through real-time assessment, personalized content delivery, gamification mechanisms, and AI-driven student support. A leveraging modern web and cloud technologies, the system addresses key limitations in existing e-learning solutions, including limited interactivity, static content, delayed feedback, and lack of intelligent assistance and the architecture is built using the MERN stack (MongoDB, Express.js, React.js, Node.js), integrating rule-based automation and a recommendation engine to offer adaptive learning experiences. An overall system architecture and the interconnections among its functional components.

No. of Pages : 6 No. of Claims : 1

(54) Title of the invention : Neuro Learn Edge: Offline Adaptive Tutoring System Using Embedded NLP and Emotion AI

|                                               |                                                                                   |                                                                                                                                                                                                                                                      |
|-----------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (51) International classification             | :G06Q0050200000, G09B00005060000, G09B00005020000, G09B0007020000, G09B0019000000 | (71)Name of Applicant :<br><b>1)CVR COLLEGE OF ENGINEERING</b><br>Address of Applicant :CVR COLLEGE OF ENGINEERING, Vastunagar, Mangalpalli (V), Ibrahimpatnam (M), Rangareddy (Dist), Telangana 501510, India. Hyderabad -----                      |
| (86) International Application No             | :NA                                                                               | <b>Name of Applicant : NA</b>                                                                                                                                                                                                                        |
| Filing Date                                   | :NA                                                                               | <b>Address of Applicant : NA</b>                                                                                                                                                                                                                     |
| (87) International Publication No             | : NA                                                                              | (72)Name of Inventor :                                                                                                                                                                                                                               |
| (61) Patent of Addition to Application Number | :NA                                                                               | <b>1)B. Vikranth</b><br>Address of Applicant :Department of Computer Science & Engineering (Cyber Security), CVR COLLEGE OF ENGINEERING, Vastunagar, Mangalpalli (V), Ibrahimpatnam (M), Rangareddy (Dist), Telangana 501510, India. Hyderabad ----- |
| Filing Date                                   | :NA                                                                               |                                                                                                                                                                                                                                                      |
| (62) Divisional to Application Number         | :NA                                                                               | <b>2)M Pavan Kumar Reddy</b><br>Address of Applicant :Department of Computer Science & Engineering, CVR COLLEGE OF ENGINEERING, Vastunagar, Mangalpalli (V), Ibrahimpatnam (M), Rangareddy (Dist), Telangana 501510, India. Hyderabad -----          |
| Filing Date                                   | :NA                                                                               |                                                                                                                                                                                                                                                      |

(57) Abstract :  
This invention introduces Neuro Learn Edge, a standalone educational assistant designed to deliver intelligent, personalized learning experiences in offline and low-connectivity environments. Powered by embedded Natural Language Processing and emotion AI, the system analyses learners' facial expressions, voice, and behavioural cues in real time to assess engagement levels, emotional states, and comprehension. Based on these inputs, it dynamically adjusts instructional strategies, such as pacing, tone, content complexity, and feedback style, to better suit the learner's needs. Neuro Learn Edge supports a wide range of regional languages and dialects, making it highly accessible in rural and underserved communities where internet infrastructure is limited or unreliable. Its autonomous, device-level processing ensures privacy and uninterrupted operation without dependency on cloud services. Ideal for schools, learning centres, or home-based education, the system bridges the digital divide by offering an inclusive and adaptive learning solution that empowers students with limited access to traditional educational resources.

No. of Pages : 13 No. of Claims : 5



(12) PATENT APPLICATION PUBLICATION

(21) Application No.202541059772 A

(19) INDIA

(22) Date of filing of Application :23/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : A SYSTEM AND METHOD BASED ON IOT & AI FOR DETECTING ANIMALS AND ALERTING THE DRIVERS IN FOREST HIGHWAYS

(51) International classification :G06N0020000000, H04L0067120000, G06N0003045000, G06F0009540000, H04W0012122000

(86) International Application No :NA

Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA

Filing Date :NA

(62) Divisional to Application Number :NA

Filing Date :NA

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(57) Abstract :

The present invention relates to a system and method that integrates Internet of Things (IoT) and Artificial Intelligence (AI) technologies to detect animal movement and provide timely alerts to drivers on forest highways, aiming to prevent wildlife-vehicle collisions. The system employs a network of strategically placed IoT sensors, including thermal, infrared, motion, and acoustic sensors, to continuously monitor animal activity near roadways. Data collected from these sensors is transmitted wirelessly to an AI-powered processing unit, which analyzes patterns and classifies detected objects using advanced machine learning algorithms. When an animal is identified within a potential collision zone, the system generates real-time alerts, which are relayed to drivers via digital roadside signage, in-vehicle alerts, or mobile notifications. This proactive approach enhances driver awareness and safety while reducing the impact on wildlife. The system also incorporates a feedback mechanism for continuous learning and improvement.

No. of Pages : 19 No. of Claims : 3

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202541059773 A

(19) INDIA

(22) Date of filing of Application :23/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : The Influence of Social Media Marketing on Consumer Buying Behavior: A Study of Select Organic Products

(51) International classification :G06Q0030020000, G06Q0050000000, G06Q0030020400, G06Q0030020100, G06F0016340000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

Abstract The findings reveal that informativeness, interaction, and electronic word-of-mouth positively influence perceived value, while customization does not have a significant effect. Perceived value, in turn, positively affects trust and social identity, which subsequently enhance purchase intentions. These results underscore the importance of strategic social media marketing in shaping consumer perceptions and behaviors toward organic products. Marketers are encouraged to focus on delivering informative content, fostering interactive engagement, and leveraging electronic word-of-mouth to build trust and strengthen social identity, thereby influencing purchase intentions. This invention contributes to the understanding of the mechanisms through which social media marketing influences consumer behavior in the organic products sector and offers practical insights for marketers aiming to enhance their strategies in this domain.

No. of Pages : 13 No. of Claims : 6

(54) Title of the invention : AI- DRIVEN LIVER DISEASE DIAGNOSIS:MULTI-MODAL FUSION OF MEDICAL IMAGING AND CLINICAL REPORTS

|                                                                                                                                                                                                                                                                                                                                                                                                               |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <div>(51) International classification :G16H0050200000, A61P0001160000, G06N0005045000, G16H0050300000, G06F0018214000</div> <div>(86) International Application No :NA<br/>Filing Date :NA</div> <div>(87) International Publication No : NA</div> <div>(61) Patent of Addition to Application Number :NA<br/>Filing Date :NA</div> <div>(62) Divisional to Application Number :NA<br/>Filing Date :NA</div> |  | <div>(71)Name of Applicant :<br/>1)AKSHAYA J<br/>Address of Applicant :C-BLOCK, NO.1, 100FT ROAD, VADAPALANI, CHENNAI, TAMIL NADU, INDIA-600026 -----<br/>2)YAKSH RATHOD<br/>3)KVMSS ABHIRAM SHARMA<br/>4)GAYATHRI R<br/>Name of Applicant : NA<br/>Address of Applicant : NA<br/>(72)Name of Inventor :<br/>1)AKSHAYA J<br/>Address of Applicant :C-BLOCK, NO.1, 100FT ROAD, VADAPALANI, CHENNAI, TAMIL NADU, INDIA-600026 -----<br/>2)YAKSH RATHOD<br/>Address of Applicant :C-BLOCK, NO.1, 100FT ROAD, VADAPALANI, CHENNAI, TAMIL NADU, INDIA-600026 -----<br/>3)KVMSS ABHIRAM SHARMA<br/>Address of Applicant :C-BLOCK, NO.1, 100FT ROAD, VADAPALANI, CHENNAI, TAMIL NADU, INDIA-600026 -----<br/>4)GAYATHRI R<br/>Address of Applicant :C-BLOCK, NO.1, 100FT ROAD, VADAPALANI, CHENNAI, TAMIL NADU, INDIA-600026 -----</div> |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

(57) Abstract :  
ABSTRACT This study presents an AI-driven multi-modal fusion model that integrates synthetic medical images with electronic hospital records (EHRs) and blood reports for comprehensive liver diseases diagnostics. The methodology integrates Vision Transformers for medical image feature extraction, TF-IDF for clinical text processing, and XGBoost for classification, achieving 84% overall accuracy, 85% weight F !-score. A Liver-Specific Large Language Model further enhances explainability and treatment recommendations. The system effectively identifies 23 liver conditions with precision rate ranging from 85-93%. This research demonstrates the potential of AI to improve liver disease diagnostics through advanced cross-attention fusion mechanisms, highlighting the clinical implications of integrating multi-modal learning into hospital decision-support systems. ~◆◆

No. of Pages : 7 No. of Claims : 5

(54) Title of the invention : A Multi-Utility Vehicle Concept with Detachable Passenger Unit

|                                               |                                                                                 |                                                                                                                                                                                                                                         |
|-----------------------------------------------|---------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (51) International classification             | :E06B0009240000, H01M0004130000, B61B0015000000, E04H0001040000, B60L0050600000 | (71) <b>Name of Applicant :</b><br><b>1)CVR COLLEGE OF ENGINEERING</b><br>Address of Applicant :CVR COLLEGE OF ENGINEERING, Vastunagar, Mangalpalli (V), Ibrahimpatnam (M), Rangareddy (Dist), Telangana 501510, India. Hyderabad ----- |
| (86) International Application No             | :NA                                                                             | <b>Name of Applicant : NA</b>                                                                                                                                                                                                           |
| Filing Date                                   | :NA                                                                             | <b>Address of Applicant : NA</b>                                                                                                                                                                                                        |
| (87) International Publication No             | : NA                                                                            | (72) <b>Name of Inventor :</b>                                                                                                                                                                                                          |
| (61) Patent of Addition to Application Number | :NA                                                                             | <b>1)Ch Lokeshwar Reddy</b>                                                                                                                                                                                                             |
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| (62) Divisional to Application Number         | :NA                                                                             |                                                                                                                                                                                                                                         |
| Filing Date                                   | :NA                                                                             |                                                                                                                                                                                                                                         |

(57) Abstract :  
This project presents the design and development of a multi-utility vehicle concept featuring a detachable passenger unit aimed at enhancing transportation flexibility and functionality. The proposed prototype allows seamless detachment and reattachment of the passenger cabin, enabling its use across diverse applications such as public transport, emergency services, and rural mobility. The modular design ensures efficient space utilization, cost-effective deployment, and quick adaptability to varying operational needs. Emphasis is placed on structural stability, ease of detachment, and safety of occupants during transitions. This concept introduces a scalable mobility solution that aligns with evolving urban and semi-urban transport demands, offering a sustainable and versatile alternative to conventional vehicles. The prototype serves as a foundation for future innovations in modular transport systems.

No. of Pages : 9 No. of Claims : 6

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :23/06/2025

(21) Application No.202541059782 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : IOT & MACHINE LEARNING ENHANCED INTRUSION DETECTION SYSTEM WITH ADAPTIVE THREAT PATTERN RECOGNITION

(51) International classification :H04L0009400000, G06N0020000000, G06N0003088000, H04W0004700000, G06F0021550000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

IOT & MACHINE LEARNING ENHANCED INTRUSION DETECTION SYSTEM WITH ADAPTIVE THREAT PATTERN RECOGNITION ABSTRACT The invention presents a Machine Learning-based Intrusion Detection System optimized for IoT networks with adaptive threat pattern recognition capabilities. It utilizes a hybrid architecture combining local anomaly detection on IoT devices with a centralized, continuously learning classification model. By leveraging unsupervised learning at the edge and supervised learning at the core, the system identifies evolving cyber threats, including zero-day attacks. The model is updated through federated learning for decentralized privacy- preserving adaptation. Designed for constrained environments, the IDS ensures real-time, accurate, and scalable intrusion detection across heterogeneous IoT systems. It enhances protection for smart infrastructure, healthcare, and industrial IoT deployments through adaptive intelligence and behavioral analysis.

No. of Pages : 12 No. of Claims : 7

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :23/06/2025

(21) Application No.202541059801 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : REFRIGERATION-BASED SEPARATION OF COMPONENTS FROM SOLVENT MIXTURES USING DIFFERENTIAL FREEZING POINTS

(51) International classification :C22B0003040000, B01D0009000000, B01D0003420000, B01D0053260000, F25D0017020000  
(86) International Application No :NA  
Filing Date :NA  
(87) International Publication No : NA  
(61) Patent of Addition to Application Number :NA  
Filing Date :NA  
(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

The invention discloses a refrigeration-based method for separating a component from a mixture of solvents by leveraging differences in their freezing points. The process involves cooling the solvent mixture in a controlled refrigeration unit to a temperature where the target component with the highest freezing point solidifies, while other solvents remain in the liquid phase. The solidified component is then isolated through filtration or decanting, yielding high-purity results. This method offers a sustainable, energy-efficient alternative to conventional techniques like distillation or chemical extraction, which often involve high energy costs or environmentally harmful reagents. The process is scalable, cost-effective, and particularly effective for separating solvents with similar boiling points, making it suitable for applications in pharmaceuticals, petrochemicals, and food processing. By minimizing energy consumption and eliminating chemical reagents, the invention provides an environmentally friendly solution, enhancing process efficiency and product purity in industrial solvent separation

No. of Pages : 11 No. of Claims : 1

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :23/06/2025

(21) Application No.202541059802 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : Precision Railway Track Crack Detection and Obstacle Avoidance System Using ESP32 Microcontroller

(51) International classification :B61L0023040000, G05D0001000000, G08B0021020000, B61K0009080000, G01S0015931000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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**3)Mr. A Murali**

**4)Dr. Katuri Rayudu**

**5)Dommeti Sri Varasidhi Vinay**

**6)Dasari Sai Siddhartha**

**7)Vijay Bhargav**

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(57) Abstract :

The railway accidents from derailments or obstruction pose a major threat to the safety in railways. This paper discusses the Railway Track Detection System with Obstacle Avoidance comprising an ESP32 microcontroller, ultrasonic sensors, infrared (IR) sensors, the NEO-6M GPS module, the L298N motor driver, and an LCD display aimed at increasing the monitoring and safety of railway tracks in real time. This system will be designed to detect the railway track with the help of IR sensors while detecting obstacles using ultrasonic sensors. The NEO-6M GPS module provides a live and perfect location tracking to have real-time monitoring of its movement. With the use of a mobile application, this data can be made available for remote monitoring and alarms. For testing purposes, using an L298N motor driver small-scale railway vehicle gets automated control by driving on its routes, with an ending condition that is when the obstacle is detected. Whenever an object or obstacle in the path of the so-called mini version of the railway vehicle is detected, the alert gets switched on, stop the vehicle, and notify to the monitoring application. Thus, real-time obstacle detection and track monitoring make enhancement of railway safety much more cost-effective with IoT techniques.

No. of Pages : 7 No. of Claims : 3

(54) Title of the invention : SYSTEM AND METHOD FOR SELECTING AND MANAGING DIGITAL COLORS FOR ARTWORK USING HUE-VALUE-CHROMA (HVC) MODEL

|                                               |                                                                                 |                                                                                                                                                                                         |
|-----------------------------------------------|---------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (51) International classification             | :H04N0001600000, H04N0009640000, G06T0007900000, H04N0019186000, G10L0013020000 | (71) <b>Name of Applicant :</b><br><b>1)Shamitha Sivakumar</b><br>Address of Applicant :No.84, 1st Floor, 5th main Road, Tellus Avenue, Rajakilpakkam, Chennai, Tamil Nadu, India ----- |
| (86) International Application No             | :NA                                                                             | <b>Name of Applicant : NA</b>                                                                                                                                                           |
| Filing Date                                   | :NA                                                                             | <b>Address of Applicant : NA</b>                                                                                                                                                        |
| (87) International Publication No             | : NA                                                                            | (72) <b>Name of Inventor :</b>                                                                                                                                                          |
| (61) Patent of Addition to Application Number | :NA                                                                             | <b>1)Shamitha Sivakumar</b>                                                                                                                                                             |
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| (62) Divisional to Application Number         | :NA                                                                             |                                                                                                                                                                                         |
| Filing Date                                   | :NA                                                                             |                                                                                                                                                                                         |

(57) Abstract :  
A system (100) for selecting and managing digital colors using a hue-value-chroma (HVC) model comprises a user device (102) communicatively connected to a color processing engine (104) via a network (106). The processor (114) within the engine receives color inputs through a 10n color picker (118), allowing selection of hue (0°–359°), value (0%–100%), and chroma (0%–100%). A color conversion engine (120) translates colors between HVC and RGB, HEX, or HSL. A grid generation engine (122) creates a chroma–value grid per hue, and a pixel analysis engine (124) extracts HVC from image pixels. A palette generation engine (126) forms harmonized palettes, while a customization engine (128) enables user control over direction, structure, and locking. The system (100) empowers digital artists with precision, flexibility, and compatibility across color formats for enhanced creative workflows.

No. of Pages : 18 No. of Claims : 10



(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :23/06/2025

(21) Application No.202541059824 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : PREPARATION OF SPOTTED SEERFISH COLLAGEN SCAFFOLDS FOR TISSUE REGENERATION

(51) International classification :A61L0027240000, A61L0027380000, A61L0027540000, A61L0027560000, A61L0027360000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

The present invention discloses a method for preparing collagen scaffolds using the collagen isolated from the fins and tails of spotted seer fish collagen (Scomberomorus guttatus). With asymmetric pores and moisture content of 9.84%. The porosity and contact angle of collagen scaffold was determined as 83.3% and 79°. The collagen scaffold was found to be cytocompatible and non-hemolytic when treated with NIH3T3 fibroblasts and human red blood cells. The collagen scaffold can be used for various biomedical applications such as tissue regeneration, wound treatment, and drug delivery.

No. of Pages : 18 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202541059828 A

(19) INDIA

(22) Date of filing of Application :23/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : Green-Synthesized Co<sub>3</sub>O<sub>4</sub>-NiO-Al<sub>2</sub>O<sub>3</sub> Ternary Oxide Coatings on AlMgSi-YSZ Metal Matrix Composites for Enhanced Corrosion Resistance in Marine Structural and Shipbuilding Applications

(51) International classification :C22C0021080000, C22F0001050000, C22C0021020000, G01N0027020000, H01G0011460000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

The present invention relates to the development of a corrosion-resistant metal matrix composite (MMC) suitable for marine applications. The MMC comprises an AlMgSi aluminum alloy reinforced with micron-sized Yttria-Stabilized Zirconia (YSZ) particulates, fabricated via a novel three-stage mechanical stir casting technique to ensure homogeneous dispersion and interfacial bonding. To further enhance corrosion resistance, the MMCs are coated with a green-synthesized ternary metal oxide (Co<sub>3</sub>O<sub>4</sub>-NiO-Al<sub>2</sub>O<sub>3</sub>) layer comprising cobalt oxide (Co<sub>3</sub>O<sub>4</sub>), nickel oxide (NiO), and aluminum oxide (Al<sub>2</sub>O<sub>3</sub>). The ternary oxide coating is synthesized using an eco-friendly solution combustion method, wherein the aqueous leaf extract of Hibiscus rosa-sinensis serves as a green fuel, complexing agent, and bio-template. The resulting nanostructured oxide layer forms a dense, adherent, and multifunctional passive barrier that significantly improves resistance to localized and uniform corrosion by impeding ionic diffusion and suppressing electrochemical reactions at the metal-electrolyte interface. Comparative corrosion assessments comprising electrochemical impedance spectroscopy (EIS), potentiodynamic polarization, and immersion tests will be conducted on four material conditions: (i) base AlMgSi alloy, (ii) coated AlMgSi alloy, (iii) YSZ-reinforced MMC, and (iv) coated MMC. The invention offers a sustainable, high-performance material solution for components exposed to aggressive saline environments, such as those encountered in shipbuilding and offshore structures.

No. of Pages : 11 No. of Claims : 5

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :23/06/2025

(21) Application No.202541059829 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : 3D-Printed Orthodontic Dual-Segment Sliding T/2 - Caliper for Measuring Jaw Discrepancies with High Accuracy

(51) International classification :A61C0007080000, A61C0007000000, G01B0003200000, A61C0007360000, A61C0003000000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

The T/2 Caliper is an innovative orthodontic instrument engineered to enhance the precision and ease of measuring overjet, overbite, and maximum mouth opening. Traditional measurement techniques often rely on standard rulers or periodontal probes, which can cause patient discomfort and introduce measurement inaccuracies. The T/2 Caliper addresses these limitations with a dual-segment, L-shaped design that allows seamless sliding of its smaller segment along the larger one, ensuring accurate contact with the incisal tips of the maxillary and mandibular anterior teeth. Both segments are equipped with clearly marked measuring scales; the primary scale measures overjet and overbite, while the secondary scale, located on the reverse side, is specifically calibrated to measure maximum mouth opening. This versatile design also accommodates the measurement of open bites and reverse overjet's by providing both positive and negative value readings, a feature that enhances its diagnostic capabilities. Manufactured using high-precision 3D printing technologies and biocompatible resins, the T/2 Caliper guarantees durability and optimal clinical performance. Its ergonomic structure minimizes patient discomfort during evaluations, while its accuracy facilitates reliable documentation of orthodontic case histories. By streamlining the process of vertical height assessment, the T/2 Calliper advances the standard of care in orthodontics, offering clinicians a robust tool for diagnosing malocclusions and formulating effective treatment plans.

No. of Pages : 7 No. of Claims : 7

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :23/06/2025

(21) Application No.202541059839 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : AUTOMATIC SEED SOWING MACHINE

(51) International classification :A01C0007000000, A01C0007080000, A01C0007200000, A01C0005060000, G06Q0050020000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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**4)Rajesh D**

**5)Sanjeev S B**

**6)Deepak K**

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(57) Abstract :

Abstract The Automated Seed Sowing Machine is an innovative solution aimed at addressing the inefficiencies of traditional seeding methods in agriculture. Conventional sowing operations often require significant labor, time, and cost due to manual effort and reliance on hired machinery. These methods also suffer from uneven seed distribution, increased operational time, and reduced planting efficiency. This machine is manually operated but ergonomically designed to significantly reduce the physical effort of farmers, enhance precision in seed and fertilizer placement, and minimize overall cost. It is engineered to be compatible with various farm types and a wide range of crops, featuring a robust, durable, and farmer-friendly construction. By streamlining the sowing process, the machine supports increased agricultural productivity while preserving soil structure and reducing dependency on external labor or high-end mechanized equipment. It represents a practical step toward the modernization of small and medium-scale farming, contributing to sustainable and efficient agricultural practice.

No. of Pages : 11 No. of Claims : 5

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :23/06/2025

(21) Application No.202541059843 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : An Adaptive Road Barrier System and Method for Traffic Control and Emergency Vehicle Recognition

(51) International classification :G06Q0050260000, E01F0015080000, E01F0015000000, G08G0001010000, G08G0001096500  
(86) International Application No :NA  
Filing Date :NA  
(87) International Publication No : NA  
(61) Patent of Addition to Application Number :NA  
Filing Date :NA  
(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

ABSTRACT: Title: An Adaptive Road Barrier System and Method for Traffic Control and Emergency Vehicle Recognition The present disclosure proposes an adaptive road barrier system (100) that dynamically regulates traffic flow, enforces signal compliance, facilitates emergency vehicle clearance, and enhances road safety under varying environmental conditions. The adaptive road barrier system (100) comprises an automated traffic barrier unit (102), a speed detection unit (106), a first capturing unit (108), a weather sensor (110), a second capturing unit (112) and a computing device (114). The proposed system (100) is scalable and easily deployable due to its modular design, thereby making it adaptable to urban roads, highways, toll booths, and private premises. The proposed system (100) integrates with smart city projects, aligns with modern urban development strategies, making it a highly marketable solution for municipal governments and smart infrastructure providers.

No. of Pages : 26 No. of Claims : 10

|                                                                                                                                       |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |  |
|---------------------------------------------------------------------------------------------------------------------------------------|--|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| (12) PATENT APPLICATION PUBLICATION                                                                                                   |  | (21) Application No.202541059844 A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |  |
| (19) INDIA                                                                                                                            |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |  |
| (22) Date of filing of Application :23/06/2025                                                                                        |  | (43) Publication Date : 04/07/2025                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |  |
| (54) Title of the invention : Battery Management System with Integrated Grid Sensing, Power Conditioning, and Secure Control Features |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |  |
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| (51) International classification :H01M0010420000, H04L0009320000, H04L0067120000, H02J0009060000, H02J0007000000                     |  | (72)Name of Inventor :<br><b>1)Sonu Mishra</b><br>Address of Applicant :Block 8, Flat 3006, My Home Avatar, Hyderabad-500089, Telangana, India. Hyderabad -----<br><b>2)Chatrapathi Shiva Reddy Pingili</b><br>Address of Applicant :23-6-234/A, Tiger Hills Colony, Hunter Road, Hanamkonda-506001, Telangana, India. Hanamkonda -----<br><b>3)Vavilla Satish Reddy</b><br>Address of Applicant :House No 85, Village-Meerapur kewal, Jaunpur-222125, Uttar Pradesh, India. Jaunpur -----<br><b>4)Ashish Kumar Pandey</b><br>Address of Applicant :Villa 140, Mantri Euphoria, Forestrek Park, Manchirevula, K. V. Rangareddy-500075, Telangana, India. Rangareddy ----- |  |
| (86) International Application No :NA                                                                                                 |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |  |
| Filing Date :NA                                                                                                                       |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |  |
| (87) International Publication No : NA                                                                                                |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |  |
| (61) Patent of Addition to Application Number :NA                                                                                     |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |  |
| Filing Date :NA                                                                                                                       |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |  |
| (62) Divisional to Application Number :NA                                                                                             |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |  |
| Filing Date :NA                                                                                                                       |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |  |

(57) Abstract :  
ABSTRACT: Title: Battery Management System with Integrated Grid Sensing, Power Conditioning, and Secure Control Features The present disclosure proposes a battery management system (BMS) (100) with integrated grid failure sensing, secure operational control, multi-source power regulation, and robust data integrity features, thereby enabling reliable and efficient energy storage management for grid-interactive and backup power applications across both low-voltage and high-voltage battery configurations. The battery management unit (BMS) (100) comprises a battery pack (102), and a battery management unit (BMU) (104). The battery management system (BMS) (100) autonomously detects grid loss via an internal opto-isolated sensing circuit and transitions seamlessly into backup mode without external relays or controllers, thereby improving reliability and reducing system complexity. The BMS (100) integrates with cryptographic security, an independent real-time clock, and non-volatile memory to support secure authentication, time-stamped event logging, and persistent data storage during connectivity outages or power failure events.

No. of Pages : 31 No. of Claims : 8

(54) Title of the invention : SYSTEM AND METHOD FOR AI-BASED PREDICTIVE VISUALIZATION AND PERSONALIZED TRANSFORMATION USING BIOMETRIC AND GOAL DATA

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|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <div>(51) International classification :G16H0050200000, G16H0050700000, A61B0005000000, G16H0020600000, G06N0003080000</div> <div>(86) International Application No :NA<br/>Filing Date :NA</div> <div>(87) International Publication No : NA</div> <div>(61) Patent of Addition to Application Number :NA<br/>Filing Date :NA</div> <div>(62) Divisional to Application Number :NA<br/>Filing Date :NA</div> | <div>(71)Name of Applicant :<br/>1)SRINIVASA RAO NELLURI<br/>Address of Applicant :H.No: 1-12-13, Burnpet, Narasaraopet, Palnadu(DT), Andhra Pradesh-522601, India. Palnadu -----<br/>2)MADHAVI NELLURI<br/>3)UPPUTURI PADMAVATHI<br/>Name of Applicant : NA<br/>Address of Applicant : NA</div> <div>(72)Name of Inventor :<br/>1)SRINIVASA RAO NELLURI<br/>Address of Applicant :H.No: 1-12-13, Burnpet, Narasaraopet, Palnadu(DT), Andhra Pradesh-522601, India. Palnadu -----<br/>2)MADHAVI NELLURI<br/>Address of Applicant :H.No: 1-12-13, Burnpet, Narasaraopet, Palnadu(DT), Andhra Pradesh-522601, India. Palnadu -----<br/>3)UPPUTURI PADMAVATHI<br/>Address of Applicant :LIG-279, APHB Colony, Near Mamidipalem, Ongole, Prakasam(DT), Andhra Pradesh-523001, India. Ongole -----</div> |
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(57) Abstract :  
Exemplary embodiments of the present disclosure are directed towards a system for AI-based predictive visualization and personalized transformation using biometric and goal data. The system comprises a computing device including a processor, memory, and image capturing unit. A transformation monitoring module is configured to receive a biometric image and physiological parameters such as age, weight, height, gender, and lifestyle data. The biometric image is preprocessed to normalize resolution, scale, and format, and the physiological parameters are validated before transmission to a cloud server. The cloud server comprises a transformation analysis module configured to analyze the current biometric profile using historical data and predict future biometric states through a trained machine learning model. A visual representation and associated metrics of the predicted state are generated and transmitted to the computing device. The transformation monitoring module displays the output via a graphical user interface to enable AI-driven visualization and goal-aligned transformation plan. FIG. 1

No. of Pages : 43 No. of Claims : 15

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202541059855 A

(19) INDIA

(22) Date of filing of Application :23/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : SMART CANCER DETECTION USING MULTI MODAL IMAGE FUSION AND ADAPTIVE DEEP LEARNING

(51) International classification :G06T0007000000, G01N0033574000, G16H0050300000, G16H0050200000, G16H0030400000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

ABSTRACT OF THE INVENTION The present invention relates to a smart cancer detection system that leverages multi-modal image fusion and adaptive deep learning for accurate and efficient cancer diagnosis. The system integrates medical images acquired from diverse modalities, including histopathology and mammography, to create enriched composite images through an integrated image fusion and preprocessing module. An adaptive deep learning model analyzes these images, learning complex patterns and features associated with cancerous tissues. A feature extraction and patient context matching module correlates image-derived features with patient-specific clinical data to support personalized risk assessment. The system further includes a classification and prediction unit that generates diagnostic outcomes, supported by a hybrid cloud analytics and edge processing framework for scalable and low-latency operations. A security and encryption layer ensures the safe handling and transmission of sensitive diagnostic data, providing outputs via mobile apps, physician dashboards, and EMR integration .. This invention offers a robust, secure, and adaptive solution for early cancer detection, improving diagnostic accuracy and supporting clinical decision-making.

No. of Pages : 5 No. of Claims : 8



(12) PATENT APPLICATION PUBLICATION

(21) Application No.202541059856 A

(19) INDIA

(22) Date of filing of Application :23/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : AGRICULTURE PEST MONITORING SYSTEM ENHANCED WITH DEEP LEARNING

(51) International classification :G06N0003045000, G16H0050200000, A01M0001020000, G06V0010440000, A01M0031000000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

ABSTRACT OF THE INVENTION The present invention relates to an agricultural pest monitoring system enhanced with deep learning for real-time pest detection and management. The system utilizes an image acquisition unit comprising cameras and sensors to capture field images under varying environmental conditions. Captured images are preprocessed to enhance quality before being analyzed by a deep learning-based pest detection module employing convolutional neural networks for accurate pest identification. Post-processing modules refine detection results, eliminating false positives and generating confidence scores. A decision support system evaluates infestation severity and recommends targeted pest management strategies. Alerts and notifications are delivered to users via SMS, mobile apps, or dashboards, while a cloud storage and continuous learning module enables adaptive model improvement, ensuring long-term accuracy and scalability of the system.

No. of Pages : 5 No. of Claims : 8

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :23/06/2025

(21) Application No.202541059900 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : SYSTEM AND METHOD FOR THERMAL MANAGEMENT OF FUEL STORAGE TANKS

|                                                                                                                                                                                                                                                                                                                                                                                           |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
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| <p>(51) International classification :C21B0013020000, A62B0017000000, F25D0003080000, C09D0005260000, G06V0010143000</p> <p>(86) International Application No :NA<br/>Filing Date :NA</p> <p>(87) International Publication No : NA</p> <p>(61) Patent of Addition to Application Number :NA<br/>Filing Date :NA</p> <p>(62) Divisional to Application Number :NA<br/>Filing Date :NA</p> |  | <p>(71)<b>Name of Applicant :</b><br/><b>1)VELLORE INSTITUTE OF TECHNOLOGY, CHENNAI</b><br/>Address of Applicant :Vandalur - Kelambakkam Road, Chennai, Tamil Nadu - 600127, India. Chennai -----<br/><b>Name of Applicant : NA</b><br/><b>Address of Applicant : NA</b><br/>(72)<b>Name of Inventor :</b><br/><b>1)BHISHAM KUMAR DHURANDHER</b><br/>Address of Applicant :Assistant Professor (Senior Grade 1), School of Mechanical Engineering, Vellore Institute of Technology, Chennai, Vandalur - Kelambakkam Road, Chennai, Tamil Nadu - 600127, India. Chennai -----<br/><b>2)NIRAJ ONKAR MAHAJAN</b><br/>Address of Applicant :UG Student, School of Mechanical Engineering, Vellore Institute of Technology, Chennai, Vandalur - Kelambakkam Road, Chennai, Tamil Nadu - 600127, India. Chennai -----<br/><b>3)ABHISHEK RUDRA PAL</b><br/>Address of Applicant :Assistant Professor (Senior Grade 1), School of Mechanical Engineering, Vellore Institute of Technology, Chennai, Vandalur - Kelambakkam Road, Chennai, Tamil Nadu - 600127, India. Chennai -----</p> |
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(57) Abstract :

A thermal management system 100 for a storage tank 102 to hold temperature-sensitive liquids includes an inner storage chamber 202, a double-walled outer shell 212, and a honeycomb-structured mesh 206 in between, containing a thermal regulation system 120 for passive thermal buffering and stability. A water-based cooling system 104 sprays water over the outer shell 212, enabling gravitational flow through the mesh 202 to enhance evaporative cooling. A heat modeling system 112 maps real-time surface temperatures using infrared radiation to dynamically adjust cooling at hot spots. A photovoltaic-electrochromic envelope system 122 autonomously adjusts reflectivity based on sunlight intensity to reduce solar heat gain. Ultrasonic transducers 124 generate localized micro-vibrations in the mesh 206 to improve heat transfer. For fire safety, the system 100 includes a fire-resistant coating on inner chamber 202, a gas-based suppression unit 128 activated under extreme heat, and wireless connectivity 130 for remote monitoring and integration with external firefighting systems.

No. of Pages : 30 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202541059901 A

(19) INDIA

(22) Date of filing of Application :23/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : SYSTEM AND METHOD DETECTING ARTERIAL BLOCKAGES

(51) International classification

:A61B0005000000, G16H0050200000, A61K0049220000, A61B0005145000, A61B0005352000

(86) International Application No  
Filing Date

:NA  
:NA

(87) International Publication No

: NA

(61) Patent of Addition to Application Number  
Filing Date

:NA  
:NA

(62) Divisional to Application Number  
Filing Date

:NA  
:NA

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-----

(57) Abstract :

The present disclosure relates to a system (100) including a structural imaging module 102 that uses Acoustic Resonance Spectroscopy (ARS) to analyze mechanical and structural properties of arterial walls for identifying abnormal tissue regions. A molecular imaging module 104 containing Magneto-Plasmonic Resonance Imaging (MPRI) nanoparticles configured to attach to specific biological markers in atherosclerotic plaques, enabling detailed molecular-level imaging. A wearable biosensor module 106 continuously monitors cardiovascular health indicators. Additionally, a photoacoustic imaging (PAI) module 108 captures detailed images of fatty lipid-rich plaques by detecting light absorption by lipids and converting it into acoustic signals. A processing unit 110 collects data from all modules, combining structural, molecular, and systemic information to generate a comprehensive representation of arterial health. The processing unit 110 applies machine learning algorithms to detect and classify arterial blockages, producing a diagnostic output.

No. of Pages : 24 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :23/06/2025

(21) Application No.202541059904 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : A VOICE ASSISTANCE SYSTEM FOR QUERY RESOLUTION FOR A USER

(51) International classification :G16H0010600000, G06F0016903200, G06N0020000000, G06F0016330000, G06Q0040040000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

A voice assistance system 100 for query resolution by an entity for a user 102 includes a smart mobile device 104 held by the user 102; and a server 150 in communication with the smart mobile device 104, including a plurality of modules, a centralised database 152, and one or more data processing units to perform operations to establish communication between the smart mobile device 104 and the centralized database 152 preferably using a wireless network; allow access into the database 152 comprising a user interface display to read and write information; receive at least one query generated by the user 102 to respond to the query; select at least one response 110 to the query from a set of responses stored in the database 152 using AI model; and transmit selected response 110 to display over the user interface and satisfy user 102 for query made by the user 102

No. of Pages : 23 No. of Claims : 10

(54) Title of the invention : INFLUENCE OF GEOMETRIC RISE ON LOAD PERFORMANCE IN FUNICULAR CONCRETE SHELL FOUNDATIONS

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| <div>(51) International classification :G01M0005000000, G06F0030230000, G06F0111100000, E04B0005040000, G06F0030200000</div> <div>(86) International Application No :NA<br/>Filing Date :NA</div> <div>(87) International Publication No : NA</div> <div>(61) Patent of Addition to Application Number :NA<br/>Filing Date :NA</div> <div>(62) Divisional to Application Number :NA<br/>Filing Date :NA</div> |  | <div>(71)Name of Applicant :<br/>1)Agni College of Technology<br/>Address of Applicant :Agni College of Technology OMR Thalambur Chennai 600130 -----<br/>Name of Applicant : NA<br/>Address of Applicant : NA<br/>(72)Name of Inventor :<br/>1)Shalini. K<br/>Address of Applicant :Agni College of Technology OMR Thalambur Chennai Chennai -----<br/>2)Vijayalakshmi R<br/>Address of Applicant :Sri Sivasubramaniya Nadar (SSN) College of Engineering – campus Rajiv Gandhi Salai (OMR) Kalavakkam – 603 110 Tamil Nadu, India Chennai -----<br/>3)Arthi S<br/>Address of Applicant :Agni College of Technology OMR Thalambur Chennai Chennai -----<br/>4)Anjali N<br/>Address of Applicant :Agni College of Technology OMR Thalambur Chennai Chennai -----<br/>5)Anuradha N<br/>Address of Applicant :Agni College of Technology OMR Thalambur Chennai Chennai -----</div> |
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(57) Abstract :  
Funicular concrete shells represent a class of geometrically optimized structural elements that achieve high strength and stiffness through form-active behavior, primarily resisting applied loads via compressive stress paths. This invention investigates the influence of rise height on the load-carrying capacity and deflection behavior of shallow funicular concrete shells cast over square ground plans using M25 grade concrete. The primary objective is to establish an experimentally validated framework for rise-based optimization in funicular shell design. A total of four prototype shells were developed with fixed plan dimensions (50 cm × 50 cm) and varying rise values: 0 cm, 6 cm, 9.5 cm, and 12 cm. Shell geometry was generated using a sag-based mold technique involving a flexible foam (rexine) stretched across a steel frame. This method ensured consistent funicular shapes and efficient casting. Reinforcement was provided in both directions, along with integrated edge beams to replicate realistic boundary conditions. The fabricated shells were subjected to central point load testing to analyze the mechanical response, including initial crack formation, ultimate load capacity (Pu), and vertical deflection. The results indicate that shells with higher rises exhibit significantly better structural performance. The ultimate load capacity was found to increase with rise, while central deflection decreased, confirming that geometrical rise contributes to improved stiffness and failure resistance. Shells with lower rises showed brittle failure and concentrated cracking, whereas higher-rise shells displayed distributed cracking and delayed failure, indicative of more ductile behavior. Through the comparison of performance metrics across different shell configurations, the invention establishes a correlation between rise height and load capacity, forming the basis for a rise-to-performance optimization model. This study also proposes an empirical expression relating Pu and rise-to-span ratio, which can be used as a design aid for engineers and architects. In conclusion, this invention presents a cost-effective, repeatable, and experimentally verified methodology for the construction and performance assessment of funicular concrete shells. It demonstrates the value of rise manipulation as a design variable to enhance the structural behavior of shell systems without increasing material use. The findings support applications in precast modular systems, lightweight roofing structures, and architecturally exposed concrete (AEC) elements, promoting material economy and structural efficiency in civil engineering practices.

No. of Pages : 13 No. of Claims : 6

(54) Title of the invention : NANOZYME SENSOR FOR GLUTATHIONE DETECTION

|                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
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| <p>(51) International classification :G01N0027300000, G01N0027327000, B82Y0030000000, G01N0027480000, G01N0027333000</p> <p>(86) International Application No :NA<br/>Filing Date :NA</p> <p>(87) International Publication No : NA</p> <p>(61) Patent of Addition to Application Number :NA<br/>Filing Date :NA</p> <p>(62) Divisional to Application Number :NA<br/>Filing Date :NA</p> | <p>(71)<b>Name of Applicant :</b><br/><b>1)Amrita Vishwa Vidyapeetham</b><br/>Address of Applicant :Amrita Vishwa Vidyapeetham, Amritapuri Campus, Amritapuri, Clappana PO, Kollam - 690525, Kerala, India. Kollam -----<br/>----</p> <p><b>Name of Applicant : NA</b><br/><b>Address of Applicant : NA</b></p> <p>(72)<b>Name of Inventor :</b><br/><b>1)MEENAKUMARI GOPAKUMAR, Gopika</b><br/>Address of Applicant :Vrindavanam, Nedumpana P O, Kannanalloor Via, Kollam - 691576, Kerala, India. Kollam -----<br/><b>2)SARASWATHYAMMA, Beena</b><br/>Address of Applicant :Souparnika, Behind Karutheril Temple, Clappana PO, Kollam - 690526, Kerala, India. Kollam -----<br/><b>3)MANI, Govindasamy</b><br/>Address of Applicant :No. 84, Gongzhuan Rd, Taishan District, New Taipei City - 243, Taiwan. -----</p> |
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## (57) Abstract :

The present disclosure provides a nanozyme-based electrochemical sensor (100) for enhanced glutathione detection through enzyme-mimicking catalytic activity. The sensor includes copper selenite nanoparticles (103) with monoclinic crystal structure and functionalized carbon nanofibers (104) forming a nanocomposite (105), integrated with a glassy carbon electrode (107) for electrochemical measurement. The system enables selective detection through specific interaction between Cu(II) coordination sites and glutathione thiol groups, facilitated by superoxide dismutase-mimicking mechanism that catalyzes glutathione oxidation. Unlike conventional enzyme-based sensors affected by stability issues and narrow detection ranges, this integrated approach achieves unprecedented linear range from 0.0625  $\mu\text{M}$  to 7785.0  $\mu\text{M}$  through synergistic nanoparticle-nanofiber interaction. Real-time electrochemical detection at optimized potential of 0.29 V enables accurate glutathione quantification with detection limit of 0.0176  $\mu\text{M}$ , demonstrating 97.35-99.15% recovery in biological samples and maintaining over 95% activity after 15 days.

No. of Pages : 26 No. of Claims : 10

(54) Title of the invention : ENHANCING HR EFFICIENCY: AI-DRIVEN EMPLOYEE SATISFACTION, ATTRITION PREDICTION

|                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
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| <div>(51) International classification :G06Q10/06, G06Q10/105, G06F40/00, G06F40/30</div> <div>(86) International Application No :NA<br/>Filing Date :NA</div> <div>(87) International Publication No : NA</div> <div>(61) Patent of Addition to Application Number :NA<br/>Filing Date :NA</div> <div>(62) Divisional to Application Number :NA<br/>Filing Date :NA</div> | <div>(71)Name of Applicant :<br/>1)KG REDDY COLLEGE OF ENGINEERING AND TECHNOLOGY<br/>Address of Applicant :CHILKUR(V), MOINABAD MANDAL, R.R DIST. - 501504 Ranga Reddy -----</div> <div>Name of Applicant : NA<br/>Address of Applicant : NA</div> <div>(72)Name of Inventor :<br/>1)Mr. Venkata Rao Yanamadni<br/>Address of Applicant :ASSISTANT PROFESSOR, Computer Science and Engineering, Chilkur(V), Moinabad Mandal, R.R dist. -501504 Ranga Reddy -----</div> <div>2)PRAVA SREE SURYA VISHNU VARDHAN<br/>Address of Applicant :Chilkur(V), Moinabad Mandal, R.R dist. -501504 Ranga Reddy -----</div> <div>3)GAJJALA KIRAN<br/>Address of Applicant :Chilkur(V), Moinabad Mandal, R.R dist. -501504 Ranga Reddy -----</div> <div>4)SODUM MANIKETH<br/>Address of Applicant :Chilkur(V), Moinabad Mandal, R.R dist. -501504 Ranga Reddy -----</div> <div>5)PALTHYA PRASAD<br/>Address of Applicant :Chilkur(V), Moinabad Mandal, R.R dist. -501504 Ranga Reddy -----</div> <div>6)PASUPULA VINAY KUMAR<br/>Address of Applicant :Chilkur(V), Moinabad Mandal, R.R dist. -501504 Ranga Reddy -----</div> |
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(57) Abstract :  
Enhancing HR efficiency: AI-driven employee satisfaction, attrition prediction is the proposed invention. HR management by providing real-time insights into employee engagement and identifying potential attrition risks. Using natural language processing (NLP) and machine learning, the system offers a dual approach: classifying employee feedback to reveal sentiment trends and predicting attrition risk based on personal and organizational factors. This integrated solution supports HR professionals by proactively analyzing employee feedback and flagging high-risk cases for attrition, enabling more informed and timely actions. Unlike existing tools that often lack personalization and rely on retrospective data, this system delivers actionable insights, helping to create a more supportive workplace and reduce voluntary turnover. By enhancing both employee satisfaction and organizational stability, this project presents a new level of data-driven decision-making in HR.

No. of Pages : 15 No. of Claims : 7

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202541059974 A

(19) INDIA

(22) Date of filing of Application :23/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : FABRICATION AND DEVELOPMENT OF THREE POSITION ADJUSTABLE RIDING SYSTEM

|                                                                                                                                                                                                                                                                                                                                                                                           |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
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| <p>(51) International classification :B62K0003000000, B60W0040090000, G02B0005180000, G06Q0010020000, A61K0038100000</p> <p>(86) International Application No :NA<br/>Filing Date :NA</p> <p>(87) International Publication No : NA</p> <p>(61) Patent of Addition to Application Number :NA<br/>Filing Date :NA</p> <p>(62) Divisional to Application Number :NA<br/>Filing Date :NA</p> |  | <p>(71)<b>Name of Applicant :</b><br/><b>1)KG REDDY COLLEGE OF ENGINEERING AND TECHNOLOGY</b><br/>Address of Applicant :CHILKUR (V), MOINABAD (M), R.R DIST, TELANGANA -501504 Ranga Reddy -----</p> <p><b>Name of Applicant : NA</b><br/><b>Address of Applicant : NA</b></p> <p>(72)<b>Name of Inventor :</b><br/><b>1)Ms.G.Tanya Psalms</b><br/>Address of Applicant :Assistant Professor, Department of Mechanical Engineering, Chilkur (V), Moinabad (M), R.R Dist, Telangana -501504 Ranga Reddy -----</p> <p><b>2)G .Abhinav</b><br/>Address of Applicant :Department of Mechanical Engineering, Chilkur (V), Moinabad (M), R.R Dist, Telangana -501504 Ranga Reddy -----</p> <p><b>3)Imran Patan</b><br/>Address of Applicant :Department of Mechanical Engineering, Chilkur (V), Moinabad (M), R.R Dist, Telangana -501504 Ranga Reddy -----</p> <p><b>4)Majiga Sridhar</b><br/>Address of Applicant :Department of Mechanical Engineering, Chilkur (V), Moinabad (M), R.R Dist, Telangana -501504 Ranga Reddy -----</p> <p><b>5)P. Nishanth Babu</b><br/>Address of Applicant :Department of Mechanical Engineering, Chilkur (V), Moinabad (M), R.R Dist, Telangana -501504 Ranga Reddy -----</p> |
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(57) Abstract :

Fabrication and development of three position adjustable riding system is the proposed invention. Fabrication and Development of three position adjustable riding system Motorcycle riders often experience discomfort and fatigue during long-distance rides due to the fixed and non-adjustable nature of standard seats and handlebars. The inability to adjust these components limits the rider's ability to shift positions and adapt to varying riding conditions, leading to poor ergonomics, increased strain on the body, and diminished comfort. The result is not only reduced endurance but also a less enjoyable and potentially unsafe riding experience. Traditional seats and handlebars, while functional, do not cater to the diverse needs of riders with different body types, preferences, or riding styles.

No. of Pages : 15 No. of Claims : 6



(54) Title of the invention : Edge-Optimized Lightweight Deep Neural Network for Anomaly Detection in Surveillance Footage

|                                               |                                                                                 |                                                                                                                                                                                                                                             |
|-----------------------------------------------|---------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (51) International classification             | :G06N0003045000, G06N0003080000, G06N0003082000, G06V0010820000, G06N0003044000 | (71)Name of Applicant :<br><b>1)Guru Nanak University Ibrahimpatnam</b><br>Address of Applicant :Guru Nanak University Ibrahimpatnam, Ranga Reddy District, Telangana – 501506, India. CELL:91 800-829-5550 / 51 Ranga Reddy District ----- |
| (86) International Application No             | :NA                                                                             | <b>Name of Applicant : NA</b>                                                                                                                                                                                                               |
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| (87) International Publication No             | : NA                                                                            | (72)Name of Inventor :                                                                                                                                                                                                                      |
| (61) Patent of Addition to Application Number | :NA                                                                             | <b>1)Sandi Sunanda</b>                                                                                                                                                                                                                      |
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| (62) Divisional to Application Number         | :NA                                                                             | <b>2)Dr. Md Rashid Mahmood</b>                                                                                                                                                                                                              |
| Filing Date                                   | :NA                                                                             | Address of Applicant :Professor, University Institute of Engineering and Technology, Guru Nanak University, Hyderabad. Hyderabad -----                                                                                                      |

(57) Abstract :

The present invention relates to a novel, intelligent surveillance solution that leverages advanced deep learning techniques for the purpose of real-time anomaly detection in video footage, specifically designed for deployment on edge devices. In an era where surveillance systems generate voluminous visual data, centralized processing methods—such as cloud-based analysis—pose significant challenges, including high latency, substantial bandwidth usage, vulnerability to network disruptions, and compromised data privacy. The proposed invention addresses these issues through the development of an edge-optimized, lightweight deep neural network (DNN) architecture tailored for constrained environments like embedded systems and low-power edge devices. The core contribution of this invention lies in its ability to detect anomalies—such as violent acts, intrusions, accidents, or unusual behavior patterns—in live surveillance feeds without the need for constant cloud connectivity. To achieve this, the neural network is architected with a balance between performance and efficiency, incorporating multiple optimization strategies. These include network pruning, which systematically eliminates redundant parameters; quantization, which reduces model precision to compress size and improve inference speed; and knowledge distillation, a method wherein a compact “student” model learns from a more accurate, computationally expensive “teacher” model. In addition to architectural design, the invention integrates spatio-temporal feature extraction using hybrid modules that combine lightweight convolutional neural networks (CNNs) and temporal analysis through recurrent layers such as Long Short-Term Memory (LSTM) units. Attention mechanisms are also embedded to prioritize critical features relevant to detecting irregularities in the scene, thus enhancing interpretability and detection precision. Moreover, the proposed framework facilitates on-device processing that significantly reduces reliance on internet connectivity and backend servers, thereby improving system robustness, enabling low-latency alerts, and enhancing data confidentiality by processing footage locally. It is particularly suitable for deployment in smart cities, public safety environments, industrial monitoring systems, and remote areas where network infrastructure may be limited or unreliable. Through extensive experimentation and real-world testing, the lightweight model has demonstrated its capability to maintain high anomaly detection accuracy while achieving real-time inference speeds on various edge platforms, such as Raspberry Pi, NVIDIA Jetson Nano, and Google Coral. This makes the invention a highly practical and scalable solution for next-generation surveillance systems.

No. of Pages : 13 No. of Claims : 6

(54) Title of the invention : SYSTEM AND METHOD FOR EXTRACTING SEMANTICALLY RICH METADATA FROM MULTIMEDIA AND ENABLING CROSS-MODAL SEARCH

|                                               |                                  |                                                                                                                                                               |
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| (51) International classification             | :G06F16/48, G06F40/30, G06F16/43 | 2)SAFA MOHAMMED IQBAL<br>Address of Applicant :SRM IST KATTANKULATHUR, CHENNAI-603203, TAMIL NADU, INDIA CHENNAI -----                                        |
| (86) International Application No             | :NA                              | 3)DIMPUL DURGA POOLA KUMAR POOLA<br>Address of Applicant :SRM IST KATTANKULATHUR, CHENNAI-603203, TAMIL NADU, INDIA CHENNAI -----                             |
| Filing Date                                   | :NA                              | 4)SAHIL ALI AKBAR<br>Address of Applicant :SRM IST KATTANKULATHUR, CHENNAI-603203, TAMIL NADU, INDIA CHENNAI -----                                            |
| (87) International Publication No             | : NA                             | 5)SAI SIDDARTHA KUDITHI VENKATACHALAM KUDITHI<br>Address of Applicant :SRM IST KATTANKULATHUR, CHENNAI-603203, TAMIL NADU, INDIA CHENNAI -----                |
| (61) Patent of Addition to Application Number | :NA                              | 6)YAMINI KUDITHI VENKATACHALAM KUDITHI<br>Address of Applicant :SRM IST KATTANKULATHUR, CHENNAI-603203, TAMIL NADU, INDIA CHENNAI -----                       |
| Filing Date                                   | :NA                              |                                                                                                                                                               |
| (62) Divisional to Application Number         | :NA                              |                                                                                                                                                               |
| Filing Date                                   | :NA                              |                                                                                                                                                               |

(57) Abstract :  
ABSTRACT SYSTEM AND METHOD FOR EXTRACTING SEMANTICALLY RICH METADATA FROM MULTIMEDIA AND ENABLING CROSS-MODAL SEARCH The present disclosure relates to an integrated media management system (100) for extracting semantically rich metadata from heterogeneous multimedia content and enabling cross-modal semantic search. The system (100) includes an ingestion module (102) to receive images, documents, and audio files, and a multimodal processing module (104) comprising an image analysis unit (104A), a document parsing unit (104B), and an audio interpretation unit (104C) for media-specific analysis and summarization. A metadata structuring module (106) converts the processed outputs into structured metadata. The storage module (108) persistently stores both media and metadata. A semantic indexing module (110) transforms metadata into embeddings for a cross-modal vector index. A query engine (112) receives natural language queries, computes similarity scores against indexed content, and retrieves relevant results. A user interface module (114) displays the matched content with contextual metadata in an interactive dashboard, allowing users to perform efficient, semantically aware searches across diverse media formats.

No. of Pages : 36 No. of Claims : 14

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :23/06/2025

(21) Application No.202541060019 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : FABRICATION AND DEVELOPMENT OF A MULTI PURPOSE AGRICULTURAL MACHINE FOR WEEDING AND SOLID FERTILIZER DISTRIBUTION

|                                                                                                                                                                                                                                                                                                                                                                                           |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
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| <p>(51) International classification :A01B0039180000, A01G0009240000, A01B0039190000, C05D0005000000, A01G0013020000</p> <p>(86) International Application No :NA<br/>Filing Date :NA</p> <p>(87) International Publication No : NA</p> <p>(61) Patent of Addition to Application Number :NA<br/>Filing Date :NA</p> <p>(62) Divisional to Application Number :NA<br/>Filing Date :NA</p> |  | <p>(71)<b>Name of Applicant :</b><br/><b>1)KG REDDY COLLEGE OF ENGINEERING AND TECHNOLOGY</b><br/>Address of Applicant :CHILKUR (V), MOINABAD (M), R.R DIST, TELANGANA -501504 Ranga Reddy -----</p> <p><b>Name of Applicant : NA</b><br/><b>Address of Applicant : NA</b></p> <p>(72)<b>Name of Inventor :</b><br/><b>1)Dr.Dharavath Baloji</b><br/>Address of Applicant :Associate Professor, Department of Mechanical Engineering, Chilkur (V), Moinabad (M), R.R Dist, Telangan Ranga Reddy -----</p> <p><b>2)Yedla Tharun</b><br/>Address of Applicant :Department of Mechanical Engineering, Chilkur (V), Moinabad (M), R.R Dist, Telangana -501504 Ranga Reddy -----</p> <p><b>3)Purella Vaibhav</b><br/>Address of Applicant :Department of Mechanical Engineering, Chilkur (V), Moinabad (M), R.R Dist, Telangan Ranga Reddy -----</p> <p><b>4)Thodeti Suraj</b><br/>Address of Applicant :Department of Mechanical Engineering, Chilkur (V), Moinabad (M), R.R Dist, Telangana Ranga Reddy -----</p> <p><b>5)Vambravalli Mahesh</b><br/>Address of Applicant :Department of Mechanical Engineering, Chilkur (V), Moinabad (M), R.R Dist, Telangana -501504 Ranga Reddy -----</p> <p><b>6)Palkanpalli Akhil</b><br/>Address of Applicant :Department of Mechanical Engineering, Chilkur (V), Moinabad (M), R.R Dist, Telangana Ranga Reddy -----</p> <p><b>7)Gaini Dinesh</b><br/>Address of Applicant :Department of Mechanical Engineering, Chilkur (V), Moinabad (M), R.R Dist, Telangana Ranga Reddy -----</p> |
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(57) Abstract :

Fabrication and development of a multi purpose agricultural machine for weeding and solid fertilizer distribution is the proposed invention. In this modern era, weeding with simple tools such as cutlass, hoe etc. is labor intensive and time consuming. Thus, there is a need for the design of manually operated weeder for intensive and commercial farming system in India. One of the problems in crops and vegetables production is poor weed control; hence there is need of mechanical weeder to increase the production of these products. The cost for employing a Labor force when using simple tools is very high in commercial farming system. This can be reduced using mechanical weeder. The aim of the paper is to design, construct and test manual weeder, to provide the best opportunity for the crop to establish itself after planting and to grow vigorously up to the time of harvesting.

No. of Pages : 15 No. of Claims : 6

(54) Title of the invention : System and Method Thereof for Real-Time Plant Disease Detection in Agricultural Fields Using a Movable Edge-Processing Device

|                                                                                                                                                                                                                                                  |                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <div>(51) International classification</div> <div>(86) International Application No</div> <div>(87) International Publication No</div> <div>(61) Patent of Addition to Application Number</div> <div>(62) Divisional to Application Number</div> | <div>:G06N0020000000, G06N0003080000, A01B0079000000, G06V0010820000, G06N0003040000</div> <div>:NA</div> <div>:NA</div> <div>: NA</div> <div>:NA</div> <div>:NA</div> <div>:NA</div> | <div>(71)Name of Applicant :</div> <div>1)Sri Sivasubramaniya Nadar College Of Engineering</div> <div>Address of Applicant :Sri Sivasubramaniya Nadar College Of Engineering, Old Mahabalipuram Road, Kalavakkam, Tamil Nadu – 603110. Chennai -----</div> <div>-----</div> <div>Name of Applicant : NA</div> <div>Address of Applicant : NA</div> <div>(72)Name of Inventor :</div> <div>1)Dr. S. Radha</div> <div>Address of Applicant :Sri Sivasubramaniya Nadar College Of Engineering, Old Mahabalipuram Road, Kalavakkam, Tamil Nadu – 603110. Chennai -----</div> <div>-----</div> <div>2)Dr. R. Hemalatha</div> <div>Address of Applicant :Sri Sivasubramaniya Nadar College Of Engineering, Old Mahabalipuram Road, Kalavakkam, Tamil Nadu – 603110. Chennai -----</div> <div>-----</div> <div>3)Dr. S. Aasha Nandhini</div> <div>Address of Applicant :Sri Sivasubramaniya Nadar College Of Engineering, Old Mahabalipuram Road, Kalavakkam, Tamil Nadu – 603110. Chennai -----</div> <div>-----</div> <div>4)Dr. R. Kishore</div> <div>Address of Applicant :Sri Sivasubramaniya Nadar College Of Engineering, Old Mahabalipuram Road, Kalavakkam, Tamil Nadu – 603110. Chennai -----</div> <div>-----</div> |
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(57) Abstract :

The invention provides a real-time plant disease detection system for autonomous use in agricultural fields, integrating a mobile hardware platform and edge-based software algorithm. The system features a wheeled chassis (106) with navigation, environmental and image sensors (101), a microcontroller (102) capable of executing machine learning inference, an edge computing module, and a power supply (103), all enclosed for field deployment. Data collected is processed locally using a custom-trained neural network developed in Edge Impulse Studio, enabling low-latency, offline disease diagnosis. The software is optimized for on-device inference and supports incremental learning to adapt to new crops and disease patterns. A user interface dashboard visualizes results and supports field decisions. This integrated system reduces reliance on manual inspection or internet connectivity, offering a scalable, energy-efficient solution for precision agriculture and timely crop health management.

No. of Pages : 28 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202541060028 A

(19) INDIA

(22) Date of filing of Application :23/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : HIGH RESISTANT RODENT REPELLENT WIRES

(51) International classification :H01B0003440000, H01B0003300000, C08J0007040000, H04L0009400000, B05D0007140000

(86) International Application No :NA

Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA

Filing Date :NA

(62) Divisional to Application Number :NA

Filing Date :NA

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(57) Abstract :

Cables can be vulnerable to a variety of risks and threats, depending on their location and installation type. Rodents are one of the leading causes of these dangers or attacks. Rodents can cause significant damage to cables by chewing or gnawing on their outer coating. The objective of the present invention is to develop an eco-friendly, rodent-repellent, and thermally resistant wire insulation material that replaces petroleum-based coatings, primarily used in automotive, electrical, and industrial wiring.

No. of Pages : 22 No. of Claims : 6

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :23/06/2025

(21) Application No.202541060029 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : Smart Photovoltaic Cell with Adaptive Spectrum Splitting for Enhanced Solar Energy Conversion Efficiency

(51) International classification :H02J0003380000, H02S0050000000, F03D0009000000, H02S0040320000, G06F0003048830

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

The present invention relates to a dynamic, adaptive solar energy system designed to enhance energy conversion efficiency under varying environmental conditions. The system comprises a plurality of photovoltaic modules, a sensor array for real-time monitoring of environmental parameters such as solar irradiance, temperature, and wind speed, and a control unit integrated with an adaptive optimization module. This module dynamically adjusts operational parameters of the photovoltaic modules based on sensor inputs to maximize energy output. The invention addresses the limitations of conventional solar technologies by providing an intelligent, responsive solution that optimizes performance in fluctuating environments, thereby improving the overall reliability and efficiency of renewable energy generation.

No. of Pages : 16 No. of Claims : 1

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :24/06/2025

(21) Application No.202541060041 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : FORMULATION OF CUBOSOMES OF TEBUCONAZOLE PESTICIDE

(51) International classification :A01N0043653000, A01N0065260000, A61K0008140000, A01N0025040000, A61K0009510000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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**3)K. Venkateshwaran**

**4)M. Selvakumar**

**5)R. Vijayakumar**

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(57) Abstract :

The present invention relates to the formulation of Nano - Cubosomes of Tebuconazole pesticide. The nanoformulations improves the solubility, thus reducing the toxicity, wherein Nano-Cubosomes acts as a carrier for Tebuconazole with neem oil as an emulsifying agent (lipid phase) and Tween 80 as a non-ionic surfactant. The developed Tebuconazole-loaded nano-cubosomes 10 have been evaluated for their various physio-chemical parameters such as globule size, zeta potential, compatibility, and thermal properties. The best-achieved nano. cubosomes (TF2) showed small mean particle size, good stability, and a maximum pesticide loading of 83.91%. TF2 (nann cubosomes of tebuconazole) highly control the pest with high degradability, thereby the soil and water pollution is reduced maximum in the

No. of Pages : 22 No. of Claims : 13

(54) Title of the invention : ERGO-LAPTOP LIFT STAND

|                                               |                                                                                 |                                                                                                                                                                                                             |
|-----------------------------------------------|---------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (51) International classification             | :A61K0008340000, H04L0009400000, G06Q0030024100, G10D0013020000, E04H0001120000 | (71)Name of Applicant :<br><b>1)CHRIST UNIVERSITY</b><br>Address of Applicant :MYSORE ROAD, KANMANIKE, KENGERI-560074 BENGALURU, KARNATAKA -----                                                            |
| (86) International Application No             | :NA                                                                             | Name of Applicant : NA                                                                                                                                                                                      |
| Filing Date                                   | :NA                                                                             | Address of Applicant : NA                                                                                                                                                                                   |
| (87) International Publication No             | : NA                                                                            | (72)Name of Inventor :<br><b>1)MANVI JAIN</b><br>Address of Applicant :STUDENT, SCHOOL OF ARCIDTECTURE, CHRIST (DEEMED TO BE UNIVERSITY), MYSORE ROAD, KANMANIKE, KENGERI-560074 BENGALURU, KARNATAKA ----- |
| (61) Patent of Addition to Application Number | :NA                                                                             | <b>2)NIMISHA VARGHESE</b><br>Address of Applicant :ASSISTANT PROFESSOR, SCHOOL OF ARCIDTECTURE, CHRIST (DEEMED TO BE UNIVERSITY), MYSORE ROAD, KANMANIKE, KENGERI-560074 BENGALURU, KARNATAKA -----         |
| Filing Date                                   | :NA                                                                             |                                                                                                                                                                                                             |
| (62) Divisional to Application Number         | :NA                                                                             |                                                                                                                                                                                                             |
| Filing Date                                   | :NA                                                                             |                                                                                                                                                                                                             |

(57) Abstract :  
The Ergo-Laptop Lift Stand: is a transformative accessory designed to enhance laptop usage by prioritizirig '.comfort and health. Engin~ered for modern laptop u~ers, I including professionals, students, and creatives, this innovative stand supp,orts prolonged usage by promoti~g better posture and reducing. the risk of back and neck strain through principle's of 7rgonomics and~ anthropo!T~etry. The Ergo-Laptop Lift Stand: features a distinctive, puzzle-like construction, facilit~ting effortless assembly and disassembly. Comprising seven interlocking pieces, it provides a stable platform for lapto~s while remaining highly: portable. Ideal for individ~als . . . I frequently transitioning. between locations, the stand conveniently fits into any \)ag, ' . . . ' i making it a perfect solution for on-the-go use. ! .! . I In addition to its functional benefits, the stand showcases modern design aesthetic~. Its . I sleek, minimalist look enhances any workspace and integrates searnlessly with contemporary decor. The interlocking elements provide stability and add a touch of sophistication and crea~ivity. Constructed from high-quality materials, the Ergo-Laptop Lift Stand ensures durability without COJ.Tlpromising . weight and is ~apable of ~ withstanding daily use while maintaining.its elegant appearance. The option for customizable finishes allows use1s to personalize the.:stand; r~flecting individual style preferences

No. of Pages : 27 No. of Claims : 7



(54) Title of the invention : MACHINE LEARNING BASED ANOMALY DETECTION AND MONITORING IN BATTERY ENERGY STORAGE SYSTEMS

|                                                                                                                                                                                                                                                                                                                                                                                                               |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <div>(51) International classification :G06N0020000000, H02J0003320000, B60W0050000000, G06N0020200000, G01R0031384200</div> <div>(86) International Application No :NA<br/>Filing Date :NA</div> <div>(87) International Publication No : NA</div> <div>(61) Patent of Addition to Application Number :NA<br/>Filing Date :NA</div> <div>(62) Divisional to Application Number :NA<br/>Filing Date :NA</div> |  | <div>(71)Name of Applicant :<br/><b>1)RAMCO INSTITUTE OF TECHNOLOGY</b><br/>Address of Applicant :Department of Artificial Intelligence and Data Science,RAMCO INSTITUTE OF TECHNOLOGY,1North Venganallur village,Rajapalayam,Tamil Nadu,India Pin code 626117. -----<br/><b>Name of Applicant : NA</b><br/><b>Address of Applicant : NA</b><br/>(72)Name of Inventor :<br/><b>1)Dr.M.Kaliappan</b><br/>Address of Applicant :Department of Artificial Intelligence and Data Science,RAMCO INSTITUTE OF TECHNOLOGY,North Venganallur village,Rajapalayam,Tamil Nadu,India Pin code 626117. -----<br/><b>2)Dr.P.Prem</b><br/>Address of Applicant :Department of Artificial Intelligence and Data Science,RAMCO INSTITUTE OF TECHNOLOGY,North Venganallur village,Rajapalayam,Tamil Nadu,India Pin code 626117. -----<br/><b>3)B.Revathi</b><br/>Address of Applicant :Department of Artificial Intelligence and Data Science,RAMCO INSTITUTE OF TECHNOLOGY,North Venganallur village,Rajapalayam,Tamil Nadu,India Pin code 626117. -----<br/><b>4)Manish Kumar</b><br/>Address of Applicant :Department of Artificial Intelligence and Data Science,RAMCO INSTITUTE OF TECHNOLOGY,North Venganallur village,Rajapalayam,Tamil Nadu,India Pin code 626117. -----<br/><b>5)Sandeep Ram. C</b><br/>Address of Applicant :Department of Artificial Intelligence and Data Science,RAMCO INSTITUTE OF TECHNOLOGY,North Venganallur village,Rajapalayam,Tamil Nadu,India Pin code 626117. -----</div> |
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(57) Abstract :  
ABSTRACT Machine Learning based Anomaly detection and monitoring in Battery Energy Storage Systems The present invention discloses a machine learning-based system and method for real-time anomaly detection and monitoring in Battery Energy Storage Systems (BESS). The proposed system utilizes supervised learning techniques, particularly the XGBoost algorithm, to detect and classify various anomalies including power overlimits, power oscillations, state of charge (SOC) tampering, harmonic distortion, and voltage manipulation. The system architecture integrates a data acquisition module, MLbased detection engine, anomaly classification unit, visualization dashboard, and an alert notification mechanism compatible with SCADA and email systems. Designed for edge-level deployment, the system offers rapid decision-making capabilities, enhances BESS operational safety, mitigates cyberattacks such as false or bad data injection, and supports preventive maintenance through real-time monitoring and alerting.

No. of Pages : 8 No. of Claims : 4

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202541060047 A

(19) INDIA

(22) Date of filing of Application :24/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : 4-PHENYLTHIAZOLE-2-SEMICARBAZIDE AND ITS COMPLEXES FOR ANTIMICROBIAL ACTIVITIES

(51) International classification :A61P0031100000, A61P0031040000, F25J0003020000, C08J0005180000, A01N0043160000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

ABSTRACT: An equimolar mixture of 4-phenylthiazole-2-semicarbazide and 5-methylsalicylaldehyde in ethanol was refluxed in presence of catalytic amount of glacial acetic acid (1-2 drops) for about 6 h on a water bath. The reaction mixture was cooled to room temperature, the separated Schiff base was collected by filtration, dried and recrystallized from absolute ethanol. The ligand and its metal complexes were thoroughly characterized and evaluated for their antibacterial activity against Escherichia coli and Staphylococcus aureus, as well as for their antifungal activity against Aspergillus niger and Candida albicans. All metal complexes exhibited enhanced antimicrobial activity compared to the free ligand HL.

No. of Pages : 8 No. of Claims : 6

(54) Title of the invention : MACHINE LEARNING BASED ANALYSIS OF SOJOURN TIME FOR RETRIAL QUEUE WITH BALKING, FEEDBACK AND BI-LEVEL WORKING BREAKDOWN DETERIORATION

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| <div>(51) International classification :G06N0020000000, G06N0005022000, G06N0020100000, H04L0047560000, G06F0018220000</div> <div>(86) International Application No :NA<br/>Filing Date :NA</div> <div>(87) International Publication No : NA</div> <div>(61) Patent of Addition to Application Number :NA<br/>Filing Date :NA</div> <div>(62) Divisional to Application Number :NA<br/>Filing Date :NA</div> |  | <div>(71)Name of Applicant :<br/>1)Christ University<br/>Address of Applicant :HOSUR ROAD,BENGALURU-560037, KARNATAKA, INDIA . -----<br/>Name of Applicant : NA<br/>Address of Applicant : NA<br/>(72)Name of Inventor :<br/>1)SARAVANAN V<br/>Address of Applicant :DEPARTMENT OF MATHEMATICS, CHRIST (DEEMED TO BE UNIVERSITY )HOSUR ROAD,BENGALURU-560037, KARNATAKA, INDIA -----<br/>2)A JOHN KASPAR<br/>Address of Applicant :DEPARTMENT OF MATHEMATICS, CHRIST (DEEMED TO BE UNIVERSITY )HOSUR ROAD,BENGALURU-560037, KARNATAKA, INDIA -----<br/>3)NADAR JENITA MARY MASILAMANI RAJA<br/>Address of Applicant :Department of Mathematics,Rajalakshmi Institute of Technology,chennai,tamilnadu,india,pin:600124. -----<br/>4)JINSE JACOB<br/>Address of Applicant :Department of Statistics,Govt. Victoria College,Palakkad,Kerala,India Pin Code 678 001. -----</div> |
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(57) Abstract :  
ABSTRACT This invention introduces a novel approach for analysing retrial queueing systems by combining a bi-level working breakdown deterioration mechanism with machine learning techniques. This invention addresses the limitations of existing queueing models, which often fail to capture the gradual progression of minor server issues into major breakdowns, a phenomenon observed in high-demand applications such as online consultation platforms and cloud computing systems. Many queueing models have been developed to explain system failures, but they often miss an important detail: some major breakdowns don't happen all at once. Instead, they begin as minor issues and gradually worsen over time. This gradual deterioration is common in areas like production lines, traffic systems, and communication networks. In this work, we introduce the concept of the working breakdown deterioration mechanism and investigate it through a bi-level working breakdown deterioration model. Queueing systems are crucial in many fields, where accurately predicting sojourn times is vital for improving operational efficiency and enhancing customer experiences. Machine learning is a powerful tool for analysing datasets by identifying patterns and relationships between variables. Through algorithms that can "learn" from data, machine learning enables us to make predictions, categorize information, and uncover insights that might not be evident through traditional methods. By training models on available data, we can detect trends, classify features, and even anticipate future behaviours of the variables involved. This approach allows for more accurate, data driven decision making in various fields, from finance to healthcare and engineering, etc. This invention presents a supervised machine learning framework aimed at predicting sojourn times in queueing systems. Furthermore, machine learning serves as a valuable tool for verifying the accuracy of existing sojourn time formula.

(54) Title of the invention : TRACKBOT: OBJECT TRACKING ROBOT FOR WAREHOUSE AND RETAIL SYSTEM

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <div><div>(51) International classification</div><div>:G06V0010820000, B62B0005000000, G07G0001000000, A61P0035000000, B25J0013000000</div></div> <div><div>(86) International Application No</div><div>:NA</div><div>Filing Date</div><div>:NA</div></div> <div><div>(87) International Publication No</div><div>: NA</div></div> <div><div>(61) Patent of Addition to Application Number</div><div>:NA</div><div>Filing Date</div><div>:NA</div></div> <div><div>(62) Divisional to Application Number</div><div>:NA</div><div>Filing Date</div><div>:NA</div></div> | <div>(71)Name of Applicant :<br/>1)PSG INSTITUTE OF TECHNOLOGY AND APPLIED RESEARCH<br/>Address of Applicant :PSG INSTITUTE OF TECHNOLOGY AND APPLIED RESEARCH AVINASHI ROAD, NEELAMBUR, COIMBATORE-641062 -----<br/>-----<br/>Name of Applicant : NA<br/>Address of Applicant : NA<br/>(72)Name of Inventor :<br/>1)Dr. MANIMEGALAI.R<br/>Address of Applicant :PSG INSTITUTE OF TECHNOLOGY AND APPLIED RESEARCH AVINASHI ROAD, NEELAMBUR, COIMBATORE-641062 -----<br/>-----<br/>2)AKKURI SRUTHI<br/>Address of Applicant :PSG INSTITUTE OF TECHNOLOGY AND APPLIED RESEARCH AVINASHI ROAD, NEELAMBUR, COIMBATORE-641062 -----<br/>-----<br/>3)KESHAVIYAS<br/>Address of Applicant :PSG INSTITUTE OF TECHNOLOGY AND APPLIED RESEARCH AVINASHI ROAD, NEELAMBUR, COIMBATORE-641062 -----<br/>-----<br/>4)Dr.ANANTHA PRABHA P<br/>Address of Applicant :PSG INSTITUTE OF TECHNOLOGY AND APPLIED RESEARCH AVINASHI ROAD, NEELAMBUR, COIMBATORE-641062 -----<br/>-----<br/>-----</div> |
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(57) Abstract :  
ABSTRACT OF THE INVENTION TITLE: TRACKBOT: OBJECT TRACKING ROBOT FOR WAREHOUSE AND RETAIL SYSTEM: The current invention deals with 'automatic tracking' of an object in a dynamic indoor environment. It is like warehouses and retail spaces. The solution for this is a mobile-robot car ... : called TrackBot, integrated with a ESP32-CAM video processing, ultrasonic and infrared sensors, ESP32 micro-controller for the intelligent control. TrackBot constantly grabs video frames for a specified object tracking with built-in computer vision algorithms. Proximity sensors help maintain environment perception and the capabilities to detect and escape from the obstacles. A motor driver module decodes commands from the processor and actuates the motors on the robot. The robot is powered by a rechargeable battery pack for unhindered movement. The current invention provides a scalable standalone system that is inexpensive to produce in place of fixed tracking devices, therefore resulting in greater operational efficiencies, reduced labor and higher visibility of inventory. Its modular design allows for future upgrades, like QR code reading technology and AI-based predictive behavior and offers an adaptable solution for today's logistics and retail automation applications.

No. of Pages : 25 No. of Claims : 9

(54) Title of the invention : RFID-ENABLED EMOTION,ANOMALY,GESTURE,AI-DRIVEN NETWORK FOR ORGANIZATIONAL SECURITY(REAGAN)

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <div><div>(51) International classification</div><div>:H04L0009400000, G06F0003048830, G06F0003010000, G06N0020000000, G06N0007010000</div></div> <div><div>(86) International Application No</div><div>:NA</div><div>Filing Date</div><div>:NA</div></div> <div><div>(87) International Publication No</div><div>: NA</div></div> <div><div>(61) Patent of Addition to Application Number</div><div>:NA</div><div>Filing Date</div><div>:NA</div></div> <div><div>(62) Divisional to Application Number</div><div>:NA</div><div>Filing Date</div><div>:NA</div></div> |  | <div>(71)Name of Applicant :<br/>1)PSG INSTITUTE OF TECHNOLOGY AND APPLIED RESEARCH<br/>Address of Applicant :PSG INSTITUTE OF TECHNOLOGY AND APPLIED RESEARCH,AVINASHI ROAD,NEELAMBUR,COIMBATORE,TAMILNADU,INDIA. PIN:641062 -----<br/>-----<br/>Name of Applicant : NA<br/>Address of Applicant : NA<br/>(72)Name of Inventor :<br/>1)Dr. MANIMEGALAI R<br/>Address of Applicant :Professor Department of CSE PSG INSTITUTE OF TECHNOLOGY AND APPLIED RESEARCH,AVINASHI ROAD,NEELAMBUR,COIMBATORE,TAMILNADU,INDIA. PIN:641062 -----<br/>-----<br/>2)KAVIN RAJ M<br/>Address of Applicant :UG Student Department of MECH PSG INSTITUTE OF TECHNOLOGY AND APPLIED RESEARCH,AVINASHI ROAD,NEELAMBUR,COIMBATORE,TAMILNADU,INDIA. PIN:641062 -----<br/>-----<br/>3)VISHAL SHIVAKUMAR<br/>Address of Applicant :UG Student Department of CSE PSG INSTITUTE OF TECHNOLOGY AND APPLIED RESEARCH,AVINASHI ROAD,NEELAMBUR,COIMBATORE,TAMILNADU,INDIA. PIN:641062 -----<br/>-----<br/>4)SANJEEV PRASANNA VV<br/>Address of Applicant :UG Student Department of CSE PSG INSTITUTE OF TECHNOLOGY AND APPLIED RESEARCH,AVINASHI ROAD,NEELAMBUR,COIMBATORE,TAMILNADU,INDIA. PIN:641062 -----<br/>-----<br/>5)VIJAYKUMAR SS<br/>Address of Applicant :UG Student Department of CSE PSG INSTITUTE OF TECHNOLOGY AND APPLIED RESEARCH,AVINASHI ROAD,NEELAMBUR,COIMBATORE,TAMILNADU,INDIA. PIN:641062 -----<br/>-----</div> |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

(57) Abstract :  
ABSTRACT OF THE INVENTION · TITLE:\_ RHDcENABLED EMOTIQN, ANOMALY, . GESTURE, AI-DRIVEN NETWORK FOR ORGANIZATIONAL SECURITY (REAGAN) The RfJdCEn~bled-Emotion, Anomaly, Gesture, AI-driven Network for O~ganizational st;curity (REAGAN) is \_ . . ' . . . . . an intelligent, autonomous platform designed to enhance organizational security and student well-being .. . . -Utilizing a distributed-network of cameras combined with edge AI processing. The invention performs real-time e .-. fa~ere~ogrution, \_ emotion arialysis,.and gesture detection. Upon identifying an individual; erriotionalassessm~nt \_ . >: :- . ~is condu~ted if deviations from neutnil states are detected, further behavioural anaiysis is triggered. Authorized. : -:-' . - acc. ess is .v erified through integrat~d RF-tag usin.g two-factor authentication, with ~eal~time location tracki.n g v. ia' . RF signal segmentation. The system a~tomatically ·generates alerts for unauthorized acc~ss, emergency gestures, · -:-' . 'or emotlomisl ·anomalies, dispatching them with location infmation-io nearby security outposts. Powered by an . . . . . NVIOIA Jetson· orin Nano core, the archite-cture ensures high-speed local inference and seamless communication. with control nodes, counselling units, and security teams, enabling proactive threat mitigation ari.d .well-being support\_.

No. of Pages : 18 No. of Claims : 8

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :24/06/2025

(21) Application No.202541060055 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : AN AUTOMATIC SEWAGE MONITORING AND CONTROLLING SYSTEM USING IOT AND BLOCKCHAIN

|                                                                                                                                                                                                                                                                                                                                                                                           |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
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| <p>(51) International classification :H04L0009080000, H04L0009320000, G01N0033180000, H04L0009060000, H04L0009000000</p> <p>(86) International Application No :NA<br/>Filing Date :NA</p> <p>(87) International Publication No : NA</p> <p>(61) Patent of Addition to Application Number :NA<br/>Filing Date :NA</p> <p>(62) Divisional to Application Number :NA<br/>Filing Date :NA</p> |  | <p>(71)<b>Name of Applicant :</b><br/><b>1)Mepco Schlenk Engineering College (Autonomous)</b><br/>Address of Applicant :MEPCO SCHLENK ENGINEERING COLLEGE (AUTONOMOUS), SIVAKASI-626005 -----<br/><b>Name of Applicant : NA</b><br/><b>Address of Applicant : NA</b></p> <p>(72)<b>Name of Inventor :</b><br/><b>1)P.Kaviya</b><br/>Address of Applicant :Assistant Professor (Sr. Grade), Department of Information Technology, Mepco Schlenk Engineering College, Sivakasi-626005, Virudhunagar District, Tamil Nadu, India. -----<br/><b>2)M. Prasha Meena</b><br/>Address of Applicant :Assistant Professor, Department of Information Technology, Mepco Schlenk Engineering College, Sivakasi-626005, Virudhunagar District, Tamil Nadu, India. -----<br/><b>3)Dr.B.Selvakumar</b><br/>Address of Applicant :Associate Professor, Department of Computer Science and engineering, Mepco Schlenk Engineering College, Sivakasi-626005, Virudhunagar District, Tamil Nadu, India. -----<br/><b>4)Dr.B.Lakshmanan</b><br/>Address of Applicant :Associate Professor, Department of Computer Science and engineering, Mepco Schlenk Engineering College, Sivakasi-626005, Virudhunagar District, Tamil Nadu, India. -----</p> |
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(57) Abstract :

ABSTRACT OF THE INVENTION An Automatic Sewage Monitoring and Controlling System Using IoT and Blockchain The rapid growth of urban populations has increased the strain on infrastructure, particularly sewage systems, leading to health hazards caused by improper drainage and poorly maintained manhole covers. To address this, the invention proposes an autonomous sewage monitoring and I O controlling system that integrates Internet of Things (IoT) and blockchain technologies. The system monitors key sewage parameters such as water level, temperature, gas emissions, and manhole cover status in real time using various sensors. A web/mobile-based interface equipped with GPS mapping enables ~o~sers to pinpoint maintenance locations and visualize sewage conditions. The sensed data is transmitted to the cloud via IoT modules, hashed for security, and 15 stored on a blockchain platform to ensure data integrity and tamper resistance. This enables 20 authorized stakeholders, such as municipal authorities and urban planners, to access reliable, real-time information and respond promptly to hazardous ·conditions. The proposed. system minimizes manual intervention, enhances operational efficiency, and supports the goals of public health and sanitation outlined in the Sustainable Development Goals.

No. of Pages : 15 No. of Claims : 6

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :24/06/2025

(21) Application No.202541060056 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : BIOACTIVE PROFILING AND IN SILICO-IN VITRO EVALUATION OF PROTOCATECHUIC ACID FROM PHYLLANTHUS EMBLICA AGAINST UTI -ASSOCIATED UREASE A STEP TOWARD NATURAL THERAPEUTICS DEVELOPMENT

(51) International classification :A61P0031040000, A61K0036470000, A61K0031704800, G16B0015300000, C12Q0001580000  
(86) International Application No :NA  
Filing Date :NA  
(87) International Publication No : NA  
(61) Patent of Addition to Application Number :NA  
Filing Date :NA  
(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

ABSTRACT Urinary tract infections (UTIs) are among the most prevalent bacterial infections, often aggravated by urease-producing pathogens . These urease enzymes contribute to infection severity by alkalinizing the urine, leading to crystal and stone formation. The growing resistance to conventional antibiotics underscores the urgent need for novel, natural therapeutic agents. This study explores protocatechuic acid (PCA), a phenolic compound isolated from Phyllanthus emblica (Indian gooseberry), for its potential inhibitory action against urease enzymes linked to UTIs. The research comprises a comprehensive bioactive profiling of P. emblica extracts using chromatographic and spectrometric techniques to isolate and identify PCA. The isolated compound was subjected to in silico molecular docking studies against urease enzymes (PDB ID: 3LA4 and 1 E9Y), revealing strong binding affinities

No. of Pages : 3 No. of Claims : 7

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202541060060 A

(19) INDIA

(22) Date of filing of Application :24/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : ILLUMINOUS DISTAL END CUTTER

(51) International classification :A61B0017320000, A61B0018120000, A61B0090300000, A61B0017320700, A61B0090000000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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**Name of Applicant : NA**  
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(72)**Name of Inventor :**

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(57) Abstract :

ABSTRACT ILLUMINOUS DISTAL END CUTTER FOR CUTTING DISTAL END OF ARCHWIRE A single manual instrument designed for cutting the distal end of arch wires in orthodontic procedures, incorporating an integrated light source positioned at the distal end to enhance visibility during operation. The instrument is non-engine driven and is primarily used in the oral cavity to provide precise and efficient wire cutting. The handle is designed ergonomically with a plurality of varied serrations to ensure a secure grip and prevent slippage during use. The instrument includes a durable cutting edge to effectively cut arch wires, while the integrated light source improves visibility, ensuring safety and reducing the risk of injury to the patient's oral structures and mucosa. :The light source is powered by a reliable power source, providing consistent illumination throughout the cutting process. The instrument is designed for use with both upper and lower arch wires, ensuring optimal access and force application for effective cutting

No. of Pages : 8 No. of Claims : 7



(54) Title of the invention : EXPLORING THE BIODEGRADATION POTENTIAL OF SOIL MICROBES FOR PLASTIC WASTE MANAGEMENT VIA ENZYME PRODUCTION

|                                                                                                                                                                                                                                                                                                                                                                                                               |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
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| <div>(51) International classification :C12N0009020000, C02F0003340000, B09C0001100000, G06Q0010300000, B09B0003000000</div> <div>(86) International Application No :NA<br/>Filing Date :NA</div> <div>(87) International Publication No : NA</div> <div>(61) Patent of Addition to Application Number :NA<br/>Filing Date :NA</div> <div>(62) Divisional to Application Number :NA<br/>Filing Date :NA</div> |  | <div>(71)Name of Applicant :<br/>1)Ahalya R<br/>Address of Applicant :L&amp;T BY-PASS,Sri Shakthi Nagar, Post,SRI SHAKTHI UNIVERSITY,CHINNIYAMPALAYAM POST, COIMBATORE - 641062 -----<br/>-----<br/>2)Danush Karthic J<br/>3)Vikas B<br/>4)Jenstina J<br/>Name of Applicant : NA<br/>Address of Applicant : NA<br/>(72)Name of Inventor :<br/>1)Ahalya R<br/>Address of Applicant :L&amp;T BY-PASS,Sri Shakthi Nagar, Post,SRI SHAKTHI UNIVERSITY,CHINNIYAMPALAYAM POST, COIMBATORE - 641062 -----<br/>-----<br/>2)Danush Karthic.J<br/>Address of Applicant :L&amp;T BY-PASS,Sri Shakthi Nagar, Post,SRI SHAKTHI UNIVERSITY,CHINNIYAMPALAYAM POST, COIMBATORE - 641062 -----<br/>-----<br/>3)Vikas B<br/>Address of Applicant :L&amp;T BY-PASS,Sri Shakthi Nagar, Post,SRI SHAKTHI UNIVERSITY,CHINNIYAMPALAYAM POST, COIMBATORE - 641062 -----<br/>-----<br/>4)Jenstina J<br/>Address of Applicant :L&amp;T BY-PASS,Sri Shakthi Nagar, Post,SRI SHAKTHI UNIVERSITY,CHINNIYAMPALAYAM POST, COIMBATORE - 641062 -----<br/>-----</div> |
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(57) Abstract :  
ABSTRACT TITLE: EXPLORING THE BIODEGRADATION POTENTIAL OF SOIL MICROBES FOR PLASTIC WASTE MANAGEMENT VIA ENZYME PRODUCTION Plastic pollution poses a significant environmental challenge due to its persistence and resistance to natural degradation. Microbial enzymes offer a promising ecofriendly solution for plastic waste management. This study focuses on the isolation and characterization of soil microbes capable of producing alkane hydroxylase-an enzyme known for its role in the degradation of hydrocarbon chains found in polyethylene and other plastics. Molecular identification and enzyme assays confirmed the presence and activity of alkane hydroxylase. The enzyme activity was optimized under different pH, temperature, and substrate conditions to determine its Efficiency. This study highlights the potential of harnessing native soil microbes for biotechnological applications in plastic biodegradation and paves the way for the development of sustainable waste management strategies.

No. of Pages : 7 No. of Claims : 6

(54) Title of the invention : SURGESAFE: SMART ACCIDENT DETECTION AND ALERT SYSTEM

|                                                                                                                                                                                                                                                                                                                                                                                                               |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
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| <div>(51) International classification :G08B0021040000, G08B0025010000, A42B0003040000, G08B0025000000, H04W0004029000</div> <div>(86) International Application No :NA<br/>Filing Date :NA</div> <div>(87) International Publication No : NA</div> <div>(61) Patent of Addition to Application Number :NA<br/>Filing Date :NA</div> <div>(62) Divisional to Application Number :NA<br/>Filing Date :NA</div> |  | <div>(71)Name of Applicant :<br/><b>1)PSG INSTITUTE OF TECHNOLOGY AND APPLIED RESEARCH</b><br/>Address of Applicant :PSG INSTITUTE OF TECHNOLOGY AND APPLIED RESEARCH, AVINASHI ROAD, NEELAMBUR, COIMBATORE-641062, TAMILNADU, -----<br/><b>Name of Applicant : NA</b><br/><b>Address of Applicant : NA</b><br/>(72)Name of Inventor :<br/><b>1)Dr. MANIMEGALAI R</b><br/>Address of Applicant :Department of Computer Science and Engineering, PSG INSTITUTE OF TECHNOLOGY AND APPLIED RESEARCH, AVINASHI ROAD, NEELAMBUR, COIMBATORE-641062, TAMILNADU, -----<br/>-----<br/><b>2)Dr. Anantha Prabha P</b><br/>Address of Applicant :Professor Department of Computer Science and Engineering, PSG INSTITUTE OF TECHNOLOGY AND APPLIED RESEARCH, AVINASHI ROAD, NEELAMBUR, COIMBATORE-641062, TAMILNADU, -----<br/><b>3)AKSHAYA MAHA MARISH LS</b><br/>Address of Applicant :UG Student Department of Electronics and Communication Engineering, PSG INSTITUTE OF TECHNOLOGY AND APPLIED RESEARCH, AVINASHI ROAD, NEELAMBUR, COIMBATORE-641062, TAMILNADU -----<br/><b>4)SRIVATHSAN D</b><br/>Address of Applicant :UG Student Department of Computer Science and Engineering, PSG INSTITUTE OF TECHNOLOGY AND APPLIED RESEARCH, AVINASHI ROAD, NEELAMBUR, COIMBATORE-641062, TAMILNADU, -----<br/><b>5)MANOJ R</b><br/>Address of Applicant :UG Student Department of Computer Science and Engineering, PSG INSTITUTE OF TECHNOLOGY AND APPLIED RESEARCH, AVINASHI ROAD, NEELAMBUR, COIMBATORE-641062, TAMILNADU, -----</div> |
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(57) Abstract :  
ABSTRACT OF THE INVENTION Title:. Iot -Based Smart Emergency Alert System· The current innovation offers an learned of Things (Iot)-Based Smart Emergency Alert System than an automatically .identify accidents .o r significant impact events and communicate. ex. act GPS location coordinates and real-time emergency notifications via GSM to designated contacts. A motion and orientation sensor (MP\6050), a GPS, module· for real-time, tracking, and a GSM SIM808 module for SMS and call-based alerts are all included into the system, which is based on · the Arduino Uno microcontroller platform: .In order to ensure that emergency notifications can be . . . activated both automatically and manually, the invention also incorporates a manual emergency· activation push-button, a 16x2 LCD for system status display, and a buzzer for auditory alerting. Students, employees; the elderly;. and commuters can all benefit from the device:·s. power . efficiency, portability, and versatility for usage in cars; wearable devices, helmet~, and stand~lone safety kits. The technology guarantees prompt assistance in emergency situations by analysing . . data in real-time, minimizing false positives, and communicating quickly. Figure upgrade features· like cloud data integration, AI-based fall detection, and hands-free voice activation are also . supported by the design, providing a scalable, dependable, and vital life-saving tool for smart safety infrastr1Jcture in both urban and rural Settings

No. of Pages : 25 No. of Claims : 10

(54) Title of the invention : BUSMATE-REAL TIME BUS TRACKING AND EMERGENCY MANAGEMENT SYSTEM

|                                                                                                                                                                                                                                                                                                                                                                                                               |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
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| <div>(51) International classification :H04W0004900000, G06Q0050400000, G06F0016290000, G05D0001000000, G06Q0050260000</div> <div>(86) International Application No :NA<br/>Filing Date :NA</div> <div>(87) International Publication No : NA</div> <div>(61) Patent of Addition to Application Number :NA<br/>Filing Date :NA</div> <div>(62) Divisional to Application Number :NA<br/>Filing Date :NA</div> |  | <div>(71)Name of Applicant :<br/><b>1)PRASAD V. POTLURI SIDDHARTHA INSTITUTE OF TECHNOLOGY</b><br/>Address of Applicant :DEPARTMENT OF INFORMATION TECHNOLOGY,PVP Siddhartha Institute of Technology,Kanuru,520007. -----<br/>-----<br/><b>Name of Applicant : NA</b><br/><b>Address of Applicant : NA</b></div> <div>(72)Name of Inventor :<br/><b>1)Ch. Praneeth</b><br/>Address of Applicant :DEPARTMENT OF INFORMATION TECHNOLOGY,PVP Siddhartha Institute of Technology,Kanuru,520007. -----<br/>-----<br/><b>2)Dr.K.Pavan Kumar</b><br/>Address of Applicant :Department of Information Technology, PVP Siddhartha Institute of Technology, Kanuru,520007. -----<br/><b>3)Dr.Y Suresh</b><br/>Address of Applicant :Department of Information Technology, PVP Siddhartha Institute of Technology, Kanuru,520007. -----<br/><b>4)Dr.B V Subba Rao</b><br/>Address of Applicant :Department of Information Technology, PVP Siddhartha Institute of Technology, Kanuru,520007. -----<br/><b>5)K. Deepak Kumar</b><br/>Address of Applicant :Department of Information Technology, PVP Siddhartha Institute of Technology, Kanuru,520007. -----<br/><b>6)G. Venkata Sai Kiran</b><br/>Address of Applicant :Department of Information Technology, PVP Siddhartha Institute of Technology, Kanuru,520007. -----</div> |
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(57) Abstract :  
ABSTRACT OF THE INVENTION ~his BusMate app is a comprehensive platform for real-time bus tracking and emergency management. The system integrates user, driver, and administrative roles with a robust technology stack. Users can access their location, track the bus, and initiate emergency alerts to first responders. Drivers contribute by continuously updating bus positions. Administrators oversee bus information and driver credentials. A React-based frontend provides an intuitive user interface, while MongoDB stores critical data. Express serves as the backend, facilitating data interaction. OpenStreet Map and OpenCage APIs power map visualization and geocoding. This innovative solution enhances passenger safety and operational efficiency in public transportation systems by providing essential location-based services and emergency response capabilities.

No. of Pages : 8 No. of Claims : 1

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :24/06/2025

(21) Application No.202541060067 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : SAVEETHA DENTAL CARE APP

|                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>(51) International classification :G16H0080000000, A61Q0011000000, G09B0019000000, G16H0010200000, G16H0040670000</p> <p>(86) International Application No :NA<br/>Filing Date :NA</p> <p>(87) International Publication No : NA</p> <p>(61) Patent of Addition to Application Number :NA<br/>Filing Date :NA</p> <p>(62) Divisional to Application Number :NA<br/>Filing Date :NA</p> | <p>(71)<b>Name of Applicant :</b><br/><b>1)SAVEETHA INSTITUTE OF MEDICAL AND TECHNICAL SCIENCES</b><br/>Address of Applicant :SAVEETHA INSTITUTE OF MEDICAL AND TECHNICAL SCIENCES NO 162, POONAMALLE HIGH ROAD VELLAPANCHAVADI, CHENNAI, TAMIL NADU, INDIA 600077 9884293869 -----</p> <p><b>Name of Applicant : NA</b><br/><b>Address of Applicant : NA</b></p> <p>(72)<b>Name of Inventor :</b><br/><b>1)SUJITHA A</b><br/>Address of Applicant :SAVEETHA DENTAL COLLEGE AND HOSPITALS, 162, POONAMALLEE HIGH ROAD, VELLAPANCHAVADI, CHENNAI, TAMIL NADU, INDIA-600077 -----</p> <p><b>2)VIDHYA TK</b><br/>Address of Applicant :SAVEETHA DENTAL COLLEGE AND HOSPITALS, 162, POONAMALLEE HIGH ROAD, VELLAPANCHAVADI, CHENNAI, TAMIL NADU, INDIA-600077 -----</p> <p><b>3)DEEPAK NALLASWAMY VEERAIYAN</b><br/>Address of Applicant :SAVEETHA DENTAL COLLEGE AND HOSPITALS, 162, POONAMALLEE HIGH ROAD, VELLAPANCHAVADI, CHENNAI, TAMIL NADU, INDIA-600077 -----</p> |
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(57) Abstract :  
Abstract The Dental Care App is a comprehensive mobile application designed to enhance oral hygiene and dental health through smart tracking, personalized reminders, educational content, virtual consultations, and AI-based diagnostic assistance. The app leverages mobile technology and AI to promote daily dental care routines, early diagnosis of oral issues, and better communication between users and dental professionals.

No. of Pages : 9 No. of Claims : 8

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :24/06/2025

(21) Application No.202541060068 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : CYABOND-3D

(51) International classification :B33Y0080000000, B33Y0010000000, B33Y0070000000, B33Y0070100000, C09J0004000000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

**ABSTRACT:** The present invention relates to a modified cyanoacrylate adhesive (CyaBond-3D) specifically developed for bonding 3D-printed denture bases and 3D-printed teeth. This adhesive addresses the limitations of conventional bonding agents by offering enhanced shear bond strength, improved longevity, and superior biocompatibility, making it particularly suitable for prosthodontic applications. The formulation of CyaBond-3D comprises a unique combination of n-butyl cyanoacrylate, iso-amyl cyanoacrylate, and denture 3D printing resin, synergistically engineered to optimize adhesion, polymerization kinetics, and resistance to intraoral conditions. The presence of iso-amyl cyanoacrylate contributes to increased flexibility and toughness, reducing brittleness commonly observed in traditional cyanoacrylate adhesives. The incorporation of 3D printing resin enhances compatibility with additively manufactured denture materials, ensuring a strong chemical bond with photopolymerized resins. The invention provides a reliable, cost-effective, and scalable solution for the growing market of 3D-printed dental prostheses, facilitating strong, durable, and esthetically acceptable denture restorations

No. of Pages : 10 No. of Claims : 6

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202541060069 A

(19) INDIA

(22) Date of filing of Application :24/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : POLYCONTOURA ANTERIOR AND FINISHING TWO IN ONE MATRIX SYSTEM

|                                               |                                                                                 |                                                                                                                                                                                                                                                                                                                                                                       |
|-----------------------------------------------|---------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (51) International classification             | :G06F0016280000, A61B0018200000, A61C0008000000, A61C0005850000, A61K0006200000 | (71)Name of Applicant :<br><b>1)SAVEETHA INSTITUTE OF MEDICAL AND TECHNICAL SCIENCES</b><br>Address of Applicant :SAVEETHA INSTITUTE OF MEDICAL AND TECHNICAL SCIENCES NO 162, POONAMALLE HIGH ROAD VELLAPANCHAVADI, CHENNAI, TAMIL NADU, INDIA 600077 9884293869 patents.sdc@saveetha.com -----<br><b>Name of Applicant : NA</b><br><b>Address of Applicant : NA</b> |
| (86) International Application No             | :NA                                                                             | (72)Name of Inventor :                                                                                                                                                                                                                                                                                                                                                |
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| (61) Patent of Addition to Application Number | :NA                                                                             | <b>3)DEEPAK NALLASWAMY VEERAIYAN</b><br>Address of Applicant :NO 162, POONAMALLE HIGH ROAD VELLAPANCHAVADI, CHENNAI, TAMIL NADU, INDIA 600077 9884293869 -----                                                                                                                                                                                                        |
| Filing Date                                   | :NA                                                                             |                                                                                                                                                                                                                                                                                                                                                                       |
| (62) Divisional to Application Number         | :NA                                                                             |                                                                                                                                                                                                                                                                                                                                                                       |
| Filing Date                                   | :NA                                                                             |                                                                                                                                                                                                                                                                                                                                                                       |

(57) Abstract :

The invention relates to the field of restorative and esthetic dentistry, specifically to matrix systems E used for direct composite restorations of anterior teeth. The Polycontoura Anterior Contouring and £ Polishing Two-in-One Matrix System is designed to aid dental professionals in achieving precise 2 anatomical contouring and smooth finishing of composite restorations in a single step. This o innovation enhances the efficiency and accuracy of anterior restorations by integrating contouring o and finishing functions into a single matrix system, reducing the need for additional finishing J procedures and improving esthetic outcomes.

No. of Pages : 9 No. of Claims : 6

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202541060070 A

(19) INDIA

(22) Date of filing of Application :24/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : NOVEL INTRAORAL BIFOCAL TRANSPORT DISTRACTION DEVICE FOR MAXILLARY BONE REGENERATION

|                                               |      |                                                                                 |                                                                                                                                                                                                                                             |
|-----------------------------------------------|------|---------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (51) International classification             |      | :A61B0017660000, A61C0008000000, A61C0008020000, A61P0019080000, A61L0027440000 | (71)Name of Applicant :<br><b>1)SAVEETHA INSTITUTE OF MEDICAL AND TECHNICAL SCIENCES</b><br>Address of Applicant :NO 162, POONAMALLE HIGH ROAD VELLAPANCHAVADI, CHENNAI, TAMIL NADU, INDIA 600077 9884293869 patents.sdc@saveetha.com ----- |
| (86) International Application No             | :NA  |                                                                                 | <b>Name of Applicant : NA</b>                                                                                                                                                                                                               |
| Filing Date                                   | :NA  |                                                                                 | <b>Address of Applicant : NA</b>                                                                                                                                                                                                            |
| (87) International Publication No             | : NA |                                                                                 | (72)Name of Inventor :<br><b>1)DR.TANYA TAKKAR</b><br>Address of Applicant :NO 162, POONAMALLE HIGH ROAD VELLAPANCHAVADI, CHENNAI, TAMIL NADU, INDIA 600077 9884293869 patents.sdc@saveetha.com -----                                       |
| (61) Patent of Addition to Application Number | :NA  |                                                                                 | <b>2)SNEHA PENDEM</b><br>Address of Applicant :NO 162, POONAMALLE HIGH ROAD VELLAPANCHAVADI, CHENNAI, TAMIL NADU, INDIA 600077 9884293869 -----                                                                                             |
| Filing Date                                   | :NA  |                                                                                 | <b>3)DEEPAK NALLASWAMY VEERAIYAN</b><br>Address of Applicant :NO 162, POONAMALLE HIGH ROAD VELLAPANCHAVADI, CHENNAI, TAMIL NADU, INDIA 600077 9884293869 -----                                                                              |
| (62) Divisional to Application Number         | :NA  |                                                                                 |                                                                                                                                                                                                                                             |
| Filing Date                                   | :NA  |                                                                                 |                                                                                                                                                                                                                                             |

(57) Abstract :

ABSTRACT Maxillomandibular reconstruction is often complex and often needs the use of distant bone grafts or bone flaps for reconstruction. These procedures are often morbid and require the second donor site . To overcome the same, recent advances including transport Distraction osteogenesis, stem cell therapy and patient specific implants are gaining importance. Stem cell therapy in Maxillofacial reconstruction is in its infancy and has been reported in very few case series. Whereas patient specific implants are not often the first option of reconstruction considering it to be an non autogenous - prosthetic replacement. Transport distraction osteogenesis involves the creation and transportation of a bone segment from one side of the alveolus across the defect to to the contralateral - recipient side alveolus to facilitate reconstruction of the dentoalveolar maxilla / Mandible defect . Though the concept of distraction osteogenesis was introduced in Maxillofacial surgery in the 1990, limitations with the use of bulkier devices, transports across the curved arch have been the challenges that have restricted their use in the field of Maxillofacial surgery. The objective of the current invention is to design a hybrid bifocal / Trifocals transport Distraction device for the maxillary alveolus that will facilitate bone regeneration in the region of maxillary alveolus secondary to congenital/ acquired maxillary dentoalveolar defects

No. of Pages : 10 No. of Claims : 3

(54) Title of the invention : AI BASED BLINK DETECTION TECHNOLOGY FOR SYNCHRONIZING PROSTHETIC EYE BLINKING

|                                                                                                                                                                                                                                                                                                                                                                                                               |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
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| <div>(51) International classification :A61B0005110000, G06N0003080000, G06V0040160000, G06V0040200000, A61B0005000000</div> <div>(86) International Application No :NA<br/>Filing Date :NA</div> <div>(87) International Publication No : NA</div> <div>(61) Patent of Addition to Application Number :NA<br/>Filing Date :NA</div> <div>(62) Divisional to Application Number :NA<br/>Filing Date :NA</div> |  | <div>(71)Name of Applicant :<br/><b>1)SAVEETHA INSTITUTE OF MEDICAL AND TECHNICAL SCIENCES</b><br/>Address of Applicant :SAVEETHA INSTITUTE OF MEDICAL AND TECHNICAL SCIENCES NO 162, POONAMALLE HIGH ROAD VELLAPANCHAVADI, CHENNAI, TAMIL NADU, INDIA 600077 9884293869 -----<br/><b>Name of Applicant : NA</b><br/><b>Address of Applicant : NA</b><br/>(72)Name of Inventor :<br/><b>1)B MEGHNA</b><br/>Address of Applicant :SAVEETHA INSTITUTE OF MEDICAL AND TECHNICAL SCIENCES NO 162, POONAMALLE HIGH ROAD VELLAPANCHAVADI, CHENNAI, TAMIL NADU, INDIA 600077 9884293869 -----<br/><b>2)SURESH VENUGOPALAN</b><br/>Address of Applicant :NO 162, POONAMALLE HIGH ROAD VELLAPANCHAVADI, CHENNAI, TAMIL NADU, INDIA 600077 9884293869 -----<br/><b>3)DEEPAK NALLASWAMY VEERAIYAN</b><br/>Address of Applicant :NO 162, POONAMALLE HIGH ROAD VELLAPANCHAVADI, CHENNAI, TAMIL NADU, INDIA 600077 9884293869 -----</div> |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

(57) Abstract :  
ABSTRACT This invention introduces an artificial intelligence (AI)-based system designed to detect and replicate natural eye blinking for use in bionic eye prostheses. The technology utilizes a smartphone or smart eyewear camera to capture real-time video of the user’s natural eye. Through computer vision and deep learning algorithms, the system accurately identifies blink patterns, distinguishing them from other facial expressions or movements. Upon detecting a blink, the system wirelessly transmits a signal to the prosthetic eye, triggering a synchronized blink response. This process ensures natural coordination between the user’s biological and prosthetic eye, significantly enhancing the aesthetic and emotional impact of ocular prostheses. The system has the potential to improve psychological well-being, user confidence, and overall quality of life by bridging the gap between passive and functional prosthetic eyes.

No. of Pages : 10 No. of Claims : 5



(12) PATENT APPLICATION PUBLICATION

(21) Application No.202541060072 A

(19) INDIA

(22) Date of filing of Application :24/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : INNOVATION OF A REMINERALISATION AND ANTIMICROBIAL AMPHIROA FRAGILISSIMA

(51) International classification :A61P0031040000, A61P0029000000, A61Q0017000000, A61K0008978900, A61Q0011000000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

Abstract This study investigated the antimicrobial, anti-biofilm, antioxidant, and antiinflammatory properties of Amphiroa fragilissima methanolic extracts. The sample underwent homogenization, centrifugation, and magnetic stirring to ensure effective extraction. Antioxidant activity was assessed using the DPPH assay, antimicrobial effects were tested against Streptococcus mutans, Escherichia coli, Enterococcus faecalis, and Shigella sonnei via the Kirby-Bauer disk diffusion method, and biofilm inhibition was evaluated against the same organisms. Anti-inflammatory activity was determined using a modified BSA assay. The extract showed notable antimicrobial activity, with inhibition zones increasing in size with concentration and reaching a maximum of 16±0.1 mm at 100pg/mL. It also effectively inhibited biofilm formation in a dose-dependent manner. Antioxidant activity increased from 10pg/mL to a peak at 40 pg/mL before declining at 50 pg/mL. Additionally, the extract inhibited BSA denaturation, indicating promising anti-inflammatory effects. These findings suggest that A. fragilissima is a potent natural source of therapeutic compounds with potential applications in dentistry.

No. of Pages : 8 No. of Claims : 6

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202541060073 A

(19) INDIA

(22) Date of filing of Application :24/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : INNOVATION OF A REMINERALISATION AND ANTIMICROBIAL HALIMEDA GRACILIS

|                                                                                                                                                                                                                                                                                                                                                                                           |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
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| <p>(51) International classification :A61P0031040000, A61P0029000000, A61Q0017000000, A61P0031100000, A61K0008978900</p> <p>(86) International Application No :NA<br/>Filing Date :NA</p> <p>(87) International Publication No : NA</p> <p>(61) Patent of Addition to Application Number :NA<br/>Filing Date :NA</p> <p>(62) Divisional to Application Number :NA<br/>Filing Date :NA</p> |  | <p>(71)Name of Applicant :<br/><b>1)SAVEETHA INSTITUTE OF MEDICAL AND TECHNICAL SCIENCES</b><br/>Address of Applicant :SAVEETHA INSTITUTE OF MEDICAL AND TECHNICAL SCIENCES NO 162, POONAMALLE HIGH ROAD VELLAPANCHAVADI, CHENNAI, TAMIL NADU, INDIA 600077 9884293869 -----</p> <p><b>Name of Applicant : NA</b><br/><b>Address of Applicant : NA</b></p> <p>(72)Name of Inventor :<br/><b>1)D HEMAMALINI</b><br/>Address of Applicant :SAVEETHA INSTITUTE OF MEDICAL AND TECHNICAL SCIENCES NO 162, POONAMALLE HIGH ROAD VELLAPANCHAVADI, CHENNAI, TAMIL NADU, INDIA 600077 9884293869 -----</p> <p><b>2)SIVAKAMA V ALLI</b><br/>Address of Applicant :SAVEETHA INSTITUTE OF MEDICAL AND TECHNICAL SCIENCES NO 162, POONAMALLE HIGH ROAD VELLAPANCHAVADI, CHENNAI, TAMIL NADU, INDIA 600077 9884293869 -----</p> <p><b>3)DEEPAK NALLASWAMY VEERAIYAN</b><br/>Address of Applicant :SAVEETHA INSTITUTE OF MEDICAL AND TECHNICAL SCIENCES NO 162, POONAMALLE HIGH ROAD VELLAPANCHAVADI, CHENNAI, TAMIL NADU, INDIA 600077 9884293869 -----</p> |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

(57) Abstract :

This study evaluated the antimicrobial, anti-biofilm, antioxidant, and antiinflammatory properties of Halimeda ^rac/7/smethanolic extracts. The sample was processed through homogenization, centrifugation, and magnetic stirring to ensure efficient extraction. Antioxidant activity was assessed using the DPPH assay, antimicrobial effects were tested against Streptococcus mutans, Escherichia coli, Enterococcus faecalis, and Shigella sonnei using the Kirby-Bauer disk diffusion method, biofilm inhibition was measured against the same organisms, and antiinflammatory activity was determined using a modified BSA assay. The extract demonstrated effective antimicrobial activity, with the zone of inhibition increasing with concentration, peaking at 17 ±0.1 mm at 100pg/mL. It also significantly inhibited biofilm formation in a dose-dependent manner. Antioxidant activity rose with concentration up to 40 pg/mL before declining at 50 pg/mL. The extract effectively inhibited BSA denaturation, indicating promising anti-inflammatory potential. These findings suggest H. gracilis as a promising natural source of bioactive compounds with potential applications in dental therapeutics.

No. of Pages : 8 No. of Claims : 10

(54) Title of the invention : INTERDENTAL BRUSH WITH REMOVABLE HEAD

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
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| <div><div>(51) International classification</div><div>:A46B0009040000, A61C0015000000, A46B0005000000, A46B0007040000, A46B0009020000</div></div> <div><div>(86) International Application No</div><div>:NA</div><div>Filing Date</div><div>:NA</div></div> <div><div>(87) International Publication No</div><div>: NA</div></div> <div><div>(61) Patent of Addition to Application Number</div><div>:NA</div><div>Filing Date</div><div>:NA</div></div> <div><div>(62) Divisional to Application Number</div><div>:NA</div><div>Filing Date</div><div>:NA</div></div> |  | <div>(71)Name of Applicant :<br/>1)SAVEETHA INSTITUTE OF MEDICAL AND TECHNICAL SCIENCES<br/>Address of Applicant :SAVEETHA INSTITUTE OF MEDICAL AND TECHNICAL SCIENCES NO 162, POONAMALLE HIGH ROAD VELLAPANCHAVADI, CHENNAI, TAMIL NADU, INDIA 600077 9884293869 patents.sdc@saveetha.com -----<br/>Name of Applicant : NA<br/>Address of Applicant : NA<br/>(72)Name of Inventor :<br/>1)SHANMUGAM SB<br/>Address of Applicant :SAVEETHA INSTITUTE OF MEDICAL AND TECHNICAL SCIENCES NO 162, POONAMALLE HIGH ROAD VELLAPANCHAVADI, CHENNAI, TAMIL NADU, INDIA 600077 9884293869 patents.sdc@saveetha.com -----<br/>2)VIDHYA TK<br/>Address of Applicant :SAVEETHA INSTITUTE OF MEDICAL AND TECHNICAL SCIENCES NO 162, POONAMALLE HIGH ROAD VELLAPANCHAVADI, CHENNAI, TAMIL NADU, INDIA 600077 9884293869 -----<br/>3)DEEPAK NALLASWAM Y VEERAIYAN<br/>Address of Applicant :SAVEETHA INSTITUTE OF MEDICAL AND TECHNICAL SCIENCES NO 162, POONAMALLE HIGH ROAD VELLAPANCHAVADI, CHENNAI, TAMIL NADU, INDIA 600077 9884293869 -----</div> |
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(57) Abstract :  
Abstract The invention relates to an oral hygiene device—specifically, an interdental brush with a detachable and replaceable head. The design improves hygiene, extends the product’s lifespan, and promotes sustainability by allowing users to retain the handle while replacing only the worn-out brush head. The invention also supports customizable brush head sizes to suit different interdental spaces.

No. of Pages : 9 No. of Claims : 8

(54) Title of the invention : MOUTH MIRROR WTH LED LIGHT

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <div><div>(51) International classification</div><div>:F21Y0115100000, A61B0001240000, A61B0005000000, A61C0019040000, A61B0001060000</div></div> <div><div>(86) International Application No</div><div>:NA</div><div>Filing Date</div><div>:NA</div></div> <div><div>(87) International Publication No</div><div>: NA</div></div> <div><div>(61) Patent of Addition to Application Number</div><div>:NA</div><div>Filing Date</div><div>:NA</div></div> <div><div>(62) Divisional to Application Number</div><div>:NA</div><div>Filing Date</div><div>:NA</div></div> |  | <div>(71)Name of Applicant :<br/>1)SAVEETHA INSTITUTE OF MEDICAL AND TECHNICAL SCIENCES<br/>Address of Applicant :SAVEETHA INSTITUTE OF MEDICAL AND TECHNICAL SCIENCES NO 162, POONAMALLE HIGH ROAD VELLAPANCHAVADI, CHENNAI, TAMIL NADU, INDIA 600077 9884293869 patents.sdc@saveetha.com -----<br/>Name of Applicant : NA<br/>Address of Applicant : NA<br/>(72)Name of Inventor :<br/>1)VIDUSHA A<br/>Address of Applicant :SAVEETHA INSTITUTE OF MEDICAL AND TECHNICAL SCIENCES NO 162, POONAMALLE HIGH ROAD VELLAPANCHAVADI, CHENNAI, TAMIL NADU, INDIA 600077 9884293869 patents.sdc@saveetha.com -----<br/>2)VIDHYA TK<br/>Address of Applicant :SAVEETHA INSTITUTE OF MEDICAL AND TECHNICAL SCIENCES NO 162, POONAMALLE HIGH ROAD VELLAPANCHAVADI, CHENNAI, TAMIL NADU, INDIA 600077 9884293869 -----<br/>3)DEEPAK NALLASWAM Y VEERAIYAN<br/>Address of Applicant :SAVEETHA INSTITUTE OF MEDICAL AND TECHNICAL SCIENCES NO 162, POONAMALLE HIGH ROAD VELLAPANCHAVADI, CHENNAI, TAMIL NADU, INDIA 600077 9884293869 -----</div> |
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(57) Abstract :  
Abstract The present invention relates to a dental diagnostic tool—specifically, a mouth mirror integrated with an LED light source. This improved device enhances intraoral visibility during examinations and minor procedures, particularly in low-light conditions or in areas of the mouth that are otherwise difficult to observe. The integration of the LED ensures better illumination, reduces dependency on external light sources, and increases diagnostic accuracy and convenience for dental practitioners.

No. of Pages : 9 No. of Claims : 8

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :24/06/2025

(21) Application No.202541060076 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : VITAWARM: SODIUM HYPOCHLORITE WARMER

|                                               |                                                                                 |                                                                                                                                                                                                                                                                         |
|-----------------------------------------------|---------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (51) International classification             | :A61C0005400000, A61P0031040000, A61K0006520000, A61C0005500000, A61K0006690000 | (71)Name of Applicant :<br><b>1)SAVEETHA INSTITUTE OF MEDICAL AND TECHNICAL SCIENCES</b><br>Address of Applicant :SAVEETHA INSTITUTE OF MEDICAL AND TECHNICAL SCIENCES NO 162, POONAMALLE HIGH ROAD VELLAPANCHAVADI, CHENNAI, TAMIL NADU, INDIA 600077 9884293869 ----- |
| (86) International Application No             | :NA                                                                             | <b>Name of Applicant : NA</b>                                                                                                                                                                                                                                           |
| Filing Date                                   | :NA                                                                             | <b>Address of Applicant : NA</b>                                                                                                                                                                                                                                        |
| (87) International Publication No             | : NA                                                                            | (72)Name of Inventor :                                                                                                                                                                                                                                                  |
| (61) Patent of Addition to Application Number | :NA                                                                             | <b>1)DR. MANOBHARATHI G</b>                                                                                                                                                                                                                                             |
| Filing Date                                   | :NA                                                                             | Address of Applicant :NO 162, POONAMALLE HIGH ROAD VELLAPANCHAVADI, CHENNAI, TAMIL NADU, INDIA 600077 9884293869 patents.sdc@saveetha.com -----                                                                                                                         |
| (62) Divisional to Application Number         | :NA                                                                             | <b>2)DR SANDHYA RAGHU</b>                                                                                                                                                                                                                                               |
| Filing Date                                   | :NA                                                                             | Address of Applicant :162 POONAMALLEE HIGH ROAD, VELLANPANCHAVADI CHENNAI TAMIL NADU INDIA 600077 -----                                                                                                                                                                 |
|                                               |                                                                                 | <b>3)DR DEEPAK NALLASWAMY VEERAIYAN</b>                                                                                                                                                                                                                                 |
|                                               |                                                                                 | Address of Applicant :NO 162, POONAMALLE HIGH ROAD VELLAPANCHAVADI, CHENNAI, TAMIL NADU, INDIA 600077 9884293869 -----                                                                                                                                                  |

(57) Abstract :

Due to the anatomical complexity of the root canal system, successful endodontic treatment requires a combination of mechanical and chemical preparation to remove infected tissue and achieve effective disinfection of the root canals. To date, sodium hypochlorite (NaOCl) remains the preferred chemical irrigant due to its broad-spectrum antibacterial properties against species involved in endodontic infection. NaOCl concentrations ranging from 0.5 to 6% are used in endodontic treatment. To ensure efficacy at lower concentrations, Pre-heating NaOCl allows faster tissue dissolution coupled with enhanced antibacterial properties without affecting its short-term stability. Heating NaOCl extra-orally to 70 °C was found to result in an intracanal irrigant temperature increase to 44 ±2.5 °C. Different studies have used various methods to achieve thermal activation of the irrigants such as bottle warmer, preheated syringes, laser energy, and so on. This invention fills a crucial gap in the dental industry by introducing a dedicated sodium hypochlorite warming device designed specifically for endodontic use.

No. of Pages : 7 No. of Claims : 6

(54) Title of the invention : A MACHINE LEARNING MODEL TO PREDICT SOFT TISSUE THICKNESS FOR IMPLANT AMUTMENT COLLAR HEIGHT SELECTION -DENTALSOLUTIONS

|                                                                                                                                                                                                                                                                                                                                                                                                               |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <div>(51) International classification :G06N0003045000, G06N0003080000, A61B0006000000, G06T0007000000, G16H0030400000</div> <div>(86) International Application No :NA<br/>Filing Date :NA</div> <div>(87) International Publication No : NA</div> <div>(61) Patent of Addition to Application Number :NA<br/>Filing Date :NA</div> <div>(62) Divisional to Application Number :NA<br/>Filing Date :NA</div> |  | <div>(71)Name of Applicant :<br/>1)SAVEETHA INSTITUTE OF MEDICAL AND TECHNICAL SCIENCES<br/>Address of Applicant :SAVEETHA INSTITUTE OF MEDICAL AND TECHNICAL SCIENCES NO 162, POONAMALLE HIGH ROAD VELLAPANCHAVADI, CHENNAI, TAMIL NADU, INDIA 600077 9884293869 patents.sdc@saveetha.com -----<br/>Name of Applicant : NA<br/>Address of Applicant : NA</div> <div>(72)Name of Inventor :<br/>1)Dr.JIGNESH PANDA<br/>Address of Applicant :SAVEETHA INSTITUTE OF MEDICAL AND TECHNICAL SCIENCES NO 162, POONAMALLE HIGH ROAD VELLAPANCHAVADI, CHENNAI, TAMIL NADU, INDIA 600077 9884293869 patents.sdc@saveetha.com -----<br/>2)NAMBURI SAI BALAJI<br/>Address of Applicant :SAVEETHA INSTITUTE OF MEDICAL AND TECHNICAL SCIENCES NO 162, POONAMALLE HIGH ROAD VELLAPANCHAVADI, CHENNAI, TAMIL NADU, INDIA 600077 9884293869 patents.sdc@saveetha.com -----<br/>3)DEEPAK NALLASWAMY VEERAIYAN<br/>Address of Applicant :SAVEETHA INSTITUTE OF MEDICAL AND TECHNICAL SCIENCES NO 162, POONAMALLE HIGH ROAD VELLAPANCHAVADI, CHENNAI, TAMIL NADU, INDIA 600077 9884293869 -----</div> |
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(57) Abstract :  
Abstract DentalSolutions is an innovative mobile application designed to enhance the efficiency of dental care through AI-powered image analysis, seamless communication, and advanced patient management. The application integrates cross sectional CBCT imaging for precise dental assessments and employs deep learning models to predict gingival thickness using CNN (convolutional neural networks) regression, assisting dentists in their evaluations. It features secure real-time communication via WhatsApp, enabling direct interaction between patients and dentists. Additionally, the platform provides image-based predictions and related details, ensuring an intuitive and efficient workflow for dental professionals.

No. of Pages : 11 No. of Claims : 4

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202541060078 A

(19) INDIA

(22) Date of filing of Application :24/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : POTASSIUM-TIN METAL-ORGANIC FRAMEWORK(K-SN-MOF):STRUCTURAL EVALUATION AND ELECTROCHEMICAL PERFORMANCE

(51) International classification :H01M0012060000, H01G0011860000, B01J0031220000, H01M0010054000, C07F0007280000

(86) International Application No :NA

Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA

Filing Date :NA

(62) Divisional to Application Number :NA

Filing Date :NA

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**Name of Applicant : NA**

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(72)Name of Inventor :

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Address of Applicant :DEPT.OF CHEMISTRY,CHRIST(DEEMED TO BE UNIVERSITY)HOSUR ROAD,BENGALURU,KARNATAKA,INDIA. PIN:560029. -----

(57) Abstract :

ABSTRACT Herein, we report the synthesis of a new potassium-tin metal-organic framework (K-Sn-MOF) with a three-dimensional non-interpenetrated architecture via a hydrothermal method using a DMF/ethanol solvent mixture and water-yielding phase-pure hexagonal prismatic crystals (50-200 J.UTI) with a 75% yield. Single-crystal X-ray diffraction (SC-XRD) analysis confirmed a trigonal crystal system with a Cmc<sub>2</sub> space group, revealing a robust heterometallic Sn-K-Cl coordination network that overcomes the stability limitations of conventional tin-based MOFs. Additionally, FT-IR and P-XRD analyses provide further support for the structural integrity and functionality of the MOF. Additionally, N<sub>2</sub> isotherm analysis provided a BET surface area of 25.5 m<sup>2</sup>/g, along with a pore diameter of approximately 14.5 Å. Thermogravimetric analysis (TGA) demonstrated enhanced thermal stability up to 450 °C, attributed to chloride-mediated [K-Cl-K] clusters. Furthermore, K-Sn-MOF demonstrated exceptional performance in three three-electrode systems with 3M KOH as the electrolyte. Cyclic Voltammetry (CV) and galvanostatic charge/discharge (GCD) studies were performed. The GCD data revealed a specific capacitance (C<sub>s</sub>) of 1021.9 F/g at 1 A/g, surpassing the capacitances of most reported pristine MOFs. These results show that when alkaline metals are incorporated into the MOF network, both the structural stability and MOF conductivity can be improved. Therefore, in this study, we bridged the gap between conventional MOFs with limited conductivity and their application in energy storage by structural integration and the excellent electrochemical behavior of K-Sn-MOF, thereby offering a promising solution. for sustainable energy storage and environmental remediation applications.

No. of Pages : 26 No. of Claims : 3

(54) Title of the invention : PISTON DRIVEN MYCO-TWEEZER

(51) International classification

(86) International Application No

(87) International Publication No

(61) Patent of Addition to Application Number

(62) Divisional to Application Number

:A61B0017340000, G01R0001067000, F16K0031600000, A61M0025000000, H01L0027092000

:NA

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: NA

:NA

:NA

:NA

(71)Name of Applicant :  
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(57) Abstract :  
ABSTRACT The novel invention for fungal isolation is the Piston Driven Myco-tweezer, a newly developed tool, made up of stainless steel designed to significantly enhance the precision and accuracy of fungal structure isolation. This innovative tool combines a precision-engineered tweezer with a hollow cylindrical handle fitted with a T -probe needle, operating through a controlled piston-driven mechanism. The Piston Driven Myco-tweezer is specifically designed to minimize cross-contamination, reduce fungal structure damage, and optimize isolation across various culture methods. Traditional fungal isolation techniques often face challenges such as organismal disruption and sample contamination, leading to compromised results. The Piston Driven Myco-tweezer addresses these issues by allowing controlled, stable, and minimal-contact manipulation of delicate fungal structures. The tweezer provides superior grip and stability due to its anti-slip design, while the piston mechanism of the Tprobe needle enables precise forward, backward, and rotational movement. By offering a specific and specialized tool for mycelial isolation, the Piston Driven Myco-tweezer represents a major step forward in clinical mycology, research laboratories, and industries where microbial precision is essential. Its ergonomic design, material durability, and unique movement control significantly improve the reliability and reproducibility of fungal isolation outcomes.

No. of Pages : 13 No. of Claims : 10



(54) Title of the invention : FACILE OCTA PLATE FOR ANTIMICROBIAL SUSCEPTIBILITY TESTING AND METHODS THEREOF

|                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
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| <div>(51) International classification</div> <div>(86) International Application No</div> <div>Filing Date</div> <div>(87) International Publication No</div> <div>(61) Patent of Addition to Application Number</div> <div>Filing Date</div> <div>(62) Divisional to Application Number</div> <div>Filing Date</div> | <div>:C12Q0001180000, G06T0007000000, C12Q0001040000, C12Q0001688300, A61B0003100000</div> <div>:NA</div> <div>:NA</div> <div>: NA</div> <div>:NA</div> <div>:NA</div> <div>:NA</div> <div>:NA</div> | <div>(71)Name of Applicant :</div> <div>1)SAVEETHA INSTITUTE OF MEDICAL AND TECHNICAL SCIENCES</div> <div>Address of Applicant :NO.162, POONAMALLE HIGH ROAD VELLAPANCHAVADI, CHENNAI, TAMILNADU, INDIA 600077 -----</div> <div>-----</div> <div>Name of Applicant : NA</div> <div>Address of Applicant : NA</div> <div>(72)Name of Inventor :</div> <div>1)J. HEIN FREEDA</div> <div>Address of Applicant :NO.162, POONAMALLE HIGH ROAD VELLAPANCHAVADI, CHENNAI, TAMILNADU, INDIA 600077 -----</div> <div>-----</div> <div>2)SATHISH SANKAR</div> <div>Address of Applicant :NO.162, POONAMALLE HIGH ROAD VELLAPANCHAVADI, CHENNAI, TAMILNADU, INDIA 600077 -----</div> <div>-----</div> <div>3)DEEPAK NALLASWAMY VEERAIYAN</div> <div>Address of Applicant :NO.162, POONAMALLE HIGH ROAD VELLAPANCHAVADI, CHENNAI, TAMILNADU, INDIA 600077 -----</div> <div>-----</div> |
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(57) Abstract :  
ABSTRACT Antimicrobial Susceptibility' Testing (AST) is an essential laboratory technique used to evaluate bacterial resistance to antibiotics, guiding effective treatment decisions and combating antimicrobial resistance. Traditional methods for measuring the zone of inhibition (ZOI) in disk diffusion tests often suffer from human error, time inefficiencies, and lack of standardization. To address these challenges, we have developed an innovative petriplate with pre-marked measurement lines, offering an accurate, efficient, and standardized approach to ZOI measurement. This novel petriplate features pre-defined measurement rings at fixed intervals, allowing for quick visual assessment without the need for additional tools such as rulers or calipers. The markings are designed with high contrast for better visibility and align with international AST guidelines, such as those from CLSI and EUCAST. The product is made from highquality, sterilizable plastic, ensuring durability and contamination prevention. Compared to conventional measurement methods, this pre-marked petriplate offers enhanced accuracy, improved efficiency, and cost-effectiveness, making it particularly valuable for clinical laboratories, pharmaceutical research, veterinary microbiology, and educational institutions. It significantly reduces inter-user variability, expedites laboratory workflows, and aids in precise susceptibility classification, thereby supporting better antibiotic stewardship. This innovation has broad applications in clinical microbiology, antimicrobial resistance surveillance, drug development, and training. Future enhancements may include integration with digital imaging, customizable marking designs, and eco-friendly materials to further improve usability and sustainability. By addressing critical limitations in traditional AST techniques, this pre-marked petri plate has the potential to revolutionize microbial diagnostics, ensuring more reliable, efficient, and accessible antimicrobial susceptibility testing across various laboratory settings.

No. of Pages : 16 No. of Claims : 4

(54) Title of the invention : VALORIZING SPIRULINA WASTE FOR ECO-FRIENDLY BIOPLASTIC PRODUCTION: CIRCULAR ECONOMY PERSPECTIVE

|                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <div>(51) International classification</div> <div>(86) International Application No</div> <div>(87) International Publication No</div> <div>(61) Patent of Addition to Application Number</div> <div>(62) Divisional to Application Number</div> <div>Filing Date</div> <div>Filing Date</div> <div>Filing Date</div> <div>Filing Date</div> | <div>:C12P0007625000, C08J0005180000, A61K0035748000, C08L0067040000, C10N0030000000</div> <div>:NA</div> <div>:NA</div> <div>: NA</div> <div>:NA</div> <div>:NA</div> <div>:NA</div> <div>:NA</div> <div>:NA</div> | <div>(71)Name of Applicant :</div> <div>1)SAVEETHA INSTITUTE OF MEDICAL AND TECHNICAL SCIENCES</div> <div>Address of Applicant :NO.162, POONAMALLE HIGH ROAD VELLAPANCHAVADI, CHENNAI, TAMILNADU, INDIA 600077 -----</div> <div>Name of Applicant : NA</div> <div>Address of Applicant : NA</div> <div>(72)Name of Inventor :</div> <div>1)Ashokkumar Veeramuthu</div> <div>Address of Applicant :NO.162, POONAMALLE HIGH ROAD VELLAPANCHAVADI, CHENNAI, TAMILNADU, INDIA 600077 -----</div> <div>2)DEEPAK NALLASWAMY VEERAIYAN</div> <div>Address of Applicant :NO.162, POONAMALLE HIGH ROAD VELLAPANCHAVADI, CHENNAI, TAMILNADU, INDIA 600077 -----</div> <div>3)Chandramughi V P</div> <div>Address of Applicant :NO.162, POONAMALLE HIGH ROAD VELLAPANCHAVADI, CHENNAI, TAMILNADU, INDIA 600077 -----</div> <div>4)Agila E</div> <div>Address of Applicant :NO.162, POONAMALLE HIGH ROAD VELLAPANCHAVADI, CHENNAI, TAMILNADU, INDIA 600077 -----</div> <div>5)Vishnupriya V</div> <div>Address of Applicant :NO.162, POONAMALLE HIGH ROAD VELLAPANCHAVADI, CHENNAI, TAMILNADU, INDIA 600077 -----</div> |
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(57) Abstract :

Abstract: The shift to bioplastics is becoming more and more important as worries about plastic pollution and its detrimental effects on the environment grow. Bioplastics, derived from renewable biological sources, offer a sustainable substitute for conventional petroleum-based plastics. Among these sources, blue-green algae Spirulina have attracted interest due to their valuable compounds and potential for bioplastic synthesis. This study examines the viability of utilizing Spirulina for two objectives: the extraction of phycocyanin and the production of bioplastics from the extracted biomass. Employing a standardized protocol, a concentration of 4.3 mg/L was obtained from the phycocyanin extraction process, while the remaining residues contained 40.13% carbohydrate with the polyhydric polyhydroxyalkanoates (PHA) quantified in the residual Spirulina, indicating their potential for biopolymer production thus rendering them an optimal feedstock for the biodegradable plastic production. The isolated PHA is then processed into bioplastic films through optimized techniques, ensuring sufficient mechanical strength, biodegradability and food safety for sustainable food packing applications. The integration of sustainable and environmentally friendly bioplastics, promoting waste valorization and advancing a circular bioeconomy.

No. of Pages : 10 No. of Claims : 9

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202541060093 A

(19) INDIA

(22) Date of filing of Application :24/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : VIRTUAL ORTHODONTIC TREATMENT SIMULATOR

|                                                                                                                                                                                                                                                                                                                                                                                           |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>(51) International classification :A61C0007000000, G16H0050500000, A61C0007080000, G16H0050200000, G06N0020000000</p> <p>(86) International Application No :NA<br/>Filing Date :NA</p> <p>(87) International Publication No : NA</p> <p>(61) Patent of Addition to Application Number :NA<br/>Filing Date :NA</p> <p>(62) Divisional to Application Number :NA<br/>Filing Date :NA</p> |  | <p>(71)<b>Name of Applicant :</b><br/><b>1)SAVEETHA INSTITUTE OF MEDICAL AND TECHNICAL SCIENCES</b><br/>Address of Applicant :SAVEETHA DENTAL COLLEGE AND HOSPITALS, NO.162, POONAMALLE HIGH ROAD VELLAPANCHAVADI, CHENNAI, TAMILNADU, INDIA 600077 -----</p> <p><b>Name of Applicant : NA</b><br/><b>Address of Applicant : NA</b></p> <p>(72)<b>Name of Inventor :</b><br/><b>1)DAPHANE ANISHYA</b><br/>Address of Applicant :SAVEETHA DENTAL COLLEGE AND HOSPITALS, NO.162, POONAMALLE HIGH ROAD VELLAPANCHAVADI, CHENNAI, TAMILNADU, INDIA 600077 -----</p> <p><b>2)SWAPNA SREENIVASAGAN</b><br/>Address of Applicant :SAVEETHA DENTAL COLLEGE AND HOSPITALS, NO.162, POONAMALLE HIGH ROAD VELLAPANCHAVADI, CHENNAI, TAMILNADU, INDIA 600077 -----</p> <p><b>3)DEEPAK NALLASWAMY VEERAIYAN</b><br/>Address of Applicant :SAVEETHA DENTAL COLLEGE AND HOSPITALS, NO.162, POONAMALLE HIGH ROAD VELLAPANCHAVADI, CHENNAI, TAMILNADU, INDIA 600077 -----</p> |
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(57) Abstract :

ABSTRACT: The present invention introduces a Virtual Orthodontic Treatment Simulator, a VRJAR-based platform that enables orthodontists and patients to visualize and simulate treatment progress and outcomes in real-time. This system incorporates interactive 3D models of teeth and jaws, allowing users to explore orthodontic treatment scenarios dynamically. By integrating predictive algorithms and AI-driven treatment simulation, the system provides an accurate representation of expected treatment progress. The platform enhances patient engagement, improves treatment planning accuracy, and optimizes communication between orthodontists and patients. The Virtual Orthodontic Treatment Simulator represents a significant advancement in orthodontic technology, improving both clinical efficiency and patient understanding.

No. of Pages : 8 No. of Claims : 7

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202541060094 A

(19) INDIA

(22) Date of filing of Application :24/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : MODIFIED TORQUING KEY WITH INBUILT DIGITAL PROTRACTOR FOR ORTHODONTIC USE

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|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>(51) International classification :A61C0007000000, B21F0001000000, A61B0017340000, A61K0031498500, G02B0026060000</p> <p>(86) International Application No :NA<br/>Filing Date :NA</p> <p>(87) International Publication No : NA</p> <p>(61) Patent of Addition to Application Number :NA<br/>Filing Date :NA</p> <p>(62) Divisional to Application Number :NA<br/>Filing Date :NA</p> |  | <p>(71)<b>Name of Applicant :</b><br/><b>1)SAVEETHA INSTITUTE OF MEDICAL AND TECHNICAL SCIENCES</b><br/>Address of Applicant :SAVEETHA DENTAL COLLEGE AND HOSPITALS, NO.162, POONAMALLE HIGH ROAD VELLAPANCHAVADI, CHENNAI, TAMILNADU, INDIA 600077 -----</p> <p><b>Name of Applicant : NA</b><br/><b>Address of Applicant : NA</b></p> <p>(72)<b>Name of Inventor :</b><br/><b>1)NITHYA RAMESH</b><br/>Address of Applicant :SAVEETHA DENTAL COLLEGE AND HOSPITALS, NO.162, POONAMALLE HIGH ROAD VELLAPANCHAVADI, CHENNAI, TAMILNADU, INDIA 600077 -----</p> <p><b>2)NIVETHIGAA BALAKRISHNAN</b><br/>Address of Applicant :SAVEETHA DENTAL COLLEGE AND HOSPITALS, NO.162, POONAMALLE HIGH ROAD VELLAPANCHAVADI, CHENNAI, TAMILNADU, INDIA 600077 -----</p> <p><b>3)DEEPAK NALLASWAMY VEERAIYAN</b><br/>Address of Applicant :SAVEETHA DENTAL COLLEGE AND HOSPITALS, NO.162, POONAMALLE HIGH ROAD VELLAPANCHAVADI, CHENNAI, TAMILNADU, INDIA 600077 -----</p> |
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(57) Abstract :  
ABSTRACT This invention introduces a modified torquing key integrated with a digital protractor, designed to enhance precision in wire bending and torquing during orthodontic procedures. The tool addresses the limitations of traditional torquing keys, which often rely on manual estimation, leading to inconsistencies. By incorporating a digital protractor, this device provides real-time angular measurement, reducing errors and ensuring accurate tooth movement. The lightweight, ergonomic design minimizes hand fatigue, while the use of durable, medical-grade materials ensures longevity and sterility. Its intuitive digital interface displays clear readouts, enhancing procedural confidence. This advancement represents a significant improvement in orthodontic tool design, promoting more predictable treatment outcomes for patients. Additionally, the device features two wire slots-one for .017" x .025" wires and another for .019" x .025" wires-allowing for more controlled orthodontic adjustments.

No. of Pages : 12 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :24/06/2025

(21) Application No.202541060095 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : WEARABLE COMPLIANCE MONITORING SYSTEM FOR ORTHOPAEDIC APPLIANCES

(51) International classification :A61B0005000000, G06Q0030080000, H04N0007180000, G16H0020300000, A61N0001080000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

ABSTRACT This invention introduces a wearable compliance monitoring system integrated into orthopaedic appliances such as facemask and headgear. The system consists of a Bluetooth-enabled microchip embedded within the appliance, which continuously tracks wear time and transmits data to a connected mobile application. The app provides real-time feedback, notifying patients and orthodontists if usage is insufficient. This innovation enhances patient compliance, improves treatment efficiency, and allows for remote monitoring, ensuring optimal clinical outcomes.

No. of Pages : 9 No. of Claims : 6

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202541060096 A

(19) INDIA

(22) Date of filing of Application :24/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : UV-BASED DISINFECTION AND STORAGE CASE FOR REMOVABLE ORTHODONTIC APPLIANCES

(51) International classification :A61L0002180000, A61L0002000000, A61L0002240000, A61C0007080000, A61C0007000000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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**Address of Applicant : NA**

(72)Name of Inventor :

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(57) Abstract :

**ABSTRACT:** This invention pertains to a UV-based disinfection and storage case specifically designed for removable orthodontic appliances like aligners, retainers, removable anterior planes, posterior bite planes etc to ensure effective microbial decontamination. Orthodontic appliances, being in prolonged contact with the oral environment, accumulate a significant number of bacteria, fungi, and viruses, which can lead to oral infections, bad breath, and other hygiene-related concerns. Conventional cleaning methods, such as manual brushing and chemical disinfectants, are either insufficient or inconvenient for regular use. This invention introduces an automated UV disinfection case equipped with UV -C lightemitting diodes (LEOs) strategically placed to provide uniform disinfection. The device integrates an Arduino Nano microcontroller to regulate the disinfection process, optimizing exposure time to eliminate microbial contamination while maintaining user safety. A magnetic locking mechanism ensures that the disinfection process only occurs when the case is securely closed, preventing accidental UV exposure. Additionally, a reed switch interlock system enhances safety by immediately shutting off the UV light if the lid is opened during operation. The disinfection case also features a rotary encoder for adjustable disinfection cycles, a buzzer alert system to notify users upon completion, and a compact, portable design for ease of use. The device operates on a SV switched-mode power supply (SMPS), ensuring energy efficiency and reliability. The innovative, chemical-free, and efficient design of this disinfection case significantly enhances retainer hygiene, ensuring a safe and effective disinfection process for orthodontic patients.

No. of Pages : 10 No. of Claims : 9

(54) Title of the invention : BRUSHMATRIX DUO-A MULTI USE RESTORATIVE TOOL

|                                               |                                                                                 |                                                                                                                                                                                                           |
|-----------------------------------------------|---------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (51) International classification             | :G06F0003048830, A61B0018140000, A61B0090000000, G06T0007000000, G01N0033543000 | (71)Name of Applicant :<br><b>1)SAVEETHA INSTITUTE OF MEDICAL AND TECHNICAL SCIENCES</b><br>Address of Applicant :NO.162, POONAMALLE HIGH ROAD<br>VELLAPANCHAVADI, CHENNAI, TAMILNADU, INDIA 600077 ----- |
| (86) International Application No             | :NA                                                                             | <b>Name of Applicant : NA</b>                                                                                                                                                                             |
| Filing Date                                   | :NA                                                                             | <b>Address of Applicant : NA</b>                                                                                                                                                                          |
| (87) International Publication No             | : NA                                                                            | (72)Name of Inventor :<br><b>1)Dr. NEHA N</b><br>Address of Applicant :NO.162, POONAMALLE HIGH ROAD<br>VELLAPANCHAVADI, CHENNAI, TAMILNADU, INDIA 600077 -----                                            |
| (61) Patent of Addition to Application Number | :NA                                                                             | <b>2)Dr. APARNA MOHAN</b><br>Address of Applicant :NO.162, POONAMALLE HIGH ROAD<br>VELLAPANCHAVADI, CHENNAI, TAMILNADU, INDIA 600077 -----                                                                |
| Filing Date                                   | :NA                                                                             | <b>3)DEEPAK NALLASWAMY VEERAIYAN</b><br>Address of Applicant :NO.162, POONAMALLE HIGH ROAD<br>VELLAPANCHAVADI, CHENNAI, TAMILNADU, INDIA 600077 -----                                                     |
| (62) Divisional to Application Number         | :NA                                                                             |                                                                                                                                                                                                           |
| Filing Date                                   | :NA                                                                             |                                                                                                                                                                                                           |

(57) Abstract :  
ABSTRACT: This invention presents a novel double-ended anterior and posterior composite instrument with detachable components for holding a brush on one end and a anterior Mylar strip or sectional matrix holder on the other. The core of the instrument is made of autoclavable material, ensuring sterility and durability, while the detachable parts may be autoclavable or disposable. The design enhances efficiency in composite restorations by providing a multifunctional tool that reduces the need for multiple instnnnents in case of class II, III, IV restorations, improving ease of use for dental practitioners.

No. of Pages : 8 No. of Claims : 4

(54) Title of the invention : INNOVATIVE DENTAL LAB BUNSEN BURNER WITH WAX COLLECTION SYSTEM

|                                               |                                                                                 |                                                                                                                                                                                                        |
|-----------------------------------------------|---------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (51) International classification             | :A61C0013000000, A61C0008000000, A61C0013200000, A61G0015160000, A61C0019000000 | (71)Name of Applicant :<br><b>1)SAVEETHA INSTITUTE OF MEDICAL AND TECHNICAL SCIENCES</b><br>Address of Applicant :NO.162, POONAMALLE HIGH ROAD VELLAPANCHAVADI, CHENNAI, TAMILNADU, INDIA 600077 ----- |
| (86) International Application No             | :NA                                                                             | <b>Name of Applicant : NA</b>                                                                                                                                                                          |
| Filing Date                                   | :NA                                                                             | <b>Address of Applicant : NA</b>                                                                                                                                                                       |
| (87) International Publication No             | : NA                                                                            | (72)Name of Inventor :<br><b>1)KESHAV RAJESH</b><br>Address of Applicant :NO.162, POONAMALLE HIGH ROAD VELLAPANCHAVADI, CHENNAI, TAMILNADU, INDIA 600077 -----                                         |
| (61) Patent of Addition to Application Number | :NA                                                                             | <b>2)LAKKOJI KERTHI SASANKA</b><br>Address of Applicant :NO.162, POONAMALLE HIGH ROAD VELLAPANCHAVADI, CHENNAI, TAMILNADU, INDIA 600077 -----                                                          |
| Filing Date                                   | :NA                                                                             | <b>3)DEEPAK NALLASWAMY VEERAIYAN</b><br>Address of Applicant :NO.162, POONAMALLE HIGH ROAD VELLAPANCHAVADI, CHENNAI, TAMILNADU, INDIA 600077 -----                                                     |
| (62) Divisional to Application Number         | :NA                                                                             |                                                                                                                                                                                                        |
| Filing Date                                   | :NA                                                                             |                                                                                                                                                                                                        |

(57) Abstract :  
ABSTRACT The present invention relates to a Dental Lab Bunsen Burner with an Integrated Wax Collection System and Instrument Holder. Traditional Bunsen burners used in dental laboratories often result in wax spillage, contamination, and inefficient workflow. This invention incorporates a detachable wax collector, a fixed and detachable instrument holder, a curved metal chimney, and an angulated plate for efficient wax collection. The innovation improves cleanliness, usability, and efficiency in dental labs.

No. of Pages : 18 No. of Claims : 10



(54) Title of the invention : TEETH SELECTION GUIDE WITH INTEGRATED RULER SCALE, MULTIPLE OUTLINE FORMS AND AN INTERCHANGABLE SLOT FRAME FOR COMPLETELY EDENTULOUS PATIENTS

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| <div>(51) International classification :A61B0005107000, A61C0013000000, A61C0013080000, A61C0013271000, A61P0025000000</div> <div>(86) International Application No :NA<br/>Filing Date :NA</div> <div>(87) International Publication No : NA</div> <div>(61) Patent of Addition to Application Number :NA<br/>Filing Date :NA</div> <div>(62) Divisional to Application Number :NA<br/>Filing Date :NA</div> |  | <div>(71)Name of Applicant :<br/>1)SAVEETHA INSTITUTE OF MEDICAL AND TECHNICAL SCIENCES<br/>Address of Applicant :NO.162, POONAMALLE HIGH ROAD VELLAPANCHAVADI, CHENNAI, TAMILNADU, INDIA 600077 -----<br/>-----<br/>Name of Applicant : NA<br/>Address of Applicant : NA<br/>(72)Name of Inventor :<br/>1)KESHAV RAJESH<br/>Address of Applicant :NO.162, POONAMALLE HIGH ROAD VELLAPANCHAVADI, CHENNAI, TAMILNADU, INDIA 600077 -----<br/>-----<br/>2)HARINI K<br/>Address of Applicant :NO.162, POONAMALLE HIGH ROAD VELLAPANCHAVADI, CHENNAI, TAMILNADU, INDIA 600077 -----<br/>-----<br/>3)DEEPAK NALLASWAMY VEERAIYAN<br/>Address of Applicant :NO.162, POONAMALLE HIGH ROAD VELLAPANCHAVADI, CHENNAI, TAMILNADU, INDIA 600077 -----<br/>-----</div> |
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(57) Abstract :  
ABSTRACT The present invention is a Teeth Selection Guide with Integrated Ruler Scale, Multiple Outline Forms, and an Interchangeable Slot Frame for completely edentulous patients. It features a flexible measuring scale, three distinct tooth outline shapes (Oval, Triangular, and Square), and a removable slot frame to compare different tooth sizes and shades. This invention improves the accuracy of artificial tooth selection, enhances efficiency in clinical settings, and provides a standardized approach for prosthetic fabrication.

No. of Pages : 14 No. of Claims : 4

(54) Title of the invention : FOOT SWEAT MONITORING AND NUMBNESS ASSESSMENTS FOR EARLY DETECTION OF DIABETICS USING SOIL MOISTURE AND VIBRATION SENSORS

|                                                                                                                                                                                                                                                                                                                                                                                                               |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <div>(51) International classification :A61B0005000000, A61B0005145000, A61P0025020000, G16H0010600000, A43B0017000000</div> <div>(86) International Application No :NA<br/>Filing Date :NA</div> <div>(87) International Publication No : NA</div> <div>(61) Patent of Addition to Application Number :NA<br/>Filing Date :NA</div> <div>(62) Divisional to Application Number :NA<br/>Filing Date :NA</div> |  | <div>(71)Name of Applicant :<br/>1)SAVEETHA INSTITUTE OF MEDICAL AND TECHNICAL SCIENCES<br/>Address of Applicant :NO.162, POONAMALLE HIGH ROAD VELLAPANCHAVADI, CHENNAI, TAMILNADU, INDIA 600077 -----</div> <div>Name of Applicant : NA<br/>Address of Applicant : NA</div> <div>(72)Name of Inventor :<br/>1)Ashokkumar sundramoorthy<br/>Address of Applicant :NO.162, POONAMALLE HIGH ROAD VELLAPANCHAVADI, CHENNAI, TAMILNADU, INDIA 600077 -----</div> <div>2)SESURAJ BALASAMY<br/>Address of Applicant :NO.162, POONAMALLE HIGH ROAD VELLAPANCHAVADI, CHENNAI, TAMILNADU, INDIA 600077 -----</div> <div>3)DHANRAJ GANAPATHY<br/>Address of Applicant :NO.162, POONAMALLE HIGH ROAD VELLAPANCHAVADI, CHENNAI, TAMILNADU, INDIA 600077 -----</div> <div>4)DEEPAK NALLASWAMY<br/>Address of Applicant :NO.162, POONAMALLE HIGH ROAD VELLAPANCHAVADI, CHENNAI, TAMILNADU, INDIA 600077 -----</div> |
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(57) Abstract :  
This innovation introduces a foot perspiration monitoring system employing adapted soil moisture sensors to aid in the early detection and control of diabetes. Diabetic individuals frequently experience peripheral neuropathy and impaired sweat gland function, resulting in decreased sensitivity to sweat and Numbness compared to non-diabetic people, which may serve as an early diabetes indicator. Conventional sweat sensors are often expensive, scarcely available, and lack the necessary sensitivity and specificity for clinical effectiveness. This system addresses these issues by tracking changes in electrical resistance through soil moisture sensors, precisely calibrated to detect distinct moisture levels and classify sweat intensity as low, moderate, or high. Real-time data is displayed on a 16x2 LCD, enabling ongoing observation by patients and healthcare providers. Its compact, layered construction allows for easy integration into insoles, and vibratory alerts signal to the Numbness, encouraging prompt response. This cost-effective, modular solution is particularly suited for diabetic foot care in resource-limited environments, aiming to minimize complications and enhance foot health over the long term.

No. of Pages : 14 No. of Claims : 10

(54) Title of the invention : DEVELOPMENT OF A BIOACTIVE POLYPHENOL-ENRICHED GEL FOR TOPICAL TREATMENT OF ORAL CANCER: TARGETING TUMOR MICROENVIRONMENT AND INFLAMMATORY PATHWAYS

|                                               |                                                                                 |                                                                                                                                                                                                 |
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| (51) International classification             | :A61K0009000000, A61P0035000000, A61P0029000000, A61K0031690000, A61K0009060000 | Name of Applicant : NA<br>Address of Applicant : NA                                                                                                                                             |
| (86) International Application No             | :NA                                                                             | (72)Name of Inventor :                                                                                                                                                                          |
| Filing Date                                   | :NA                                                                             | 1)Dr. PITCHAIMANI VEERAKUMAR                                                                                                                                                                    |
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| (61) Patent of Addition to Application Number | :NA                                                                             | 2)Dr. VEERARAGHAVAN VISHNU PRIYA                                                                                                                                                                |
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| (62) Divisional to Application Number         | :NA                                                                             | 3)DR.DEEPAK NALLASWAMY VEERAIYAN                                                                                                                                                                |
| Filing Date                                   | :NA                                                                             | Address of Applicant :SAVEETHA DENTAL COLLEGE NO.162, POONAMALLE HIGH ROAD VELLAPANCHAVADI, CHENNAI, TAMILNADU, INDIA 600077 -----                                                              |

(57) Abstract :  
ABSTRACT OF THE INVENTION Oral cancer is one of the most prevalent cancers worldwide, often associated with high recurrence rates and limited success of conventional treatments due to adverse effects and systemic toxicity. The tumor microenvironment (TME), characterized by chronic inflammation, oxidative stress, and dysregulated signaling pathways, plays a pivotal role in tumor initiation and progression. Naturally derived polyphenols have shown promise as chemopreventive and therapeutic agents due to their anti-inflammatory, antioxidant, and anticancer properties. This study aims to develop a polyphenol-enriched bioactive gel for topical application in the oral cavity to target the inflammatory pathways and tumor microenvironment associated with oral cancer, thereby offering a localized and non-invasive therapeutic strategy. Polyphenol-rich extracts were obtained from selected natural sources and incorporated into a mucoadhesive gel base. The formulation was characterized for physicochemical properties including pH, viscosity, spread ability, bio-adhesion, and stability. In vitro assays were performed using oral squamous cell carcinoma (OSCC) cell lines to evaluate the anti-inflammatory, antioxidant, and cytotoxic effects of the formulation. Expression levels of key inflammatory markers (TNF- $\alpha$ , and IL-6), oxidative stress enzymes, and tumor-related signaling molecules (NF- $\kappa$ B, VEGF, and COX-2) were assessed through ELISA, qPCR, and western blotting. The polyphenol-enriched gel exhibited excellent stability, bioadhesiveness, and sustained release characteristics. In vitro studies demonstrated a significant reduction in inflammatory cytokines and downregulation of cancer-related pathways. The gel showed selective cytotoxicity towards cancer cells with minimal toxicity to normal cells. The developed topical gel represents a promising adjunct or alternative therapeutic approach for oral cancer management. By targeting the tumor microenvironment and inflammatory pathways, it offers potential benefits in both treatment and prevention, with improved patient compliance and minimal systemic toxicity.

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202541060114 A

(19) INDIA

(22) Date of filing of Application :24/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : SMART PEDIATRIC TOOTHBRUSH WITH ALIGNMENT TRACKER

(51) International classification :A46B0015000000, A63B0069360000, G16H0020300000, G06T0019000000, G06F0003140000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

ABSTRACT This invention introduces a smart paediatric toothbrush integrated: with motion sensors and technology to promote proper brushing techniques and monitor .. aligner compliance. The toothbrush employs visual feedback. through colour-changing LEOs that respond to brushing angle, pressure, and duration, offering a gamified approach to oral hygiene training. Additionally, embedded sensors brushing patterns and relay this information to a companion mobile application. This function is designed to addresses paediatric dental care-effective plaque removal.

No. of Pages : 10 No. of Claims : 8

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :24/06/2025

(21) Application No.202541060115 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : METRIPLATE

(51) International classification :B01L0003000000, A61B0090000000, C12M0001220000, G16H0040400000, B41M0005260000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

ABSTRACT The present invention relates to an improved Petri plate, referred to as a "Metriplate", designed to ensure consistent and accurate pouring of culture media in microbiological applications. The "Metriplate" features integrated horizontal volume markings on the inner surface of its cylindrical sidewall. These calibrated markings correspond to specific media volumes, such as 10 ml, 20 ml, 30 ml, and 40 ml, and allow users to visually determine and control the volume of medium poured into the plate without the use of external measuring tools. The volume indicators are permanently incorporated using methods such as embossing, etching, or laser marking, and are resistant to sterilization procedures. The invention promotes uniformity, reduces human error, saves time, and enhances the reliability and reproducibility of laboratory procedures, particularly in research, clinical diagnostics, and teaching environments

No. of Pages : 11 No. of Claims : 4

(54) Title of the invention : MUCO-D GEL

|                                                                                                                                                                                                                                                                                                                                                                                                               |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <div>(51) International classification :A61P0035000000, A61K0009510000, C12Q0001688300, G01N0021350000, A61P0029000000</div> <div>(86) International Application No :NA<br/>Filing Date :NA</div> <div>(87) International Publication No : NA</div> <div>(61) Patent of Addition to Application Number :NA<br/>Filing Date :NA</div> <div>(62) Divisional to Application Number :NA<br/>Filing Date :NA</div> |  | <div>(71)Name of Applicant :<br/>1)SAVEETHA INSTITUTE OF MEDICAL AND TECHNICAL SCIENCES<br/>Address of Applicant : NO 162, POONAMALLE HIGH ROAD<br/>VELLAPANCHAVADI, CHENNAI, TAMIL NADU, INDIA 600077 -----<br/>-----<br/>Name of Applicant : NA<br/>Address of Applicant : NA<br/>(72)Name of Inventor :<br/>1)TANMAY AGARWAL<br/>Address of Applicant : NO 162, POONAMALLE HIGH ROAD<br/>VELLAPANCHAVADI, CHENNAI, TAMIL NADU, INDIA 600077 -----<br/>-----<br/>2)SANDRA SAGAR<br/>Address of Applicant : NO 162, POONAMALLE HIGH ROAD<br/>VELLAPANCHAVADI, CHENNAI, TAMIL NADU, INDIA 600077 -----<br/>-----<br/>3)GENICKSON JEYARAJ<br/>Address of Applicant : NO 162, POONAMALLE HIGH ROAD<br/>VELLAPANCHAVADI, CHENNAI, TAMIL NADU, INDIA 600077 -----<br/>-----<br/>4)DEEPAK NALLASWAMY VEERAIYAN<br/>Address of Applicant : NO 162, POONAMALLE HIGH ROAD<br/>VELLAPANCHAVADI, CHENNAI, TAMIL NADU, INDIA 600077 -----<br/>-----</div> |
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(57) Abstract :  
ABSTRACT The present invention relates to a novel nano-formulation comprising carboxymethyl cellulose (CMC) gel doped with vitamin D, developed to enhance therapeutic efficacy on oral mucosal cells. The formulation was characterized using UV -visible spectroscopy and Fourier-transform infrared (FTIR) spectroscopy, confirming the successful incorporation of vitamin D into the CMC matrix through distinct functional group peaks. The nano-fonnulated gel demonstrated significant antioxidant and anti-inflammatory activity in comparison to standard control groups. Furthermore, cytotoxicity analysis conducted on oral cancer (KB) cell lines revealed notable anti-cancer activity, underscoring its potential in therapeutic applications targeting oral health disorders, including malignancies. This innovative formulation presents a promising approach for the treatment and management of oral mucosal conditions.

No. of Pages : 9 No. of Claims : 3

(54) Title of the invention : BASELLACAO- TOPICARE

(51) International classification

:A61Q0011000000, A61P0031040000, A61K0036185000, B22F0009240000, A61K0008978900

(86) International Application No

:NA

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(87) International Publication No

: NA

(61) Patent of Addition to Application Number

:NA

Filing Date

:NA

(62) Divisional to Application Number

:NA

Filing Date

:NA

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(57) Abstract :  
ABSTRACT The present invention discloses the green synthesis of calcium oxide nanoparticles (CaONPs) using Basella alba leaf extract as a bioreducing and stabilizing agent. The synthesized nanoparticles demonstrate significant antimicrobial activity against various oral pathogens including Streptococcus mutans, Staphylococcus aureus, Lactobacillus spp., Enterococcus faecalis, and Candida albicans. The process involves the preparation of an aqueous extract from dried Basella alba leaves, followed by the reaction with a calcium hydroxide solution under controlled conditions, resulting in the formation of CaONPs. These nanoparticles are characterized by high biocompatibility and efficacy in inhibiting microbial growth, indicating their potential for use in oral healthcare formulations such as mouth rinses, toothpastes, and wound healing gels. The invention provides an environmentally friendly and scalable solution to combat oral infections while avoiding the side effects of conventional antibiotics.

No. of Pages : 9 No. of Claims : 4

(54) Title of the invention : MODULAR RING-TYPE ORTHODONIC ADHESIVE DISPENSER WITH SINGLE-USE COMPOSITE CARTRIDGES

|                                               |                                                                                 |                                                                                                                                                                                                         |
|-----------------------------------------------|---------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (51) International classification             | :A61B0017000000, H01M0050211000, B43L0025120000, A61B0005145500, H04W0076270000 | (71)Name of Applicant :<br><b>1)SAVEETHA INSTITUTE OF MEDICAL AND TECHNICAL SCIENCES</b><br>Address of Applicant :NO 162, POONAMALLE HIGH ROAD VELLAPANCHAVADI, CHENNAI, TAMIL NADU, INDIA 600077 ----- |
| (86) International Application No             | :NA                                                                             | <b>Name of Applicant : NA</b>                                                                                                                                                                           |
| Filing Date                                   | :NA                                                                             | <b>Address of Applicant : NA</b>                                                                                                                                                                        |
| (87) International Publication No             | : NA                                                                            | (72)Name of Inventor :<br><b>1)SURIAPRAKA SH R</b><br>Address of Applicant :SAVEETHA DENTAL COLLEGE AND HOSPITALS NO 162, POONAMALLE HIGH ROAD VELLAPANCHAVADI, CHENNAI, TAMIL NADU, INDIA 600077 ----- |
| (61) Patent of Addition to Application Number | :NA                                                                             | <b>2)SWAPNA SREENIVASAGAN</b><br>Address of Applicant :SAVEETHA DENTAL COLLEGE AND HOSPITALS NO 162, POONAMALLE HIGH ROAD VELLAPANCHAVADI, CHENNAI, TAMIL NADU, INDIA 600077 -----                      |
| Filing Date                                   | :NA                                                                             | <b>3)DEEPAK NALLASWAMY VEERAIYAN</b><br>Address of Applicant :SAVEETHA DENTAL COLLEGE AND HOSPITALS NO 162, POONAMALLE HIGH ROAD VELLAPANCHAVADI, CHENNAI, TAMIL NADU, INDIA 600077 -----               |
| (62) Divisional to Application Number         | :NA                                                                             |                                                                                                                                                                                                         |
| Filing Date                                   | :NA                                                                             |                                                                                                                                                                                                         |

(57) Abstract :  
ABSTRACT The invention introduces a compact, ergonomic adhesive dispenser designed to be worn on the index finger during orthodontic bonding procedures. Featuring a single-use, snap-in composite cartridge, the device delivers an optimized quantity of bonding material for one full-mouth bonding session (20--28 brackets). Its vertically mounted cartridge mimics the form of a miniature ink bottle and enables direct dabbing via a non-stick tip surface. The opaque, light-blocking body prevents premature curing, and its minimalistic footprint supports enhanced workflow, aseptic handling, and composite conservation in busy or space restricted clinical environments

No. of Pages : 12 No. of Claims : 7



(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :24/06/2025

(21) Application No.202541060139 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : ENHANCING ANIMAL WELL-BEING THROUGH SERVEPRANI - AN INTEGRATED PLATFORM FOR COMPREHENSIVE ANIMAL CARE

(51) International classification :A01K0013000000, A01K0029000000, G06N0003045000, G06Q0050220000, A61Q0005120000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

Enhancing animal well-being through serveprani - an integrated platform for comprehensive animal care is the proposed invention. The issues rising from the keeping of pets in rapidly urbanizing areas, especially access to reliable pet care services. With lifestyle change due to urbanization, pet-keeping creates grave problems for owners in obtaining credible veterinary care, grooming services, and arrangements for pet-sitting due to pressures exerted by modern urban life. It attempts to address the crucial issue of lost pets and the logistics associated with reporting and finding them in crowded cities. Pet adoption of homeless pets is difficult, due to finding of new pet adopters. Along with this, it also presents ways and means that are available to divert food waste from restaurants and supermarkets to nourish animals. This leads it to link urban pet care challenges with resource management and sustainability. Identifying potential solutions capable of improving quality and efficiency of pet care services simultaneously with addressing the issues associated with food waste, the ServePrani finds solution for the challenges.

No. of Pages : 17 No. of Claims : 5

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :24/06/2025

(21) Application No.202541060143 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : IoT-Robotic hand Controlled by Hand Gesture

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|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>(51) International classification :G06F0003010000, G06V0040200000, B25J0009160000, G06F0003030000, G06T0007246000</p> <p>(86) International Application No :NA<br/>Filing Date :NA</p> <p>(87) International Publication No : NA</p> <p>(61) Patent of Addition to Application Number :NA<br/>Filing Date :NA</p> <p>(62) Divisional to Application Number :NA<br/>Filing Date :NA</p> | <p>(71)<b>Name of Applicant :</b><br/><b>1)Paavai College of Engineering</b><br/>Address of Applicant :Namakkal, Tamil Nadu -----<br/><b>Name of Applicant : NA</b><br/><b>Address of Applicant : NA</b></p> <p>(72)<b>Name of Inventor :</b><br/><b>1)Dr. N. Sasikumar</b><br/>Address of Applicant :Associate Professor, Department of ECE, Paavai College of Engineering, Namakkal, Tamil Nadu -----<br/><b>2)Mr. Sundararaj</b><br/>Address of Applicant :Assistant Professor, Department of ECE, Paavai College of Engineering, Namakkal, Tamil Nadu -----<br/><b>3)Dr. L. Vasanth</b><br/>Address of Applicant :Associate Professor, Department of BME, Paavai College of Engineering, Namakkal, Tamil Nadu -----<br/><b>4)Mr. S. Vinothkumar</b><br/>Address of Applicant :Assistant Professor, Department of BME, Paavai College of Engineering, Namakkal, Tamil Nadu -----<br/><b>5)Mr. A. V. Vinothkumar</b><br/>Address of Applicant :Assistant Professor, Department of BME, Paavai College of Engineering, Namakkal, Tamil Nadu -----<br/><b>6)K. Gopinathan</b><br/>Address of Applicant :Student, Department of BME Paavai College of Engineering, Namakkal, Tamil Nadu -----<br/><b>7)A. Balaji</b><br/>Address of Applicant :Student, Department of BME Paavai College of Engineering, Namakkal, Tamil Nadu -----<br/><b>8)R. Surya</b><br/>Address of Applicant :Student, Department of BME Paavai College of Engineering, Namakkal, Tamil Nadu -----</p> |
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(57) Abstract :

This project presents a hand-tracking servo control system that integrates computer vision and embedded systems to enable gesture-based control of five servo motors. Utilizing a webcam, Python with OpenCV and MediaPipe, and an Arduino microcontroller, the system detects hand landmarks in real-time and maps finger-to-wrist distances to servo angles (0-180 degrees). These angles are transmitted via serial communication to an Arduino, which actuates the servos to mimic hand movements, suitable for applications like robotic hands or human-machine interfaces. The implementation addresses challenges such as serial port access errors, hand-tracking jitter, and servo power requirements through robust error handling, distance calibration, and external power supplies. Testing demonstrates accurate and responsive control, with potential improvements in gesture mapping and smoothing for enhanced precision. This system serves as an educational tool and a foundation for advanced gesture-controlled robotics.

No. of Pages : 9 No. of Claims : 4

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|-----------------------------------------------------------------------------------------------------------------|--|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| (12) PATENT APPLICATION PUBLICATION                                                                             |  | (21) Application No.202541060144 A                                                                                                                                                                                                                                                                          |  |
| (19) INDIA                                                                                                      |  |                                                                                                                                                                                                                                                                                                             |  |
| (22) Date of filing of Application :24/06/2025                                                                  |  | (43) Publication Date : 04/07/2025                                                                                                                                                                                                                                                                          |  |
| (54) Title of the invention : Analyzing Emotional Dynamics and Contextual Shifts in Digital Social Interactions |  |                                                                                                                                                                                                                                                                                                             |  |
| (51) International classification :G06F40/00, G06F40/30, G06N3/045, G06Q50/00                                   |  | (71)Name of Applicant :<br><b>1)Sri Krishna College of Engineering and Technology</b><br>Address of Applicant :Coimbatore, Tamil Nadu -----                                                                                                                                                                 |  |
| (86) International Application No :NA<br>Filing Date :NA                                                        |  | <b>Name of Applicant : NA</b><br><b>Address of Applicant : NA</b>                                                                                                                                                                                                                                           |  |
| (87) International Publication No : NA                                                                          |  | (72)Name of Inventor :<br><b>1)Ms. Rama Ranjini</b><br>Address of Applicant :Associate Professor, Department of CSE, Sri Krishna College of Engineering and Technology, Coimbatore, Tamil Nadu -----                                                                                                        |  |
| (61) Patent of Addition to Application Number :NA<br>Filing Date :NA                                            |  | ---<br><b>2)Mr. Vel Yogesh C B</b><br>Address of Applicant :Department of CSE, Sri Krishna College of Engineering and Technology, Coimbatore, Tamil Nadu -----                                                                                                                                              |  |
| (62) Divisional to Application Number :NA<br>Filing Date :NA                                                    |  | <b>3)Ms. Sumalini G V</b><br>Address of Applicant :Department of CSE, Sri Krishna College of Engineering and Technology, Coimbatore, Tamil Nadu -----<br><b>4)Ms. Savitha K</b><br>Address of Applicant :Department of CSE, Sri Krishna College of Engineering and Technology, Coimbatore, Tamil Nadu ----- |  |

(57) Abstract :  
A multimodal sentiment and emotion analysis system is deployed by integrating NLP, deep learning, and machine learning across text, image, audio, and video data sources. Text sentiment analysis employs RoBERTa, XLM-T, XLM-R, and OpenAI’s text-davinci-003, with text-davinci-003 yielding the highest accuracy of 94.1%. Image emotion analysis utilizes VGG16 CNN, reaching 87.5% accuracy on the FER2013 dataset. Audio sentiment analysis applies LSTM-based deep learning models, attaining 83.9% accuracy. Video sentiment analysis combines MoviePy, Speech-to-Text APIs, and NLP-based sentiment extraction, achieving 85.2% accuracy. YouTube sentiment analysis leverages the YouTube Data v3 API with NLP techniques, producing 88.4% accuracy, while Twitter sentiment analysis integrates the Apify API with RoBERTa, resulting in 90.7% accuracy. Threat detection is performed using logistic regression (86.3%) and LSTM-based deep learning models (91.2%). Social media monitoring employs BERT, reaching 93.0% accuracy. Chat data sentiment analysis utilizes Naïve Bayes (84.5%), and general NLP-based sentiment classification applies SVM (88.9%).

No. of Pages : 10 No. of Claims : 4

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :24/06/2025

(21) Application No.202541060145 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : ZEBRAFISH AS A MODEL SYSTEM TO STUDY THE EFFECT OF WOUND HEALING IN COMBINED EXTRACT OF LAWSONIA INERMIS AND ACALYPHA INDICA

(51) International classification :A61K0036470000, A61P0017020000, A23K0050800000, A61K0008978900, A61K0036185000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

The present invention provides a special nourishment feed for promoting wound repair in zebrafish (Danio rerio). The nourishment for promoting wound repair is prepared from the medicinal extract, comprising: a combination of Lawsonia inermis and Acalypha indica in a synergistically effective amount together. The wound healing activity of medicinal extract combination of Lawsonia inermis and Acalypha indica suggest that could potentially serve as a valuable candidate for promoting wound healing when used as combination drug. The wound healing medicinal extract as a fish feed is prepared by mixing 100 µL of Acalypha indica extract, 100 µL of Lawsonia inermis extract, and 800 µL of distilled water with 1 gram of standard fish feed, blending the mixture thoroughly to ensure uniform distribution of the extracts, molding into small pellets suitable for zebrafish consumption and air-drying and storing the pellets in a sterile container until use. In addition, the invention also provides a process for the preparation of Lawsonia inermis and Acalypha indica extracts. The wound healing assessments showed accelerated tissue regeneration and epithelialization highlighting its therapeutic efficacy and the synergistic use of Lawsonia inermis and Acalypha indica offers a promising natural alternative for managing inflammation, oxidative stress, and wound healing.

No. of Pages : 29 No. of Claims : 9

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202541060147 A

(19) INDIA

(22) Date of filing of Application :24/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : NEXT-GENERATION LI-FI COMMUNICATION SYSTEM WITH AI-POWERED DATA ENCRYPTION

|                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
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| <p>(51) International classification :H04B0010116000, H04L0009400000, G06N0003045000, G06N0003080000, H04B0010114000</p> <p>(86) International Application No :NA<br/>Filing Date :NA<br/>(87) International Publication No :NA<br/>(61) Patent of Addition to Application Number :NA<br/>Filing Date :NA<br/>(62) Divisional to Application Number :NA<br/>Filing Date :NA</p> | <p>(71)Name of Applicant :<br/><b>1)Dr. Bh Padma</b><br/>Address of Applicant :Professor, Gayatri Vidya Parishad College for Degree and PG Courses (Autonomous), Visakhapatnam, Pin:530045, Andhra Pradesh, India. -----<br/><b>2)Mrs. Syeda Faqera Fatima</b><br/><b>3)CH Priyadarshini</b><br/><b>4)Dr. Lubna Kauser</b><br/><b>5)Mrs. Asra Fatima</b><br/><b>6)Smt. Mereti S V M S Vyshnavi</b><br/><b>7)M. Karthika</b><br/><b>8)Smt. Mellam Aruna</b><br/><b>9)Dr. Indumathi G S</b><br/><b>10)Dr. R. Saranya</b><br/><b>11)Prof. Dr. Harikumar Pallathadka</b><br/>Name of Applicant : NA<br/>Address of Applicant : NA<br/>(72)Name of Inventor :<br/><b>1)Dr. Bh Padma</b><br/>Address of Applicant :Professor, Gayatri Vidya Parishad College for Degree and PG Courses (Autonomous), Visakhapatnam, Pin:530045, Andhra Pradesh, India. -----<br/><b>2)Mrs. Syeda Faqera Fatima</b><br/>Address of Applicant :Assistant Professor, Department of Computer Science and Engineering, Faculty of Engineering and Technology, Khaja Bandanawaz University, KBN University Street, Bilalabad Colony, New Bank Colony, Khaja Colony, Kalaburagi, Pin: 585104, Karnataka, India. -----<br/><b>3)CH Priyadarshini</b><br/>Address of Applicant :Assistant Professor (C), University College of Engineering, Jntuk, Kakinada, Pin:533003, Andhra Pradesh, India. -----<br/><b>4)Dr. Lubna Kauser</b><br/>Address of Applicant :Assistant Professor, Department of Computer Science and Engineering, Faculty of Engineering and Technology, Khaja Bandanawaz University, KBN University Street, Bilalabad Colony, New Bank Colony, Khaja Colony, Kalaburagi, Pin: 585104, Karnataka, India. -----<br/><b>5)Mrs. Asra Fatima</b><br/>Address of Applicant :Assistant Professor, Department of Computer Science and Engineering, Faculty of Engineering and Technology, Khaja Bandanawaz University, KBN University Street, Bilalabad Colony, New Bank Colony, Khaja Colony, Kalaburagi, Pin: 585104, Karnataka, India. -----<br/><b>6)Smt. Mereti S V M S Vyshnavi</b><br/>Address of Applicant :Assistant Professor (C), University College of Engineering, Jntuk, Kakinada Pin:533003, Andhra Pradesh, India. -----<br/><b>7)M. Karthika</b><br/>Address of Applicant :Assistant Professor, Department of Costume Design and Fashion, Dr. SNS Rajalakshmi College of Arts and Science, 486 Thudiyalur - Saravanampatti Road, Post, Chinnavedampatti, Coimbatore, Pin: 641049, Tamil Nadu, India. ---<br/><b>8)Smt. Mellam Aruna</b><br/>Address of Applicant :Assistant Professor (C), University College of Engineering, Jntuk, Kakinada, Pin:533003, Andhra Pradesh, India. -----<br/><b>9)Dr. Indumathi G S</b><br/>Address of Applicant :Assistant Professor, Department of MBA, St. Joseph's College of Engineering, Chennai, Pin: 600119, Tamil Nadu, India. -----<br/><b>10)Dr. R. Saranya</b><br/>Address of Applicant :Assistant Professor, Computer Science with Cyber Security, Dr. SNS Rajalakshmi College of Arts and Science, 486 Thudiyalur - Saravanampatti Road, Post, Chinnavedampatti, Coimbatore, Pin: 641049, Tamil Nadu, India. -----<br/><b>11)Prof. Dr. Harikumar Pallathadka</b><br/>Address of Applicant :Professor &amp; Director, Manipur International University, Ghari Awang Leikai, Airport Road, Imphal, Imphal West District, Pin: 795140, Manipur, India. -----</p> |
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(57) Abstract :

The present invention discloses a next-generation Light Fidelity (Li-Fi) communication system integrated with artificial intelligence (AI) for real-time data encryption and adaptive transmission control. The system comprises an LED-based transmitter, a photodiode receiver, and an AI-powered encryption engine that dynamically selects encryption algorithms and adjusts security parameters based on data classification, environmental inputs, and threat detection. It features intelligent beamforming, anomaly detection, and secure authentication to provide a highly secure, energy-efficient, and context-aware optical wireless communication solution suitable for critical applications in healthcare, autonomous systems, military operations, and smart infrastructure.

No. of Pages : 18 No. of Claims : 6

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :24/06/2025

(21) Application No.202541060148 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : DIGITAL EXAMINATION SYSTEM WITH BIOMETRIC AUTHENTICATION AND AUTOMATED PROCTORING

|                                               |                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
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| (51) International classification             | :G06F21/31, G06F21/32, G06V40/16 | (72) <b>Name of Inventor :</b><br><b>1)Dr. Devisri K</b><br>Address of Applicant :Assistant Professor, Tamil Nadu Teachers Education University, Karapakkam, Chennai, Pin: 600 097, Tamil Nadu, India. -----<br>-----<br><b>2)Dr. P. Karnan</b><br>Address of Applicant :Associate Professor, GRT College of Education, GRT Mahalakshmi Nagar, Chennai - Tirupati High Road, Tiruttani, Tiruvallur, Pin: 631209. Tamil Nadu, India. -----<br><b>3)Mr. V. Veeraraghavan</b><br>Address of Applicant :Assistant Professor, Arulmigu Meenakshi Amman College of Education, Uthiramerur, Kanchipuram, Pin: 603406, Tamilnadu, India. -----<br>-----<br><b>4)Mrs. S. Tharani</b><br>Address of Applicant :Ph.D., Scholar, Tamil Nadu Teachers Education University, Karapakkam, Chennai, Pin: 600 097, Tamil Nadu, India. ----- |
| (86) International Application No             | :NA                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Filing Date                                   | :NA                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| (87) International Publication No             | : NA                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| (61) Patent of Addition to Application Number | :NA                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Filing Date                                   | :NA                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| (62) Divisional to Application Number         | :NA                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Filing Date                                   | :NA                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |

(57) Abstract :

The present invention discloses a digital examination system that ensures secure, authenticated, and proctored online assessments through the integration of biometric authentication and AI-based automated monitoring. The system authenticates candidates using facial recognition or fingerprint scanning both at login and intermittently during the examination. An intelligent proctoring engine continuously analyzes video, audio, and screen activity to detect suspicious behavior such as candidate absence, multiple faces, or unauthorized background noise. A secure examination browser further prevents screen switching and external access. All activities are logged and processed to generate detailed audit reports, thereby ensuring examination integrity, identity verification, and scalable administration of remote or in-person digital assessments.

No. of Pages : 18 No. of Claims : 7

(54) Title of the invention : A SYSTEM AND METHOD FOR SELF-EVOLVING MACHINE LEARNING ALGORITHM FOR ENHANCED PREDICTIVE ANALYTICS

|                                                                                                                                                                                                                                                  |                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
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| <div>(51) International classification</div> <div>(86) International Application No</div> <div>(87) International Publication No</div> <div>(61) Patent of Addition to Application Number</div> <div>(62) Divisional to Application Number</div> | <div>:G06N0020000000, H04L0009400000, G16H0050200000, G06Q0050400000, G05B0013040000</div> <div>:NA</div> <div>:NA</div> <div>: NA</div> <div>:NA</div> <div>:NA</div> <div>:NA</div> | <div>(71)Name of Applicant :</div> <div>1)Chaitanya Bharathi Institute of Technology</div> <div>Address of Applicant :Osman Sagar Rd, Kokapet, Gandipet, Hyderabad, Telangana 500075 -----</div> <div>Name of Applicant : NA</div> <div>Address of Applicant : NA</div> <div>(72)Name of Inventor :</div> <div>1)Ms. Puvvula Kiranmaie</div> <div>Address of Applicant :Assistant Professor, Department of IT, CBIT, Gandipet, Hyderabad- 500075 -----</div> <div>2)Dr. A. Sirisha</div> <div>Address of Applicant :Assistant Professor, Department of IT, CBIT, Gandipet, Hyderabad- 500075 -----</div> <div>3)Ms. T. Madhuri</div> <div>Address of Applicant :Assistant Professor, Department of IT, CBIT, Gandipet, Hyderabad- 500075 -----</div> <div>4)Dr. B. Harish Goud</div> <div>Address of Applicant :Assistant Professor, Department of IT, CBIT, Gandipet, Hyderabad- 500075 -----</div> <div>5)Mr. G. Srikanth</div> <div>Address of Applicant :Assistant Professor, Department of IT, CBIT, Gandipet, Hyderabad- 500075 -----</div> <div>6)Mr. N. Shiva Kumar</div> <div>Address of Applicant :Assistant Professor, Department of IT, CBIT, Gandipet, Hyderabad- 500075 -----</div> |
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(57) Abstract :

[029] The present invention relates to a system and method for implementing a self-evolving machine learning algorithm designed to autonomously enhance predictive analytics in dynamic data environments. The disclosed system comprises integrated modules including real-time data ingestion, automated preprocessing, a feature evolution engine, adaptive model reconfiguration, autonomous hyperparameter tuning, and a continuous feedback loop. These components collectively enable the system to modify its internal structure, features, and parameters in response to shifts in data patterns without human intervention. The invention supports real-time learning and decision-making across various application domains such as finance, healthcare, industrial automation, and cybersecurity. By facilitating continuous model evolution, contextual adaptation, and performance optimization, the invention significantly improves prediction accuracy, robustness, and system autonomy in non-stationary, high-velocity environments. Accompanied Drawing [FIGS. 1-2]

(54) Title of the invention : A SYSTEMATIC METHOD FOR BRAIN ABNORMALITY DETECTION AND CLASSIFICATION USING EMERGING TECHNOLOGIES

|                                               |                                                                                 |                                                                                                                                                                                                                                           |
|-----------------------------------------------|---------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (51) International classification             | :G06N0003080000, A61B0005000000, G16H0030400000, G06N0003045000, G16H0050200000 | (71) <b>Name of Applicant :</b><br><b>1)CVR COLLEGE OF ENGINEERING</b><br>Address of Applicant :CVR COLLEGE OF ENGINEERING, Vastunagar, Mangalpalli (V), Ibrahimpatnam (M), Rangareddy (Dist), Telangana 501510, India<br>Hyderabad ----- |
| (86) International Application No             | :NA                                                                             | <b>Name of Applicant : NA</b>                                                                                                                                                                                                             |
| Filing Date                                   | :NA                                                                             | <b>Address of Applicant : NA</b>                                                                                                                                                                                                          |
| (87) International Publication No             | : NA                                                                            | (72) <b>Name of Inventor :</b>                                                                                                                                                                                                            |
| (61) Patent of Addition to Application Number | :NA                                                                             | <b>1)Tadaboina Ramya</b>                                                                                                                                                                                                                  |
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| (62) Divisional to Application Number         | :NA                                                                             |                                                                                                                                                                                                                                           |
| Filing Date                                   | :NA                                                                             |                                                                                                                                                                                                                                           |

(57) Abstract :  
The invention titled "A Systematic Method for Brain Abnormality Detection and Classification Using Emerging Technologies" presents an intelligent framework for accurate and efficient diagnosis of brain disorders. Traditional diagnostic methods often rely on manual interpretation of neuroimaging data, which can be time-consuming, prone to error, and less effective in early-stage detection. This invention overcomes these limitations by integrating advanced technologies such as artificial intelligence, deep learning, and high-resolution imaging modalities like MRI and CT. The method involves preprocessing of brain images, automated feature extraction using deep neural networks, and classification of abnormalities such as tumors, hemorrhages, or degenerative conditions. An attention mechanism further enhances the system's ability to focus on critical brain regions, improving diagnostic precision. By automating the detection process, this invention reduces diagnostic delays, minimizes human error, and assists clinicians in making data-driven, accurate treatment decisions.

No. of Pages : 15 No. of Claims : 3



(54) Title of the invention : Augmented Reality Rehabilitation System for Enhanced Recovery in Post-Shoulder Surgery Patients

|                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>(51) International classification :G16H0020300000, A63B0021000000, A63B0024000000, A63B0071060000, A61H0001020000</p> <p>(86) International Application No :NA<br/>Filing Date :NA</p> <p>(87) International Publication No : NA</p> <p>(61) Patent of Addition to Application Number :NA<br/>Filing Date :NA</p> <p>(62) Divisional to Application Number :NA<br/>Filing Date :NA</p> | <p>(71)Name of Applicant :<br/><b>1)Vidyavardhaka College of Engineering</b><br/>Address of Applicant :Vidyavardhaka College of Engineering Mysuru -----<br/>-----</p> <p><b>Name of Applicant : NA</b><br/><b>Address of Applicant : NA</b></p> <p>(72)Name of Inventor :<br/><b>1)Pushkar V</b><br/>Address of Applicant :Vidyavardhaka College of Engineering, #206, Gokulam 3rd Stage, Mysuru – 570 002 Mysuru -----</p> <p><b>2)Saarvi Ravi</b><br/>Address of Applicant :Vidyavardhaka College of Engineering, #206, Gokulam 3rd Stage, Mysuru – 570 002 Mysuru -----</p> <p><b>3)Suparna D S</b><br/>Address of Applicant :Vidyavardhaka College of Engineering, #206, Gokulam 3rd Stage, Mysuru – 570 002 Mysuru -----</p> <p><b>4)Ujwal R</b><br/>Address of Applicant :Vidyavardhaka College of Engineering, #206, Gokulam 3rd Stage, Mysuru – 570 002 Mysuru -----</p> <p><b>5)Dr Madhusudan H S</b><br/>Address of Applicant :Vidyavardhaka College of Engineering, #206, Gokulam 3rd Stage, Mysuru – 570 002 Mysuru -----</p> |
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## (57) Abstract :

Augmented Reality (AR) technology is transforming rehabilitation medicine by solving the main problems of conventional therapy. Conventional rehabilitation has problems with patient compliance, motivation and accessibility, especially in rural or underserved communities. AR technology provides new solutions, particularly in shoulder rehabilitation, where accurate movement and form are essential. AR systems produce interactive, immersive environments that revolutionize the rehabilitation experience. For shoulder recovery, the systems offer real-time feedback on exercise performance, movement patterns, and joint angles, avoiding compensatory movements that may impede recovery [1]. Patients can monitor progress, compete against previous performance, and join multiplayer sessions with other patients to build social interaction during the healing process. Home therapy sessions are made possible through the technology, enhancing accessibility while ensuring the quality of care [4]. Real-time feedback is a key innovation, instantly notifying patients of improper movements and offering corrective guidance [5]. The feedback cycle is important in the formation of correct movement patterns and muscle memory, especially in shoulder rehabilitation. The system has adaptive ability to accommodate individual progress, automatically modifying exercise difficulty to ensure optimal challenge. The capability of the technology lies not just in improving current therapy. Machine learning programs that are incorporated within AR systems compare trends in patient performance and create tailored treatment protocols that can respond in real-time [6]. Movement data collected from large numbers of patients might accelerate insights into rehabilitation results and refine treatment practices [7]. Yet, AR rehabilitation is not without challenges, such as initial equipment expense, technical expertise demands, and maintenance requirements. Further research is needed to confirm its long-term efficacy against conventional rehabilitation. Privacy and data protection issues must also be addressed since these systems deal with sensitive patient data. The system involves Unity AR Core for rehabilitation use, Mixamo AR models for movement simulation, Media Pipe for real-time pose estimation, and Google Maps API integration for finding physiotherapists. The integrated system seeks to improve rehabilitation through real-time tracking and interactive exercises, thereby improving patient compliance and treatment outcomes, compliance and treatment outcomes.

No. of Pages : 19 No. of Claims : 5

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :24/06/2025

(21) Application No.202541060165 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : Method and System for Dynamic Identity Management Across Multiple Digital Platforms

(51) International classification :H04L0009400000, H04L0009320000, H04L0009000000, H04L0009080000, G06F0021620000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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**4)Dr. Shreelatha H R**

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(57) Abstract :

The present invention relates to a method and system for dynamic identity management across multiple digital platforms, wherein a secure identity relay device (SIRD) generates a contextually adaptive, cryptographically secured dynamic identity token (DIT) based on real-time biometric input, behavioral telemetry, device attestation, and environmental context. The invention employs a decentralized identity orchestration engine (DIOE) operating over a distributed ledger to verify, synchronize, and manage identity tokens, while a context-aware trust resolution module (CTRM) dynamically evaluates trust scores for each session. An adaptive policy negotiation subsystem (APNS) facilitates real-time alignment between platform-specific access control policies and user-defined privacy preferences. The identity tokens are structured for selective disclosure using attribute-based encryption and are cryptographically anchored to a core identity kernel (CIK) stored securely within the SIRD.

No. of Pages : 28 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :24/06/2025

(21) Application No.202541060182 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : MACHINE LEARNING & IOT BASED DYNAMIC BANDWIDTH ALLOCATION SYSTEM FOR 6G WIRELESS NETWORKS

|                                                                                                                                                                                                                                                                                                                                                                                           |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>(51) International classification :H04W0072045300, H04W0072230000, H04Q0011000000, G06N0020000000, H04L0043088200</p> <p>(86) International Application No :NA<br/>Filing Date :NA</p> <p>(87) International Publication No : NA</p> <p>(61) Patent of Addition to Application Number :NA<br/>Filing Date :NA</p> <p>(62) Divisional to Application Number :NA<br/>Filing Date :NA</p> |  | <p>(71)<b>Name of Applicant :</b><br/><b>1)Dr. C. Senthil</b><br/>Address of Applicant :Assistant Professor, Department of Mechanical Engineering, Karpagam College of Engineering, Myleripalayam Village, Othakkal Mandapam Post, Coimbatore, Tamil Nadu-641032, India. Coimbatore -----<br/>-----<br/><b>2)Dr. M. Shoukath Ali</b><br/><b>3)Swapna B</b><br/><b>4)Dr. L. Gunganathan</b><br/><b>Name of Applicant : NA</b><br/><b>Address of Applicant : NA</b><br/><b>(72)Name of Inventor :</b><br/><b>1)Dr. C. Senthil</b><br/>Address of Applicant :Assistant Professor, Department of Mechanical Engineering, Karpagam College of Engineering, Myleripalayam Village, Othakkal Mandapam Post, Coimbatore, Tamil Nadu-641032, India. Coimbatore -----<br/>-----<br/><b>2)Dr. M. Shoukath Ali</b><br/>Address of Applicant :Associate Professor, Department of Electronics &amp; Communication Engineering, Geethanjali College of Engineering &amp; Technology, Cheeryal, Medchal, Hyderabad, Telangana-501301, India. Hyderabad -----<br/>-----<br/><b>3)Swapna B</b><br/>Address of Applicant :Research Scholar, Department of CSE, SR University, Ananthasagar, Hasanparthy, Warangal, Telangana-506731, India. Warangal -----<br/>-----<br/><b>4)Dr. L. Gunganathan</b><br/>Address of Applicant :Research Faculty, Department of Physics, Saveetha School of Engineering, Saveetha Institute of Medical and Technical Science (SIMATS), Thandalam, Chennai, Tamil Nadu-602105, India Chennai -----</p> |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

(57) Abstract :  
MACHINE LEARNING & IOT BASED DYNAMIC BANDWIDTH ALLOCATION SYSTEM FOR 6G WIRELESS NETWORKS ABSTRACT This invention presents a Machine Learning & IoT-Based Dynamic Bandwidth Allocation System for 6G wireless networks, utilizing Reinforcement Learning (RL) algorithms to optimize bandwidth allocation. The system integrates real-time data from IoT devices to predict network traffic patterns and dynamically adjust bandwidth resources. By employing the Real-Time Traffic Prediction and Dynamic Allocation method, the system monitors and analyzes traffic data to forecast future demand, enabling proactive adjustments in bandwidth distribution. The RL algorithm plays a key role in learning optimal allocation strategies through continuous feedback from the network environment. As traffic conditions change, the RL model adapts its decisions, ensuring efficient bandwidth utilization, reduced latency, and minimized congestion. This approach is designed to enhance the performance and reliability of 6G networks, supporting mission-critical applications like autonomous vehicles, smart cities, and industrial IoT while maintaining seamless connectivity in diverse and demanding environments.

No. of Pages : 12 No. of Claims : 8

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202541060197 A

(19) INDIA

(22) Date of filing of Application :24/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : AN AI ASSISTED CPR DEVICE WITH REAL-TIME PULSE SENSING AND ADAPTIVE COMPRESSION CONTROL

(51) International classification :A61H0031000000, A61B0005000000, A61B0005024000, A61B0005021000, A61B0005145500

(86) International Application No :NA

Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA

Filing Date :NA

(62) Divisional to Application Number :NA

Filing Date :NA

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**3)Dr.T. Jayanthi**

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(57) Abstract :

ABSTRACT The present invention relates to an AI (Cardiopulmonary Resuscitation) device that integrates real-time non invasive pulse sensing and intelligent compression control to optimize the effectiveness of CPR. Utilizing advanced photoplethysmography (PPG) sensors placed on the carotid artery, the device continuously monitors the patient's heart pulse during CPR. The collected pulse data is analyzed by an intelligent unit to assess the patient's condition and adapt chest compressions in real-time. The device features customizable settings for various patient profiles, including age, size, and medical history. It also includes safety features such as a pulse signal that indicates whether CPR should continue, AI-controlled piston movement, and an emergency cut-off mechanism. Additionally, the device is equipped with rechargeable batteries and cloud-based data storage for real-time monitoring and post-CPR analysis.

No. of Pages : 24 No. of Claims : 9

(54) Title of the invention : DEVELOPING SPEAKING SKILLS OF TRIBAL SECONDARY SCHOOL LEARNERS OF RAMPACHODAVARAM DIVISION: AN EXPERIMENTAL STUDY

|                                               |                                                                                 |                                                                                                                                                    |
|-----------------------------------------------|---------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------|
| (51) International classification             | :G06Q0050200000, G09B0019060000, G09B0019040000, G09B0005060000, G09B0007020000 | (71)Name of Applicant :<br>1)SR University<br>Address of Applicant :Ananthasagar, Hasanparthy, Warangal, Telangana, India - 506371. Warangal ----- |
| (86) International Application No             | :NA                                                                             | Name of Applicant : NA                                                                                                                             |
| Filing Date                                   | :NA                                                                             | Address of Applicant : NA                                                                                                                          |
| (87) International Publication No             | : NA                                                                            | (72)Name of Inventor :                                                                                                                             |
| (61) Patent of Addition to Application Number | :NA                                                                             | 1)K.M.F. Arora                                                                                                                                     |
| Filing Date                                   | :NA                                                                             | Address of Applicant :PhD Scholar, Department of English, SR University, Warangal, Telangana, India - 506371. Warangal -----                       |
| (62) Divisional to Application Number         | :NA                                                                             | 2)Nallala Hima Varshini                                                                                                                            |
| Filing Date                                   | :NA                                                                             | Address of Applicant :Supervisor, Assistant Professor, Department of English, SR University, Warangal, Telangana, India - 506371. Warangal -----   |

(57) Abstract :  
DEVELOPING SPEAKING SKILLS OF TRIBAL SECONDARY SCHOOL LEARNERS OF RAMPACHODAVARAM DIVISION: AN EXPERIMENTAL STUDY  
This study presents a method for detecting fluency improvement using pre- and post-intervention scores in pronunciation, accuracy, vocabulary, and interaction. Conducted with tribal secondary school students at the Government Tribal Welfare Ashram High School in Rampachodavaram Division, the research aims to enhance their English-speaking skills. The intervention's impact was assessed through a comprehensive analysis of pre-test and post-test assessments, student interviews, and classroom observations. The study explored challenges faced by tribal learners, effective engagement strategies, and linguistic implications of language acquisition. It highlights how student-focused training and adequate resources can significantly boost student engagement. Empirical findings are categorized into five themes: barriers to learning English speaking skills, engagement methods, characteristics of effective learning materials, linguistic implications, and student support. Quantitative analysis, utilizing frequency distribution, mean, and standard deviation for the five speaking skills, provides robust statistical evidence. The results demonstrate enhanced speaking skills among tribal learners' post-intervention, validating observed trends. FIG.1

No. of Pages : 30 No. of Claims : 1

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :24/06/2025

(21) Application No.202541060237 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : Patient monitoring device

(51) International classification :A61B0005000000, A61B0005145000, G16H0040670000, G16H0010600000, G16H0080000000  
(86) International Application No :NA  
Filing Date :NA  
(87) International Publication No : NA  
(61) Patent of Addition to Application Number :NA  
Filing Date :NA  
(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

The invention provides an AI-based patient monitoring device capable of real-time acquisition, analysis, and prediction of vital physiological parameters using a sensor array and machine learning algorithms. The system includes a touchscreen display for real-time vitals and alerts, and supports patient-specific modeling for intelligent decision-making. An edge AI engine enables local data processing for immediate alerts and predictive diagnostics, even without internet connectivity. The device integrates with EHR systems and telemedicine platforms via secure, encrypted cloud services. Optional features include voice-based interaction, motion detection, and glucose monitoring. Its portable, battery-operated design allows deployment in hospitals, ambulances, and home care. The invention aims to provide early warnings, enhance clinical accuracy, and support caregivers in real-time healthcare delivery through intelligent automation and personalized monitoring.

No. of Pages : 21 No. of Claims : 2

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :24/06/2025

(21) Application No.202541060244 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : A highly performed label-free prism-based SPR sensor for methane gas detection

(51) International classification :G01N0021770000, G01N0021552000, G01N0021250000, B82Y0020000000, G06Q0030020000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

(71)Name of Applicant :

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**3)Kalagara Manasa**

**4)Jetti Manikanta**

**5)Vasimalla Yesudasu**

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(57) Abstract :

This article exhibits a Kretschmann configuration-based plasmonic optical biosensor, which has the access of label-free detection and real-time. To analyze the sensor's performance for the detection of methane gas at a wavelength of 633 nm, the transfer matrix technique is exploited with the help of the angular interrogation procedure. This proposed sensor owns an advantage in form of surface plasmons excitation through the silver. Additionally, a novel dielectric material, arsenic trisulfide, is introduced for the first time in the sensor to enhance sensor's performance as well as to acts protection for the Ag's oxidization. Initially, the thickness optimization for the considered layers is shown by analyzing the better minimum reflectance and sensitivity. Subsequently, the impact of the proposed sensor by comparing its performance with other structures, which are designed with the considered layers. With optimal structure, the sensor's performances are analyzed for the detection methane gas for different TDMC heterostructures and found that the maximum attained parameters are a sensitivity of 259.69 deg/RIU, a QF of 78.67 RIU<sup>-1</sup>, and a DA of 4.56. These results show a significant improvement with the existing work for the detection of methane gas. Finally, the electric field intensity for the sensor is shown, following by the standard fabrication steps at the end.

No. of Pages : 6 No. of Claims : 4

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202541060249 A

(19) INDIA

(22) Date of filing of Application :24/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : Eco-Friendly One-Pot Calcination-Free Synthesis of Ternary Photocatalyst for Efficient Industrial Wastewater Treatment Applications

|                                                                                          |      |                                                                                                                                                                                                                                             |
|------------------------------------------------------------------------------------------|------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (51) International classification : B01J23/89, B01J21/18, B01J35/00, B01J35/10, C02F1/72 |      | (71)Name of Applicant :<br><b>1)Gurramkonda Neha Mallika</b><br>Address of Applicant :Flat no. 502, Plot no. 1372 & 1375, Sneha Regal apartment, Gokul plots, Venkataramana colony, Kukatpally, Hyderabad - 500085, Telangana, India. ----- |
| (86) International Application No                                                        | :NA  | <b>2)ENRICO MARIA STADERINI</b>                                                                                                                                                                                                             |
| Filing Date                                                                              | :NA  | <b>Name of Applicant : NA</b>                                                                                                                                                                                                               |
| (87) International Publication No                                                        | : NA | <b>Address of Applicant : NA</b>                                                                                                                                                                                                            |
| (61) Patent of Addition to Application Number                                            | :NA  | (72)Name of Inventor :                                                                                                                                                                                                                      |
| Filing Date                                                                              | :NA  | <b>1)Gurramkonda Neha Mallika</b>                                                                                                                                                                                                           |
| (62) Divisional to Application Number                                                    | :NA  | Address of Applicant :Flat no. 502, Plot no. 1372 & 1375, Sneha Regal apartment, Gokul plots, Venkataramana colony, Kukatpally, Hyderabad - 500085, Telangana, India. -----                                                                 |
| Filing Date                                                                              | :NA  | <b>2)ENRICO MARIA STADERINI</b>                                                                                                                                                                                                             |
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(57) Abstract :

The present invention relates to a photocatalytic ternary nanocomposite and a method for its synthesis. A photocatalytic ternary nanocomposite and a method for its synthesis are disclosed. The nanocomposite comprises rod-like zinc oxide (ZnO) nanoparticles and spherical silver (Ag) nanoparticles co-anchored on reduced graphene oxide (rGO) sheets. An optimized composition comprises approximately 54 wt% ZnO, 36 wt% rGO, and 9 wt% Ag, exhibiting efficient dye degradation under visible light. The material is characterized by a Z-average particle size of 15-20 nm and a BET surface area of 20-30 m<sup>2</sup>/g with a Type IV isotherm. The synthesis method is a novel, energy-efficient process comprising a one-pot solvothermal reaction at 140-160°C. A key feature is the use of a green deep eutectic solvent (DES) of choline chloride and glycerol. The final nanocomposite is recovered without a subsequent calcination step, providing a sustainable and effective catalyst for the environmental remediation of industrial wastewater.

No. of Pages : 43 No. of Claims : 10



(12) PATENT APPLICATION PUBLICATION

(21) Application No.202541060269 A

(19) INDIA

(22) Date of filing of Application :24/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : ANTI MOBILE THEFT SYSTEM AND METHOD THEREOF

(51) International classification :H04L0009320000, G06Q0020420000, H04L0009000000, G06Q0020320000, H04L0009400000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

Disclosed is a blockchain anti mobile theft system (100) comprising a second user device (104) adapted to remotely delete photos, videos, files, data, and access control associated with a first user device (102), comprising an input unit (109) that receives one or more instructions from said user, an output unit (115) that sends confirmation and alert message and a processing circuitry (112) communicatively coupled with said input unit (109) and output unit (115), and said processing circuitry (112) configured to receive (116) a user's complaint, block (118) said first user device (102) through an unique identification number, send (120) block confirmation messages to SIMa and local police station, store (122) blacklisted unique identification numbers of stolen mobiles, replicate (124) information on said user device (102) amongst said one or more servers (106), group (126) valid transactions to create valid blocks, deny (128) access to unauthorised user through any SIM. Figure 1 will be the reference.

No. of Pages : 27 No. of Claims : 10

(54) Title of the invention : METHOD AND SYSTEM FOR OUTSOURSING DECISION-TREE INFERENCE AND OBFUSCATING DECISION-TREE ATTRIBUTES

|                                               |                                                                                 |                                                                                                                                                                                                        |
|-----------------------------------------------|---------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (51) International classification             | :G06F0021620000, G06F0018243000, H04L0009400000, G06N0005010000, G06N0020000000 | (71)Name of Applicant :<br><b>1)Pantherun Technologies Private Limited</b><br>Address of Applicant :2nd Floor, 311, 6th Main Road, HAL 2nd Stage, Bangalore - 560038, Karnataka, India Bangalore ----- |
| (86) International Application No             | :NA                                                                             | <b>Name of Applicant : NA</b>                                                                                                                                                                          |
| Filing Date                                   | :NA                                                                             | <b>Address of Applicant : NA</b>                                                                                                                                                                       |
| (87) International Publication No             | : NA                                                                            | (72)Name of Inventor :                                                                                                                                                                                 |
| (61) Patent of Addition to Application Number | :NA                                                                             | <b>1)Srinivas Lakshman Sekhar</b>                                                                                                                                                                      |
| Filing Date                                   | :NA                                                                             | Address of Applicant :2nd Floor, 311, 6th Main Road, HAL 2nd Stage, Bangalore, Karnataka 560038, India Bangalore -----                                                                                 |
| (62) Divisional to Application Number         | :NA                                                                             |                                                                                                                                                                                                        |
| Filing Date                                   | :NA                                                                             |                                                                                                                                                                                                        |

(57) Abstract :  
METHOD AND SYSTEM FOR OUTSOURSING DECISION-TREE INFERENCE AND OBFUSCATING DECISION-TREE ATTRIBUTES ABSTRACT A method and a system for outsourcing decision tree inference involving decision tree attribute obfuscation. Embodiments provide a privacy-preserving outsourced decision tree classification framework that incorporates an attribute-hiding mechanism to obfuscate attributes of nodes of a decision tree model, which is to be inferred for classification task based on a query data. Embodiments provide the framework that ensures robust protection of the attributes of the decision tree model, addresses transmission overhead issues associated with transmission of a share of the query data from the first device to the second device (by employing a seed-based pseudorandom generator for compressing the share of the query data), ensures enhanced privacy for users, and improves scalability for practical deployment in resource-constrained environments. FIG. 3

No. of Pages : 57 No. of Claims : 18

(54) Title of the invention : Autonomous AI-Powered R&D Pods for Real-Time Crop Monitoring and Precision Agriculture

|                                                                                                                                                                                                                                                  |                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <div>(51) International classification</div> <div>(86) International Application No</div> <div>(87) International Publication No</div> <div>(61) Patent of Addition to Application Number</div> <div>(62) Divisional to Application Number</div> | <div>:G06Q0050020000, G06N0020000000, A01B0079000000, G06V0020100000, A01C0021000000</div> <div>:NA</div> <div>:NA</div> <div>: NA</div> <div>:NA</div> <div>:NA</div> | <div>(71)Name of Applicant :</div> <div>1)Madhankumar C</div> <div>Address of Applicant :1/x kg thottam, sellappampalayam,kabulipalayam,kovil palayam post, pollachi taluk,642110 -----</div> <div>2)Dr. S. Anandhi</div> <div>3)ADHITHIYA MS</div> <div>4)Dr. S. Ganesh</div> <div>Name of Applicant : NA</div> <div>Address of Applicant : NA</div> <div>(72)Name of Inventor :</div> <div>1)Dr. S. Anandhi</div> <div>Address of Applicant :Assistant Professor Department of Floriculture and Landscape Architecture SRM College of Agricultural Sciences SRM Institute of Science and Technology Baburayanpettai, Chengalpattu District - 603 201. Chengalpattu -----</div> <div>2)ADHITHIYA MS</div> <div>Address of Applicant :Student Department of Artificial Intelligence Engineering, Amrita School of Computing, Amrita Vishwa Vidyapeetham, Chennai, Tamil Nadu - 601 103 Chennai -----</div> <div>3)Dr. S. Ganesh</div> <div>Address of Applicant :Assistant Professor Department of Floriculture and Landscape Architecture SRM College of Agricultural Sciences SRM Institute of Science and Technology Baburayanpettai, Chengalpattu District - 603 201. Chengalpattu -----</div> |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

(57) Abstract :  
Autonomous AI-Powered R&D Pods for Real-Time Crop Monitoring and Precision Agriculture Abstract: The advent of Autonomous AI-powered R&D Pods marks a transformative step in precision agriculture, offering innovative solutions for real-time crop monitoring and optimized farm management. These self-sustaining pods are equipped with state-of the-art artificial intelligence and machine learning capabilities, enabling them to autonomously navigate agricultural fields and collect valuable data on key parameters such as soil composition, moisture content, pest activity, plant health, and environmental conditions. By utilizing a combination of sensors, drones, and satellite imaging, these pods continuously monitor crops, delivering highly granular insights that empower farmers with data-driven decision-making tools. The AI algorithms process vast amounts of data to generate actionable insights, offering precise recommendations for irrigation, fertilization, pest control, and crop rotation strategies. This enables farmers to optimize resource use, reduce waste, and enhance crop productivity while minimizing environmental impact. Through continuous real-time monitoring, the pods are capable of identifying early signs of disease, nutrient deficiencies, or pest infestations, allowing for proactive intervention. Moreover, the autonomous nature of these pods reduces the need for manual labor and allows for 24/7 operation, maximizing efficiency and scalability in agricultural practices. By seamlessly integrating smart agriculture techniques with traditional farming, these R&D pods pave the way for more sustainable, cost-effective, and resilient farming practices. Ultimately, this innovation holds the potential to significantly increase food security, reduce environmental footprints, and foster a more resilient agricultural ecosystem.

No. of Pages : 13 No. of Claims : 5

(54) Title of the invention : METHODS AND SYSTEMS FOR OUTSOURSING DECISION-TREE INFERENCE WHILE OBFUSCATING DECISION-TREE ATTRIBUTES

|                                               |                                                                                 |                                                                                                                                                                                                        |
|-----------------------------------------------|---------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (51) International classification             | :G06F0021620000, G06F0018243000, G06N0005010000, H04L0009400000, H04L0009000000 | (71)Name of Applicant :<br><b>1)Pantherun Technologies Private Limited</b><br>Address of Applicant :2nd Floor, 311, 6th Main Road, HAL 2nd Stage, Bangalore - 560038, Karnataka, India Bangalore ----- |
| (86) International Application No             | :NA                                                                             | <b>Name of Applicant : NA</b>                                                                                                                                                                          |
| Filing Date                                   | :NA                                                                             | <b>Address of Applicant : NA</b>                                                                                                                                                                       |
| (87) International Publication No             | : NA                                                                            | (72)Name of Inventor :                                                                                                                                                                                 |
| (61) Patent of Addition to Application Number | :NA                                                                             | <b>1)Srinivas Lakshman Sekhar</b>                                                                                                                                                                      |
| Filing Date                                   | :NA                                                                             | Address of Applicant :2nd Floor, 311, 6th Main Road, HAL 2nd Stage, Bangalore, Karnataka 560038, India Bangalore -----                                                                                 |
| (62) Divisional to Application Number         | :NA                                                                             |                                                                                                                                                                                                        |
| Filing Date                                   | :NA                                                                             |                                                                                                                                                                                                        |

(57) Abstract :  
METHODS AND SYSTEMS FOR OUTSOURSING DECISION-TREE INFERENCE WHILE OBFUSCATING DECISION-TREE ATTRIBUTES ABSTRACT  
Methods and systems for outsourcing decision tree inference while obfuscating decision tree attributes is provided. Embodiments provide privacy-preserving outsourced decision tree classification frameworks that incorporate an attribute-hiding mechanism to obfuscate attributes of nodes of a decision tree model, which is to be inferred for classification task based on a query data. Embodiments provide the frameworks that ensures robust protection of the attributes of the decision tree model, address transmission overhead issues associated with transmission of a share of the query data from a first device to a second device (by employing a seed-based pseudorandom generator for compressing the share of the query data), ensure enhanced privacy for users, and improve scalability for practical deployment of the frameworks in resource-constrained environments. FIG. 3

No. of Pages : 107 No. of Claims : 28

(54) Title of the invention : METHODS AND SYSTEMS FOR MUTUAL TRUST MULTI-FACTOR AUTHENTICATION

|                                               |                                                                                 |                                                                                                                                                                                                          |
|-----------------------------------------------|---------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (51) International classification             | :H04L0009400000, H04L0009320000, G06Q0020120000, H04W0012069000, H04W0012060000 | (71)Name of Applicant :<br><b>1)INDUZ DATA SOLUTIONS PRIVATE LIMITED</b><br>Address of Applicant :Plot 141, 2nd Floor, Mithilanagar, Pragathinagar, Hyderabad - 500090, Telangana, India Hyderabad ----- |
| (86) International Application No             | :NA                                                                             | <b>Name of Applicant : NA</b>                                                                                                                                                                            |
| Filing Date                                   | :NA                                                                             | <b>Address of Applicant : NA</b>                                                                                                                                                                         |
| (87) International Publication No             | : NA                                                                            | (72)Name of Inventor :                                                                                                                                                                                   |
| (61) Patent of Addition to Application Number | :NA                                                                             | <b>1)Tirumalesh Chalamarla</b><br>Address of Applicant :Villa 25, Gokuls Brindhavanam, Simha Puri Colony, Bowrampet, Hyderabad - 500043, Telangana, India Hyderabad -----                                |
| Filing Date                                   | :NA                                                                             | <b>2)Sreerama Mohan Gadam</b><br>Address of Applicant :Villa 25, Gokuls Brindhavanam, Simha Puri Colony, Bowrampet, Hyderabad - 500043, Telangana, India Hyderabad -----                                 |
| (62) Divisional to Application Number         | :NA                                                                             |                                                                                                                                                                                                          |
| Filing Date                                   | :NA                                                                             |                                                                                                                                                                                                          |

(57) Abstract :  
METHODS AND SYSTEMS FOR MUTUAL TRUST MULTI-FACTOR AUTHENTICATION ABSTRACT Device-specific parameters are sent to a device (204) for performing a registration of the device with a server (202) being executing within a confidential computing environment (206). A digital certificate for the device is generated. A signed digital certificate for the device is generated. The signed digital certificate is sent to the device. A mutual authentication request is received from the server. A digital certificate of the server and secure runtime attestation for the server are obtained. An initial handshake of the device with the server is established. A location-aware one-time password (OTP) is generated. The location-aware OTP and the signed digital certificate are sent by the device, to the server. The location-aware OTP and the signed digital certificate of the device are validated at the server, to confirm an authenticity of the device. Access to the device is granted for securely performing operation(s). FIG. 2

No. of Pages : 25 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202541060281 A

(19) INDIA

(22) Date of filing of Application :24/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : METHOD AND SYSTEM FOR TRACKING GAZE OF A USER ON A DISPLAY

|                                                                                                                                                                                                                                                                                                                                                                                           |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>(51) International classification :G06F0003010000, G06V0040180000, G06T0017000000, G06V0040190000, G06T0019000000</p> <p>(86) International Application No :NA<br/>Filing Date :NA</p> <p>(87) International Publication No : NA</p> <p>(61) Patent of Addition to Application Number :NA<br/>Filing Date :NA</p> <p>(62) Divisional to Application Number :NA<br/>Filing Date :NA</p> |  | <p>(71)<b>Name of Applicant :</b><br/><b>1)INDIAN INSTITUTE OF TECHNOLOGY MADRAS (IIT MADRAS)</b><br/>Address of Applicant :The Dean, Industrial Consultancy &amp; Sponsored Research (IC&amp;SR), Indian Institute of Technology Madras, Sardar Patel Road, IIT Post, Chennai, Tamil Nadu, India, 600036 Chennai -----</p> <p><b>Name of Applicant : NA</b><br/><b>Address of Applicant : NA</b></p> <p>(72)<b>Name of Inventor :</b><br/><b>1)Rajagopalan Srinivasan</b><br/>Address of Applicant :Department of Chemical Engineering, Indian Institute of Technology Madras, Sardar Patel Road, IIT Post, Chennai, Tamil Nadu, India, 600036 Chennai -----</p> <p><b>2)Babji Srinivasan</b><br/>Address of Applicant :Department of Applied Mechanics and Biomedical Engineering, Indian Institute of Technology Madras, Sardar Patel Road, IIT Post, Chennai, Tamil Nadu, India, 600036 Chennai -----</p> <p><b>3)Haider Altaf</b><br/>Address of Applicant :Department of Applied Mechanics and Biomedical Engineering, Indian Institute of Technology Madras, Sardar Patel Road, IIT Post, Chennai, Tamil Nadu, India, 600036 Chennai -----</p> |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

(57) Abstract :

ABSTRACT METHOD AND SYSTEM FOR TRACKING GAZE OF USERS ON A DISPLAY Method (500) and system (400) of the present disclosure relate to tracking gaze of one or more users (101) on a display (103). The method (500) comprises capturing (502) a plurality of two-dimensional (2D) images of an environment and generating (504) a three-dimensional (3D) model of the environment based on the plurality of 2D images. The method (500) also comprises receiving (506) gaze data from a remote eye-tracking system and projecting (508) the gaze vector from the gaze origin into the 3D model. Moreover, the method (500) comprises determining (510) an intersection point between the projected gaze vector and a surface of the 3D model and obtaining a 3D gaze point based on the determination. Lastly, the method (500) comprises tracking (512) a gaze location of the one or more users based on the 3D gaze point. Figure 1

No. of Pages : 25 No. of Claims : 24

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202541060288 A

(19) INDIA

(22) Date of filing of Application :24/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : METHOD AND BLOCKCHAIN SYSTEM FOR MANAGING COMMUNICATION BETWEEN INTERNET-OF-THING DEVICES WITHIN A DECENTRALIZED BLOCKCHAIN NETWORK

(51) International classification :H04L0009400000, H04L0009320000, H04L0067120000, H04L0009000000, H04W0004700000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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**Name of Applicant : NA**

**Address of Applicant : NA**

(72)Name of Inventor :

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**3)G. Saravana Ilango**

Address of Applicant :Professor, Department of EEE, National Institute of Technology, Tamil Nadu – 620015, India -----

(57) Abstract :

A method (900) and a blockchain system (200) for managing communication between one or more IoT devices registered with a decentralized blockchain network is disclosed. The method (900) includes authenticating an IoT device from among the registered IoT devices based on an encrypted identifier and information associated with IoT device. The information is associated with IoT device includes unique identifier associated with IoT device. In response to successful authentication of IoT device, the method (900) includes sending, to a Message Queuing Telemetry Transport (MQTT) manager, a request for generating a certificate required to enable authenticated IoT device to communicate with other IoT devices from among the registered IoT devices. The method (900) includes receiving generated certificate from MQTT manager. The generated certificate comprises credentials for IoT device. The method (900) includes sending, to the authenticated IoT device, received certificate enabling IoT device to communicate with the other IoT devices. <>

No. of Pages : 35 No. of Claims : 14

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202541060291 A

(19) INDIA

(22) Date of filing of Application :24/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : DESIGN AND DEVELOPMENT OF AN ELECTROCHEMICAL BIOSENSOR FOR RAPID DETECTION OF CREATINE IN HUMAN SERUM

|                                               |                                                                                 |                                                                                                                                                                                                                                                                                   |
|-----------------------------------------------|---------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (51) International classification             | :G01N0027327000, C12Q0001000000, G01N0027300000, C02F0001467000, G01N0033700000 | (71)Name of Applicant :<br><b>1)VELLORE INSTITUTE OF TECHNOLOGY, CHENNAI</b><br>Address of Applicant :Vandalur - Kelambakkam Road, Chennai, Tamil Nadu - 600127, India. Chennai -----                                                                                             |
| (86) International Application No             | :NA                                                                             | <b>Name of Applicant : NA</b>                                                                                                                                                                                                                                                     |
| Filing Date                                   | :NA                                                                             | <b>Address of Applicant : NA</b>                                                                                                                                                                                                                                                  |
| (87) International Publication No             | : NA                                                                            | (72)Name of Inventor :<br><b>1)KIRAN KUMAR TADI</b><br>Address of Applicant :Assistant Professor, Department of Chemistry, School of Advanced Sciences, Vellore Institute of Technology, Chennai, Vandalur - Kelambakkam Road, Chennai, Tamil Nadu - 600127, India. Chennai ----- |
| (61) Patent of Addition to Application Number | :NA                                                                             | -----                                                                                                                                                                                                                                                                             |
| Filing Date                                   | :NA                                                                             | <b>2)GEETHUKRISHNAN</b><br>Address of Applicant :Research Scholar, Department of Chemistry, School of Advanced Sciences, Vellore Institute of Technology, Chennai, Vandalur - Kelambakkam Road, Chennai, Tamil Nadu - 600127, India. Chennai -----                                |
| (62) Divisional to Application Number         | :NA                                                                             | -----                                                                                                                                                                                                                                                                             |
| Filing Date                                   | :NA                                                                             |                                                                                                                                                                                                                                                                                   |

(57) Abstract :

The present disclosure relates to an electrochemical biosensor and method for detecting and quantifying creatinine in a biological sample. The biosensor can include a working electrode (102-1) consisting of a copper (Cu) wire coated (103-1) with molybdenum disulfide nanosheets (MSNS) (103-2), wherein the MSNS are configured to provide active-edge sites that enhance electrocatalytic activity. The biosensor further includes a reference electrode (102-2) comprising silver/silver chloride (Ag/AgCl), a counter electrode (102-3) comprising a spiral platinum wire, and an electrolyte solution (104) comprising a phosphate buffer solution (PBS) with a pH of approximately 7.0. The biosensor is configured to perform electrocatalytic oxidation of creatinine at the working electrode surface when operatively connected to an external potentiostat (106) for electrochemical measurements.

No. of Pages : 29 No. of Claims : 10



(12) PATENT APPLICATION PUBLICATION

(21) Application No.202541060292 A

(19) INDIA

(22) Date of filing of Application :24/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : A STREETLIGHT FOR PUBLIC SAFETY, TRAFFIC MANAGEMENT, AND ADAPTIVE LIGHTING CUSTOMIZED FOR CULTURAL EVENTS

|                                               |                                                                                       |
|-----------------------------------------------|---------------------------------------------------------------------------------------|
| (51) International classification             | :G06V10/70, G06N20/00, F21S8/08, H05B47/16, F21V33/00, H05B47/19, F21S9/03, G08C17/02 |
| (86) International Application No             | :NA                                                                                   |
| Filing Date                                   | :NA                                                                                   |
| (87) International Publication No             | : NA                                                                                  |
| (61) Patent of Addition to Application Number | :NA                                                                                   |
| Filing Date                                   | :NA                                                                                   |
| (62) Divisional to Application Number         | :NA                                                                                   |
| Filing Date                                   | :NA                                                                                   |

(71)**Name of Applicant :**  
**1)VELLORE INSTITUTE OF TECHNOLOGY, CHENNAI**  
Address of Applicant :Vandalur - Kelambakkam Road, Chennai, Tamil Nadu - 600127, India. Chennai -----  
**Name of Applicant : NA**  
**Address of Applicant : NA**  
(72)**Name of Inventor :**  
**1)B V A N S S PRABHAKAR RAO**  
Address of Applicant :Professor, School of Computer Science and Engineering, Vellore Institute of Technology, Chennai, Vandalur - Kelambakkam Road, Chennai, Tamil Nadu - 600127, India. Chennai -----

(57) Abstract :

A streetlight (100) for public safety, traffic management, and adaptive lighting customized for cultural events includes a camera (102) assembled on an adjustable pole (202) having a light (204) to capture visuals of the ambient surroundings; a sensor (104) configured on the adjustable pole (202) to sense speed of vehicles; a microcontroller (106) comprising one or more learning modules (106A) and a memory (106B) with a pre-fed calendar data, the microcontroller (106) in communication with the camera (102) and the sensor (104) analyses the visual data and the sensed data, adjust height of the adjustable pole (202), customizes illumination of the streetlight (100) based on the pre-fed calendar, and detect abnormal activities in the ambient surroundings, the speed of the vehicles crossing the streetlight (100).

No. of Pages : 19 No. of Claims : 10

(54) Title of the invention : NUTRIENT-ENRICHED FOLIAR COMPOSITION AND A PROCESS OF PREPARING THE SAME THEREOF

|                                               |             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|-----------------------------------------------|-------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                               |             | (71)Name of Applicant :<br><b>1)Scientific Agriculture Laboratory Private Limited</b><br>Address of Applicant :Scientific Agriculture Laboratory Private Limited,<br>3/196, Natham Main Road, Manthikulam Vilakku, Karuvanur Post, Madurai -<br>625014, Tamil Nadu, India. Madurai -----<br><b>Name of Applicant : NA</b><br><b>Address of Applicant : NA</b><br>(72)Name of Inventor :<br><b>1)MUTHUKUMAR, Kesava Chandraraj</b><br>Address of Applicant :Scientific Agriculture Laboratory Private Limited, 3/196,<br>Natham Main Road, Manthikulam Vilakku, Karuvanur Post, Madurai - 625014,<br>Tamil Nadu, India. Madurai -----<br><b>2)SRINIVASAN, Murugesan</b><br>Address of Applicant :Scientific Agriculture Laboratory Private Limited, 3/196,<br>Natham Main Road, Manthikulam Vilakku, Karuvanur Post, Madurai - 625014,<br>Tamil Nadu, India. Madurai -----<br><b>3)RAJAGURU, Kandasamy</b><br>Address of Applicant :Scientific Agriculture Laboratory Private Limited, 3/196,<br>Natham Main Road, Manthikulam Vilakku, Karuvanur Post, Madurai - 625014,<br>Tamil Nadu, India. Madurai ----- |
| (51) International classification             | : C01B35/12 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| (86) International Application No             | :NA         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Filing Date                                   | :NA         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| (87) International Publication No             | : NA        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| (61) Patent of Addition to Application Number | :NA         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Filing Date                                   | :NA         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| (62) Divisional to Application Number         | :NA         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Filing Date                                   | :NA         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |

(57) Abstract :  
The invention offers multiple significant advantages over prior art. By using potassium instead of sodium, the formulation eliminates soil salinization risks and ensures long-term soil health. The synergy of boron and potassium enhances nutrient uptake, photosynthesis, and reproductive development in crops. The invention's foliar application route allows faster absorption and bypasses soil-related uptake issues, making it ideal for rain-fed or marginal lands. Unlike conventional drying methods that require high energy inputs, the invention utilizes solid wet-feed drying, drastically lowering energy consumption and production cost. Furthermore, the process recycles mother liquor and minimizes waste discharge, contributing to an environmentally sustainable and zero-liquid-discharge process. The resultant DPOBT composition exhibits field-validated improvements in crop height, biomass, yield, and fruit quality across diverse crop types. Its versatility and ease of formulation offer significant value to both smallholder farmers and large-scale agricultural operations.

No. of Pages : 34 No. of Claims : 18

(54) Title of the invention : AN APPARATUS FOR AIR QUALITY MANAGEMENT

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <div><div>(51) International classification</div><div>:B60H0001000000, F24F0007000000, F25B0006020000, F24F0005000000, F24F0011700000</div></div> <div><div>(86) International Application No</div><div>:NA</div><div>Filing Date</div><div>:NA</div></div> <div><div>(87) International Publication No</div><div>: NA</div></div> <div><div>(61) Patent of Addition to Application Number</div><div>:NA</div><div>Filing Date</div><div>:NA</div></div> <div><div>(62) Divisional to Application Number</div><div>:NA</div><div>Filing Date</div><div>:NA</div></div> |  | <div>(71)Name of Applicant :<br/><b>1)VELLORE INSTITUTE OF TECHNOLOGY, CHENNAI</b><br/>Address of Applicant :Vandalur - Kelambakkam Road, Chennai, Tamil Nadu - 600127, India. Chennai -----<br/><b>Name of Applicant : NA</b><br/><b>Address of Applicant : NA</b><br/>(72)Name of Inventor :<br/><b>1)AWANI BHUSHAN</b><br/>Address of Applicant :Assistant Professor, School of Mechanical Engineering (SMEC), Vellore Institute of Technology, Chennai, Vandalur - Kelambakkam Road, Chennai, Tamil Nadu - 600127, India. Chennai -----<br/><b>2)ADITYA THAKUR</b><br/>Address of Applicant :UG Student, School of Mechanical Engineering (SMEC), Vellore Institute of Technology, Chennai, Vandalur - Kelambakkam Road, Chennai, Tamil Nadu - 600127, India. Chennai -----<br/><b>3)SANDIP SAHA</b><br/>Address of Applicant :Assistant Professor, School of Advance Sciences (SAS), Vellore Institute of Technology, Chennai, Vandalur - Kelambakkam Road, Chennai, Tamil Nadu - 600127, India. Chennai -----<br/><b>4)VALLAMPATI RAMACHANDRA PRASAD</b><br/>Address of Applicant :Professor HAG, School of Advance Sciences, Division of Mathematics, Vellore Institute of Technology, Chennai, Vandalur - Kelambakkam Road, Chennai, Tamil Nadu - 600127, India. Chennai -----</div> |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

(57) Abstract :  
Embodiments of the present disclosure relate to an apparatus for air quality management (100) for air quality management and localized cooling by simultaneous extraction of hot air and cooling of ambient environment. The apparatus (100) includes a chimney (102) for ventilation and cooling. An exhaust section (112) removes hot air through an exhaust vent pipe (106) connected to an exhaust vent setup (104), aided by an exhaust fan (124). Above, an air conditioning section (114) uses a partition layer (116) to separate airflow. Liquid nitrogen enters via an expansion valve (118), cools through a first heat exchanger (130), and flows in a plurality of liquid nitrogen pipes (122). A condenser (120) and a second heat exchanger (132) expel heat. Cooled air is released through a vent (108), controlled by a vent flap control (110). An air conditioning fan (126) circulates the cooled air forming the efficient and compact cooling-ventilation apparatus (100).

No. of Pages : 30 No. of Claims : 8

(54) Title of the invention : High-k Dielectric Engineered InSe-Based Field-Effect Transistor for Enhanced Analog and RF Performance

|                                               |                                                                                 |                                                                                                                                                                 |
|-----------------------------------------------|---------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (51) International classification             | :H01L0029660000, H01L0029510000, H01L0029080000, B82Y0010000000, H01L0029100000 | (71)Name of Applicant :<br><b>1)Presidency University</b><br>Address of Applicant :Itgalpur, Rajanakunte, Bengaluru, Karnataka – 560 064, India Bengaluru ----- |
| (86) International Application No             | :NA                                                                             | <b>Name of Applicant : NA</b>                                                                                                                                   |
| Filing Date                                   | :NA                                                                             | <b>Address of Applicant : NA</b>                                                                                                                                |
| (87) International Publication No             | : NA                                                                            | (72)Name of Inventor :                                                                                                                                          |
| (61) Patent of Addition to Application Number | :NA                                                                             | <b>1)Md Akram Ahmad</b>                                                                                                                                         |
| Filing Date                                   | :NA                                                                             | Address of Applicant :Itgalpur, Rajanakunte, Bengaluru, Karnataka – 560 064, India Bengaluru -----                                                              |
| (62) Divisional to Application Number         | :NA                                                                             | <b>2)Muzaffar Imam</b>                                                                                                                                          |
| Filing Date                                   | :NA                                                                             | Address of Applicant :Punjab Engineering College (Deemed to be University), Sector 12, Chandigarh Pin Code: 160012, India. Chandigarh -----                     |

(57) Abstract :  
ABSTRACT High-k Dielectric Engineered InSe-Based Field-Effect Transistor for Enhanced Analog and RF Performance A dielectric-engineered transistor structure is disclosed, comprising a layered semiconducting channel symmetrically enclosed between high-permittivity dielectric layers and modulated through a dual-gate configuration. The source and drain regions are doped, and the central channel remains intrinsic. The dielectric layers have distinct permittivity values to optimize electrostatic coupling. Control electrodes positioned on both sides of the channel enable effective modulation of carrier transport. This structure enhances transconductance, intrinsic gain, and high-frequency performance parameters such as cut-off frequency and gain-frequency product. The overall configuration is compatible with ultra-scaled fabrication processes and demonstrates improved signal handling, reduced leakage, and efficient field modulation under nanoscale operation. Performance is evaluated using self-consistent quantum transport models. Figure 1

No. of Pages : 33 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202541060306 A

(19) INDIA

(22) Date of filing of Application :24/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : System and Method for Airborne Environmental Monitoring Using Spectral Imaging

(51) International classification

:G01N0021770000, B64U0101300000, G05D0001000000, G06V0020130000, G01W0001080000

(86) International Application No  
Filing Date

:NA  
:NA

(87) International Publication No

: NA

(61) Patent of Addition to Application Number  
Filing Date

:NA  
:NA

(62) Divisional to Application Number  
Filing Date

:NA  
:NA

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**Name of Applicant : NA**

**Address of Applicant : NA**

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Address of Applicant :Itgalpur, Rajanakunte, Bengaluru, Karnataka – 560 064, India Bengaluru -----

(57) Abstract :

ABSTRACT System and Method for Airborne Environmental Monitoring Using Spectral Imaging The invention discloses a system and method for airborne environmental monitoring using a mobile aerial platform equipped with a spectral imaging sensor. The platform is configured to follow predefined flight paths using geolocation and orientation modules. A sensor captures electromagnetic data across a continuous spectral range, and this data is processed using correction techniques to normalize reflectance values. The processed data is then analyzed by comparing spectral profiles to known references to identify the presence of airborne constituents. The system includes onboard and offboard units for data acquisition, correction, and mapping, with visual outputs rendered as geo-referenced distribution maps. The integration of sensing, positioning, and data interpretation modules enables dynamic and high-resolution spatial monitoring of atmospheric conditions. Figure 1

No. of Pages : 24 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202541060308 A

(19) INDIA

(22) Date of filing of Application :24/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : SYSTEMS AND METHODS TO PERFORM AN INTENSITY BASED OPTICAL INTERROGATION

(51) International classification :G01L0001240000, G01D0005353000, A61B0005024000, G01B0011160000, G01S0017894000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

(71)Name of Applicant :

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Name of Applicant : NA

Address of Applicant : NA

(72)Name of Inventor :

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(57) Abstract :

Disclosed is a system (200) to perform an intensity-based optical interrogation. In the system (200), a transmitting module (202) generates one or more pulsed signals. A Fiber Bragg Grating (FBG) module (211) receives the one or more pulsed signals and includes a sensing FBG (212) and a reference FBG (214) to reflect a sensing signal pulse at a sensing Bragg wavelength ( $\lambda_S$ ) and a reference signal pulse at a reference Bragg wavelength ( $\lambda_R$ ) respectively. An edge filter (218) converts a shift in the  $\lambda_S$  into an intensity variation based on a characteristics curve (300) for optical interrogation. The  $\lambda_S$  and  $\lambda_R$  are positioned on a slope region and on a flat region (306) of the characteristics curve (300), respectively. The shift in the  $\lambda_S$  and the corresponding intensity variation after passing through the edge filter (218) are induced by one or more physical parameters acting on the sensing FBG (212).

No. of Pages : 37 No. of Claims : 14

(54) Title of the invention : AI Integrated Smart Edge Systems for Realtime Decision Making in Decentralized Environments

|                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>(51) International classification :G06N0003045000,<br/>G06N0003080000,<br/>G06N0020000000,<br/>G06F0009500000,<br/>G06N0003063000</p> <p>(86) International Application No :NA<br/>Filing Date :NA</p> <p>(87) International Publication No :NA<br/>Patent of Addition to Application Number :NA<br/>Filing Date :NA</p> <p>(62) Divisional to Application Number :NA<br/>Filing Date :NA</p> | <p>(71)Name of Applicant :<br/><b>1)Madhankumar C</b><br/>Address of Applicant :1/x kg thottam, sellappampalayam,kabulipalayam,kovil palayam post, pollachi taluk,642110 -----</p> <p><b>2)Mrs. MariaTherasa V</b><br/><b>3)Mr. R.Srinivasan</b><br/><b>4)SRUTHI RAJENDRAN</b><br/><b>5)Mrs. J Jenifer Mercy</b><br/><b>6)Dr.C.Vijayalakshmi</b><br/><b>7)Ms. D.R. Dharshini</b><br/><b>8)Mr. R. Akash</b><br/><b>9)Mr. Ajay J</b><br/><b>10)Mr. Selvarajalingam S</b><br/>Name of Applicant : NA<br/>Address of Applicant : NA</p> <p>(72)Name of Inventor :<br/><b>1)Mrs. MariaTherasa V</b><br/>Address of Applicant :Assistant Professor Department of Information Technology Rathinam Technical Campus,Echanari,Coimbatore Coimbatore -----</p> <p><b>2)Mr. R.Srinivasan</b><br/>Address of Applicant :Assistant professor CSE , AAA COLLEGE OF ENGINEERING AND TECHNOLOGY virudhugar ----</p> <p><b>3)SRUTHI RAJENDRAN</b><br/>Address of Applicant :TECHNICAL TRAINER COE department RATHINAM TECHNICAL CAMPUS COIMBATORE - 641021 COIMBATORE -----</p> <p><b>4)Mrs. J Jenifer Mercy</b><br/>Address of Applicant :Assistant professor Department of Master of Business Administration RATHINAM TECHNICAL CAMPUS COIMBATORE coimbatore -----</p> <p><b>5)Dr.C.Vijayalakshmi</b><br/>Address of Applicant :Professor Department of Statistics and Applied Mathematics, Central University of Tamil Nadu, Thiruvavur Thiruvavur -----</p> <p><b>6)Ms. D.R. Dharshini</b><br/>Address of Applicant :Technical Trainer , Department of Artificial Intelligence and Data Science Rathinam Technical campus, Coimbatore Coimbatore -----</p> <p><b>7)Mr. R. Akash</b><br/>Address of Applicant :Technical Trainer, Department of Information Technology Rathinam Technical campus, Coimbatore Coimbatore -----</p> <p><b>8)Mr. Ajay J</b><br/>Address of Applicant :Technical Trainer, Department of Information Technology Rathinam Technical campus, Coimbatore Coimbatore -----</p> <p><b>9)Mr. Selvarajalingam S</b><br/>Address of Applicant :Technical Trainer,Department of Computer Science and Engineering Rathinam Technical campus, Coimbatore Coimbatore -----</p> |
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(57) Abstract :

AI Integrated Smart Edge Systems for Realtime Decision Making in Decentralized Environments Abstract In the era of pervasive computing and decentralized architectures, the demand for intelligent, autonomous systems at the edge has grown exponentially. This paper proposes a novel framework titled AI Integrated Smart Edge Systems (AISES) for real-time decision making in decentralized environments. Unlike traditional centralized models that rely heavily on cloud infrastructures, AISES leverages federated deep reinforcement learning and neural symbolic processing directly at the edge nodes, enabling rapid, context-aware decisions with minimal latency. The proposed system employs multi layered edge AI cores, integrating quantized convolutional neural networks (Q-CNNs) with adaptive attention transformers to optimize inference across constrained devices. A self-correcting feedback loop, governed by a decentralized consensus algorithm (enhanced Raft protocol), improves decision reliability and energy efficiency. In comparative tests across smart agriculture, traffic control, and industrial IoT use cases, AISES demonstrated 92.8% accuracy, 23% reduction in latency, and 31% improvement in decision throughput compared to conventional edge-cloud hybrid models. Key innovations include edge-optimized semantic compression for faster data transmission, privacy-preserving federated updates for model retraining without raw data exposure, and event-driven prioritization mechanisms that enhance system responsiveness by up to 40% under high-load conditions. The architectural scalability supports over 1,000 concurrent edge agents, maintaining system efficiency above 88%, even in dynamically changing network topologies. This research sets a new benchmark in edge intelligence, pushing the boundaries of autonomous, real-time, and distributed AI systems for next-generation decentralized applications in smart cities, autonomous vehicles, and disaster response systems. Future work explores self-organizing swarm architectures and integration with neuromorphic edge hardware. Keywords—Edge AI, Federated Learning, Real-Time Decision Making, Decentralized Systems, Neural Symbolic Processing, Adaptive Transformers, Latency Reduction, Semantic Compression, Privacy-Preserving AI, Autonomous Systems, Smart Edge Devices, Performance Optimization.

No. of Pages : 15 No. of Claims : 5

|                                                                                                                              |  |                                                                                                                                                                   |  |
|------------------------------------------------------------------------------------------------------------------------------|--|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| (12) PATENT APPLICATION PUBLICATION                                                                                          |  | (21) Application No.202541060332 A                                                                                                                                |  |
| (19) INDIA                                                                                                                   |  |                                                                                                                                                                   |  |
| (22) Date of filing of Application :24/06/2025                                                                               |  | (43) Publication Date : 04/07/2025                                                                                                                                |  |
| (54) Title of the invention : AI-Driven Decision Support System for Strategic Business Management and Operational Efficiency |  |                                                                                                                                                                   |  |
| (51) International classification :G06Q10/063, G06Q10/0637, G06Q10/067, G06N20/00                                            |  | (71)Name of Applicant :<br>1)Aditya Degree & PG College (A)<br>Address of Applicant :Aditya Degree & PG College (A), Kakinada-533003 ,Andhra Pradesh India. ----- |  |
| (86) International Application No :NA<br>Filing Date :NA                                                                     |  | Name of Applicant : NA<br>Address of Applicant : NA                                                                                                               |  |
| (87) International Publication No : NA                                                                                       |  | (72)Name of Inventor :<br>1)V.Anil                                                                                                                                |  |
| (61) Patent of Addition to Application Number :NA<br>Filing Date :NA                                                         |  | Address of Applicant :Assistant Professor, Department of Micro Biology, Aditya Degree & PG College(A), Kakinada-533003, Andhra Pradesh India. -----               |  |
| (62) Divisional to Application Number :NA<br>Filing Date :NA                                                                 |  | -----                                                                                                                                                             |  |

(57) Abstract :

Abstract The invention relates to an AI-driven decision support system designed to enhance strategic business management and operational efficiency. The system integrates data from diverse sources—including enterprise platforms and external feeds—into a unified analytical environment powered by machine learning, reinforcement learning, and prescriptive analytics. A natural language interface allows users to pose business queries in conversational language and receive actionable insights, while a scenario simulation module enables modeling of hypothetical business conditions and forecasting of associated outcomes. An explainable AI module provides transparent justifications for recommendations, fostering user trust and regulatory compliance. Through real-time data analysis, intelligent forecasting, and adaptive learning, the system offers a comprehensive and scalable solution for executive decision-making, cross-departmental planning, and performance optimization. The invention supports modular deployment, secure data access, and integration with third-party systems, offering enterprises a transformative tool to align strategic vision with operational execution in a dynamic business environment.

No. of Pages : 21 No. of Claims : 1



(54) Title of the invention : Smart Resource Allocation Framework for Real-Time Project Management Using Predictive Analytics

|                                               |                                                                                 |                                                                                                                                                                              |
|-----------------------------------------------|---------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (51) International classification             | :G06Q0010063100, G06N0020000000, G06Q0010063700, G06Q0010060000, G06N0005040000 | (71)Name of Applicant :<br><b>1)Aditya Degree &amp; PG College (A)</b><br>Address of Applicant :Aditya Degree & PG College (A), Kakinada-533003 ,Andhra Pradesh India. ----- |
| (86) International Application No             | :NA                                                                             | <b>Name of Applicant : NA</b>                                                                                                                                                |
| Filing Date                                   | :NA                                                                             | <b>Address of Applicant : NA</b>                                                                                                                                             |
| (87) International Publication No             | : NA                                                                            | (72)Name of Inventor :                                                                                                                                                       |
| (61) Patent of Addition to Application Number | :NA                                                                             | <b>1)Dr.BEVL Naidu</b>                                                                                                                                                       |
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| (62) Divisional to Application Number         | :NA                                                                             |                                                                                                                                                                              |
| Filing Date                                   | :NA                                                                             |                                                                                                                                                                              |

(57) Abstract :  
Abstract The invention provides a smart, AI-driven framework for resource allocation in real-time project management, leveraging predictive analytics to optimize personnel, budget, and asset distribution across dynamic tasks. The system includes a real-time data acquisition unit, a machine learning-based predictive analytics engine, a resource optimization module, a conflict detection and resolution engine, and an intuitive user dashboard. It forecasts workload trends, identifies potential bottlenecks, simulates optimal allocation scenarios, and provides actionable recommendations. Integrated feedback mechanisms continuously refine prediction accuracy. The system interfaces with project and ERP tools and enables proactive decision-making to minimize delays, maximize resource efficiency, and adapt to real-world project changes. Designed for enterprise scalability and cross-platform deployment, it serves as a next-generation tool for intelligent project resource management.

No. of Pages : 18 No. of Claims : 1

(54) Title of the invention : Blockchain-Based Transparent Workflow Management System for Enterprise-Level Operations

|                                               |                                                                                 |                                                                                                                                                                                      |
|-----------------------------------------------|---------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (51) International classification             | :H04L0009320000, H04L0009000000, H04L0009400000, G06F0021620000, H04L0009080000 | (71) <b>Name of Applicant :</b><br><b>1)Aditya Degree &amp; PG College (A)</b><br>Address of Applicant :Aditya Degree & PG College (A), Kakinada-533003 ,Andhra Pradesh India. ----- |
| (86) International Application No             | :NA                                                                             | <b>Name of Applicant : NA</b>                                                                                                                                                        |
| Filing Date                                   | :NA                                                                             | <b>Address of Applicant : NA</b>                                                                                                                                                     |
| (87) International Publication No             | : NA                                                                            | (72) <b>Name of Inventor :</b><br><b>1)Krishna Babu Sambaru</b>                                                                                                                      |
| (61) Patent of Addition to Application Number | :NA                                                                             | Address of Applicant :Assistant Professor, Department of Management Studies, Aditya Degree & PG College(A), Kakinada-533003, Andhra Pradesh -----                                    |
| Filing Date                                   | :NA                                                                             | -----                                                                                                                                                                                |
| (62) Divisional to Application Number         | :NA                                                                             |                                                                                                                                                                                      |
| Filing Date                                   | :NA                                                                             |                                                                                                                                                                                      |

(57) Abstract :  
Abstract The invention provides a blockchain-based transparent workflow management system tailored for enterprise-level operations involving multiple stakeholders and complex business processes. It integrates a permissioned blockchain ledger to immutably record workflow events, enabling verifiable transparency and auditability across organizational boundaries. Smart contracts automate rule enforcement, ensuring that workflows progress according to predefined logic without manual intervention. A modular workflow engine allows the graphical configuration of processes, while a middleware layer facilitates integration with existing ERP, CRM, and legacy systems. Role-based and attribute-based encryption ensures fine-grained access control to sensitive data. A real-time dashboard offers process analytics and alerts, improving operational efficiency and compliance. The system supports multi-tenancy, consortium governance, and AI-powered workflow optimization. By combining decentralization, cryptographic security, and enterprise-grade interoperability, the invention enhances trust, accountability, and scalability in managing enterprise workflows across distributed environments.

No. of Pages : 23 No. of Claims : 2

(54) Title of the invention : Adaptive Risk Assessment and Mitigation System for Dynamic Business Environments

|                                               |                                                                                 |                                                                                                                                                                              |
|-----------------------------------------------|---------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (51) International classification             | :G06N0020000000, G06Q0010063500, G06Q0010063700, G06Q0010067000, H04L0009400000 | (71)Name of Applicant :<br><b>1)Aditya Degree &amp; PG College (A)</b><br>Address of Applicant :Aditya Degree & PG College (A), Kakinada-533003 ,Andhra Pradesh India. ----- |
| (86) International Application No             | :NA                                                                             | Name of Applicant : NA                                                                                                                                                       |
| Filing Date                                   | :NA                                                                             | Address of Applicant : NA                                                                                                                                                    |
| (87) International Publication No             | : NA                                                                            | (72)Name of Inventor :                                                                                                                                                       |
| (61) Patent of Addition to Application Number | :NA                                                                             | <b>1)Krishna Babu Sambaru</b>                                                                                                                                                |
| Filing Date                                   | :NA                                                                             | Address of Applicant :Assistant Professor, Department of Management Studies, Aditya Degree & PG College(A), Kakinada-533003, Andhra Pradesh -----                            |
| (62) Divisional to Application Number         | :NA                                                                             | -----                                                                                                                                                                        |
| Filing Date                                   | :NA                                                                             |                                                                                                                                                                              |

(57) Abstract :  
Abstract The present invention discloses an Adaptive Risk Assessment and Mitigation System designed to operate effectively within dynamic and rapidly evolving business environments. The system integrates artificial intelligence, machine learning, and real-time data analytics to continuously evaluate, prioritize, and respond to multifaceted operational, financial, regulatory, and strategic risks. Unlike traditional static risk models, this invention utilizes feedback loops, contextual decision matrices, and adaptive modeling to detect emerging threats and opportunities in real time. By integrating internal organizational data with external variables such as market trends, economic indicators, and geopolitical developments, the system dynamically adjusts risk scores and recommends mitigation strategies tailored to specific business functions. Furthermore, it facilitates scenario simulations, impact forecasting, and automated policy generation, ensuring organizational resilience and agility. The invention enables decision-makers to proactively respond to risks rather than react to consequences, thereby fostering sustainable growth and operational continuity across diverse business sectors.

No. of Pages : 21 No. of Claims : 2

|                                                                                                                                |                                     |                                                                                                                                                                                      |
|--------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (12) PATENT APPLICATION PUBLICATION                                                                                            |                                     | (21) Application No.202541060336 A                                                                                                                                                   |
| (19) INDIA                                                                                                                     |                                     |                                                                                                                                                                                      |
| (22) Date of filing of Application :24/06/2025                                                                                 |                                     | (43) Publication Date : 04/07/2025                                                                                                                                                   |
| (54) Title of the invention : Integrated Performance Monitoring and Feedback Optimization System for Human Resource Management |                                     |                                                                                                                                                                                      |
| (51) International classification                                                                                              | :G06Q10/105, G06Q10/06, G06Q10/0639 | (71) <b>Name of Applicant :</b><br><b>1)Aditya Degree &amp; PG College (A)</b><br>Address of Applicant :Aditya Degree & PG College (A), Kakinada-533003 ,Andhra Pradesh India. ----- |
| (86) International Application No                                                                                              | :NA                                 | <b>Name of Applicant : NA</b>                                                                                                                                                        |
| Filing Date                                                                                                                    | :NA                                 | <b>Address of Applicant : NA</b>                                                                                                                                                     |
| (87) International Publication No                                                                                              | : NA                                | (72) <b>Name of Inventor :</b>                                                                                                                                                       |
| (61) Patent of Addition to Application Number                                                                                  | :NA                                 | <b>1)Krishna Babu Sambaru</b>                                                                                                                                                        |
| Filing Date                                                                                                                    | :NA                                 | Address of Applicant :Assistant Professor, Department of Management Studies, Aditya Degree & PG College(A), Kakinada-533003, Andhra Pradesh -----                                    |
| (62) Divisional to Application Number                                                                                          | :NA                                 |                                                                                                                                                                                      |
| Filing Date                                                                                                                    | :NA                                 |                                                                                                                                                                                      |

(57) Abstract :

Abstract: The present invention discloses an Integrated Performance Monitoring and Feedback Optimization System for Human Resource Management that combines real-time analytics, AI-driven behavior tracking, sentiment analysis, and adaptive feedback loops to enhance employee performance, engagement, and organizational efficiency. The system employs a multi-layered data architecture capturing structured and unstructured data from communication tools, project management platforms, biometric inputs, and performance reviews to generate dynamic employee profiles. An intelligent recommendation engine identifies areas of improvement and suggests timely, personalized interventions including feedback strategies, upskilling modules, or mental wellness resources. Managers receive actionable insights via an interactive dashboard, while employees are provided with constructive, privacy-respecting feedback in real-time. The system emphasizes ethical data collection, compliance with labor standards, and customizable parameters to fit various industries. This invention transforms traditional HR practices by offering a scalable, automated, and intelligent system that not only tracks performance but also drives behavioral change and continuous improvement across the workforce.

No. of Pages : 21 No. of Claims : 2

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :24/06/2025

(21) Application No.202541060337 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : Intelligent Assistive System for Early Detection and Personalized Intervention of Learning Disabilities Using Multimodal AI Technologies

(51) International classification :G06V0030100000, G16H0050200000, G09B0019020000, G06N0020000000, G09B0017000000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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**3)Dr. Jothi Prabha Appadurai**

**4)Dr. W. Grace Shanthi**

**5)K R Anudeep Laxmi kanth**

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Address of Applicant : NA

(72)Name of Inventor :

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(57) Abstract :

Intelligent Assistive System for Early Detection and Personalized Intervention of Learning Disabilities Using Multimodal AI Technologies"

ABSTRACT: Learning disabilities such as dyslexia, dysgraphia, and dyscalculia affect a substantial portion of children globally. These conditions often remain undiagnosed during early stages, leading to diminished academic performance, lowered self-esteem, and social challenges. Early identification combined with tailored interventions significantly improves learning outcomes and confidence. This invention introduces an integrated AI-based assistive system designed to detect and support children with dyslexia, dysgraphia, and dyscalculia. It leverages advanced machine learning, natural language processing, optical character recognition (OCR), and speech processing to analyze, diagnose, and provide corrective feedback for reading, writing, and math challenges. Its scalable architecture ensures broad applicability in educational and clinical settings.

No. of Pages : 8 No. of Claims : 5

(54) Title of the invention : AI-Driven Personalized Learning System for Real-Time Student Performance Analysis Using Machine Learning Algorithms

|                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>(51) International classification :G06Q0050200000, G06N0020000000, G09B0007020000, G06N0005040000, G09B0019000000</p> <p>(86) International Application No :NA<br/>Filing Date :NA</p> <p>(87) International Publication No : NA<br/>(61) Patent of Addition to Application Number :NA<br/>Filing Date :NA<br/>(62) Divisional to Application Number :NA<br/>Filing Date :NA</p> | <p>(71)<b>Name of Applicant :</b><br/> <b>1)Y Kalyan Chakravarti</b><br/> Address of Applicant :Assistant professor Department of Information Technology Siddhartha Academy of Higher Education (Deemed to be University) Krishna Andhra Pradesh India -----<br/> <b>2)Dr Devaraju</b><br/> <b>3)Mr. Amit Subramanyam</b><br/> <b>4)Dr. Vijayalaxmi S Dombar</b><br/> <b>5)Dr. Kapil Dev Mahato</b><br/> <b>6)Mr.Jaydeep Rath</b><br/> <b>7)Ranjith Nair VR</b><br/> <b>8)M.Deepashri</b><br/> <b>9)Reeba Rose L</b><br/> <b>10)M Nanthini</b><br/> <b>Name of Applicant : NA</b><br/> <b>Address of Applicant : NA</b><br/> <b>(72)Name of Inventor :</b><br/> <b>1)Y Kalyan Chakravarti</b><br/> Address of Applicant :Assistant professor Department of Information Technology Siddhartha Academy of Higher Education (Deemed to be University) Krishna Andhra Pradesh India -----<br/> <b>2)Dr Devaraju</b><br/> Address of Applicant :Assistant Professor Department of Business Administration Rani Channamma University Vidyasangama, N.H.-04, Bhutaramanahatti, Belagavi-591156, Karnataka. India -----<br/> <b>3)Mr. Amit Subramanyam</b><br/> Address of Applicant :Research Scholar Department of Business Administration Rani Channamma University Vidyasangama, N.H.-04, Bhutaramanahatti, Belagavi-591156, Karnataka. India -----<br/> <b>4)Dr. Vijayalaxmi S Dombar</b><br/> Address of Applicant :Assistant Professor Department of Business Administration Government First Grade Women's College, Bailhongal, Belagavi-591156, Karnataka. India -----<br/> <b>5)Dr. Kapil Dev Mahato</b><br/> Address of Applicant :Assistant Professor, Department of Physics, Jamshedpur Women's University, Jamshedpur, Jharkhand, Pin Code: 831001 India -----<br/> <b>6)Mr.Jaydeep Rath</b><br/> Address of Applicant :Student KIIT International School, Bhubaneswar, Odisha, Pin Code: 751024 India -----<br/> <b>7)Ranjith Nair VR</b><br/> Address of Applicant :CEO, TechRK IT Solutions, #3300 Opp. Bapuji high school, MCC B block, 577002, Davanagere Karnataka India -----<br/> <b>8)M.Deepashri</b><br/> Address of Applicant :Assistant professor Department of Master of Computer Applications Excel Engineering college, NH-544 Salem Main Road, Komarapalayam Namakkal Tamilnadu India -----<br/> <b>9)Reeba Rose L</b><br/> Address of Applicant :Assistant Professor Department of CSE St. Joseph's college of Engineering OMR, Chennai Kanchipuram TamilNadu India -----<br/> <b>10)M Nanthini</b><br/> Address of Applicant :Assistant professor Department of Computer Science and Engineering Velalar College of Engineering Thindal post, Erode-638 012 Tamilnadu India -----</p> |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

(57) Abstract :

AI-Driven Personalized Learning System for Real-Time Student Performance Analysis Using Machine Learning Algorithms ABSTRACT: This research examines the impact of AI-based personalised learning systems on students' engagement, performance, and participation, as well as the ethical and practical challenges associated with AI implementation in education. Artificial Intelligence (AI) is revolutionising the educational experience to enhance personalisation. It is an adaptive AI system designed to customise the educational experience based on each student's abilities, interests, and performance. The platform employs machine learning, sophisticated algorithms, and real-time data to continuously assess students' performance and modify the complexity of content according to their grade level, facilitating accelerated learning and sustained motivation. This technique is highly inclusive. It enables students to engage in autonomous learning, promotes interaction, and addresses the deficiencies of conventional education by accommodating many learning styles. By making education accessible to all, it ensures equitable possibilities for every student, regardless of their background. This AI model provides pupils with future-oriented skills and fosters autonomous thinking and problem-solving abilities. As education expands, this innovative platform fosters a more supportive learning environment centred on students, ultimately improving educational outcomes and promoting lifelong learning.

No. of Pages : 9 No. of Claims : 5

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202541060344 A

(19) INDIA

(22) Date of filing of Application :24/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : An Artificial Intelligence (AI)-based System for Biomarker Detection and Method of Operation

(51) International classification :G16B0030000000, G16B0040000000, G16H0050200000, G16B0050000000, G16B0050300000

(86) International Application No :NA

Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA

Filing Date :NA

(62) Divisional to Application Number :NA

Filing Date :NA

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Name of Applicant : NA

Address of Applicant : NA

(72)Name of Inventor :

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**2)Ms. Harshini Pulugurtha**

Address of Applicant :Flat: 403, Vinayagar Annamraju, Gandhi Nagar, Opposite to GVP College of Engineering for Women, Madhurawada, Visakhapatnam-530048, Andhra Pradesh, India. Visakhapatnam -----

(57) Abstract :

ABSTRACT: Title: An Artificial Intelligence (AI)-based System for Biomarker Detection and Method of Operation The present disclosure proposes an artificial intelligence (AI)-based system (100) that analyzes genomic and proteomic sequences for identifying statistically significant biomarkers correlated with biological signals observed in metabolic conditions such as type 2 diabetes mellitus (T2DM). The AI-based system (100) comprises a computing device (102) having a processor (104) and memory (106) for storing one or more instructions executable by the processor (104). The processor (104) is configured to execute a plurality of modules (108) for analyzing biological sequence data and identifying statistically significant features associated with genomic and proteomic sequences. The plurality of modules (108) comprises a data acquisition module (110), an encoding module (112), a processing module (114), an evaluation module (116), an updating module (118), and an output module (120). The proposed AI-based system (100) significantly reduces biological data analysis time from hours to minutes, thereby enabling rapid processing of biological sequence data in research and computational pipelines

No. of Pages : 22 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202541060345 A

(19) INDIA

(22) Date of filing of Application :24/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : Artificial Intelligence (AI)-Powered Refuelling Assistant System for Fuel Stations and Method of Operation

(51) International classification :B67D0007040000, G07F0013020000, B67D0007340000, G06V0020620000, G16H0050200000

(86) International Application No :NA

Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA

Filing Date :NA

(62) Divisional to Application Number :NA

Filing Date :NA

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(57) Abstract :

ABSTRACT: Title: Artificial Intelligence (AI)-Powered Refuelling Assistant System for Fuel Stations and Method of Operation The invention relates to an artificial intelligence (AI)-powered refuelling assistant system (100) that enables real-time monitoring, automated fuel type verification, error-preventive dispensing, and electromagnet-controlled nozzle locking. The AI-powered refuelling assistant system (100) comprises AI-powered cameras (102), fuel dispensers (104), a control management unit (110), a vehicle-integrated subsystem (114), and a mobile application (120). The AI-powered refuelling assistant system (100) integrates vehicle-specific data obtained via OBD-II or license plate recognition to automatically authenticate the correct fuel type and physically restrict access to incompatible fuel nozzles 106A or 106B using electromagnetic actuation mechanisms. The AI-powered refuelling assistant system (100) monitors fuel dispenser activity, fuel station staff availability, and real-time congestion at multiple stations, and utilizes predictive models to guide users to the optimal station based on waiting time, fuel quality, user preferences, and emergency fuel requirements.

No. of Pages : 48 No. of Claims : 10



(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :24/06/2025

(21) Application No.202541060347 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : PLANT EXTRACT-BASED SEED TREATMENT FORMULATION AND METHOD FOR PREPARATION THEREOF

(51) International classification :A61K0036540000, A01N0065000000, A61K0008978900, A61K0036610000, A01N0065440000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

A plant extract-based seed treatment formulation, comprises of: Pongamia leaf extract in a range of 30-40% by weight, Neem leaf extract in a range of 10-20% by weight, Clove extract in a range of 10-20% by weight, Cinnamon bark extract in a range of 10-20% by weight, and Lemongrass extract in a range of 10-20% by weight. A method for preparation of plant extract-based seed treatment formulation, comprises the steps: washing Pongamia leaf, neem leaf, cloves, cinnamon, and lemongrass with water, followed by drying and crushing into coarse powder, individually transferring coarse powder in distilled water, followed by subjecting to agitation for 100-150 minutes and allowing to stand for 40-80 minutes to obtain individually Pongamia leaf extract, neem leaf extract, clove extract, cinnamon extract, and lemongrass extract and filtering the extracts using muslin cloth to eliminate solid residues, followed by combining the extracts to obtain plant extract-based seed treatment formulation.

No. of Pages : 22 No. of Claims : 9

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :24/06/2025

(21) Application No.202541060348 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : DEFATTED RICE BRAN-BASED EDIBLE PRODUCT COMPOSITION AND METHOD FOR PREPARATION THEREOF

(51) International classification :A21D0002360000, A61K0036899000, A23K0010370000, A23L0007100000, A21D0013060000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

A defatted rice bran-based edible product composition comprises of: i) defatted rice bran powder in a range of 20-30% by weight, ii) multigrain millet flour in a range of 20-30% by weight, iii) wheat flour in a range of 5-15% by weight, iv) sweetening agent in a range of 10-20% by weight, v) butter in a range of 10-20% by weight, and vi) banana peel flour in a range of 5-15% by weight. A method for preparation of the defatted rice bran-based edible product composition, comprising the steps: mixing defatted rice bran powder, multigrain millet flour, wheat flour, sweetening agent, butter, and banana peel powder and obtaining a dough, followed by keeping the dough in freezer at 15-25oC and moulding the dough in the shape of product, followed by baking at a temperature in the range of 120-180oC for 30-60 minutes to obtain the product.

No. of Pages : 14 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202541060349 A

(19) INDIA

(22) Date of filing of Application :24/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : ADAPTIVE SPLASH PREVENTION AND DRAG CONTROL SYSTEM

|                                                                                                                                                                                                                                                                                                                                                                                           |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>(51) International classification :B62D0025180000, B62D0037020000, B64C0023060000, B62D0035000000, B60T0001160000</p> <p>(86) International Application No :NA<br/>Filing Date :NA</p> <p>(87) International Publication No : NA</p> <p>(61) Patent of Addition to Application Number :NA<br/>Filing Date :NA</p> <p>(62) Divisional to Application Number :NA<br/>Filing Date :NA</p> |  | <p>(71)Name of Applicant :<br/><b>1)JAIN (Deemed-to-be University)</b><br/>Address of Applicant :Jain Global Campus, Jakkasandra Post, Kanakapura Road, Kanakapura Taluk, Ramnagar District, Bangalore –562112, Karnataka, India. Bangalore -----</p> <p><b>Name of Applicant : NA</b><br/><b>Address of Applicant : NA</b></p> <p>(72)Name of Inventor :<br/><b>1)Dr. I.Kantharaj</b><br/>Address of Applicant :Assistant Professor, Department of Mechanical Engineering, Faculty of Engineering and Technology, JAIN (Deemed-to-be University), Jain Global Campus, Jakkasandra Post, Kanakapura Road, Kanakapura Taluk, Ramnagar District, Bangalore –562112, Karnataka, India. Bangalore -----</p> <p><b>2)Vishaal S Ganesh</b><br/>Address of Applicant :Department of Mechatronics Engineering, Faculty of Engineering and Technology, JAIN (Deemed-to-be University), Jain Global Campus, Jakkasandra Post, Kanakapura Road, Kanakapura Taluk, Ramnagar District, Bangalore –562112, Karnataka, India. Bangalore -----</p> <p><b>3)Shri Nambi M</b><br/>Address of Applicant :Department of Mechatronics Engineering, Faculty of Engineering and Technology, JAIN (Deemed-to-be University), Jain Global Campus, Jakkasandra Post, Kanakapura Road, Kanakapura Taluk, Ramnagar District, Bangalore –562112, Karnataka, India. Bangalore -----</p> |
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(57) Abstract :

An adaptive splash prevention and drag control system comprises of a mud flap 101 structure positioned above one or more of the tires of a vehicle 102 and extending over the wheel arc, a plurality of active winglets 201 mounted along the mud flap 101, the winglets 201 are operatively connected with the flap 101 by means of an actuator 301, a control unit integrated with the vehicle's Electronic Control Unit (ECU) to dynamically operate the orientation of the winglets 201 by means of the actuator 301 based on real-time weather conditions and braking condition of the vehicle 102, the winglets 201 move downward to direct water spray downward and enhance visibility for following vehicle 102 , and during braking, the winglets 201 move upward to increase aerodynamic drag and downforce, improving braking efficiency and traction.

No. of Pages : 20 No. of Claims : 9

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202541060350 A

(19) INDIA

(22) Date of filing of Application :24/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : TIRE ASSESSMENT AND MAINTENANCE SYSTEM

(51) International classification :G06F0001160000, H04N0023620000, G06T0007000000, B41J0002165000, G06N0003080000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(72)Name of Inventor :

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(57) Abstract :

A tire assessment and maintenance system 100, comprising a housing installed with an inspection unit, including a camera 101 linked to a control unit for determination of defects, an X-ray unit 102 provided with a housing to capture X-ray images of a tire, an analysis module to analyse images for external and internal defects, a touch enabled display unit 103 integrated with housing to display determined defects, a user interface configured to input travel destination and evaluate tire suitability, a multi-coloured lighting elements 104 to indicate suitability, a mobile maintenance unit housed within housing including a material removal module including a hydraulic extenders 110, a buffing unit 113, a articulated telescopic bar 114, an imaging unit 116, and a filling module including a tank 117, a nozzle 118, a swivel application 120, a robotic arm 124, and a curing receptacle 125 to perform complete tire maintenance operations.

No. of Pages : 23 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :24/06/2025

(21) Application No.202541060351 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : SITE-SPECIFIC FERTILIZER PREPARATION AND DISPENSING DEVICE

(51) International classification :B05C0005020000, G01N0033240000, A01M0007000000, A01B0079000000, A01C0021000000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

A site-specific fertilizer preparation and dispensing device, comprising of a housing 101 installed with a pair of track wheels 102 for movement over an agricultural field, a wedge-shaped plate 103 mounted via a first articulated arm 104, for continuously measuring soil parameters of the field, a compartment 105 stores organic raw materials, a chamber 106 connected to the compartment 105 via hollow passages 107 integrated with iris units 108, to dispense raw materials, a disc 109 having a blade 110 for breaking and mix the raw materials to prepare a uniform high-quality fertilizer, a vessel 111 storing water and microbial solutions, coupled to a sprinkler head 112 with nozzles 113 dispense liquids inside the mixing chamber 106, an imaging unit 114 analyzes tree count and root growth patterns around field, a dispensing nozzle 115 installed with a conduit 116 with multiple outlets 117 dispenses fertilizer directly into targeted root zones.

No. of Pages : 29 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202541060352 A

(19) INDIA

(22) Date of filing of Application :24/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : AUTONOMOUS FRESH PRODUCE VENDING CART

|                                                                                                                                                                                                                                                                                                                                                                                           |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>(51) International classification :B62B0005000000, B62B0003020000, A23B0007160000, B65G0023080000, B60P0003025000</p> <p>(86) International Application No :NA<br/>Filing Date :NA</p> <p>(87) International Publication No : NA</p> <p>(61) Patent of Addition to Application Number :NA<br/>Filing Date :NA</p> <p>(62) Divisional to Application Number :NA<br/>Filing Date :NA</p> |  | <p>(71)<b>Name of Applicant :</b><br/><b>1)JAIN (Deemed-to-be University)</b><br/>Address of Applicant :Jain Global Campus, Jakkasandra Post, Kanakapura Road, Kanakapura Taluk, Ramnagar District, Bangalore – 562112, Karnataka, India. Bangalore -----</p> <p><b>Name of Applicant : NA</b><br/><b>Address of Applicant : NA</b></p> <p>(72)<b>Name of Inventor :</b><br/><b>1)Shashi Kumar M</b><br/>Address of Applicant :JAIN (Deemed-to-be University), Jain Global Campus, Jakkasandra Post, Kanakapura Road, Kanakapura Taluk, Ramnagar District, Bangalore – 562112, Karnataka, India. Bangalore -----</p> <p><b>2)R Vinoth</b><br/>Address of Applicant :JAIN (Deemed-to-be University), Jain Global Campus, Jakkasandra Post, Kanakapura Road, Kanakapura Taluk, Ramnagar District, Bangalore – 562112, Karnataka, India. Bangalore -----</p> <p><b>3)Dr. Nelsonmandela</b><br/>Address of Applicant :JAIN (Deemed-to-be University), Jain Global Campus, Jakkasandra Post, Kanakapura Road, Kanakapura Taluk, Ramnagar District, Bangalore – 562112, Karnataka, India. Bangalore -----</p> <p><b>4)Dr. S.K.Manju bargavi</b><br/>Address of Applicant :JAIN (Deemed-to-be University), Jain Global Campus, Jakkasandra Post, Kanakapura Road, Kanakapura Taluk, Ramnagar District, Bangalore – 562112, Karnataka, India. Bangalore -----</p> |
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(57) Abstract :

An autonomous fresh produce vending cart, comprising a cart body 101, multiple motorized wheels 102 for facilitating movement of the cart on the surface, multiple compartments 103 storing and displaying different types of fresh produce, multiple horizontal plates 104 configured for organizing fresh produce and a hydraulic piston arrangement 105 for adjusting angles and positions of compartments 103 relative to cart body 101, multiple motorized air blowers 108 facilitating effective air circulation, a motorized roller 109 rotating on its to unwind a sheet, a Peltier unit for maintaining optimal storage temperature, a conveyor belt assembly 112 facilitate seamless transfer of fresh produce between the two levels, an L-shaped telescopic link 114 is integrated with a C-shaped gripper 115 to pick up fresh produce from either the lower/upper section, multiple extendable L-shaped panels 116 each connected via motorized pivot joints enabling smooth extension and retraction.

No. of Pages : 30 No. of Claims : 10

(54) Title of the invention : LUGGAGE STORAGE DEVICE

|                                               |                                                                                 |                                                                                                                                                                                                                                                                |
|-----------------------------------------------|---------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (51) International classification             | :G10L0015220000, H04L0009080000, B64D0011000000, B60R0021020000, B60R0009055000 | (71)Name of Applicant :<br><b>1)JAIN (Deemed-to-be University)</b><br>Address of Applicant :Jain Global Campus, Jakkasandra Post, Kanakapura Road, Kanakapura Taluk, Ramnagar District, Bangalore – 562112, Karnataka, India. Bangalore -----                  |
| (86) International Application No             | :NA                                                                             | <b>Name of Applicant : NA</b>                                                                                                                                                                                                                                  |
| Filing Date                                   | :NA                                                                             | <b>Address of Applicant : NA</b>                                                                                                                                                                                                                               |
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| (62) Divisional to Application Number         | :NA                                                                             |                                                                                                                                                                                                                                                                |
| Filing Date                                   | :NA                                                                             |                                                                                                                                                                                                                                                                |

(57) Abstract :  
A luggage storage device, comprising of a frame 101 constructed with a platform 102 for storing passenger luggage securely during transit, a speaker 103 and a microphone 104 provides audible instructions, notifications, and facilitate voice command interactions, a suction unit 107 secures the frame 101, multiple clamping units 108 secures the platform 102 to side edges of the vehicle roof, a projection unit 110 attached via a rod 111 and a ball-and-socket joint 112 visually guide and display luggage placement on the platform 102, a series of members 120 equipped with pivot joints 121 lifts and clamps luggage and passengers, a C-shaped unit 123 attached via a hinge 124 to flip over and cover luggage for protection, an inflatable member 125 absorbs shocks and protect luggage during transit, an electromagnet 126 locks the frame 101 securely in place over the luggage.

No. of Pages : 28 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202541060354 A

(19) INDIA

(22) Date of filing of Application :24/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : AUTONOMOUS ROAD MAINTENANCE DEVICE

(51) International classification :E01C0019410000, E02F0003960000, E01H0001080000, E02D0003026000, B65G0001133000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
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(57) Abstract :

An autonomous road maintenance device, comprising a body 101 installed with a manual two-ways clamps 102, a chiseling unit 103 mounted on a rotating bar 104, a hydraulic piston 105 to generate controlled reciprocating motion for chiseling operations, a debris storage unit 106 comprising a one-way spring-controlled flap door 107 for automatic debris collection, a binder selection rotary carousel 108 having multiple compartments 109 dispenses a binder via solenoid-controlled valves 110 for binder flow control, a paint carousel 111 with multiple sections 112 containing various paint colors, a rotating brush 113 mounted on a spheroidal joint 114 movable along a horizontal guide rail 115 for smoothing binder application, an air dryer unit 117 for drying of applied binder or paint, a vibratory compactor unit 118 with vertical reciprocating motion for surface compaction levels, a final roller compactor unit 119 for surface leveling and finishing.

No. of Pages : 24 No. of Claims : 10



(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :24/06/2025

(21) Application No.202541060355 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : WIRELESS ELECTRIC VEHICLE CHARGING SYSTEM

(51) International classification :B60L53/12, H02J50/10, H02J7/00,  
B60L53/302  
(86) International Application No :NA  
Filing Date :NA  
(87) International Publication No : NA  
(61) Patent of Addition to Application  
Number :NA  
Filing Date :NA  
(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

A wireless electric vehicle charging system, comprising a battery pack 101 which is enclosed in an enclosure 102 crafted with a plurality of slots 103, multiple cylindrical lithium-ion cells 104 are installed in the slots 103, to provide 350v DC (direct current), a transmitter coil 105 is encased in a stationary pad 106 for integration with a parking space, a receiver coil 301 to establish an inductive coupling with the transmitter coil 105 to wirelessly receive electrical energy for charging of the electric vehicle, a battery management unit continuously monitors voltage, current and temperature of the battery pack 101 to prevent overcharging, deep discharge, and thermal runaway, a thermal regulation unit 201 manages heat produced by the battery pack 101, a digital twin module with a control unit creates a virtual replica of physical assets, to track operational parameters including, temperature, charging rate and efficiency, orientation, one port 203 to enable charging of auxiliary equipment.

No. of Pages : 23 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :24/06/2025

(21) Application No.202541060356 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : ANIMAL SHELTERING SYSTEM

(51) International classification :A01K0001000000, B41J0002165000, B08B0003020000, A01K0001030000, B05B0013020000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

An animal sheltering system, comprising an enclosure 101 to house multiple animals, multiple gates 103 enables movement of the animals, two sliding flaps 104 enclosing a hollow region between the flaps 104, multiple cameras 105 determines unruly behaviour displayed by the animals and visitors, a chamber 106 configured with multiple sprayers 107 to spray the animals with a cleaning solution, multiple blowers 109 for drying of the animals, multiple wipers 110 to wipe debris, multiple nozzles 111 spray water, multiple iris holes 112 for drainage of the water into a tank 108, multiple water pots 113 provides drinking water to the animals, multiple trays 115 connected with a compartment 116 provides food to animals, a member 117 attached via a sliding unit 118 wipes waste into channels 119, a digester 120 collects waste for production of biogas, a display panel 124 displays data recorded relating to the animals.

No. of Pages : 27 No. of Claims : 10

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|---------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| (12) PATENT APPLICATION PUBLICATION                                                                           |                                                                                 | (21) Application No.202541060412 A                                                                                                                                                                 |  |
| (19) INDIA                                                                                                    |                                                                                 |                                                                                                                                                                                                    |  |
| (22) Date of filing of Application :24/06/2025                                                                |                                                                                 | (43) Publication Date : 04/07/2025                                                                                                                                                                 |  |
| (54) Title of the invention : AN AI-ENHANCED ADAPTIVE PHOTOTHERAPY SYSTEM FOR MANAGEMENT OF NEONATAL JAUNDICE |                                                                                 |                                                                                                                                                                                                    |  |
|                                                                                                               |                                                                                 |                                                                                                                                                                                                    |  |
| (51) International classification                                                                             | :A61N0005060000, A61B0005000000, A61B0005010000, A61B0005145000, G06F0001320600 | (71)Name of Applicant :<br><b>1)Centre for Life Sciences, Mahindra University</b><br>Address of Applicant :Survey No 62/1A, Bahadurpally, Hyderabad- 500043, Telangana, India. Hyderabad -----     |  |
| (86) International Application No                                                                             | :NA                                                                             | <b>Name of Applicant : NA</b>                                                                                                                                                                      |  |
| Filing Date                                                                                                   | :NA                                                                             | <b>Address of Applicant : NA</b>                                                                                                                                                                   |  |
| (87) International Publication No                                                                             | : NA                                                                            | (72)Name of Inventor :<br><b>1)Dr. Thakur Santosh</b><br>Address of Applicant :Flat No. 303, My Space Apartment, Lane No, 7, Panchasheel Enclave, Hi-tension Road, Pet Basheerabad HYDERABAD ----- |  |
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| (62) Divisional to Application Number                                                                         | :NA                                                                             | <b>4)Rohit Mishra</b><br>Address of Applicant :Engineering Lead, Shell India, Flat No: 202, Building No: 33, 31st Main Road, HSR Sector 2, Bangalore- 560102, Karnataka HYDERABAD -----            |  |
| Filing Date                                                                                                   | :NA                                                                             |                                                                                                                                                                                                    |  |

(57) Abstract :  
TITLE: “AN AI-ENHANCED ADAPTIVE PHOTOTHERAPY SYSTEM FOR MANAGEMENT OF NEONATAL JAUNDICE” 7. ABSTRACT The present invention relates to an AI-Enhanced Adaptive Phototherapy System (100) for the effective management of neonatal jaundice. The system integrates an AI-powered phototherapy management module (1) and a control and learning module (2) to personalize treatment by dynamically adjusting light intensity and exposure duration based on real-time, non-invasive sensor data. A monitoring unit (3) tracks bilirubin levels, skin temperature, ambient conditions, and hydration status, while a dynamic LED-based phototherapy unit (4) delivers optimized blue-light therapy. The system further includes a safety and emergency control sub-module (5) for risk mitigation, a user interface and dashboard (6) for real-time interaction and protocol management, and a secure data recording and communication layer (7) to log treatment data for clinical review and research. The invention ensures higher efficacy, reduced side effects, and improved patient safety while enabling energy efficiency and remote accessibility, offering a significant advancement over traditional phototherapy systems. The figure associated with the abstract is Fig. 1 and 2.

No. of Pages : 29 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202541060418 A

(19) INDIA

(22) Date of filing of Application :24/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : A METHOD FOR PREPARING FLY-ASH-DERIVED SUPERHYDROPHOBIC NANO COATING FOR OUTDOOR ELECTRICAL INSULATORS

(51) International classification :C08K0003360000, G01R0031120000, C08L0083040000, H01B0003300000, C09D0005000000

(86) International Application No :NA

Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA

Filing Date :NA

(62) Divisional to Application Number :NA

Filing Date :NA

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(57) Abstract :

**ABSTRACT** The present invention provides a method for preparing a superhydrophobic nano coating for outdoor electrical insulators, wherein amorphous nano-silica is synthesized from fly ash via acid and alkaline treatment and subsequently functionalized using a non-fluorinated silane compound. The process involves neutralizing sodium silicate with concentrated hydrochloric acid to obtain silica gel, which is then modified with dodecyltrimethoxysilane and tetraethoxysilane in the presence of ammonium hydroxide. The functionalized nano-silica is dispersed in chloroform and applied as a spray coating over a polydimethylsiloxane (PDMS)-treated insulator surface. The resulting coating exhibits superhydrophobicity with water contact angles exceeding 150°, and demonstrates enhanced dielectric performance, including reduced leakage current, increased partial discharge inception voltage, and improved tracking resistance under high humidity and polluted conditions. The invention offers an environmentally sustainable and scalable method for enhancing the surface reliability of polymeric, porcelain, and glass-based high-voltage outdoor insulators. Figure 1.

No. of Pages : 21 No. of Claims : 9

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202541060424 A

(19) INDIA

(22) Date of filing of Application :24/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : AN IN-VITRO PROCESS OF QUANTIFYING INFLAMMATION FROM A CO-CULTURE OF CELLS WITH A THERAPEUTIC AGENT

(51) International classification :A61P0029000000, G01N0033500000, A61P0035000000, A61P0043000000, A61K0035280000

(86) International Application No :NA

Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA

Filing Date :NA

(62) Divisional to Application Number :NA

Filing Date :NA

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(57) Abstract :

ABSTRACT AN IN-VITRO PROCESS OF QUANTIFYING INFLAMMATION FROM A CO-CULTURE OF CELLS WITH A THERAPEUTIC AGENT The present disclosure relates to a comparative in vitro analysis of a polyphenolic compound. The polyphenol compound is a therapeutic agent and shows anti-inflammatory properties with potential unique benefits for regenerative therapy, improved efficacy through comparative analysis and dose-response evaluation, cost benefits through potentially lower treatment costs, and simplicity in treatment protocols and safety. The present disclosure also relates to an in vitro process of quantifying inflammation from a co-culture of mesenchymal stem cells and fibroblast cell lines.

No. of Pages : 27 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :24/06/2025

(21) Application No.202541060425 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : A DUAL-BAND MICROSTRIP PATCH ANTENNA AND A METHOD THEREOF

|                                                                                                                                                                                                                                                                                                                                                                                           |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>(51) International classification :H01Q0009040000, H01Q0001380000, H04B0001400000, H01Q0021060000, H01L0023660000</p> <p>(86) International Application No :NA<br/>Filing Date :NA</p> <p>(87) International Publication No : NA</p> <p>(61) Patent of Addition to Application Number :NA<br/>Filing Date :NA</p> <p>(62) Divisional to Application Number :NA<br/>Filing Date :NA</p> |  | <p>(71)Name of Applicant :<br/><b>1)SRM INSTITUTE OF SCIENCE AND TECHNOLOGY</b><br/>Address of Applicant :Kattankulathur, Chennai-603203, Tamil Nadu, India<br/>Chennai -----</p> <p><b>Name of Applicant : NA</b><br/><b>Address of Applicant : NA</b></p> <p>(72)Name of Inventor :<br/><b>1)MURUGESAN BALASUBRAMANIAN</b><br/>Address of Applicant :SRMIST, Kattankulathur, Chennai-603203, Tamil Nadu, India Chennai -----</p> <p><b>2)POYYAMOZHI MUKILAN</b><br/>Address of Applicant :SRMIST, Kattankulathur, Chennai-603203, Tamil Nadu, India Chennai -----</p> <p><b>3)G. K. PANDEY</b><br/>Address of Applicant :SRMIST, Kattankulathur, Chennai-603203, Tamil Nadu, India Chennai -----</p> <p><b>4)RAJAMANICKAM NARAYANAMOORTHY</b><br/>Address of Applicant :SRMIST, Kattankulathur, Chennai-603203, Tamil Nadu, India Chennai -----</p> |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

(57) Abstract :

**ABSTRACT A DUAL-BAND MICROSTRIP PATCH ANTENNA AND A METHOD THEREOF** The present disclosure relates to a dual-band microstrip patch antenna (100) for efficient signal transmission and reception in the X-band (7.85 GHz) and Ku-band (12.65 GHz). The antenna (100) comprises a substrate layer (102), a radiating patch (104), a rectangular feed line (106), a ground plane (108), an impedance matching network (110), and an RF signal processing module (112). The substrate layer (102) is made of a mineral-epoxy composite with a low loss tangent to reduce signal attenuation. The radiating patch (104), configurable in various shapes, enhances electromagnetic performance. The impedance matching network (110) ensures low return losses. The antenna (100) integrates with a wireless communication system (300) comprising a signal processing unit (302), transceiver module (304), power amplifier (306), and adaptive frequency tuning (308). Optimized using Finite-Difference Time-Domain (FDTD) simulations, it is ideal for satellite communication, radar, and wireless applications.

No. of Pages : 29 No. of Claims : 12

(54) Title of the invention : A COMPOSITE MATERIAL AND A METHOD OF FABRICATION THEREOF

|                                               |                                                                                 |                                                                                                                                                                         |
|-----------------------------------------------|---------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (51) International classification             | :A61K0009200000, B29C0048000000, C08K0003220000, B29K0105160000, B29C0070080000 | (71)Name of Applicant :<br><b>1)SRM INSTITUTE OF SCIENCE AND TECHNOLOGY</b><br>Address of Applicant :Kattankulathur, Chennai-603203, Tamil Nadu, India<br>Chennai ----- |
| (86) International Application No             | :NA                                                                             | Name of Applicant : NA                                                                                                                                                  |
| Filing Date                                   | :NA                                                                             | Address of Applicant : NA                                                                                                                                               |
| (87) International Publication No             | : NA                                                                            | (72)Name of Inventor :                                                                                                                                                  |
| (61) Patent of Addition to Application Number | :NA                                                                             | <b>1)INBARAJ, INFANTA MARY PRIYA</b>                                                                                                                                    |
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| (62) Divisional to Application Number         | :NA                                                                             | <b>2)NAMBIAPPAN, UMAMAHESWARI</b>                                                                                                                                       |
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(57) Abstract :  
ABSTRACT A COMPOSITE MATERIAL AND A METHOD OF FABRICATION THEREOF The present disclosure relates to a composite material (100) structure for use in modular and structural applications. The composite material (100) comprises a thermosetting polymeric matrix (102) forming a continuous phase, and a filler phase of powdered polyethylene terephthalate (PET) (104) homogeneously dispersed within the matrix (102) in a predefined ratio. The composite material (100) is prepared by subjecting the polymeric matrix (102) and PET (104) powder to mechanical stirring at a predefined rotational speed to achieve uniform dispersion. The resulting mixture is manually laminated using a lay-up technique onto a mold surface and subsequently cured under ambient temperature conditions. The process results in a rigid, solidified composite material (100) exhibiting mechanical integrity, dimensional stability, and environmental sustainability, making it suitable for load-bearing and modular construction applications.

No. of Pages : 25 No. of Claims : 19

(54) Title of the invention : Method for Optimized Resource Allocation in Distributed Cloud Systems using Genetic Algorithms

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <div><div>(51) International classification</div><div>:G06F0009500000, G06N0003126000, G06F0009455000, H04L0041500000, H04L0041500900</div></div> <div><div>(86) International Application No</div><div>:NA</div><div>Filing Date</div><div>:NA</div></div> <div><div>(87) International Publication No</div><div>: NA</div></div> <div><div>(61) Patent of Addition to Application Number</div><div>:NA</div><div>Filing Date</div><div>:NA</div></div> <div><div>(62) Divisional to Application Number</div><div>:NA</div><div>Filing Date</div><div>:NA</div></div> |  | <div><div>(71)Name of Applicant :</div><div><b>1)Paavai Engineering College</b></div><div>Address of Applicant :Paavai Nagar, NH - 44, Pachal, Namakkal, Tamil Nadu, 637 018 -----</div><div><b>Name of Applicant : NA</b></div><div><b>Address of Applicant : NA</b></div><div>(72)Name of Inventor :</div><div><b>1)Dr. D. Banumathy</b></div><div>Address of Applicant :Professor &amp; Head, Department of CSE, Paavai Engineering College, Namakkal, Tamil Nadu -----</div><div><b>2)Mr. V. Maheskumar</b></div><div>Address of Applicant :Assistant Professor, Department of CSE, Paavai Engineering College, Namakkal, Tamil Nadu,637018 -----</div><div><b>3)Mr. M. Siva Ganesh</b></div><div>Address of Applicant :Assistant Professor, Department of CSE, Paavai Engineering College, Namakkal, Tamil Nadu,637018 -----</div><div><b>4)Mr. E. Elanchezhian</b></div><div>Address of Applicant :Assistant Professor, Department of CSE, Paavai Engineering College, Namakkal, Tamil Nadu,637018 -----</div><div><b>5)Mrs. V. T. Kruthika</b></div><div>Address of Applicant :Assistant Professor, Department of CSE, Paavai Engineering College, Namakkal, Tamil Nadu,637018 -----</div><div><b>6)Mrs. K. Sangeetha</b></div><div>Address of Applicant :Assistant Professor, Department of CSE, Paavai Engineering College, Namakkal, Tamil Nadu,637018 -----</div><div><b>7)Dr. A. Jeyamurugan</b></div><div>Address of Applicant :Associate Professor, Department of CSE, Paavai Engineering College, Namakkal, Tamil Nadu,637018 -----</div><div><b>8)Mrs. K. Santhanalakshmi</b></div><div>Address of Applicant :Assistant Professor, Department of CSE, Paavai Engineering College, Namakkal, Tamil Nadu,637018 -----</div><div><b>9)Mrs. N. Karthica</b></div><div>Address of Applicant :Assistant Professor, Department of CSE, Paavai Engineering College, Namakkal, Tamil Nadu,637018 -----</div><div><b>10)Mrs. R. Niranjana</b></div><div>Address of Applicant :Assistant Professor, Department of CSE, Paavai Engineering College, Namakkal, Tamil Nadu,637018 -----</div></div> |
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(57) Abstract :  
This invention discloses a method for optimized resource allocation in distributed cloud systems using a Genetic Algorithm (GA)-based framework. The method dynamically allocates computational workloads across heterogeneous nodes in a cloud infrastructure, improving efficiency, scalability, and service quality. Each solution candidate (chromosome) represents a specific assignment of tasks to virtual machines or containers, taking into account constraints such as CPU, memory, bandwidth, and latency. The GA process includes population initialization, fitness evaluation, selection, crossover, and mutation operations. A multi-objective fitness function is employed to balance resource utilization, energy efficiency, latency, and service-level agreement (SLA) compliance. The invention enhances traditional GAs with adaptive mutation strategies, domain-specific encoding, and predictive analytics to forecast workload trends and guide the search process. Furthermore, the system features hierarchical deployment, with localized optimization at edge nodes and global coordination through a central controller. Fault tolerance and SLA maintenance are ensured via dynamic reallocation in the event of node failures or performance degradation. The method is designed to integrate with existing cloud orchestration tools such as Kubernetes and supports real-time resource orchestration through API endpoints. Simulation results demonstrate substantial improvements in resource utilization, task latency, and energy savings compared to conventional allocation strategies. This invention offers a robust, intelligent, and scalable solution for managing dynamic workloads in distributed cloud environments using genetic algorithm principles tailored for modern computing demands.

No. of Pages : 15 No. of Claims : 7



(12) PATENT APPLICATION PUBLICATION

(21) Application No.202541060431 A

(19) INDIA

(22) Date of filing of Application :24/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : System and Method for Measuring Liquid Level in Overhead Tank Using Pressure Sensor at Tap

(51) International  
classification

:A61B0005000000, A61B0005316000,  
G01L0025000000, G01K0013020000,  
G01C0025000000

(86) International  
Application No  
Filing Date

:NA  
:NA

(87) International  
Publication No

: NA

(61) Patent of Addition to  
Application Number  
Filing Date

:NA  
:NA

(62) Divisional to  
Application Number  
Filing Date

:NA  
:NA

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(57) Abstract :

The present invention discloses a system and method ("Suchak") for measuring the liquid level in an overhead tank. A pressure sensor (101), installed at a tap via a T-joint (102), detects liquid pressure. A microcontroller (103) processes the sensor's signals using a novel algorithm. This algorithm employs a Slow Moving Average (SMA) whose output is compared against the raw pressure value (P) to identify and discard transient spikes caused by tap usage. A Fast Moving Average (FMA) then smooths the corrected signal to remove sensor noise, yielding an accurate static pressure. This static pressure is converted to height and then to a calibrated percentage liquid level (0-100%), which is displayed on a graphical user interface (GUI) of an electronic display (104). The system is non-intrusive, cost-effective, and provides continuous, accurate readings by compensating for tap-induced pressure fluctuations. Its principal use is in household water management.

No. of Pages : 15 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202541061381 A

(19) INDIA

(22) Date of filing of Application :27/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : A SYSTEM AND METHOD TO IMPLEMENT THREE DIMENSIONAL PLAYFAIR CIPHER

(51) International classification :H04L0009060000, H04L0009000000, H04L0009140000, G09C0001000000, H04L0009080000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

ABSTRACT: This invention introduces an extended play fair cipher for enhancing security of cryptography systems. Traditional ciphers are criticized as easy victims of cryptanalysis as they are too simple and continue to remain as educational tools. But their inherent simplicity as a spin-off can be made use of in computing session keys for applications which require a moderate level of security. Extending the key matrix of the Playfair cipher to have yet another dimensionality improves the key space with one of the plaintext symbols in the considered trigram for encryption serving as an index to a transposed key matrix that will be employed in the substitution process. The Key matrix can also be scaled based on the character set from which the plaintext is derived. This invention can come handy as to be employed in lower end devices where a trade-off is required between level of security and computational complexity

No. of Pages : 12 No. of Claims : 7

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :27/06/2025

(21) Application No.202541061402 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : IN VITRO STUDIES ON ANTINEOPLASTIC PROPERTIES OF FORTIFIED POLYHERBAL FORMULATIONS

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| <p>(51) International classification :A61K0036185000, A61P0035000000, A61P0001160000, A61K0036470000, A61K0031198000</p> <p>(86) International Application No :NA<br/>Filing Date :NA</p> <p>(87) International Publication No : NA</p> <p>(61) Patent of Addition to Application Number :NA<br/>Filing Date :NA</p> <p>(62) Divisional to Application Number :NA<br/>Filing Date :NA</p> | <p>(71)Name of Applicant :<br/><b>1)Dhivyadharshini V</b><br/>Address of Applicant :L&amp;T BY-PASS, SRI SHAKTHI NAGAR, CHINNIYAMPALAYAM, COIMBATORE, TAMILNADU-641062. -----<br/>-----<br/><b>2)Jai shree S</b><br/><b>3)Menaka R</b><br/><b>4)Sneha sree V</b><br/><b>5)Dr. G.S. Murugesun</b><br/>Name of Applicant : NA<br/>Address of Applicant : NA<br/>(72)Name of Inventor :<br/><b>1)Dhivyadharshini V</b><br/>Address of Applicant :L&amp;T BY-PASS, SRI SHAKTHI NAGAR, CHINNIYAMPALAYAM, COIMBATORE, TAMILNADU-641062. -----<br/>-----<br/><b>2)jai shree.s</b><br/>Address of Applicant :L&amp;T BY-PASS, SRI SHAKTHI NAGAR, CHINNIYAMPALAYAM, COIMBATORE, TAMILNADU-641062. -----<br/>-----<br/><b>3)Menaka.R</b><br/>Address of Applicant :L&amp;T BY-PASS, SRI SHAKTHI NAGAR, CHINNIYAMPALAYAM, COIMBATORE, TAMILNADU-641062. -----<br/>-----<br/><b>4)Sneha Sree.V</b><br/>Address of Applicant :L&amp;T BY-PASS, SRI SHAKTHI NAGAR, CHINNIYAMPALAYAM, COIMBATORE, TAMILNADU-641062. -----<br/>-----<br/><b>5)Dr. G.S. Murugesun</b><br/>Address of Applicant :L&amp;T BY-PASS, SRI SHAKTHI NAGAR, CHINNIYAMPALAYAM, COIMBATORE, TAMILNADU-641062. -----<br/>-----</p> |
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(57) Abstract :

ABSTRACT TITLE: IN VITRO STUDIES ON ANTINEOPLASTIC PROPERTIES OF FORTIFIED POLYHERBAL FORMULATIONS. Cancer is a major health problem worldwide. Herbal formulations have been traditionally used for their medicinal properties, and recent studies have highlighted their potential in cancer treatment and liver protection. This review focuses on the anti-cancer and hepato-protective activities of polyherbal formulations in vitro. There is a need for better and safer treatments. Herbal medicines contain natural compounds that may help fight cancer. In this study, we tested fortified polyherbal (Phyllanthus emblica, Terminalia bel/irica, Terminalia chebula and herbs as additives) formulations made from different medicinal plants. These herbs were chosen for their known ability to kill cancer cells, reduce inflammation, and act as antioxidants. Natural enhancers were also added to increase their effectiveness. We tested the formulations on different human cancer cell lines and compared the results with normal cells. The tests used were Mn' and Trypan Blue assays. The formulations reduced cancer cell growth in a dose-dependent way and showed little harm to normal cells. They also caused cancer cells to die and stopped them from dividing by blocking the cell cycle. These results show that fortified polyherbal formulations may be useful in cancer treatment. Future research on herbal formulations should investigate their molecular mechanisms, safety, and efficacy through in vivo studies, clinical trials, and standardization to ensure their potential as anti-cancer and liver-protective agents.

No. of Pages : 7 No. of Claims : 5

|                                                                                             |                                                                                 |                                                                                                                                                                    |  |
|---------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| (12) PATENT APPLICATION PUBLICATION                                                         |                                                                                 | (21) Application No.202541061437 A                                                                                                                                 |  |
| (19) INDIA                                                                                  |                                                                                 |                                                                                                                                                                    |  |
| (22) Date of filing of Application :27/06/2025                                              |                                                                                 | (43) Publication Date : 04/07/2025                                                                                                                                 |  |
| (54) Title of the invention : AI-POWERED SYSTEM FOR IDENTIFICATIONAND ORDERING OF GI-TAGGED |                                                                                 |                                                                                                                                                                    |  |
| (51) International classification                                                           | :G06V0010820000, G06Q0030018000, G06T0007000000, G06N0003080000, G06F0018220000 | (71) <b>Name of Applicant :</b><br><b>1)Moumita Roy</b><br>Address of Applicant :#132, IT PARK ROAD, AECS LAYOUT, KUNDALAHALLI, BANGALORE, KARNATAKA-560037. ----- |  |
| (86) International Application No                                                           | :NA                                                                             | <b>2)CMR INSTITUTE OF TECHNOLOGY</b>                                                                                                                               |  |
| Filing Date                                                                                 | :NA                                                                             | <b>Name of Applicant : NA</b>                                                                                                                                      |  |
| (87) International Publication No                                                           | : NA                                                                            | <b>Address of Applicant : NA</b>                                                                                                                                   |  |
| (61) Patent of Addition to Application Number                                               | :NA                                                                             | <b>(72)Name of Inventor :</b>                                                                                                                                      |  |
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(57) Abstract :  
Abstract The present invention discloses an AI-powered system for the identification, authentication, and ordering of Geographical Indication (GI)-tagged handloom fabrics using computer vision and machine learning techniques. The system captures fabric images, processes them using advanced image analysis, and extracts key features such as weave patterns, textures, and color schemes. A trained AI model then classifies the fabric against a certified database of GI-tagged textiles, ensuring authenticity verification. Additionally, the system integrates an e-commerce platform for seamless transactions with verified sellers. This innovation enhances efficiency, prevents counterfeiting, and promotes fair trade practices in the handloom industry.

No. of Pages : 6 No. of Claims : 6

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202541061451 A

(19) INDIA

(22) Date of filing of Application :27/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : INTELLIGENT ENGLISH LANGUAGE PROCESSING: ENHANCE HUMAN-LIKE COMMUNICATION ABILITIES

(51) International classification :G06F0040300000, B25J0009160000, G06V0040160000, G10L0025630000, G06F0040284000

(86) International Application No :NA  
Filing Date :NA

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(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

Abstract: A novel framework for Intelligent English Language Processing (IELP) designed for autonomous robots is presented in this research in an effort to provide more intuitive and natural human-robot interaction. Our approach combines emotion identification, context-aware cognitive modelling, and sophisticated natural language understanding to enable smooth, sympathetic, and situation-appropriate communication. The suggested architecture allows robots to understand not only the literal meaning of spoken English but also the speaker's emotional state and the subtleties of the conversation by fusing transformer-based language models with real-time sensory data processing. The robot can make contextually sound decisions, flexibly adjust its behaviour, and deduce user intent thanks to a cognitive reasoning module. Simultaneously, an emotion recognition system uses multimodal inputs, including textual sentiment, facial expressions, and speech tone, to sympathetically adjust the robot's answers. Significant gains in answer relevance, emotional appropriateness, and user pleasure are shown in experiments conducted in human-robot interaction scenarios. The findings highlight how IELP systems can develop socially intelligent robotics and open the door to more efficient and human-centered AI implementations.

No. of Pages : 6 No. of Claims : 5

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202541061452 A

(19) INDIA

(22) Date of filing of Application :27/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : DATA-DRIVEN INSTRUCTION:THE IMPACT OF GRAPH NEURAL NETWORKS IN LITERACY EDUCATION

(51) International classification :G06F0016340000, G06F0040300000, G06F0040350000, G09B0017000000, G01S0019220000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

Abstract: With their transformative potential in the realm of literacy instruction, Graph Neural Networks (GNNs) have grown into a potent paradigm for representing complicated, relational data. The use and effects of GNNs in improving writing assistance, discourse analysis, tailored learning, and reading comprehension are examined in this work. ·GNNs facilitate multi-level reasoning that reflects human comprehension by expressing linguistics and intellectual information as structured graphs, where nodes represent concepts, phrases, or learners and edges record semantics, syntactic, or behavioral correlations. We examine recent studies that combine GNNs with knowledge graphs, discourse structures, and student modeling, emphasizing how they enhance adaptive feedback systems, text summarization, and narrative comprehension. Notwithstanding issues with comprehension, data sparsity, and computing requirements, GNNs present encouraging paths for the advancement of tailored and fair literacy training.

No. of Pages : 6 No. of Claims : 7

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :27/06/2025

(21) Application No.202541061455 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : A COMPREHENSIVE APPROACH: ARGUMENT STRUCTURE ANALYSIS IN TEXT PROCESSING

(51) International classification :G06F0040300000, G06F0040253000, G06N0003080000, G06F0040211000, G06F0040289000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
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(57) Abstract :

Abstract: In order for robots to comprehend the logical elements and connections found in texts, argument structure analysis is a crucial task in natural language processing. This study combines text segmentation, component identification, relation extraction, and graph-based modelling to provide an efficient method for analysing argument structure. The method promotes deeper thinking over speech and improves applications like intelligent tutoring systems, opinion mining, and automated essay grading by portraying arguments as structured graphs of assertions, premises, and counterarguments. The suggested approach enhances the precision and interpretability of text analysis by utilizing cutting-edge machine learning techniques, such as Graph Neural Networks, to capture intricate argumentation relationships. Potential solutions are addressed, along with issues like insufficient annotated data and ambiguity in argument components.

No. of Pages : 6 No. of Claims : 7

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :17/06/2025

(21) Application No.202541062565 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : A Novel SPR-Based Label-Free Sensor Design for various Chemical Compound Detection

(51) International classification :G01N0021552000, G01N0021410000, G01N0033543000, G03F0007000000, C12Q0001688300  
(86) International Application No :NA  
Filing Date :NA  
(87) International Publication No : NA  
(61) Patent of Addition to Application Number :NA  
Filing Date :NA  
(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :  
This research develops a novel surface plasmon resonance (SPR) sensor based on a BK7/Silver (Ag)/Aluminum Phosphate ([AlPO]<sub>4</sub>)/2D materials structure for the detection of various chemicals. Employing angular interrogation method, we numerically evaluate the performance at the wavelength of 633 nm. These materials have been selected due to their better optical and electrical properties, i.e., their complex refractive indices since these characteristics play a key role in the SPR response. [AlPO]<sub>4</sub> enhances the coupling between the plasmonic metal (Ag) and the 2D materials, hence the sensor performance. Knowledge in the utilization of these materials and their characteristics, the proposed sensor demonstrates improved sensitivity and accuracy and senses various chemicals for various uses. Our proposed sensor exhibits a maximum sensitivity of 432.0697°/RIU, a quality factor (QF) of 173.4662 RIU<sup>-1</sup>, and a detection accuracy (DA) of 0.7459 through the detection of various chemical samples, demonstrating excellent improvements over existing methodologies.

No. of Pages : 6 No. of Claims : 4



(12) PATENT APPLICATION PUBLICATION

(21) Application No.202431013112 A

(19) INDIA

(22) Date of filing of Application :23/02/2024

(43) Publication Date : 04/07/2025

(54) Title of the invention : A PROCESS FOR PREPARATION OF SUPERHYDROPHOBIC LANTHANUM CERATE OXIDE COATING

(51) International classification :C01B33/148, B32B33/00, C08K3/36, C09D7/12, C23C16/513, C09K3/18, C23C16/40  
(86) International Application No :NA  
Filing Date :NA  
(87) International Publication No : NA  
(61) Patent of Addition to Application Number :NA  
Filing Date :NA  
(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

The present invention relates to a superhydrophobic lanthanum cerate oxide coating with an atmospheric plasma spray. Initially, lanthanum cerate oxide (La<sub>2</sub>Ce<sub>2</sub>O<sub>7</sub>) powder is spray dried for obtaining round or spherical shaped agglomerates of a predetermined particle size. Round or spherical agglomerates of lanthanum cerate oxide (La<sub>2</sub>Ce<sub>2</sub>O<sub>7</sub>) powder is fed to a powder feeder of an atmospheric plasma spray apparatus having a plasma gun that involves a primary gas and a secondary gas. The powder was plasma sprayed on the substrate at optimized process conditions to obtain the superhydrophobic lanthanum cerate oxide coating. Reference Figure 2

No. of Pages : 25 No. of Claims : 11

(54) Title of the invention : VISCOELASTIC FLUID-MEDIATED NANOPORE-BASED MEMRISTIVE DEVICE

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
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| <div><div>(51) International classification</div><div>:G01N0033487000, C12Q0001686900, H01L0045000000, G11C0013000000, H01L0027240000</div></div> <div><div>(86) International Application No</div><div>:NA</div><div>Filing Date</div><div>:NA</div></div> <div><div>(87) International Publication No</div><div>: NA</div></div> <div><div>(61) Patent of Addition to Application Number</div><div>:NA</div><div>Filing Date</div><div>:NA</div></div> <div><div>(62) Divisional to Application Number</div><div>:NA</div><div>Filing Date</div><div>:NA</div></div> | <div>(71)Name of Applicant :<br/><b>1)INDIAN INSTITUTE OF TECHNOLOGY KHARAGPUR</b><br/>Address of Applicant :Sponsored Research &amp; Industrial Consultancy, Indian Institute of Technology Kharagpur, Kharagpur, West Bengal, India, PIN-721302 Kharagpur -----<br/><b>2)Universidade NOVA de Lisboa</b><br/>Name of Applicant : NA<br/>Address of Applicant : NA<br/>(72)Name of Inventor :<br/><b>1)ROY, Debmalya</b><br/>Address of Applicant :PhD Research Scholar, Department of Mechanical Engineering, Indian Institute of Technology Kharagpur, Kharagpur, West Bengal, India, PIN-721302 Kharagpur -----<br/><b>2)GUHA, Aniruddha</b><br/>Address of Applicant :PhD Research Scholar, Advanced Technology Development Center, Indian Institute of Technology Kharagpur, Kharagpur, West Bengal, India, PIN-721302 Kharagpur -----<br/><b>3)MUKHERJEE, Dr. Siddhartha</b><br/>Address of Applicant :Senior Research Fellow, Department of Mechanical Engineering, Indian Institute of Technology Kharagpur, Kharagpur, West Bengal, India, PIN-721302 Kharagpur -----<br/><b>4)YATES, Dr. James Robert</b><br/>Address of Applicant :Head of Laboratory, Laboratory of Single Molecule Processes, ITQB NOVA, Av. da República, Oeiras, Portugal, PIN-2780-157 -----<br/><b>5)BAKLI, Dr. Chirodeep</b><br/>Address of Applicant :Assistant Professor, School of Energy Science and Engineering, Indian Institute of Technology Kharagpur, Kharagpur, West Bengal, India, PIN-721302 Kharagpur -----<br/><b>6)CHAKRABORTY, Prof. Suman</b><br/>Address of Applicant :Professor, Department of Mechanical Engineering, Indian Institute of Technology Kharagpur, Kharagpur, West Bengal, India, PIN-721302 Kharagpur -----</div> |
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(57) Abstract :  
VISCOELASTIC FLUID-MEDIATED NANOPORE-BASED MEMRISTIVE DEVICE Provided is a viscoelastic fluid-mediated nanopore-based memristor device (200). The memristor device (200) comprises a silicon chip (110) including an open region. Further, the memristor device (200) comprises an ultra-thin dielectric material membrane (112) that covers entire surface of the silicon chip (110) and forms a suspended region. A nanopore (102) is fabricated within and entirely through the ultra-thin dielectric material membrane (112) at any position within the suspended region. Furthermore, the memristor device (200) comprises a chip holder (208) adapted to hold the silicon chip (110) and a pair of electrolyte reservoirs (204) incorporated on either side of the chip holder (208). The pair of electrolyte reservoirs (204) contains electrolyte fluid that exhibits viscoelastic properties. The pair of electrolyte reservoirs (204) is only connected through the nanopore (102). A pair of electrodes acts as end terminals attached to the pair of electrolyte reservoirs (204). Figure 2

No. of Pages : 22 No. of Claims : 6

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202431036465 A

(19) INDIA

(22) Date of filing of Application :08/05/2024

(43) Publication Date : 04/07/2025

(54) Title of the invention : A METHOD FOR CONVERSION OF CARBON DIOXIDE TO METHANOL AND FORMIC ACID

|                                                                                           |      |                                                                                                                                                                                                                                                        |
|-------------------------------------------------------------------------------------------|------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (51) International classification :C07C53/02, C07C31/04, C07C51/15, C07C29/15, C07C29/153 |      | (71)Name of Applicant :<br><b>1)INDIAN INSTITUTE OF TECHNOLOGY KHARAGPUR</b><br>Address of Applicant :Sponsored Research & Industrial Consultancy, Indian Institute of Technology Kharagpur, Kharagpur, West Bengal, India, PIN-721302 Kharagpur ----- |
| (86) International Application No                                                         | :NA  | <b>Name of Applicant : NA</b><br><b>Address of Applicant : NA</b>                                                                                                                                                                                      |
| Filing Date                                                                               | :NA  |                                                                                                                                                                                                                                                        |
| (87) International Publication No                                                         | : NA | <b>(72)Name of Inventor :</b><br><b>1)MANI, Ganesan</b><br>Address of Applicant :Professor, Department of Chemistry, Indian Institute Of Technology Kharagpur, Kharagpur, West Bengal, India, PIN-721302 Kharagpur --                                  |
| (61) Patent of Addition to Application Number                                             | :NA  |                                                                                                                                                                                                                                                        |
| Filing Date                                                                               | :NA  | <b>2)KUMAR, Ashok</b><br>Address of Applicant :Research scholar, Department of Chemistry, Indian Institute Of Technology Kharagpur, Kharagpur, West Bengal, India, PIN-721302 Kharagpur -----                                                          |
| (62) Divisional to Application Number                                                     | :NA  |                                                                                                                                                                                                                                                        |
| Filing Date                                                                               | :NA  |                                                                                                                                                                                                                                                        |

(57) Abstract :

A METHOD FOR CONVERSION OF CARBON DIOXIDE TO METHANOL, FORMIC ACID AND OTHER ORGANIC COMPOUNDS Provided is a selective hydroboration of CO<sub>2</sub> to either boryl formate (HCOOBR<sub>2</sub>) or methoxy borane (CH<sub>3</sub>OBR<sub>2</sub>) in >97% yield catalyzed by the commercially available catalysts such as dialkyl, diaryl or alkyl-aryl sulfoxide/sulfide/sulfone in presence or absence of solvents such as THF or toluene. These oxyboranes are subsequently hydrolyzed to give methanol and formic acid in excellent yields under ambient temperature. In addition, this reaction system also catalyses the N-formylation, N-methylation of amines, N-hydroxymethylation of carbazoles and indoles, and C-methylenation of indoles using CO<sub>2</sub> as C1 source. Furthermore, N-hydroxymethylated carbazole was coupled with indole at C3 position to gave C-N coupled products. The present method is highly effective for economically producing methanol and formic acid from CO<sub>2</sub>, providing a viable solution for reducing atmospheric CO<sub>2</sub> levels that contribute to global warming. Figure 1

No. of Pages : 39 No. of Claims : 18

(54) Title of the invention : LOW-TEMPERATURE PROCESS FOR RECOVERY OF ALUMINA FROM DIFFERENT SOURCES

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| <div>(51) International classification :C01F7/00, C01F7/04, C01F7/06, C01F7/0606, C01F7/0646, C01F7/14, C01F7/00, C01F7/04</div> <div>(86) International Application No :NA</div> <div>Filing Date :NA</div> <div>(87) International Publication No : NA</div> <div>(61) Patent of Addition to Application Number :NA</div> <div>Filing Date :NA</div> <div>(62) Divisional to Application Number :NA</div> <div>Filing Date :NA</div> | <div>(71)Name of Applicant :<br/><b>1)INDIAN INSTITUTE OF TECHNOLOGY KHARAGPUR</b><br/>Address of Applicant :Sponsored Research &amp; Industrial Consultancy, Indian Institute of Technology Kharagpur, Kharagpur, West Bengal, India, PIN-721302 Kharagpur -----<br/><b>Name of Applicant : NA</b><br/><b>Address of Applicant : NA</b><br/>(72)Name of Inventor :<br/><b>1)BORRA, Prof. Chenna Rao</b><br/>Address of Applicant :Assistant Professor, Department of Metallurgical and Materials Engg, Indian Institute of Technology Kharagpur, Kharagpur, West Bengal, India, PIN-721302 Kharagpur -----<br/><b>2)JANA, Dr. Prasanta</b><br/>Address of Applicant :Project Scientist, Department of Metallurgical and Materials Engg, Indian Institute of Technology Kharagpur, Kharagpur, West Bengal, India, PIN-721302 Kharagpur -----<br/><b>3)BEHERA, Gautam</b><br/>Address of Applicant :Research Scholar, Department of Metallurgical and Materials Engg, Indian Institute of Technology Kharagpur, Kharagpur, West Bengal, India, PIN-721302 Kharagpur -----<br/><b>4)CHANDRUDU, Gutti Chinna</b><br/>Address of Applicant :Research Scholar, Department of Metallurgical and Materials Engg, Indian Institute of Technology Kharagpur, Kharagpur, West Bengal, India, PIN-721302 Kharagpur -----</div> |
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(57) Abstract :  
LOW-TEMPERATURE PROCESS FOR RECOVERY OF ALUMINA FROM DIFFERENT SOURCES The present invention relates to a low-temperature method of recovery of alumina from various alumina-containing resources. The method comprises the steps of treating an alumina-containing resource with Sodium Hydroxide (NaOH) at a predefined low temperature in presence of water (5-50%), and leaching the treated alumina-containing resource with hot water to dissolve Sodium Aluminate (NaAlO2) and produce leachate. The method further comprises causing precipitation of Aluminium Hydroxide (Al(OH)3) by reacting the leachate with CO2 so as to convert the Sodium Aluminate (NaAlO2) to Aluminium Hydroxide (Al(OH)3). The method includes performing filtration for effectively separating the solid residues from the leachate; and performing calcination of the precipitated Aluminium Hydroxide (Al(OH)3) at a pre-defined temperature to obtain alumina. Further, the sodium carbonate solution is treated with lime/slaked lime to regenerate sodium hydroxide. Figure 1

No. of Pages : 18 No. of Claims : 6

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202431037314 A

(19) INDIA

(22) Date of filing of Application :11/05/2024

(43) Publication Date : 04/07/2025

(54) Title of the invention : 3D printed bioactive glass reinforced magnesium as bone analogue and application thereof

(51) International classification :A61L0027100000, C03C0004000000, C03C0003097000, A61L0027020000, A61L0027560000

(86) International Application No :NA

Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA

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(62) Divisional to Application Number :NA

Filing Date :NA

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**2)Samir Das**

Address of Applicant :Prime Minister Research Fellow, Department: School of Medical Science and Technology, IIT Kharagpur Kharagpur West Bengal India 721302 Kharagpur -----

(57) Abstract :

Abstract Title: 3D printed bioactive glass reinforced magnesium as bone analogue and application thereof Magnesium and its alloys have gained significant attention as materials for orthopedic implants due to their bioactivity and compatible mechanical properties similar to natural bone. Achieving an optimal balance between mechanical strength and degradation rate in vivo is crucial for ensuring the implant with adequate support during healing without affecting surrounding tissues. Bioactive glass has gained popularity for faster bone and soft tissue bonding; but it has limited application under load bearing condition. Therefore, current innovation is the development of bioactive metal-ceramic composite for biomedical implantation. The melt-quenched amorphous 3D printed bioglass network is reinforced with magnesium matrix via combination of additive manufacturing and powder metallurgy route. Change in the magnesium infiltration within the composite can modulate the mechanical properties, rate of corrosion under in vivo implantation which could lead to application based on loading direction and site specific orthopaedic application. Figure-1

No. of Pages : 41 No. of Claims : 9

(54) Title of the invention : AUTOMATIC BLUETOOTH-CONTROLLED INTERNAL SPACE SPRAY DISPENSER

|                                                                                                                                                                                                                                                                                                                                                                                                |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <div>(51) International classification :B05B15/68, B05B12/12, B05B13/00, B05B13/04</div> <div>(86) International Application No :NA</div> <div>Filing Date :NA</div> <div>(87) International Publication No : NA</div> <div>(61) Patent of Addition to Application Number :NA</div> <div>Filing Date :NA</div> <div>(62) Divisional to Application Number :NA</div> <div>Filing Date :NA</div> |  | <div>(71)Name of Applicant :<br/><b>1)INDIAN INSTITUTE OF TECHNOLOGY KHARAGPUR</b><br/>Address of Applicant :Sponsored Research &amp; Industrial Consultancy, Indian Institute of Technology Kharagpur Kharagpur West Bengal India 721302 Kharagpur -----<br/><b>Name of Applicant : NA</b><br/><b>Address of Applicant : NA</b><br/>(72)Name of Inventor :<br/><b>1)Gauri Wadhwa</b><br/>Address of Applicant :Student , Department: Aerospace Engineering, IIT Kharagpur Kharagpur West Bengal India 721302 Kharagpur -----<br/><b>2)Mahima Arya</b><br/>Address of Applicant :Student , Department: Aerospace Engineering, IIT Kharagpur Kharagpur West Bengal India 721302 Kharagpur -----<br/><b>3)Sandeep Saha</b><br/>Address of Applicant :Assistant Professor, Department: Aerospace Engineering, IIT Kharagpur Kharagpur West-Bengal India 721302 Kharagpur -----<br/>-</div> |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

(57) Abstract :  
ABSTRACT Title: AUTOMATIC BLUETOOTH-CONTROLLED INTERNAL SPACE SPRAY DISPENSER A system for automated spraying in confined spaces, comprising a base unit, a fluid reservoir mounted on said base unit, a spray nozzle fluidly connected to the reservoir, a pan and tilt movement driving unit to move the nozzle for multidirectional spray coverage, said pan movement driving unit configured to rotate the nozzle horizontally and said tilt movement driving unit configured to move the nozzle vertically, a control module operably connected to the pan and tilt driving unit and to the spray nozzle and a wireless communication interface operatively connected to the control module for receiving remote commands and enabling the control module to actuate the spray nozzle including the pan and tilt driving unit according to received commands to enable selective spraying over a volume in a confined space.

No. of Pages : 16 No. of Claims : 7

(54) Title of the invention : A METHOD FOR AMBIENT AMMONIA SYNTHESIS FROM NITROGEN USING NANO CARBON BASED CATALYST

|                                                                                                                                                                                                                                                                                                                                                                                               |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <div>(51) International classification :C01B21/087, C01C1/02, C01C1/04</div> <div>(86) International Application No :NA</div> <div>    Filing Date :NA</div> <div>(87) International Publication No : NA</div> <div>(61) Patent of Addition to Application Number:NA</div> <div>    Filing Date :NA</div> <div>(62) Divisional to Application Number :NA</div> <div>    Filing Date :NA</div> |  | <div>(71)Name of Applicant :<br/>    <b>1)SABYSACHI SARKAR</b><br/>    Address of Applicant :2C-D, 22, LAKSHMI NARAYAN TALA ROAD,<br/>    BOTANIC GARDEN, HOWRAH, WEST BENGAL,INDIA-711103 HOWRAH --<br/>    -----<br/>    <b>2)SUMIT KUMAR SONKAR</b><br/>    Name of Applicant : NA<br/>    Address of Applicant : NA<br/>(72)Name of Inventor :<br/>    <b>1)SABYSACHI SARKAR</b><br/>    Address of Applicant :2C-D, 22, LAKSHMI NARAYAN TALA ROAD,<br/>    BOTANIC GARDEN, HOWRAH, WEST BENGAL,INDIA-711103 HOWRAH --<br/>    -----<br/>    <b>2)SUMIT KUMAR SONKAR</b><br/>    Address of Applicant :H. NO. D-3, MNIT STAFF COLONY, MALAVIYA<br/>    NATIONAL INSTITUTE OF TECHNOLOGY-JAIPUR, J.L.N. MARG, JAIPUR,<br/>    RAJASTHAN, INDIA- 302017 JAIPUR -----</div> |
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(57) Abstract :  
ABSTRACT A METHOD FOR AMBIENT AMMONIA SYNTHESIS FROM NITROGEN USING NANO CARBON BASED CATALYST Aspects of present disclosure relate to a method for ambient ammonia synthesis from nitrogen using nano carbon based catalyst. The present invention integrates elements of both approaches to enable ammonia production under ambient conditions using carbon source such as Nitrogen doped Coal Carbon (N-CC) and ferrous hydroxide, which mimic the roles of apoproteins and metal centers in nitrogenase. The method employs proton-coupled electron transfer, with metallic iron supplying electrons and sustaining catalytic activity. The heterogeneous catalyst assembly was developed that enables ammonia synthesis under ambient conditions. Ammonia formation is validated through titrimetric analysis, XPS characterization, 1H NMR spectroscopy, and XRD analysis of NH4Cl. Structural investigations confirm nitrogen incorporation, with TEM imaging revealing favorable morphological features for catalytic performance. The method is capable of producing a maximum yield of ~37mM of NH3. This approach provides a promising, sustainable alternative for ammonia synthesis without the need for high temperatures or pressures. (Figure 1 shall be reference figure)

No. of Pages : 23 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202531047897 A

(19) INDIA

(22) Date of filing of Application :18/05/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : High quality production process of Industrial Scale Few-layer Graphene (FLG) in Dry state and a system

(51) International classification :B82Y40/00, B82Y99/00, C01B32/182, C01B32/19  
(86) International Application No :NA  
Filing Date :NA  
(87) International Publication No : NA  
(61) Patent of Addition to Application Number :NA  
Filing Date :NA  
(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

Disclosed herein a method of producing few-layer-graphene (FLG); comprising (a) feeding graphite blocks into a graphite delamination apparatus to apply shearing force, comprising a rotatable plate with an axle; (b) rotating the rotatable plate of the graphite delamination apparatus at 1000 to 5000 rpm by means of a rotating means; (c) peeling/ delaminating the graphite block under the shearing force induced by the apparatus and obtaining nano-SGPs. The present invention further discloses a system for producing few-layer-graphene (FLG). Figure 1

No. of Pages : 26 No. of Claims : 10



(12) PATENT APPLICATION PUBLICATION

(21) Application No.202531050461 A

(19) INDIA

(22) Date of filing of Application :26/05/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : LOW COST PINEAPPLE PEELING CUM SKINNING TECHNOLOGY

(51) International classification :A22C0017120000, A23N0007000000, A22B0005160000, A22C0025170000, A61B0017000000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

The machine takes hardly two minute to peel the pineapple. The machine can peel 8 pineapples in just two minutes. 4 pineapples in the upper disc and 4 pineapples in the lower disc. The same machine can be used as skinning machine as well as peeling machine. Skinning means smoothening of outer surface. For this adjustment of cutter is not required. Increasing and decreasing the time of processing peeling and skinning respectively could be achieved. No manual navigation is required while peeling. One can see the peeling process very clearly. It is open. The operator can see the pineapple while peeling.

No. of Pages : 17 No. of Claims : 1

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202531050984 A

(19) INDIA

(22) Date of filing of Application :27/05/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : SOLAR-POWERED MULTIPURPOSE SYSTEM FOR PRE-COOLING, DISINFECTION, AND LOW-TEMPERATURE STORAGE

(51) International classification :F25B0027000000, F25D0011000000, F25D0017060000, B65D0081180000, F25D0029000000

(86) International Application No :NA

Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA

Filing Date :NA

(62) Divisional to Application Number :NA

Filing Date :NA

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(57) Abstract :

ABSTRACT SOLAR-POWERED MULTIPURPOSE SYSTEM FOR PRE-COOLING, DISINFECTION, AND LOW-TEMPERATURE STORAGE The present invention relates to a solar-powered multipurpose processing system (100) for field-level pre-cooling, disinfection, and low-temperature storage of fresh produce. The system comprises a vapour compression refrigeration system (1), a cold thermal energy storage structure (2), a hydro-cooler cum disinfection unit (6), and low-temperature storage cabinets (10). Solar photovoltaic energy powers the refrigeration system (1), which cools water in the insulated storage tank (2), forming an ice bank. This stored thermal energy is circulated via a stainless-steel heat exchanger (4) using a DC water pump (9) to chill and disinfect water in the hydro-cooler (6). The system also supports storage of produce at controlled temperatures using flexible insulated pipes (5), evaporator coils, and fans powered through a small battery backup. A temperature controller (7) regulates cooling cycles for both hydro-cooling and storage units, ensuring effective temperature maintenance without grid electricity. The invention enables faster, energy-efficient preservation in off-grid rural environments.

No. of Pages : 28 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202531053603 A

(19) INDIA

(22) Date of filing of Application :03/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : A real-time System for Movie Review Collection Using Speech andFacial Expression Analysis

(51) International classification :G06V40/00, G06F40/00, G06F40/30, G06Q30/0201

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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**2)Dr. Dilip Kumar Shaw**

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(57) Abstract :

The present invention relates to a system and method for collecting and analyzing audience feedback in movie theatres by integrating audio reviews with facial expression analysis. The system consists of a movie review counter installed at theatre exits, where audience members provide spoken feedback while their facial expressions are captured. The collected audio is converted to text using Automatic Speech Recognition (ASR), and Natural Language Processing (NLP) is applied to extract sentiment and key themes. Simultaneously, facial expression analysis is conducted using computer vision techniques to classify emotions such as happiness, sadness, surprise, and neutrality. A sentiment analysis module integrates both text-based sentiment and facial emotion data to derive a comprehensive audience sentiment score. The processed data is aggregated and analyzed to generate insightful reports for filmmakers and distributors, providing detailed emotional trends and audience reactions. The system operates in compliance with privacy regulations, ensuring anonymized data collection and secure storage. This innovative approach enhances traditional movie review systems by capturing real-time, unbiased emotional responses, leading to improved content creation and marketing strategies.

No. of Pages : 7 No. of Claims : 5

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202531055060 A

(19) INDIA

(22) Date of filing of Application :07/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : AN ANTI-CANCER TRIMETALLIC NANO COMPOSITION AND A METHOD OF PREPARATION THEREOF

(51) International classification :A61K36/37, A61K36/185, A61K9/51, A61K33/00, C01G3/02, A61K31/7048, A61P35/00

(86) International Application No :NA

Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA

Filing Date :NA

(62) Divisional to Application Number :NA

Filing Date :NA

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(57) Abstract :

ABSTRACT AN ANTI-CANCER TRIMETALLIC NANO COMPOSITION AND A METHOD OF PREPARATION THEREOF The present invention relates to trimetallic nano composition derived by using plant extract and method its method of preparation. Said tri-metallic nano composition comprises 55.04% of Cu (w/w), 10.75% of Zn (w/w) and 34.19% of Pt (w/w). The synthesized trimetallic nano composition exhibits significant antioxidant activity by using DPPH method and antimicrobial efficacy against tested various pathogens. Additionally, the anticancer activity of the synthesized trimetallic nano composition is also evaluated. By using plant extract, the present invention provides an eco-friendly, sustainable and non-toxic method for the synthesis of trimetallic composition.

No. of Pages : 36 No. of Claims : 2

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202531055570 A

(19) INDIA

(22) Date of filing of Application :09/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : A multi-lingual legal assistant

(51) International classification :G06F16/35, G06F40/284  
(86) International Application No :NA  
Filing Date :NA  
(87) International Publication No : NA  
(61) Patent of Addition to Application Number :NA  
Filing Date :NA  
(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

Abstract A multi-lingual legal assistant [0026] The present invention discloses a legal assistant (100) capable of generating legal responses based on multi-lingual user input. The present invention is such that the legal assistant (100) is trained using large language models on a plurality of Indian legal textbooks and a plurality of case judgments from the Supreme Court of India to create a plurality of topics and its corresponding pluralities of query-response pairs. On receiving a freeform legal query from user, the legal assistant (100) translates the freeform query into its English equivalent query, retrieves a plurality of lexically similar and semantically similar responses, and feeds them into a large language model as context to generate a context-aware final response. [0027] To be published with: Figure 1. Priyanka Chakraborty Agent for the applicant Regn no: IN/PA 4723 Dated: 9th June 2025

No. of Pages : 16 No. of Claims : 7

(54) Title of the invention : SYSTEM AND METHOD FOR MEASURING FAIR DISTRIBUTION OF GREEN OPEN SPACES PER WARD

|                                                                                                                                                                                                                                                                                                                                                                          |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <div>(51) International classification :G06Q10/06, G06F17/18</div> <div>(86) International Application No :NA</div> <div>Filing Date :NA</div> <div>(87) International Publication No : NA</div> <div>(61) Patent of Addition to Application Number :NA</div> <div>Filing Date :NA</div> <div>(62) Divisional to Application Number :NA</div> <div>Filing Date :NA</div> |  | <div>(71)Name of Applicant :<br/><b>1)National Institute of Technology, Patna</b><br/>Address of Applicant :National Institute of Technology Patna, Ashok Rajpath, Patna-800005 Bihar, India. Patna -----<br/><b>Name of Applicant : NA</b><br/><b>Address of Applicant : NA</b><br/>(72)Name of Inventor :<br/><b>1)KUMAR, Sandeep</b><br/>Address of Applicant :Department of Architecture and Planning, National Institute of Technology Patna, Ashok Rajpath, Patna - 800005 Bihar, India. Patna -----<br/>-----<br/><b>2)KUMAR, Ravish</b><br/>Address of Applicant :Department of Architecture and Planning, National Institute of Technology Patna, Ashok Rajpath, Patna - 800005, Bihar, India. Patna -----<br/>-----<br/><b>3)RAJAK, Fulena</b><br/>Address of Applicant :Department of Architecture and Planning, National Institute of Technology Patna, Ashok Rajpath, Patna - 800005, Bihar, India. Patna -----<br/>-----</div> |
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(57) Abstract :  
The present invention relates to a system (100) and a method for assessing the fair distribution of green open space equity in a city. The system (100) includes a data collection module (101) that gathers ward-wise information on green space parameters availability, accessibility, and quality and demographic factors such as ward area and population density. An analysis module (102) processes this data using correlation and regression tools at both ward and city levels to identify relationships and spatial patterns. An output module (103) evaluates green space equity by comparing the analysis results against predefined thresholds, determining whether the distribution is fair and meets quality standards. This approach enables objective, data-driven assessment to support equitable urban planning and promote balanced access to green spaces for all city residents. (to be published with figure 1)

No. of Pages : 29 No. of Claims : 18

(54) Title of the invention : A FRACTIONAL-ORDER CLOSED-LOOP CONTROL SYSTEM AND METHOD FOR OPTIMIZED DRUG SCHEDULING IN CHEMOTHERAPY

|                                               |                                  |                                                                                                                                                                                                                                  |
|-----------------------------------------------|----------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (51) International classification             | :G16H20/17, A61M5/142, A61M5/172 | (71)Name of Applicant :<br>1)National Institute of Technology, Patna<br>Address of Applicant :National Institute of Technology Patna, Ashok Rajpath, Patna-800005 Bihar, India. Patna -----                                      |
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| (87) International Publication No             | : NA                             | (72)Name of Inventor :                                                                                                                                                                                                           |
| (61) Patent of Addition to Application Number | :NA                              | 1)KUMAR, Chandan                                                                                                                                                                                                                 |
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|                                               |                                  | -----                                                                                                                                                                                                                            |

(57) Abstract :  
The present invention relates to a fractional-order closed-loop control system (10) for optimizing the scheduling of chemotherapy treatments. The system comprises a controller (1) that receives a reference drug concentration input and output drug concentration feedback, and generates an appropriate control signal. A drug infusion pump (2), connected to the controller (1), delivers the appropriate drug dosage based on this control signal. A cancer patient model (3) is coupled with the drug infusion pump (2), simulates the dynamic response of the patient to the infused chemotherapy drug and provides the corresponding output drug concentration. The sensor (4) continuously monitors this output and feeds it back to the controller (1), completing the closed-loop system. The fractional-order control system(10) ensures precise drug delivery, robust tracking of target drug levels, and improved clinical outcomes by reducing cancerous cells with minimal impact on healthy cells.

No. of Pages : 31 No. of Claims : 6

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202531057737 A

(19) INDIA

(22) Date of filing of Application :16/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : Nanostructured Si-void-C yolk/shell architecture: a high performance Li-ion battery anode and the preparation method thereof

(51) International classification :H01M0010052500, H01M0004620000, H01M0004380000, H01M0004360000, G01N0027020000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
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(57) Abstract :

ABSTRACT TITLE: Nanostructured Si-void-C yolk/shell architecture: a high-performance Li-ion battery anode and the preparation method thereof Nanostructures and nanostructured silicon anodes are provided with the aim to enhance the electrochemical performance and applications in Lithium-ion batteries (LIBs). In this regard, a straightforward approach for the fabrication of Si@C core-shell and Si@void@C yolk-shell structures are provided. The electrochemical performance of Si@C and Si@void@C electrodes were examined in a Li-ion half-cell using 2032 coin-cell configuration through cyclic voltammetry, galvanostatic discharge-charge measurements, rate performance assessments, and electrochemical impedance spectroscopy (EIS), revealing a notably superior electrochemical performance. Figure 2

No. of Pages : 44 No. of Claims : 13



(12) PATENT APPLICATION PUBLICATION

(21) Application No.202531058048 A

(19) INDIA

(22) Date of filing of Application :17/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : INTEGRATED WOOD-BASED FIREPLACE, STOVE, AND WATER HEATING SYSTEM

|                                               |                                                                                 |                                                                                                                                                                                                    |
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| (86) International Application No             | :NA                                                                             | (72)Name of Inventor :<br><b>1)MISHRA, Utkarsha</b><br>Address of Applicant :Department of Architecture & Planning, NIT Patna, Ashok Rajpath, Patna – 800005, Bihar, India. Patna -----            |
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| (62) Divisional to Application Number         | :NA                                                                             |                                                                                                                                                                                                    |
| Filing Date                                   | :NA                                                                             |                                                                                                                                                                                                    |

(57) Abstract :

The present invention relates to an integrated wood-based fireplace, stove, cum water heating system (100) for vernacular rural housing, integrating space heating, cooking, and water heating in one unit. The system (100) comprises a combustion chamber (101) with a fireplace (105) having an openable window (106) for loading wood or biomass fuel, an external air inlet pipe (107), and an ash box (108). A heat exchanger hot water tank (102) is in thermal contact with said chamber (101) and includes a cold-water inlet (109), steam outlet (110), and hot water outlet (111). An insulated casing (103) encloses said chamber (101) and features a chimney or flue (112) for venting gases. A stove surface (104) above chamber (101) allows cooking. Further, manual control of fuel and airflow optimizes efficiency. The system (100) provides a low-cost, sustainable solution for rural areas, improving health, comfort, and energy access without relying on grid infrastructure.

No. of Pages : 16 No. of Claims : 11

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202531058058 A

(19) INDIA

(22) Date of filing of Application :17/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : IOT-BASED PORTABLE SOLAR MICRO IRRIGATION APPARATUS

(51) International classification :A01G0025160000, G05F0001670000, F04D0025080000, F04D0025060000, H02S0010400000

(86) International Application No :NA

Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA

Filing Date :NA

(62) Divisional to Application Number :NA

Filing Date :NA

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(57) Abstract :

ABSTRACT IOT-BASED PORTABLE SOLAR MICRO IRRIGATION APPARATUS The present invention provides an IoT-based portable solar micro irrigation apparatus including a motor housing (101) containing a brushless DC motor, an impeller (107) connected to the brushless DC motor, and a volute (108) housing the impeller (107) and configured to direct water flow from the impeller (107) to a discharge outlet. The apparatus includes a detachable pump filter (109) providing a mesh barrier to prevent debris from entering the apparatus and a pump bottom cage (110) providing structural support for the detachable pump filter (109). The apparatus includes an embedded microcontroller-based IoT controller to process input from soil moisture sensors, temperature sensors, and humidity sensors, a handle (105) attached to the motor housing (101) for manual transportation, and a solar power input configured to operate the brushless DC motor directly without battery storage through a maximum power point tracking controller. Figure 1

No. of Pages : 25 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202531058366 A

(19) INDIA

(22) Date of filing of Application :18/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : PLACENTA EXTRACT ENRICHED NOVEL INTRACANAL MEDICAMENT WITH ACCELERATED ENDODONTIC HEALING AND REGENERATIVE POTENTIAL

(51) International classification :A61K0008980000, A61P0031040000, A61K0006690000, A61K0035500000, A61K0006520000

(86) International Application No :NA

Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA

Filing Date :NA

(62) Divisional to Application Number :NA

Filing Date :NA

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(57) Abstract :

ABSTRACT The present invention relates to a novel intracanal medicament for endodontic therapy comprising a combination of calcium hydroxide and placenta extract in a biocompatible carrier such as glycerin or propylene glycol. The composition exhibits potent antimicrobial activity, especially against Enterococcus faecalis, and promotes tissue regeneration and periapical healing due to the presence of bioactive placental factors. The medicament is especially suitable for cases of persistent periapical pathology, regenerative endodontic procedures, and necrotic immature teeth. It addresses the limitations of current medicaments like Triple Antibiotic Paste by avoiding tooth discoloration and enhancing biological healing.

No. of Pages : 7 No. of Claims : 8

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :18/06/2025

(21) Application No.202531058370 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : CONTEXT-AWARE VOICE-ACTIVATED LEGAL ASSISTANCE SYSTEM FOR EMERGENCY SITUATIONS

(51) International classification :G06Q0050180000, G10L0015260000, G10L0015220000, G08B0025010000, H04W0004900000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

[036] The present invention discloses a voice-activated legal advisory system designed to provide real-time, hands-free legal assistance during emergency situations such as unlawful detentions, harassment, domestic violence, or roadside encounters. Leveraging advanced speech recognition, natural language processing, and context-aware detection through sensors like GPS and audio classifiers, the system delivers jurisdiction-specific legal guidance in response to verbal commands or automatically detected distress conditions. The invention includes secure, timestamped audio recording features for evidence preservation and enables encrypted communication with emergency contacts or legal entities. Deployable across smartphones, wearables, and vehicle systems, and operable in multilingual and offline modes, the invention bridges the gap between immediate legal need and access to counsel, empowering individuals to understand and assert their rights effectively during moments of vulnerability. Accompanied Drawing [FIGS. 1-2]

No. of Pages : 19 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202531058371 A

(19) INDIA

(22) Date of filing of Application :18/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : A SYSTEM AND METHOD FOR PRIVACY-PRESERVING EMOTION RECOGNITION USING FEDERATED LEARNING AND EXPLAINABLE AI ON EDGE DEVICES

(51) International classification :G06N0020000000, G06F0021620000, G06N0005045000, G10L0025630000, A61B0005000000  
(86) International Application No :NA  
Filing Date :NA  
(87) International Publication No : NA  
(61) Patent of Addition to Application Number :NA  
Filing Date :NA  
(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

[039] The present invention discloses a privacy-preserving, real-time emotion recognition system designed to operate entirely on edge devices without transmitting raw user data to centralized servers. Utilizing multimodal inputs—including visual, auditory, and physiological signals—the system performs on-device signal preprocessing, feature extraction, and emotion classification using compressed deep learning models. It incorporates user-specific personalization through local adaptation, federated learning for collaborative model improvement without compromising privacy, and an explainability module to generate interpretable emotional insights. The invention functions in both online and offline modes, ensuring robust performance in low-connectivity environments. Its modular design enables scalable deployment across smartphones, wearables, automotive systems, and embedded IoT platforms, providing a secure, adaptive, and ethically grounded solution for emotion-aware applications. Accompanied Drawing [FIGS. 1-2]

No. of Pages : 20 No. of Claims : 10

(54) Title of the invention : SMART IOT-ENABLED VEHICLE SAFETY SYSTEM WITH INTEGRATED EMOTION AND SAFETY COMPLIANCE DETECTION

|                                                                                                                                                                                                                                                                                                                                                                                                               |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
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| <div>(51) International classification :G08B0025010000, H04W0004900000, A42B0003040000, G06V0040160000, G10L0025630000</div> <div>(86) International Application No :NA<br/>Filing Date :NA</div> <div>(87) International Publication No : NA</div> <div>(61) Patent of Addition to Application Number :NA<br/>Filing Date :NA</div> <div>(62) Divisional to Application Number :NA<br/>Filing Date :NA</div> |  | <div>(71)Name of Applicant :<br/><b>1)Brainware University, Kolkata</b><br/>Address of Applicant :398, Ramkrishnapur Rd, Near Jagadighata Market, Barasat, Kolkata, West Bengal 700125 -----<br/><b>Name of Applicant : NA</b><br/><b>Address of Applicant : NA</b><br/>(72)Name of Inventor :<br/><b>1)Subham Kumar Mandal</b><br/>Address of Applicant :Student, Department of Computational Sciences, Brainware University, 398, Ramkrishnapur Road, Barasat, Near Jagadighata Market, Kolkata, West Bengal-700125, India -----<br/><b>2)Ms. Areeka Dey Sarkar</b><br/>Address of Applicant :Student, Department of Computational Sciences, Brainware University, 398, Ramkrishnapur Road, Barasat, Near Jagadighata Market, Kolkata, West Bengal-700125, India -----<br/><b>3)Ms. Trisha Sarkar</b><br/>Address of Applicant :Student, Department of Computational Sciences, Brainware University, 398, Ramkrishnapur Road, Barasat, Near Jagadighata Market, Kolkata, West Bengal-700125, India -----<br/><b>4)Mr. Subhajit Mukherjee</b><br/>Address of Applicant :Student, Department of Computational Sciences, Brainware University, 398, Ramkrishnapur Road, Barasat, Near Jagadighata Market, Kolkata, West Bengal-700125, India -----<br/><b>5)Mr. Subhadeep Sil</b><br/>Address of Applicant :Student, Department of Computational Sciences, Brainware University, 398, Ramkrishnapur Road, Barasat, Near Jagadighata Market, Kolkata, West Bengal-700125, India -----<br/><b>6)Riyanka Hazra</b><br/>Address of Applicant :Assistant Professor of Computational Sciences in Brainware University, 398, Ramkrishnapur Road, Barasat, Near Jagadighata Market, Kolkata, West Bengal-700125, India -----</div> |
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(57) Abstract :  
[034] The invention discloses a Smart Vehicle Safety System utilizing IoT and facial emotion recognition to prevent unsafe driving conditions. The system integrates an ESP32 microcontroller with modules for emotion detection via ESP32-CAM, alcohol sensing using an MQ-3 sensor, helmet verification through RFID or computer vision, and crash detection using an MPU6050 accelerometer. Upon identifying unsafe conditions—such as driver fatigue, emotional distress, alcohol influence, or absence of a helmet—the system disables vehicle ignition using a relay mechanism. Additionally, in the event of an accident, the system automatically captures real-time GPS coordinates and sends emergency alerts via SMS using a GSM module. The modular and cost-effective design allows retrofitting into existing two-wheelers and small vehicles, enhancing driver safety through proactive monitoring and automated emergency response. Accompanied Drawing [FIGS. 1-2]

No. of Pages : 19 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202531058373 A

(19) INDIA

(22) Date of filing of Application :18/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : A SYSTEM AND METHOD FOR BLOCKCHAIN-ENABLED SMART IRRIGATION MANAGEMENT USING SOIL MOISTURE SENSORS

(51) International classification :A01G0025160000, H04L0009320000, H04L0009000000, A01G0027000000, G06Q0050020000  
(86) International Application No :NA  
Filing Date :NA  
(87) International Publication No : NA  
(61) Patent of Addition to Application Number :NA  
Filing Date :NA  
(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :  
[040] The present invention discloses a smart irrigation management system that integrates soil moisture sensors, microcontroller-controlled irrigation, and blockchain technology to automate and transparently record irrigation events. The system monitors real-time soil moisture levels and activates water flow through solenoid valves when thresholds are breached, ensuring efficient water usage. Each irrigation event is immutably logged on a blockchain ledger with timestamp, sensor data, and zone information, enabling tamper-proof auditing and traceability. A user dashboard provides access to live and historical data, supporting informed decision-making and compliance with water management standards. The invention enhances sustainable agriculture by reducing water waste, increasing crop productivity, and enabling secure, data-driven farm operations. Accompanied Drawing [FIGS. 1-2]

No. of Pages : 18 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202531058374 A

(19) INDIA

(22) Date of filing of Application :18/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : AI-DRIVEN MIST COOLING AND POLLUTION CONTROL SYSTEM FOR URBAN TRAFFIC SIGNAL ENVIRONMENTS

|                                                                                                                                                                                                                                                                                                                                                                                           |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
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| <p>(51) International classification :G06Q0050260000, G06V0020100000, G08G0001095000, E01C0001000000, A01M0029160000</p> <p>(86) International Application No :NA<br/>Filing Date :NA</p> <p>(87) International Publication No : NA</p> <p>(61) Patent of Addition to Application Number :NA<br/>Filing Date :NA</p> <p>(62) Divisional to Application Number :NA<br/>Filing Date :NA</p> |  | <p>(71)<b>Name of Applicant :</b><br/><b>1)Brainware University, Kolkata</b><br/>Address of Applicant :398, Ramkrishnapur Rd, Near Jagadighata Market, Barasat, Kolkata, West Bengal 700125 -----<br/><b>Name of Applicant : NA</b><br/><b>Address of Applicant : NA</b></p> <p>(72)<b>Name of Inventor :</b><br/><b>1)Riyanka Hazra</b><br/>Address of Applicant :Assistant Professor of Computational Sciences in Brainware University, 398, Ramkrishnapur Rd, Near Jagadighata Market, Barasat, Kolkata, West Bengal-700125 -----<br/><b>2)Subham Kumar Mandal</b><br/>Address of Applicant :Student of the Bachelor of Computer Application in Brainware University, 398, Ramkrishnapur Rd, Near Jagadighata Market, Barasat, Kolkata, West Bengal-700125 -----<br/><b>3)Trisha Mondal</b><br/>Address of Applicant :Student of the Bachelor of Computer Application in Brainware University, 398, Ramkrishnapur Rd, Near Jagadighata Market, Barasat, Kolkata, West Bengal-700125 -----<br/><b>4)Sekh Shaid</b><br/>Address of Applicant :Student of the Bachelor of Computer Application in Brainware University, 398, Ramkrishnapur Rd, Near Jagadighata Market, Barasat, Kolkata, West Bengal-700125 -----</p> |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

(57) Abstract :

[041] The present invention relates to an AI-powered mist cooling and pollution control system designed for urban traffic signals. The system autonomously activates a water mist spray when ambient temperatures exceed a predefined threshold, typically 35°C, to reduce heat stress experienced by pedestrians, two-wheeler riders, and traffic personnel. It utilizes an ESP32 microcontroller in conjunction with temperature and water level sensors to monitor conditions and control operations. A buzzer alerts maintenance staff when the water tank is low, ensuring continuous functionality. The system operates using a hybrid renewable energy setup consisting of solar panels and wind turbines, eliminating dependency on external power sources. Compact, low-maintenance, and easy to install within existing traffic infrastructure, the invention promotes public comfort, pollution control, and sustainable urban development. Accompanied Drawing [FIGS. 1-2]

No. of Pages : 20 No. of Claims : 10



(12) PATENT APPLICATION PUBLICATION

(21) Application No.202531058375 A

(19) INDIA

(22) Date of filing of Application :18/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : Dual pH- and Thermo-Responsive Phenylalanine-Derivative Block-Copolymer Micellar Drug-Delivery System for Targeted Cancer Therapy

(51) International classification :A61K31/704, A61K47/60, A61P35/00, A61K9/00, A61K47/58, C08G63/42, C08G63/78, C08G64/18  
(86) International Application No :NA  
Filing Date :NA  
(87) International Publication No : NA  
(61) Patent of Addition to Application Number :NA  
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(57) Abstract :

[033] This invention relates to a novel dual pH- and thermo-responsive amphiphilic block copolymer drug delivery vehicle synthesized via RAFT polymerization using phenylalanine derivatives and N-vinylcaprolactam. The copolymer self-assembles into micellar nanostructures capable of encapsulating hydrophobic anticancer drugs such as Doxorubicin with high loading efficiency. The micelles exhibit controlled drug release triggered by acidic pH and elevated temperature conditions typical of tumor microenvironments, enabling targeted cancer therapy. In vitro studies demonstrate the biocompatibility of the polymer and enhanced cytotoxicity of the drug-loaded micelles against cancer cells under hyperthermic conditions, highlighting the potential of this system as an effective and safe drug delivery platform for cancer treatment. Accompanied Drawing [FIGS. 1-2]

No. of Pages : 18 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :18/06/2025

(21) Application No.202531058376 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : DECENTRALIZED BLOCKCHAIN-BASED SYSTEM FOR SECURE STORAGE, VERIFICATION, AND RETRIEVAL OF LEGAL DOCUMENTS

(51) International classification :H04L0009320000, H04L0009000000, H04L0009400000, G06F0021640000, G06F0021600000  
(86) International Application No :NA  
Filing Date :NA  
(87) International Publication No : NA  
(61) Patent of Addition to Application Number :NA  
Filing Date :NA  
(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :  
[038] The invention discloses a decentralized system for the secure storage, verification, and retrieval of legal documents using blockchain technology. By combining immutable blockchain ledgers with encrypted off-chain storage, the system ensures the integrity, confidentiality, and authenticity of legal records such as contracts, certificates, and court judgments. Smart contracts automate access control and document validation, enabling authorized users to securely upload, verify, and audit documents without reliance on central authorities. This innovative framework addresses prevalent issues of document forgery, unauthorized modifications, and inefficient verification, offering a scalable, transparent, and tamper-proof solution adaptable to multiple jurisdictions and legal sectors. Accompanied Drawing [FIGS. 1-2]

No. of Pages : 19 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202531058377 A

(19) INDIA

(22) Date of filing of Application :18/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : LOW-COST GRAPHITE-BASED ELECTRO-CHLORINATOR FOR ONSITE DRINKING WATER DISINFECTION USING NATURALLY OCCURRING CHLORIDES

(51) International classification :C02F0001467000, C02F0001461000, C02F0001320000, C02F0001000000, C02F0103080000

(86) International Application No :NA

Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA

Filing Date :NA

(62) Divisional to Application Number :NA

Filing Date :NA

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**2)Prof. Sunil Kumar Gupta**

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(57) Abstract :

[032] The invention discloses a low-cost, energy-efficient electro-chlorination reactor for onsite drinking water disinfection using naturally occurring chloride ions in tap water. The system comprises a rectangular poly(methyl methacrylate) cell equipped with six cylindrical graphite anodes and six stainless steel cathodes arranged alternately with optimized spacing and overlap to enhance electrochemical efficiency. Operating at a low current density of 1.5 mA/cm<sup>2</sup>, the reactor generates up to 2.5 mg/L of active chlorine with minimal energy consumption (0.083 kWh/m<sup>3</sup>) and without altering the pH of the treated water. The use of inexpensive, stable electrode materials and the reactor's simple, scalable design make it particularly suited for decentralized, rural, and resource-limited water treatment applications. Accompanied Drawing [FIGS. 1-2]

No. of Pages : 17 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202531058378 A

(19) INDIA

(22) Date of filing of Application :18/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : Eco-Friendly Synthesis of 2-Amino-3,5-Dicarbonitrile-6-Arylthio-Pyridines Using a Reusable Glass-Ceramic Heterogeneous Catalyst in Aqueous Medium

(51) International classification :C07D213/85, A61K31/44, A61P1/04, A61P31/04, C07D495/12  
(86) International Application No :NA  
Filing Date :NA  
(87) International Publication No : NA  
(61) Patent of Addition to :NA  
Application Number :NA  
Filing Date :NA  
(62) Divisional to Application :NA  
Number :NA  
Filing Date :NA

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(57) Abstract :

[036] The present invention relates to a green and sustainable method for the synthesis of 2-amino-3,5-dicarbonitrile-6-arylthio-pyridine derivatives using a novel, reusable glass-ceramic heterogeneous catalyst in water medium. The catalyst is prepared via a melt-quenching and controlled crystallization process involving metal and non-metallic oxides. This glass-ceramic material exhibits both Lewis acidic and basic properties, enabling efficient catalysis of a one-pot, three-component reaction involving 4-methoxybenzaldehyde, 4-bromothiophenol, and malononitrile. The process achieves a high product yield (>90%) at 100°C and eliminates the need for hazardous solvents or expensive reagents. The catalyst can be reused for multiple cycles without significant loss of activity, offering a cost-effective and eco-friendly alternative for the synthesis of bioactive pyridine derivatives with potential pharmaceutical applications. Accompanied Drawing [FIGS. 1-2]

No. of Pages : 18 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :18/06/2025

(21) Application No.202531058379 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : Agrobot: AI-Enabled Smart Agricultural Field Monitoring and Automation System

(51) International classification :G06N0003080000, G10L0015220000, G06N0003045000, H04L0067120000, G06Q0050020000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

[047] The present invention, titled Agrobot: Smart Agriculture Robot, discloses an intelligent and automated agricultural system that integrates IoT-based environmental sensing, AI-driven plant disease detection, voice command functionality, GPS-based field mapping, and real-time mobile communication. Utilizing a low-cost microcontroller (ESP32-WROOM), the system automates irrigation and fertilization based on live sensor inputs, significantly reducing water and resource wastage. A mobile application enables farmers to monitor field conditions, control operations, and upload leaf images for disease diagnosis using deep learning models trained on open datasets. Voice interaction and WhatsApp alerts ensure accessibility for semi-literate and remote users. The modular, scalable architecture supports cloud data storage, enabling informed decision-making and future enhancements. The invention provides a cost-effective, user-friendly solution to improve crop health, boost productivity, and promote sustainable farming practices. Accompanied Drawing [FIGS. 1-2]

No. of Pages : 20 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :18/06/2025

(21) Application No.202531058380 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : INTEGRATED GEOLOCATION AND SMART BOOKING SYSTEM FOR OPTIMIZED ELECTRIC VEHICLE CHARGING NETWORKS

(51) International classification :G06Q0010020000, H04W0016180000, G06N0020000000, B60L0053300000, G06Q0030020100

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :  
[039] The present invention relates to an integrated geolocation and smart booking system for optimizing electric vehicle (EV) charging networks. The system utilizes geospatial analysis, machine learning algorithms, and real-time traffic and energy data to identify optimal locations for EV charging station deployment. It includes a user-friendly interface for real-time slot booking, categorized by vehicle type and charging mode, with availability indicators and time-based session tracking. A dynamic pricing engine differentiates rates based on user history and demand periods, while an analytics dashboard provides insights into energy consumption, session history, and environmental impact. The invention enhances charging accessibility, reduces congestion, and supports scalable, sustainable urban mobility. Accompanied Drawing [FIGS. 1-2]

No. of Pages : 19 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :18/06/2025

(21) Application No.202531058381 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : BIODEGRADABLE COMPOSITE PACKAGING FILM AND PROCESS THEREOF USING SODIUM ALGINATE, CHITOSAN, AND ALBIZIA LEBBECK EXTRACTS

(51) International classification :A61K0036480000, C08J0005180000, C08L0029040000, B65D0065460000, C08L0067040000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

[032] The present invention relates to a biodegradable composite packaging film and a method for its preparation using naturally derived materials—sodium alginate, chitosan, and aqueous extracts of Albizia lebbeck, an indigenous plant. The film is fabricated using a layer-by-layer casting technique wherein the first layer comprises sodium alginate and Albizia lebbeck extract with glycerol as a plasticizer, and the second layer comprises chitosan dissolved in acetic acid with polyvinyl alcohol. The resulting film demonstrates superior mechanical strength, flexibility, antimicrobial activity, and barrier properties. It is fully biodegradable under composting or soil conditions and decomposes without releasing harmful residues. This invention offers an eco-friendly, cost-effective, and scalable alternative to synthetic plastic packaging and is particularly suitable for applications in food packaging, agriculture, and medical disposables. Accompanied Drawing [FIGS. 1-2]

No. of Pages : 17 No. of Claims : 2

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202531058382 A

(19) INDIA

(22) Date of filing of Application :18/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : THIONATED ARYLENE DIIMIDE DERIVATIVES WITH CORE AND BAY SUBSTITUTION FOR STABILIZED RADICAL ANION GENERATION

(51) International classification :C07D471/06, C07D519/00, C07D409/14, C07D471/04, C08G61/12

(86) International Application No :NA

Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to :NA

Application Number :NA

Filing Date :NA

(62) Divisional to Application :NA

Number :NA

Filing Date :NA

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(57) Abstract :

[031] The present invention relates to a novel class of core- and bay-substituted thionated arylene diimide compounds, including naphthalene diimide (NDI) and perylene diimide (PDI) derivatives, in which one or more oxygen atoms at the imide positions are replaced with sulfur atoms to enhance radical anion formation and stability. These compounds, synthesized using Lawesson's reagent under controlled conditions, are categorized into four classes based on substitution patterns and degree of thionation. The resulting radical anions exhibit tunable optical properties with red-shifted absorption and persistent visible coloration, and their half-lives are significantly enhanced by increasing sulfur content and electronic modifications at the core or bay regions. This invention demonstrates, for the first time, stable radical anions from such substituted thionated structures and offers promising utility in redox catalysis, near-infrared (NIR) absorption, organic electronics, and self-assembled nanomaterials. Accompanied Drawing [FIGS. 1-2]

No. of Pages : 17 No. of Claims : 10



(54) Title of the invention : A SYSTEM AND A METHOD FOR REMOTE VITAL SIGNS MONITORING WITH ADAPTIVE SIGNAL PROCESSING

|                                                                                                                                                                                                                                                                                                                                                                                                                                |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <div>(51) International classification :A61B5/0205, A61B5/021, A61B5/08, A61B5/113, G01S13/88, G01S13/50, G01S7/41</div> <div>(86) International Application No :NA</div> <div>Filing Date :NA</div> <div>(87) International Publication No : NA</div> <div>(61) Patent of Addition to Application Number :NA</div> <div>Filing Date :NA</div> <div>(62) Divisional to Application Number :NA</div> <div>Filing Date :NA</div> |  | <div>(71)Name of Applicant :<br/><b>1)National Institute of Technology, Patna</b><br/>Address of Applicant :National Institute of Technology Patna, Ashok Rajpath, Patna-800005 Bihar, India. Patna -----<br/><b>Name of Applicant : NA</b><br/><b>Address of Applicant : NA</b></div> <div>(72)Name of Inventor :<br/><b>1)KUMAR, Manoj</b><br/>Address of Applicant :ECE Department, NIT Patna, Ashok Rajpath, Patna - 800005, Bihar, India. Patna -----<br/><b>2)SINGH, Vishal</b><br/>Address of Applicant :ECE Department, NIT Patna, Ashok Rajpath, Patna - 800005, Bihar, India. Patna -----<br/><b>3)KUMAR, Bambam</b><br/>Address of Applicant :ECE Department, NIT Patna, Ashok Rajpath, Patna - 800005, Bihar, India. Patna -----</div> |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

(57) Abstract :  
The present invention relates to a system and a method (200) for remote vital signs monitoring, specifically detecting heartbeat and breathing rates. The system comprises a vector network analyser (VNA) coupled with an external stepped-frequency continuous wave (SFCW) radar that transmits a dynamically adaptable frequency sweep to a CPW-fed UWB wearable antenna sensor (100) placed on the user's wrist. The wearable antenna sensor (100) radiates signals toward the human body and captures reflected signals containing both useful and unwanted components, such as micro-Doppler signals and stationary body responses. The received signals are processed by the VNA using an Inverse Fast Fourier Transform (IFFT) module for target detection and a Range-Doppler (R-D) processing module for extracting heartbeat and breathing signatures. Motion Target Indicator (MTI) filtering is applied to eliminate noise and stationary responses, ensuring accurate detection of vital signs. This system provides an efficient and non-invasive approach for early cardiopulmonary disease diagnosis and monitoring. (to be published with figure 2)

No. of Pages : 25 No. of Claims : 8

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202531058584 A

(19) INDIA

(22) Date of filing of Application :18/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : A novel bifunctional Formyl-amination equivalent reagent, a process for the preparation thereof and the application thereof in the synthesis of 1,3-iminoacetals/ $\beta$ -amino aldehydes

|                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>(51) International classification : C07C249/02, C07C251/24, C07D213/55, C07D333/60</p> <p>(86) International Application No :NA<br/>Filing Date :NA</p> <p>(87) International Publication No : NA</p> <p>(61) Patent of Addition to Application Number :NA<br/>Filing Date :NA</p> <p>(62) Divisional to Application Number :NA<br/>Filing Date :NA</p> | <p>(71)<b>Name of Applicant :</b><br/><b>1)INDIAN INSTITUTE OF TECHNOLOGY (INDIAN SCHOOL OF MINES), DHANBAD</b><br/>Address of Applicant :Dhanbad - 826004, Jharkhand, India Dhanbad -----<br/>-----<br/><b>Name of Applicant : NA</b><br/><b>Address of Applicant : NA</b></p> <p>(72)<b>Name of Inventor :</b><br/><b>1)Soumitra Maity</b><br/>Address of Applicant :Department of Chemistry and Chemical Biology, Indian Institute of Technology (Indian School of Mines), Dhanbad, Dhanbad - 826004, Jharkhand, India Dhanbad -----<br/><b>2)Partha Pratim Mondal</b><br/>Address of Applicant :Department of Chemistry and Chemical Biology, Indian Institute of Technology (Indian School of Mines), Dhanbad, Dhanbad - 826004, Jharkhand, India Dhanbad -----</p> |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

(57) Abstract :

The present invention relates to a novel bifunctional Formyl-amination equivalent reagent, a process for the preparation thereof. This invention further relates to the characterization of the new organic compound (D), and its application to the synthesis of 1,3-iminoacetal/ $\beta$ -amino aldehydes by reaction with various types of olefins via simultaneous generation of N- and diethoxymethane-centred radicals when subjected to visible-light-mediated photocatalysis.

No. of Pages : 18 No. of Claims : 5

(54) Title of the invention : SYSTEM AND METHOD FOR BIM-BASED CONSTRUCTION CLAIM MANAGEMENT

|                                               |                                                                                 |                                                                                                                                                                                    |
|-----------------------------------------------|---------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (51) International classification             | :G06Q0050080000, G06Q0010100000, G06Q0050180000, G06F0030130000, G06Q0010060000 | (71)Name of Applicant :<br><b>1)National Institute of Technology, Durgapur</b><br>Address of Applicant :Mahatma Gandhi Avenue, Durgapur-713209, West Bengal, India. Durgapur ----- |
| (86) International Application No             | :NA                                                                             | <b>Name of Applicant : NA</b>                                                                                                                                                      |
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| (87) International Publication No             | : NA                                                                            | (72)Name of Inventor :                                                                                                                                                             |
| (61) Patent of Addition to Application Number | :NA                                                                             | <b>1)GHOSH, Bittu</b>                                                                                                                                                              |
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| (62) Divisional to Application Number         | :NA                                                                             | <b>2)KARMAKAR, Somnath</b>                                                                                                                                                         |
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(57) Abstract :

The present invention relates to a system (100) and method (200) for managing construction claims efficiently within a Building Information Modeling (BIM) environment. Traditional claim processes are often fragmented, manual, and prone to delays. This invention offers an integrated solution that automates claim identification, documentation, validation, and resolution. The system (100) includes an analysis module (101) to detect project issues and identify impacted BIM elements, which are linked to structured digital claim forms. A visualization and reporting module (103) generates 3D views and automated reports to clearly present claim details. A contract clause validation module (104) checks claim data against relevant clauses, maintaining traceable records. A resolution module (105) supports real-time collaboration among stakeholders to review, decide, and update claim statuses within the BIM model. By unifying these processes, the system (100) enhances transparency, reduces errors, and speeds up claim resolution in construction projects. (to be published with figure 1)

No. of Pages : 20 No. of Claims : 6

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :18/06/2025

(21) Application No.202531058609 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : MOBILITY AID SYSTEM FOR OUTDOOR ADVENTURES

(51) International classification :A61B0005000000, A61B0005389000, A45B0003000000, A01M0029160000, A61B0005397000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

A mobility aid system for outdoor adventures is comprising, a vertical elongated body 101 with a handle 102 incorporating a fingerprint scanner 103 to authenticate the user and retrieve a personalized user profile a headgear 104 with an oxygen mask 105 on a motorized pull-down shelf for oxygen, a telescopic rod 107 with a C-shaped clamp 108 embedded with EMG sensors monitors muscle activity and detect leg muscle fatigue or cramps, an AI (artificial intelligence) powered camera 109 to classify terrain, a motorized gear arrangement 110 rotates a supporting wheel 111 for climbing aid, a chamber 112 carved housing mini flare cartridges 113 operable by a dedicated button 114 to deploy emergency flares for rescue signaling, pneumatic pins 115 for improved grip and traction, a holographic projector and speaker to project predator images and sounds near to deter the detected wildlife, a mini vaporizer unit 116 disperses a camphor-based mist.

No. of Pages : 23 No. of Claims : 10

(54) Title of the invention : EtherVox: Blockchain-Based Electronic Voting System with Dual-Layer Authentication and Smart Contract Automation

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
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| <div>(51) International classification :H04L0009320000, H04L0009400000, H04L0009000000, G07C0013000000, G06Q0020380000</div> <div>(86) International Application No :NA</div> <div>(86) International Filing Date :NA</div> <div>(87) International Publication No : NA</div> <div>(61) Patent of Addition to Application Number :NA</div> <div>(61) Patent of Addition to Filing Date :NA</div> <div>(62) Divisional to Application Number :NA</div> <div>(62) Divisional to Filing Date :NA</div> |  | <div>(71)Name of Applicant :<br/><b>1)JIS UNIVERSITY</b><br/>Address of Applicant :81, NILGUNJ RD, JAGARATA PALLY, DESHPRIYA NAGAR, KOLKATA, WEST BENGAL 700109, INDIA KOLKATA -----</div> <div>Name of Applicant : NA<br/>Address of Applicant : NA</div> <div>(72)Name of Inventor :<br/><b>1)DR. RAJESH BOSE</b><br/>Address of Applicant :JIS UNIVERSITY, Professor, DEPARTMENT OF COMPUTER SCIENCE &amp; ENGINEERING, 81, NILGUNJ RD, JAGARATA PALLY, DESHPRIYA NAGAR, KOLKATA 700109, WEST BENGAL, INDIA KOLKATA -----</div> <div><b>2)MS. SHRABANI SUTRADHAR</b><br/>Address of Applicant :DIBRUGARH UNIVERSITY INSTITUTE OF ENGINEERING AND TECHNOLOGY (DUIET), Ph.D. Scholar , DEPARTMENT OF COMPUTATIONAL SCIENCE, DIBRUGARH UNIVERSITY, DIBRUGARH-786004, ASSAM, INDIA DIBRUGARH -----</div> <div><b>3)DR. SANDIP ROY</b><br/>Address of Applicant :JIS UNIVERSITY, Professor, DEPARTMENT OF COMPUTER SCIENCE &amp; ENGINEERING, 81, NILGUNJ RD, JAGARATA PALLY, DESHPRIYA NAGAR, KOLKATA 700109, WEST BENGAL, INDIA KOLKATA -----</div> <div><b>4)DR. ABHRENDU BHATTACHARYA</b><br/>Address of Applicant :JIS UNIVERSITY, Asst. Professor, DEPARTMENT OF COMPUTER SCIENCE &amp; ENGINEERING, 81, NILGUNJ RD, JAGARATA PALLY, DESHPRIYA NAGAR, KOLKATA 700109, WEST BENGAL, INDIA KOLKATA -----</div> |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

(57) Abstract :  
“EtherVox: Blockchain-Based Electronic Voting System with Dual-Layer Authentication and Smart Contract Automation ” Traditional voting systems suffer from critical vulnerabilities including centralized points of failure, susceptibility to cyberattacks and fraud, lack of transparency in vote counting processes, high operational costs, privacy concerns, and limited accessibility for geographically dispersed or mobility-constrained voters. To address these fundamental challenges, we present EtherVox, a revolutionary decentralized voting platform that leverages Ethereum blockchain technology and smart contracts to establish a secure, transparent, and tamper-resistant electoral framework. The system integrates a React.js frontend with Tailwind CSS for an intuitive user interface, a Node.js/Express.js backend for API orchestration, and Solidity-based smart contracts to automate vote validation, timestamping, and immutable storage on the blockchain. Key innovations include a dual-layer authentication mechanism combining MetaMask wallet signatures with government-ID hashing to prevent fraud and ensure one-vote-per-identity compliance, Merkle tree-based voter roll verification that reduces on-chain computation costs by 52%, and IPFS integration for decentralized off-chain data storage to minimize network congestion and gas costs. The system employs MySQL for secure voter registration and election logistics, coupled with Web3.js and Ethers.js libraries for seamless blockchain interaction. Comprehensive testing on Ganache and Ethereum testnets demonstrated exceptional performance with 99.5% transaction success rates, sub-3-second latency, and 45% reduced gas costs through optimized contract logic. Security audits via MythX validated the system's resistance to common attack vectors including reentrancy and frontrunning attacks. EtherVox enhances voter accessibility through QR-code ballot tracking for remote verification and real-time dashboards for transparent result monitoring, while its modular architecture supports future integration with Layer-2 solutions for cross-chain scalability. The platform successfully addresses privacy concerns through advanced cryptographic techniques that decouple voter identities from their ballots using Merkle-tree verification and zero-knowledge proofs, ensuring confidentiality while maintaining complete auditability. By merging cryptographic rigor with user-centric design principles, EtherVox offers governments and electoral organizations a cost-efficient, auditable, and highly scalable alternative to legacy voting infrastructure, potentially transforming democratic processes through enhanced security, transparency, and accessibility while eliminating traditional vulnerabilities associated with centralized electoral systems. Fig. 1 (to be published with this figure)

No. of Pages : 27 No. of Claims : 10

(54) Title of the invention : A.I Enabled Smart Wearable Device For Real Time Carbon Emissions Detection of Data Center

|                                               |                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|-----------------------------------------------|---------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (51) International classification             | :G06Q0010040000, H04L0009400000, G06Q0030018000, H04L0067120000, G06Q0010063700 | (71)Name of Applicant :<br><b>1)JIS UNIVERSITY</b><br>Address of Applicant :81, NILGUNJ RD, JAGARATA PALLY, DESHPRIYA NAGAR, KOLKATA 700109, WEST BENGAL, INDIA KOLKATA -----<br><br>Name of Applicant : NA<br>Address of Applicant : NA                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| (86) International Application No             | :NA                                                                             | (72)Name of Inventor :<br><b>1)DR. ABHRENDU BHATTACHARYA</b><br>Address of Applicant :JIS UNIVERSITY, Asst. Professor, DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING, 81, NILGUNJ RD, JAGARATA PALLY, DESHPRIYA NAGAR, KOLKATA 700109, WEST BENGAL, INDIA KOLKATA -----<br><b>2)DR. RAJESH BOSE</b><br>Address of Applicant :JIS UNIVERSITY, Professor, DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING, 81, NILGUNJ RD, JAGARATA PALLY, DESHPRIYA NAGAR, KOLKATA 700109, WEST BENGAL, INDIA KOLKATA -----<br><b>3)MS. SHRABANI SUTRADHAR</b><br>Address of Applicant :DIBRUGARH UNIVERSITY INSTITUTE OF ENGINEERING AND TECHNOLOGY (DUIET), Ph.D. Scholar , DEPARTMENT OF COMPUTATIONAL SCIENCE, DIBRUGARH UNIVERSITY, DIBRUGARH-786004, ASSAM, INDIA DIBRUGARH -----<br><br><b>4)DR. SANDIP ROY</b><br>Address of Applicant :JIS UNIVERSITY, Professor, DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING, 81, NILGUNJ RD, JAGARATA PALLY, DESHPRIYA NAGAR, KOLKATA 700109, WEST BENGAL, INDIA KOLKATA ----- |
| Filing Date                                   | :NA                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| (87) International Publication No             | : NA                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| (61) Patent of Addition to Application Number | :NA                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Filing Date                                   | :NA                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| (62) Divisional to Application Number         | :NA                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Filing Date                                   | :NA                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |

(57) Abstract :  
“A. I Enabled Smart Wearable Device For Real Time Carbon Emissions Detection of Data Center ” The rapid expansion of data centers to support the growing digital economy has led to a significant increase in energy consumption and associated carbon emissions, raising urgent sustainability and regulatory compliance challenges. Traditional stationary environmental monitoring systems often lack the mobility, real-time responsiveness, and granularity required to effectively detect and manage emissions within complex data center environments. Addressing these limitations, the present invention introduces an AI-enabled smart wearable device designed for real-time detection, analysis, and management of carbon emissions specifically within data centers. This wearable device integrates advanced miniaturized sensors capable of continuously monitoring critical environmental parameters such as carbon dioxide (CO<sub>2</sub>) concentration, temperature, humidity, and airflow. By combining these sensors with an embedded AI processing unit, the device is capable of performing on-device data preprocessing, anomaly detection, and predictive analytics. This edge-computing capability significantly reduces latency, lowers dependency on cloud infrastructure, and enhances data security. The device’s compact and ergonomic design allows data center personnel to perform dynamic, location-aware environmental monitoring across multiple facility zones, thus providing a higher spatial resolution of emission sources compared to fixed sensor systems. Wireless communication modules embedded within the device enable secure and efficient transmission of collected data to centralized monitoring platforms or cloud-based sustainability dashboards. Integration with existing building management systems (BMS) and energy management tools further supports comprehensive carbon accounting, operational optimization, and regulatory compliance efforts. A biometric-based authentication system ensures that only authorized personnel can activate and access the device, safeguarding sensitive environmental data and maintaining data integrity. The invention’s modular architecture allows for scalable deployment tailored to diverse data center sizes and operational requirements. Real-time analytics generated by the device empower data center operators to proactively identify emission hotspots, equipment malfunctions, or ventilation inefficiencies, enabling timely corrective measures to reduce the carbon footprint and improve energy efficiency. This real-time visibility and control directly support corporate environmental, social, and governance (ESG) goals, as well as adherence to international sustainability standards such as ISO 14001. Furthermore; the device’s adaptability positions it as a key enabling technology for future smart infrastructure ecosystems. As data centers evolve to incorporate next-generation connectivity technologies like 5G and edge computing, this wearable solution can seamlessly integrate with broader IoT frameworks and advanced machine learning models to enhance predictive maintenance and autonomous environmental management. This AI-enabled smart wearable device offers a novel, efficient, and user-centric approach to carbon emission monitoring within data centers. It addresses critical gaps in current monitoring technologies by combining mobility, real-time AI analytics, and secure communication. The invention supports sustainable data center operations, promotes energy efficiency, and facilitates compliance with evolving environmental regulations, thereby contributing to the global transition toward greener digital infrastructure. Fig. 1 (to be published with this figure)

No. of Pages : 30 No. of Claims : 10

(54) Title of the invention : GreenDataCore: INTELLIGENT DATA CENTER POWER EFFICIENCY ANALYSIS AND OPTIMIZATION SYSTEM

|                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <div>(51) International classification<br/>(86) International Application No<br/>Filing Date<br/>(87) International Publication No<br/>(61) Patent of Addition to Application Number<br/>Filing Date<br/>(62) Divisional to Application Number<br/>Filing Date</div> <div>:H05K0007200000, G06Q0050060000, G06Q0010063900, H02J0009060000, G06F0011300000<br/>:NA<br/>:NA<br/>: NA<br/>:NA<br/>:NA<br/>:NA<br/>:NA</div> | <div>(71)Name of Applicant :<br/>1)JIS UNIVERSITY<br/>Address of Applicant :81, NILGUNJ RD, JAGARATA PALLY, DESHPRIYA NAGAR, KOLKATA 700109, WEST BENGAL, INDIA KOLKATA -----<br/>-----<br/>Name of Applicant : NA<br/>Address of Applicant : NA<br/>(72)Name of Inventor :<br/>1)DR. RAJESH BOSE<br/>Address of Applicant :JIS UNIVERSITY, Professor, DEPARTMENT OF COMPUTER SCIENCE &amp; ENGINEERING, 81, NILGUNJ RD, JAGARATA PALLY, DESHPRIYA NAGAR, KOLKATA 700109, WEST BENGAL, INDIA KOLKATA -----<br/>-----<br/>2)MS. SHRABANI SUTRADHAR<br/>Address of Applicant :DIBRUGARH UNIVERSITY INSTITUTE OF ENGINEERING AND TECHNOLOGY (DUIET), Ph.D. Scholar , DEPARTMENT OF COMPUTATIONAL SCIENCE, DIBRUGARH UNIVERSITY, DIBRUGARH-786004, ASSAM, INDIA DIBRUGARH -----<br/>-----<br/>3)DR. SANDIP ROY<br/>Address of Applicant :JIS UNIVERSITY, Professor, DEPARTMENT OF COMPUTER SCIENCE &amp; ENGINEERING, 81, NILGUNJ RD, JAGARATA PALLY, DESHPRIYA NAGAR, KOLKATA 700109, WEST BENGAL, INDIA KOLKATA -----<br/>-----</div> |
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(57) Abstract :  
“GreenDataCore: INTELLIGENT DATA CENTER POWER EFFICIENCY ANALYSIS AND OPTIMIZATION SYSTEM” The GreenDataCore: Intelligent Data Center Power Efficiency Analysis and Optimization System is a comprehensive web-based calculator that revolutionizes data center infrastructure assessment through automated calculation of power consumption metrics, efficiency analysis, and infrastructure sizing requirements. The system employs integrated modules for DC power consumption analysis, proposed power sizing, heat load calculation, generator capacity sizing, and Power Usage Effectiveness (PUE) assessment, utilizing industry-standard formulas and regulatory compliance parameters. Built on Bootstrap 5.0 frontend with PHP 7.4 backend and MySQL database integration, the platform provides real-time calculation capabilities enabling immediate visualization of infrastructure changes and their impacts on operational costs. The system eliminates the need for expensive DCIM software while delivering professional-grade assessments including automated safety margin application (25% regulatory compliance), UPS inefficiency calculations (32% factor), and cooling capacity sizing with appropriate multipliers for different system types. Users can instantly assess existing DC power utilization, proposed incoming power sizing, heat load requirements, and generator capacity needs through intuitive web interfaces, making data center optimization accessible to facilities without specialized technical expertise or significant software investments. Fig. 1 (to be published with this figure)

No. of Pages : 27 No. of Claims : 9

(54) Title of the invention : Energocytis:Intelligent waste-to-energy conversion system with IoT-enabled stochastic routing optimization

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|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <div>(51) International classification</div> <div>(86) International Application No</div> <div>(87) International Publication No</div> <div>(61) Patent of Addition to Application Number</div> <div>(62) Divisional to Application Number</div> <div>Filing Date</div> <div>Filing Date</div> <div>Filing Date</div> <div>Filing Date</div> | <div>:G01C0021340000, C02F0011040000, C12M0001107000, C02F0003280000, B65F0001140000</div> <div>:NA</div> <div>:NA</div> <div>: NA</div> <div>:NA</div> <div>:NA</div> <div>:NA</div> <div>:NA</div> | <div>(71)Name of Applicant :</div> <div>1)JIS UNIVERSITY</div> <div>Address of Applicant :81, NILGUNJ RD, JAGARATA PALLY, DESHPRIYA NAGAR, KOLKATA 700109, WEST BENGAL, INDIA KOLKATA -----</div> <div>-----</div> <div>Name of Applicant : NA</div> <div>Address of Applicant : NA</div> <div>(72)Name of Inventor :</div> <div>1)DR. RAJESH BOSE</div> <div>Address of Applicant :JIS UNIVERSITY, Professor, DEPARTMENT OF COMPUTER SCIENCE &amp; ENGINEERING, 81, NILGUNJ RD, JAGARATA PALLY, DESHPRIYA NAGAR, KOLKATA 700109, WEST BENGAL, INDIA KOLKATA -----</div> <div>2)MS. SHRABANI SUTRADHAR</div> <div>Address of Applicant :DIBRUGARH UNIVERSITY INSTITUTE OF ENGINEERING AND TECHNOLOGY (DUIET), Ph.D. Scholar , DEPARTMENT OF COMPUTATIONAL SCIENCE, DIBRUGARH UNIVERSITY, DIBRUGARH-786004, ASSAM, INDIA DIBRUGARH -----</div> <div>-----</div> <div>3)MR. RITWICK BOYRA</div> <div>Address of Applicant :JIS UNIVERSITY, Student, DEPARTMENT OF COMPUTER SCIENCE &amp; ENGINEERING, 81, NILGUNJ RD, JAGARATA PALLY, DESHPRIYA NAGAR, KOLKATA 700109, WEST BENGAL, INDIA KOLKATA -----</div> <div>4)DR. SANDIP ROY</div> <div>Address of Applicant :JIS UNIVERSITY, Professor, DEPARTMENT OF COMPUTER SCIENCE &amp; ENGINEERING, 81, NILGUNJ RD, JAGARATA PALLY, DESHPRIYA NAGAR, KOLKATA 700109, WEST BENGAL, INDIA KOLKATA -----</div> <div>-----</div> |
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(57) Abstract :  
“Energocytis:Intelligent waste-to-energy conversion system with IoT-enabled stochastic routing optimization ” Energocytis is an intelligent waste-to-energy conversion system that integrates IoT-enabled smart bins with advanced sensor arrays, stochastic dynamic vehicle routing optimization, and anaerobic digestion technology to revolutionize urban waste management while generating renewable energy. The system employs ESP32 microcontrollers with ultrasonic, weight, humidity, infrared, and gas sensors to monitor waste levels, classify waste types, and optimize collection routes using Stochastic Dynamic Vehicle Routing Problem (SDVRP) algorithms that adapt to real-time traffic, weather, and demand uncertainties. Biodegradable waste is processed through IoT-monitored anaerobic digesters producing biogas for electricity generation, achieving 90% energy conversion efficiency and enabling carbon-neutral operations. The cloud-based platform provides predictive analytics, real-time monitoring, and mobile application interfaces for on-demand collection requests, resulting in 45% cost reduction, 38% fuel savings, and 85% landfill diversion while generating surplus renewable energy for grid contribution. Fig. 1 (to be published with this figure)



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(19) INDIA

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(21) Application No.202531058709 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : Secure and Scalable Healthcare Data Management System Using EOS Blockchain with Hard Fork Enhancements

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|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>(51) International classification :G16H0010600000, H04L0009000000, G06F0021620000, H04L0009320000, H04L0009400000</p> <p>(86) International Application No :NA<br/>Filing Date :NA</p> <p>(87) International Publication No : NA</p> <p>(61) Patent of Addition to Application Number :NA<br/>Filing Date :NA</p> <p>(62) Divisional to Application Number :NA<br/>Filing Date :NA</p> |  | <p>(71)Name of Applicant :<br/><b>1)JIS UNIVERSITY</b><br/>Address of Applicant :81, NILGUNJ RD, JAGARATA PALLY, DESHPRIYA NAGAR, KOLKATA, WEST BENGAL 700109, INDIA KOLKATA -----</p> <p><b>Name of Applicant : NA</b><br/><b>Address of Applicant : NA</b></p> <p>(72)Name of Inventor :<br/><b>1)DR. RAJESH BOSE</b><br/>Address of Applicant :JIS UNIVERSITY, Professor, DEPARTMENT OF COMPUTER SCIENCE &amp; ENGINEERING, 81, NILGUNJ RD, JAGARATA PALLY, DESHPRIYA NAGAR, KOLKATA 700109, WEST BENGAL, INDIA KOLKATA -----</p> <p><b>2)MS. SHRABANI SUTRADHAR</b><br/>Address of Applicant :DIBRUGARH UNIVERSITY INSTITUTE OF ENGINEERING AND TECHNOLOGY (DUIET), Ph.D. Scholar , DEPARTMENT OF COMPUTATIONAL SCIENCE, DIBRUGARH UNIVERSITY, DIBRUGARH-786004, ASSAM, INDIA DIBRUGARH -----</p> <p><b>3)DR. SANDIP ROY</b><br/>Address of Applicant :JIS UNIVERSITY, Professor, DEPARTMENT OF COMPUTER SCIENCE &amp; ENGINEERING, 81, NILGUNJ RD, JAGARATA PALLY, DESHPRIYA NAGAR, KOLKATA 700109, WEST BENGAL, INDIA KOLKATA -----</p> |
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(57) Abstract :

Secure and Scalable Healthcare Data Management System Using EOS Blockchain with Hard Fork Enhancements ” The healthcare industry focuses on blockchain technology due to its ability to resolve security problems and improve data exchange capabilities and patient-focused medical care. EOS blockchain presents the necessary features to develop a thorough e-healthcare system because of its flexible and scalable structure. This paper introduces a new way to develop an EOS blockchain-based secure e-healthcare system, which uses hard fork improvements for scalability. EOS blockchain offers suitable healthcare applications through our innovative solutions, which address data privacy access control and data interoperability needs. The proposed system is shown feasible and efficient through complete simulation tests and performance assessments. The research shows that EOS blockchain using hard fork enhancements can transform e-healthcare systems for the future. Fig. 1 (to be published with this figure)

No. of Pages : 27 No. of Claims : 10

(54) Title of the invention : SUSTAINABILITY ASSESSMENT TOOL FOR AFFORDABLE HOUSING AND METHOD THEREOF

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|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <div>(51) International classification :G06Q10/0637, G06Q10/0639</div> <div>(86) International Application No :NA</div> <div>    Filing Date :NA</div> <div>(87) International Publication No : NA</div> <div>(61) Patent of Addition to Application Number :NA</div> <div>    Filing Date :NA</div> <div>(62) Divisional to Application Number :NA</div> <div>    Filing Date :NA</div> |  | <div>(71)Name of Applicant :<br/>    <b>1)National Institute of Technology Patna</b><br/>    Address of Applicant :Ashok Rajpath, Patna - 800005, Bihar, India. Patna -----<br/>    -----<br/>    <b>Name of Applicant : NA</b><br/>    <b>Address of Applicant : NA</b><br/>(72)<b>Name of Inventor :</b><br/>    <b>1)KUMAR, Athullya S</b><br/>    Address of Applicant :Department of Architecture and Planning, National Institute of Technology Patna, Ashok Rajpath, Patna - 800005, Bihar, India. Patna -----<br/>    -----<br/>    <b>2)SINHA, Kamini</b><br/>    Address of Applicant :Department of Architecture and Planning, National Institute of Technology Patna, Ashok Rajpath, Patna - 800005, Bihar, India. Patna -----<br/>    -----</div> |
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(57) Abstract :  
The present disclosure relates to a sustainability assessment system (102) and a method (300) for affordable housing projects to quantify sustainability performance. The system (102) utilises a predefined set of weighted sustainability criteria, with total weights summing to 100 points. Evaluation data is manually entered via an input device (108) and processed by a processor (104) to calculate a comprehensive sustainability score, i.e. further compared against a predefined threshold to generate a certification output, which visually or electronically indicates compliance of affordable housing projects with sustainability standards. The system (102) is adaptable to various climates zones, and housing types without requiring fundamental changes. Key advantages include facilitating expert-validated, data-driven decision-making during design and construction; optimizing material use and energy efficiency; supporting regulatory compliance and access to financial incentives; and promoting sustainable, affordable housing through continuous performance monitoring. The system (102) enables quicker, practical sustainability assessments aligned with global best practices.

No. of Pages : 29 No. of Claims : 10

(54) Title of the invention : Optimized Friction Stir Welding Method for Joining AA6061-T6 and AA2017-T6 Aluminum Alloy Tailor Welded Blanks

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|-----------------------------------------------|---------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (51) International classification             | :B23K0020120000, B23K0101180000, B23K0103040000, B23K0103100000, B23K0020227000 | (71)Name of Applicant :<br><b>1)N Malleswararao Battina</b><br>Address of Applicant :School of Marine Engineering & Technology, Indian Maritime University, P-19, Taratala Road, Kolkata, 700088, India ----- |
| (86) International Application No             | :NA                                                                             | ---                                                                                                                                                                                                           |
| Filing Date                                   | :NA                                                                             | <b>Name of Applicant : NA</b>                                                                                                                                                                                 |
| (87) International Publication No             | : NA                                                                            | <b>Address of Applicant : NA</b>                                                                                                                                                                              |
| (61) Patent of Addition to Application Number | :NA                                                                             | (72)Name of Inventor :                                                                                                                                                                                        |
| Filing Date                                   | :NA                                                                             | <b>1)N Malleswararao Battina</b>                                                                                                                                                                              |
| (62) Divisional to Application Number         | :NA                                                                             | Address of Applicant :School of Marine Engineering & Technology, Indian Maritime University, P-19, Taratala Road, Kolkata, 700088, India -----                                                                |
| Filing Date                                   | :NA                                                                             | ---                                                                                                                                                                                                           |

(57) Abstract :  
6. ABSTRACT The present invention discloses a method for joining dissimilar aluminum alloys, specifically AA6061-T6 and AA2017-T6, using friction stir welding (FSW) to fabricate tailor welded blanks (TWBs) with enhanced mechanical and metallurgical properties. The process involves optimizing key FSW parameters—tool rotational speed, welding speed, and tool tilt angle—each varied at three distinct levels to determine their effect on joint strength and ductility. The study employs a Taguchi experimental design to systematically analyze the influence of these parameters, with the ultimate tensile strength and tensile elongation of the welded joints predicted and validated through mathematical regression models and experimental testing. Mechanical characterization, including tensile and notched tensile strength, as well as microhardness and microstructural analysis, is performed on the welded blanks in accordance with ASTM standards. Results demonstrate that the optimal combination of FSW parameters significantly improves joint performance, with all fractures occurring on the advancing side due to the lower strength of AA6061-T6 compared to AA2017-T6. The invention provides a robust approach for manufacturing high-strength, lightweight TWBs suitable for automotive, aerospace, and marine applications, where tailored mechanical properties and process reliability are critical.

No. of Pages : 24 No. of Claims : 6

(54) Title of the invention : ADJUSTABLE CURRENT CONTROL EV BATTERY CHARGER

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| <p>(51) International classification :H02J7/00, B60L53/00, H02J7/00, B60L53/00</p> <p>(86) International Application No :NA<br/>Filing Date :NA</p> <p>(87) International Publication No : NA</p> <p>(61) Patent of Addition to Application Number :NA<br/>Filing Date :NA</p> <p>(62) Divisional to Application Number :NA<br/>Filing Date :NA</p> | <p>(71)<b>Name of Applicant :</b><br/> <b>1)Dr. Bidrohi Bhattacharjee</b><br/> Address of Applicant :Assistant Professor, Budge Budge Institute of Technology, Nishchintapur, Budge Budge, West Bengal - 700137, India . -----<br/> <b>2)Ms. Sudeshna Nath</b><br/> <b>3)Aditya Roy</b><br/> <b>4)Dipyaman Goswami</b><br/> <b>5)Dr. Suhas Deb</b><br/> <b>6)Ms. Priya Adak</b><br/> <b>7)Mr. Soumen Layek</b><br/> <b>8)Mr. Sandipan Patra</b><br/> <b>9)Shuvajit Jana</b><br/> <b>10)Subha Bhattacharya</b><br/> <b>Name of Applicant : NA</b><br/> <b>Address of Applicant : NA</b><br/> (72)<b>Name of Inventor :</b><br/> <b>1)Dr. Bidrohi Bhattacharjee</b><br/> Address of Applicant :Assistant Professor, Budge Budge Institute of Technology, Nishchintapur, Budge Budge, West Bengal - 700137, India . -----<br/> <b>2)Ms. Sudeshna Nath</b><br/> Address of Applicant :Assistant Professor, Budge Budge Institute of Technology, Nishchintapur, Budge Budge, West Bengal - 700137, India . -----<br/> <b>3)Aditya Roy</b><br/> Address of Applicant :Student, Budge Budge Institute of Technology, Nishchintapur, Budge Budge, West Bengal - 700137, India . ----<br/> <b>4)Dipyaman Goswami</b><br/> Address of Applicant :Assistant Professor, Ideal Institute of Engineering, Kalyani, Shilpanchal, P.O: Kalyani, District: Nadia West Bengal, India . -----<br/> <b>5)Dr. Suhas Deb</b><br/> Address of Applicant :Associate Professor, Hooghly Engineering and Technology College, Vivekananda Road, Pipulpati, P.O. &amp; Dist. Hooghly, West Bengal - 712103, India . -----<br/> <b>6)Ms. Priya Adak</b><br/> Address of Applicant :Assistant Professor, Budge Budge Institute of Technology, Nishchintapur, Budge Budge, West Bengal - 700137, India . -----<br/> <b>7)Mr. Soumen Layek</b><br/> Address of Applicant :Technical Assistant, Budge Budge Institute of Technology, Nishchintapur, Budge Budge, West Bengal - 700137, India . -----<br/> <b>8)Mr. Sandipan Patra</b><br/> Address of Applicant :Technical Assistant, Budge Budge Institute of Technology, Nishchintapur, Budge Budge, West Bengal - 700137, India . -----<br/> <b>9)Shuvajit Jana</b><br/> Address of Applicant :Student, Budge Budge Institute of Technology, Nishchintapur, Budge Budge, West Bengal - 700137, India . ----<br/> <b>10)Subha Bhattacharya</b><br/> Address of Applicant :Student, Jadavpur University, Raja S.C. Mallick Rd, Jadavpur, Kolkata, India . -----</p> |
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## (57) Abstract :

The increasing demand for electric vehicles (EVs), especially in rural and semi-urban regions, has underscored the critical need for efficient and accessible battery charging solutions. This project presents the design and implementation of a cost-effective, adjustable current control EV battery charger, specifically tailored for 12V lead-acid batteries used in small electric vehicles such as e-rickshaws and e-carts. The primary objective is to reduce charging time without compromising battery health, thereby enhancing operational uptime and income opportunities for EV operators. The proposed charger utilizes a transformer-based power supply, an LM358 operational amplifier for current regulation, and a high-power 2N3055 transistor for delivering controlled output. A current sensing resistor and voltage reference circuit provide real-time feedback, enabling precise current adjustment across multiple charging modes — eco, normal, and fast — through simple analog control. The charger operates initially in Constant Current (CC) mode and transitions to Constant Voltage (CV) mode as the battery nears full charge, ensuring safe and efficient charging. Experimental validation demonstrates a 30–40% reduction in charging time compared to conventional chargers, with reliable performance under standard grid conditions. The system's modular design, low cost, and potential for solar integration make it an ideal solution for regions lacking robust charging infrastructure. The charger offers a scalable platform for future enhancements, including lithium-ion battery support and smart microcontroller-based control. Fig. 1

No. of Pages : 22 No. of Claims : 1

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :20/06/2025

(21) Application No.202531059275 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : A SYSTEM AND METHOD FOR LOAN RISK ASSESSMENT USING ADAPTIVE MATHEMATICAL MODELING WITH INTEGRATED POLITICAL-ECONOMIC INDICATORS

(51) International classification :G06Q40/00, G06Q40/03, G06Q40/02, G06Q40/08  
(86) International Application No :NA  
Filing Date :NA  
(87) International Publication No : NA  
(61) Patent of Addition to Application Number :NA  
Filing Date :NA  
(62) Divisional to Application Number :NA  
Filing Date :NA

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**3)Dr. Runumoni Lahkar Das**

**4)Hemanta Kr. Deka**

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(57) Abstract :

[033] The present invention relates to a system and method for adaptive loan risk assessment using mathematical modeling and integrated political-economic indicators. It utilizes real-time and historical data, including financial transactions, income patterns, credit history, and macroeconomic variables, to dynamically evaluate borrower risk. A combination of advanced algorithms—such as time series analysis, Markov models, logistic regression, support vector machines, Bayesian inference, and neural networks—enables the generation of a Personalized Dynamic Risk Score (PDRS) that evolves with new data inputs. The system features an explainable AI layer to ensure transparency and regulatory compliance, and it includes a decision support interface that offers risk trend visualization and lending recommendations. The invention enhances the accuracy, adaptability, and fairness of credit evaluation processes in banking and financial environments. Accompanied Drawing [FIGS. 1-2]

No. of Pages : 20 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202531059314 A

(19) INDIA

(22) Date of filing of Application :20/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : A Lead-Free Cs<sub>3</sub>Bi<sub>2</sub>I<sub>9</sub>-Based Resistive Switching Memory Device Fabricated Using a Sequential Spin-Coating Method

|                                               |                                                                                 |                                                                                                                                                                                                      |
|-----------------------------------------------|---------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (51) International classification             | :H10N0070000000, H10N0070200000, B82Y0010000000, H10B0063000000, H01L0029660000 | (71)Name of Applicant :<br><b>1)National Institute of Technology Durgapur</b><br>Address of Applicant :M G Avenue, Durgapur, West Bengal, 713209 Durgapur -----                                      |
| (86) International Application No             | :NA                                                                             | Name of Applicant : NA                                                                                                                                                                               |
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(57) Abstract :

A Lead-Free Cs<sub>3</sub>Bi<sub>2</sub>I<sub>9</sub>-Based Resistive Switching Memory Device Fabricated Using a Sequential Spin-Coating Method The present invention (200) is a lead-free resistive switching memory device utilizing Cs<sub>3</sub>Bi<sub>2</sub>I<sub>9</sub> (107), an inorganic halide perovskite, fabricated via a cost-effective sequential spin-coating technique. The present deposition method employs two distinct precursor solutions to precisely control iodine vacancy distribution, leading to ultra-low operating voltage at 0.28V and enhanced device stability. The fabricated device exhibits bipolar resistive switching behaviour, reliably transitioning between high-resistance and low-resistance states, making it ideal for non-volatile memory applications. It demonstrates excellent endurance, retaining 36.35% of its original memory after 100 cycles, ensuring reliable performance for long-term data storage. Figure 1 and Figure 2

No. of Pages : 20 No. of Claims : 7

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202531059334 A

(19) INDIA

(22) Date of filing of Application :20/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : A SPIROOXINDOLE DERIVATIVE AS POTENTIAL ANTICANCER AGENT AND METHOD OF PREPARATION THEREOF

(51) International classification :C07D471/04, C07D249/08, A61K31/17,  
C07D487/10, C07D491/20, A61P35/00

(86) International Application :NA

No :NA

Filing Date :NA

(87) International Publication : NA

No :NA

(61) Patent of Addition to :NA

Application Number :NA

Filing Date :NA

(62) Divisional to Application :NA

Number :NA

Filing Date :NA

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(57) Abstract :

The present invention relates to a spirooxindole derivatives as a potential anticancer agent comprising of the formula (I) and process for preparation thereof. Particularly, the invention relates to a novel, efficient, and environmentally benign method for the synthesis of 3,4-dihydrobenzo[b]acridine-1,6,11(2H,5H,12H)-trione fused spirooxindole derivatives, which exhibit significant anticancer activity. The invention offers a cost-effective, scalable, and green synthetic route to structurally novel hybrid molecules with promising anticancer potential, thereby making it suitable for pharmaceutical development.

No. of Pages : 21 No. of Claims : 6

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :20/06/2025

(21) Application No.202531059368 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : Integrated Satellite and Edge AI System for Predicting Agricultural Yields at Scale

(51) International classification :G06N0020000000, A01B0079000000, G06Q0050020000, H04L0067120000, G06V0020100000  
(86) International Application No :NA  
Filing Date :NA  
(87) International Publication No : NA  
(61) Patent of Addition to Application Number :NA  
Filing Date :NA  
(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

The proposed invention, "Integrated Satellite and Edge AI System for Predicting Agricultural Yields at Scale," presents a cutting-edge computational framework that leverages the synergy between satellite remote sensing and edge-based artificial intelligence to forecast agricultural yields with high accuracy, scalability, and timeliness. This system integrates multi-spectral and hyperspectral data from satellites with real-time, ground-level data collected via edge devices such as drones, IoT sensors, and smart agricultural equipment. By employing advanced AI models—including federated learning, deep learning, and spatiotemporal analysis—directly at the edge, the system minimizes latency, enhances data privacy, and ensures robust predictions even in connectivity-constrained rural regions. The integration enables a continuous learning loop where local edge models refine global models using localized environmental, crop, and soil parameters. This hybrid framework not only reduces reliance on central cloud processing but also enables farmers, agronomists, and policymakers to receive accurate yield estimates, crop health diagnostics, and risk alerts in near real-time. Moreover, the solution is scalable across diverse agro-climatic zones, adaptable to various crop types, and capable of supporting precision agriculture, sustainable farming practices, and food supply chain resilience. Through its data-driven insights, the system aims to enhance food security, optimize resource utilization, and mitigate the risks of crop failures due to climate variability.

No. of Pages : 12 No. of Claims : 10



(12) PATENT APPLICATION PUBLICATION

(21) Application No.202531059681 A

(19) INDIA

(22) Date of filing of Application :21/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : "An Electric Three-Wheeler For Easy Commute"

(51) International  
classification

:B62K0005027000, A61B0005000000,  
B62K0005050000, B62K0005100000,  
B62K0005080000

(86) International  
Application No  
Filing Date

:NA  
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Publication No

: NA

(61) Patent of Addition to  
Application Number  
Filing Date

:NA  
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(62) Divisional to  
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(57) Abstract :

The present invention relates to an electric three-wheeler vehicle designed for efficient, eco-friendly transportation in urban and semi-urban environments. The vehicle features a three-wheel configuration with a single front steering wheel and two rear wheels, combining the maneuverability of a motorcycle with the stability of a car. It is powered by a 900W Brushless DC (BLDC) motor with a peak output of up to 2.4 kW, driven by a 48V 40Ah battery. The chassis is constructed using a mix of handmade and recycled components to reduce manufacturing cost and environmental impact. Key features include a lightweight frame, chain-sprocket drive system, mono-shock suspension, integrated electrical systems, and modular battery capability. Additional functionalities such as a voltage booster, onboard diagnostics, and optional solar charging or IoT connectivity enhance performance, reliability, and scalability. The invention offers a low-cost, low-maintenance alternative to traditional fuel-powered three-wheelers, supporting sustainable mobility and addressing the transportation needs of emerging markets.

No. of Pages : 15 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :21/06/2025

(21) Application No.202531059684 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : Leveraging Swin-Transformer for Robust Image Quality Assessment in Retinal Vessel Segmentation

(51) International classification :G06T0007000000, G06T0007110000, G06N0003080000, G06V0010820000, A61P0027020000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

“ Leveraging Swin-Transformer for Robust Image Quality Assessment in Retinal Vessel Segmentation” The present invention demonstrates that precise segmentation of retinal vessels is vital for detecting abnormalities in the vascular network of the retina, which can aid in the early detection and treatment of conditions like diabetic retinopathy and age-related macular degeneration. Nevertheless, the accuracy of the vessel segments maps can greatly affect the precision of disease detection and diagnosis. Therefore, improving the image quality assessment for retinal vessel segmentation is important for utmost importance. The Swin transformer is a latest in deep learning structure possesses with as shown leading performance in image classification and object detection tasks. The key innovation of our method is the incorporation of the Swin transformer into the conventional U-Net architecture, which is extensively utilized for retinal vessel segmentation. This integration enables the model to better capture long-range dependencies in the retinal image and refine the segmentation results. To assess the image quality, we first extract the retinal vessel map using U-Net. Next, we process the segmented vessels through the Swin-transformer, which creates a high-quality vessel map by refining the initial segmentation. The said model obtained 95.65% accuracy, 97.02% precision, 93.19% recall and 94.82% f1-score. Fig. 1 (to be published with this figure)

No. of Pages : 13 No. of Claims : 10

(54) Title of the invention : "Compact and efficient hydrogen gas generator for clean energy applications"

|                                                                                                                                                                                                                                                                                                                                                                                                               |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <div>(51) International classification :C25B0001040000, F02M0025120000, C25B0015020000, C01B0003040000, C25B0015000000</div> <div>(86) International Application No :NA<br/>Filing Date :NA</div> <div>(87) International Publication No : NA</div> <div>(61) Patent of Addition to Application Number :NA<br/>Filing Date :NA</div> <div>(62) Divisional to Application Number :NA<br/>Filing Date :NA</div> |  | <div>(71)Name of Applicant :<br/><b>1)JIS COLLEGE OF ENGINEERING</b><br/>Address of Applicant :Block A, Phase III, Dist. Nadia, Kalyani, West Bengal-741235 Kalyani -----<br/><b>Name of Applicant : NA</b><br/><b>Address of Applicant : NA</b></div> <div>(72)Name of Inventor :<br/><b>1)PRITAM SINGH</b><br/>Address of Applicant :Undergraduate Student, JIS College of Engineering Block A, Phase III Kalyani West Bengal India 741235 Kalyani -----<br/><b>2)SANDIP GHOSH</b><br/>Address of Applicant :Professor, JIS College of Engineering Block A, Phase III Kalyani West Bengal India 741235 Kalyani -----<br/><b>3)PRITAM SAHA</b><br/>Address of Applicant :Undergraduate Student, JIS College of Engineering Block A, Phase III Kalyani West Bengal India 741235 Kalyani -----<br/><b>4)SUMAN MANDAL</b><br/>Address of Applicant :Undergraduate Student, JIS College of Engineering Block A, Phase III Kalyani West Bengal India 741235 Kalyani -----<br/><b>5)DEBANJAN SARKAR</b><br/>Address of Applicant :Undergraduate Student, JIS College of Engineering Block A, Phase III Kalyani West Bengal India 741235 Kalyani -----<br/><b>6)SANNIV BISWAS</b><br/>Address of Applicant :Undergraduate Student, JIS College of Engineering Block A, Phase III Kalyani West Bengal India 741235 Kalyani -----</div> |
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(57) Abstract :  
The invention relates to a compact and efficient hydrogen gas generator designed for clean energy applications. The system produces hydrogen through water electrolysis using a sealed electrolysis chamber containing stainless steel electrodes submerged in an alkaline electrolyte solution. Powered by a low-voltage DC supply with an integrated voltage booster and safety circuitry—including a miniature circuit breaker and cooling system—the generator ensures stable and safe hydrogen production. Hydrogen gas is collected in an airtight chamber via tubing equipped with non-return valves, enabling safe storage or direct use. The design emphasizes cost-effectiveness, portability, and scalability, making it suitable for educational purposes, renewable energy projects, and decentralized hydrogen fuel generation.

No. of Pages : 13 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202531059686 A

(19) INDIA

(22) Date of filing of Application :21/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : "Smart Helmet with Voice Assistance"

(51) International  
classification

:A42B0003040000, G08B0025010000,  
G07C0005000000, A42B0003300000,  
G08B0021020000

(86) International  
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:NA

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: NA

(61) Patent of Addition to  
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(57) Abstract :

The present invention relates to a smart helmet designed for enhanced rider safety, connectivity, and intelligent transport support. This wearable electronic system is integrated into a motorcycle helmet and features a microcontroller-based setup that allows real-time accident detection, hands-free communication, and live location tracking. The invention is powered by a rechargeable lithium-ion battery and includes essential components such as a Bluetooth module, GSM-SIM module, GPS module, accelerometer, gyroscope, microphone, and speaker, all working in tandem through a central ESP32 unit. The smart helmet uses the MPU6050 sensor to detect sudden impact or tilt and, when a crash is detected, sends an SOS alert with the rider's GPS coordinates via the GSM module to emergency contacts. In parallel, the Bluetooth system allows the user to answer calls and interact with voice assistants without manual interference, improving road safety. Designed for modern urban users, this helmet supports IoT-based expansion for diagnostics, cloud syncing, and fleet management. The internal electronics are housed in a lightweight casing and powered through a compact charging system via USB-C, with options for solar add-ons. Additional features include LED indicators for signaling. This invention addresses critical safety gaps in two-wheeler mobility and offers a comprehensive, cost-effective, and scalable solution for smart mobility gear, especially in emerging markets where road safety and tech adoption are critical.

No. of Pages : 10 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

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(21) Application No.202531059690 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : "Retinal Fundus Image and Visual Impairment Classification via ResNet-50 Fine-Tuning and Single Shot Detection Method"

(51) International classification :G06N0003080000, G06N0003045000, G06V0010820000, A61B0003140000, G06N0020000000

(86) International Application No :NA  
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(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

“ Retinal Fundus Image and Visual Impairment Classification via ResNet-50 Fine-Tuning and Single Shot Detection Method In this paper, we put forward a single-shot deep image prior (DIP)-based approach for retinal image enhancement. Unlike typical deep learning-based approaches, our method does not require any training data. Instead, our DIP-based method can learn the underlying image prior while using a single degraded image. Employing the ResNet-50 architecture and the Single Shot Detector (SSD) methodology, we have developed a robust model, meticulously fine-tuning several parameters to optimize performance. Our approach utilizes a diverse dataset of retinal fundus images categorized into four classes: diabetic retinopathy, glaucoma, cataracts, and normal vision. The model achieved an accuracy of 92%, marking a noteworthy increase as compared to the previous benchmark. This advancement underscores the potential of our deep learning system to facilitate timely and accurate diagnosis of eye disorders, ultimately contributing to better patient outcomes and effective prevention strategies for visual impairment. The Single Shot MultiBox Detector (SSD) is one of the fastest algorithms in the current target detection field. It has achieved good results in target detection but there are problems such as poor extraction of features in shallow layers and loss of features in deep layers. In this paper, we propose an accurate and efficient target detection method, named Single Shot Object Detection with Feature Enhancement and Fusion (FFESSD), which is to enhance and exploit the shallow and deep features in the feature pyramid structure of the SSD algorithm. To achieve it we introduced the Feature Fusion Module and two Feature Enhancement Modules, and integrated them into the conventional structure of the SSD. Fig. 1 (to be published with this figure)

No. of Pages : 14 No. of Claims : 10

(54) Title of the invention : High-Performance Electric Bike Built from Recycled Motorcycle Frame

|                                               |                                                                                 |                                                                                                                                                                    |
|-----------------------------------------------|---------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (51) International classification             | :B60L0015200000, B62K0011040000, H01M0010052500, G10L0015220000, G16Z0099000000 | (71)Name of Applicant :<br><b>1)JIS COLLEGE OF ENGINEERING</b><br>Address of Applicant :Block A, Phase III, Dist. Nadia, Kalyani, West Bengal-741235 Kalyani ----- |
| (86) International Application No             | :NA                                                                             | <b>Name of Applicant : NA</b>                                                                                                                                      |
| Filing Date                                   | :NA                                                                             | <b>Address of Applicant : NA</b>                                                                                                                                   |
| (87) International Publication No             | : NA                                                                            | (72)Name of Inventor :                                                                                                                                             |
| (61) Patent of Addition to Application Number | :NA                                                                             | <b>1)PRITAM SINGH</b>                                                                                                                                              |
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| (62) Divisional to Application Number         | :NA                                                                             | <b>2)SANDIP GHOSH</b>                                                                                                                                              |
| Filing Date                                   | :NA                                                                             | Address of Applicant :Professor, JIS College of Engineering Block A, Phase III Kalyani West Bengal India 741235 Kalyani -----                                      |

(57) Abstract :  
The invention relates to a high-performance electric motorcycle constructed using a salvaged internal combustion engine (ICE) motorcycle frame and predominantly recycled or repurposed components. The electric motorcycle features a 15kW peak brushless DC (BLDC) motor and a 72V 60Ah lithium-ion battery pack, enabling a top speed of up to 180 km/h and a range of up to 150 km on a single charge. An advanced vector motor controller with regenerative braking ensures efficient energy management and dynamic ride modes. Additional features include a modular drivetrain for easy upgrades, a TFT digital dashboard with real-time performance monitoring, dual disc brakes with optional ABS, and aerodynamic winglets made from recycled fiberglass. The system is further enhanced by smart helmet integration supporting Bluetooth and voice control. Designed to offer both performance and sustainability, the invention provides a cost-effective, eco-conscious alternative to conventional petrol motorcycles while maintaining high-speed capabilities and rider safety.

No. of Pages : 13 No. of Claims : 10

(54) Title of the invention : "MEDIFINDER: Geospatial Healthcare Access Platform with Integrated Blood Donor Registry"

|                                                                                                                                                                                                                                                                                                                                                                                                               |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
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| <div>(51) International classification :H04L0009400000, G16H0040200000, G16H0010600000, G06F0021620000, G06F0021100000</div> <div>(86) International Application No :NA<br/>Filing Date :NA</div> <div>(87) International Publication No : NA</div> <div>(61) Patent of Addition to Application Number :NA<br/>Filing Date :NA</div> <div>(62) Divisional to Application Number :NA<br/>Filing Date :NA</div> |  | <div>(71)Name of Applicant :<br/>1)JIS UNIVERSITY<br/>Address of Applicant :81, NILGUNJ RD, JAGARATA PALLY, DESHPRIYA NAGAR, KOLKATA 700109, WEST BENGAL, INDIA KOLKATA -----</div> <div>Name of Applicant : NA<br/>Address of Applicant : NA</div> <div>(72)Name of Inventor :<br/>1)DR. RAJESH BOSE<br/>Address of Applicant :Professor, DEPARTMENT OF COMPUTER SCIENCE &amp; ENGINEERING, JIS UNIVERSITY, 81, NILGUNJ RD, JAGARATA PALLY, DESHPRIYA NAGAR, KOLKATA 700109, WEST BENGAL, INDIA KOLKATA -----</div> <div>2)MS. SHRABANI SUTRADHAR<br/>Address of Applicant :Ph.D. Scholar , DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING , DIBRUGARH UNIVERSITY INSTITUTE OF ENGINEERING AND TECHNOLOGY (DUIET), , DIBRUGARH UNIVERSITY, DIBRUGARH-786004, ASSAM, INDIA DIBRUGARH -----</div> <div>3)DR. SANDIP ROY<br/>Address of Applicant :Professor, DEPARTMENT OF COMPUTER SCIENCE &amp; ENGINEERING, JIS UNIVERSITY, 81, NILGUNJ RD, JAGARATA PALLY, DESHPRIYA NAGAR, KOLKATA 700109, WEST BENGAL, INDIA KOLKATA -----</div> |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

(57) Abstract :  
“MEDIFINDER: Geospatial Healthcare Access Platform with Integrated Blood Donor Registry” ABSTRACT Medifinder is an innovative healthcare access platform that addresses key limitations of traditional systems—such as fragmented service discovery, inefficient scheduling, poor emergency coordination, and limited accessibility—by leveraging the MERN stack (MongoDB, Express.js, React.js, Node.js) and real-time geolocation services. It features a responsive React.js frontend with Tailwind CSS, a secure Node.js/Express.js backend with JWT-based multi-role authentication, and scalable MongoDB data management. The platform enables real-time, proximity-based healthcare facility discovery with navigation support, intelligent appointment scheduling with conflict prevention, and an emergency-ready blood donor registry with automated blood type matching and availability tracking. Advanced search filters by specialty, location, and services, while HIPAA-compliant data handling, encrypted transmission, and role-based access control ensure privacy and security. With sub-2-second search response times, 99.8% authentication success, and seamless real-time scheduling, medifinder offers a user-friendly, scalable, and cost-effective solution that improves healthcare accessibility, enhances emergency response, and streamlines service delivery for patients, providers, and administrators. To be published with Fig. 1

No. of Pages : 30 No. of Claims : 10

(54) Title of the invention : ECCRC4c HYBRID CRYPTOGRAPHIC SYSTEM

|                                                                                                                                                                                                                                                                                                                          |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
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| <div>(51) International classification</div> <div>(86) International Application No</div> <div>(87) International Publication No</div> <div>(61) Patent of Addition to Application Number</div> <div>(62) Divisional to Application Number</div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> |  | <div>(71)Name of Applicant :</div> <div>1)JIS UNIVERSITY</div> <div>Address of Applicant :81, NILGUNJ RD, JAGARATA PALLY, DESHPRIYA NAGAR, KOLKATA 700109, WEST BENGAL, INDIA KOLKATA -----</div> <div>-----</div> <div>Name of Applicant : NA</div> <div>Address of Applicant : NA</div> <div>(72)Name of Inventor :</div> <div>1)DR. RAJESH BOSE</div> <div>Address of Applicant :Professor, DEPARTMENT OF COMPUTER SCIENCE &amp; ENGINEERING, JIS UNIVERSITY, 81, NILGUNJ RD, JAGARATA PALLY, DESHPRIYA NAGAR, KOLKATA 700109, WEST BENGAL, INDIA KOLKATA -----</div> <div>2)MS. SHRABANI SUTRADHAR</div> <div>Address of Applicant :Ph.D. Scholar , DEPARTMENT OF COMPUTER SCIENCE &amp; ENGINEERING, DIBRUGARH UNIVERSITY INSTITUTE OF ENGINEERING AND TECHNOLOGY (DUIET), DIBRUGARH UNIVERSITY, DIBRUGARH-786004, ASSAM, WEST BENGAL, INDIA DIBRUGARH -----</div> <div>-----</div> <div>3)DR. SANDIP ROY</div> <div>Address of Applicant :Professor, DEPARTMENT OF COMPUTER SCIENCE &amp; ENGINEERING, JIS UNIVERSITY, 81, NILGUNJ RD, JAGARATA PALLY, DESHPRIYA NAGAR, KOLKATA 700109, WEST BENGAL, INDIA KOLKATA -----</div> <div>-----</div> |
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(57) Abstract :  
“ ECCRC4c HYBRID CRYPTOGRAPHIC SYSTEM ” ABSTRACT The ECCRC4c hybrid cryptographic system represents a breakthrough innovation in healthcare IoT data security, combining Elliptic Curve Cryptography (ECC) with enhanced RC4c symmetric encryption to eliminate secret key exchange vulnerabilities while achieving unprecedented performance improvements. The invention addresses critical security limitations in urban healthcare IoT infrastructure by implementing a novel four-stage encryption process that integrates asymmetric and symmetric cryptographic strengths. The system generates ephemeral ECC key pairs and computes shared secrets using the elliptic curve Diffie-Hellman protocol, eliminating the need for secret key transmission. The computed shared secret directly initializes an enhanced RC4c algorithm featuring 2's complement addition and left-shifting operations for improved security. The mathematical framework  $C = (M \oplus R) \cdot S + P\_k$  combines XOR-based symmetric encryption efficiency with elliptic curve scalar multiplication security. Extensive testing demonstrates remarkable performance achievements: 89.9% reduction in computation time (0.5942 vs 1.8549 seconds), 94.6% improvement in throughput (0.71355 vs 0.215642 kbps), and enhanced security level (132 vs 120 bits) compared to traditional DESRSA implementations. The system supports real-time healthcare applications while reducing energy consumption in battery-powered IoT devices. The invention's modular architecture facilitates integration with existing healthcare infrastructure while providing scalable deployment capabilities for urban smart city environments. Forward secrecy through ephemeral key generation and resistance to known cryptographic attacks ensure long-term security viability. The ECCRC4c system establishes new standards for efficient, secure healthcare data transmission in IoT environments.

No. of Pages : 22 No. of Claims : 10



(54) Title of the invention : HateSentry: Intelligent Real-Time Hate Speech Detection System Using XGBoost Machine Learning

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|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <div><div>(51) International classification</div><div>:G06F40/284, G10L15/08, G06F40/30, G06F40/00</div></div> <div><div>(86) International Application No</div><div>:NA</div><div>Filing Date</div><div>:NA</div></div> <div><div>(87) International Publication No</div><div>: NA</div></div> <div><div>(61) Patent of Addition to Application Number</div><div>:NA</div><div>Filing Date</div><div>:NA</div></div> <div><div>(62) Divisional to Application Number</div><div>:NA</div><div>Filing Date</div><div>:NA</div></div> | <div><div>(71)Name of Applicant :</div><div>1)JIS UNIVERSITY</div><div>Address of Applicant :81, NILGUNJ RD, JAGARATA PALLY, DESHPRIYA NAGAR, KOLKATA 700109, WEST BENGAL, INDIA KOLKATA -----</div><div>-----</div><div>Name of Applicant : NA</div><div>Address of Applicant : NA</div><div>(72)Name of Inventor :</div><div>1)DR. RAJESH BOSE</div><div>Address of Applicant :Professor, DEPARTMENT OF COMPUTER SCIENCE &amp; ENGINEERING, JIS UNIVERSITY, 81, NILGUNJ RD, JAGARATA PALLY, DESHPRIYA NAGAR, KOLKATA 700109, WEST BENGAL, INDIA KOLKATA -----</div><div>2)MS. SHRABANI SUTRADHAR</div><div>Address of Applicant :Ph.D. Scholar , DEPARTMENT OF COMPUTER SCIENCE &amp; ENGINEERING, DIBRUGARH UNIVERSITY INSTITUTE OF ENGINEERING AND TECHNOLOGY (DUIET), DIBRUGARH UNIVERSITY, DIBRUGARH-786004, ASSAM, WEST BENGAL, INDIA DIBRUGARH -----</div><div>-----</div><div>3)DR. SANDIP ROY</div><div>Address of Applicant :Professor, DEPARTMENT OF COMPUTER SCIENCE &amp; ENGINEERING, JIS UNIVERSITY, 81, NILGUNJ RD, JAGARATA PALLY, DESHPRIYA NAGAR, KOLKATA 700109, WEST BENGAL, INDIA KOLKATA -----</div><div>4)MR. RAKTIM KR. DEY</div><div>Address of Applicant :Ph.D. Scholar, DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING, UNIVERSITY OF KALYANI, BLOCK C, KALYANI-741235, NADIA, WEST BENGAL, INDIA. KALYANI -----</div><div>-----</div><div>5)MR. INDRANIL SARKAR</div><div>Address of Applicant :Assistant Professor, DEPARTMENT OF COMPUTER APPLICATIONS, GURU NANAK INSTITUTE OF TECHNOLOGY, PANIHATI, SODEPUR, KOLKATA-700114, WEST BENGAL, INDIA PANIHATI -----</div><div>6)DR. DEBABRATA SARDDAR</div><div>Address of Applicant :DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING, UNIVERSITY OF KALYANI, BLOCK C, KALYANI-741235, NADIA, WEST BENGAL, INDIA KALYANI -----</div><div>-----</div></div> |
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(57) Abstract :  
“HateSentry: Intelligent Real-Time Hate Speech Detection System Using XGBoost Machine Learning” ABSTRACT Traditional content moderation systems face limitations such as manual review bottlenecks, inconsistent accuracy, and poor scalability. To overcome these challenges, we present an Automated Hate Speech Detection System leveraging XGBoost—a robust ensemble learning algorithm—for accurate, scalable, and interpretable content classification. The system employs advanced preprocessing (normalization, tokenization, noise removal) and multi-dimensional feature engineering, including bag-of-words, TF-IDF, n-grams, and word embeddings, to capture lexical and contextual nuances. Optimized via grid search and cross-validation, the XGBoost model incorporates regularization to prevent overfitting and feature importance analysis for transparency. Experimental results demonstrate 85% accuracy, 82% precision, 88% recall, and an 85% F1-score, outperforming traditional classifiers and rivaling deep learning models with greater training efficiency. The system supports real-time processing of 10,000+ posts/minute with sub-second response times and a scalable, memory-efficient architecture. Its modular design enables seamless integration with existing platforms and supports future extensions such as multilingual detection and deep learning enhancements. This solution offers a cost-effective, high-performance approach to automated hate speech moderation at scale. To be published with Fig. 1

No. of Pages : 23 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :23/06/2025

(21) Application No.202531059726 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : SYSTEM AND METHOD FOR PROVIDING REAL-TIME INSIGHTS TO USER

|                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>(51) International classification :G06N0020000000, G06F0003010000, G08B0021040000, H04W0004900000, G06N0003080000</p> <p>(86) International Application No :NA<br/>Filing Date :NA</p> <p>(87) International Publication No : NA</p> <p>(61) Patent of Addition to Application Number :NA<br/>Filing Date :NA</p> <p>(62) Divisional to Application Number :NA<br/>Filing Date :NA</p> | <p>(71)<b>Name of Applicant :</b><br/><b>1)Akumen Artificial Intelligence Private Limited</b><br/>Address of Applicant :Koirengei Achanbigai Road, Imphal, Manipur-795002, India. Imphal -----</p> <p><b>Name of Applicant : NA</b><br/><b>Address of Applicant : NA</b></p> <p>(72)<b>Name of Inventor :</b><br/><b>1)Thiyam Akuvan</b><br/>Address of Applicant :Uripok Ningthoukhongjam Leikai, Imphal, Manipur-795001, India. Imphal -----</p> <p><b>2)Gyanendro Khomdram</b><br/>Address of Applicant :Singjamei Thongam Leikai, Lane 4, Imphal West, India. Imphal -----</p> <p><b>3)Thoudam Kheljeet Singh</b><br/>Address of Applicant :Khoyathong Polem leikai, opp. ABC Godown, Imphal West, Manipur, India. Imphal -----</p> <p><b>4)Oinam Roshan</b><br/>Address of Applicant :Naoremthong Khullem Leikai, Imphal, Manipur-795004, India. Imphal -----</p> <p><b>5)Phijam Nongthanganba</b><br/>Address of Applicant :Awang Wabagai, Potsangbam Khoiru, Imphal West, Manipur, India Imphal -----</p> |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

(57) Abstract :

ABSTRACT SYSTEM AND METHOD FOR PROVIDING REAL-TIME INSIGHTS TO USER The present invention discloses a system and a method for providing real-time insights to a user. The system (102) obtains real-time sensor data. The system (102) preprocesses the obtained real-time sensor data. The system (102) analyses the real-time sensor data through machine learning models and artificial intelligence models. The system (102) recognises obstacles in an environmental space. The system (102) generates contextual responses for the user. The system (102) provides processed feedback data including real-time haptic feedback and audio feedback. The system (102) detects abrupt motion changes indicative of a fall event. The system (102) provides an optimized processing performance on edge devices (124) and servers (132). The system (102) transmits alert notifications to preregistered emergency contacts upon detection of the abrupt motion changes. The system (102) transfers the processed feedback data for providing the real-time in

No. of Pages : 62 No. of Claims : 10

(54) Title of the invention : SYSTEM AND METHOD FOR ADAPTIVE FRACTIONAL-ORDER STATE OF CHARGE ESTIMATION IN LITHIUM-ION BATTERIES

|                                                                                                                                                                                                                                                                                                                                                                                                                                    |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
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| <div>(51) International classification :G01R0031367000, G01N0021710000, G01R0031384200, G01R0031387000, H01M0010052500</div> <div>(86) International Application No :NA</div> <div>Filing Date :NA</div> <div>(87) International Publication No : NA</div> <div>(61) Patent of Addition to Application Number :NA</div> <div>Filing Date :NA</div> <div>(62) Divisional to Application Number :NA</div> <div>Filing Date :NA</div> |  | <div>(71)Name of Applicant :<br/><b>1)National Institute of Technology, Patna</b><br/>Address of Applicant :National Institute of Technology Patna, Ashok Rajpath, Patna-800005 Bihar, India. Patna -----<br/><b>Name of Applicant : NA</b><br/><b>Address of Applicant : NA</b><br/>(72)Name of Inventor :<br/><b>1)KUMAR, Amitesh</b><br/>Address of Applicant :National Institute of Technology Patna, Ashok Rajpath, Patna - 800005, Bihar, India. Patna -----<br/><b>2)BERA, Chinmay</b><br/>Address of Applicant :National Institute of Technology Patna, Ashok Rajpath, Patna - 800005, Bihar, India. Patna -----<br/><b>3)MANDAL, Rajib Kumar</b><br/>Address of Applicant :National Institute of Technology Patna, Ashok Rajpath, Patna - 800005, Bihar, India. Patna -----</div> |
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(57) Abstract :

The present invention relates to a system (100) and method (400) for estimating the State of Charge (SOC) of lithium-ion batteries (LIBs) with high precision. The system (100) employs a Fractional-Order Model (FOM) (103) to capture the dynamic behaviour of the battery using fractional-order derivative theory. The captured parameters are processed by a hybrid Manta Ray Foraging Optimization with Differential Evolution (MRFODE) (102), combining Manta Ray Foraging Optimization (MRFO) for broad exploration of parameter values and Differential Evolution (DE) for refinement and convergence. The fine-tuned parameters are further utilized by a FO-ARICKF algorithm, which dynamically analyzes real-time data and compensates for errors using an adaptive noise covariance matrix. This comprehensive approach ensures accurate SOC estimation by addressing challenges such as measurement noise, sensor drift, and initialization errors, enabling enhanced performance and reliability under diverse operating conditions. The method (400) is particularly suited for real-world battery management applications. (to be published with Figure 1)

No. of Pages : 51 No. of Claims : 8

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202531059906 A

(19) INDIA

(22) Date of filing of Application :23/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : Folded Substrate Integrated Waveguide Derived Specially Designed Microwave Rotary Sensor

(51) International classification :A61M0005315000, H04J0003060000, G11B0020100000, G06F0001000000, H04R0003120000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

Angular movement of mechanical components is one of the key operations among most of the modern day machines utilized in various sectors including automation, transportation, domestic, and industry. For this purpose, the present invention introduces a microwave technology motivated rugged, more sustainable and better performance delivering rotary sensor (100) for precise measurements of angular movements. The proposed sensor utilizes the combination of two components – stator and rotor. The stator is basically substrate integrated waveguide derived entity while rotor is a resonating element. This novel folded SIW derived microwave rotary sensor is able to sense high dynamic range of angles for 140°, providing better linearity and on the top, best sensitivity of around 7.97 MHz/° compared to most of the available literature till date. [Figure 5]

No. of Pages : 22 No. of Claims : 6

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202531059938 A

(19) INDIA

(22) Date of filing of Application :23/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : Gravity-Assisted Self-Balancing Roller Enabled Modular Ramp for Safe Manual Load Transport on Stairs

(51) International classification :B66B0009080000, E04F0011180000, B65G0007040000, E04F0011020000, E04F0011000000

(86) International Application No :NA

Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA

Filing Date :NA

(62) Divisional to Application Number :NA

Filing Date :NA

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(57) Abstract :

Gravity-Assisted Self-Balancing Roller Ramp for Safe Manual Load Transport on Stairs The invention relates to a gravity-assisted, self-balancing roller ramp system designed for safe, manual transportation of heavy loads on staircases without the need for electrical power or complex mechanisms. This energy-efficient system incorporates pivot-mounted rollers that automatically orient based on gravity, ensuring consistent load handling during both ascent and descent. The ramp features semi-cylindrical rollers for inclined sections and hemispherical rollers for landing platforms, each with dual-surface friction profiles—smooth circular faces to ease uphill movement and textured flat faces to provide passive braking during downhill movement. The rollers' self-righting mechanism ensures the system maintains optimal performance without requiring motors, sensors, or batteries. This modular design enables easy adaptation to various stair geometries and allows seamless transitions between slope and landing sections. Made from corrosion-resistant aluminum alloys and high-performance polymers, the system is easy to install, low-maintenance, and durable. Ideal for use in residential, healthcare, public, and light-industrial environments, the system enhances accessibility for elderly, mobility-impaired individuals, and facilitates moving tasks in multi-story buildings where elevators are unavailable. The invention provides a low-cost, sustainable, and energy-efficient alternative to powered stairlifts or motorized conveyors, addressing the gap in existing assistive technologies.

No. of Pages : 18 No. of Claims : 1

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :23/06/2025

(21) Application No.202531059976 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : IoT ENABLED SMART PATIENT HEALTH MONITORING SYSTEM USING MACHINE LEARNING APPROACH

|                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>(51) International classification :A61B0005000000, A61B0005020500, A61B0005145500, A61B0005024000, A61B0005110000</p> <p>(86) International Application No :NA<br/>Filing Date :NA</p> <p>(87) International Publication No : NA</p> <p>(61) Patent of Addition to Application Number :NA<br/>Filing Date :NA</p> <p>(62) Divisional to Application Number :NA<br/>Filing Date :NA</p> | <p>(71)Name of Applicant :<br/><b>1)Guru Nanak Institute of Technology</b><br/>Address of Applicant :157/F Nilgunj Road, Panihati, Sodepur, Kolkata-700114<br/>Phone: +91 9432012683 Kolkata -----</p> <p><b>Name of Applicant : NA</b><br/><b>Address of Applicant : NA</b></p> <p>(72)Name of Inventor :<br/><b>1)Bapita Roy</b><br/>Address of Applicant :Guru Nanak Institute of Technology 157/F, Nilgunj Road, Panihati, Sodepur, Kolkata-700114 Kolkata -----</p> <p><b>2)Suparna Maity</b><br/>Address of Applicant :Guru Nanak Institute of Technology 157/F, Nilgunj Road, Panihati, Sodepur, Kolkata-700114 Kolkata -----</p> <p><b>3)Ravi Kumar</b><br/>Address of Applicant :Guru Nanak Institute of Technology 157/F, Nilgunj Road, Panihati, Sodepur, Kolkata-700114 Kolkata -----</p> <p><b>4)Shayak Chakraborty</b><br/>Address of Applicant :Guru Nanak Institute of Technology 157/F, Nilgunj Road, Panihati, Sodepur, Kolkata-700114 Kolkata -----</p> |
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(57) Abstract :

IoT ENABLED SMART PATIENT HEALTH MONITORING SYSTEM USING MACHINE LEARNING APPROACH ABSTRACT A smart health monitoring system is disclosed, which utilizes an IoT-enabled architecture integrated with machine learning models for real-time monitoring and prediction of a subject's health status. The system includes a pulse oximeter sensor, a temperature sensor, and an ECG sensor configured to acquire physiological parameters such as pulse rate, SpO<sub>2</sub> levels, body temperature, and ECG signals. A computing unit processes the data and transmits it to a cloud-based IoT platform for storage and visualization. Machine learning models, including XGBoost and CNN, analyze the data to classify the subject's condition as healthy or unhealthy. The system enables early detection of health abnormalities, real-time alerts, and remote access to health data. Graphical interfaces on the IoT platform display time-series trends, supporting proactive health management and remote diagnosis. [To be published with FIG. 1]

No. of Pages : 28 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :23/06/2025

(21) Application No.202531059977 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : Automated System for Cognitive State Assessment Through Handwriting Analysis

(51) International classification :G16H0050200000, G06N0003080000, A61B0005160000, A61B0005000000, G06V0030320000  
(86) International Application No :NA  
Filing Date :NA  
(87) International Publication No : NA  
(61) Patent of Addition to Application Number :NA  
Filing Date :NA  
(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

Automated System for Cognitive State Assessment Through Handwriting Analysis ABSTRACT A system and method of assessing cognitive or psychological states based on handwriting analysis are disclosed. The system includes a data acquisition module configured to receive handwriting input from scanned images, smart pens, or touchscreen devices. A preprocessing module performs grayscale conversion, adaptive thresholding, segmentation into lines, words, or characters, and outlier removal using interquartile range filtering. A feature extraction module derives handwriting features such as zone distribution, slant, pressure, size, spacing, stroke, and shape. A classification engine integrates a convolutional neural network for spatial analysis, a long short-term memory network for temporal patterns, and a Random Forest classifier to generate personality or cognitive state labels. An explainability module provides attention maps highlighting influential features. An output module displays predicted traits or conditions through a user interface. [To be published with FIG. 1]

No. of Pages : 29 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :23/06/2025

(21) Application No.202531059978 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : An Automated Natural Disaster Alert & Weather Prediction System

(51) International classification :G01W0001100000, G06Q0010063500, G16H0050300000, G06Q0050260000, G08B0031000000  
(86) International Application No :NA  
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(87) International Publication No : NA  
(61) Patent of Addition to Application Number :NA  
Filing Date :NA  
(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

An Automated Natural Disaster Alert & Weather Prediction System ABSTRACT An automated natural disaster alert and weather prediction system implemented as a mobile application is disclosed. The system comprises a processor and memory configured to execute instructions for displaying an interactive map interface, receiving user-selected location input, and retrieving real-time weather, geographic, and historical disaster data via secure APIs. A multi-factor risk assessment engine calculates a disaster risk score based on weighted environmental parameters and historical trends. The system displays color-coded risk markers, weather forecasts for 24- and 48-hour periods, and generates actionable alerts and safety recommendations. Additional modules include predictive modeling for various hazard types, offline processing, mobile optimization, and a risk communication engine prioritizing alerts by severity and proximity. The architecture ensures cross-platform compatibility, personalized user interaction, and continuous operation in low-connectivity scenarios. [To be published with FIG. 1]

No. of Pages : 28 No. of Claims : 10



(12) PATENT APPLICATION PUBLICATION

(21) Application No.202531059980 A

(19) INDIA

(22) Date of filing of Application :23/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : "NutriShe": A nutrient-rich, iron-fortified pellet for women

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| (51) International classification             | :A61K0036190000, A23L0033105000, A23L0002520000, A61K0036420000, A23L0033165000 | <b>Name of Applicant : NA</b><br><b>Address of Applicant : NA</b>                                                                                                      |
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| (62) Divisional to Application Number         | :NA                                                                             |                                                                                                                                                                        |
| Filing Date                                   | :NA                                                                             |                                                                                                                                                                        |

(57) Abstract :

A nutrient-rich pellet composition and method of preparing the same disclosed. The composition includes powdered extracts of banana pseudostem, pumpkin seeds, and kulekhara (*Hygrophila auriculata*), and is formulated into a pellet via a binder-free dry compression process. The pellet is iron-fortified and configured to improve haemoglobin levels and address nutritional deficiencies. The banana pseudostem provides dietary fiber and amino acids; the pumpkin seeds offer minerals and unsaturated fats; and the kulekhara extract delivers flavonoids and supports glycemic control. The method of preparation includes cleaning, drying (preferably in a tray dryer), grinding, sieving, and analyzing the powders, followed by ratio optimization using Response Surface Methodology, mixing, and pelletization. The raw materials may be sourced from food waste, offering a low-cost, sustainable approach to produce bioactive, health-promoting dietary supplements for women. [To be published with FIG. 2]

No. of Pages : 20 No. of Claims : 9

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :23/06/2025

(21) Application No.202531059981 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : SheRaksha: AI-Powered Women's Safety System

(51) International classification :H04W0004029000, G08B0025010000, H04M0003510000, H04W0004900000, G06Q0050260000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
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(57) Abstract :

A system and method of enabling AI-assisted personal safety for women in high-risk zones are disclosed. The system includes a processor and a memory storing executable instructions that enable multiple safety functions. A user registration module is configured to receive and store user details and emergency contacts. A real-time monitoring module includes a machine learning model that analyzes environmental and location-specific data to detect potential threats. A threat detection module generates alerts when the user enters predefined high-risk zones based on historical and real-time data. An emergency response module, comprising gesture and voice recognition subsystems, receives user-initiated inputs to trigger safety alerts. A communication interface transmits the alerts to emergency contacts and law enforcement. A dashboard analytics module generates visual reports on crime-prone zones and gender-specific incident distributions for use by safety agencies. [To be published with FIG. 2]

No. of Pages : 27 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :23/06/2025

(21) Application No.202531059982 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : NATUREGRAIN VITALSIP

(51) International classification :A23L0019000000, A23L0007100000, A23L0023100000, A23L0033210000, A23L0033105000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

NATUREGRAIN VITALSIP ABSTRACT An instant soup powder composition and method of preparation are disclosed. The composition includes a powdered millet component selected from finger millet, barnyard millet, and other nutritionally dense millets, combined with powdered cucumber peel dried under controlled conditions to retain dietary fiber, antioxidants, and bioactive compounds. The composition further includes powdered functional and flavoring ingredients such as dehydrated vegetable powders, coconut milk powder, salt, sugar, and spices like onion, garlic, ginger, and black pepper. The resulting soup mix is gluten-free, rich in polyphenols, and offers enhanced nutritional and antioxidant benefits. The method involves sequential processing steps including peeling, drying, grinding, mixing, and blending of selected ingredients using batch mixers, enabling the production of a shelf-stable, health-oriented, and easy-to-prepare fortified soup mix suitable for diverse dietary needs. [To be published with FIG. 1]

No. of Pages : 15 No. of Claims : 8

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202531059990 A

(19) INDIA

(22) Date of filing of Application :23/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : Reconfigurable Smart Antenna Beamformer for Secure Localization Applications

|                                                                                                                                                                                                                                                                                                                                                                                           |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>(51) International classification :H04B0007060000, H04B0007080000, H04W0016280000, H01Q0003260000, G06N0003006000</p> <p>(86) International Application No :NA<br/>Filing Date :NA</p> <p>(87) International Publication No : NA</p> <p>(61) Patent of Addition to Application Number :NA<br/>Filing Date :NA</p> <p>(62) Divisional to Application Number :NA<br/>Filing Date :NA</p> |  | <p>(71)<b>Name of Applicant :</b><br/><b>1)Guru Nanak Institute of Technology</b><br/>Address of Applicant :157/F Nilgunj Road, Panihati, Sodepur, Kolkata-700114<br/>Kolkata -----</p> <p><b>Name of Applicant : NA</b><br/><b>Address of Applicant : NA</b></p> <p>(72)<b>Name of Inventor :</b><br/><b>1)Swarup Kumar Mitra</b><br/>Address of Applicant :Department of ECE, Guru Nanak Institute of Technology, 157/F, Nilgunj Road, Kolkata-700114. Kolkata -----</p> <p><b>2)Rathindra Nath Biswas</b><br/>Address of Applicant :Department of ETCE, Central Calcutta Polytechnic, 21, Convent Road, Kolkata-700014. Kolkata -----</p> <p><b>3)Nirupam Saha</b><br/>Address of Applicant :Department of CSE, Guru Nanak Institute of Technology, 157/F, Nilgunj Road, Kolkata-700114 Kolkata -----</p> <p><b>4)Palasri Dhar</b><br/>Address of Applicant :Department of ECE, Guru Nanak Institute of Technology, 157/F, Nilgunj Road, Kolkata-700114. Kolkata -----</p> <p><b>5)Mrinal Kanti Naskar</b><br/>Address of Applicant :Department of ETCE, Jadavpur University, 188, Raja S.C. Mallick Road, Kolkata-700032 Kolkata -----</p> |
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(57) Abstract :

Reconfigurable Smart Antenna Beamformer for Secure Localization Applications ABSTRACT A beamforming system for a smart antenna is disclosed, which enables secure and precise beam pattern generation for wireless sensor networks. The system comprises a reference template module configured to define beam characteristics such as beamwidth, sidelobe level, and nulls in interference directions based on angle of arrival (AoA) data. A CORDIC module computes the array steering vector using binary arithmetic for efficient trigonometric operations. A PSO (Particle Swarm Optimization) module optimizes excitation weights of antenna elements by minimizing the deviation between the desired and actual beam patterns. These modules are interconnected via a multiplier and a subtractor; the multiplier synthesizes the actual pattern, while the subtractor computes the error to guide iterative optimization. The system facilitates reconfigurable, real-time beamforming with high interference rejection and directional precision. [To be published with FIG. 1]

No. of Pages : 27 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :23/06/2025

(21) Application No.202531059991 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : INTELLIGENT IOT-ASSISTED PHASE SELECTOR FOR THREE-PHASE ELECTRICAL NETWORKS

(51) International classification :H02J0003260000, H02J0009060000, G11C0016120000, G08G0001087000, G01R0029160000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

INTELLIGENT IOT-ASSISTED PHASE SELECTOR FOR THREE-PHASE ELECTRICAL NETWORKS ABSTRACT An IoT-enabled automatic phase selection system for a three-phase power input is disclosed. The system comprises a set of input switches for receiving three-phase supply lines, a corresponding set of transformers configured to step down voltage for each phase, and a phase detection circuit comprising diodes and relays to sense phase availability. A control unit, implemented using a processor and memory, receives analog voltage signals from the detection circuit and executes a predefined phase priority logic. Based on this logic, the control unit activates one of multiple output relays to route the available phase to a single-phase load. The system ensures uninterrupted power supply by automatically switching to an active phase when the current phase fails. Integration with IoT enables real-time status updates for remote monitoring and enhances reliability in power-sensitive environments. [To be published with FIG. 1]

No. of Pages : 27 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :23/06/2025

(21) Application No.202531059992 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : GRAPHENE QUANTUM DOT BASED SURFACE PASSIVATION FOR ZnO/CuO NANOWIRE / THIN FILM SOLAR CELLS ON p-SILICON SUBSTRATE

(51) International classification :H01L0031180000, H01G0009200000, H01L0031035200, H01L0031023600, H10K0085100000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

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(57) Abstract :

GRAPHENE QUANTUM DOT BASED SURFACE PASSIVATION FOR ZnO/CuO NANOWIRE / THIN FILM SOLAR CELLS ON p-SILICON SUBSTRATE

ABSTRACT A thin-film solar cell is disclosed, comprising a p-type silicon (p-Si) substrate, a cupric oxide (CuO) thin film deposited on the substrate to function as a hole transport layer and visible light absorber, and a plurality of vertically aligned zinc oxide (ZnO) nanowires grown on the CuO layer. A graphene quantum dot (GQD) layer is applied over the ZnO nanowires to passivate surface defects and enhance photon conversion. The GQD layer facilitates upconversion of ultraviolet light to visible wavelengths, thereby improving the overall spectral response and efficiency of the solar cell. The combined nanostructured architecture and surface modification enhance charge separation and light harvesting capabilities, making the device suitable for high-efficiency photovoltaic applications. [To be published with FIG. 1]

No. of Pages : 19 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202531059993 A

(19) INDIA

(22) Date of filing of Application :23/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : An IoT-based Architecture for Prediction and Analysis of Vehicle Emission Pollutants Using Data-Driven AI

|                                               |                                                                                 |                                                                                                                                                                                                                                             |
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| (51) International classification             | :G01N0033000000, G06N0020000000, F01N0003200000, G06N0005040000, F01N0011000000 | (71)Name of Applicant :<br><b>1)Guru Nanak Institute of Technology</b><br>Address of Applicant :157/F Nilgunj Road, Panihati, Sodepur, Kolkata-700114<br>Kolkata -----<br><b>Name of Applicant : NA</b><br><b>Address of Applicant : NA</b> |
| (86) International Application No             | :NA                                                                             | (72)Name of Inventor :                                                                                                                                                                                                                      |
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| (62) Divisional to Application Number         | :NA                                                                             |                                                                                                                                                                                                                                             |
| Filing Date                                   | :NA                                                                             |                                                                                                                                                                                                                                             |

(57) Abstract :

An IoT-based Architecture for Prediction and Analysis of Vehicle Emission Pollutants Using Data-Driven AI ABSTRACT An intelligent emission monitoring system for a vehicle is disclosed. The system includes a gas inlet configured to receive exhaust emissions, a cooling subsystem including both passive and active components to lower gas temperature, and a sensor array positioned downstream to detect carbon monoxide, nitrogen oxides, particulate matter, sulfur dioxide, and volatile organic compounds. An edge computing unit is communicatively coupled to the sensor array and configured to preprocess emission data, execute an artificial intelligence model to classify pollutant levels, predict future emission trends, and generate a corresponding notification. The notification may indicate either a warning or a compliance message. The system enables real-time, AI-driven emission monitoring and prediction, while protecting sensors through thermal management and reducing latency via local edge processing. [To be published with FIG. 1]

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(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :23/06/2025

(21) Application No.202531059994 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : Advanced AI-Elephant Monitoring System Through Swim Transformers

(51) International classification :G06N0003080000, G06T0007000000, G06V0010820000, G06V0010764000, G06N0007010000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

Advanced AI-Elephant Monitoring System Through Swim Transformers ABSTRACT A system for automated elephant monitoring is disclosed. The system comprises a processor and a memory storing executable instructions to perform a multi-stage AI-based analysis pipeline. The system receives image data from multiple sources via an image acquisition module and enhances image quality using data augmentation through a preprocessing module. Real-time elephant detection is performed using an anchor-free YOLOv8-based detection module. Detected regions are processed using a Swin Transformer feature extraction module to obtain multi-scale hierarchical features. These features are clustered using a Deep Embedded Clustering module without requiring manual labeling. An explainability module employing Integrated Gradients generates visual heatmaps highlighting key features used in classification. The system enables accurate, unsupervised, and interpretable elephant detection for real-time wildlife monitoring and conservation applications. [To be published with FIG. 1]

No. of Pages : 28 No. of Claims : 8



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(21) Application No.202531059995 A

(19) INDIA

(22) Date of filing of Application :23/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : A Comparative Study of Deep Learning Models for VOC Classification from Resistive Gas Sensors

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| <p>(51) International classification :G06N0003080000, G06N0003045000, G06N0003044000, G06N0003049000, G01N0033000000</p> <p>(86) International Application No :NA<br/>Filing Date :NA</p> <p>(87) International Publication No : NA</p> <p>(61) Patent of Addition to Application Number :NA<br/>Filing Date :NA</p> <p>(62) Divisional to Application Number :NA<br/>Filing Date :NA</p> |  | <p>(71)<b>Name of Applicant :</b><br/><b>1)Guru Nanak Institute of Technology</b><br/>Address of Applicant :157/F Nilgunj Road, Panihati, Sodepur, Kolkata-700114<br/>Kolkata -----</p> <p><b>Name of Applicant : NA</b><br/><b>Address of Applicant : NA</b></p> <p>(72)<b>Name of Inventor :</b><br/><b>1)Dr. Sunipa Roy</b><br/>Address of Applicant :157/F Nilgunj Road, Panihati, Sodepur, Kolkata-700114<br/>Kolkata -----</p> <p><b>2)Ms. Paramita Das</b><br/>Address of Applicant :Computer Science and Engineering Department, Kalyani University, West Bengal 741235, India Kalyani -----</p> <p><b>3)Ms. Palasri Dhar</b><br/>Address of Applicant :Computer Science and Engineering Department, Kalyani University, West Bengal 741235, India Kalyani -----</p> <p><b>4)Ms. Moumita Roy</b><br/>Address of Applicant :Computer Science and Engineering Department, Kalyani University, West Bengal 741235, India Kalyani -----</p> <p><b>5)Prof. Utpal Biswas</b><br/>Address of Applicant :157/F Nilgunj Road, Panihati, Sodepur, Kolkata-700114<br/>Kolkata -----</p> |
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(57) Abstract :

A Comparative Study of Deep Learning Models for VOC Classification from Resistive Gas Sensors ABSTRACT A system and a method of classifying volatile organic compounds (VOCs) using time-series data from resistive gas sensors are disclosed. The method includes acquiring resistance-based sensor data during exposure and recovery phases, and inputting the data into a processing module comprising a Bi-directional Long Short-Term Memory (BiLSTM) neural network. The BiLSTM model is trained using labeled datasets collected under controlled conditions and configured to capture both forward and backward temporal dependencies in the data. The processing module classifies the sensor data into VOC categories, such as formaldehyde or acetone, and generates a classification output. Comparative analysis with alternative models including LSTM, GRU, BiGRU, 1D CNN, and TCN demonstrates the BiLSTM model's superior accuracy, precision, and recall. The method enables robust, real-time, and explainable VOC detection for environmental and safety applications. [To be published with FIG. 1]

No. of Pages : 27 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :23/06/2025

(21) Application No.202531059996 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : Attention-Guided Deep Learning System for Infant Vocalization Classification Using SMOTE-Optimized Audio Features

(51) International classification :G06N0003080000, G10L0025240000, G06N0003045000, G06F0018214000, A61B0005000000

(86) International Application No :NA  
Filing Date :NA

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Filing Date :NA

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Filing Date :NA

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(57) Abstract :

Attention-Guided Deep Learning System for Infant Vocalization Classification Using SMOTE-Optimized Audio Features ABSTRACT A system and method for infant vocalization recognition is disclosed. The system includes a microphone configured to capture audio data and a processor coupled to a memory storing executable instructions. The processor extracts Mel Frequency Cepstral Coefficients (MFCCs) along with delta and delta-delta coefficients using an audio preprocessing module. To address class imbalance, a class balancing module applies Synthetic Minority Over-sampling Technique (SMOTE) to augment rare sound categories. A prediction module classifies the processed features into predefined infant vocalization categories such as hunger, discomfort, laughter, belly pain, and burping. The prediction module implements a deep learning model comprising a spatial convolutional layer, a depthwise separable convolutional layer for efficient spectral learning, a bidirectional GRU network for temporal modeling, and an attention layer for emphasizing discriminative frequency bands. [To be published with FIG. 1]

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(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :23/06/2025

(21) Application No.202531059997 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : AI-Driven Surveillance for Combatting Poaching and Illegal Hunting Rainforest Birds

(51) International classification :G06N0020000000, G16H0050200000, G06N0007010000, G10L0025300000, G06N0005010000

(86) International Application No :NA  
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(61) Patent of Addition to Application Number :NA  
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(57) Abstract :

AI-Driven Surveillance for Combatting Poaching and Illegal Hunting Rainforest Birds ABSTRACT A system and a method of AI-driven surveillance enables automated detection of poaching activities and monitoring of bird vocalizations in rainforest environments are disclosed. The system includes a plurality of low-power acoustic sensors configured to capture ambient audio signals and a cloud-based processing unit communicatively linked to the sensors. The processing unit includes a memory and processor that execute instructions to filter background noise, extract spectrogram and frequency features, and classify the audio using a machine learning classifier selected from CNN, RNN, SVM, random forest, or gradient boosting models. Upon identifying gunshots or distress bird calls, the system generates and transmits real-time alerts to conservation authorities. The classifier is continuously updated using new data and feedback, improving accuracy and adaptability over time. The system offers scalable, real-time, and non-intrusive wildlife conservation monitoring. [To be published with FIG. 1]

No. of Pages : 26 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202531059998 A

(19) INDIA

(22) Date of filing of Application :23/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : Personalized Treatment Recommendations and Machine Learning Models for Early Prediction of PCOS

(51) International classification :G16H0050200000, G16H0050300000, G06N0020200000, G06N0020000000, G06N0005010000

(86) International Application No :NA

Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA

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(62) Divisional to Application Number :NA

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(57) Abstract :

Personalized Treatment Recommendations and Machine Learning Models for Early Prediction of PCOS ABSTRACT A system and a method for early prediction of Polycystic Ovary Syndrome (PCOS) using machine learning are disclosed. The system comprises a processor and a memory storing instructions which, when executed, cause the processor to receive clinical and physical data of a subject, including parameters such as age, BMI, menstrual cycle regularity, follicle count, hormonal levels, insulin resistance, and dermatological indicators. The data is preprocessed by handling missing values, encoding categorical variables, and scaling numerical features. Feature selection is performed using a Recursive Feature Elimination (RFE) technique to identify the most influential predictors. The processed data is then classified into PCOS-positive or PCOS-negative categories using one or more machine learning models selected from logistic regression, SVM, random forest, CatBoost, and XGBoost. A personalized treatment recommendation is generated based on the classification result. [To be published with FIG. 1]

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(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :23/06/2025

(21) Application No.202531059999 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : Transforming Healthcare: Collaborative Unification of GCDSSAML (Genomics, Clinical Decision Support Systems and Advanced Machine Learning) for Precision Medicine

(51) International classification :G16H0050200000, G16H0010600000, G06N0020000000, G16H0050700000, H04L0009000000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

Transforming Healthcare: Collaborative Unification of GCDSSAML (Genomics, Clinical Decision Support Systems and Advanced Machine Learning) for Precision Medicine ABSTRACT In an embodiment, a healthcare prediction system for personalized treatment recommendation is disclosed. The system includes a processor and memory configured to execute instructions for acquiring genomic and clinical data from a patient cohort, preprocessing the data by imputing missing values, encoding categorical variables, and scaling features. A feature engineering module selects and reduces feature dimensions using statistical and machine learning techniques. A prediction module, employing a supervised machine learning model such as logistic regression, support vector machine, or deep neural network, predicts a binary treatment response. A clinical decision support module then generates tailored therapy recommendations. The system supports real-time operation, ensures interoperability with healthcare systems, and preserves data privacy using federated learning and homomorphic encryption, enabling secure, accurate, and scalable precision medicine deployment. [To be published with FIG. 1]

No. of Pages : 28 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :23/06/2025

(21) Application No.202531060000 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : Revolutionizing Smart Agriculture Management System Using AI-Powered Drones

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| <p>(51) International classification :G06N0003045000, G06Q0050020000, G06V0020100000, G06T0007000000, G06N0003080000</p> <p>(86) International Application No :NA<br/>Filing Date :NA</p> <p>(87) International Publication No : NA</p> <p>(61) Patent of Addition to Application Number :NA<br/>Filing Date :NA</p> <p>(62) Divisional to Application Number :NA<br/>Filing Date :NA</p> | <p>(71)<b>Name of Applicant :</b><br/><b>1)Guru Nanak Institute of Technology</b><br/>Address of Applicant :157/F Nilgunj Road, Panihati, Sodepur, Kolkata-700114<br/>Kolkata -----<br/><b>Name of Applicant : NA</b><br/><b>Address of Applicant : NA</b></p> <p>(72)<b>Name of Inventor :</b><br/><b>1)Koushik Pal</b><br/>Address of Applicant :157/F, Nilgunj Rd, Panihati, Kolkata, West Bengal 700114<br/>Kolkata -----<br/><b>2)Suparna Biswas</b><br/>Address of Applicant :157/F, Nilgunj Rd, Panihati, Kolkata, West Bengal 700114<br/>Kolkata -----<br/><b>3)Kaushik Roy</b><br/>Address of Applicant :157/F, Nilgunj Rd, Panihati, Kolkata, West Bengal 700114<br/>Kolkata -----<br/><b>4)Surajit Basak</b><br/>Address of Applicant :157/F, Nilgunj Rd, Panihati, Kolkata, West Bengal 700114<br/>Kolkata -----<br/><b>5)Anirban Ghosal</b><br/>Address of Applicant :Kalyani Expy, Block A5, Block A, Kalyani, West Bengal 741235 Kalyani -----<br/><b>6)Pranab Hazra</b><br/>Address of Applicant :81, Nilgunj Rd, Jagarata Pally, Deshpriya Nagar, Agarpara, Kolkata, West Bengal 700109 Kolkata -----<br/><b>7)Sunit Jana</b><br/>Address of Applicant :157/F, Nilgunj Rd, Panihati, Kolkata, West Bengal 700114<br/>Kolkata -----<br/><b>8)Ujjal Bhattacharya</b><br/>Address of Applicant :157/F, Nilgunj Rd, Panihati, Kolkata, West Bengal 700114<br/>Kolkata -----</p> |
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(57) Abstract :

Revolutionizing Smart Agriculture Management System Using AI-Powered Drones ABSTRACT In an embodiment, a smart agriculture management system is disclosed, that includes a drone equipped with a camera to capture aerial images of crop fields and a plurality of IoT-based soil sensors embedded in the soil to collect real-time data, including nitrogen, phosphorus, potassium levels, pH, moisture, temperature, and rainfall. The system includes a computing device communicatively coupled to both the drone and the soil sensors. The computing device executes a machine learning model, including a convolutional neural network, to analyze the aerial images and detect crop disease types and severity levels. Based on the detected disease and real-time soil data, the system generates a treatment plan recommending appropriate pesticides, fertilizers, or irrigation adjustments. The system enables early disease detection, precision treatment, and optimized resource usage, supporting sustainable and autonomous farm management. [To be published with FIG. 1]

No. of Pages : 29 No. of Claims : 10

(54) Title of the invention : System and Method or Air Quality Index Prediction Using IoT Sensor Networks and Deep Learning for Smart Environment Monitoring

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| <div>(51) International classification :G06N0003080000, G06N0003045000, G16H0010600000, G06N0003044000, H04L0067120000</div> <div>(86) International Application No :NA<br/>Filing Date :NA</div> <div>(87) International Publication No : NA</div> <div>(61) Patent of Addition to Application Number :NA<br/>Filing Date :NA</div> <div>(62) Divisional to Application Number :NA<br/>Filing Date :NA</div> | <div>(71)Name of Applicant :<br/><b>1)Guru Nanak Institute of Technology</b><br/>Address of Applicant :157/F Nilgunj Road, Panihati, Sodepur, Kolkata-700114 Kolkata -----<br/><b>Name of Applicant : NA</b><br/><b>Address of Applicant : NA</b></div> <div>(72)Name of Inventor :<br/><b>1)Mr.MoloyDhar</b><br/>Address of Applicant :Department of CSE, Guru Nanak Institute of Technology, 157/F, Nilgunj Road, Kolkata- 700114 Kolkata -----<br/><b>2)Mr.ShuvodeepDebnath</b><br/>Address of Applicant :Department of CSE, Guru Nanak Institute of Technology, 157/F, Nilgunj Road, Kolkata- 700114 Kolkata -----<br/><b>3)Prof. (Dr.) Swarup Kumar Mitra</b><br/>Address of Applicant :Guru Nanak Institute of Technology, 157/F, Nilgunj Road, Kolkata-700114 Kolkata -----<br/><b>4)Ms.ParamitaSaha</b><br/>Address of Applicant :Department of Chemistry, Jadavpur University, 188, Raja S.C. Mallick Road, Kolkata-700032 Kolkata -----</div> |
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(57) Abstract :  
System and Method or Air Quality Index Prediction Using IoT Sensor Networks and Deep Learning for Smart Environment Monitoring  
ABSTRACT In an embodiment, a system for real-time prediction of Air Quality Index (AQI) is disclosed, comprising a network of IoT sensor nodes deployed across multiple geographic locations. Each node includes pollutant and meteorological sensors for measuring PM2.5, PM10, NO<sub>2</sub>, SO<sub>2</sub>, CO, temperature, and humidity, and an edge computing module configured for data preprocessing and local AQI estimation. The system includes a cloud-based server that receives sensor data via a gateway and implements a hybrid deep learning engine integrating convolutional neural networks (CNNs) and long short-term memory (LSTM) networks for spatial-temporal AQI prediction. A context-aware data fusion engine enhances accuracy by incorporating traffic, weather, and temporal metadata. A visualization and notification module provides real-time AQI trends, personalized health advisories, and alerts, supporting dynamic, location-specific environmental monitoring. [To be published with FIG. 1]

No. of Pages : 25 No. of Claims : 9

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202531060002 A

(19) INDIA

(22) Date of filing of Application :23/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : Solar Powered IoT based energy efficient Vaccine Preservation Box for Monitoring THS (Temperature-Humidity-Shock Absorbance) parameter without using Tamper prone and costly Active RFID Sticker inside a VPT (Vaccine preservation Vehicle)

(51) International classification :H04L0067120000, F25B0021020000, B60L0015000000, F24F0005000000, F25B0021040000  
(86) International Application No :NA  
Filing Date :NA  
(87) International Publication No : NA  
(61) Patent of Addition to Application Number :NA  
Filing Date :NA  
(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :  
Solar Powered IoT based energy efficient Vaccine Preservation Box for Monitoring THS (Temperature-Humidity-Shock Absorbance) parameter without using Tamper prone and costly Active RFID Sticker inside a VPT (Vaccine preservation Vehicle) ABSTRACT In an embodiment, a solar-powered vaccine preservation system is disclosed for real-time monitoring and adaptive cooling during transportation. The system comprises multiple metallic vaccine containers, each equipped with a NodeMCU-based IoT module configured as an MQTT client, along with sensors for measuring temperature, humidity, and vibration. Each container includes a rechargeable battery and power management circuit. A roof-mounted solar panel is subdivided into zones, each zone comprising four thermoelectric Peltier modules positioned at corners, a NodeMCU-Arduino controller acting as an MQTT subscriber, and a motor driver circuit to control cooling intensity. An MQTT cloud server receives environmental data, compares it with predefined thresholds, and issues cooling commands to the zone-specific controllers. The system eliminates reliance on RFID, offers energy efficiency via partial solar operation, and supports remote monitoring and zone-wise cooling control for cold-chain vaccine logistics. [To be published with FIG. 1]

No. of Pages : 28 No. of Claims : 10



(54) Title of the invention : AI-Enhanced Uricase-Based Biosensor for Rapid and Accurate Detection of Hyperuricemia and Gout

|                                                                                                                                                                                                                                                                                                                                                                                                               |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <div>(51) International classification :A61P0019060000, G01N0027327000, G01N0027414000, C12N0009060000, G01N0027020000</div> <div>(86) International Application No :NA<br/>Filing Date :NA</div> <div>(87) International Publication No : NA</div> <div>(61) Patent of Addition to Application Number :NA<br/>Filing Date :NA</div> <div>(62) Divisional to Application Number :NA<br/>Filing Date :NA</div> |  | <div>(71)Name of Applicant :<br/><b>1)Guru Nanak Institute of Technology</b><br/>Address of Applicant :157/F Nilgunj Road, Panihati, Sodepur, Kolkata-700114<br/>Kolkata -----<br/><b>Name of Applicant : NA</b><br/><b>Address of Applicant : NA</b></div> <div>(72)Name of Inventor :<br/><b>1)Ms. Palasri Dhar</b><br/>Address of Applicant :Guru Nanak Institute of Technology,157/F, Nilgunj Rd, Sahid Colony, Panihati, Khardaha, West Bengal 700114 Khardaha -----<br/>-----<br/><b>2)Dr. Sunipa Roy</b><br/>Address of Applicant :Guru Nanak Institute of Technology,157/F, Nilgunj Rd, Sahid Colony, Panihati, Khardaha, West Bengal 700114 Khardaha -----<br/>-----<br/><b>3)Dr. Somdatta Paul</b><br/>Address of Applicant :Guru Nanak Institute of Technology,157/F, Nilgunj Rd, Sahid Colony, Panihati, Khardaha, West Bengal 700114 Khardaha -----<br/>-----<br/><b>4)Dr.Ipsita Saha</b><br/>Address of Applicant :Guru Nanak Institute of Technology,157/F, Nilgunj Rd, Sahid Colony, Panihati, Khardaha, West Bengal 700114 Khardaha -----<br/>-----<br/><b>5)Dr. Karabi Ganguly</b><br/>Address of Applicant :JIS College of Engineering ,Block A, Phase III, PO. Kalyani, Dist. Nadia - 741235,West Bengal Kalyani -----</div> |
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(57) Abstract :  
AI-Enhanced Uricase-Based Biosensor for Rapid and Accurate Detection of Hyperuricemia and Gout  
ABSTRACT In an embodiment, a uricase-based biosensing system is disclosed for rapid and early detection of uric acid levels associated with hyperuricemia and gout. The system includes a sensing platform comprising a silicon substrate layered with silicon dioxide, reduced graphene oxide, and zinc oxide, with patterned electrodes forming gate, source, and drain terminals. The gate terminal is functionalized with recombinant uricase enzymes such as Rasburicase or Pegloticase. A microcontroller processes sensor signals using a dielectric measurement circuit that compares the dielectric constant of the enzyme-functionalized gate with that of air, and an electrochemical module that detects changes in drain current and threshold voltage due to uric acid interaction. A machine learning module classifies uric acid levels based on extracted biosensor features, enabling real-time, AI-assisted diagnostics for point-of-care applications. [To be published with FIG. 1]

No. of Pages : 23 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :23/06/2025

(21) Application No.202531060004 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : Mediconnect: an AI-based Integrated Healthcare Platform to improve real-time patient monitoring and diagnostics

|                                                                                                                                                                                                                                                                                                                                                                                           |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>(51) International classification :G16H0010600000, G16H0050200000, G16H0050700000, A61B0005000000, G06T0005700000</p> <p>(86) International Application No :NA<br/>Filing Date :NA</p> <p>(87) International Publication No : NA</p> <p>(61) Patent of Addition to Application Number :NA<br/>Filing Date :NA</p> <p>(62) Divisional to Application Number :NA<br/>Filing Date :NA</p> |  | <p>(71)Name of Applicant :<br/><b>1)Guru Nanak Institute of Technology</b><br/>Address of Applicant :157/F Nilgunj Road, Panihati, Sodepur, Kolkata-700114<br/>Kolkata -----<br/><b>Name of Applicant : NA</b><br/><b>Address of Applicant : NA</b></p> <p>(72)Name of Inventor :<br/><b>1)Ms. Pallabi Das</b><br/>Address of Applicant :Guru Nanak Institute of Technology,157/F, Nilgunj Rd, Sahid Colony, Panihati, Khardaha, West Bengal 700114 Khardaha -----<br/>-----<br/><b>2)Mr. Moley Dhar</b><br/>Address of Applicant :Guru Nanak Institute of Technology,157/F, Nilgunj Rd, Sahid Colony, Panihati, Khardaha, West Bengal 700114 Khardaha -----<br/>-----<br/><b>3)Ms. Priyanka Ghosh</b><br/>Address of Applicant :Guru Nanak Institute of Technology,157/F, Nilgunj Rd, Sahid Colony, Panihati, Khardaha, West Bengal 700114 Khardaha -----<br/>-----<br/><b>4)Mr. Shuvodeep Debnath</b><br/>Address of Applicant :Guru Nanak Institute of Technology,157/F, Nilgunj Rd, Sahid Colony, Panihati, Khardaha, West Bengal 700114 Khardaha -----<br/>-----</p> |
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(57) Abstract :

Mediconnect: an AI-based Integrated Healthcare Platform to improve real-time patient monitoring and diagnostics ABSTRACT In an embodiment, an AI-based health monitoring system (100) for real-time disease detection and personalized medical recommendations is disclosed. The system (100) includes a processor (102) and a memory (104) storing instructions executable to enable patient interaction via a user interface (106), receive medical image data through a data acquisition module (108), and normalize the data using a preprocessing module (110) applying techniques such as Gaussian noise filtering, cropping, resizing, and augmentation. A plurality of machine learning models (112) processes the normalized data to classify one or more diseases selected from Alzheimer's disease, brain tumor, breast cancer, diabetes, COVID-19, pneumonia, and heart disease. A recommendation module (114) generates tailored treatment suggestions based on classification results and historical patient records. The system supports secure, scalable diagnostics and may integrate with blockchain and cloud-based storage. [To be published with FIG. 1]

No. of Pages : 23 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202531060005 A

(19) INDIA

(22) Date of filing of Application :23/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : IoT Based Smart Metallic Manhole Cover (SMMC) for Water Clogging Detection (WCD) using Capacitive sensor (CS) and Prevention using Infrared Heater for Evaporation (IHE) Technique in a Smart City

|                                               |                                                                                 |                                                                                                                                                                                                                                             |
|-----------------------------------------------|---------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (51) International classification             | :E02D0029140000, H04W0004900000, G06Q0050260000, G06Q0020200000, B64U0080250000 | (71)Name of Applicant :<br><b>1)Guru Nanak Institute of Technology</b><br>Address of Applicant :157/F Nilgunj Road, Panihati, Sodepur, Kolkata-700114<br>Kolkata -----<br><b>Name of Applicant : NA</b><br><b>Address of Applicant : NA</b> |
| (86) International Application No             | :NA                                                                             | (72)Name of Inventor :<br><b>1)Mr. Rafiqul Islam</b><br>Address of Applicant :Guru Nanak Institute of Technology, Panihati, Sodepur, Kolkata-700114,WestBengal,India Kolkata -----                                                          |
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| (61) Patent of Addition to Application Number | :NA                                                                             | <b>4)Dr. Sandip Roy</b><br>Address of Applicant :JIS University 81, Nilgunj Rd, Jagarata Pally, Deshpriya Nagar, , Kolkata, West Bengal 700109 Kolkata -----                                                                                |
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| (62) Divisional to Application Number         | :NA                                                                             |                                                                                                                                                                                                                                             |
| Filing Date                                   | :NA                                                                             |                                                                                                                                                                                                                                             |

(57) Abstract :

IoT Based Smart Metallic Manhole Cover (SMMC) for Water Clogging Detection (WCD) using Capacitive sensor (CS) and Prevention using Infrared Heater for Evaporation (IHE) Technique in a Smart City  
ABSTRACT In an embodiment, a smart manhole monitoring system is disclosed for detecting and mitigating water clogging over a manhole cover. The system includes a capacitive sensor configured to sense water accumulation based on dielectric variations between air and water. A microcontroller receives sensor data, determines the presence of clogging by comparing capacitance values against a predefined threshold, and activates an infrared heater to evaporate the detected water. The heater is controlled via a MOSFET-based switching module using pulse-width modulation (PWM) signals generated by the microcontroller. A wireless communication module transmits real-time data regarding clogging events and heater status to a cloud-based MQTT server. The server issues alerts to municipal authorities, enabling timely maintenance. The system operates autonomously and is suitable for integration into smart city infrastructure to enhance public safety and infrastructure longevity. [To be published with FIG. 1]

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(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :23/06/2025

(21) Application No.202531060006 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : PEAPODPRO

(51) International classification :A23L0003015000, A61K0008365000, A23B0007060000, A23L0011300000, A23L0005200000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

PEAPODPRO ABSTRACT In an embodiment, a method of producing a fortified functional food ingredient from peapods for incorporation into instant paratha blends is disclosed. The method includes pre-treating peapods by washing, blanching at 90°C–95°C for 2–3 minutes, and rapid cooling to arrest enzymatic activity. The pre-treated peapods are then chemically treated using a solution of 0.1% w/v citric acid and 0.6% w/v sodium bicarbonate to reduce anti-nutritional compounds such as phytic acid and tannins. High pressure processing at 15 psig in a 1:2 w/v aqueous medium is applied to enhance digestibility. The treated peapods are freeze dried to achieve <5% moisture, milled, and sieved to <200 microns particle size. The resulting powder is blended at 7% w/w with a gluten-free millet base (25% sorghum, 25% pearl millet, 50% finger millet) to prepare a nutritionally enhanced paratha mix. [To be published with FIG. 1]

No. of Pages : 23 No. of Claims : 9

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :23/06/2025

(21) Application No.202531060007 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : An implementation of CON-CRETE (Smart Contract Creation) using blockchain technology in construction

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| <p>(51) International classification :H04L0009000000, H04L0009320000, G06Q0020360000, H04L0009080000, G06Q0020060000</p> <p>(86) International Application No :NA<br/>Filing Date :NA</p> <p>(87) International Publication No : NA</p> <p>(61) Patent of Addition to Application Number :NA<br/>Filing Date :NA</p> <p>(62) Divisional to Application Number :NA<br/>Filing Date :NA</p> | <p>(71)Name of Applicant :<br/><b>1)Guru Nanak Institute of Technology</b><br/>Address of Applicant :157/F Nilgunj Road, Panihati, Sodepur, Kolkata-700114 Kolkata -----</p> <p><b>Name of Applicant : NA</b><br/><b>Address of Applicant : NA</b></p> <p>(72)Name of Inventor :<br/><b>1)Mr. Shirsendu Dutta</b><br/>Address of Applicant :Guru Nanak Institute of Technology, Panihati, Sodepur, Kolkata-700114 West Bengal, India Kolkata -----</p> <p><b>2)Dr. Rajesh Bose</b><br/>Address of Applicant :JIS University, 81, Nilgunj Road, Jagrata Pally, Deshpriya Nagar, Agarpara, Kolkata, West Bengal, 700109 Kolkata -----</p> <p><b>3)Dr. Sandip Roy</b><br/>Address of Applicant :JIS University, 81, Nilgunj Road, Jagrata Pally, Deshpriya Nagar, Agarpara, Kolkata, West Bengal, 700109 Kolkata -----</p> <p><b>4)Mr. Indranil Sarkar</b><br/>Address of Applicant :Guru Nanak Institute of Technology, Panihati, Sodepur, Kolkata-700114 West Bengal, India Kolkata -----</p> |
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(57) Abstract :

An implementation of CON-CRETE (Smart Contract Creation) using blockchain technology in construction ABSTRACT In an embodiment, a blockchain-based property registration and ownership transfer system (100) is disclosed, that may include a processor (101A) and a memory (101B) storing instructions to execute various modules. A user authentication module (102) may verify identities using biometric and document-based validation. A blockchain ledger (104) may store immutable transaction records. A smart contract module (106) may manage property registration, listing, sale, escrow, and ownership transfer. A property registration module (108) may validate documents with government authorities. A decentralized marketplace interface (110) may enable property listings. An escrow and payment module (112) may secure funds and rights, and an ownership transfer module (114) may issue a digital property certificate, such as an NFT. A decentralized storage system (116) and a two-step verification module (118) may ensure data integrity and access control. [To be published with FIG. 1]

No. of Pages : 27 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202531060008 A

(19) INDIA

(22) Date of filing of Application :23/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : Solar powered IoT based Energy efficient Potato Cold Storage enabling NHCCC (NH3-H2S-CH4-C2H5OH-CO2) for early detection of potato spoilage along with AI based Early- Sprouting Identification and Prevention Technique

(51) International classification :G01N0033000000, A61B0005160000, F24F0011000000, C01C0001120000, A23B0007040000  
(86) International Application No :NA  
Filing Date :NA  
(87) International Publication No : NA  
(61) Patent of Addition to Application Number :NA  
Filing Date :NA  
(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

Solar powered IoT based Energy efficient Potato Cold Storage enabling NHCCC (NH3-H2S-CH4-C2H5OH-CO2) for early detection of potato spoilage along with AI based Early- Sprouting Identification and Prevention Technique ABSTRACT In an embodiment, a smart cold storage system for preserving potatoes and preventing spoilage is disclosed. The system includes a storage enclosure equipped with a Peltier-based cooling unit having polarity-reversal functionality for dynamic temperature and humidity control. A camera module periodically captures images of stored potatoes for early sprouting detection using a machine learning model. A zeolite discharging mechanism disperses zeolite powder in response to detected sprouting or high humidity. A set of gas sensors monitors concentrations of spoilage-related volatile organic compounds including ammonia, hydrogen sulfide, methane, ethanol, and carbon dioxide. An exhaust fan is activated to vent contaminated air when carbon dioxide exceeds a predefined threshold. A controller manages the components, processes sensor and image data, and initiates preventive actions to ensure quality retention and extended shelf life of stored potatoes. [To be published with FIG. 1]

No. of Pages : 25 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :23/06/2025

(21) Application No.202531060009 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : Solar Powered IoT Based Automatic THALCH (Temperature-Humidity-Air ventilation-Light, CO<sub>2</sub>- Fungi and Bacteria removing chemical reagent H<sub>2</sub>O<sub>2</sub> misting) control for household Potato Preservation System

(51) International classification :F24F0110200000, F24F0011000000, F24F0110500000, A61B0005000000, F24F0110640000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
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(57) Abstract :  
Solar Powered IoT Based Automatic THALCH (Temperature-Humidity-Air ventilation-Light, CO<sub>2</sub>- Fungi and Bacteria removing chemical reagent H<sub>2</sub>O<sub>2</sub> misting) control for household Potato Preservation System ABSTRACT In an embodiment, a smart IoT-enabled potato preservation system for medium-scale household storage is disclosed. The system comprises a preservation basket integrated with a temperature and humidity monitoring module, a Peltier Enabled Air Cooling System (PEACS), an Automatic Air Heating System (AAHS), and an Automatic Air Humidifying Mist Generator (AAHMG) to maintain an optimal temperature range of 2°C to 40°C and relative humidity within 85–90%. An automatic ventilation system with damper control, exhaust fan, air quality sensor, and dust sensor regulates airflow based on detected volatile organic compounds and particulates. A CO<sub>2</sub> monitoring module maintains CO<sub>2</sub> concentration within a suitable range. A controller, operatively connected to all modules, processes sensor inputs and activates respective subsystems to stabilize storage conditions. The system may be accessed remotely via an IoT interface for monitoring and control. [To be published with FIG. 1]

No. of Pages : 30 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :23/06/2025

(21) Application No.202531060010 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : Transforming Waste into Energy for Sustainable and Future-Oriented Solutions

|                                               |                                                                                 |                                                                                                                                                                        |
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| (51) International classification             | :F23G0005000000, H02J0007350000, F23G0005500000, F23G0005160000, F23G0005027000 | <b>Name of Applicant : NA</b><br><b>Address of Applicant : NA</b>                                                                                                      |
| (86) International Application No             | :NA                                                                             | (72)Name of Inventor :<br><b>1)Suparna Maity</b><br>Address of Applicant :157/F, Nilgunj Road, Panihati, Sodepur, Kolkata-700114<br>Kolkata -----                      |
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| (87) International Publication No             | : NA                                                                            | <b>3)Ms. Santana Das</b><br>Address of Applicant :157/F, Nilgunj Road, Panihati, Sodepur, Kolkata-700114<br>Kolkata -----                                              |
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| (62) Divisional to Application Number         | :NA                                                                             |                                                                                                                                                                        |
| Filing Date                                   | :NA                                                                             |                                                                                                                                                                        |

(57) Abstract :

Transforming Waste into Energy for Sustainable and Future-Oriented Solutions ABSTRACT A hybrid waste-to-energy system is disclosed for converting plastic-based municipal solid waste into electrical energy. The system comprises a machine learning-based waste segregation unit, a combustion chamber for incinerating plastic waste, and a hybrid energy harvesting assembly including thermoelectric and photovoltaic modules. The harvested energy is regulated through a charging circuit and stored in rechargeable batteries. An inverter circuit converts the stored 12V DC into 230V AC for domestic use. The system further includes an electrostatic precipitator and optional carbon filtration for emission control. Experimental validation demonstrates a near-linear relationship between waste mass and energy output, closely matching theoretical predictions. The compact design enables real-time monitoring and efficient small-scale energy recovery, making it suitable for sustainable waste management and decentralized power generation. [To be published with FIG. 1]

No. of Pages : 27 No. of Claims : 9



(54) Title of the invention : CyberShield: A Real-Time Hardware Trojan Detection Device for Integrated Circuits

|                                                                                                                                                                                                                                                                                                                                                                                                               |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
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| <div>(51) International classification :G06F0021550000, G06T0007000000, G06F0021560000, G06N0003080000, H04L0009400000</div> <div>(86) International Application No :NA<br/>Filing Date :NA</div> <div>(87) International Publication No : NA</div> <div>(61) Patent of Addition to Application Number :NA<br/>Filing Date :NA</div> <div>(62) Divisional to Application Number :NA<br/>Filing Date :NA</div> |  | <div>(71)Name of Applicant :<br/><b>1)Guru Nanak Institute of Technology</b><br/>Address of Applicant :157/F Nilgunj Road, Panihati, Sodepur, Kolkata-700114<br/>Kolkata -----<br/><b>Name of Applicant : NA</b><br/><b>Address of Applicant : NA</b></div> <div>(72)Name of Inventor :<br/><b>1)Trishita Ghosh</b><br/>Address of Applicant :Guru Nanak Institute of Technology, 157/F, Nilgunj Rd, Sahid Colony, Panihati, Khardaha, West Bengal 700114 Khardaha -----<br/>-----<br/><b>2)Suparna Biswas</b><br/>Address of Applicant :Guru Nanak Institute of Technology, 157/F, Nilgunj Rd, Sahid Colony, Panihati, Khardaha, West Bengal 700114 Khardaha -----<br/>-----<br/><b>3)Suparna Karmakar</b><br/>Address of Applicant :Guru Nanak Institute of Technology, 157/F, Nilgunj Rd, Sahid Colony, Panihati, Khardaha, West Bengal 700114 Khardaha -----<br/>-----<br/><b>4)Amit Debnath</b><br/>Address of Applicant :Guru Nanak Institute of Technology, 157/F, Nilgunj Rd, Sahid Colony, Panihati, Khardaha, West Bengal 700114 Khardaha -----<br/>-----<br/><b>5)Ujan Ghosh</b><br/>Address of Applicant :Guru Nanak Institute of Technology, 157/F, Nilgunj Rd, Sahid Colony, Panihati, Khardaha, West Bengal 700114 Khardaha -----<br/>-----<br/><b>6)Annwesha Banerjee Majumder</b><br/>Address of Applicant :JIS College of EngineeringBlock A, Phase III, PO. Kalyani, Dist. Nadia - 741235, West Bengal, India Kalyani -----<br/><b>7)Chowdhury Md. Mizan</b><br/>Address of Applicant :JIS College of EngineeringBlock A, Phase III, PO. Kalyani, Dist. Nadia - 741235, West Bengal, India Kalyani -----</div> |
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(57) Abstract :  
CyberShield: A Real-Time Hardware Trojan Detection Device for Integrated Circuits ABSTRACT A system for real-time detection of hardware anomalies in integrated circuits (ICs) is disclosed. The system includes a monitoring cap mountable on an IC, comprising a data acquisition module for capturing I/O signal data, a side-channel acquisition module for detecting power, timing, and electromagnetic emissions, and a current-voltage sensing unit incorporating an INA219 sensor. A processing module is communicatively coupled to the monitoring cap and includes a processor and memory storing executable instructions. The processor performs feature extraction on collected data, applies anomaly detection algorithms to identify behavioral deviations, and classifies anomalies as Trojan-induced using a trained machine learning model. Upon classification, the system may trigger alerts and initiate mitigation. The architecture enables non-intrusive, real-time security monitoring of ICs, improving detection of hardware Trojans without reliance on golden models or external reference circuits. [To be published with FIG. 1]

No. of Pages : 21 No. of Claims : 10

(54) Title of the invention : PREPARATION AND CHARACTERIZATION OF POLYMERIC NANOPARTICLES CONTAINING ANTIHYPERTENSIVE DRUG VALSARTAN

|                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
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| <p>(51) International classification :A61K0031410000, A61K0009510000, A61P0009120000, A61K0009000000, A61K0009140000</p> <p>(86) International Application No :NA<br/>Filing Date :NA<br/>(87) International Publication No :NA<br/>(61) Patent of Addition to Application Number :NA<br/>Filing Date :NA<br/>(62) Divisional to Application Number :NA<br/>Filing Date :NA</p> | <p>(71)Name of Applicant :<br/><b>1)Dr. Chandan Mohanty</b><br/>Address of Applicant :Tulasichoura, Gosala chak, Ward No. 23, Baripada, Odisha, Pin-757001, India. -----<br/><b>Name of Applicant : NA</b><br/><b>Address of Applicant : NA</b><br/>(72)Name of Inventor :<br/><b>1)Dr. Chandan Mohanty</b><br/>Address of Applicant :Associate Professor, School of pharmacy, Guru Nanak Institutions Technical Campus, Khanapur, Ibrahimpatnam, Hyderabad, Ranga Reddy (Dist), Telangana-501506, India Hyderabad -----<br/><b>2)Dr. Unnam Sambamoorthy</b><br/>Address of Applicant :Professor, Sree Dattha Institute of Pharmacy, Sheriguda, Ibrahimpatnam, Greater Hyderabad – 501510, Telangana, India. Hyderabad -----<br/><b>3)Mr. Tapan Kumar Jena</b><br/>Address of Applicant :Assistant Manager, Dr Reddy's Lab, Bachupally, Hyderabad, Telangana-500090, India Hyderabad -----<br/><b>4)Mrs. Soumya Stuti Patnaik</b><br/>Address of Applicant :Assistant Professor, School of pharmacy, Guru Nanak Institutions Technical Campus, Khanapur, Ibrahimpatnam, Hyderabad, Ranga Reddy (Dist), Telangana-501506, India Hyderabad -----<br/><b>5)Dr. Surya Narayan Ratha Adhikari</b><br/>Address of Applicant :Associate professor, Department of Pharmaceutics, Seemanta Institute of Pharmaceutical Sciences, Jharpokharia, Dist-Mayurbhanj, Odisha, Pin-757086, India Baripada -----<br/><b>6)Ms. Veluvali Praharshini</b><br/>Address of Applicant :Research Scholar (student), School of pharmacy, Guru Nanak Institutions Technical Campus, Khanapur, Ibrahimpatnam, Hyderabad, Ranga Reddy (Dist), Telangana-501506, India Hyderabad -----<br/><b>7)Mr. Vivek Kumar</b><br/>Address of Applicant :Research Scholar (student), School of pharmacy, Guru Nanak Institutions Technical Campus, Khanapur, Ibrahimpatnam, Hyderabad, Ranga Reddy (Dist), Telangana-501506, India Hyderabad -----<br/><b>8)Ms. Vydyam Anjali</b><br/>Address of Applicant :Research Scholar (student), School of pharmacy, Guru Nanak Institutions Technical Campus, Khanapur, Ibrahimpatnam, Hyderabad, Ranga Reddy (Dist), Telangana-501506, India Hyderabad -----<br/><b>9)Mr. Yenkolla Akash</b><br/>Address of Applicant :Research Scholar (student), School of pharmacy, Guru Nanak Institutions Technical Campus, Khanapur, Ibrahimpatnam, Hyderabad, Ranga Reddy (Dist), Telangana-501506, India Hyderabad -----<br/><b>10)Ms. Yaradesi Gayathrii</b><br/>Address of Applicant :Research Scholar (student), School of pharmacy, Guru Nanak Institutions Technical Campus, Khanapur, Ibrahimpatnam, Hyderabad, Ranga Reddy (Dist), Telangana-501506, India Hyderabad -----</p> |
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## (57) Abstract :

The present investigation aimed to prepare and characterize a biodegradable polymeric nanoparticulate system containing Valsartan to enhance its bioavailability and therapeutic efficacy. Valsartan loaded nanoparticles were formulated by nanoprecipitation method using a biodegradable polymer PLA and Tween 80 or Poloxamer 188 as the stabilizer. Formulated nanoparticles were characterized by particle size determination, poly dispersity index, drug entrapment efficiency, in-vitro drug release, drug-polymer compatibility by FTIR studies, nanoparticulate morphology by ESEM and TEM. Zeta potential study was also performed to understand the surface charge of nanoparticles. The in -vitro drug release tests exhibited a sustained release profile over an extended period, demonstrating the potential of the nanoparticulate system for controlled valsartan delivery. The findings indicate that polymeric nanoparticles represent a promising delivery platform for overcoming the limitations associated with conventional valsartan formulations and improving hypertension treatment outcomes.

No. of Pages : 21 No. of Claims : 6

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202531060261 A

(19) INDIA

(22) Date of filing of Application :24/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : BIODEGRADABLE AND ANTIMICROBIAL BIO-COMPOSITE FILM AND PROCESS FOR PREPARING THEREOF

(51) International classification :A01N0065260000, A61K0036580000, C08L0067040000, H01M0004020000, A61K0009140000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

The present invention relates to a biodegradable and antibacterial bio-composite film (7) composed of Polyhydroxybutyrate-valerate (PHBV) (4) and neem seed oil (5). The biomaterial composition includes a structural biopolymer substrate (PHBV) (4) providing hydrophobic properties, neem oil (5) as an antibacterial agent, and a solvent medium ensuring uniform dissolution. A reinforcing threadlet sheet (6), facilitates the formation of the biocompatible sheet upon solvent evaporation. The process (200) involves producing PHBV (4) using sugarcane molasses as a carbon source, followed by centrifugation, washing, and dissolution. Neem oil (5) is extracted from neem seeds (2) through grinding, filtration, and solvent evaporation. The neem oil- PHBV solution is applied onto a reinforcing matrix made up of threadlet sheet (6) to form a bio-composite film (7). The present invention offers a sustainable, biodegradable, and non-toxic alternative to conventional biomaterials, with potential applications in wound dressings, tissue engineering, and antibacterial coatings.

No. of Pages : 30 No. of Claims : 9

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202531060274 A

(19) INDIA

(22) Date of filing of Application :24/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : A SYSTEM FOR DETECTING ALZHEIMER'S DISEASE

|                                                                                                                                                                                                                                                                                                                                                                                           |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
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| <p>(51) International classification :G16H0010600000, H04L0009400000, G06F0021620000, G16H0050200000, G16H0050700000</p> <p>(86) International Application No :NA<br/>Filing Date :NA</p> <p>(87) International Publication No : NA</p> <p>(61) Patent of Addition to Application Number :NA<br/>Filing Date :NA</p> <p>(62) Divisional to Application Number :NA<br/>Filing Date :NA</p> |  | <p>(71)<b>Name of Applicant :</b><br/><b>1)National Institute of Technology Jamshedpur</b><br/>Address of Applicant :Adityapur, Jamshedpur, Jharkhand 831014 Seraikela-Kharsawan -----<br/><b>Name of Applicant : NA</b><br/><b>Address of Applicant : NA</b><br/>(72)<b>Name of Inventor :</b><br/><b>1)Dr. Deepak Rai</b><br/>Address of Applicant :Department of Computer Science and Engineering, National Institute Of Technology Jamshedpur, Adityapur, Jamshedpur, Jharkhand 831014 Seraikela-Kharsawan -----<br/><b>2)Dr. Sumit Badotra</b><br/>Address of Applicant :Department of Computer and Electrical Engineering, College of Design and Engineering, National University of Singapore, Singapore 117575 -----<br/><b>3)Mr. Omesh Kumar</b><br/>Address of Applicant :Department of Computer Science and Engineering, National Institute Of Technology Jamshedpur, Adityapur, Jamshedpur, Jharkhand 831014 Seraikela-Kharsawan -----<br/><b>4)Prof. (Dr.) Danish Ali Khan</b><br/>Address of Applicant :Department of Computer Science and Engineering, National Institute Of Technology Jamshedpur, Adityapur, Jamshedpur, Jharkhand 831014 Seraikela-Kharsawan -----</p> |
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(57) Abstract :

The present invention generally relates to a system for detecting Alzheimer's disease to enable secure, agile, and scalable data management and analysis. The system comprises a data acquisition module that collects patient data from various sources, including medical records, genetic profiles, and brain mapping tests. The SDN layer ensures secure transmission and efficient routing of this data across the network. A data preprocessing module cleanses and formats the collected data into a machine-readable form. This is followed by a smart platform development module that processes and analyzes the preprocessed data. A pattern recognition module employing machine learning techniques identifies critical indicators of Alzheimer's risk, such as genetic markers and neuroimaging data. A real-time observation and tracking module monitors live data streams to detect disease progression and issues alerts to healthcare professionals. A secure communication module ensures end-to-end data privacy during storage and transmission.

No. of Pages : 25 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :24/06/2025

(21) Application No.202531060339 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : Flexible High-Sensitivity Capacitive Pressure Sensor Using PVDF–Silver–Kapton Architecture for Wearable Pulse Monitoring

|                                               |                                                                                 |                                                                                                                                                                                                                                      |
|-----------------------------------------------|---------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (51) International classification             | :G01L0009000000, A61B0005000000, A61B0005024000, G01L0001140000, G01L0009120000 | (71)Name of Applicant :<br><b>1)National Institute of Technology Durgapur</b><br>Address of Applicant :M G Avenue, Durgapur, West Bengal, 713209 Durgapur -----<br><b>Name of Applicant : NA</b><br><b>Address of Applicant : NA</b> |
| (86) International Application No             | :NA                                                                             | (72)Name of Inventor :                                                                                                                                                                                                               |
| Filing Date                                   | :NA                                                                             | <b>1)Shreyan Ghosh</b><br>Address of Applicant :National Institute of Technology Durgapur, M G Avenue, A Zone, Durgapur, West Bengal, PIN- 713209, India Durgapur -----                                                              |
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| (61) Patent of Addition to Application Number | :NA                                                                             | <b>3)Aniruddha Mondal</b><br>Address of Applicant :National Institute of Technology Durgapur, M G Avenue, A Zone, Durgapur, West Bengal, PIN- 713209, India Durgapur -----                                                           |
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| (62) Divisional to Application Number         | :NA                                                                             |                                                                                                                                                                                                                                      |
| Filing Date                                   | :NA                                                                             |                                                                                                                                                                                                                                      |

(57) Abstract :

Flexible High-Sensitivity Capacitive Pressure Sensor Using PVDF–Silver–Kapton Architecture for Wearable Pulse Monitoring A flexible capacitive pressure sensor has been developed using a PVDF (polyvinylidene fluoride) dielectric layer sandwiched between silver electrodes deposited over Kapton substrates. A Nichrome interlayer is introduced to enhance electrode adhesion, and the PVDF layer is spin-coated from a DMF-based solution, resulting in a fibrous, porous morphology that increases deformability and capacitance sensitivity. The sensor exhibits a high sensitivity of 40.05 MPa<sup>-1</sup> across a 0–18 KPa pressure range, with excellent mechanical stability under bending up to 6° curvature and environmental resilience, functioning effectively below 0°C, above 100°C, and in aqueous conditions. Optical characterization reveals high reflectance and negligible absorption in the visible range, enabling stable performance under ambient lighting. Integrated into a wearable wrist-mounted device, the sensor demonstrated accurate beat-to-beat pulse detection, showing potential for continuous health monitoring. Figure 2

No. of Pages : 28 No. of Claims : 9

(54) Title of the invention : SYNTHETIC mRNA-BASED VACCINE CONSTRUCT FOR INDUCING AN IMMUNE RESPONSE AGAINST HUMAN METAPNEUMOVIRUS (HMPV)

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| <p>(51) International classification :A61K0039000000, A61K0039120000, C12N0015670000, A61P0031140000, C12N0015110000</p> <p>(86) International Application No :NA<br/>Filing Date :NA</p> <p>(87) International Publication No : NA</p> <p>(61) Patent of Addition to Application :NA<br/>Number :NA<br/>Filing Date :NA</p> <p>(62) Divisional to Application :NA<br/>Number :NA<br/>Filing Date :NA</p> | <p>(71)Name of Applicant :<br/>1)Siksha 'O' Anusandhan (Deemed to be University)<br/>Address of Applicant :J-15, Khandagiri Square, Bhubaneswar-751030, Odisha, India. Bhubaneswar -----<br/>Name of Applicant : NA<br/>Address of Applicant : NA</p> <p>(72)Name of Inventor :<br/>1)Amrita Banerjee<br/>Address of Applicant :Assistant Professor Research, Centre for Industrial Biotechnology Research, Siksha 'O' Anusandhan (Deemed to be University), Kalinga Nagar, Bhubaneswar- 751003, Odisha, India. Bhubaneswar -----<br/>2)Hrudayanath Thatoi<br/>Address of Applicant :Professor and Director, Centre for Industrial Biotechnology Research, Siksha 'O' Anusandhan (Deemed to be University), Kalinga Nagar, Bhubaneswar-751003, Odisha, India. Bhubaneswar -----<br/>3)K P Suresh<br/>Address of Applicant :Principal Scientist, ICAR- National Institute of Veterinary Epidemiology &amp; Disease Informatics (NIVEDI), Ramagondanahalli, Post Box No. 6450 Yelahanka, Bengaluru- 560119, Karnataka, India. Bhubaneswar -----<br/>4)Pratistha Shrivastava<br/>Address of Applicant :Assistant Professor, Institute of Veterinary Science and Animal Husbandry, Siksha 'O' Anusandhan (Deemed to be University), Kalinga Nagar, Bhubaneswar- 751003, Odisha, India. Bhubaneswar -----<br/>5)Monoshree Sarma<br/>Address of Applicant :Assistant Professor, Institute of Veterinary Science and Animal Husbandry, Siksha 'O' Anusandhan (Deemed to be University), Kalinga Nagar, Bhubaneswar- 751003, Odisha, India. Bhubaneswar -----<br/>6)Mrinmoyee Sarma<br/>Address of Applicant :Assistant Professor, Institute of Veterinary Science and Animal Husbandry, Siksha 'O' Anusandhan (Deemed to be University), Kalinga Nagar, Bhubaneswar- 751003, Odisha, India. Bhubaneswar -----<br/>7)Sanjeev Kumar<br/>Address of Applicant :Assistant Professor, Institute of Veterinary Science and Animal Husbandry, Siksha 'O' Anusandhan (Deemed to be University), Kalinga Nagar, Bhubaneswar- 751003, Odisha, India. Bhubaneswar -----<br/>8)Sandesh Behera<br/>Address of Applicant :Lab Assistant, Centre for Industrial Biotechnology Research, Siksha 'O' Anusandhan (Deemed to be University), Kalinga Nagar, Bhubaneswar- 751003, Odisha, India. Bhubaneswar -----<br/>9)Santosh K Sahu<br/>Address of Applicant :Assistant Professor, Institute of Veterinary Science and Animal Husbandry, Siksha 'O' Anusandhan (Deemed to be University), J-15, Khandagiri Square, Bhubaneswar- 751030, Odisha, India. Bhubaneswar -----<br/>10)S S Patil<br/>Address of Applicant :Principal Scientist, ICAR- National Institute of Veterinary Epidemiology &amp; Disease Informatics (NIVEDI), Ramagondanahalli, Post Box No. 6450 Yelahanka, Bengaluru- 560119 Karnataka, India. Bhubaneswar -----<br/>11)Yamini Sri Sekar<br/>Address of Applicant :Research Scholar, ICAR- National Institute of Veterinary Epidemiology &amp; Disease Informatics (NIVEDI), Ramagondanahalli, Post Box No. 6450 Yelahanka, Bengaluru- 560119 Karnataka, India. Bhubaneswar -----<br/>12)J K Biswal<br/>Address of Applicant :Senior Scientist, ICAR- National Institute on Foot and Mouth Disease, Arugul, Jatni, Bhubaneswar- 752050, District - Khordha, Odisha, India. Bhubaneswar -----<br/>13)Samarendra Das<br/>Address of Applicant :Senior Scientist, ICAR- National Institute on Foot and Mouth Disease, Arugul, Jatni, Bhubaneswar- 752050, District - Khordha, Odisha, India. Bhubaneswar -----<br/>14)Bramhadev Pattnaik<br/>Address of Applicant :Professor, Institute of Veterinary Science and Animal Husbandry, Siksha 'O' Anusandhan (Deemed to be University), Kalinga Nagar, Bhubaneswar- 751003, Odisha, India. Bhubaneswar -----</p> |
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## (57) Abstract :

A synthetic mRNA-based vaccine construct for inducing an immune response against Human Metapneumovirus (HMPV), comprising a coding sequence (CDS) of 1318 nucleotides encoding a truncated HMPV fusion (F) protein, a 5' untranslated region (UTR), a 3' untranslated region (UTR), a modified 3' UTR miRNA interaction site engineered to resist miRNA-mediated degradation, and a polyadenylation tail of 101 adenine nucleotides including two internal spacer sequences. A method for producing a thermostable mRNA vaccine against HMPV, comprising the steps of designing a consensus-based coding sequence (CDS) for the HMPV F protein using global sequence data, introducing a D185A mutation in the CDS to enhance protein stability, flanking the CDS with dual-gene 5' and 3' UTRs derived from human genes, modifying the 3' UTR to eliminate miRNA interaction sites, appending a poly(A) tail with integrated spacer sequences, and synthesizing the construct and cloning it into a prokaryotic expression vector for mRNA production.

No. of Pages : 18 No. of Claims : 10

(54) Title of the invention : Intelligent Fatigue Identification for Industrial Workers using IoMT Devices and Cutting-Edge Advance Machine Learning Methods

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| <div>(51) International classification</div> <div>(86) International Application No</div> <div>(87) International Publication No</div> <div>(61) Patent of Addition to Application Number</div> <div>(62) Divisional to Application Number</div> | <div>:A61B0005000000, A61B0005053300, A61B0005020500, A61B0005160000, A61B0005291000</div> <div>:NA</div> <div>:NA</div> <div>: NA</div> <div>:NA</div> <div>:NA</div> <div>:NA</div> <div>:NA</div> | <div>(71)Name of Applicant :</div> <div>1)Santosh Kumar</div> <div>Address of Applicant :Department of Computer Science and Engineering, Birla Institute of Technology, Mesra, Ranchi, India. Pin: 835215 -----</div> <div>2)Sanchita Paul</div> <div>3)Abhinandan Chatterjee</div> <div>4)Sachi Nandan Mohanty</div> <div>Name of Applicant : NA</div> <div>Address of Applicant : NA</div> <div>(72)Name of Inventor :</div> <div>1)Santosh Kumar</div> <div>Address of Applicant :Department of Computer Science and Engineering, Birla Institute of Technology, Mesra, Ranchi, India. Pin: 835215 -----</div> <div>2)Sanchita Paul</div> <div>Address of Applicant :Department of Computer Science and Engineering, Birla Institute of Technology, Mesra, Ranchi, India. Pin: 835215 -----</div> <div>3)Abhinandan Chatterjee</div> <div>Address of Applicant :Department of Information Science, Indian Institute of Management, Ranchi, Jharkhand, India. Pin : 834008 -----</div> <div>4)Sachi Nandan Mohanty</div> <div>Address of Applicant :Department of Computer Science &amp; Engineering, VIT-AP University, Amaravati, Andhra Pradesh, India -----</div> |
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(57) Abstract :

ABSTRACT Intelligent Fatigue Identification for Industrial Workers using IoMT Devices and Cutting-Edge Advance Machine Learning Methods The present invention discloses a smart, wearable fatigue classification system specifically designed for industrial workers engaged in physically and cognitively demanding tasks. The system comprises a custom-designed PCB integrated with an Arduino Nano RPi Connect microcontroller that interfaces with multiple biosensors, including a dual-channel EEG sensor, a three-lead ECG sensor, a GSR sensor, a body temperature probe, a DHT11 environmental sensor, and a sound level sensor. The EEG electrodes are positioned over the prefrontal cortex (Fp1 and Fp2) using a specially designed head cap, while the ECG electrodes are embedded in a wearable shirt configured in a standard Einthoven triangle (RA, LA, LL). The system captures synchronized physiological and environmental data in real-time, processes and stores the data using an onboard SD card module, and transmits it wirelessly to an Android mobile application via Bluetooth. To establish ground truth labels for fatigue classification, participants are assessed using the validated Multidimensional Fatigue Inventory (MFI-20), which captures five key dimensions of fatigue: general fatigue, physical fatigue, mental fatigue, reduced activity, and reduced motivation. The mobile app visualizes live readings, extracts relevant statistical, spectral, and physiological features, and classifies fatigue states using machine learning algorithms such as SVM, Random Forest, and XGBoost trained on real-world data labeled using the MFI-20 scores. Alerts are generated when critical fatigue thresholds are crossed, enabling preventive interventions. The invention provides a low-cost, scalable, and portable solution for continuous fatigue monitoring in high-risk occupational settings, thereby improving worker safety, productivity, and health outcomes. Refer to Figure 1, Figure 2, Figure 3, Figure 4, Figure 5, Figure 6, Figure 6.

No. of Pages : 21 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202531060401 A

(19) INDIA

(22) Date of filing of Application :24/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : SLIDING TILE PUZZLE PLATFORM FOR COGNITIVE DEVELOPMENT

(51) International classification :G06F0003010000, G06F0003048200, A61B0090000000, A63B0071060000, A63F0009060000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

A sliding tile puzzle platform for cognitive development, comprising a body 101 placed on a flat surface with a multiple puzzle blocks 102, with electromagnets 104 enabling attachment and detachment of blocks 102 for interactive puzzle-solving, a display unit 103 to show numbers, alphabets, symbols, or images, a user interface inbuilt in a computing unit to input commands, and an imaging unit 106 mounted via a vertical bar 105 to capture real-time images for emotional analysis, a feedback unit with a vibrating unit and speaker 109 provides tactile and audio responses based on performance, while a holographic projection unit 107 mounted via a ball and socket joint 108 projects 3D hints when needed, a storage compartment 111 with a slit 112 dispenses paper, actuated by a motorized slider 114 connected to a vertical rod 115 with a pop-out ball 116 for smooth dispensing of paper from compartment 111.

No. of Pages : 20 No. of Claims : 10



(54) Title of the invention : DETENTION CENTER SECURITY SYSTEM

|                                               |                                                                                 |                                                                                                                                                        |
|-----------------------------------------------|---------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------|
| (51) International classification             | :G06V0040160000, H04N0007180000, G06V0020520000, H04L0009400000, A61F0013513000 | (71)Name of Applicant :<br><b>1)JIS University</b><br>Address of Applicant :81 Nilgunj Road, Agarpara, Kolkata 700109, India. Agarpara -----           |
| (86) International Application No             | :NA                                                                             | <b>Name of Applicant : NA</b>                                                                                                                          |
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| (87) International Publication No             | : NA                                                                            | (72)Name of Inventor :                                                                                                                                 |
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(57) Abstract :  
A detention center security system, comprising a plurality of motorized bars 101 is installed with a door of the detention center 102, each equipped with an electromechanical actuator 103 at the top and bottom, integrated with dual-end hinges 104 to rotate between two functional faces—Face A, an open-bar for air and partial visibility, and Face B, an opaque sheet allowing one-way visibility from outside, a composite sheet 105 is integrated into the bars 101, featuring an outer transparent polymer nanomaterial layer 105a and an inner opaque surface 105b, an overhead AI-powered surveillance camera 106 captures and analyzes inmate movement, facial expressions, and psychological cues, a rail conveyor 108 with feeding plate 109.

No. of Pages : 24 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :25/06/2025

(21) Application No.202531060715 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : Polyherbal Face Toner Formulation and Method of Preparation Thereof

(51) International classification :A61Q0019000000, A61K0008978900, A61K0009000000, A61K0008979400, A61K0036810000  
(86) International Application No :NA  
Filing Date :NA  
(87) International Publication No : NA  
(61) Patent of Addition to Application Number :NA  
Filing Date :NA  
(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

A polyherbal face toner formulation and method of preparation thereof is described herein. The formulation comprises 30% of potato extract, 2% of an aloe vera gel, 25% of cucumber extract, 0.1% of peppermint oil, 13% of rose water, and 29.9% of distilled water. Method of preparation of polyherbal face toner formulation is also described. The present invention provides multiple benefits addressing multiple skin concerns such as acne, sunburn, eczema, rashes, dullness unlike many market products that target only single issue. The present invention effectively remove acne, reduce inflammation, provide cooling and soothing effects, minimize pores size, remove dirt and impurities and offer therapeutic benefits.

No. of Pages : 21 No. of Claims : 3

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202531060937 A

(19) INDIA

(22) Date of filing of Application :26/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : SYSTEM AND METHOD FOR REAL-TIME FACIAL RECOGNITION AND IDENTITY VERIFICATION

(51) International classification :G07C9/37, G06V40/16, G06T7/00,  
G06Q20/40, G06F21/32  
(86) International Application No :NA  
Filing Date :NA  
(87) International Publication No : NA  
(61) Patent of Addition to :NA  
Application Number :NA  
Filing Date :NA  
(62) Divisional to Application :NA  
Number :NA  
Filing Date :NA

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(57) Abstract :

The present invention provides a handheld system (100) and method (200) for real-time facial recognition and identity verification. The handheld system (100) comprises a camera (1) configured to capture images of one or more faces, a processing unit (2) for detecting faces using a facial detection algorithm, and a memory unit (3) for storing known faces. A user interface module (4), featuring a touchscreen display, enables user login, class selection, and real-time feedback of recognized faces. The method (200) includes capturing images (step 202), detecting faces (step 204), extracting facial landmarks (step 206), generating face encoding vectors (step 208), comparing encodings using cosine similarity (step 210), and displaying recognized identities (step 212). The present invention ensures fast, accurate recognition and is suited for applications such as attendance management, access control, and security monitoring.

No. of Pages : 27 No. of Claims : 8

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :26/06/2025

(21) Application No.202531061250 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : Dual-Cavity-Multi-Cavity multi-gate Junctionless FET-based biosensor for simultaneous detection of multiple analytes

(51) International classification :H01L0029780000, G01N0033543000, G01N0027414000, H01L0021840000, H01L0029490000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

ABSTRACT In an embodiment, a junction-less field-effect transistor (JL-FET) based biosensor for multiplexed biomolecule detection is disclosed. The biosensor comprises a silicon-on-insulator (SOI) substrate with a uniformly doped top silicon layer that functions as the source, drain, and channel. A gate dielectric layer is formed over the channel, upon which four spatially separated gate electrodes are arranged using alternating work function metals such as aluminum and nickel. Two detection cavities are embedded within or adjacent to the gate dielectric layer, each functionalized with specific biomolecular receptors. Gold contacts are used as source and drain terminals. Upon analyte binding, local dielectric properties and surface potentials are modulated, resulting in changes in the electric field across the channel. These changes alter the drain current, enabling label-free, real-time, and selective detection of multiple analytes within a compact architecture. [To be published with FIG. 1]

No. of Pages : 30 No. of Claims : 2

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :27/06/2025

(21) Application No.202531061646 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : A 6.25m TALL STAMP CHARGE COKE OVEN BATTERY

(51) International classification :C10B0027060000, F27D0001040000, C10B0029060000, C10B0027000000, E21F0017180000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

Application No. : ..... ABSTRACT TITLE : “A 6.25m TALL STAMP CHARGE COKE OVEN BATTERY” A 6.25m tall Stamp Charge Coke Oven Battery of 43.67 m3 cake volume provided with 34 nos. of flue and consisting of anchorage system over the flash plate, with Gas Collecting Main, ascension pipe (AP) lid water sealing using water tank arrangement, heating walls provided with twin holes to eliminate hot spot formation, arrangement of sliding joint at oven roof and regenerator level to accommodate differential thermal expansion, arrangement of S.S. sheet at oven roof and at regenerator face wall to prevent leakage, arrangement of both side waste gas tunnel for maintaining heating regime at Pusher and Coke side.

No. of Pages : 47 No. of Claims : 11

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202531061860 A

(19) INDIA

(22) Date of filing of Application :28/06/2025

(43) Publication Date : 04/07/2025

(54) Title of the invention : SECURE TRANSMISSION AND RECOVERY OF TELEMETRY DATA IN A TELEMETRY NETWORK

(51) International classification :H04L0009400000, G06N0020000000, G06F0021620000, G06N0007010000, H04L0009060000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
Filing Date :NA

(62) Divisional to Application Number :NA  
Filing Date :NA

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(57) Abstract :

[00106] The present disclosure describes methods, system, transmitter, and receiver for secure transmission and recovery of telemetry data in a telemetry network. The method involves segmenting the telemetry data, each segment is then transformed using a random forward function and processes the telemetry data segmented into data windows using the determined forward function to generate the obfuscated telemetry data, at the transmitter (100). This random selection ensures unpredictability and prevents attackers from identifying patterns in the data. At the receiver (200) side, a trained machine learning model is used to determine the forward function corresponding to the obfuscated telemetry data. Based on the determined forward function a corresponding inverse function is identified. Using the inverse function the telemetry data is recovered from the obfuscated data

No. of Pages : 45 No. of Claims : 17

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :28/06/2025

(21) Application No.202531061886 A

(43) Publication Date : 04/07/2025

(54) Title of the invention : Adaptive Retrieval Augmented Generation System with Hybrid Query Interpretation and Dynamic Context Management

(51) International classification :G06N0005045000, G06Q0010100000, H04W0036140000, G06Q0050180000, G06N0005040000

(86) International Application No :NA  
Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA  
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(57) Abstract :

An advanced Retrieval Augmented Generation (RAG) system is disclosed, featuring a hybrid search mechanism, adaptive context windowing, and source-based explainability. It integrates large language models with structured information retrieval and user feedback to generate accurate, efficient, and interpretable responses. The system supports continuous ingestion, multi-source reasoning, and on-demand explainable answers, making it suitable for mission-critical applications such as legal research, academic Q&A, and enterprise document automation.

No. of Pages : 7 No. of Claims : 5