

(54) Title of the invention : Improving Customer Loyalty with Machine Learning: A Review of Churn Prediction Models

<div><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> <div><div>:G06N0020000000, G06Q0030020200, G06Q0030020000, G06N0003088000, G06N0003045000</div><div>:NA</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. R. Murugadoss</div><div>Address of Applicant :Professor and Head, Artificial Intelligence and Data Science Department, -----</div><div>Name of Applicant : NA</div><div>Address of Applicant : NA</div><div>(72)Name of Inventor :</div><div>1)Dr. R. Murugadoss</div><div>Address of Applicant :Professor and Head, Artificial Intelligence and Data Science Department, -----</div><div>2)Mrs. V. MURUGALAKSHMI</div><div>Address of Applicant :ASSISTANT PROFESSOR, DEPARTMENT OF ARTIFICIAL INTELLIGENCE AND DATA SCIENCE, V.S.B COLLEGE OF ENGINEERING AND TECHNICAL CAMPUS, COIMBATORE. COIMBATORE -----</div><div>3)Mr.. J. BALAJI</div><div>Address of Applicant :ASSISTANT PROFESSOR, DEPARTMENT OF INFORMATION TECHNOLOGY, NANDHA COLLEGE OF TECHNOLOGY, ERODE. ERODE -----</div><div>4)Mr. K. JEEVA</div><div>Address of Applicant :DEPARTMENT OF AI & DS, V.S.B COLLEGE OF ENGINEERING AND TECHNICAL CAMPUS, COIMBATORE. COIMBATORE -----</div><div>5)A. ABINESH</div><div>Address of Applicant :DEPARTMENT OF AI & DS, V.S.B COLLEGE OF ENGINEERING AND TECHNICAL CAMPUS, COIMBATORE. COIMBATORE -----</div><div>6)Mr. S. ASHWIN</div><div>Address of Applicant :DEPARTMENT OF AI & DS, V.S.B COLLEGE OF ENGINEERING AND TECHNICAL CAMPUS, COIMBATORE. COIMBATORE -----</div><div>7)Mr. S. IYYAPPAN</div><div>Address of Applicant :DEPARTMENT OF AI & DS, V.S.B COLLEGE OF ENGINEERING AND TECHNICAL CAMPUS, COIMBATORE. COIMBATORE -----</div></div>
--	---

(57) Abstract :

Customer retention is a critical factor in business success, as acquiring new customers is often more costly than retaining existing ones. With the rise of data-driven decision-making, machine learning (ML) has emerged as a powerful tool for predicting customer churn and enhancing loyalty strategies. This paper provides a comprehensive review of machine learning methods used for churn prediction, examining their effectiveness, advantages, and limitations. We explore various supervised and unsupervised learning techniques, including decision trees, neural networks, support vector machines, and ensemble models, as well as deep learning approaches. Additionally, we discuss key factors influencing customer churn and how businesses can leverage ML insights to implement proactive retention strategies. The paper also highlights challenges in data quality, model interpretability, and ethical considerations. Finally, we provide recommendations for business practitioners to effectively apply ML-based churn prediction models for improved customer loyalty and long-term business growth.

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

<p>(51) International classification :G16H0010600000, G06N0020000000, G16H0050200000, G16H0040630000, G16H0050700000</p> <p>(86) International Application No :NA Filing Date :NA</p> <p>(87) International Publication No : NA</p> <p>(61) Patent of Addition to Application Number :NA Filing Date :NA</p> <p>(62) Divisional to Application Number :NA Filing Date :NA</p>	<p>(71)Name of Applicant : 1)Senthilnathan Chidambaranathan Address of Applicant :Associate Director / Senior System Architect, Virtusa Corporation USA. 423 East Gate Dr Monmouth Junction, NJ USA 08852 ----- 2)Dr. Praveen Rani Venkata Satya 3)Anjana K 4)Mrs. S. Praveena 5)Ms. A. Saranya 6)Dr. Syed Wahaj Mohsin 7)Dr. T. Priya 8)Ms. Alafia J 9)Dr. S Chandrasekaran 10)Dr. R. Murugadoss Name of Applicant : NA Address of Applicant : NA (72)Name of Inventor : 1)Senthilnathan Chidambaranathan Address of Applicant :Associate Director / Senior System Architect, Virtusa Corporation USA. 423 East Gate Dr Monmouth Junction, NJ USA 08852 ----- 2)Dr. Praveen Rani Venkata Satya Address of Applicant :Director, Digital Engineering & Assurance, Skyview Building 20, Sarelingampalli, Hitech City, Hyderabad, Telangana- 500081, India Hyderabad ----- 3)Anjana K Address of Applicant :Assistant Professor, Department of Computer Science and Engineering, Vedavyasa Institute of Technology, Karadparamba PO, Malappuram (Dt), Kerala, India- 673632 Malappuram ----- 4)Mrs. S. Praveena Address of Applicant :Assistant Professor, Department of Artificial Intelligence and Machine Learning, Manakula Vinayagar Institute of Technology, Kalitheerthalkuppam, Puducherry- 605107, India Puducherry ----- 5)Ms. A. Saranya Address of Applicant :Assistant Professor, Department of Information Technology, Oxford Engineering College, Pirattiyur,Trichy-620009, Tamil Nadu, India Tiruchirappalli ----- 6)Dr. Syed Wahaj Mohsin Address of Applicant :Associate Professor, Department of English, Faculty of Science and Humanities, Prince Sattam Bin Abdul Aziz University, Al Kharj, Riyadh, Saudi Arabia-16278 ----- 7)Dr. T. Priya Address of Applicant :Department of Computer Applications Jnana Prabha, East Point Campus, Post, Virgonagar, Aavalahalli, Bengaluru, Karnataka 560049, India Bengaluru Urban ----- 8)Ms. Alafia J Address of Applicant :Department of Computer Applications Jnana Prabha, East Point Campus, Post, Virgonagar, Aavalahalli, Bengaluru, Karnataka 560049, India Bengaluru Urban ----- 9)Dr. S Chandrasekaran Address of Applicant :Associate professor, Saveetha School of management, Saveetha Institute of Medical and Technical sciences, Velappanchavadi, Poonamalle, Chennai 600 077, Tamil Nadu, India Chennai ----- 10)Dr. R. Murugadoss Address of Applicant :Professor & HoD, Department of Artificial Intelligence and Data Science, V.S.B College of Engineering Technical Campus Kinathukadavu -642109, Coimbatore, Tamil Nadu, India Coimbatore -----</p>
---	---

(57) Abstract :

The invention features a machine learning-powered, voiced-assistant medical device to generate a better experience for interaction from healthcare professionals to medical systems. Utilizing cutting-edge technology, the device combines state-of-the-art voice recognition capabilities with natural language processing (NLP) and machine learning techniques to accurately interpret and respond to medical queries in real time. It enables healthcare providers to issue voice commands to operate medical equipment, retrieve patient data and receive decision-support guidance informed by a patient's condition, medical history and real-time sensor data. It can also accurately process specialized medical terminology, handle noisy environments via noise cancellation, and generate dynamic, context-aware responses. Moreover, the system is configured for multilingual support and can be easily integrated into most existing healthcare infrastructures, allowing for wide applicability in various clinical environments.

No. of Pages : 22 No. of Claims : 10

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202441023823 A

(19) INDIA

(22) Date of filing of Application :26/03/2024

(43) Publication Date : 05/04/2024

(54) Title of the invention : AI AND IOT BASED WATERBORNE DISEASE SURVEILLANCE FOR RAPID OUTBREAK DETECTION USING PIR SENSORS

(51) International classification	:G01N0033180000, H04W0004380000, G01N0015060000, C12Q0001100000, C12Q0001682500	(71)Name of Applicant : 1)V.S.B.COLLEGE OF ENGINEERING TECHNICAL CAMPUS Address of Applicant :Professor & Head of the Department,Department of Artificial Intelligence and Data Science, V.S.B. College of Engineering Technical Campus, Kinathukadavu, Coimbatore -642109. -----
(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)R.Murugadoss
Filing Date	:NA	Address of Applicant :Professor & Head of the Department,Department of Artificial Intelligence and Data Science, V.S.B. College of Engineering Technical Campus, Kinathukadavu, Coimbatore -642109. -----
(62) Divisional to Application Number	:NA	
Filing Date	:NA	

(57) Abstract :

This methodology investigates the possibility of using modified PIR sensors in conjunction with AI and IOT for microbe detection in small heated water samples. Small, high—sensitivity PIR sensors (modified for potentially improved sensitivity) would be used alongside a microcontroller board, data acquisition system, and AI software. Water samples with varying microbe concentrations would be heated to a specific temperature. The sensor would continuously record data while the AI model is trained on prepossessed sensor data labeled with microbe concentration. The trained model would then analyze data from new samples with unknown microbe concentrations, aiming to detect and estimate microbe presence based on the sensor data. An IoT platform could be integrated for remote monitoring, data visualization, and real-time alerts based on the AI model's predictions. This approach explores the potential of sensor technology and AI applications in microbe detection, but challenges 'include sensor limitations, data complexity, and real-world applicability. This approach presents an exciting exploration at the intersection of sensor technology and AI applications in microbe detection. However, -it's crucial to acknowledge the challenges. The limitations of the modified PIR sensors themselves come into play, as they might not be sensitive enough to capture the subtle thermal changes caused by microbes. Additionally, extracting meaningful data from the sensor readings amidst background noise and temperature fluctuations could pose a significant challenge for the AI model. Finally, the real-world applicability of this approach in environments with diverse water compositions and microbe types remains uncertain. Despite these limitations, this methodology offers a valuable thought experiment, pushing the boundaries of what's possible in microbe detection.

No. of Pages : 7 No. of Claims : 4

(54) Title of the invention : AI AND CHATBOT BASED DIGITAL PLATFORM FOR LAND AND FOREST RIGHTS AWARENESS AND SUPPORT FOR ST COMMUN

(51) International classification :G06Q0050180000, G06Q0010100000, G06Q0010060000, G06F0021620000, 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 :

1)V.S.B. College of Engineering Technical Campus

Address of Applicant :Professor & Head of the Department, Department of Artificial Intelligence and Data Science, V.S.B. College of Engineering Technical Campus, Kinathukadavu, Coimbatore -642109. drmdcse@gmail.com -----

Name of Applicant : NA

Address of Applicant : NA

(72)Name of Inventor :

1)Dr.R.Murugadoss

Address of Applicant :V.S.B. College of Engineering Technical Campus, Kinathukadavu, Coimbatore -642109. drmdcse@gmail.com -----

(57) Abstract :

AI and Chatbot based Digital Platform for Land and Forest Rights Awareness and Support for ST Communities *Abstract: Scheduled Tribe (ST) communities often face challenges in understanding and asserting their land and forest rights. An AI-powered digital platform can bridge this gap by providing accessible and culturally relevant information. This platform would feature a multilingual Chatbot, allowing users to ask questions about land rights acts, grievance procedures, and entitlements in their native language. Easy-to-understand explainer videos, infographics, and downloadable booklets would further clarify complex legal concepts. Interactive modules like quizzes and simulations would make learning engaging. Beyond information, the platform would empower communities through a multilingual helpline with human experts to address specific situations. A safe online forum would foster peer support and knowledge sharing. A comprehensive legal aid directory would connect users with lawyers specializing in tribal land rights. Accessibility is key: the platform would function offline for areas with limited internet, and a voice interface would cater to users with low literacy or visual impairments Partnerships with NGOs and local organizations would ensure outreach and training sessions using the platform. Robust data security measures would protect user privacy, particularly regarding sensitive land ownership information; The platform would be available in multiple local languages, recognizing the diverse linguistic needs of ST communities. Finally, a long-term plan for maintenance, content updates, and staff training would ensure the platform's continued effectiveness in empowering ST communities to claim their rightful ownership of land and forest resources.

No. of Pages : 7 No. of Claims : 5

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :15/10/2022

(21) Application No.202241058952 A

(43) Publication Date : 18/11/2022

(54) Title of the invention : ARTIFICIAL INTELLIGENCE BASED APPROACH TO ANALYSE THE PROS AND CONS OF MINI CHANNEL BASED SOLAR COLLECTORS FOR EFFECTIVE UTILIZATION OF SOLAR ENERGY

(51) International classification :H01L0027092000, C07K0016280000, G06N0003020000, H01L0023310000, C02F0001140000
(86) International Application No :PCT//
Filing Date :01/01/1900
(87) 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)DR. R. MURUGADOSS
Address of Applicant :PROFESSOR, DEPARTMENT OF CSE, V. S. B COLLEGE OF ENGINEERING TECHNICAL CAMPUS, KINATHUKADAVU, COIMBATORE- 642109, TAMILNADU. INDIA. COIMBATORE -----
2)DILIP MISHRA
3)DR. SANYASI NAIDU DADI
4)GLADYS JEBAKUMARI GNANADURAI
5)DEEPTI AMRUT CHAUDHARI
6)MS D JEEVITHA
7)VASUPALLI MANOJ
8)S ARUN KUMAR
9)AAKULA SWATHI
10)RAHUL SINGH
Name of Applicant : NA
Address of Applicant : NA
(72)Name of Inventor :
1)DR. R. MURUGADOSS
Address of Applicant :PROFESSOR, DEPARTMENT OF CSE, V. S. B COLLEGE OF ENGINEERING TECHNICAL CAMPUS, KINATHUKADAVU, COIMBATORE- 642109, TAMILNADU. INDIA. COIMBATORE -----
2)DILIP MISHRA
Address of Applicant :ASSISTANT PROFESSOR, DEPARTMENT OF MECHANICAL ENGINEERING, FACULTY OF SCIENCE & TECHNOLOGY, ICFAI UNIVERSITY, RAIPUR,THE ICFAI UNIVERSITY, RAIPUR NH-53 RAIPUR-BHILAI ROAD, KM STONE 20 P.O. KUMHARI, DIST: DURG 490042, CHHATTISGARH DURG -----
3)DR. SANYASI NAIDU DADI
Address of Applicant :SOFTWARE ENGINEER, HOUSE NO LIG 113, HB COLONY, SEETAMADARA, BESIDE SIVAALAYAM, VISAKHAPATNAM, PIN - 530022, ANDHRA PRADESH. INDIA. VISAKHAPATNAM -----
4)GLADYS JEBAKUMARI GNANADURAI
Address of Applicant :QUANTITY SURVEYOR / ESTIMATOR , MEP DEPARTMENT, MELCO, W/O: ALOYSIUS, 34, TEACHERS COLONY 6TH STREET, TUCKKARAMALPURAM, PALAYAMKOTTAI, PERUMALPURAM, TIRUNELVELI - 627007, TAMILNADU, INDIA. TIRUNELVELI -----
5)DEEPTI AMRUT CHAUDHARI
Address of Applicant :ASSISTANT PROFESSOR DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING, B 501, PRIME SQUARE, NEAR ROSELAND RESIDENCY, KUNAL ICON RIAD, PIMPLE SAUDAGAR, PUNE- 411027 MAHARASHTRA. INDIA. PUNE -----
6)MS D JEEVITHA
Address of Applicant :ASSISTANT PROFESSOR, DEPARTMENT OF INFORMATION TECHNOLOGY, V. S. B COLLEGE OF ENGINEERING TECHNICAL CAMPUS, SOLAVAMPALAYAM, COIMBATORE, TAMIL NADU - 642109. INDIA. SOLAVAMPALAYAM -----
7)VASUPALLI MANOJ
Address of Applicant :ASSISTANT PROFESSOR, DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING, GMR INSTITUTE OF TECHNOLOGY, GMR NAGAR, RAJAM, VIZIANAGARAM DISTRICT – 532127, ANDHRA PRADESH, INDIA. RAJAM -----
8)S ARUN KUMAR
Address of Applicant :ASSISTANT PROFESSOR, INFORMATION TECHNOLOGY, VSB COLLEGE OF ENGINEERING TECHNICAL CAMPUS, COIMBATORE, SOLAVAMPALAYAM, COIMBATORE, TAMIL NADU - 642109. INDIA. SOLAVAMPALAYAM -----
9)AAKULA SWATHI
Address of Applicant :ASSISTANT PROFESSOR, DEPARTMENT OF MECHANICAL ENGINEERING, CHAITANYA ENGINEERING COLLEGE, KOMMADI VILLAGE ROAD, CHAITANYAVALLEY, MADHURAWADA, VISAKHAPATNAM, ANDHRAPRADESH – 530048. MADHURAWADA -----
10)RAHUL SINGH
Address of Applicant :HEAD OF DEPARTMENT-ASST. PROFESSOR (PHYSICS), N.B.G.S.M. COLLEGE, GURUGRAM UNIVERSITY, HARYANA - 122003. INDIA GURUGRAM -----

(57) Abstract :
Artificial Intelligence based approach to analyse the pros and cons of mini channel based solar collectors for effective utilization of solar energy is the proposed invention. The proposed invention focuses on analysing the positive and negative aspects of mini channel-based collector. Also, the proposed invention aims at increasing the utilization of solar energy and increasing the efficiency of solar based devices.

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

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :30/07/2024

(21) Application No.202441057879 A

(43) Publication Date : 02/08/2024

(54) Title of the invention : ARTIFICIAL INTELLIGENCE BASED WATER PURIFICATION SYSTEM TO SUPPLY DRINKING WATER WITH RIGHT NUTRIENTS

		(71)Name of Applicant : 1)Dr. R. MURUGADOSS Address of Applicant :PROFESSOR DEPARTMENT OF ARTIFICIAL INTELLIGENCE AND DATA SCIENCE V.S.B. COLLEGE OF ENGINEERING TECHNICAL CAMPUS KINATHUKADAVU COIMBATORE - 642109 TAMILNADU COIMBATORE ----- 2)Dr. D. SHAMIA Name of Applicant : NA Address of Applicant : NA
(51) International classification	:C02F0001000000, C02F0001280000, C02F0001440000, C02F0001500000, C02F0001320000	(72)Name of Inventor : 1)Dr. R. MURUGADOSS Address of Applicant :PROFESSOR DEPARTMENT OF ARTIFICIAL INTELLIGENCE AND DATA SCIENCE V.S.B. COLLEGE OF ENGINEERING TECHNICAL CAMPUS KINATHUKADAVU COIMBATORE - 642109 TAMILNADU COIMBATORE ----- 2)Dr. D. SHAMIA Address of Applicant :PROFESSOR DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING V.S.B. COLLEGE OF ENGINEERING TECHNICAL CAMPUS KINATHUKADAVU COIMBATORE - 642109 TAMILNADU COIMBATORE -----
(86) International Application No	:NA	
Filing Date	:NA	
(87) 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 :

Artificial Intelligence based water purification system to supply drinking water with right nutrients is the proposed invention. The proposed invention focuses on designing a water filter that will filter of the water using the ceramic candles, one of the oldest methodologies to filter water. The ceramic candle is used such that the water is not cleaned too much, which is the major drawback of the existing water filters. The proposed water filter is designed to include the minerals, such that they can be added in required amount. This will help the water purifier users to stay away from the problems of mineral deficiency and stay healthy.

No. of Pages : 20 No. of Claims : 7

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :30/07/2024

(21) Application No.202441057830 A

(43) Publication Date : 02/08/2024

(54) Title of the invention : FARMER BOT FOR YIELD PREDICTION AND FERTILIZER RECOMMENDATIONS

<p>(51) International classification :G06N0020000000, H04L0051020000, G06N0003000000, G06N0005020000, G06N0005040000</p> <p>(86) International Application No :NA Filing Date :NA</p> <p>(87) International Publication No : NA</p> <p>(61) Patent of Addition to Application Number :NA Filing Date :NA</p> <p>(62) Divisional to Application Number :NA Filing Date :NA</p>	<p>(71)Name of Applicant : 1)S SOUNDHAR Address of Applicant :ASSISTANT PROFESSOR, DEPARTMENT OF ARTIFICIAL INTELLIGENCE AND DATA SCIENCE V S B COLLEGE OF ENGINEERING TECHNICAL CAMPUS -----</p> <p>Name of Applicant : NA Address of Applicant : NA</p> <p>(72)Name of Inventor : 1)S Soundhar Address of Applicant :Assistant Professor AI&DS V S B College of Engineering Technical Campus Coimbatore Coimbatore -----</p> <p>2)M Abernakumari Address of Applicant :Assistant Professor,AI&DS V S B College of Engineering Technical Campus Coimbatore Coimbatore -----</p> <p>3)D Jeevitha Address of Applicant :Assistant Professor,AI&DS V S B College of Engineering Technical Campus Coimbatore Coimbatore -----</p> <p>4)D S Jaya Kumari Address of Applicant :Assistant Professor AI&DS V S B College of Engineering Technical Campus Coimbatore Coimbatore -----</p> <p>5)V MurugaLakshmi Address of Applicant :Assistant Professor AI&DS V S B College of Engineering Technical Campus Coimbatore Coimbatore -----</p> <p>6)F Theophilus Address of Applicant :Assistant Professor AI&DS V S B College of Engineering Technical Campus Coimbatore Coimbatore -----</p> <p>7)Dr R Murugadoss Address of Applicant :Professor ,AI&DS, V S B College of Engineering Technical Campus Coimbatore Coimbatore -----</p> <p>8)Dr P Venkadesh Address of Applicant :Professor ,AI&DS, V S B College of Engineering Technical Campus Coimbatore Coimbatore -----</p>
---	--

(57) Abstract :

This study develops a chat room and a Chat-Bot to discuss the prevailing issues related to farming with peers and expertise and support farmers to make timely decision on farming. A standard set of questions was identified through discussions and surveys with farmers, expertise and other stakeholders. Intents, which the users might want to know, and examples, which the users use to explain a specific intent and entities that are different objects referring to an intent were identified from the questions. Artificial Intelligence Markup Language (AIML) was used to train a model, which predicts an intent based on the given example. The Chat-Bot was implemented in a cloud platform and therefore, the client end does not require more computational resources. Farmers loose their yield because they lack knowledge of new technologies and different parameters that help them increase their yield. Our proposed system performs machine learning analysis on all the valuable parameters required for increasing the farmers yield .We analyse the weather , season, rainfall ,and type of soil of a region and based on historic data train the system to suggest which crops to grow , and which mix crops grown together increase their yield We also answer all these farmers questions using auto-chat bot .This chat bot is NLP trained hence it learns on its own and improvises its answers .This system helps farmers in remote places where no connectivity is present to better understand the crop to be grown based on atmospheric conditions and also answer their basic questions on farming

No. of Pages : 9 No. of Claims : 5

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202541023106 A

(19) INDIA

(22) Date of filing of Application :14/03/2025

(43) Publication Date : 28/03/2025

(54) Title of the invention : Driver Somnolence & Lethargy Detection Model based on Eyes & Facial Movement using OpenCV Library

<p>(51) International classification :G06V0020590000, A61B0005000000, G08B0021060000, A61B0005180000, A61B0005110000</p> <p>(86) International Application No :NA Filing Date :NA</p> <p>(87) International Publication No : NA</p> <p>(61) Patent of Addition to Application Number :NA Filing Date :NA</p> <p>(62) Divisional to Application Number :NA Filing Date :NA</p>	<p>(71)Name of Applicant : 1)Dr. R. Murugadoss Address of Applicant :Professor and Head, Artificial Intelligence and Data Science Department, ----- 2)Mrs.V Murugalakshmi 3)Mrs.D S Jayakumari 4)Ms.D Jeevitha Name of Applicant : NA Address of Applicant : NA (72)Name of Inventor : 1)Kumara Guru S V Address of Applicant :Department of Artificial Intelligence & Data Science V S B College of Engineering Technical Campus Coimbatore Coimbatore ----- 2)Stanis Jeba J Address of Applicant :Department of Artificial Intelligence & Data Science V S B College of Engineering Technical Campus Coimbatore Coimbatore ----- 3)Srivimal M Address of Applicant :Department of Artificial Intelligence & Data Science V S B College of Engineering Technical Campus Coimbatore Coimbatore ----- 4)Aurlian J Address of Applicant :Department of Artificial Intelligence & Data Science V S B College of Engineering Technical Campus Coimbatore Coimbatore -----</p>
---	---

(57) Abstract :
Driver Somnolence, Drowsiness & Fatigue Detection Model based on Eyes & Facial Movement using OpenCV Library Abstract: Drowsiness, or excessive sleep, otherwise referred to as somnolence, and fatigue, or lethargy, severely disrupt driver alertness hence leading to accidents because of longer reaction times and lack of good judgment. Prompt and early identification of those conditions is very important in enhancing road safety. Monitoring eye activity has been suggested as an appropriate way to inspect the presence of somnolence; it is argued that several studies have pointed to the fact that such technologies and algorithms for evaluating driver alertness are potentially useful. YOLO is commonly applied to analyze facial features in real-time, whereas PERCLOS and EAR are mainly used to quantify eye closure time and blinking rates, respectively. However, these single approaches have their shortcomings, such as imposters due to variation in illumination and inability to differentiate between normal blinking and drowsiness. We, therefore, propose an end-to-end algorithm which takes the best from PERCLOS, YOLO, and EAR-based approaches while at the same time minimizing the disadvantages these approaches have. Experimental findings authenticate that our model has elevated real-time detection accuracy, decreased false-positive alerts, and provided a much more stable solution to avoid accidents caused by tired drivers. The developed system looks to have a lot of potential for large-scale implementation and saving lives in drowsiness-related accidents.

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

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202441023823 A

(19) INDIA

(22) Date of filing of Application :26/03/2024

(43) Publication Date : 05/04/2024

(54) Title of the invention : AI AND IOT BASED WATERBORNE DISEASE SURVEILLANCE FOR RAPID OUTBREAK DETECTION USING PIR SENSORS

(51) International classification	:G01N0033180000, H04W0004380000, G01N0015060000, C12Q0001100000, C12Q0001682500	(71)Name of Applicant : 1)V.S.B.COLLEGE OF ENGINEERING TECHNICAL CAMPUS Address of Applicant :Professor & Head of the Department,Department of Artificial Intelligence and Data Science, V.S.B. College of Engineering Technical Campus, Kinathukadavu, Coimbatore -642109. -----
(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)R.Murugadoss
Filing Date	:NA	Address of Applicant :Professor & Head of the Department,Department of Artificial Intelligence and Data Science, V.S.B. College of Engineering Technical Campus, Kinathukadavu, Coimbatore -642109. -----
(62) Divisional to Application Number	:NA	
Filing Date	:NA	

(57) Abstract :

This methodology investigates the possibility of using modified PIR sensors in conjunction with AI and IoT for microbe detection in small heated water samples. Small, high—sensitivity PIR sensors (modified for potentially improved sensitivity) would be used alongside a microcontroller board, data acquisition system, and AI software. Water samples with varying microbe concentrations would be heated to a specific temperature. The sensor would continuously record data while the AI model is trained on prepossessed sensor data labeled with microbe concentration. The trained model would then analyze data from new samples with unknown microbe concentrations, aiming to detect and estimate microbe presence based on the sensor data. An IoT platform could be integrated for remote monitoring, data visualization, and real-time alerts based on the AI model's predictions. This approach explores the potential of sensor technology and AI applications in microbe detection, but challenges 'include sensor limitations, data complexity, and real-world applicability. This approach presents an exciting exploration at the intersection of sensor technology and AI applications in microbe detection. However, -it's crucial to acknowledge the challenges. The limitations of the modified PIR sensors themselves come into play, as they might not be sensitive enough to capture the subtle thermal changes caused by microbes. Additionally, extracting meaningful data from the sensor readings amidst background noise and temperature fluctuations could pose a significant challenge for the AI model. Finally, the real-world applicability of this approach in environments with diverse water compositions and microbe types remains uncertain. Despite these limitations, this methodology offers a valuable thought experiment, pushing the boundaries of what's possible in microbe detection.

No. of Pages : 7 No. of Claims : 4

(54) Title of the invention : AI AND CHATBOT BASED DIGITAL PLATFORM FOR LAND AND FOREST RIGHTS AWARENESS AND SUPPORT FOR ST COMMUN

(51) International classification :G06Q0050180000, G06Q0010100000, G06Q0010060000, G06F0021620000, 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 :

1)V.S.B. College of Engineering Technical Campus

Address of Applicant :Professor & Head of the Department, Department of Artificial Intelligence and Data Science, V.S.B. College of Engineering Technical Campus, Kinathukadavu, Coimbatore -642109. drmdcse@gmail.com -----

Name of Applicant : NA

Address of Applicant : NA

(72)Name of Inventor :

1)Dr.R.Murugadoss

Address of Applicant :V.S.B. College of Engineering Technical Campus, Kinathukadavu, Coimbatore -642109. drmdcse@gmail.com -----

(57) Abstract :

AI and Chatbot based Digital Platform for Land and Forest Rights Awareness and Support for ST Communities *Abstract: Scheduled Tribe (ST) communities often face challenges in understanding and asserting their land and forest rights. An AI-powered digital platform can bridge this gap by providing accessible and culturally relevant information. This platform would feature a multilingual Chatbot, allowing users to ask questions about land rights acts, grievance procedures, and entitlements in their native language. Easy-to-understand explainer videos, infographics, and downloadable booklets would further clarify complex legal concepts. Interactive modules like quizzes and simulations would make learning engaging. Beyond information, the platform would empower communities through a multilingual helpline with human experts to address specific situations. A safe online forum would foster peer support and knowledge sharing. A comprehensive legal aid directory would connect users with lawyers specializing in tribal land rights. Accessibility is key: the platform would function offline for areas with limited internet, and a voice interface would cater to users with low literacy or visual impairments Partnerships with NGOs and local organizations would ensure outreach and training sessions using the platform. Robust data security measures would protect user privacy, particularly regarding sensitive land ownership information; The platform would be available in multiple local languages, recognizing the diverse linguistic needs of ST communities. Finally, a long-term plan for maintenance, content updates, and staff training would ensure the platform's continued effectiveness in empowering ST communities to claim their rightful ownership of land and forest resources.

No. of Pages : 7 No. of Claims : 5

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :15/10/2022

(21) Application No.202241058952 A

(43) Publication Date : 18/11/2022

(54) Title of the invention : ARTIFICIAL INTELLIGENCE BASED APPROACH TO ANALYSE THE PROS AND CONS OF MINI CHANNEL BASED SOLAR COLLECTORS FOR EFFECTIVE UTILIZATION OF SOLAR ENERGY

(51) International classification :H01L0027092000, C07K0016280000, G06N0003020000,
H01L0023310000, C02F0001140000
(86) International Application No :PCT//
Filing Date :01/01/1900
(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)DR. R. MURUGADOSS
Address of Applicant :PROFESSOR, DEPARTMENT OF CSE, V. S. B COLLEGE OF ENGINEERING
TECHNICAL CAMPUS, KINATHUKADAVU, COIMBATORE- 642109, TAMILNADU. INDIA.
COIMBATORE -----
2)DILIP MISHRA
3)DR. SANYASI NAIDU DADI
4)GLADYS JEBAKUMARI GNANADURAI
5)DEEPTI AMRUT CHAUDHARI
6)MS D JEEVITHA
7)VASUPALLI MANOJ
8)S ARUN KUMAR
9)AAKULA SWATHI
10)RAHUL SINGH
Name of Applicant : NA
Address of Applicant : NA
(72)Name of Inventor :
1)DR. R. MURUGADOSS
Address of Applicant :PROFESSOR, DEPARTMENT OF CSE, V. S. B COLLEGE OF ENGINEERING
TECHNICAL CAMPUS, KINATHUKADAVU, COIMBATORE- 642109, TAMILNADU. INDIA.
COIMBATORE -----
2)DILIP MISHRA
Address of Applicant :ASSISTANT PROFESSOR, DEPARTMENT OF MECHANICAL ENGINEERING,
FACULTY OF SCIENCE & TECHNOLOGY, ICFAI UNIVERSITY, RAIPUR,THE ICFAI UNIVERSITY,
RAIPUR NH-53 RAIPUR-BHILAI ROAD, KM STONE 20 P.O. KUMHARI, DIST: DURG 490042,
CHHATTISGARH DURG -----
3)DR. SANYASI NAIDU DADI
Address of Applicant :SOFTWARE ENGINEER, HOUSE NO LIG 113, HB COLONY, SEETAMADARA,
BESIDE SIVAALAYAM, VISAKHAPATNAM, PIN - 530022, ANDHRA PRADESH. INDIA.
VISAKHAPATNAM -----
4)GLADYS JEBAKUMARI GNANADURAI
Address of Applicant :QUANTITY SURVEYOR / ESTIMATOR , MEP DEPARTMENT, MELCO, W/O:
ALOYSIUS, 34, TEACHERS COLONY 6TH STREET, TUCKKARAMALPURAM, PALAYAMKOTTAI,
PERUMALPURAM, TIRUNELVELI - 627007, TAMILNADU, INDIA. TIRUNELVELI -----
5)DEEPTI AMRUT CHAUDHARI
Address of Applicant :ASSISTANT PROFESSOR DEPARTMENT OF COMPUTER SCIENCE AND
ENGINEERING, B 501, PRIME SQUARE, NEAR ROSELAND RESIDENCY, KUNAL ICON RIAD,
PIMPLE SAUDAGAR, PUNE- 411027 MAHARASHTRA. INDIA. PUNE -----
6)MS D JEEVITHA
Address of Applicant :ASSISTANT PROFESSOR, DEPARTMENT OF INFORMATION TECHNOLOGY,
V. S. B COLLEGE OF ENGINEERING TECHNICAL CAMPUS, SOLAVAMPALAYAM, COIMBATORE,
TAMIL NADU - 642109. INDIA. SOLAVAMPALAYAM -----
7)VASUPALLI MANOJ
Address of Applicant :ASSISTANT PROFESSOR, DEPARTMENT OF ELECTRICAL AND
ELECTRONICS ENGINEERING, GMR INSTITUTE OF TECHNOLOGY, GMR NAGAR, RAJAM,
VIZIANAGARAM DISTRICT – 532127, ANDHRA PRADESH, INDIA. RAJAM -----
8)S ARUN KUMAR
Address of Applicant :ASSISTANT PROFESSOR, INFORMATION TECHNOLOGY, VSB COLLEGE OF
ENGINEERING TECHNICAL CAMPUS, COIMBATORE, SOLAVAMPALAYAM, COIMBATORE,
TAMIL NADU - 642109. INDIA. SOLAVAMPALAYAM -----
9)AAKULA SWATHI
Address of Applicant :ASSISTANT PROFESSOR, DEPARTMENT OF MECHANICAL ENGINEERING,
CHAITANYA ENGINEERING COLLEGE, KOMMADI VILLAGE ROAD, CHAITANYAVALLEY,
MADHURAWADA, VISAKHAPATNAM, ANDHRAPRADESH – 530048. MADHURAWADA -----
10)RAHUL SINGH
Address of Applicant :HEAD OF DEPARTMENT-ASST. PROFESSOR (PHYSICS), N.B.G.S.M.
COLLEGE, GURUGRAM UNIVERSITY, HARYANA - 122003. INDIA GURUGRAM -----

(57) Abstract :
Artificial Intelligence based approach to analyse the pros and cons of mini channel based solar collectors for effective utilization of solar energy is the proposed invention. The proposed invention focuses on analysing the positive and negative aspects of mini channel-based collector. Also, the proposed invention aims at increasing the utilization of solar energy and increasing the efficiency of solar based devices.

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

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :30/07/2024

(21) Application No.202441057879 A

(43) Publication Date : 02/08/2024

(54) Title of the invention : ARTIFICIAL INTELLIGENCE BASED WATER PURIFICATION SYSTEM TO SUPPLY DRINKING WATER WITH RIGHT NUTRIENTS

(51) International classification		:C02F0001000000, C02F0001280000, C02F0001440000, C02F0001500000, C02F0001320000	(71)Name of Applicant : 1)Dr. R. MURUGADOSS Address of Applicant :PROFESSOR DEPARTMENT OF ARTIFICIAL INTELLIGENCE AND DATA SCIENCE V.S.B. COLLEGE OF ENGINEERING TECHNICAL CAMPUS KINATHUKADAVU COIMBATORE - 642109 TAMILNADU COIMBATORE -----
(86) International Application No	:NA		2)Dr. D. SHAMIA Name of Applicant : NA Address of Applicant : NA
Filing Date	:NA		(72)Name of Inventor : 1)Dr. R. MURUGADOSS Address of Applicant :PROFESSOR DEPARTMENT OF ARTIFICIAL INTELLIGENCE AND DATA SCIENCE V.S.B. COLLEGE OF ENGINEERING TECHNICAL CAMPUS KINATHUKADAVU COIMBATORE - 642109 TAMILNADU COIMBATORE -----
(87) International Publication No	: NA		2)Dr. D. SHAMIA Address of Applicant :PROFESSOR DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING V.S.B. COLLEGE OF ENGINEERING TECHNICAL CAMPUS KINATHUKADAVU COIMBATORE - 642109 TAMILNADU COIMBATORE -----
(61) Patent of Addition to Application Number	:NA		
Filing Date	:NA		
(62) Divisional to Application Number	:NA		
Filing Date	:NA		

(57) Abstract :

Artificial Intelligence based water purification system to supply drinking water with right nutrients is the proposed invention. The proposed invention focuses on designing a water filter that will filter of the water using the ceramic candles, one of the oldest methodologies to filter water. The ceramic candle is used such that the water is not cleaned too much, which is the major drawback of the existing water filters. The proposed water filter is designed to include the minerals, such that they can be added in required amount. This will help the water purifier users to stay away from the problems of mineral deficiency and stay healthy.

No. of Pages : 20 No. of Claims : 7

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202541021597 A

(19) INDIA

(22) Date of filing of Application :10/03/2025

(43) Publication Date : 21/03/2025

(54) Title of the invention : HYBRID AI FOR EMOTION- AWARE PERSONALIZED LEARNING

<p>(51) International classification :G10L0025630000, G06Q0050200000, G06V0040160000, G09B0005060000, G09B0007040000</p> <p>(86) International Application No :NA Filing Date :NA</p> <p>(87) International Publication No : NA</p> <p>(61) Patent of Addition to Application Number :NA Filing Date :NA</p> <p>(62) Divisional to Application Number :NA Filing Date :NA</p>		<p>(71)Name of Applicant : 1)Dr. R. Murugadoss Address of Applicant :Professor and Head, Artificial Intelligence and Data Science Department, ----- 2)Mrs. V. Murugalakshmi 3)Mrs. D.S.Jayakumari 4)Mrs. G. Nithya 5)Ms. M. Aberna Kumari 6)Mr. S. Soundhar Name of Applicant : NA Address of Applicant : NA (72)Name of Inventor : 1)Ms. K. Sowmithra Address of Applicant :Department of Artificial Intelligence and Data Science, V.S.B College of Engineering Technical Campus, Coimbatore. Coimbatore ----- ----- 2)Ms. K. Abinaya Address of Applicant :Department of Artificial Intelligence and Data Science, V.S.B College of Engineering Technical Campus, Coimbatore. Coimbatore ----- ----- 3)Ms. C.Sathya Address of Applicant :Department of Artificial Intelligence and Data Science, V.S.B College of Engineering Technical Campus, Coimbatore. Coimbatore ----- -----</p>
---	--	---

(57) Abstract :

ABSTRACT: The integration of Artificial Intelligence (AI) in education has opened new frontiers in personalized and adaptive learning. Traditional e-learning platforms often lack the ability to gauge student engagement, leading to passive learning experiences. This project aims to bridge this gap by utilizing multi-modal emotion recognition to analyse students' real-time emotional states, enhancing both student engagement and teacher effectiveness. Our model incorporates Convolutional Neural Networks (CNNs) for facial expression analysis, Wav2Vec for speech emotion recognition, and BERT for textual sentiment detection. These three components work together to capture emotions such as confusion, boredom, frustration, and interest, providing valuable insights into the student's learning process. The system continuously monitors these emotional cues and adjusts teaching methods accordingly to maintain an optimal learning experience. One major application of this project is in AI driven tutoring systems, where virtual tutors can modify their teaching pace, tone, and style based on a student's emotional feedback. If signs of stress or confusion are detected during an assessment, the AI can suggest personalized revision topics or provide simplified explanations to reinforce understanding. Additionally, teachers receive real-time reports on student engagement levels, helping them identify struggling learners and adapt lesson plans more effectively. By implementing emotion-aware learning, this system makes online education more interactive, engaging, and human-like. It fosters a more inclusive and adaptive educational environment, ensuring that students receive the necessary support to enhance their comprehension and academic performance. This innovative approach transforms digital learning into a more intuitive and student centred experience, paving the way for the future of AI-driven education.

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

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :30/07/2024

(21) Application No.202441057830 A

(43) Publication Date : 02/08/2024

(54) Title of the invention : FARMER BOT FOR YIELD PREDICTION AND FERTILIZER RECOMMENDATIONS

(51) International classification :G06N0020000000, H04L0051020000, G06N0003000000, G06N0005020000, G06N0005040000
(86) International Application No :NA
Filing Date :NA
(87) 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)S SOUNDHAR

Address of Applicant :ASSISTANT PROFESSOR, DEPARTMENT OF ARTIFICIAL INTELLIGENCE AND DATA SCIENCE V S B COLLEGE OF ENGINEERING TECHNICAL CAMPUS -----

Name of Applicant : NA

Address of Applicant : NA

(72)Name of Inventor :

1)S Soundhar

Address of Applicant :Assistant Professor AI&DS V S B College of Engineering Technical Campus Coimbatore Coimbatore -----

2)M Abernakumari

Address of Applicant :Assistant Professor,AI&DS V S B College of Engineering Technical Campus Coimbatore Coimbatore -----

3)D Jeevitha

Address of Applicant :Assistant Professor,AI&DS V S B College of Engineering Technical Campus Coimbatore Coimbatore -----

4)D S Jaya Kumari

Address of Applicant :Assistant Professor AI&DS V S B College of Engineering Technical Campus Coimbatore Coimbatore -----

5)V MurugaLakshmi

Address of Applicant :Assistant Professor AI&DS V S B College of Engineering Technical Campus Coimbatore Coimbatore -----

6)F Theophilus

Address of Applicant :Assistant Professor AI&DS V S B College of Engineering Technical Campus Coimbatore Coimbatore -----

7)Dr R Murugadoss

Address of Applicant :Professor ,AI&DS, V S B College of Engineering Technical Campus Coimbatore Coimbatore -----

8)Dr P Venkadesh

Address of Applicant :Professor ,AI&DS, V S B College of Engineering Technical Campus Coimbatore Coimbatore -----

(57) Abstract :

This study develops a chat room and a Chat-Bot to discuss the prevailing issues related to farming with peers and expertise and support farmers to make timely decision on farming. A standard set of questions was identified through discussions and surveys with farmers, expertise and other stakeholders. Intents, which the users might want to know, and examples, which the users use to explain a specific intent and entities that are different objects referring to an intent were identified from the questions. Artificial Intelligence Markup Language (AIML) was used to train a model, which predicts an intent based on the given example. The Chat-Bot was implemented in a cloud platform and therefore, the client end does not require more computational resources. Farmers loose their yield because they lack knowledge of new technologies and different parameters that help them increase their yield. Our proposed system performs machine learning analysis on all the valuable parameters required for increasing the farmers yield .We analyse the weather , season, rainfall ,and type of soil of a region and based on historic data train the system to suggest which crops to grow , and which mix crops grown together increase their yield We also answer all these farmers questions using auto-chat bot .This chat bot is NLP trained hence it learns on its own and improvises its answers .This system helps farmers in remote places where no connectivity is present to better understand the crop to be grown based on atmospheric conditions and also answer their basic questions on farming

No. of Pages : 9 No. of Claims : 5