

Patent and Copyright Published

Abstract

The "Microcontroller-Based Automatic Electrical Pole Insulation System" is designed to enhance urban safety by mitigating electrocution risk from electrically conductive poles during rainy weather. This system integrates rain detection with automated insulation deployment. When rain detected, a rain sensor triggers an Arduino Uno to activate a motor controller, which deploys insulating rubber sheets over electrical poles using DC motors. Once rain ceases, the system retracts the insulation. the system is adaptable to existing infrastructure, offering a scalable and efficient solution for municipalities and utility companies.

Authors:

- Dr. Partha Sarkar (Principal)
- Dr. Sitanath Biswas
- Mr. Chirag Nahata
- Mrs. Subhashree Sahoo
- Mr. Subhodeep Saha
- Mr. Subinoy Biswas

Copyright On Dataset For Automatic Rohu Fish Recognition

Date of Publication: 22nd July, 2024

Key Features

The dataset boasts an extensive collection of high-resolution images, capturing the gills and eyes of Rohu fish under diverse conditions to simulate real-world scenarios. It features detailed annotations on key freshness indicators, such as color, clarity, and texture, providing a solid foundation for training machine learning models. Additionally, the dataset addresses common challenges like occlusion, overlapping, and environmental noise, making it a valuable asset for researchers and practitioners in aquaculture technology.

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| (12) PATENT APPLICATION PUBLICATION | (21) Application No. 202431062612 A |
| (19) INDIA | |
| (22) Date of Filing of Application : 19/08/2024 | (43) Publication Date : 23/08/2024 |
| (54) Title of the invention : "Microcontroller-based automatic electrical pole insulation system to save human lives from electrocution" | |
| (71) Name of Applicant : JIS COLLEGE OF ENGINEERING Address of Applicant : Block A, Phase III, Dist. Nadia, Kalyani, West Bengal 741235 Kalyani | |
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| 7) ANIMESH GHOSH Address of Applicant : UOI Student, Dept. of CSE, JIS College of Engineering, Block A, Phase III Kalyani West Bengal India 741235 Kalyani | |
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| No. of Pages : 13 No. of Claims : 8 | |

Microcontroller-based automatic electrical pole insulation system to save human lives from electrocution

Date of Publication: 23rd August, 2024

Inventors:

- Sumanta Chatterjee
- Bikramjit Sarkar
- Shyam Sundar Santra
- Sitanath Biswas
- Aioshi Chowdhury
- Anurag Kumar Thakur
- Animesh Ghosh

Abstract

The research team at JIS College of Engineering has made significant strides in the development of a cutting-edge dataset aimed at the automatic recognition of Rohu fish, a species vital to aquaculture in India. This dataset is meticulously curated to support advanced machine learning algorithms that can accurately identify Rohu fish from various images, contributing to more efficient monitoring and management practices in aquaculture.

Abstract

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| (12) PATENT APPLICATION PUBLICATION | (21) Application No. 202431009203 A |
| (19) INDIA | |
| (22) Date of filing of Application : 12/09/2024 | (43) Publication Date : 20/09/2024 |
| (54) Title of the invention : Retina-Driven Football: Integrating Eye-Tracking and Voice Control for Immersive Gaming Experiences | |
| (51) International Classification : A61P001/000000, F12C007/1040000, C23C002/404000, B12C000/1500000, C12N001/505000 (56) International Application No : NA Filing Date : NA (57) 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) : JRN COLLEGE OF ENGINEERING Address of Applicant : Block A, Phase III, Dist. Nadia, Kalyani, West Bengal-741215 Kalyani ----- Name of Applicant : NA Address of Applicant : NA (72) (Name of Inventor) : RITTIKA SARKAR Address of Applicant : STUDENT, JRN College of Engineering Block A, Phase III Kalyani West Bengal India 741215 Kalyani ----- DHRITIDEEP SAHA Address of Applicant : STUDENT, JRN College of Engineering Block A, Phase III Kalyani West Bengal India 741215 Kalyani ----- JINDRASISH BANERJEE Address of Applicant : STUDENT, JRN College of Engineering Block A, Phase III Kalyani West Bengal India 741215 Kalyani ----- AYANTIK PYNE Address of Applicant : STUDENT, JRN College of Engineering Block A, Phase III Kalyani West Bengal India 741215 Kalyani ----- ISHAN DAS Address of Applicant : STUDENT, JRN College of Engineering Block A, Phase III Kalyani West Bengal India 741215 Kalyani ----- RMR. SUBHADIP GOSWAMI Address of Applicant : Asst. Prof. (CST & AIML DEPT.), JRN College of Engineering Block A, Phase III Kalyani West Bengal India 741215 Kalyani ----- ----- TMR. MONISH MUKUL DAS Address of Applicant : Asst. Prof. (CST & AIML DEPT.), JRN College of Engineering Block A, Phase III Kalyani West Bengal India 741215 Kalyani ----- ----- RMR. SAYAN CHAKRABORTY Address of Applicant : Asst. Prof. (CST & AIML DEPT.), JRN College of Engineering Block A, Phase III Kalyani West Bengal India 741215 Kalyani ----- ----- MRS. SASWATI RAKSHIT Address of Applicant : Asst. Prof. (CST & AIML DEPT.), JRN College of Engineering Block A, Phase III Kalyani West Bengal India 741215 Kalyani ----- |

RETINA- DRIVEN FOOTBALL: INTEGRATING EYE-TRACKING AND VOICE CONTROL FOR IMMERSIVE GAMING EXPERIENCE.

Date of Publication : 20th of September, 2024

Inventors :

- Rittika Sarkar
- Dhritideep Saha
- Indrasish Banerjee
- Ayantik Pyne
- Ishan Das
- Mr. Subhadip Goswami
- Dr. Monish Mukul Das
- Dr. Sayan Chakraborty
- Mrs. Saswati Rakshit

The "Revolutionizing Agricultural Practices in India: Improving Crop Cycles Using a Crop Recommender Application" patent introduces a machine learning-driven mobile app that provides farmers with personalized crop recommendations based on real-time data like soil conditions, climate, and market trends. It aims to enhance sustainable farming, optimize resource usage, and improve profitability through customized insights on crop cycles and government schemes. The "Retina-Driven Football: Integrating Eye-Tracking and Voice Control for Immersive Gaming Experience" patent combines eye-tracking and voice control technology to create an immersive football gaming experience, allowing players to control gameplay using their gaze and voice. This innovation enhances realism, accessibility, and interactivity, and can be integrated with VR for a fully immersive experience.

REVOLUTIONIZING AGRICULTURAL PRACTICES IN INDIA: IMPROVING CROP CYCLES USING A CROP RECOMMENDER APPLICATION

Date of Publication: 20th of September, 2024

Inventors :

- Ms. Rittika Sarkar
- Mr. Dhritideep Saha
- Mr. Apurba Dutta
- Mr. Subhadip Goswami
- Dr. Sitanath Biswas
- Mrs. Saswati Rakshit

"Retina-Driven Football" is an innovative gaming system that integrates eye-tracking technology with voice control to create an immersive football experience. Utilizing a headset with eye-tracking sensors, players can intuitively interact with the game through gaze and eye movements. Coupled with voice recognition software, players issue commands and make strategic plays verbally, enhancing gameplay fluidity. This combination revolutionizes football gaming and paves the way for applications in other genres, rehabilitation, and training simulations.

Patents Published

Abstract

This research offers a comprehensive solution-oriented approach to recyclable waste management. Focused on environmental sustainability, efficiency, and practical implementation, the study identifies and proposes effective strategies for optimizing the entire lifecycle of recyclable materials. By addressing key challenges and leveraging innovative technologies, this solution-oriented research aims to contribute actionable insights to advance and enhance global recyclable waste management practices, fostering a more sustainable and circular economy. Innovative technologies, community engagement models, and policy recommendations are intricately woven into the solution, ensuring a holistic approach. The research envisions a practical and scalable blueprint to address the complexities of recyclable waste management, contributing significantly to the realization of sustainable and circular economies on a global scale.

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| (12) PATENT APPLICATION PUBLICATION | (21) Application No.202431065333 A |
| (19) INDIA | |
| (22) Date of filing of Application :29/08/2024 | (43) Publication Date : 06/09/2024 |
| (54) Title of the invention : "Optimizing Sustainable Practices: Recycled Waste Management Strategies for Environmental Conservation" | |
| (51) International classification : G06Q0010100000, B65F000140000, B65F000100000, B04L0067020000, G06Q0010063700 | (71)Name of Applicant : IJHS COLLEGE OF ENGINEERING Address of Applicant : Block A, Phase III, Dist. Nadia, Kalyani, West Bengal-741235 Kalyani Name of Applicant : NA Address of Applicant : NA (72)Name of Inventor : 1)Mr. Chirag Nahata Address of Applicant : STUDENT, IJS College of Engineering Block A, Phase III Kalyani West Bengal India 741235 Kalyani 2)Dr. Sitanath Biswas Address of Applicant : IRO (CST & ADML DEPT.), IJS College of Engineering Block A, Phase III Kalyani West Bengal India 741235 Kalyani 3)Dr. Partha Sarkar Address of Applicant : PRINCIPAL, IJS College of Engineering Block A, Phase III Kalyani West Bengal India 741235 Kalyani 4)Dr. Shyam Sundar Santra Address of Applicant : ASSOCIATE DEAN R&D, IJS College of Engineering Block A, Phase III Kalyani West Bengal India 741235 Kalyani 5)Ms. Snigdha Ghosh Address of Applicant : STUDENT, IJS College of Engineering Block A, Phase III Kalyani West Bengal India 741235 Kalyani |
| (56) International Application No : NA Filing Date : NA (57) 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 research offers a comprehensive solution-oriented approach to recyclable waste management. Focused on environmental sustainability, efficiency, and practical implementation, the study identifies and proposes effective strategies for optimizing the entire lifecycle of recyclable materials. By addressing key challenges and leveraging innovative technologies, this solution-oriented research aims to contribute actionable insights to advance and enhance global recyclable waste management practices, fostering a more sustainable and circular economy. Innovative technologies, community engagement models, and policy recommendations are intricately woven into the solution, ensuring a holistic approach. The research envisions a practical and scalable blueprint to address the complexities of recyclable waste management, contributing significantly to the realization of sustainable and circular economies on a global scale. | |
| No. of Pages : 12 No. of Claims : 5 | |

Optimizing Sustainable Practices: Recycled Waste Management Strategies for Environmental Conservation

Date of Publication: 6th September,2024

Inventors:

- Mr. Chirag Nahata
- Ms. Snigdha Ghosh
- Dr. Sitanath Biswas
- Dr. Shyam Sundar Santra
- Dr. Partha Sarkar

Abstract

The Agri Care: AI-Powered Plant Disease Defender is an advanced system designed for the early and accurate detection of plant diseases using artificial intelligence, computer vision, and Internet of Things (IoT) technologies. The system comprises a high-resolution image acquisition device that captures detailed images of plant leaves, and an optional environmental sensor for monitoring plant health conditions. These images are processed through a computer vision module to enhance clarity and highlight potential disease symptoms. A deep learning-based AI analysis module then analyzes the images to detect and identify specific plant diseases from a comprehensive database. The system provides real-time alerts and actionable recommendations for disease management through a user-friendly interface, facilitating prompt intervention and supporting sustainable agricultural practices.

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| (12) PATENT APPLICATION PUBLICATION | (21) Application No.202431068422 A |
| (19) INDIA | |
| (22) Date of filing of Application :10/09/2024 | (43) Publication Date : 20/09/2024 |
| (54) Title of the invention : Agri Care: AI-Powered Plant Disease Defender | |
| (51) International classification : F21Y011100000, A61P004300000, A61P000702000, A61P003149000, G06T0011400000 | (71)Name of Applicant : IJHS COLLEGE OF ENGINEERING Address of Applicant : Block A, Phase III, Dist. Nadia, Kalyani, West Bengal-741235 Kalyani Name of Applicant : NA Address of Applicant : NA (72)Name of Inventor : 1)SURYABHA PAL Address of Applicant : Student of Btech. ADML from IJS College of Engineering Block A, Phase III Kalyani West Bengal India 741235 Kalyani 2)TAMANASH BATABYAL Address of Applicant : Student of Btech. ADML from IJS College of Engineering Block A, Phase III Kalyani West Bengal India 741235 Kalyani 3)PURBA SAHA Address of Applicant : Student of Btech. ADML from IJS College of Engineering Block A, Phase III Kalyani West Bengal India 741235 Kalyani 4)RAJARSHI BHOWMIK Address of Applicant : Student of Btech. ADML from IJS College of Engineering Block A, Phase III Kalyani West Bengal India 741235 Kalyani 5)DR. MONISH MUKUL DAS Address of Applicant : Asst. Prof. (CST & ADML DEPT.), IJS College of Engineering Block A, Phase III Kalyani West Bengal India 741235 Kalyani 6)MRS. SASWATI RAKSHIT Address of Applicant : Asst. Prof. (CST & ADML DEPT.), IJS College of Engineering Block A, Phase III Kalyani West Bengal India 741235 Kalyani 7)Dr. Shyam Sundar Santra Address of Applicant : ASSOCIATE DEAN R&D, IJS College of Engineering Block A, Phase III Kalyani West Bengal India 741235 Kalyani 8)Dr. SAYAN CHAKRABORTY Address of Applicant : Asst. Prof. (CST & ADML DEPT.), IJS College of Engineering Block A, Phase III Kalyani West Bengal India 741235 Kalyani |
| (56) International Application No : NA Filing Date : NA (57) International Publication No : NA (61) Patent of Addition to Application Number : NA Filing Date : NA (62) Divisional to Application Number : NA Filing Date : NA | |
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| No. of Pages : 11 No. of Claims : 10 | |

Agri Care: AI-Powered Plant Disease Defender

Date of Publication:20th September,2024

Inventors:

- Suryabha Pal
- Tamanash Batabyal
- Purba Saha
- Rajarshi Bhowmik
- Dr. Monish Mukul Das
- Mrs. Saswati Rakshit
- Dr. Shyam Sundar Santra
- Dr. Sayan Chakraborty

Key Features

This research provides a solution-oriented approach to recyclable waste management, focusing on sustainability, lifecycle optimization, and innovative technologies, while integrating community engagement and policy recommendations. Agri Care: AI-Powered Plant Disease Defender detects plant diseases using AI, computer vision, and IoT. It captures high-resolution leaf images, analyzes them for disease identification, and provides real-time alerts and recommendations for sustainable agriculture.

Patents Published

Abstract

The invention introduces a crop recommender application aimed at optimizing agricultural practices in India by improving crop cycles. Leveraging real-time data such as soil conditions, weather patterns, and historical yield information, the application uses advanced algorithms to recommend the most suitable crops for each planting season. By personalizing recommendations based on specific regional and farm-level data, the app enhances productivity, conserves resources, and supports sustainable farming practices. The solution empowers farmers to make data-driven decisions, improving crop yields, reducing environmental impact, and boosting overall agricultural efficiency.

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| (12) PATENT APPLICATION PUBLICATION | (21) Application No.202431067560 A |
| (19) INDIA | |
| (22) Date of filing of Application 07/09/2024 | (43) Publication Date : 13/09/2024 |
| (54) Title of the invention : "Revolutionizing Agricultural Practices in India: Improving crop cycles using a crop recommender application" | |
| (71)Name of Applicant : JIS COLLEGE OF ENGINEERING Address of Applicant :Block A, Phase III, Dist. Nadia, Kalyani, West Bengal- 741235 Kalyani ----- Name of Applicant : NA Address of Applicant : NA (72)Name of Inventor : JISKS RITTIKA SARKAR Address of Applicant :STUDENT, JIS College of Engineering Block A, Phase III Kalyani West Bengal India 741235 Kalyani ----- JMR. DHRITIDEEP SAHA Address of Applicant :STUDENT, JIS College of Engineering, Block A, Phase III Kalyani West Bengal India 741235 Kalyani ----- JMR. APURBA DUTTA Address of Applicant :STUDENT, JIS College of Engineering, Block A, Phase III Kalyani West Bengal India 741235 Kalyani ----- JPROF. SASWATI RAKSHIT Address of Applicant :STUDENT, JIS College of Engineering, Block A, Phase III Kalyani West Bengal India 741235 Kalyani ----- JMR. SIFANATH BISWAS Address of Applicant :HOD (CST & AIML DEPT.), JIS College of Engineering Block A, Phase III Kalyani West Bengal India 741235 Kalyani ----- JMR. SUBHADIP GOSWAMI Address of Applicant :ASST. PROF. (CST & AIML DEPT.), JIS College of Engineering Block A, Phase III Kalyani West Bengal India 741235 Kalyani ----- (57) Abstract: The invention pertains to a crop recommendation system that integrates smartphone technology with advanced machine learning algorithms to optimize agricultural practices. The system comprises a mobile application that utilizes a smartphone's camera to capture soil images, sensors to measure temperature and humidity, and GPS for location data. Machine learning algorithms analyze this real-time data to provide tailored crop recommendations based on current soil and environmental conditions. Additionally, the system includes a module for suggesting leguminous crops to enhance soil fertility. With multilingual support and a user-friendly interface, the application facilitates accessibility and usability for farmers across various regions, aiming to improve crop yield and promote sustainable farming practices. No. of Pages : 12 No. of Claims : 6 | |

REVOLUTIONIZING AGRICULTURAL PRACTICES IN INDIA: IMPROVING CROP CYCLES USING A CROP RECOMMENDER APPLICATION

Date of Publication: 20th of September, 2024

Inventors :

- Ms. Rittika Sarkar
- Mr. Dhritideep Saha
- Mr. Apurba Dutta
- Mr. Subhadip Goswami
- Dr. Sitanath Biswas
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Abstract

"Retina-Driven Football" is an innovative gaming system that integrates eye-tracking technology with voice control to create an immersive football experience. Utilizing a headset with eye-tracking sensors, players can intuitively interact with the game through gaze and eye movements. Coupled with voice recognition software, players issue commands and make strategic plays verbally, enhancing gameplay fluidity. This combination revolutionizes football gaming and paves the way for applications in other genres, rehabilitation, and training simulations.

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| (12) PATENT APPLICATION PUBLICATION | (21) Application No.202431085301 A |
| (19) INDIA | |
| (22) Date of filing of Application 12/09/2024 | (43) Publication Date : 20/09/2024 |
| (54) Title of the invention : Retina-Driven Football: Integrating Eye-Tracking and Voice Control for Immersive Gaming Experiences | |
| (71)Name of Applicant : JIS COLLEGE OF ENGINEERING Address of Applicant :Block A, Phase III, Dist. Nadia, Kalyani, West Bengal- 741235 Kalyani ----- Name of Applicant : NA Address of Applicant : NA (72)Name of Inventor : JIRITTIKA SARKAR Address of Applicant :STUDENT, JIS College of Engineering Block A, Phase III Kalyani West Bengal India 741235 Kalyani ----- JMR. DHRITIDEEP SAHA Address of Applicant :STUDENT, JIS College of Engineering, Block A, Phase III Kalyani West Bengal India 741235 Kalyani ----- JMR. APURBA DUTTA Address of Applicant :STUDENT, JIS College of Engineering, Block A, Phase III Kalyani West Bengal India 741235 Kalyani ----- JMR. SUBHADIP GOSWAMI Address of Applicant :STUDENT, JIS College of Engineering, Block A, Phase III Kalyani West Bengal India 741235 Kalyani ----- JMR. SIFANATH BISWAS Address of Applicant :HOD (CST & AIML DEPT.), JIS College of Engineering Block A, Phase III Kalyani West Bengal India 741235 Kalyani ----- JMR. SUBHADIP GOSWAMI Address of Applicant :ASST. PROF. (CST & AIML DEPT.), JIS College of Engineering Block A, Phase III Kalyani West Bengal India 741235 Kalyani ----- (57) Abstract: The invention pertains to a crop recommendation system that integrates smartphone technology with advanced machine learning algorithms to optimize agricultural practices. The system comprises a mobile application that utilizes a smartphone's camera to capture soil images, sensors to measure temperature and humidity, and GPS for location data. Machine learning algorithms analyze this real-time data to provide tailored crop recommendations based on current soil and environmental conditions. Additionally, the system includes a module for suggesting leguminous crops to enhance soil fertility. With multilingual support and a user-friendly interface, the application facilitates accessibility and usability for farmers across various regions, aiming to improve crop yield and promote sustainable farming practices. No. of Pages : 12 No. of Claims : 6 | |

RETINA- DRIVEN FOOTBALL: INTEGRATING EYE-TRACKING AND VOICE CONTROL FOR IMMERSIVE GAMING EXPERIENCE.

Date of Publication : 20th of September, 2024

Inventors :

- Rittika Sarkar
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Key Features

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Optimizing Sustainable Practices: Recycled Waste Management Strategies for Environmental Conservation

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Inventors:

- Mr. Chirag Nahata
- Ms. Snigdha Ghosh
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| (12) PATENT APPLICATION PUBLICATION (19) INDIA (22) Date of filing of Application : 10/09/2024 | (21) Application No.202431068422 A (43) Publication Date : 20/09/2024 |
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| (51) International classification : F21Y0111000000, A61P0043000000, A61P0007020000, A61P0031490000, G06T0011400000 | (71)Name of Applicant : IJIS COLLEGE OF ENGINEERING Address of Applicant : Block A, Phase III, Dist. Nadia, Kalyani, West Bengal- 741235 Kalyani Name of Applicant : NA Address of Applicant : NA (72)Name of Inventor : 1)SURYABHA PAL Address of Applicant : Student of Bloch. ADML from IJS College of Engineering Block A, Phase III Kalyani West Bengal India 741235 Kalyani 2)TAMANASH BATABYAL Address of Applicant : Student of Bloch. ADML from IJS College of Engineering Block A, Phase III Kalyani West Bengal India 741235 Kalyani 3)PURBA SAHA Address of Applicant : Student of Bloch. ADML from IJS College of Engineering Block A, Phase III Kalyani West Bengal India 741235 Kalyani 4)RAJARSHI BHOWMIK Address of Applicant : Student of Bloch. ADML from IJS College of Engineering Block A, Phase III Kalyani West Bengal India 741235 Kalyani 5)DR. MONISH MUKUL DAS Address of Applicant : Asst. Prof. (CST & ADML DEPT.), IJS College of Engineering Block A, Phase III Kalyani West Bengal India 741235 Kalyani 6)MRS. SASWATI RAKSHIT Address of Applicant : Asst. Prof. (CST & ADML DEPT.), IJS College of Engineering Block A, Phase III Kalyani West Bengal India 741235 Kalyani 7)Dr. Shyam Sundar Santra Address of Applicant : ASSOCIATE DEAN R&D, IJS College of Engineering Block A, Phase III Kalyani West Bengal India 741235 Kalyani 8)Dr. SAYAN CHAKRABORTY Address of Applicant : Asst. Prof. (CST & ADML DEPT.), IJS College of Engineering Block A, Phase III Kalyani West Bengal India 741235 Kalyani |
| (56) International Application No : NA (57) International Publication No : NA (61) Patent of Addition to Application Number : NA (62) Divisional to Application Number : NA Filing Date : NA | |
| (57) Abstract : The Agri Care: AI-Powered Plant Disease Defender is an advanced system designed for the early and accurate detection of plant diseases using artificial intelligence, computer vision, and Internet of Things (IoT) technologies. The system comprises a high-resolution image acquisition device that captures detailed images of plant leaves, and an optional environmental sensor for monitoring plant health conditions. These images are processed through a computer vision module to enhance clarity and highlight potential disease symptoms. A deep learning-based AI analysis module then analyzes the images to detect and identify specific plant diseases from a comprehensive database. The system provides real-time alerts and actionable recommendations for disease management through a user-friendly interface, facilitating prompt intervention and supporting sustainable agricultural practices. This innovative solution enhances crop health monitoring, reduces chemical usage, and improves overall agricultural productivity. No. of Pages : 11 No. of Claims : 10 | |

Agri Care: AI-Powered Plant Disease Defender

Date of Publication: 20th September,2024

Inventors:

- Suryabha Pal
- Tamanash Batabyal
- Purba Saha
- Rajarshi Bhowmik
- Dr. Monish Mukul Das
- Mrs. Saswati Rakshit
- Dr. Shyam Sundar Santra
- Dr. Sayan Chakraborty

Key Features

This research provides a solution-oriented approach to recyclable waste management, focusing on sustainability, lifecycle optimization, and innovative technologies, while integrating community engagement and policy recommendations. Agri Care: AI-Powered Plant Disease Defender detects plant diseases using AI, computer vision, and IoT. It captures high-resolution leaf images, analyzes them for disease identification, and provides real-time alerts and recommendations for sustainable agriculture.

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| (12) PATENT APPLICATION PUBLICATION: | | (71) Application No. 20241058799 A | |
| (19) INDIA | | (43) Publication Date : 22/11/2024 | |
| (22) Date of filing of Application : 16/11/2024 | | | |
| (54) Title of the invention: "Thermal Imaging Based Employee Attendance Monitoring System Using Convolutional Neural Networks" | | | |
| | | (71) Name of Applicant : IISc COLLEGE OF ENGINEERING Address of Applicant : Block A, Phase III, Dist. Nadia, Kalyans, West Bengal- 741231 Kalyans ----- Name of Applicant : NA Address of Applicant : NA (72) Name of Inventor : DR. MANISH MUKUL DAS Address of Applicant : Asst. Prof. (CST & ADML DEPT) , IIS College of Engineering Block A, Phase III Kalyans West Bengal India 741231 Kalyans ----- Name of Applicant : NA Address of Applicant : NA (13) International classification : G06F1004100000, G06F10001041000, G06F10001040000, G06F1011210000, G06F1001104000 (36) International Application No : NA Filing Date : NA (37) International Publication No : NA (41) Patent of Addition to Application Number : NA Filing Date : NA (42) Divisional to Application Number : NA Filing Date : NA (17) Abstract: The invention is a Thermal Imaging Based Employee Attendance Monitoring System that uses thermal imaging technology and Convolutional Neural Networks (CNNs) to track employee attendance accurately and reliably in real time, even in challenging environmental conditions such as low light, fog, or rain. Thermal cameras strategically positioned at entry and exit points capture the unique thermal signatures of individuals. These images are processed by CNN models trained on thermal datasets to identify employees based on their thermal patterns, ensuring robust attendance tracking when facial recognition or other visual-based methods may fail. The system integrates cost-effective Raspberry Pi hardware for on-site processing, providing a scalable solution that is easily deployed in academic and industrial settings. With features including real-time monitoring, automated attendance reporting, and environmental adaptability, the invention enhances accuracy, security, and efficiency in attendance management, while protecting employee privacy through the use of non-identifying thermal imaging. | |
| No. of Pages : 12 No. of Claims : 10 | | | |

Thermal Imaging Based Employee Attendance Monitoring System Using Convolutional Neural Networks

Date of Publication: 4th November,2024

- Inventors:**
- Dr. Manish Mukul Das
 - Dr. Sitanath Biswas
 - Mrs. Saswati Rakshit
 - Mr. Subhadip Goswami
 - Mrs. Subhashree Sahoo
 - Mr. Chirag Nahata
 - Ms. Shreya Dutta

Patents Published

Abstract

The invention is a Thermal Imaging Based Employee Attendance Monitoring System that uses thermal imaging technology and Convolutional Neural Networks (CNNs) to track employee attendance accurately and reliably in real-time, even in challenging environmental conditions such as low light, fog, or rain. Thermal cameras strategically positioned at entry and exit points capture the unique thermal signatures of individuals. These images are processed by CNN models trained on thermal datasets to identify employees based on their thermal patterns, ensuring robust attendance tracking when facial recognition or other visual-based methods may fail. The system integrates cost-effective Raspberry Pi hardware for on-site processing, providing a scalable solution that is easily deployed in academic and industrial settings. With features including real-time monitoring, automated attendance reporting, and environmental adaptability, the invention enhances accuracy, security, and efficiency in attendance management, while protecting employee privacy through the use of non-identifying thermal imaging.

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| (12) PATENT APPLICATION PUBLICATION: | | (71) Application No. 20241058805 A | |
| (19) INDIA | | (43) Publication Date : 15/11/2024 | |
| (22) Date of filing of Application : 09/11/2024 | | | |
| (54) Title of the invention : "Smart Glasses: Balancing Innovation and Privacy" | | | |
| | | (71) (Name of Applicant : IISc COLLEGE OF ENGINEERING Address of Applicant : Block A, Phase III, Dist. Nadia, Kalyans, West Bengal- 741231 Kalyans ----- Name of Applicant : NA Address of Applicant : NA (72) (Name of Inventor : MILIND KUNDU Address of Applicant : STU.DENT. (CST & ADML DEPT) , IIS College of Engineering Block A, Phase III Kalyans West Bengal India 741231 Kalyans ----- Name of Applicant : NA Address of Applicant : NA (13) International classification : H04M100000000, G06F1011210000, G06F1011210000, G06F1000104000, G06F1000104000 (36) International Application No : NA Filing Date : NA (37) International Publication No : NA (41) Patent of Addition to Application Number : NA Filing Date : NA (42) Divisional to Application Number : NA Filing Date : NA (17) Abstract: This invention pertains to privacy-focused smart glasses that provide an innovative solution for balancing technological advancements with robust privacy protections. These smart glasses are equipped with a modular design that enables users to add, remove, or disable key components, such as cameras, microphones, and sensors, to suit various privacy needs. The glasses incorporate biometric authentication for secure access, transparency indicators to inform users and bystanders of data collection status, and a control interface for managing granular data settings. With a privacy-by-design software framework, end-to-end encryption, and user-controlled data deletion options, the smart glasses offer comprehensive control over data collection, processing, and transmission. This approach ensures enhanced privacy and security, fostering greater social acceptance of wearable technology by addressing privacy concerns proactively. | |
| No. of Pages : 11 No. of Claims : 10 | | | |

Smart Glasses: Balancing Innovation and Privacy

Date of Publication: 15th November ,2024

- Inventors:**
- Mr. Milind Kundu
 - Mr. Debayudh Bhattacharya
 - Dr. Sitanath Biswas
 - Dr. Partha Sarkar
 - Mrs. Saswati Rakshit
 - Dr. Shyam Sundar Santra

Abstract

The present invention is an advanced intelligent commode system integrated with a wash basin, designed for sustainable water use and real-time health monitoring. Equipped with various sensors, including a temperature sensor, pressure sensor, weight sensor, glucose sensor, and pH sensor, the system gathers data related to the user's health metrics. An onboard computer, such as a Raspberry Pi, processes this data and displays relevant health information on an interface or connected mobile device, allowing users to track metrics like body temperature, weight, and glucose levels. The wash basin is linked to a water filtration mechanism that collects used handwashing water, filters it, and stores it for flushing, reducing fresh water consumption. This intelligent commode system offers an environmentally friendly, health-conscious solution for modern sanitation needs by combining water conservation with accessible health tracking.

Abstract

This invention pertains to privacy-focused smart glasses that provide an innovative solution for balancing technological advancements with robust privacy protections. These smart glasses are equipped with a modular design that enables users to add, remove, or disable key components, such as cameras, microphones, and sensors, to suit various privacy needs. The glasses incorporate biometric authentication for secure access, transparency indicators to inform users and bystanders of data collection status, and a control interface for managing granular data settings. With a privacy-by-design software framework, end-to-end encryption, and user-controlled data deletion options, the smart glasses offer comprehensive control over data collection, processing, and transmission. This approach

ensures enhanced privacy and security, fostering greater social acceptance of wearable technology by addressing privacy concerns proactively.

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| (12) PATENT APPLICATION PUBLICATION: | | (71) Application No. 20241058821 A | |
| (19) INDIA | | (43) Publication Date : 15/11/2024 | |
| (22) Date of filing of Application : 09/11/2024 | | | |
| (54) Title of the invention : "Advanced and Intelligent Commode with In-built Wash Basin to Save Water" | | | |
| | | (71)(Name of Applicant : IISc COLLEGE OF ENGINEERING Address of Applicant : Block A, Phase III, Dist. Nadia, Kalyans, West Bengal- 741231 Kalyans ----- Name of Applicant : NA Address of Applicant : NA (72)(Name of Inventor : DR. SUBHASHREE SAHOO Address of Applicant : Asst. Professor, Dept. of CA, IIS College of Engineering Block A, Phase III Kalyans West Bengal India 741231 Kalyans ----- Name of Applicant : NA Address of Applicant : NA (13) International classification : A61B9000000000, A61B90001141000, A61B90001141000, G11B0001010000, G11B0001010000 (36) International Application No : NA Filing Date : NA (37) International Publication No : NA (41) Patent of Addition to Application Number : NA Filing Date : NA (42) Divisional to Application Number : NA Filing Date : NA (17) Abstract: The present invention is an advanced intelligent commode system integrated with a wash basin, designed for sustainable water use and real-time health monitoring. Equipped with various sensors, including a temperature sensor, pressure sensor, weight sensor, glucose sensor, and pH sensor, the system gathers data related to the user's health metrics. An onboard computer, such as a Raspberry Pi, processes this data and displays relevant health information on an interface or connected mobile device, allowing users to track metrics like body temperature, weight, and glucose levels. The wash basin is linked to a water filtration mechanism that collects used handwashing water, filters it, and stores it for flushing, reducing fresh water consumption. This intelligent commode system offers an environmentally friendly, health-conscious solution for modern sanitation needs by combining water conservation with accessible health tracking. | |
| No. of Pages : 15 No. of Claims : 10 | | | |

Advanced and Intelligent Commode with In-built Wash Basin to Save Water

Date of Publication: 15th November ,2024

- Inventors:**
- Mrs. Subhashree Sahoo
 - Dr. Sitanath Biswas
 - Prof. (Dr.) Partha Sarkar
 - Dr. Shyam Sundar Santra
 - Shreya Dutta
 - Chirag Nahata

Article Publication & Ongoing Research

Authors

- **Sayan Chakraborty**, Department of CST, JIS College of Engineering, Kalyani, West Bengal, India.
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- **Anirban Mitra**, Department of CSE, Amity University, Kolkata, West Bengal, India.
- **Pranab Kanti Roy**, School of Engineering, Seacom Skills University, West Bengal, India.
- **Abhisek Roy**, Department of IT, Seacom Skills University, West Bengal, India.

Glimpses

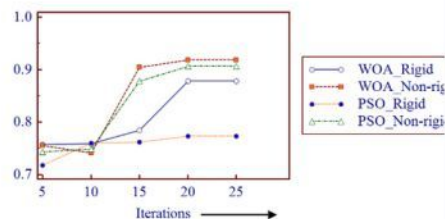
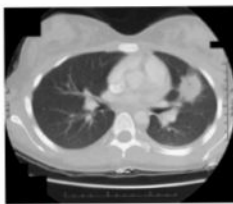
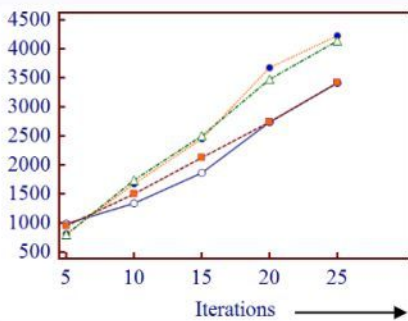
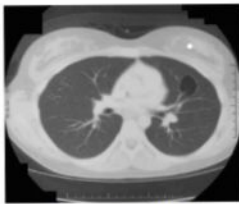


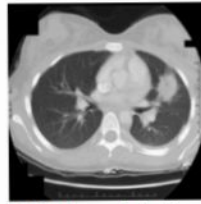
Figure 3. Comparative analysis of optimal fitness of different frameworks.



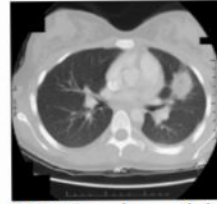
Original image



Reference image



WOA based rigid registered image



WOA based non-rigid registered image

Whale optimization algorithm based rigid and non-rigid registration

The journal paper "Whale Optimization Algorithm-Based Rigid and Non-Rigid Registration" was published in Edelweiss Applied Science and Technology, Vol. 8, No. 4, in 2024, by Learning Gate. This research introduces a framework utilizing the Whale Optimization Algorithm (WOA) to enhance image registration processes in fields like medical imaging and remote sensing. Specifically, the study compares WOA's performance with Particle Swarm Optimization (PSO) for both rigid and non-rigid registration tasks, demonstrating WOA's superior capability in reducing image alignment errors while optimizing processing time.

Abstract: Image registration has become one of the most widely used transformation techniques in satellite and medical imaging nowadays is image registration. Mapping of two or more than two images are known as registration of images. Multimodal images are those that are processed using the same registration model but were taken with different devices. In the current work, we introduce a multimodal image registration framework on which we have applied two meta-heuristic algorithms: the Whale Optimization Algorithm (WOA) and Particle Swarm Optimization (PSO), to reduce processing time and enhance the performance of both rigid and non-rigid multimodal registration frameworks. The outcomes of WOA and PSO based framework has been compared with each other with respect to both rigid and non-rigid frameworks.

Ongoing Research Statistics: CST & CSE (AIML)



Conference Articles

Accepted 1
Communicated 3



Journal Articles

Accepted (Scopus) 1
Published (Scopus) 1
Communicated (Scopus) 2



Book

In Press 1
Proposed 1



Book Chapters

Accepted 1
Communicated 4



Patents

Published 3
Communicated 4

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| (12) PATENT APPLICATION PUBLICATION: | (11) Application No. 20241072649 A |
| (19) INDIA | |
| (22) Date of filing of Application: 26/09/2024 | (43) Publication Date: 04/10/2024 |
| (54) Title of the invention: "Disaster response and resource allocation system with integrated machine learning and 3D printing" | |

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| (51) International Classification | G06F103/000000, G06F103/000000, G06F103/000100, G06F103/000000, G06F103/000000 |
| (56) International Application No | 35A |
| (57) International Filing Date | 35A |
| (57) International Publication No | 35A |
| (61) Patent of Addition to Application Number | 35A |
| (62) Divisional to Application Number | 35A |
| (63) Divisional to Application Number | 35A |

(57) Abstract:
The Disaster Response and Resource Allocation System with Integrated Machine Learning and 3D Printing presents a novel approach to optimizing disaster management by leveraging advanced technologies. This system employs machine learning algorithms to predict resource requirements based on real-time data analytics, considering factors such as disaster type, severity, and geographic location. It enhances distribution logistics through dynamic resource allocation and optimized transportation routes, ensuring timely delivery of essential supplies to affected areas. Additionally, mobile 3D printing units are utilized for on-site manufacturing of customized resources, reducing dependency on external supply chains and enabling rapid deployment of critical aid. A centralized command center with real-time monitoring and feedback mechanisms facilitates adaptive response strategies, enhancing operational efficiency and resilience. By integrating these innovative technologies, the system aims to improve disaster prep

No. of Pages: 13 No. of Claims: 18

Disaster response and resource allocation system with integrated machine learning and 3D printing

Date of Publication: 4th October,2024

Inventors:

- Mrs. Saswati Rakshit
- Dr. Anal Ranjan Sengupta
- Dr. Sitanath Biswas
- Prof. (Dr.)Partha Sarkar
- Chandra Deb Basu
- Anirban Goswami

Patent Published

Abstract

The Disaster Response and Resource Allocation System with Integrated Machine Learning and 3D Printing presents a novel approach to optimizing disaster management by leveraging advanced technologies. This system employs machine learning algorithms to predict resource requirements based on real-time data analytics, considering factors such as disaster type, severity, and geographic location. It enhances distribution logistics through dynamic resource allocation and optimized transportation routes, ensuring timely delivery of essential supplies to affected areas. Additionally, mobile 3D printing units are utilized for the on-site manufacturing of customized resources, reducing dependency on external supply chains and enabling rapid deployment of critical aid. A centralized command center with real-time monitoring and feedback mechanisms facilitates adaptive response strategies, enhancing operational efficiency and resilience. By integrating these innovative technologies, the system aims to improve disaster prepa

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| (12) PATENT APPLICATION PUBLICATION: | (11) Application No. 2024109091 A |
| (19) INDIA | |
| (22) Date of filing of Application: 19/09/2024 | (43) Publication Date: 27/09/2024 |
| (54) Title of the invention: "Wearable Digital Posture Corrector with adaptive feedback and Machine learning based personalization" | |

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| (51) International Classification | G06F103/000000, G06F103/000000, G06F103/000100, G06F103/000000, G06F103/000000 |
| (56) International Application No | 35A |
| (57) International Filing Date | 35A |
| (57) International Publication No | 35A |
| (61) Patent of Addition to Application Number | 35A |
| (62) Divisional to Application Number | 35A |
| (63) Divisional to Application Number | 35A |

(57) Abstract:
The invention presents a wearable Digital Posture Corrector that significantly advances existing posture correction technologies through innovative features and design. The device employs a sophisticated array of accelerometers and gyroscopes, strategically positioned to achieve comprehensive and precise posture monitoring. Using advanced sensor fusion algorithms, it detects even minor deviations from optimal posture with greater accuracy than current devices. A standout feature of this invention is its adaptive feedback mechanism, which provides multi-modal feedback—including vibrations, auditory alerts, and visual cues via integrated LEDs or an optional OLED display. This feedback is dynamically adjusted based on the severity and duration of the posture deviation, ensuring that the user receives appropriate and non-intrusive corrective prompts. Moreover, the invention integrates machine learning algorithms to personalize the posture correction process. By analyzing the user's unique posture habits over time, the device adapts its feedback strategy to each individual, enhancing long-term effectiveness. The device also features seamless connectivity through Bluetooth and Wi-Fi, linking to a dedicated mobile application that offers real-time posture data, cloud-based trend analysis, and integration with other health monitoring systems. To address battery life concerns, the invention

Wearable digital Posture corrector with adaptive feedback and Machine learning based personalization

Date of Publication: 27th September,2024

Inventors:

- Mr. Chirag Nahata
- Ms. Snigdha Ghosh
- Mr. Shammonoy Halder
- Ms. Srijita Saha
- Mr. Somayajip Ghosh
- Dr. Sitanath Biswas
- Mrs. Saswati Rakshit
- Mr. Subhadip Goswami
- Dr. Sayan Chakraborty
- Dr. Manish Mukul Das

Abstract

This invention presents a wearable Digital Posture Corrector that significantly advances existing posture correction technologies through innovative features and design. The device employs a sophisticated array of accelerometers and gyroscopes, strategically positioned to achieve comprehensive and precise posture monitoring. Using advanced sensor fusion algorithms, it detects even minor deviations from optimal posture with greater accuracy than current devices. A standout feature of this invention is its adaptive feedback mechanism, which provides multi-modal feedback—including vibrations, auditory alerts, and visual cues via integrated LEDs or an optional OLED display. This feedback is dynamically adjusted based on the severity and duration of the posture deviation, ensuring that the user receives appropriate and non-intrusive corrective prompts. Moreover, the invention integrates machine learning algorithms to personalize the posture correction process. By analyzing the user's unique posture habits over time, the device adapts its feedback strategy to each individual, enhancing long-term effectiveness. The device also features seamless connectivity through Bluetooth and Wi-Fi, linking to a dedicated mobile application that offers real-time posture data, cloud-based trend analysis, and integration with other health monitoring systems. To address battery life concerns, the invention

includes an intelligent power management system that optimizes sensor activity and feedback intensity based on real-time usage, ensuring prolonged battery life.

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| (12) PATENT APPLICATION PUBLICATION: | (11) Application No. 2024107296 A |
| (19) INDIA | |
| (22) Date of filing of Application: 26/09/2024 | (43) Publication Date: 04/10/2024 |
| (54) Title of the invention: "Aqua Print: Hybrid System for Remote Water Quality Monitoring and Health-Centric 3D Printing" | |

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| (51) International Classification | G01D0011/000000, G01D0010/000000, B01J0003/000000, B01J0003/000000 |
| (56) International Application No | 35A |
| (57) International Filing Date | 35A |
| (57) International Publication No | 35A |
| (61) Patent of Addition to Application Number | 35A |
| (62) Divisional to Application Number | 35A |
| (63) Divisional to Application Number | 35A |

(57) Abstract:
The Aqua Print invention is a hybrid system designed for real-time water quality monitoring and the on-demand production of health-related products in remote and underserved areas. This integrated system combines advanced water quality sensors, a portable 3D printer, and a user-friendly control interface to continuously measure water parameters such as pH, turbidity, dissolved oxygen, heavy metals, and microbial contaminants. Alerts are generated when contamination is detected, enabling immediate action to ensure safe water access. The 3D printing unit manufactures personalized health products, including medical devices and hygiene items, using biocompatible materials. Unique features include automated water treatment, predictive maintenance through AI, renewable energy integration, and a blockchain ledger for secure data management. This comprehensive solution aims to enhance public health outcomes, promote self-sufficiency, and support sustainable development in communities facing resource limitations.

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

Aqua Print: Hybrid System for Remote Water Quality Monitoring and Health-Centric 3D Printing

Date of Publication: 4th October,2024

Inventors:

- Mrs. Saswati Rakshit
- Dr. Anal Ranjan Sengupta
- Dr. Sitanath Biswas
- Prof. (Dr.)Partha Sarkar
- Chandra Deb Basu
- Anirban Goswami

Abstract

The Aqua Print invention is a hybrid system designed for real-time water quality monitoring and the on-demand production of health-related products in remote and underserved areas. This integrated system combines advanced water quality sensors, a portable 3D printer, and a user-friendly control interface to continuously measure water parameters such as pH, turbidity, dissolved oxygen, heavy metals, and microbial contaminants. Alerts are generated when contamination is detected, enabling immediate action to ensure safe water access. The 3D printing unit manufactures personalized health products, including medical devices and hygiene items, using biocompatible materials. Unique features include automated water treatment, predictive maintenance through AI, renewable energy integration, and a blockchain ledger for secure data management. This comprehensive solution aims to enhance public health outcomes, promote self-sufficiency, and support sustainable development in communities facing resource limitations.