ANNAMACHARYA UNIVERSITY, RAJAMPET

List of Patent published & Granted by the faculty during-2025-26

Sl. No	Patent Application Number	Name of the Applicant (s)	Name of the Inventor (s)	Title of the Patent	Patent Filed Date (DD/MM/YY)	Date of Published (DD.MM.YY)	Patent Publication Number	Patent Granted Date (DD.MM.YY)	Patent Granted Number	National/International	Assignee/s Name (Institute Affiliation/s at time of Appication)	Status
1	202541095088	G. Pullaiah College of Engineering and Technology	Dr. C. Naga Kumar, **Dr. G. Suresh Babu**, Dr N. Leela Prasad, Dr. G. Praveen Kumar, Mr. A. Ramanjaneya, Mr. M. Nagaraju, M. Johnson, Mr. M. Jayaramudu	Autonomous Robot for Precision Manufacturing and Assembly	03.10.2025	31.10.2025	44/2025			National	Annamacharya University	Publication
2	202541070557	**Dr. P. Krishna Moorthy Dr. V. Mouneswari Dr. T. Navaneetha V. Vedavathi K. Subbareddy B. Koushik**	Dr. P. Krishna Moorthy Dr. V. Mouneswari Dr. T. Navaneetha V. Vedavathi K. Subbareddy B. Koushik	Strategic Buyer-Seller Interaction System for Real-Time Promotion and Transaction Management	24.07.2025	01.08.2025	31/2025			National	Annamacharya University	Publication
3	202541075926	Zaira Zaman Chowdhury Dr.S.Mangai Sreenivas S Satheesh kumar R Dr A Tamizhselvi **Dr.C.V.Lakshmi Narayana Dr.J.Krishna** Tamilarasi R A Suresh Kumar Thulasimani T Palla Aruna Mr. R. Dharmalingam	Zaira Zaman Chowdhury Dr.S.Mangai Sreenivas S Satheesh kumar R Dr A Tamizhselvi **Dr.C.V.Lakshmi Narayana Dr.J.Krishna** Tamilarasi R A Suresh Kumar Thulasimani T Palla Aruna Mr. R. Dharmalingam	System and method for student performance prediction using non-linear feature analysis and machine	09.08.2025	05.09.2025	36/2025			National	Annamacharya University	Publication
4	202511075980	Ankur Jain Dr. Reena Prashant Dr. Sahebrao N. Shinde Kruthi V P Mrs. Yaramala Nagamani P Bushra Anjum **Dr. C. V. Lakshmi Narayana** Dr Deepak Sundrani L. Panneer Dhas Dr. K. Senthil Prakash Dr. V. Prabakaran B. Mohanapriya	Ankur Jain Dr. Reena Prashant Dr. Sahebrao N. Shinde Kruthi V P Mrs. Yaramala Nagamani P Bushra Anjum **Dr. C. V. Lakshmi Narayana** Dr Deepak Sundrani L. Panneer Dhas Dr. K. Senthil Prakash Dr. V. Prabakaran B. Mohanapriya	Machine learning-powered cloud security framework for e-commerce platforms with integrated behavioral analytics	09.08.2025	29.08.2025	35/2025			National	Annamacharya University	Publication
5	202521076477	Kishan Singh Dr. Rashmi Mohapatra Nishant N. Patel Kavipriya S Prakash A Kumbar Deepali S. Jadhav **Dr. C. V. Lakshmi Narayana** Dinesh E Jeyaprakash N Dr. D. Satheesh Kumar Mr. Sudhakar Parmeshwar Dr. R. Kalpana	Kishan Singh Dr. Rashmi Mohapatra Nishant N. Patel Kavipriya S Prakash A Kumbar Deepali S. Jadhav **Dr. C. V. Lakshmi Narayana** Dinesh E Jeyaprakash N Dr. D. Satheesh Kumar Mr. Sudhakar Parmeshwar Dr. R. Kalpana	Integrative ayurvedic management of chronic kidney disease using panchakarma and ml-based predictive analytics	11.08.2025	17.10.2025	42/2025			National	Annamacharya University	Publication

6	202511077422	Senivarapu Ankit Reddy **Dr. C. V. Lakshmi Narayana** Manjunatha G Y Shivashankarachar Ravi Shankar Garapati Thiruvenkatasuresh M P Dr. P. Agilan S. Revathi R. Janani Dr. Sanjeev Kumar Sharma Dr. Naitik ST S Nagoorkani	Senivarapu Ankit Reddy **Dr. C. V. Lakshmi Narayana** Manjunatha G Y Shivashankarachar Ravi Shankar Garapati Thiruvenkatasuresh M P Dr. P. Agilan S. Revathi R. Janani Dr. Sanjeev Kumar Sharma Dr. Naitik ST S Nagoorkani	Machine learning-based fraud detection for cloud banking using behavioral biometrics	14.08.2025	05.09.2025	36/2025			National	Annamacharya University	Publication
7	202541083072	Dr. R. Murugesan Dr. Aakanksha Sharma RaviTeja Aida **Dr. C.V.Lakshmi Narayana** Dr. Shaik Balkhis Banu Dr.S.Gopikha S Nandhini devi Dr Sureshkumar Markanday Subramanian Mr. R. Virappan Dr.Soubache. I.D. M. Rahman Khan R.Niranjana	Dr. R. Murugesan Dr. Aakanksha Sharma RaviTeja Aida **Dr. C.V.Lakshmi Narayana** Dr. Shaik Balkhis Banu Dr.S.Gopikha S Nandhini devi Dr Sureshkumar Markanday Subramanian Mr. R. Virappan Dr.Soubache. I.D. M. Rahman Khan R.Niranjana	ML-driven framework for analyzing student fitness and wellbeing through sports training in higher education	01.09.2025	26.09.2025	39/2025			National	Annamacharya University	Publication
8	202541084788	Sheela D V, Dr. Vinay Kumar H S, Mr Akshay Mohan Suryawanshi, Raviteja Aida. Dr.M.Kavitha, Dr. Shrikant Dnyandeo Dr Vaddi Seshagiri Rao, Nangunuri Anjaneyulu Arulkumar.P, **Dr.C.V.Lakshmi Narayana, Dr. J. Krishna,** Dr. Rajesh Shantaramji	Sheela D V, Dr. Vinay Kumar H S, Mr Akshay Mohan Suryawanshi, Raviteja Aida. Dr.M.Kavitha, Dr. Shrikant Dnyandeo Dr Vaddi Seshagiri Rao, Nangunuri Anjaneyulu Arulkumar.P, **Dr.C.V.Lakshmi Narayana, Dr. J. Krishna,** Dr. Rajesh Shantaramji	Intelligent energy management architecture for smart cities using AI-enhanced VLSI systems	07/09/2025	Ready for Publication				National	Annamacharya University	Under press
9	202521087207	Nishant shrivastava Mr. R. Dharmaling S. Manjula Dr. P. Chellammal Dr Lalit mohan trivedi S Bharathidasan Dr. Srijan paul Dr. Soumitra mondal **Dr N Penchalaiah** Subhashini v Vigneshwaran k Dr H Anwer basha	Nishant shrivastava Mr. R. Dharmaling S. Manjula Dr. P. Chellammal Dr Lalit mohan trivedi S Bharathidasan Dr. Srijan paul Dr. Soumitra mondal **Dr N Penchalaiah** Subhashini v Vigneshwaran k Dr H Anwer basha	Machine learning-driven predictive models for enhancing student success and entrepreneurial skills in higher education	13.09.2025	26.09.2025	39/2025			National	Annamacharya University	Publication

10	202541087924	Raghavalu Ramella Dr. Rakesh Ashok More Dr. A. Adisesha Reddy M.Goverdhana Reddy Mr. M. Nandhakumar Dr Deepak Sundrani Kajal Srivastava Dr. Soumitra Mondal Banavathu Ramyasree Dr. Pushpalatha L **Dr. J. Krishna** Jeyaprakash N	Raghavalu Ramella Dr. Rakesh Ashok More Dr. A. Adisesha Reddy M.Goverdhana Reddy Mr. M. Nandhakumar Dr Deepak Sundrani Kajal Srivastava Dr. Soumitra Mondal Banavathu Ramyasree Dr. Pushpalatha L **Dr. J. Krishna** Jeyaprakash N	Ml-powered predictive analytics for academic performance and psychological behaviour among students in higher education	16.09.2025	10.10.2025	41/2025			National	Annamacharya University	Publication
11	6486798 (Deisgn no.)	Dr. Panjali Kakre, Dr. Kirty Jadav, Dr. Ravikumar Nehra, Dr. Alisha banga, Dr. Anurag Soni, **Dr. S. Fayaz begam**	Dr. Panjali Kakre, Dr. Kirty Jadav, Dr. Ravikumar Nehra, Dr. Alisha banga, Dr. Anurag Soni, **Dr. S. Fayaz begam**	AI enhanced-ECG monitoring device for workforce and student performance assessment	19.11.2025 (Registration date)	04.12.2025	6486798	03.12.2025	6486798	International (UK)	Annamacharya University	Design Grant
12	202541129813	B. Supraja, D. Prasanth, Supriya J, Vikash sawan, T. Harhni, **Dr. S. Fayaz Begam**, Dr. Sridhar B	B. Supraja, D. Prasanth, Supriya J, Vikash sawan, T. Harhni, **Dr. S. Fayaz Begam**, Dr. Sridhar B	Li-Fi Based High-Speed Data Transmission System for Smart Cities	22.12.2025	02.01.2026	11/2025			National	Annamacharya University	Publication
13	202641043169	Dr. Anwar Basha P, Dr. G Appala Naidu, Ms. Priyanka B, **Dr. Sk Karimulla**, Dr. R. Gurunath, Dr. A. Gangadhar, Dr. K. Babulu, Dr. Ch. Bindhuu Madhuri	Dr. Anwar Basha P, Dr. G Appala Naidu, Ms. Priyanka B, **Dr. Sk Karimulla**, Dr. R. Gurunath, Dr. A. Gangadhar, Dr. K. Babulu, Dr. Ch. Bindhuu Madhuri	A Cost-Effective Microcontroller-based Solar Panel Maintenance System with Automated Cleaning and Sun Tracking	04.04.2026	17.04.2026	16/2026			National	Annamacharya University	Publication
14	202641043145	Dr. Anwar Basha P, Dr. G Appala Naidu, Ms. Priyanka B, **Dr. Sk Karimulla**, Dr. R. Gurunath, Dr. A. Gangadhar, Dr. K. Babulu, Dr. Ch. Bindhuu Madhuri	Dr. Anwar Basha P, Dr. G Appala Naidu, Ms. Priyanka B, **Dr. Sk Karimulla**, Dr. R. Gurunath, Dr. A. Gangadhar, Dr. K. Babulu, Dr. Ch. Bindhuu Madhuri	Smart Manhole Monitoring and Hazard Alert System using IoT and Multi-Sensor Fusion	04.04.2026	17.04.2026	16/2026			National	Annamacharya University	Publication
15	202541106054	O. Bhulakshmi, **P. Swathi**, D. Kumar, S. Arjun Ajay Deekshith	O. Bhulakshmi, **P. Swathi**, D. Kumar, S. Arjun Ajay Deekshith	Bridging language and vision: Bidirectional LSTM-enhanced CNN framework for Text-to-Image synthesis	03.11.2025	19.12.2025	51/2025			National	Annamacharya University	Publication
16	202641004678	Dr. K. Lakshminarayana	K Avinash, Dr. K. Lakshminarayana, Dr. P K Venkateswara Lal, Mr. Purushotham E, **Dr. N Chinna Alluraiah**, Dr. P. Jayaprakash, A. Hasini, JD Manjula, K. Esvar, M. Likitha	CyberShield: A Comprehensive Online Virus Detection System Using Risk Level Analysis, Junk Mail Filtering & Multi-Factor Authentication	17.01.2026	30.01.2026	05/.2026			National	Annamacharya University	Publication
17	202641005477	K. Yoga Prasad, Dr. Srinivasulu G, Dr. K M Hemambaram, Dr. M. Mahaboob Basha, **Dr. O. Hemakesavulu**	K. Yoga Prasad, Dr. Srinivasulu G, Dr. K M Hemambaram, Dr. M. Mahaboob Basha, **Dr. O. Hemakesavulu**	Voltage Level Driven Short Circuit Aware Voltage Level Shifter for Deep Sub Micron Applications	19.01.2026	30.01.2026	05/.2026			National	Annamacharya University	Publication

18	487149-001 (Applicaton No)	Raghavendra Sode, Ankit Jain, Bhuvana R, Sarita Chouhan, Shashank S, Rahul Kumar Misra, Shivam Dubey, Manjula G V, Tushar Dhiman, **K Adisekhar Babu**	Raghavendra Sode, Ankit Jain, Bhuvana R, Sarita Chouhan, Shashank S, Rahul Kumar Misra, Shivam Dubey, Manjula G V, Tushar Dhiman, **K Adisekhar Babu**	Smart organisational performance monitoring device	143.01.2026						Annamacharya University	
19	202541126216	Dr. G. Rajavikram, Dr. Raghavendra Goud, Dr. Sneh garg, N Vijayalakshmi, P Srivastava, Amar Chaudary, **Dr. Swarna Surekha**	Dr. G. Rajavikram, Dr. Raghavendra Goud, Dr. Sneh garg, N Vijayalakshmi, P Srivastava, Amar Chaudary, **Dr. Swarna Surekha**	Automated API synthesis system using natural language inputs	13.12.2025	02.01.2026	01/.2026			National	Annamacharya University	Publication
20	202641017586	A. Vishalakshi, **Dr. T. Harikrishna**	A. Vishalakshi, **Dr. T. Harikrishna**	Federated deep reinforcement learning driven adaptive DDOS defense for smart grid communication networks	17.02.2026	27.02.2027	09/.2026			National	Annamacharya University	Publication
21	202521086616	Abdul Razak Khan Q, R. Dharmalingam, S. Manjula, Dr.P. Challamal, Dr. Lalith Mohan, **Dr. N. Penchalaiah**, Jayaprakash N, Vigenswaran K, Dr. H Answer Basha	Abdul Razak Khan Q, R. Dharmalingam, S. Manjula, Dr.P. Challamal, Dr. Lalith Mohan, **Dr. N. Penchalaiah**, Jayaprakash N, Vigenswaran K, Dr. H Answer Basha	Maachine learning-enabled system for monitoring faculty behaviou and opetimizing teaching effectiveness in higher education	12.09.2025	17.10.2025	42/2025			National	Annamacharya University	Publication
22	64891698 (Deisgn no.)	Mr. Manikantan R, Dr. Muthuraju P, Mr. Sayed Faizal, Mrs. Kalpana Ch, Dr. Archana sharma, Dr. Vijay Kumar, **Swarna Surekha**	Mr. Manikantan R, Dr. Muthuraju P, Mr. Sayed Faizal, Mrs. Kalpana Ch, Dr. Archana sharma, Dr. Vijay Kumar, **Swarna Surekha**	Smart wearable health monitoring device using Edge Computing	28.11.2025 (Registration date)	11.12.2025	64891698	10.12.2025	64891698	Internationa l (UK)	Annamacharya University	Design Grant

Patent Search

Invention Title	Autonomous Robot for Precision Manufacturing and Assembly
Publication Number	44/2025
Publication Date	31/10/2025
Publication Type	INA
Application Number	202541095088
Application Filing Date	03/10/2025
Priority Number	
Priority Country	
Priority Date	
Field Of Invention	ELECTRONICS
Classification (IPC)	B25J0009160000, G05B0019418000, G06F0009500000, G06N0003080000, H04L0001000000

Inventor

Name	Address	Country	Nationali
Dr. C. Naga Kumar	Associate Professor, Department of Mechanical Engineering, G. Pullaiah College of Engineering and Technology, Kurnool, A.P., India.	India	India
Dr. G. Suresh Babu	Assistant Professor, Department of Mechanical Engineering Annamacharya Institute of Technology and Sciences, Rajampet -Now Annamacharya University, Andhra Pradesh.	India	India
Dr N. Leela Prasad	Professor, Department of Mechanical Engineering, Vignan Institute of Technology and Science, Deshmukhi, Near RFC, Pochampalli (M), Yadadri-Bhuvanagiri District, Telangana State 508 284, India.	India	India
Dr. G. Praveen Kumar	Associate Professor, Department of Mechanical Engineering, G. Pullaiah College of Engineering and Technology, Kurnool, A.P., India.	India	India
Mr. A. Ramanjaneya Reddy	Assistant Professor, Department of Mechanical Engineering, G. Pullaiah College of Engineering and Technology (Autonomous), Nandikotkur Road, Near Venkayapalle, Pasupula Village, KURNOOL -518002, A.P., India.	India	India
Mr. M. Nagaraju	Assistant Professor, Department of Mechanical Engineering, G. Pullaiah College of Engineering and Technology (Autonomous), Nandikotkur Road, Near Venkayapalle, Pasupula Village, KURNOOL -518002, A.P., India.	India	India
M. Johnson	Assistant professor Department of Mechanical Engineering, G. Pullaiah College of engineering and technology, kurnool, A.P, India.	India	India
Mr. M. Jayaramudu	Assistant Professor, Department of Mechanical Engineering, G. Pullaiah College of Engineering and Technology (Autonomous), Nandikotkur Road, Near Venkayapalle, Pasupula Village, Kurnool -518002, A.P., India.	India	India

Applicant

Name	Address	Country	Nationali
G. Pullaiah College of Engineering and Technology	G. Pullaiah College of Engineering and Technology (Autonomous), Nandikotkur Road, Near Venkayapalle, Pasupula Village, KURNOOL -518002	India	India

Abstract:

This invention employs advanced artificial intelligence algorithms for object recognition, pose estimation, path planning, and real-time error correction. Through sensor fusion and closed-loop feedback control, the robot can dynamically adapt to variations in part geometry, orientation, and environmental conditions, ensuring consistent precision in complex tasks such as component placement, micro-fastening, and adhesive application. The system features a modular and reconfigurable software framework that supports rapid task switching and learning-based optimization, enabling minimal downtime and high throughput. Cloud and edge computing capabilities allow for remote monitoring, da analytics, predictive maintenance, and continuous performance improvement. Designed for seamless integration into smart factory environments, the robot communicates wit other machines via standard industrial protocols and complies with international safety standards. This invention offers a flexible, intelligent, and autonomous solution for next generation precision manufacturing and assembly operations, reducing dependency on human labor while increasing consistency, speed, and product quality.

Complete Specification

Description:Field and Background of the Invention
The present invention relates to the field of robotics, automation, and intelligent manufacturing systems, and more specifically to an autonomous robotic system designed for high-precision manufacturing and assembly tasks in industrial environments. As global industries advance toward Industry 4.0, the demand for more efficient, flexible, and intelligent manufacturing processes has intensified. Traditional robotic systems used in manufacturing often rely on pre-programmed routines, rigid tooling, and structured environments, which limit their adaptability to changes in product design, tolerances, and assembly sequences. These systems typically require significant downtime and manual intervention to reconfigure for different tasks, which affects productivity and limits scalability. Furthermore, achieving micron-level precision in complex assemblies—such as those found in aerospace, medical devices, microelectronics, and automotive components—demands not only mechanical accuracy but also adaptive decision-making capabilities to correct for variations in real time.
This has prompted a surge of interest in autonomous systems that can integrate sensor feedback, machine learning algorithms, and advanced path planning to perform intricate manufacturing operations with minimal human oversight. Over the past decade, significant advances in artificial intelligence (AI), machine vision, sensor technologies, and robotics hardware have paved the way for more autonomous and intelligent robotic systems. However, existing solutions still fall short in critical areas such as precision alignment, adaptive part handling, and dynamic assembly planning in unstructured or semi-structured environments.

For instance, traditional vision-guided robots may struggle with identifying small components under varying lighting conditions or may fail to adjust to part deformations or

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Patent Search

Invention Title	Strategic Buyer-Seller Interaction System for Real-Time Promotion and Transaction Management
Publication Number	31/2025
Publication Date	01/08/2025
Publication Type	INA
Application Number	202541070557
Application Filing Date	24/07/2025
Priority Number	
Priority Country	
Priority Date	
Field Of Invention	BIO-MEDICAL ENGINEERING
Classification (IPC)	G06Q0030022600, G06Q0030060100, G06Q0030025100, G06Q0030020400, G16H0050200000

Inventor

Name	Address	Country	Nationali
Dr. P. Krishna Moorthy	Professor, School of Management Annamacharya University, Rajampet, Boyanapalli, Kadapa-516126, Andhra Pradesh, India.	India	India
Dr. V. Mouneswari	Assistant Professor, School of Management Annamacharya University, Rajampet, Boyanapalli, Kadapa-516126, Andhra Pradesh, India.	India	India
Dr. T. Navaneetha	Assistant Professor, School of Management Annamacharya University, Rajampet, Boyanapalli, Kadapa-516126, Andhra Pradesh, India.	India	India
V. Vedavathi	Assistant Professor, School of Management Annamacharya University, Rajampet, Boyanapalli, Kadapa-516126, Andhra Pradesh, India.	India	India
K. Subbareddy	Assistant Professor, School of Management Annamacharya University, Rajampet, Boyanapalli, Kadapa-516126, Andhra Pradesh, India.	India	India
B. Koushik	Assistant Professor, School of Management Annamacharya University, Rajampet, Boyanapalli, Kadapa-516126, Andhra Pradesh, India.	India	India

Applicant

Name	Address	Country	Nationali
Dr. P. Krishna Moorthy	Professor, School of Management Annamacharya University, Rajampet, Boyanapalli, Kadapa-516126, Andhra Pradesh, India.	India	India
Dr. V. Mouneswari	Assistant Professor, School of Management Annamacharya University, Rajampet, Boyanapalli, Kadapa-516126, Andhra Pradesh, India.	India	India
Dr. T. Navaneetha	Assistant Professor, School of Management Annamacharya University, Rajampet, Boyanapalli, Kadapa-516126, Andhra Pradesh, India.	India	India
V. Vedavathi	Assistant Professor, School of Management Annamacharya University, Rajampet, Boyanapalli, Kadapa-516126, Andhra Pradesh, India.	India	India
K. Subbareddy	Assistant Professor, School of Management Annamacharya University, Rajampet, Boyanapalli, Kadapa-516126, Andhra Pradesh, India.	India	India
B. Koushik	Assistant Professor, School of Management Annamacharya University, Rajampet, Boyanapalli, Kadapa-516126, Andhra Pradesh, India.	India	India

Abstract:

ABSTRACT: Title: Strategic Buyer-Seller Interaction System for Real-Time Promotion and Transaction Management The present disclosure proposes a strategic buyer-seller interaction system (100) that enables dynamic promotional distribution, buyer engagement tracking, payment integration, loyalty rewards issuance, and data-driven strategic recommendations to optimize sales and customer outreach. The strategic buyer-seller interaction system (100) comprises a computing device (102) having a processor (104) an a memory (106) for storing one or more instructions executable by the processor (104). The processor (104) is configured to execute plurality of modules (108) for real-time promotion and transaction management. The plurality of modules (108) comprises a buyer registration module (110), a storage module (112), a transmission module (114), a capturing module (116), a processing module (118), and a recommendation module (120). The proposed strategic buyer-seller interaction system (100) employs machine learnir algorithms to generate intelligent recommendations and dynamically optimize promotional strategies based on buyer behavior and market trends.

Complete Specification

Description:DESCRIPTION:
Field of the invention:
[0001] The present disclosure generally relates to the technical field of digital commerce and marketing technologies, and in specific, relates to a strategic buyer-seller interaction system that enables dynamic promotional distribution, buyer engagement tracking, payment integration, loyalty rewards issuance, and data-driven strategic recommendations to optimize sales and customer outreach.
Background of the invention:
[0002] In the rapidly evolving landscape of digital commerce, businesses are increasingly relying on promotional offers and targeted advertising to attract and retain customers. Traditional marketing methods such as printed coupons, billboard advertisements, and generic online banners are becoming less effective due to the lack of personalization, time sensitivity, and measurable performance tracking. Moreover, these conventional techniques often fail to reach potential buyers at the right place and time, thereby reducing the overall efficiency of promotional campaigns.
[0003] With the widespread adoption of smartphones, GPS-enabled devices, and wireless communication networks, there is a growing opportunity to transform the way promotional content is delivered and utilized. Buyers today seek personalized, real-time offers that align with their preferences, location, and purchasing habits. On the other hand, sellers require sophisticated tools to strategically distribute promotions, measure their effectiveness, and adapt their marketing strategies based on real-time data analytics.
[0004] Existing systems in the domain of mobile advertising or electronic coupon distribution are often fragmented, lacking integration with payment processors, loyalty

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Patent Search

Invention Title	SYSTEM AND METHOD FOR STUDENT PERFORMANCE PREDICTION USING NON-LINEAR FEATURE ANALYSIS AND MACHINE LEARNING
Publication Number	36/2025
Publication Date	05/09/2025
Publication Type	INA
Application Number	202541075926
Application Filing Date	09/08/2025
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Priority Date	
Field Of Invention	COMPUTER SCIENCE
Classification (IPC)	G06N0020000000, H04L0041160000, G06Q0050200000, G05B0023020000, A61B0005145000

Inventor

Name	Address	Country	Nationalit
Zaira Zaman Chowdhury	Associate Professor and Industrial Traing Coordinator, Nanotechnology and Catalysis Research Center(NANOCAT), Institute of Advanced Studies, University of Malaya, 50603, Kuala Lumpur, Malaysia	Bangladesh	Banglades
Dr.S.Mangai	Professor and Head, Department of BioMedical Engineering, Velalar College of Engineering and Technology Thindal Erode-638012	India	India
Sreenivas S	Professor, Mechanical Engineering, Cambridge Institute of Technology, Bengaluru, 560036	India	India
Satheesh kumar R	Assiatant Professor, Department of Electrical and Electronics Engineering, SNS College of Technology, Coimbatore - 641035	India	India
Dr A Tamizhselvi	Professor, Department of information technology, St. Joseph's college of Engineering, chennai 600 119	India	India
Dr.C.V.Lakshmi Narayana	Assistant Professor, Department of AI&ML, Annamacharya University,Rajampet-516126	India	India
Dr.J.Krishna	Associate Professor, Department of AI & ML, Annamacharya University, Rajampet - 516126	India	India
Tamilarasi R	Assistant Professor, Department of Computer Science and Engineering (Artificial Intelligence and Machine Learning), Velalar College of Engineering and Technology, Thindal-638012	India	India
A Suresh Kumar	Assistant Professor, Rathinam Technical Campus, Coimbatore-641021. Tamil Nadu, India.	India	India
Thulasimani T	Associate Professor, Department of Mathematics, Bannari Amman Institute of Technology, Sathyamangalam - 638401	India	India
Palla Aruna	Assistant professor, Department of Cyber security, Narasimha Reddy engineering college Hyderabad,500100	India	India
Mr. R. Dharmalingam	Assistant Professor, Department of English, Jamal Mohamed College (Autonomous), Tiruchirapalli-20	India	India

Applicant

Name	Address	Country	Nationalit
Zaira Zaman Chowdhury	Associate Professor and Industrial Traing Coordinator, Nanotechnology and Catalysis Research Center(NANOCAT), Institute of Advanced Studies, University of Malaya, 50603, Kuala Lumpur, Malaysia	Malaysia	Banglades
Dr.S.Mangai	Professor and Head, Department of BioMedical Engineering, Velalar College of Engineering and Technology Thindal Erode-638012	India	India
Sreenivas S	Professor, Mechanical Engineering, Cambridge Institute of Technology, Bengaluru, 560036	India	India
Satheesh kumar R	Assiatant Professor, Department of Electrical and Electronics Engineering, SNS College of Technology, Coimbatore - 641035	India	India
Dr A Tamizhselvi	Professor, Department of information technology, St. Joseph's college of Engineering, chennai 600 119	India	India
Dr.C.V.Lakshmi Narayana	Assistant Professor, Department of AI&ML, Annamacharya University,Rajampet-516126	India	India
Dr.J.Krishna	Associate Professor, Department of AI & ML, Annamacharya University, Rajampet - 516126	India	India
Tamilarasi R	Assistant Professor, Department of Computer Science and Engineering (Artificial Intelligence and Machine Learning), Velalar College of Engineering and Technology, Thindal-638012	India	India
A Suresh Kumar	Assistant Professor, Rathinam Technical Campus, Coimbatore-641021. Tamil Nadu, India.	India	India
Thulasimani T	Associate Professor, Department of Mathematics, Bannari Amman Institute of Technology, Sathyamangalam - 638401	India	India
Palla Aruna	Assistant professor, Department of Cyber security, Narasimha Reddy engineering college Hyderabad,500100	India	India
Mr. R. Dharmalingam	Assistant Professor, Department of English, Jamal Mohamed College (Autonomous), Tiruchirapalli-20	India	India

Abstract:

System and Method for Student Performance Prediction Using Non-Linear Feature Analysis and Machine Learning is the proposed invention. The proposed invention focuses o understanding the functions of Non-Linear Feature Analysis. The invention focuses on analyzing the parameters of System and Method for Student Performance Prediction usir algorithms of Machine Learning Approach.

Complete Specification

Description:The present invention relates to the field of designing and implementing a framework of Machine Learning Approach to analyze the System and Method for Student Performance Prediction. The proposed invention focuses on Understanding the functions of Non-Linear Feature Analysis using algorithms of Machine Learning Approach.

BACKGROUND OF INVENTION

[0001] Background description includes information that may be useful in understanding the present invention. It is not an admission that any of the information provided herein is prior art or relevant to the presently claimed invention, or that any publication specifically or implicitly referenced is prior art.

[0002] Machine learning (ML) is a type of artificial intelligence (AI) that allows computers to learn from data and improve their performance over time. Machine learning (ML) uses algorithms to analyze data, identify patterns, and make predictions. Machine learning (ML) systems are fed large amounts of data. Machine learning (ML) can help companies make informed decisions. Machine learning algorithms can be used depending on the data and desired level of complexity, such as linear regression, decision trees, random forests, support vector machines, or neural networks.

[0003] A number of different types of student performance analysis systems that are known in the prior art. For example, the following patents are provided for their supportive teachings and are all incorporated by reference.

[0004] US8491311B2: Embodiments of systems and methods are disclosed that analyze student performance and provide feedback regarding the student performance, for example, to an instructor, other school official, parent or directly to the student. In certain embodiments, the methods and systems communicate in real time with the educational program, for example, math or science games, lessons, quizzes or tests, to provide contemporaneous feedback or recommendations to the instructor regarding

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Patent Search

Invention Title	MACHINE LEARNING-POWERED CLOUD SECURITY FRAMEWORK FOR E-COMMERCE PLATFORMS WITH INTEGRATED BEHAVIORAL ANALYTICS
Publication Number	35/2025
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Field Of Invention	COMMUNICATION
Classification (IPC)	H04L0009400000, G06N0020000000, G06F0021550000, G06Q0030060100, G06F0016901000

Inventor

Name	Address	Country	Nationali
Ankur Jain	Assistant Professor, Department of Computer Science and Engineering, IFTM University, Moradabad, Uttar Pradesh, 244102, India	India	India
Dr. Reena Prashant Shinde	Associate Professor, Department of Computer Science, Sinhgad College of Science, Pune, 411046, Maharashtra, India	India	India
Dr. Sahebrao N. Shinde	Principal, Department of Computer Science, MVP KRT Arts& Commerce College, Vani, Nashik, Maharashtra, India	India	India
Kruthi V P	Assistant Professor, Department of Management Studies-MBA, M S Ramaiah College of Arts, Science and Commerce, MSR Nagar, Mathikere, Bengaluru, 560054, Bangalore Urban, Karnataka, India	India	India
Mrs. Yaramala Nagamani	Assistant Professor, Department of Master of Business Administration, Lakireddy Bali Reddy College of Engineering(A), Mylavaram, NTR, Andhra Pradesh, India	India	India
P Bushra Anjum	Assistant Professor, Department of Computer Science & Engineering, Koneru Lakshmaiah Education Foundation, Vaddeswaram, Guntur, 522302, Andhra Pradesh, India	India	India
Dr. C. V. Lakshmi Narayana	Assistant Professor, Department of AI & ML, Annamacharya University, Rajampet, 516126, Annamayya, Andhra Pradesh, India	India	India
Dr Deepak Sundrani	Associate Professor, School of Construction, Nicmar University, Pune, 411045, Maharashtra, India	India	India
L. Panneer Dhas	Assistant Professor, Department of Computer science and Application, Koneru Lakshmaiah Education Foundation, Vaddeswaram, Greenfield, Guntur, 522302, Vijayawada, Andhra Pradesh, India	India	India
Dr. K. Senthil Prakash	Professor, Department of Electronics and Communication Engineering, Velalar College of Engineering and Technology, Erode, 638012, Tamil Nadu, India	India	India
Dr. V. Prabakaran	Professor, Department of Management, Rathinam College of Arts and Science, Eachanari, Coimbatore, 641021, Tamil Nadu, India	India	India
B. Mohanapriya	Assistant professor, Department of Computer Science and Engineering, Velalar College of Engineering and Technology, Thindal, 638012, Erode, Tamil Nadu, India	India	India

Applicant

Name	Address	Country	Nationali
Ankur Jain	Assistant Professor, Department of Computer Science and Engineering, IFTM University, Moradabad, Uttar Pradesh, 244102, India	India	India
Dr. Reena Prashant Shinde	Associate Professor, Department of Computer Science, Sinhgad College of Science, Pune, 411046, Maharashtra, India	India	India
Dr. Sahebrao N. Shinde	Principal, Department of Computer Science, MVP KRT Arts& Commerce College, Vani, Nashik, Maharashtra, India	India	India
Kruthi V P	Assistant Professor, Department of Management Studies-MBA, M S Ramaiah College of Arts, Science and Commerce, MSR Nagar, Mathikere, Bengaluru, 560054, Bangalore Urban, Karnataka, India	India	India
Mrs. Yaramala Nagamani	Assistant Professor, Department of Master of Business Administration, Lakireddy Bali Reddy College of Engineering(A), Mylavaram, NTR, Andhra Pradesh, India	India	India
P Bushra Anjum	Assistant Professor, Department of Computer Science & Engineering, Koneru Lakshmaiah Education Foundation, Vaddeswaram, Guntur, 522302, Andhra Pradesh, India	India	India
Dr. C. V. Lakshmi Narayana	Assistant Professor, Department of AI & ML, Annamacharya University, Rajampet, 516126, Annamayya, Andhra Pradesh, India	India	India
Dr Deepak Sundrani	Associate Professor, School of Construction, Nicmar University, Pune, 411045, Maharashtra, India	India	India
L. Panneer Dhas	Assistant Professor, Department of Computer science and Application, Koneru Lakshmaiah Education Foundation, Vaddeswaram, Greenfield, Guntur, 522302, Vijayawada, Andhra Pradesh, India	India	India
Dr. K. Senthil Prakash	Professor, Department of Electronics and Communication Engineering, Velalar College of Engineering and Technology, Erode, 638012, Tamil Nadu, India	India	India
Dr. V. Prabakaran	Professor, Department of Management, Rathinam College of Arts and Science, Eachanari, Coimbatore, 641021, Tamil Nadu, India	India	India
B. Mohanapriya	Assistant professor, Department of Computer Science and Engineering, Velalar College of Engineering and Technology, Thindal, 638012, Erode, Tamil Nadu, India	India	India

Abstract:

The present invention relates to the development of the demand for strong and astute cybersecurity solutions has increased due to the quick growth of e-commerce platforms. order to detect, prevent, and mitigate security threats in real time, this paper integrates advanced behavioral analytics into a machine learning-powered cloud security framewo that is specifically tailored for e-commerce environments. In order to spot irregularities suggestive of fraud, intrusion, or account breach, the framework continuously monitors user behavior, transaction patterns, and network activity using supervised and unsupervised learning techniques. Scalability, quick deployment, and real-time analytics are guaranteed by utilizing cloud-based architecture, and contextual threat detection is improved by the behavioral analysis layer's comprehension of normal versus unusual user behavior. Proactive threat management, automatic reactions, and ongoing learning from changing attack vectors are all supported by the suggested system. The findings show notable gains in response times, false-positive reduction, and detection accuracy. A comprehensive, flexible, and scalable security solution designed for the ever-changing landscape of contemporary e-commerce platforms is provided by this integrated approach. FIG.1

Complete Specification

Description:MACHINE LEARNING-POWERED CLOUD SECURITY FRAMEWORK FOR E-COMMERCE PLATFORMS WITH INTEGRATED BEHAVIORAL ANALYTICS

Technical Field

[0001] The embodiments herein generally relate to a method for machine learning-powered cloud security framework for e-commerce platforms with integrated behavioral analytics.

Description of the Related Art

[0002] The security of online platforms has become a major concern due to the quick growth of e-commerce and the broad use of cloud computing. Today's e-commerce platforms mostly depend on cloud infrastructure to guarantee cost-effectiveness, scalability, and performance. But this dependence also creates new weaknesses that are difficult for conventional security measures to fix. These consist of insider threats, zero-day assaults, advanced persistent threats (APTs), and real-time data breaches. Static rule-based security frameworks are inadequate for quickly identifying and addressing anomalies as cyber threats get more complex and dynamic.

[0003] The potential of machine learning (ML) to learn from massive amounts of data, identify trends, and anticipate harmful activity has made it a game-changing solution in the cybersecurity space. By processing real-time and historical data, machine learning algorithms can identify minute departures from typical behavior, facilitating proactive threat detection and response. Because ML-driven security frameworks provide scalability, automation, and the ability to adjust to changing attack vectors, they are especially beneficial in the context of cloud-based e-commerce systems.

[0004] Incorporating behavioral analytics is a particularly exciting development in this field. The ongoing tracking and examination of user behavior, including login habits

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Patent Search

Invention Title	INTEGRATIVE AYURVEDIC MANAGEMENT OF CHRONIC KIDNEY DISEASE USING PANCHAKARMA AND ML-BASED PREDICTIVE ANALYTICS
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Field Of Invention	BIO-MEDICAL ENGINEERING
Classification (IPC)	G16H0050200000, G16H0050500000, G16H0050300000, G16H0010600000, G16Z0099000000

Inventor

Name	Address	Country	Nationali
Kishan Singh	Assistant Professor, Department of Rachana Sharir, Parul institute of Ayurved, Parul University, Limda, Waghodiya, Vadodara, Gujarat, 391760, India	India	India
Dr. Rashmi Mohapatra	Associate professor, Department of Botany, Kalinga Institute of Social Sciences (KISS), Deemed to be University, Bhubaneswar, 751024, Khordha, Odisha, India	India	India
Nishant N. Patel	Assistant Professor, Department of Kayachikitsa, Parul Institute of Ayurved, Parul University, Vadodara, Gujarat, 391760, India	India	India
Kavipriya S	Assistant Professor, Department of Cardiac Technology, SNS College of Allied Health Science, Coimbatore, 641035, Tamil Nadu, India	India	India
Prakash A Kumbar	Professor, Department of Kayachikitsa, Eva College of Ayurved, Supedi, T Dhoraji, Rajkot, Gujarat, 360440, India	India	India
Deepali S. Jadhav	Assistant Professor, Department of Information Technology, Vishwakarma Institute of Technology, Pune, 411037, Maharashtra, India	India	India
Dr. C. V. Lakshmi Narayana	Assistant Professor, Department of AI&ML, Annamacharya University, Rajampet, 516126, Annamayya, Andhra Pradesh, India	India	India
Dinesh E	Associate Professor, Department of Electronics and Communication Engineering, M. Kumarasamy College of Engineering, Thalavapalayam, Karur, 639113, Tamil Nadu, India	India	India
Jeyaprakash N	Assistant Professor, Department of Electrical and Electronics Engineering, St. Joseph's college of Engineering, OMR, Chennai, 600119, Tamil Nadu, India	India	India
Dr. D. Satheesh Kumar	Associate Professor, Department of Artificial Intelligence and Machine Learning, Hindusthan College of Engineering and Technology, Coimbatore, 641032, Tamil Nadu, India	India	India
Mr. Sudhakar Parmeshwar Sarkate	Research Scholars, Department of Applied Electronics Sant Gadge Baba Amravati University, Amravati, 444602, Maharashtra, India	India	India
Dr. R. Kalpana	Assistant Professor, Department of Electronics and Communication Engineering, Vel Tech Multi Tech Dr. Rangarajan Dr. Sakunthala Engineering College, Chennai 600062, Thiruvallur, Tamil Nadu, India	India	India

Applicant

Name	Address	Country	Nationali
Kishan Singh	Assistant Professor, Department of Rachana Sharir, Parul institute of Ayurved, Parul University, Limda, Waghodiya, Vadodara, Gujarat, 391760, India	India	India
Dr. Rashmi Mohapatra	Associate professor, Department of Botany, Kalinga Institute of Social Sciences (KISS), Deemed to be University, Bhubaneswar, 751024, Khordha, Odisha, India	India	India
Nishant N. Patel	Assistant Professor, Department of Kayachikitsa, Parul Institute of Ayurved, Parul University, Vadodara, Gujarat, 391760, India	India	India
Kavipriya S	Assistant Professor, Department of Cardiac Technology, SNS College of Allied Health Science, Coimbatore, 641035, Tamil Nadu, India	India	India
Prakash A Kumbar	Professor, Department of Kayachikitsa, Eva College of Ayurved, Supedi, T Dhoraji, Rajkot, Gujarat, 360440, India	India	India
Deepali S. Jadhav	Assistant Professor, Department of Information Technology, Vishwakarma Institute of Technology, Pune, 411037, Maharashtra, India	India	India
Dr. C. V. Lakshmi Narayana	Assistant Professor, Department of AI&ML, Annamacharya University, Rajampet, 516126, Annamayya, Andhra Pradesh, India	India	India
Dinesh E	Associate Professor, Department of Electronics and Communication Engineering, M. Kumarasamy College of Engineering, Thalavapalayam, Karur, 639113, Tamil Nadu, India	India	India
Jeyaprakash N	Assistant Professor, Department of Electrical and Electronics Engineering, St. Joseph's college of Engineering, OMR, Chennai, 600119, Tamil Nadu, India	India	India
Dr. D. Satheesh Kumar	Associate Professor, Department of Artificial Intelligence and Machine Learning, Hindusthan College of Engineering and Technology, Coimbatore, 641032, Tamil Nadu, India	India	India
Mr. Sudhakar Parmeshwar Sarkate	Research Scholars, Department of Applied Electronics Sant Gadge Baba Amravati University, Amravati, 444602, Maharashtra, India	India	India
Dr. R. Kalpana	Assistant Professor, Department of Electronics and Communication Engineering, Vel Tech Multi Tech Dr. Rangarajan Dr. Sakunthala Engineering College, Chennai 600062, Thiruvallur, Tamil Nadu, India	India	India

Abstract:

INTEGRATIVE AYURVEDIC MANAGEMENT OF CHRONIC KIDNEY DISEASE USING PANCHAKARMA AND ML-BASED PREDICTIVE ANALYTICS The present invention relates to the development of the prevalence of chronic kidney disease (CKD) is rising worldwide, and traditional therapies frequently concentrate more on managing symptoms than on promoting overall health. This study suggests an integrative strategy to improve CKD prevention, monitoring, and management by fusing machine learning (ML)-based predictiv analytics with Ayurvedic concepts, particularly Panchakarma therapies. The detoxifying, restorative, and metabolic balancing properties of panchakarma are investigated for the potential to delay the progression of disease and enhance patient quality of life. ML algorithms are used concurrently to predict disease trajectories and customize treatment regimens by analysing patient-specific data, including test results, lifestyle factors, and drug responses. By providing patient-centred, evidence-based interventions, the integrat model seeks to bridge the gap between conventional and contemporary healthcare perspectives. This strategy aims to enhance early detection, maximize treatment results, an contribute to a sustainable, affordable CKD management framework that can be tailored to a variety of populations across the globe by combining Ayurvedic knowledge with cutting-edge analytics. FIG.1

Complete Specification

Description:INTEGRATIVE AYURVEDIC MANAGEMENT OF CHRONIC KIDNEY DISEASE USING PANCHAKARMA AND ML-BASED PREDICTIVE ANALYTICS

Technical Field

[0001] The embodiments herein generally relate to a method for integrative ayurvedic management of chronic kidney disease using panchakarma and ML-based predictive analytics.

Description of the Related Art

[0002] The degenerative illness known as chronic kidney disease (CKD) gradually reduces kidney function over time. Early signs, such as feeling ill or having a weak appetite, are sometimes ambiguous, which makes early detection difficult. Screening is essential, particularly for high-risk populations such individuals with diabetes, hypertension, or a family history of renal problems. With roughly 7.85 million instances in India and 37 million in the United States, chronic kidney disease (CKD) is becoming more commonplace worldwide. In 2019, it was responsible for 1.2 million deaths, which contributed to a substantial global health burden. People at high risk, such as those with diabetes, hypertension, or a family history of renal disease, are often screened for CKD. To differentiate it from acute renal damage, the diagnosis requires proof that kidney dysfunction has persisted for longer than three months. With an estimated frequency of 10% and an estimated 850 million people affected globally, it is acknowledged as a major public health concern. Due to a lack of healthcare resources and the growing prevalence of risk factors like diabetes and hypertension, particularly in Asia, the burden is especially noticeable in low- and middle-income nations.

[0003] Awagaha Swedana (therapeutic tub bathing), Shiropichu (medicated oil application on the scalp), Shiroabhyanga, Sneha Basti (oil enema), Kashay Basti (decoction

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Patent Search

Invention Title	MACHINE LEARNING-BASED FRAUD DETECTION FOR CLOUD BANKING USING BEHAVIORAL BIOMETRICS
Publication Number	36/2025
Publication Date	05/09/2025
Publication Type	INA
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Application Filing Date	14/08/2025
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Priority Country	
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Field Of Invention	COMPUTER SCIENCE
Classification (IPC)	G06N0020000000, G06F0021310000, H04L0009400000, G06Q0020400000, H04L0067500000

Inventor

Name	Address	Country	Nationali
Senivarapu Ankit Reddy	Student, 4th Year B.Tech in Computer Science Engineering, Manipal University Jaipur, Jaipur, Rajasthan, India	India	India
Dr. C. V. Lakshmi Narayana	Assistant Professor, Department of AI&ML, Annamacharya University, Rajampet, Annamayya, Andhra Pradesh, 516126, India	India	India
Manjunatha G	Assistant Professor, Department of CSD, PES Institute of Technology and Management, Shivamogga, Karnataka, 577204, India	India	India
Y Shivashankarachar	Assistant professor, Department of MBA, Acharya Bangalore B school (Autonomous), Bengaluru, Karnataka, 560091, India	India	India
Ravi Shankar Garapati	Sr. Software Engineer, Bosch, D no 52, ASR Nagar, Seethammadhara, Vishakapatnam, Andhra Pradesh, 530013, India	India	India
Thiruvenkatasuresh M P	Professor, Department of Information Technology, Erode Sengunthar Engineering college, Thudupathi, Perundurai, Erode, Tamil Nadu, 638057, India	India	India
Dr. P. Agilan	Associate Professor, Department of Mathematics, St. Joseph's College of Engineering, OMR, Chennai, Chengalpattu, Tamil Nadu, 600119, India	India	India
S. Revathi	Assistant Professor, Department of Computer Science and Engineering, Erode Sengunthar Engineering College, Thudupathi, Perundurai, Erode, Tamil Nadu, 638057, India	India	India
R. Janani	Assistant Professor, Department of Computer Science and Engineering, Rathinam Technical campus, Coimbatore, Tamil Nadu, 641021, India	India	India
Dr. Sanjeev Kumar Sharma	Professor and Director, Department of Computer Science and Engineering, Technocrats Institute of Technology – CSE, Bhopal, Madhya Pradesh, 462021, India	India	India
Dr. Naitik ST	Assistant Professor, Department of Computer Science and Engineering, School of Engineering, Dayananda Sagar University, Bangalore, Karnataka, 562112, India	India	India
S Nagoorkani	Assistant Professor of English, Jamal Mohamed College (Autonomous), Trichy, Tamil Nadu, 620020, India	India	India

Applicant

Name	Address	Country	Nationali
Senivarapu Ankit Reddy	Student, 4th Year B.Tech in Computer Science Engineering, Manipal University Jaipur, Jaipur, Rajasthan, India	India	India
Dr. C. V. Lakshmi Narayana	Assistant Professor, Department of AI&ML, Annamacharya University, Rajampet, Annamayya, Andhra Pradesh, 516126, India	India	India
Manjunatha G	Assistant Professor, Department of CSD, PES Institute of Technology and Management, Shivamogga, Karnataka, 577204, India	India	India
Y Shivashankarachar	Assistant professor, Department of MBA, Acharya Bangalore B school (Autonomous), Bengaluru, Karnataka, 560091, India	India	India
Ravi Shankar Garapati	Sr. Software Engineer, Bosch, D no 52, ASR Nagar, Seethammadhara, Vishakapatnam, Andhra Pradesh, 530013, India	India	India
Thiruvenkatasuresh M P	Professor, Department of Information Technology, Erode Sengunthar Engineering college, Thudupathi, Perundurai, Erode, Tamil Nadu, 638057, India	India	India
Dr. P. Agilan	Associate Professor, Department of Mathematics, St. Joseph's College of Engineering, OMR, Chennai, Chengalpattu, Tamil Nadu, 600119, India	India	India
S. Revathi	Assistant Professor, Department of Computer Science and Engineering, Erode Sengunthar Engineering College, Thudupathi, Perundurai, Erode, Tamil Nadu, 638057, India	India	India
R. Janani	Assistant Professor, Department of Computer Science and Engineering, Rathinam Technical campus, Coimbatore, Tamil Nadu, 641021, India	India	India
Dr. Sanjeev Kumar Sharma	Professor and Director, Department of Computer Science and Engineering, Technocrats Institute of Technology – CSE, Bhopal, Madhya Pradesh, 462021, India	India	India
Dr. Naitik ST	Assistant Professor, Department of Computer Science and Engineering, School of Engineering, Dayananda Sagar University, Bangalore, Karnataka, 562112, India	India	India
S Nagoorkani	Assistant Professor of English, Jamal Mohamed College (Autonomous), Trichy, Tamil Nadu, 620020, India	India	India

Abstract:

The present invention relates to the development of the necessity for strong and flexible fraud detection systems has increased due to the banking industry's rapid digital transformation, particularly in cloud-based financial ecosystems. Behavioral biometrics, including keystroke dynamics, mouse movement patterns, and touchscreen interactions are used in this study's Machine Learning (ML)-based fraud detection system to spot unusual activity in cloud banking platforms. In order to identify aberrations suggestive of fraudulent access or transactions in real time, the suggested system combines sophisticated machine learning algorithms with ongoing user behavior monitoring. A scalable cloud infrastructure securely collects, preprocesses, and analyses behavioral data, guaranteeing low latency and excellent detection accuracy. This method improves security without sacrificing user experience by providing constant, non-intrusive monitoring, in contrast to standard authentication methods. The potential of behavioral biometrics in conjunction with machine learning (ML) to provide adaptive, robust, and privacy-preserving fraud prevention in next-generation cloud banking systems is highlighted by experimental assessments that show notable gains in detection rates and false-positive reduction. FIG.1

Complete Specification

Description:MACHINE LEARNING-BASED FRAUD DETECTION FOR CLOUD BANKING USING BEHAVIORAL BIOMETRICS

Technical Field

[0001] The embodiments herein generally relate to a method for machine learning-based fraud detection for cloud banking using behavioral biometrics.

Description of the Related Art

[0002] The Cloud banking has become widely used as a result of the financial sector's rapid digital transition, allowing institutions to provide consumers in a variety of geographic locations with safe, scalable, and highly available services. Real-time transactions, data-driven decision-making, and easy access to financial products are all made possible by cloud-based platforms. But the attack surface for bad actors has also increased as a result of this interconnected ecosystem.

[0003] Passwords, security tokens, and even static biometric identifiers like fingerprints are examples of traditional authentication methods that are becoming more and more susceptible to sophisticated cyberattacks, phishing scams, credential stuffing, and synthetic identity theft. More dynamic, ongoing, and context-aware security measures are now required as a result of this. One method that has shown promise in tackling these security issues is behavioral biometrics. Behavioral biometrics, as opposed to static biometrics, which are based on fixed physiological characteristics, aims to identify users by analyzing distinctive patterns in their interactions with digital systems, such as the dynamics of keystrokes, mouse movements, touchscreen gestures, navigation speed, or even posture when handling devices. Because they depend on a user's cognitive and physical processes, these characteristics are intrinsically more difficult to mimic, which makes them extremely useful for real-time detection of aberrant behavior or unauthorized access. The capabilities of behavioral biometric solutions have been significantly enhanced by the incorporation of machine learning

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Patent Search

Invention Title	ML-DRIVEN FRAMEWORK FOR ANALYZING STUDENT FITNESS AND WELLBEING THROUGH SPORTS TRAINING IN HIGHER EDUCATION
Publication Number	39/2025
Publication Date	26/09/2025
Publication Type	INA
Application Number	202541083072
Application Filing Date	01/09/2025
Priority Number	
Priority Country	
Priority Date	
Field Of Invention	COMPUTER SCIENCE
Classification (IPC)	G06Q0050200000, G16H0050200000, A61B0005024000, A63B0024000000, G16H0050300000

Inventor

Name	Address	Country	Nationali
Dr. R. Murugesan	Assistant Professor, Department of Physical Education and Yoga, Pondicherry University Community College, Pondicherry University, Puducherry, 605008, India.	India	India
Dr. Aakanksha Sharma (PT)	Head - Department of Physiotherapy, School of Allied Health Sciences, JECRC University, Jaipur, Rajasthan, 303905, India.	India	India
RaviTeja Aida	Digital Engineering and Assurance, LTIMindtree, Hyderabad, Telangana, 500090, India.	India	India
Dr.C.V.Lakshmi Narayana	Assistant Professor, Department of AI&ML, Annamacharya University, Rajampet, Annamayya, Andhra Pradesh, 516126, India.	India	India
Dr. Shaik Balkhis Banu	Assistant Professor, Department of Physiotherapy, Fatima College of Health Sciences, Al Ain, NA, Abu Dhabi, United Arab Emirates.	India	India
Dr.S.Gopikha	Assistant Professor, Department of Information Technology, St.Joseph's college of Engineering, OMR, Chennai, Tamil Nadu, 600041, India.	India	India
S Nandhini devi	Assistant professor, Artificial intelligence and datascience, V.S.B. Engineering College, Karudayanpalayam P.O, Karur, Tamil Nadu, 639111, India.	India	India
Dr Sureshkumar Markanday Subramanian	Associate Professor & HOD, Department of Chemistry, ACE Engineering College, Ankushapur, Hyderabad, Medchal-Malkajgiri, Telangana, 501301, India.	India	India
Mr. R. Virappan	Head, Physical Director, RAAK Arts and Science College, Pondicherry, India.	India	India
Dr.Soubache. I.D.	Professor, Post Doctoral Fellow, Eudoxia Research University, New Castle, New Castle County, 19720, USA.	India	India
M. Rahman Khan	Assistant Professor of English, Jamal Mohamed College (Autonomous), Affiliated to Bharathidasan University, Tiruchirappalli, Tamil Nadu, 620020, India.	India	India
R.Niranjana	Assistant Professor, Velammal College of Engineering and Technology, Madurai, Tamil Nadu, India.	India	India

Applicant

Name	Address	Country	Nationali
Dr. R. Murugesan	Assistant Professor, Department of Physical Education and Yoga, Pondicherry University Community College, Pondicherry University, Puducherry, 605008, India.	India	India
Dr. Aakanksha Sharma (PT)	Head - Department of Physiotherapy, School of Allied Health Sciences, JECRC University, Jaipur, Rajasthan, 303905, India.	India	India
RaviTeja Aida	Digital Engineering and Assurance, LTIMindtree, Hyderabad, Telangana, 500090, India.	India	India
Dr.C.V.Lakshmi Narayana	Assistant Professor, Department of AI&ML, Annamacharya University, Rajampet, Annamayya, Andhra Pradesh, 516126, India.	India	India
Dr. Shaik Balkhis Banu	Assistant Professor, Department of Physiotherapy, Fatima College of Health Sciences, Al Ain, NA, Abu Dhabi, United Arab Emirates.	U.A.E.	India
Dr.S.Gopikha	Assistant Professor, Department of Information Technology, St.Joseph's college of Engineering, OMR, Chennai, Tamil Nadu, 600041, India.	India	India
S Nandhini devi	Assistant professor, Artificial intelligence and datascience, V.S.B. Engineering College, Karudayanpalayam P.O, Karur, Tamil Nadu, 639111, India.	India	India
Dr Sureshkumar Markanday Subramanian	Associate Professor & HOD, Department of Chemistry, ACE Engineering College, Ankushapur, Hyderabad, Medchal-Malkajgiri, Telangana, 501301, India.	India	India
Mr. R. Virappan	Head, Physical Director, RAAK Arts and Science College, Pondicherry, India.	India	India
Dr.Soubache. I.D.	Professor, Post Doctoral Fellow, Eudoxia Research University, New Castle, New Castle County, 19720, USA.	U.S.A.	India
M. Rahman Khan	Assistant Professor of English, Jamal Mohamed College (Autonomous), Affiliated to Bharathidasan University, Tiruchirappalli, Tamil Nadu, 620020, India.	India	India
R.Niranjana	Assistant Professor, Velammal College of Engineering and Technology, Madurai, Tamil Nadu, India.	India	India

Abstract:

ML-DRIVEN FRAMEWORK FOR ANALYZING STUDENT FITNESS AND WELLBEING THROUGH SPORTS TRAINING IN HIGHER EDUCATION The present invention relates to the development of incorporating athletics and physical education into higher education is essential for fostering students' overall development, fitness, and well-being. However, tl intricate and ever-changing link between academic success, mental health, and physical exercise is frequently missed by conventional evaluation techniques. This study suggest a paradigm for evaluating students' health and fitness through athletic training in higher education settings that is powered by machine learning (ML). In order to create predict and diagnostic models that evaluate physical health indicators, identify early warning signals of stress or exhaustion, and suggest individualized training plans, the framework makes use of physiological, behavioral, and training data. The system can recognize trends in student performance and link them to welfare outcomes by using supervised and unsupervised learning techniques. The suggested framework gives schools a data-driven strategy to raise student achievement and general campus wellbeing while simultaneously promoting mental toughness and academic balance in addition to athletic development. FIG.1

Complete Specification

Description:Description of the Related Art

[0002] The use of technology in higher education has expanded recently to encompass holistic student development, especially in the areas of physical fitness and welfare, in addition to academics. Universities are implementing organized sports training programs to improve student wellness as a result of growing knowledge of the benefits of physical activity for improving mental health, academic performance, and general quality of life. However, conventional methods of assessing wellbeing and fitness frequently depend on arbitrary evaluations, sparse measures, or sporadic tracking, which can ignore important markers of personal development and possible health hazards. As a result, more methodical, data-driven approaches that can yield useful insights are now required.

[0003] A game-changing answer to this problem is provided by machine learning (ML). Wearable technology, fitness trackers, sports performance measures, and self-reported wellbeing surveys all provide vast amounts of data that machine learning algorithms may use to identify trends, forecast results, and customize training plans. This enables schools to shift from general fitness regimens to evidence-based, flexible programs catered to the needs of specific students in the context of higher education. In addition to monitoring physical characteristics like strength, stamina, and flexibility, these frameworks incorporate mental health markers like stress levels, sleep patterns, and emotional fortitude.

[0004] Sports science as a whole has already adopted technology to optimize professional athletes' performance, employing machine learning (ML) to examine biomechanics, injury risks, and training results. Since many young adults deal with academic demands, sedentary lifestyles, and mental health issues, integrating these advancements into higher education offers special opportunity to promote healthy lifestyles. Additionally, early identification of at-risk kids, support for interventions, and evaluation of the success of wellness programs at the individual and institutional levels can all be facilitated by ML-driven frameworks for educators and sports trainers

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Patent Search

Invention Title	INTELLIGENT ENERGY MANAGEMENT ARCHITECTURE FOR SMART CITIES USING AI-ENHANCED VLSI SYSTEMS
Publication Number	06/2026
Publication Date	06/02/2026
Publication Type	INA
Application Number	202541084788
Application Filing Date	07/09/2025
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Priority Date	
Field Of Invention	COMMUNICATION
Classification (IPC)	H04W0012060000, H04L0009400000, B60L0050300000, G06F0040279000, H04N0021422000
Inventor	

Name	Address	Country
Sheela D V	Assistant Professor, School of Applied Science, Sapthagiri NPS University, Bangalore - 560090	India
Dr. Vinay Kumar H S	Assistant Professor, Department of Electronics and Communication Engineering, PES College of Engineering, Mandya Karnataka 571401	India
Mr Akshay Mohan Suryawanshi	Assistant Professor, Department of Electrical Engineering, Marathwada Mitra Mandal's College of Engineering Krave Nagar Pune 52.	India
RaviTeja Aida	Department of Digital Engineering and Assurance, LTIMindtree, Hyderabad Telangana, India, 500090	India
Dr.M.Kavitha	Associate Professor, Department of Information Technology, Velalar College of Engineering and Technology, Thindal-638012.	India
Dr. Shrikant Dnyandeo Bhopale	Associate Professor, Department of Computer Science and Engineering, D. Y. Patil Agriculture & Technical University, Talsande, Kolhapur, Chavre, Talsande, Chavare, Maharashtra	India
Dr Vaddi Seshagiri Rao	Professor, Department of Mechanical Engineering, St.Joseph's College of Engineering OMR Chennai -600119	India
Nangunuri Anjaneyulu	Assistant Professor, Department of Electronics and Communication Engineering, Geethanjali College of Engineering and Technology, Medchal Malkajgiri, Hyderabad -501301	India
Arulkumar.P	Professor, Department of Electronics and Communication Engineering, V.S.B. Engineering College, Karur.	India
Dr.C.V.Lakshmi Narayana	Assistant Professor, Annamacharya University, Rajampet-516126	India
Dr. J. Krishna	Associate Professor, Annamacharya University, Rajampet	India
Dr. Rajesh Shantaramji Hajare	Assistant professor , Nilkanthrao Shinde Science and Arts College, Bhadrawathi, Chandrapur 442902	India

Applicant

Name	Address	Country
Sheela D V	Assistant Professor, School of Applied Science, Sapthagiri NPS University, Bangalore - 560090	India
Dr. Vinay Kumar H S	Assistant Professor, Department of Electronics and Communication Engineering, PES College of Engineering, Mandya Karnataka 571401	India
Mr Akshay Mohan Suryawanshi	Assistant Professor, Department of Electrical Engineering, Marathwada Mitra Mandal's College of Engineering Krave Nagar Pune 52.	India
RaviTeja Aida	Department of Digital Engineering and Assurance, LTIMindtree, Hyderabad Telangana, India, 500090	India
Dr.M.Kavitha	Associate Professor, Department of Information Technology, Velalar College of Engineering and Technology, Thindal-638012.	India
Dr. Shrikant Dnyandeo Bhopale	Associate Professor, Department of Computer Science and Engineering, D. Y. Patil Agriculture & Technical University, Talsande, Kolhapur, Chavre, Talsande, Chavare, Maharashtra	India
Dr Vaddi Seshagiri Rao	Professor, Department of Mechanical Engineering, St.Joseph's College of Engineering OMR Chennai -600119	India
Nangunuri Anjaneyulu	Assistant Professor, Department of Electronics and Communication Engineering, Geethanjali College of Engineering and Technology, Medchal Malkajgiri, Hyderabad -501301	India
Arulkumar.P	Professor, Department of Electronics and Communication Engineering, V.S.B. Engineering College, Karur.	India
Dr.C.V.Lakshmi Narayana	Assistant Professor, Annamacharya University, Rajampet-516126	India
Dr. J. Krishna	Associate Professor, Annamacharya University, Rajampet	India
Dr. Rajesh Shantaramji Hajare	Assistant professor , Nilkanthrao Shinde Science and Arts College, Bhadrawathi, Chandrapur 442902	India

Abstract:

Intelligent Energy Management Architecture for Smart Cities Using AI-Enhanced VLSI Systems is the proposed invention. The proposed invention focuses on understan functions of AI-Enhanced VLSI Systems. The invention focuses on analyzing the parameters of Intelligent Energy Management Architecture for Smart Cities using algorit Artificial Intelligence Approach.

Complete Specification

Description:The present invention relates to the field of designing and implementing a framework of Artificial Intelligence Approach to analyze the Intelligent Energy Management Architecture for Smart Cities. The proposed invention focuses on Understanding the functions of AI-Enhanced VLSI Systems using algorithms of Artificia Intelligence Approach.

BACKGROUND OF INVENTION

[0001] Background description includes information that may be useful in understanding the present invention. It is not an admission that any of the information provided herein is prior art or relevant to the presently claimed invention, or that any publication specifically or implicitly referenced is prior art.

[0002] VLSI (Very Large Scale Integration) systems involve designing and developing complex electronic circuits by integrating millions of transistors onto a single microchip. This technology enables the creation of compact, high-performance devices like smartphones, computers, and other modern electronics. VLSI systems cor expertise in semiconductor physics, circuit design, and manufacturing processes to produce chips that are faster, more efficient, and consume less power. Think of it backbone of modern electronics, driving innovation in everything from gadgets to advanced computing systems.

[0003] A number of different types of smart cities analysis systems that are known in the prior art. For example, the following patents are provided for their suppor teachings and are all incorporated by reference.

[0004] US8078330B2: Automatic energy management is provided, in even the most complex multi-building system. The necessity of a human operator for managin energy in a complex, multi-building system is reduced and even eliminated. Computer-based monitoring and computer-based recognition of adverse energy events (the approach of a new energy peak) is highly advantageous in energy management. Immediate automatic querying of energy users within a system of buildings for e

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Patent Search

Invention Title	MACHINE LEARNING-DRIVEN PREDICTIVE MODELS FOR ENHANCING STUDENT SUCCESS AND ENTREPRENEURIAL SKILLS IN HIGHER EDUCATION
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Field Of Invention	COMPUTER SCIENCE
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Inventor

Name	Address	Country	Nationali
NISHANT SHRIVASTAVA	Assistant Professor, Department of Computer Science and Engineering, Medicaps University, Indore, Madhya Pradesh, 453331, India	India	India
Mr. R. DHARMALINGAM	Assistant Professor, Department of English, Jamal Mohamed College (Autonomous), Tiruchirappalli, Tamil Nadu, 620020, India	India	India
S. MANJULA	Assistant Professor, Department of Computer Science and Engineering (Data Science), MITS Deemed to be University, Madanapalle, Annamayya, Andhra Pradesh, 517325, India	India	India
Dr. P. CHELLAMMAL	Professor, Department of Computer Science and Engineering, J J College of Engineering and Technology, Tiruchirappalli, Tamil Nadu, 620009, India	India	India
Dr LALIT MOHAN TRIVEDI	Assistant Professor, Department of ASH (Mathematics), Moradabad Institute of Technology, Moradabad, Uttar Pradesh, India	India	India
S BHARATHIDASAN	Associate Professor, Department of Electronics and Communication Engineering, Erode Sengunthar Engineering College, Erode, Tamil Nadu, India	India	India
Dr. SRIJAN PAUL	Assistant Professor, Department of Mechanical Engineering, Asansol Engineering College, Asansol, Paschim Barddhaman, West Bengal, 713305, India	India	India
Dr. SOUMITRA MONDAL	Assistant Professor, Department of B.Ed., Subhas Chandra Basu B.Ed. Training College, affiliated to Baba Saheb Ambedkar Education University, Heria, East Medinipur, West Bengal, 721430, India	India	India
Dr N PENCHALAIAH	Associate Professor, Department of Artificial Intelligence and Machine Learning, Annamacharya University, New Boyanapalli, Rajampet, Annamayya, Andhra Pradesh, 516126, India	India	India
SUBHASHINI V	Assistant Professor, Department of Mathematics, Erode Sengunthar Engineering College, Thudupathi, Erode, Tamil Nadu, 638057, India	India	India
VIGNESHWARAN K	Assistant Professor, Department of Electronics and Communication Engineering, K. Ramakrishnan College of Engineering, Samayapuram, Trichy, Tamil Nadu, 621112, India	India	India
Dr H ANWER BASHA	Principal, RAAK Arts and Science College, Perambai, Villianur, Puducherry, 605110, India	India	India

Applicant

Name	Address	Country	Nationali
NISHANT SHRIVASTAVA	Assistant Professor, Department of Computer Science and Engineering, Medicaps University, Indore, Madhya Pradesh, 453331, India	India	India
Mr. R. DHARMALINGAM	Assistant Professor, Department of English, Jamal Mohamed College (Autonomous), Tiruchirappalli, Tamil Nadu, 620020, India	India	India
S. MANJULA	Assistant Professor, Department of Computer Science and Engineering (Data Science), MITS Deemed to be University, Madanapalle, Annamayya, Andhra Pradesh, 517325, India	India	India
Dr. P. CHELLAMMAL	Professor, Department of Computer Science and Engineering, J J College of Engineering and Technology, Tiruchirappalli, Tamil Nadu, 620009, India	India	India
Dr LALIT MOHAN TRIVEDI	Assistant Professor, Department of ASH (Mathematics), Moradabad Institute of Technology, Moradabad, Uttar Pradesh, India	India	India
S BHARATHIDASAN	Associate Professor, Department of Electronics and Communication Engineering, Erode Sengunthar Engineering College, Erode, Tamil Nadu, India	India	India
Dr. SRIJAN PAUL	Assistant Professor, Department of Mechanical Engineering, Asansol Engineering College, Asansol, Paschim Barddhaman, West Bengal, 713305, India	India	India
Dr. SOUMITRA MONDAL	Assistant Professor, Department of B.Ed., Subhas Chandra Basu B.Ed. Training College, affiliated to Baba Saheb Ambedkar Education University, Heria, East Medinipur, West Bengal, 721430, India	India	India
Dr N PENCHALAIAH	Associate Professor, Department of Artificial Intelligence and Machine Learning, Annamacharya University, New Boyanapalli, Rajampet, Annamayya, Andhra Pradesh, 516126, India	India	India
SUBHASHINI V	Assistant Professor, Department of Mathematics, Erode Sengunthar Engineering College, Thudupathi, Erode, Tamil Nadu, 638057, India	India	India
VIGNESHWARAN K	Assistant Professor, Department of Electronics and Communication Engineering, K. Ramakrishnan College of Engineering, Samayapuram, Trichy, Tamil Nadu, 621112, India	India	India
Dr H ANWER BASHA	Principal, RAAK Arts and Science College, Perambai, Villianur, Puducherry, 605110, India	India	India

Abstract:

MACHINE LEARNING-DRIVEN PREDICTIVE MODELS FOR ENHANCING STUDENT SUCCESS AND ENTREPRENEURIAL SKILLS IN HIGHER EDUCATION The present invention relates to the development of the creation and application of prediction models powered by machine learning with the goal of spotting trends in behavioral engagement, academic achievement, and socioemotional traits in order to improve learning outcomes. These models offer practical insights for early intervention, individualized assistance, and curriculum adaption by utilizing extensive data from student interactions, exams, and extracurricular activities. By examining characteristics like creativity, risk-taking, and problem-solving skills, the framework assesses entrepreneurial potential in addition to predicting academic success. These revelations enable educators, administrators, and legislators to develop customized plans for fostering both entrepreneurial and academic success. The suggested method shows how predictive intelligence can close the gap between conventional teaching methods and capabilities that are ready for the future, giving college students the tools they need to succeed in the workplace and launch their own businesses. FIG.1

Complete Specification

Description:MACHINE LEARNING-DRIVEN PREDICTIVE MODELS FOR ENHANCING STUDENT SUCCESS AND ENTREPRENEURIAL SKILLS IN HIGHER EDUCATION

Technical Field

[0001] The embodiments herein generally relate to a method for machine learning-driven predictive models for enhancing student success and entrepreneurial skills in higher education.

Description of the Related Art

[0002] The demand for creative strategies to boost student achievement and encourage entrepreneurial abilities has increased due to the quick global expansion of higher education systems. Conventional academic models frequently depend on retroactive evaluations and standardized tests, which are useful but offer little insight into students' changing learning styles, desired careers, and entrepreneurial potential. Machine learning (ML) integration into educational systems has become a game-changing option in recent years, allowing institutions to shift from reactive interventions to proactive, data-driven tactics.

[0003] Predictive models powered by machine learning make use of a variety of datasets, including academic records, learning management system behavioral logs, demographic data, social media activity, and even psychometric tests. These models offer practical insights into student performance, possible dropout risks, learning preferences, and career inclinations by revealing hidden patterns and relationships. In contrast to traditional statistical techniques, machine learning algorithms are capable of handling large, intricate, and unstructured datasets, providing greater prediction and personalization accuracy. This growth is in line with the global movement toward competency-based learning and personalized education, which place an emphasis on developing transferable abilities like creativity, innovation, and problem-solving in

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Patent Search

Invention Title	ML-POWERED PREDICTIVE ANALYTICS FOR ACADEMIC PERFORMANCE AND PSYCHOLOGICAL BEHAVIOUR AMONG STUDENTS IN HIGHER EDUCATION
Publication Number	41/2025
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Application Number	202541087924
Application Filing Date	16/09/2025
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Priority Date	
Field Of Invention	COMPUTER SCIENCE
Classification (IPC)	G06N0020000000, G06Q0050200000, G16H0020700000, A61B0005160000, G16H0050200000

Inventor

Name	Address	Country	Nationali
Raghavalu Ramella	Professor and MBA Program Director, School of Business, Oakwood University, Huntsville, Madison County, Alabama, USA.	India	India
Dr. Rakesh Ashok More	Associate Professor and Head, Department of Psychology, MES Abasaheb Garware College (Autonomous), Pune, Maharashtra, 411004, India.	India	India
Dr. A. Adisesha Reddy	Professor, Department of Master of Business Administration, Lakireddy Bali Reddy College of Engineering (A), Mylavaram, NTR, Andhra Pradesh, India.	India	India
M.Goverdhana Reddy	Assistant Professor, Department of Management Studies, Aditya University, Surampalem, Kakinada, Andhra Pradesh, 533437, India.	India	India
Mr. M. Nandhakumar	Assistant Professor, Department of Management (M.B.A.), Erode Sengunthar Engineering College (Autonomous), Thudupathi, Perundurai, Erode, Tamil Nadu, 638009, India.	India	India
Dr Deepak Sundrani	Associate Professor, School of Construction, NICMAR University, Pune, Maharashtra, 411045, India.	India	India
Kajal Srivastava	Research Scholar, Department of Humanities and Social Sciences, Allahabad, Prayagraj, Uttar Pradesh, 211004, India.	India	India
Dr. Soumitra Mondal	Assistant Professor, Department of B.Ed., Subhas Chandra Basu B.Ed. Training College, Affiliated to Baba Saheb Ambedkar Education University, Heria, East Medinipur, West Bengal, 721430, India.	India	India
Banavathu Ramyasree	Assistant professor in Department of ECE, Gurunanak Institute of Technology, Ibrahimpatnam, Hyderabad, Ranga Reddy, Telangana, 501506, India.	India	India
Dr. Pushpalatha L	Assistant Professor, Department of Computer Applications, Patrician College of Arts and science, Adyar, Chennai, Tamil Nadu, India.	India	India
Dr. J. Krishna	Associate Professor, Department of AI & ML, Annamacharya University, Rajampet, Annamayya, 516126, India.	India	India
Jeyaprakash N	Assistant Professor, Department of EEE, St.Joseph's College of Engineering, OMR, Chennai, Tamil Nadu, 600119, India.	India	India

Applicant

Name	Address	Country	Nationali
Raghavalu Ramella	Professor and MBA Program Director, School of Business, Oakwood University, Huntsville, Madison County, Alabama, USA.	U.S.A.	India
Dr. Rakesh Ashok More	Associate Professor and Head, Department of Psychology, MES Abasaheb Garware College (Autonomous), Pune, Maharashtra, 411004, India.	India	India
Dr. A. Adisesha Reddy	Professor, Department of Master of Business Administration, Lakireddy Bali Reddy College of Engineering (A), Mylavaram, NTR, Andhra Pradesh, India.	India	India
M.Goverdhana Reddy	Assistant Professor, Department of Management Studies, Aditya University, Surampalem, Kakinada, Andhra Pradesh, 533437, India.	India	India
Mr. M. Nandhakumar	Assistant Professor, Department of Management (M.B.A.), Erode Sengunthar Engineering College (Autonomous), Thudupathi, Perundurai, Erode, Tamil Nadu, 638009, India.	India	India
Dr Deepak Sundrani	Associate Professor, School of Construction, NICMAR University, Pune, Maharashtra, 411045, India.	India	India
Kajal Srivastava	Research Scholar, Department of Humanities and Social Sciences, Allahabad, Prayagraj, Uttar Pradesh, 211004, India.	India	India
Dr. Soumitra Mondal	Assistant Professor, Department of B.Ed., Subhas Chandra Basu B.Ed. Training College, Affiliated to Baba Saheb Ambedkar Education University, Heria, East Medinipur, West Bengal, 721430, India.	India	India
Banavathu Ramyasree	Assistant professor in Department of ECE, Gurunanak Institute of Technology, Ibrahimpatnam, Hyderabad, Ranga Reddy, Telangana, 501506, India.	India	India
Dr. Pushpalatha L	Assistant Professor, Department of Computer Applications, Patrician College of Arts and science, Adyar, Chennai, Tamil Nadu, India.	India	India
Dr. J. Krishna	Associate Professor, Department of AI & ML, Annamacharya University, Rajampet, Annamayya, 516126, India.	India	India
Jeyaprakash N	Assistant Professor, Department of EEE, St.Joseph's College of Engineering, OMR, Chennai, Tamil Nadu, 600119, India.	India	India

Abstract:

The present invention relates to the development of a predictive analytics system driven by machine learning that is intended to evaluate psychological behavior in college students as well as academic achievement in order to improve it. Academic records, interactions with learning management systems, attendance, social and behavioral indicato and psychological evaluation measures are just a few of the multimodal data sources that the system incorporates. To find hidden patterns, predict academic results, and spot early indicators of stress, anxiety, or other behavioral concerns, sophisticated machine learning algorithms are used. The framework offers tailored and flexible suggestions for enhancing wellbeing, advancing academic performance, and implementing focused institutional initiatives. Additionally, the system guarantees data privacy compliance, scalabl deployment, and real-time monitoring, providing a comprehensive, ethical, and intelligent solution to assist kids' academic performance and psychological resilience. This innovation responds to the growing demand for data-driven decision-making in higher education in order to promote emotional health and cognitive growth. FIG.1

Complete Specification

Description:Description of the Related Art

[0002] The predictive analytics driven by machine learning (ML) has become a game-changing tool in this regard, providing data-based insights into student behavior, performance patterns, and well-being metrics. Large volumes of structured and unstructured data, including grades, attendance logs, online learning activity, social media interactions, biometric signals, and self-reported psychological surveys, can be processed by ML algorithms to reveal hidden patterns and correlations, in contrast to traditional statistical methods. With the use of these insights, educators and administrators may better identify kids who are at risk, tailor learning interventions, and create comprehensive support networks that cater to both cognitive and emotional needs.

[0003] The intricate relationship between academic achievement, psychological health, and overall student success is posing a growing challenge to higher education institutions. Traditional criteria like study habits and subject knowledge no longer dictate academic performance; instead, behavioral patterns, emotional resilience, and mental health all have a significant impact. Students' capacity to meet their academic objectives is greatly impacted by stress, anxiety, despair, social pressures, and digital diversions. Universities all around the world are looking for cutting-edge methods to anticipate, comprehend, and effectively intervene in order to assist students' academic and psychological needs in light of these interdependencies. In the past, performance indicators like test scores and course completion rates were the main emphasis of educational analytics. However, research is now focused on incorporating behavioral and psychological aspects into predictive models due to the increased focus on student mental health. Using machine learning (ML) techniques like supervised learning, natural language processing (NLP), and deep learning makes it feasible to identify subtle signs of stress, burnout, or disengagement that conventional assessments could miss. Real-time indicators of students' emotional states can be obtained, for example, by sentiment analysis of discussion forums or by tracking shifts in online engagement patterns

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Registered

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Renewal date
19 November 2030

Overview

Application date
19 November 2025

Grant date
3 December 2025

Publication date
4 December 2025

Indication of Product
AI-ENHANCED ECG MONITORING DEVICE FOR WORKFORCE AND STUDENT PERFORMANCE ASSESSMENT

Classification

Class	24 - MEDICAL AND LABORATORY EQUIPMENT
Sub class	01 - APPARATUS AND EQUIPMENT FOR DOCTORS, HOSPITALS AND LABORATORIES

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Designs



Names and addresses

Contact (address for service)

IPQUAD PARTNERS
41 High Street, HP5 1BW, CHESHAM, HP5 1BW

Owners

Name	Address
DR. PRANJALI KEKRE	ASSISTANT PROFESSOR, MEDICAPS UNIVERSITY, AB ROAD PIGDAMBER, RAU, INDORE, MADHYA PRADESH , 453331
DR. KIRTY JADHAV	ASSISTANT PROFESSOR, MEDICAPS UNIVERSITY, AB ROAD PIGDAMBER, RAU, INDORE, MADHYA PRADESH , 453331
DR. RAJIV KUMAR NEHRA	ASSISTANT PROFESSOR , BHARATI VIDYAPEETH'S COLLEGE OF ENGINEERING, NEW DELHI, A-4 BLOCK, BABA RAMDEV MARG, SHIVA ENCLAVE, PASCHIM VIHAR, NEW DELHI, DELHI, 110063
DR. ALISHA BANGA	ASSISTANT PROFESSOR, SCHOOL OF COMPUTER SCIENCE AND ENGINEERING , AMITY UNIVERSITY, AMITY UNIVERSITY NOIDA CAMPUS, SECTOR-125, GAUTAM BUDDHA NAGAR, NOIDA, UTTAR PRADESH, 201313
MONU SHARMA	SR IT SOLUTIONS ARCHITECT, INDEPENDENT RESEARCHER, 924 Suncrest Pl, MORGANTOWN , WEST VIRGINIA WV, 26505
DR. ANURAG SONI	ASSOCIATE PROFESSOR , COMPUTER SCIENCE & ENGINEERING POORNIMA UNIVERSITY, PLOT NO. IS-2027-2031, RAMCHANDRAPURA P.O. VIDHANI, VATIKA ROAD SITAPURA, JAIPUR, RAJASTHAN , 302022

DR.S FAYAZ BEGUM	ASSISTANT PROFESSOR, DEPARTMENT OF ECE, ANNAMACHARYA UNIVERSITY, THALLAPAKA PANCHAYAT, NEW BOYANAPALLI, RAJAMPET, ANNAMAYYA DISTRICT, ANDHRA PRADESH, 516126
SUSHMA MARISWAMY	ASSISTANT PROFESSOR , ARTIFICIAL INTELLIGENCE AND DATA SCIENCE , BGS COLLEGE OF ENGINEERING AND TECHNOLOGY , CA SITE NO. 6 & 7, 3RD MAIN, PIPELINE ROAD, MAHALAKSHMIPURAM, WEST OF CHORD ROAD, 560086
KANCHAN CHANDAR TOLANI	ASSISTANT PROFESSOR, SCHOOL OF MANAGEMENT RAMDEOBABA UNIVERSITY, NAGPUR, RAMDEO TEKDI, KATOL ROAD, NAGPUR, MAHARASHTRA , 440013
PROF. ASHWINI RAMAKRISHNA	ASSISTANT PROFESSOR, AI & DS, BGS COLLEGE OF ENGINEERING AND TECHNOLOGY, CA SITE NO. 6 & 7, 3RD MAIN, PIPELINE ROAD, CHORD ROAD, ADJ. TO MAHALAKSHMI METRO STATION 2ND PHASE STAGE 2 MAHALAKSHMIPURAM, 560086
DR. SAKSHI KATHURIA	ASSISTANT PROFESSOR-III, AMITY SCHOOL OF ENGINEERING AND TECHNOLOGY, AMITY UNIVERSITY, AMITY EDUCATION VALLEY GURUGRAM, MANESAR, PANCHGAON, GURUGRAM, HARYANA, 122413
DR. DEEPSHREE KUMAR	ASSISTANT PROFESSOR, SCHOOL OF MANAGEMENT RAMDEOBABA UNIVERSITY, NAGPUR, RAMDEO TEKDI, KATOL ROAD, NAGPUR, MAHARASHTRA , 440013
DR. PRIYANKA DUBEY	ASSISTANT PROFESSOR, DEPT. OF COMPUTER SCIENCE, & ENGINEERING, AMITY UNIVERSITY, AMITY EDUCATION VALLEY GURUGRAM, MANESAR, PANCHGAON, GURUGRAM, HARYANA, 122413
SINDHU GURUMALLAIAH	ASSISTANT PROFESSOR , ARTIFICIAL INTELLIGENCE AND DATA SCIENCE , BGS COLLEGE OF ENGINEERING AND TECHNOLOGY , CA SITE NO. 6 & 7, 3RD MAIN, PIPELINE ROAD, MAHALAKSHMIPURAM, WEST OF CHORD ROAD, 560086
PROF SNEHAL PATEL	ASSISTANT PROFESSOR, MANAGEMENT, RAMDEOBABA UNIVERSITY NAGPUR , RAMDEO TEKDI, KATOL ROAD, NAGPUR, MAHARASHTRA , 440013

History

No history is available for this design





Patent Search

Invention Title	Li-Fi Based High-Speed Data Transmission System for Smart Cities
Publication Number	01/2026
Publication Date	02/01/2026
Publication Type	INA
Application Number	202541129813
Application Filing Date	22/12/2025
Priority Number	
Priority Country	
Priority Date	
Field Of Invention	ELECTRONICS
Classification (IPC)	H04B 10/116, H04B 10/50, H04B 10/516, H04B 10/00, H04W 84/18
Inventor	

Name	Address	Country
Ballari Supraja	Assistant Professor, Department of CSE, Guru Nanak Institutions Technical Campus, Ibrahimpatnam, Ranga Reddy District, Hyderabad -501506, Telangana.	India
Dumpala Prasanth	Assistant Professor, Department of CSE, Guru Nanak Institutions Technical Campus, Ibrahimpatnam, Ranga Reddy District, Hyderabad 501506, Telangana.	India
Supriya J	Assistant Professor, Electrical and Electronics Engineering, Dayananda Sagar College of Engineering, Bengaluru, Karnataka.	India
Vikash Sawan	Research Scholar, Department of Computer Science & Engineering, Indian Institute of Information Technology Ranchi, Jharkhand -835217, India.	India
T. Hashni	Assistant Professor, Dr.N.G.P. Arts and Science College, Coimbatore, Tamil Nadu, India.	India
Dr. S. Fayaz Begum	Assistant Professor, Annamacharya University , Rajampet, New Boyanapalli, AP.	India
Dr Chunduru Madhava Rao	Associate Professor. Computer Science and Engineering, Koneru Lakshmaiah Educatin Foundation, Deemed to be University, Green Fields, Vaddeswaram, Guntur Dist. 522502, A.P. India.	India
Dr. Sreedhar Bhukya	Professor, Department of Computer Science & Engineering, Sreenidhi Institute of Science & Engineering, Hyderabad, Telangana-501301.	India

Applicant

Name	Address	Country
Ballari Supraja	Assistant Professor, Department of CSE, Guru Nanak Institutions Technical Campus, Ibrahimpatnam, Ranga Reddy District, Hyderabad -501506, Telangana.	India
Dumpala Prasanth	Assistant Professor, Department of CSE, Guru Nanak Institutions Technical Campus, Ibrahimpatnam, Ranga Reddy District, Hyderabad 501506, Telangana.	India
Supriya J	Assistant Professor, Electrical and Electronics Engineering, Dayananda Sagar College of Engineering, Bengaluru, Karnataka.	India
Vikash Sawan	Research Scholar, Department of Computer Science & Engineering, Indian Institute of Information Technology Ranchi, Jharkhand -835217, India.	India
T. Hashni	Assistant Professor, Dr.N.G.P. Arts and Science College, Coimbatore, Tamil Nadu, India.	India
Dr. S. Fayaz Begum	Assistant Professor, Annamacharya University , Rajampet, New Boyanapalli, AP.	India
Dr Chunduru Madhava Rao	Associate Professor. Computer Science and Engineering, Koneru Lakshmaiah Educatin Foundation, Deemed to be University, Green Fields, Vaddeswaram, Guntur Dist. 522502, A.P. India.	India
Dr. Sreedhar Bhukya	Professor, Department of Computer Science & Engineering, Sreenidhi Institute of Science & Engineering, Hyderabad, Telangana-501301.	India

Abstract:

The Li-Fi Based High-Speed Data Transmission System for Smart Cities deploys visible light communication (VLC) via modulated LED infrastructure to deliver ultra-secur per-second connectivity, transforming urban lighting into bidirectional data networks that alleviate RF spectrum congestion. By encoding data through imperceptible LE fluctuations within the 400 THz visible spectrum, the system achieves 100+ Gbps throughput using wavelength-division multiplexing across RGB channels, supporting r deployments for traffic management, environmental monitoring, and V2X communication. Key features include line-of-sight confined signals for inherent eavesdrop-pr security, hybrid RF handoffs for seamless mobility, and sensor-integrated nodes enabling real-time analytics on air quality, energy use, and emergencies via adaptive cc signaling. This innovation repurposes existing streetlights without new cabling, slashing energy costs by 80-90% while fostering sustainable, resilient smart infrastructu connected vehicles and geo-location services.

Complete Specification

Description:Li-Fi Based High-Speed Data Transmission System for Smart Cities

Field and Background of the Invention

Li-Fi Based High-Speed Data Transmission System for Smart Cities represents a transformative advancement in wireless communication, leveraging visible light communication (VLC) to address the escalating demands of urban connectivity. Developed as an alternative to traditional radio frequency (RF)-based technologies like Li-Fi utilizes light-emitting diodes (LEDs) to transmit data at exceptionally high speeds, potentially reaching up to 224 gigabits per second in controlled environments. T technology, pioneered by Harald Haas, overcomes RF limitations such as spectrum scarcity, electromagnetic interference, and security vulnerabilities by employing th unlicensed visible light spectrum. In smart cities, where billions of Internet of Things (IoT) devices generate massive data volumes from traffic sensors, environmental monitors, and public infrastructure, Li-Fi integrates seamlessly with existing street lighting and traffic signals to create ubiquitous, high-bandwidth networks.

The field of this invention lies at the intersection of optical wireless communication and urban digital infrastructure, specifically targeting high-speed data transmissio smart city ecosystems. Conventional RF networks suffer from overcrowding in dense urban areas, leading to latency, reduced reliability, and heightened cybersecurity as signals penetrate walls and are prone to eavesdropping. Li-Fi circumvents these issues since light waves do not traverse opaque barriers, confining signals to line-o zones for enhanced privacy and reduced interference—ideal for secure applications like real-time surveillance, emergency response systems, and vehicle-to-infrastru (V2I) communication. Patent literature highlights related innovations, such as interference mitigation in Li-Fi access points using channel quality indicators and rogue point

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Patent Search

Invention Title	A Cost-Effective Microcontroller-based Solar Panel Maintenance System with Automated Cleaning and Sun Tracking
Publication Number	16/2026
Publication Date	17/04/2026
Publication Type	INA
Application Number	202641043169
Application Filing Date	04/04/2026
Priority Number	
Priority Country	
Priority Date	
Field Of Invention	ELECTRICAL
Classification (IPC)	H02S40/10, B08B1/00
Inventor	

Name	Address	Country
Dr. Anwar Bhasha Pattan	Professor, Department of ECE, BVRIT HYDERABAD College of Engineering for Women, Opp. Rajiv Gandhi Nagar Bus stop, Bachupally, Hyderabad, Telangana – 500090, India	India
Dr. G. Appala Naidu	Associate Professor in ECE Department, JNTUGV-CEV, Vizianagaram, Andhra Pradesh-535003, India	India
Ms. Priyanka Balaga	Assistant Professor in IE&CT Department, Maharaj Vijayaram Gajapathi Raj College of Engineering Vizianagaram, Andhra Pradesh - 535005, India	India
Dr. Shaik Karimullah	Department of ECE, Annamacharya University, Rajampet, Andhra Pradesh-516126	India
Dr. Ravva Gurunadha	Associate Professor in ECE Department, JNTUGV-CEV, Vizianagaram, Andhra Pradesh-535003, India	India
Dr. Akurathi Gangadhar	Associate Professor in ECE Department University College of Engineering, Narasaraopet.JNTUK, Andhra Pradesh – 522603, India	India
Dr. K. Babulu	Professor in ECE Department, JNTUGV-CEV, Vizianagaram, Andhra Pradesh-535003, India	India
Dr. Ch. Bindu Madhuri	Associate Professor Department of Information Technology JNTUGV-CEV, Vizianagaram, Andhra Pradesh-535003, India	India

Applicant

Name	Address	Country
Anwar Bhasha Pattan	Dr.Anwar Bhasha Pattan Professor Department of ECE BVRIT HYDERABAD College of Engineering for Women Rajiv Gandhi Nagar Bachupally Hyderabad- 500090 Telangana India	India
BVRIT HYDERABAD College of Engineering for Women	BVRIT HYDERABAD College of Engineering for Women, Opp. Rajiv Gandhi Nagar Bus stop, Bachupally, Hyderabad, Telangana – 500090, India	India

Abstract:

Solar panels are known as low maintenance and cost-effective way to generate electricity. Despite their many advantages, solar panels' efficiency will suffer due to accu dirt and dust if not properly maintained. To maintain maximum efficiency, timely cleaning of panels is required. Further, for efficient use of solar energy, panel should a maximum energy. This is possible if the panels rotate continuously in accordance with the direction of the Sun. In this work, an efficient solar panel maintenance syster proposed whose efficiency is improved by scheduling timely cleaning and rotation. Arduino Mega development board is used to control the operation, LDR sensor, Rea Clock, Wiper and Motors are used for scheduling the rotation and cleaning. This method of maintenance increases the efficiency of the panel with a simple, user-friend compared to the existing methods.

Complete Specification

Description:The present invention is about the design of a solar panel maintenance system in which the cleaning and rotating of the panel are done. Arduino MEGA 2 Rev 3, motors, LDR sensor, Real-time Clock and Relay switch are the mainly used hardware components to implement the system. In this model, the components serv motor and wiper are used for cleaning the solar panel and the LDR sensor and gear motor are used for rotating the solar panel which is controlled by Arduino board.

ARDUINO MEGA 2560 REV 3
The Arduino Mega 2560 is a microcontroller board based on the ATmega2560. It has 54 digital input/output pins (of which 15 can be used as PWM outputs), 16 analog inputs, 4 UARTs (hardware serial ports), a 16 MHz crystal oscillator, a USB connection, a power jack, an ICSP header, and a reset button. It contains everything needed support the microcontroller; simply connect it to a computer with a USB cable or power it with a AC-to-DC adapter or battery to get started.
It is the brain of the proposed system. It performs all the processing and decision making jobs. It collects inputs from LDR sensor and RTC and controls the Gear motc Servomotor and Water Pump for rotation and timely cleaning of the panel.

Real time clock DS3231
The DS3231 is a low-cost, highly accurate Real Time Clock which can maintain hours, minutes and seconds, as well as, day, month and year information. Also, it has automatic compensation for leap-years and for months with fewer than 31 days. The module can work on either 3.3 or 5 V and uses the I2C Communication Protocol makes it easy to interface with many development platforms or microcontrollers. This acts as an input device to the Arduino board for time reference to schedule the

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Patent Search

Invention Title	Smart Manhole Monitoring and Hazard Alert System using IoT and Multi-Sensor Fusion
Publication Number	16/2026
Publication Date	17/04/2026
Publication Type	INA
Application Number	202641043145
Application Filing Date	04/04/2026
Priority Number	
Priority Country	
Priority Date	
Field Of Invention	CIVIL
Classification (IPC)	E02D 29/12, G06Q 50/26, E02D 29/14, G08B 21/02, E03F 5/02
Inventor	

Name	Address	Country
Dr. Anwar Bhasha Pattan	Professor, Department of ECE, BVRIT HYDERABAD College of Engineering for Women, Opp. Rajiv Gandhi Nagar Bus stop, Bachupally, Hyderabad, Telangana – 500090, India	India
Dr. G. Appala Naidu	Associate Professor in ECE Department, JNTUGV-CEV, Vizianagaram, Andhra Pradesh-535003, India	India
Dr. Shaik Karimullah	Department of ECE, Annamacharya University, Rajampet, Andhra Pradesh-516126	India
Ms. Priyanka Balaga	Assistant Professor in IE&CT Department, Maharaj Vijayaram Gajapathi Raj College of Engineering Vizianagaram, Andhra Pradesh - 535005, India	India
Dr. Ravva Gurunadha	Associate Professor in ECE Department, JNTUGV-CEV, Vizianagaram, Andhra Pradesh-535003, India	India
Dr. Akurathi Gangadhar	Associate Professor in ECE Department University College of Engineering, Narasaraopet.JNTUK, Andhra Pradesh – 522603, India	India
Dr. K. Babulu	Professor in ECE Department, JNTUGV-CEV, Vizianagaram, Andhra Pradesh-535003, India	India
Dr. Ch. Bindu Madhuri	Associate Professor Department of Information Technology JNTUGV-CEV, Vizianagaram, Andhra Pradesh-535003, India	India

Applicant

Name	Address	Country
Anwar Bhasha Pattan	Dr.Anwar Bhasha Pattan Professor Department of ECE BVRIT HYDERABAD College of Engineering for Women Rajiv Gandhi Nagar Bachupally Hyderabad- 500090 Telangana India	India
BVRIT HYDERABAD College of Engineering for Women	BVRIT HYDERABAD College of Engineering for Women, Opp. Rajiv Gandhi Nagar Bus stop, Bachupally, Hyderabad, Telangana – 500090, India	India

Abstract:

Smart underground infrastructure is an important feature to be considered while implementing a smart city. Drainage system monitoring plays a vital role in keeping th clean and healthy. Due to the damaged manholes, there are chances of occurrence of accidents on the road. These damaged manholes will be a hazard to personal saf goal of this invention is to develop a smart manhole monitoring system. A Manhole monitoring system will not only help in maintaining the proper health and safety of but also in reducing the work of government personnel. Various types of sensors are interfaced with microcontroller in order to make the system smart. The proposed manhole monitoring system integrates multiple sensors to enhance accuracy, efficiency, and safety in urban drainage management. By utilizing IR, Ultrasonic, MQ4, an sensors, the system provides real-time detection of manhole lid status, water level fluctuations, gas leaks, and environmental conditions. The Wi-Fi and GSM-based communication ensures instant alerts and remote accessibility, allowing authorities to take preventive measures before major incidents occur.

Complete Specification

Description:This proposed invention is an IoT-based solution for continuous real time monitoring of manholes to avoid sewage water overflow, accidents due to oper manholes and effects of hazardous gases. Arduino Nano platform serves as the core processing element to which all the sensors are interfaced to collect data associ with the manhole. The Ultrasonic Sensor is utilized to detect the level of water inside the manhole. The Ultrasonic Sensor sends out sound waves and measures the ti taken for them to reflect back through the air, thus determining if the water level has risen to a danger level and there is a risk of flooding. A DHT11 temperature sens incorporated into the system to monitor the temperature inside the manhole. Unusual temperature readings may indicate unusual chemical activity inside the manh overheating due to fire or a short circuit. The MQ4 Gas Sensor is an important safety feature of the system as it is used to detect the presence of methane and combu gases. These gases are typically found in sewers and can pose serious health and leakage risks if they are not detected quickly. The IR Sensor is used to identify the condition where a manhole cover is being opened. It is crucial to avoid accidents. NodeMCU ESP8266 Wi-Fi module is used for tracking sensor data. The NodeMCU co to the cloud platform called ThingSpeak through which one can remotely monitor the data. Finally, the buzzer output will give a sound notification if any of the sensor exceeds its threshold so that the nearby personnel can take necessary action.

Overall, this integrated manhole monitoring system provides a smart, IoT-enabled solution for urban safety. It not only prevents accidents related to toxic gases, flooc tampering but also enables efficient maintenance planning through continuous data logging and analysis. By combining Arduino-based hardware with cloud-based monitoring, the system contributes significantly to the development of smarter and safer cities.

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Patent Search

Invention Title	BRIDGING LANGUAGE AND VISION: BIDIRECTIONAL LSTM-ENHANCED CNN FRAMEWORK FOR TEXT-TO-IMAGE SYNTHESIS
Publication Number	51/2025
Publication Date	19/12/2025
Publication Type	INA
Application Number	202541106054
Application Filing Date	03/11/2025
Priority Number	
Priority Country	
Priority Date	
Field Of Invention	COMPUTER SCIENCE
Classification (IPC)	G06N 3/04, G06N 3/08, G06T 11/60, G06K 9/62, G06F 17/27
Inventor	

Name	Address	Country
O.BHULAKSHMI	ASSISTANT PROFESSOR, DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING, SANTHIRAM ENGINEERING COLLEGE, NH-40, NERAWADA X ROADS, NANDYAL, NANDYAL-DIST, ANDHRA PRADESH-518501	India
P.Swathi	Assistant Professor, Department of Computer Science and Engineering, Annamacharya University, New Boyanapalli, Rajampet Andhra Pradesh-516115	India
D. Kumar	Assistant Professor, Department of Computer Science and Engineering, Vignan's Foundation For science, Technology & Research, Vadlamudi, Guntur District Andhra Pradesh- 522213	India
S.Arun Ajay Deekshith	M.Tech Student, Department of Computer Science and Engineering, Santhiram Engineering College, NH- 40, Nerawada X Roads, Nandyal, Nandyal-Dist, Andhra Pradesh-518501- 522213	India

Applicant

Name	Address	Country
O.BHULAKSHMI	ASSISTANT PROFESSOR, DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING, SANTHIRAM ENGINEERING COLLEGE, NH-40, NERAWADA X ROADS, NANDYAL, NANDYAL-DIST, ANDHRA PRADESH-518501	India
P.Swathi	Assistant Professor, Department of Computer Science and Engineering, Annamacharya University, New Boyanapalli, Rajampet Andhra Pradesh-516115	India
D. Kumar	Assistant Professor, Department of Computer Science and Engineering, Vignan's Foundation For science, Technology & Research, Vadlamudi, Guntur District Andhra Pradesh- 522213	India
S.Arun Ajay Deekshith	M.Tech Student, Department of Computer Science and Engineering, Santhiram Engineering College, NH- 40, Nerawada X Roads, Nandyal, Nandyal-Dist, Andhra Pradesh-518501- 522213	India
SANTHIRAM ENGINEERING COLLEGE	Santhiram Engineering College, NH-40, Nerawada X Roads, Nandyal, Nandyal-Dist, Andhra Pradesh-518501	India

Abstract:

Abstract: Text-to-image generation is a transformative method for synthesizing images from textual descriptions. It continues to influence a wide range of research dor applications, including photo-searching, editing, art generation, computer-aided design, image reconstruction, captioning, and portrait drawing. The central challenge r generating realistic and semantically accurate images under diverse textual conditions. To address this, we developed a deep learning-based architecture named Recur Convolutional Generative Adversarial Network 01C-GAN), RC-GAN integrates recurrent layers for modeling sequential text semantics and convolutional layers for highfi image synthesis. This hybrid design effectively bridges linguistic and visual modalities, converting descriptive language into coherent pixel representations. In our latest GAN was trained on the Oxford-102 Flowers dataset, and further fine-tuned using multi-domain datasets including ClJB-200 Birds and COCO Captions, enhancing its generalization capabilities. Performance was evaluated using updated metrics: • Inception Score (IS): Improved to 4.87 • Peak Signal-to-Noise Ratio (PSNR): Increased dB • Frechet Inception Distance (FID): Achieved a competitive score of 18.2, indicating strong realism and diversity These results demonstrate RC-GAN•s enhanced ab generate visually plausible and semantically, aligned images across multiple domains. Future, work will explore integration with diffusion-based priors and fine-grained control to further improve image quality and user-guided generation

Complete Specification

Field of Invention; Deep Learning
Background Art including citations of prior art:
Text-to-image generation has evolved through several key deep learning paradigms. Your work builds upon and addresses limitations in these foundational models:
1. Generative Adversarial Networks (GANs)
.
DCGAN (Radford et ah, 2015): Introduced convolutional GANs for image synthesis, laying groundwork for visual realism.
.
Conditional GANs (Mirza & Osindero, 2014): Enabled conditioning on auxiliary information like text, but struggled with semantic alignment.
2. StackGAN (Zhang et al., 2017)
. Proposed a two-stage GAN architecture to generate high-resolution images from text.
Highlighted the challenge of semantic consistency between text and image.
3. AttnGAN (Xu et al., 2018)
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Patent Search

Invention Title	CyberShield: A Comprehensive Online Virus Detection System Using Risk Level Analysis, Junk Mail Filtering & Multi-Factor Authentication
Publication Number	05/2026
Publication Date	30/01/2026
Publication Type	INA
Application Number	202641004678
Application Filing Date	17/01/2026
Priority Number	
Priority Country	
Priority Date	
Field Of Invention	COMMUNICATION
Classification (IPC)	H04L 29/06, G06F 21/56, H04L 9/40, H04L 12/58, H04L 9/32
Inventor	

Name	Address	Country	
KOYYA AVINASH	Assistant Professor, Department of CSE, Koneru Lakshmaiah Education Foundation, Green Fields, Vaddeswaram, Guntur, Andhra Pradesh, India- 522302	India	
Dr.KODAVALI. LAKSHMNARAYANA	Associate Professor, Department of CSE, Koneru Lakshmaiah Education Foundation, Green Fields, Vaddeswaram, Guntur, Andhra Pradesh, India- 522302	India	
Dr. P K VENKATESWAR LAL	Professor, Department of CSE, Narayana Engineering College, Gudur, AP- 524101	India	
Mr. PURUSHOTHAM E	Associate Professor, Department.of CSE, Sreenivasa Institute of Technology and Management Studies Chittoor, AP-517127	India	
Dr. N. CHINNA ALLURAIAH	Assistant Professor, Department of Electrical and Electronics Engineering, Annamacharya University, Rajampet, 516126.	India	
Dr. P. JAYA PRAKASH	Associate Professor Department of IT Sri Venkateswara College of Engineering Tirupathi. Andhra pradesh, 517507	India	
AKULA HASINI	Student, Department of CSE, Koneru Lakshmaiah Education Foundation, Green Fields, Vaddeswaram, Guntur, Andhra Pradesh, India- 522302	India	
SHAIK ZAHEER PASHA	Student, Department of CSE, Koneru Lakshmaiah Education Foundation, Green Fields, Vaddeswaram, Guntur, Andhra Pradesh, India- 522302	India	
JD.MANJULA	Student, Department of CSE, Koneru Lakshmaiah Education Foundation, Green Fields, Vaddeswaram, Guntur, Andhra Pradesh, India- 522302	India	
KATAMANENI ESHVAR	Student, Department of CSE, Koneru Lakshmaiah Education Foundation, Green Fields, Vaddeswaram, Guntur, Andhra Pradesh, India- 522302	India	
M.LIKITHA	Student, Department of CSE, Koneru Lakshmaiah Education Foundation, Green Fields, Vaddeswaram, Guntur, Andhra Pradesh, India- 522302	India	

Applicant

Name	Address	Country	N
KODAVALI LAKSHMINARAYANA	ASSOCIATE PROFESSOR, DEPARTMENT OF CSE-MDIE, KL UNIVERSITY, VADDESWARAM	India	I
Koneru Lakshmaiah Education Foundation	Koneru Lakshmaiah Education Foundation, GreenFields, Vaddeswaram, Guntur, Andhra Pradesh, India	India	I

Abstract:

The rapid expansion of internet-based services and digital communication has significantly increased exposure to cyber threats such as viruses, malware, phishing atta malicious websites, unsafe links, and junk mail. Traditional antivirus solutions are often limited to device-level protection, signature-based detection, and single-functio mechanisms, which are insufficient to address modern, multi-vector cyber attacks. To overcome these limitations, this project presents CyberShield: A Comprehensive Virus Detection System Using Risk-Level Analysis, Junk Mail Filtering, and Multi-Factor Authentication. CyberShield is a web-based antivirus platform designed to provid protection across multiple digital channels, including websites, emails, files, and links. The system incorporates an intelligent risk-level analysis mechanism that evaluat detected threats and categorizes them into different severity levels, enabling users to quickly understand the potential impact and take appropriate action. The platfor dedicated modules for website scanning, email and junk mail detection, and malicious link identification, thereby offering a unified and holistic security solution. To enh access security and protect sensitive user data, CyberShield integrates three-factor authentication, combining password-based verification with biometric authenticatio techniques such as facial recognition and fingerprint scanning. This multi-layer authentication approach significantly reduces the risk of unauthorized access and stren overall system security. The system is designed for deployment through multiple channels, including web applications, browser extensions, and mobile applications, m accessible to a wide range of users. CyberShield supports a scalable, subscription-based service model and is suitable for individual users as well as organizations seek cybersecurity protection. By integrating threat detection, risk assessment, email security, and strong authentication into a single platform, the proposed system provide efficient, user-friendly, and robust solution for modern online security challenges. The project demonstrates how a multi-layered, risk-aware approach can significantly digital safety and resilience against evolving cyber threats.

Complete Specification

Description:Brief Description of the Drawing

Fig. 1 illustrates a graphical user interface of the proposed CyberShield / VirusShield antivirus system, depicting the overall workflow of virus detection and risk-level analysis. The drawing shows a file upload and scanning module, a threat detection alert indicating the identified malicious file along with its corresponding risk level, available response actions such as quarantine and deletion. The interface further includes a system summary panel displaying real-time protection status, firewall act and auto-update functionality, along with visual indicators of scan results, detected threats over time, and protection tools. The figure represents the integrated opera file scanning, threat classification, and security management within the online virus detection system.

Fig. 2 illustrates the junk mail and email threat detection module of the proposed CyberShield system. The drawing represents an email security interface showing inb categorization into safe, suspicious, and high-risk emails. It highlights the detection of a suspicious email with details such as sender information, subject line, identifi issues including phishing links and malicious attachments, and the corresponding risk level classification. The figure further displays user response options such as quarantining the email, blocking the sender, or deleting the message, along with real-time mail scanning status, spam filtering, and attachment protection indicators. drawing demonstrates the operation of the system's junk mail filtering and email-based threat analysis functionality.

Fig. 3 illustrates the multi-factor authentication (3-factor authentication) mechanism employed in the proposed CyberShield system. The drawing depicts a sequential security verification process comprising facial recognition, biometric fingerprint (thumb) scanning, and password-based authentication. Each authentication factor is v represented to demonstrate the layered approach used to verify user identity. This figure highlights the system's enhanced access control methodology, which streng security by combining knowledge-based and biometric authentication techniques to prevent unauthorized access to the antivirus platform.

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Patent Search

Invention Title	Voltage Level Driven Short Circuit Aware Voltage Level Shifter for Deep Sub Micron Applications
Publication Number	05/2026
Publication Date	30/01/2026
Publication Type	INA
Application Number	202641005477
Application Filing Date	19/01/2026
Priority Number	
Priority Country	
Priority Date	
Field Of Invention	ELECTRONICS
Classification (IPC)	H03K 19/0185, H03K 19/0175, H03K 19/003, H03K 3/356, H03K 19/0948
Inventor	

Name	Address	Country	
Dr. K. Yoga Prasad	Professor, Dept. of Electronics and Communication Engineering, Sreenivasa Institute of Technology and Management Studies, Chittoor Dt., Andhra Pradesh, India	India	
Dr. Srinivasulu Gundala	Professor, Dept. of Electronics and Communication Engineering, Lakireddy Bali Reddy College of Engineering (Autonomous), Mylavaram, Krishna Dt, Andhra Pradesh, India	India	
Dr. K. M. Hemambaran	Associate Professor, Dept. of Electronics and Communication Engineering, Sreenivasa Institute of Technology and Management Studies, Chittoor Dt., Andhra Pradesh, India	India	
Dr. M. Mahaboob Basha	Professor, Dept. of Electronics and Communication Engineering, Sreenidhi Institute of Science and Technology (Autonomous), Hyderabad, India	India	
Dr. O. Hemakesavulu	Professor, EEE Department, Annamacharya University, Rajampet, Andhra Pradesh, India	India	

Applicant

Name	Address	Country	Nationa
Lakireddy Bali Reddy College of Engineering	Mylavaram, N T R Dt., Andhra Pradesh, India	India	India

Abstract:

VOLTAGE LEVEL DRIVEN SHORT CIRCUIT AWARE VOLTAGE LEVEL SHIFTER FOR DEEP SUB MICRON APPLICATIONS The present invention relates to a voltage level shifter translating signals between sub-threshold and nominal supply voltages in deep sub-micron technologies. The circuit employs an input voltage-driven split-input inverte combined with short-circuit-aware PMOS and NMOS devices to minimize overlap current and improve energy efficiency. The architecture includes a 2×1 multiplexer for VDDL/VDDH selection, a boosting inverter for full logic swing, and a transmission gate/inverter path for logic '0' passing. The proposed design enables voltage conversi 0.2 V and 1.2 V in both directions with reduced power consumption and delay, making it suitable for low-power applications such as IoT, biomedical devices, and wirele

Complete Specification

Description:FIELD OF THE INVENTION:

[001] The present invention relates to the field of semiconductor technology, microelectronics, and low-power VLSI design. More specifically, it pertains to voltage switching and level translation using short-circuit-aware inverters to improve system efficiency in terms of energy consumption, delay, and area.

BACKGROUND OF THE INVENTION:

[002] Integrated circuits (ICs) operate with a variety of supply voltages to meet different functional requirements. They often need to interface with circuits powere different voltage domains. The main challenge lies in designing ICs that can handle multiple supply voltages efficiently. Typically, an IC is designed with a central supp voltage to drive most of its internal circuitry, and this voltage is generally kept as low as possible to reduce energy consumption. As IC manufacturing processes advar shrink, the internal power supply requirements also decrease.

[003] In certain applications, the core of an IC may need to work in conjunction with other cores operating at different voltages. Therefore, there is often a need fo multiple supply voltages to accommodate varying operating conditions within ICs. This invention relates to electronic circuits for digital applications, specifically voltag translators for converting between different voltage levels and for passing logic "0." Voltage level translator circuits are designed to transfer voltages from low levels t higher levels or down to lower levels.

[004] Traditional level shifters can become problematic when operating at higher frequencies. This issue becomes even more critical when voltages need to be shi between threshold and sub-threshold levels at high frequency. One common method to achieve voltage shifting at higher frequencies is to increase the width of MOS

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Patent Search

Invention Title	AUTOMATED API SYNTHESIS SYSTEM USING NATURAL LANGUAGE INPUTS
Publication Number	01/2026
Publication Date	02/01/2026
Publication Type	INA
Application Number	202541126216
Application Filing Date	13/12/2025
Priority Number	
Priority Country	
Priority Date	
Field Of Invention	COMPUTER SCIENCE
Classification (IPC)	G06F 9/44, G06F 9/445, G06F 9/54, G06F 8/60, G06F 8/30
Inventor	

Name	Address	Country
Dr. G. Raja Vikram	Professor, Department of Computer Science and Engineering, Vignan Institute of Technology and Science, Deshmukhi, Pochampally, Yadadri- Bhuvanagiri(d) – 508284, Telangana, India	India
Dr. Raghavendra Gowda D	Associate Professor, Department of Computer Science and Engineering Vardhaman College of Engineering, Shamshabad, Hyderabad - 501218, Telangana, India	India
Dr. Sneh Garg	Assistant Professor, Department of Computer Science & Engineering, University Institute of Engineering, Chandigarh University, Gharuan, Mohali - 140413, Punjab, India	India
Namala Vijayalakshmi	Assistant Professor, Department of Computer Science and Engineering -(CAI) KKR & KSR Institute of Technology and Sciences, Vinjanampadu, Guntur, Andhra Pradesh - 522017, India	India
Puja Shrivastava	Assistant Professor, Department of Computer Science & Engineering, University Institute of Engineering, Chandigarh University, Gharuan, Mohali - 140413, Punjab, India	India
Amar Choudhary	Department of ECE, Alliance School of Applied Engineering (ASAE), Alliance University, Bengaluru, Karnataka - 562106, India	India
Dr. Swarna Surekha	Assistant Professor, Department of Artificial Intelligence & Machine Learning, Annamacharya University, New Boyanapalli, Rajampet –516126, Andhra Pradesh, India	India

Applicant

Name	Address	Country
Dr. G. Raja Vikram	Professor, Department of Computer Science and Engineering, Vignan Institute of Technology and Science, Deshmukhi, Pochampally, Yadadri- Bhuvanagiri(d) – 508284, Telangana, India	India
Dr. Raghavendra Gowda D	Associate Professor, Department of Computer Science and Engineering Vardhaman College of Engineering, Shamshabad, Hyderabad - 501218, Telangana, India	India
Dr. Sneh Garg	Assistant Professor, Department of Computer Science & Engineering, University Institute of Engineering, Chandigarh University, Gharuan, Mohali - 140413, Punjab, India	India
Namala Vijayalakshmi	Assistant Professor, Department of Computer Science and Engineering -(CAI) KKR & KSR Institute of Technology and Sciences, Vinjanampadu, Guntur, Andhra Pradesh - 522017, India	India
Puja Shrivastava	Assistant Professor, Department of Computer Science & Engineering, University Institute of Engineering, Chandigarh University, Gharuan, Mohali - 140413, Punjab, India	India
Amar Choudhary	Department of ECE, Alliance School of Applied Engineering (ASAE), Alliance University, Bengaluru, Karnataka - 562106, India	India
Dr. Swarna Surekha	Assistant Professor, Department of Artificial Intelligence & Machine Learning, Annamacharya University, New Boyanapalli, Rajampet –516126, Andhra Pradesh, India	India

Abstract:

[027] The present invention discloses an Automated API Synthesis System Using Natural Language Inputs, which enables the generation of fully functional and deploya application programming interfaces (APIs) directly from textual descriptions provided by users. The system comprises an NLP Parsing Module for interpreting user inpu Semantic Requirement Extraction Engine for identifying entities, operations, constraints, and relationships, an API Specification Generator for producing structured spe a Code Synthesis Engine for generating executable API code, and a Deployment Orchestrator for automated deployment to cloud or on-premise environments. The sys supports multiple API architectures including REST, GraphQL, and gRPC, and automatically generates database bindings, authentication layers, validation rules, error-ha logic, and endpoint documentation. Additionally, a self-learning module refines interpretation accuracy over time using user feedback and pattern recognition. The inve significantly reduces development time, eliminates dependency on technical expertise, and democratizes API creation for both technical and non-technical users, provi robust, scalable, and intelligent platform for automated software development. Accompanied Drawing [FIGS. 1-2]

Complete Specification

Description:[001] The present invention relates to the field of automated software engineering, specifically to intelligent systems and methods for generating applicat programming interfaces (APIs) using natural language inputs. More particularly, the invention concerns an AI-driven, context-aware, and fully automated API synthesi framework that interprets user-provided textual descriptions, identifies functional and non-functional requirements, and converts them into structured API specificat and executable code. The invention integrates advanced natural language processing, semantic analysis, machine learning–based code generation, and automated deployment technologies to significantly reduce software development time, eliminate dependency on manual programming skills, and empower both technical and technical users to create robust, production-ready APIs.

BACKGROUND OF THE INVENTION

[002] Application Programming Interfaces (APIs) have become indispensable components of modern digital ecosystems, enabling seamless communication among m applications, cloud services, web platforms, IoT devices, enterprise software, and distributed systems. As organizations increasingly rely on interconnected services, tl demand for APIs continues to grow exponentially. However, the conventional process of designing and developing APIs remains complex and time-consuming, requir specialized technical expertise in software architecture, data modeling, authentication mechanisms, and coding practices.

[003] The traditional API development lifecycle involves multiple stages, including requirement gathering, manual documentation, schema design, endpoint creation, testing, versioning, and deployment. These steps typically require close collaboration between business stakeholders and software engineers, often leading to misinterpretations, inconsistent requirements, and long development cycles. Even seemingly simple APIs may take days or weeks to develop due to the need for prec implementation and rigorous testing

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Patent Search

Invention Title	FEDERATED DEEP REINFORCEMENT LEARNING DRIVEN ADAPTIVE DDOS DEFENSE FOR SMART GRID COMMUNICATION NETWORKS.
Publication Number	09/2026
Publication Date	27/02/2026
Publication Type	INA
Application Number	202641017586
Application Filing Date	17/02/2026
Priority Number	
Priority Country	
Priority Date	
Field Of Invention	COMMUNICATION
Classification (IPC)	H04L 29/06, G06N 3/08, G06N 3/04, H04L 12/24, G06N 20/00

Inventor

Name	Address	Country
Akula Vishalakshi	Akula Vishalakshi Assistant Professor, Department of Computer Science and Engineering, Guru Nanak Institutions Technical Campus (A), Hyderabad, Telangana, India - 501506. visali1203@gmail.com	India
Dr. T. Harikrishna	Dr. T. Harikrishna , Associate Professor, Department of AIML, Annamacharya University, Andhra Pradesh, India. thk.itd@gmail.com	India

Applicant

Name	Address	Country
Akula Vishalakshi	Akula Vishalakshi Assistant Professor, Department of Computer Science and Engineering, Guru Nanak Institutions Technical Campus (A), Hyderabad, Telangana, India - 501506. visali1203@gmail.com	India
Dr. T. Harikrishna	Dr. T. Harikrishna , Associate Professor, Department of AIML, Annamacharya University, Andhra Pradesh, India. thk.itd@gmail.com	India

Abstract:

ABSTRACT OF THE INVENTION: FEDERATED DEEP REINFORCEMENT LEARNING DRIVEN ADAPTIVE DDOS DEFENSE FOR SMART GRID COMMUNICATION NETWORKS The p invention discloses a system and method for an adaptive, privacy-preserving Distributed Denial of Service (DDoS) defense in Smart Grid communication networks. The employs a distributed architecture comprising multiple intelligent defense agents deployed at strategic edge nodes, such as substation gateways. Each agent integrates traffic analyzer with a Deep Reinforcement Learning (DRL) engine. The traffic analyzer continuously monitors network flows to generate a real-time state representatio fed into the DRL engine. The DRL engine, trained via a reward function that balances network utility and security, autonomously selects and executes optimal mitigatio such as dynamic rate-limiting or traffic blocking. Crucially, the agents operate within a federated learning framework. Instead of sharing raw, sensitive network data, ea periodically uploads its learned DRL model weights to a central federated aggregation server. This server securely aggregates the updates from all agents to create a co improving global DRL model, which is then redistributed. This collaborative cycle enables the entire grid's defense system to collectively learn from localized attacks, ra to new threats, and maintain resilience without central bottlenecks or compromising data privacy. The invention provides a robust, self-optimizing, and scalable immur against evolving cyber threats to critical power infrastructure.

Complete Specification

Description:Summary of the Invention:
The present invention provides a novel system and method for adaptive DDoS defense in Smart Grid communication networks, named Federated Deep Reinforceme Learning Driven Adaptive DDoS Defense (FDRL-ADD). The core of the invention is a distributed architecture where multiple intelligent defense agents are deployed at strategic edge nodes within the Smart Grid communication infrastructure, such as at substation gateways, concentrators, or regional aggregation points.

These agents operate independently but collaborate through a federated learning framework to build a global, collective intelligence without ever sharing their raw, potentially sensitive, network data. Each agent comprises two key functional modules: a local traffic analyzer and a Deep Reinforcement Learning (DRL) based decisio engine.

The local traffic analyzer continuously monitors the incoming network data stream. It extracts a rich set of real-time features that capture the state of the network, su traffic volume, packet rates, protocol distributions, entropy of source/destination IP addresses, and flow inter-arrival times. This analysis forms the "state" for the DRL , Claims:CLAIMS:-6 claims:

1. A system for providing adaptive DDoS defense in a Smart Grid communication network, the system comprising:
   a) a plurality of defense agents deployed at a plurality of edge nodes within the communication network, wherein each defense agent is configured to monitor and

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Patent Search

Invention Title	MACHINE LEARNING-ENABLED SYSTEM FOR MONITORING FACULTY BEHAVIOUR AND OPTIMIZING TEACHING EFFECTIVENESS IN HIGHEF EDUCATION
Publication Number	42/2025
Publication Date	17/10/2025
Publication Type	INA
Application Number	202521086616
Application Filing Date	12/09/2025
Priority Number	
Priority Country	
Priority Date	
Field Of Invention	COMPUTER SCIENCE
Classification (IPC)	G06Q0050200000, G06N0020000000, G09B0005020000, G09B0007000000, G06F0040300000
Inventor	

Name	Address	Country
Abdul Razzak Khan Qureshi	Assistant Professor, Department of Computer Science, Medicaps University, Indore, Madhya Pradesh, 453331, India.	India
Mr. R. Dharmalingam	Assistant Professor, Department of English, Jamal Mohamed College (Autonomous), Tiruchirapalli, Tamil Nadu, 620020, India.	India
S. Manjula	Assistant Professor, Department of Computer Science and Engineering (Data Science), MITS Deemed to be University, Madanapalle, Annamayya, Andhra Pradesh, 517325, India.	India
Dr. P. Chellammal	Professor, Department of Computer Science and Engineering, J J College of Engineering and Technology, Tiruchirapalli, Tamil Nadu, 620009, India.	India
Dr Lalit Mohan Trivedi	Assistant Professor, Department of ASH (Mathematics), Moradabad Institute of Technology, Moradabad, Uttar Pradesh, 244001, India.	India
S Bharathidasan	Associate Professor, Department of Electronics and Communication Engineering, Erode Sengunthar Engineering college, Erode, Tamil Nadu, India.	India
Dr. Srijan Paul	Assistant Professor, Department of Mechanical Engineering, Asansol Engineering College, Asansol, Paschim Barddhaman, West Bengal, 713305, India.	India
Dr. Soumitra Mondal	Assistant Professor, Department of B.Ed., Subhas Chandra Basu B.Ed. Training College, Affiliated to Baba Saheb Ambedkar Education University, Heria, East Medinipur, West Bengal, 721430, India.	India
Dr N Penchalaiah	Associate Professor, Department of Artificial Intelligence and Machine Learning, Annamacharya University, New Boyanapalli, Rajampet, Annamayya, Andhra Pradesh, 516126, India.	India
Jeyaprakash N	Assistant Professor, Department of EEE, St.Joseph's College of Engineering, OMR, Chennai, Tamil Nadu, 600119, India.	India
Vigneshwaran K	Assistant Professor, Department of Electronics and Communication Engineering, K.Ramakrishnan College of Engineering, Samayapuram, Trichy, Tamil Nadu, 621112, India.	India
Dr H Anwer Basha	Principal, RAAK Arts and Science College, Perambai, Villianur, Puducherry, 605110, India.	India

Applicant

Name	Address	Country
Abdul Razzak Khan Qureshi	Assistant Professor, Department of Computer Science, Medicaps University, Indore, Madhya Pradesh, 453331, India.	India
Mr. R. Dharmalingam	Assistant Professor, Department of English, Jamal Mohamed College (Autonomous), Tiruchirapalli, Tamil Nadu, 620020, India.	India
S. Manjula	Assistant Professor, Department of Computer Science and Engineering (Data Science), MITS Deemed to be University, Madanapalle, Annamayya, Andhra Pradesh, 517325, India.	India
Dr. P. Chellammal	Professor, Department of Computer Science and Engineering, J J College of Engineering and Technology, Tiruchirapalli, Tamil Nadu, 620009, India.	India
Dr Lalit Mohan Trivedi	Assistant Professor, Department of ASH (Mathematics), Moradabad Institute of Technology, Moradabad, Uttar Pradesh, 244001, India.	India
S Bharathidasan	Associate Professor, Department of Electronics and Communication Engineering, Erode Sengunthar Engineering college, Erode, Tamil Nadu, India.	India
Dr. Srijan Paul	Assistant Professor, Department of Mechanical Engineering, Asansol Engineering College, Asansol, Paschim Barddhaman, West Bengal, 713305, India.	India
Dr. Soumitra Mondal	Assistant Professor, Department of B.Ed., Subhas Chandra Basu B.Ed. Training College, Affiliated to Baba Saheb Ambedkar Education University, Heria, East Medinipur, West Bengal, 721430, India.	India
Dr N Penchalaiah	Associate Professor, Department of Artificial Intelligence and Machine Learning, Annamacharya University, New Boyanapalli, Rajampet, Annamayya, Andhra Pradesh, 516126, India.	India
Jeyaprakash N	Assistant Professor, Department of EEE, St.Joseph's College of Engineering, OMR, Chennai, Tamil Nadu, 600119, India.	India
Vigneshwaran K	Assistant Professor, Department of Electronics and Communication Engineering, K.Ramakrishnan College of Engineering, Samayapuram, Trichy, Tamil Nadu, 621112, India.	India
Dr H Anwer Basha	Principal, RAAK Arts and Science College, Perambai, Villianur, Puducherry, 605110, India.	India

Abstract:

MACHINE LEARNING-ENABLED SYSTEM FOR MONITORING FACULTY BEHAVIOUR AND OPTIMIZING TEACHING EFFECTIVENESS IN HIGHER EDUCATION The present inver relates to the development of a machine learning-enabled system that analyses a variety of data sources in real time, including as student feedback, learning outcomes classroom interactions, and digital engagement measures, to assess faculty effectiveness. The system uses natural language processing and predictive analytics to find teaching methods, point out areas that need work, and offer tailored suggestions to maximize instructional tactics. Additionally, it facilitates ongoing observation of ins conduct, including responsiveness, communication style, and pedagogical flexibility, which supports a data-driven approach to professional development. The suggeste encourages student-centered instruction while supporting institutional decision-making and guaranteeing congruence with academic objectives. In the end, our ML-en framework improves the quality of instruction, gives faculty members useful insights, and helps to build a more efficient and flexible higher education environment. FIG

Complete Specification

Description:Description of the Related Art

[0002] Rapid developments in digital technology, data analytics, and artificial intelligence have caused a radical change in higher education in recent decades. Monit and improving teaching effectiveness is becoming increasingly important as educational institutions work to uphold academic excellence and satisfy the changing nee various student populations. Academic results are greatly influenced by the conduct of faculty members, including their teaching strategies, involvement in the classr responsiveness to students, and flexibility in accommodating various learning preferences. However, conventional evaluation techniques—like administrative tests, p reviews, and student feedback surveys—are frequently arbitrary, have a narrow focus, and fall short in capturing the dynamic and multifaceted character of instructic

[0003] A promising way to overcome these constraints is through machine learning (ML), which makes it possible to evaluate and optimize teacher performance in methodical, data-driven manner. Large, complicated datasets are easily processed by ML algorithms, which also reveal hidden patterns and produce actionable insigh go beyond cursory observations. Learning management systems (LMS), classroom recordings, attendance records, student performance analytics, and even sentimer analysis of student interactions are just a few of the data streams that can be integrated by ML-enabled systems in the educational setting. Institutions are able to dev more thorough and impartial understanding of teacher conduct and how it affects student learning outcomes because to this complete data integration.

[0004] Developments in computer vision, natural language processing, and predictive analytics further facilitate the application of machine learning to monitor teac conduct. For instance, computer vision can measure classroom engagement by monitoring participation and attentiveness, while natural language processing (NLP) c examine lecture transcripts or discussion boards to grade instructional clarity and inclusion. Institutions can also predict how particular teaching strategies may affec student retention, academic performance, and satisfaction by using predictive models. These realizations enable teachers to improve their instruction, use research-b

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Registered

Registration date
28 November 2025

Renewal date
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Overview

Application date
28 November 2025

Grant date
10 December 2025

Publication date
11 December 2025

Indication of Product
Smart wearable health monitoring device using Edge Computing

Classification

Class	24 - MEDICAL AND LABORATORY EQUIPMENT
Sub class	02 - MEDICAL INSTRUMENTS, INSTRUMENTS AND TOOLS FOR LABORATORY USE

Illustrations

Disclaimer
no claim is made for the colour shown

Designs



Names and addresses

Contact (address for service)

Ideas2IPR
Office No 77, 22 Notting Hill Gate, London , W11 3JE

Owners

Name	Address
Mr. Manikantan Ramesh	Assistant Professor, Department of MCA , Surana College (AUTONOMOUS), CA-17, Stage I, Kengeri Satellite Town, Bengaluru, Karnataka , 560060
Dr. Muthuraju Palanisamy	Department of Commerce, T. John College (Autonomous), Gottigere, Bannerghatta Road, Bengaluru, Karnataka, 560083
Mr. Sayed Faizal	Assistant Professor, Department of BCA, Krupanidhi Degree College(AUTONOMOUS), 12/1, Chikka Bellandur, Carmelaram Gunjur Road, Hobli, off Sarjapur Road, Varthur, Bengaluru, Karnataka , 560035
Mrs. Kalpana Chittor	Assistant Professor, Department of Computer Applications, Sri Krishna Degree College, ITI Layout, Kathreguppe, Bengaluru, Karnataka , 560085
Dr. Archana Sharma	Associate Professor, Department of mathematics UIS, Chandigarh University, Mohali, Punjab, 140413
Omkumar Sundaramurthy	Associate professor, Department of ECE, Sri chandarasekharendra Saraswathi Viswa, Sri chandarasekharendra Saraswathi Viswa Mahavidyalaya, 631561

Dr. Vijay Kumar	Professor, Department of mathematics UIS, Chandigarh University, Mohali, Punjab, 140413
Surekha Swarna	Assistant Professor, Dept. of Artificial Intelligence and Machine Learning, Annamacharya University, 516126

History

No history is available for this design

कार्यालय महानियंत्रक एकस्व, अभिकल्प एवं व्यापार चिह्न
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Department for Promotion of Industry and Internal Trade

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Designs

Design Application Details

Application Number:

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CBR Number:

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CBR Date:

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Applicant Name:

1. Raghavendra Sode **2. Bhuvana R** **3. Shashank S** **4. Rahul Kumar Misra** **5. Tushar Dhiman**
6. Ankit Jain **7. Sarita Chouhan** **8. Shivam Dubey** **9. Manjula G V** **10. Kottamidde Adisekhar Babu**

Design Application Status

Application Status:

Examination Report has been Generated ,Online Reply Document Received(FER generated on 27/02/2026)

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क्रम सं/ Serial No. : 250011

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डिजाइन सं. / Design No. : 487149-001

तारीख / Date : 13/01/2026

पारस्परिकता तारीख / Reciprocity Date* :

देश / Country :

प्रमाणित किया जाता है कि संलग्न प्रति में वर्णित डिजाइन जो *SMART ORGANIZATIONAL PERFORMANCE MONITORING DEVICE* से संबंधित है, का पंजीकरण, श्रेणी 10-05 में 1.Raghavendra Sode 2. Bhuvana R 3.Shashank S 4.Rahul Kumar Misra 5.Tushar Dhiman 6.Ankit Jain 7.Sarita Chouhan 8.Shivam Dubey 9.Manjula G V 10.Kottamidde Adisekhar Babu के नाम में उपर्युक्त संख्या और तारीख में कर लिया गया है।

Certified that the design of which a copy is annexed hereto has been registered as of the number and date given above in class 10-05 in respect of the application of such design to *SMART ORGANIZATIONAL PERFORMANCE MONITORING DEVICE* in the name of 1.Raghavendra Sode 2. Bhuvana R 3.Shashank S 4.Rahul Kumar Misra 5.Tushar Dhiman 6.Ankit Jain 7.Sarita Chouhan 8.Shivam Dubey 9.Manjula G V 10.Kottamidde Adisekhar Babu.

डिजाइन अधिनियम, 2000 तथा डिजाइन नियम, 2001 के अध्यधीन प्रावधानों के अनुसरण में।

In pursuance of and subject to the provisions of the Designs Act, 2000 and the Designs Rules, 2001.

पेटेंट कार्यालय, भारत सरकार
The Patent Office, Government Of India
सत्यमेव जयते

जारी करने की तिथि : 20/08/2026
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उन्नाम पंडित

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