Faculty Achievements
JAN 2025 – DEC 2025

Dr. Manjula Sanjay Koti, HOD-MCA, published a Research Paper in the Journal of "Basic Science and Engineering" entitled "A Novel Hybridized Prediction Model for Detection of Chronic Renal Diseases using Multilayer Perceptron-Stochastic Gradient Descent based Boosted Classifiers".

JOURNAL OF BASIC SCIENCE AND ENGINEERING

A novel hybridized prediction model for detection of chronic renal diseases using Multilayer Perceptron-Stochastic Gradient Descent based boosted classifiers

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***Abstract*— Chronic Kidney Disease (CKD) is a critical health condition that affects millions worldwide, necessitating effective early diagnosis to mitigate its progression and associated mortality. The primary challenge in CKD prediction lies in handling complex, high-dimensional medical data and addressing issues of data imbalance, feature selection, and integration of various predictive models. Traditional single-model approaches often fall short in capturing the intricate patterns necessary for accurate diagnosis. The proposed research aims to develop and build a novel hybridized CKD prediction model leveraging an ensemble of advanced machine learning techniques to enhance diagnostic accuracy and reliability. This hybrid model integrates Multilayer Perceptron (MLP), Stochastic Gradient Descent (SGD), Adaptive Boosting (Adaboost), Logistic Regression, and Random Forest, fortified by a series of robust methodologies and Clinical Prediction Models (CPMs). Therefore, a hybridized model, combining the strengths of various algorithms, is proposed to achieve a more comprehensive and robust CKD prediction system.**

To improve model performance, feature selection methods such as ANOVA, Pearson correlations, and Cramer's V tests are applied. Incorporating deep stacked autoencoder networks allows for effective learning from multimedia data, enhancing the model's ability to process and interpret complex medical images and signals. Integrating CPMs provides a clinical context to the predictions, making the model's output more relevant and actionable in real-world medical settings. This comprehensive approach not only enhances diagnostic accuracy but also provides a framework that can be adapted to other complex medical prediction tasks.

***Keywords*— CKD, Prediction, Detection, Robustness, Anova, Correlation.**

I. Introduction

Developing a novel hybridized CKD prediction model involves integrating multiple methodologies to enhance the accuracy, robustness, and interpretability of the detection system. The model starts with Logistic Regression (LR) as a baseline classifier, providing a straight-forward and interpretable probabilistic framework. Feature selection methods such as ANOVA, Pearson correlations, and Cramer's V tests are used to identify the most relevant predictors, ensuring that only significant features are included in the model. Support Vector Machines (SVM), alongside Naive Bayes, offer robust initial classification capabilities, each contributing unique strengths in handling different types of data. Random Forest (RF) further enhances the prediction accuracy by aggregating multiple decision trees, while Multilayer Perceptron (MLP) addresses class imbalance through advanced neural network techniques.

Additionally, the integration of DL techniques, specifically Deep Stacked Autoencoder Networks, enables the model to learn from complex multimedia data, such as medical images and clinical reports, extracting high-level features that improve diagnostic precision. Boosted classifiers, like Gradient Boosting Machines (GBM) or AdaBoost, refine the model by combining several weak classifiers into a strong predictor, leveraging the selected features to enhance performance. Clinical Prediction Models (CPMs) ensure the model's clinical relevance by incorporating various demographic and clinical factors, providing a comprehensive risk assessment for CKD progression. This hybrid approach combines the strengths of traditional statistical methods, machine learning algorithms, and deep learning techniques to deliver a robust, accurate, and interpretable CKD prediction system. Also, the hybridized

Dr. Manjula Sanjay Koti, HOD-MCA has received a Design Patent grant for the "IOT ENABLED ROBOT FOR ULTRAVIOLET DISINFECTION"

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

डिजाइन के पंजीकरण का प्रमाण पत्र | Certificate of Registration of Design

डिजाइन सं. / Design No. 430419-001

तारीख / Date 13/09/2024

परस्परिकता तारीख / Reciprocity Date*

देश / Country

प्रमाणित किया जाता है कि संलग्न प्रति में वर्गीत डिजाइन जो *IOT ENABLED ROBOT FOR ULTRAVIOLET DISINFECTION* से संबंधित है, का पंजीकरण, वर्गी 24-01 में 1.Dr Sandeep Kumar M 2. Dr R Sukumar 3.Dr Manjula Sanjay Koti 4.Mr S Satheesh Kumar 5.Mrs Arpana G K 6.Mr K Suresh 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 24-01 in respect of the application of such design to *IOT ENABLED ROBOT FOR ULTRAVIOLET DISINFECTION* in the name of 1.Dr Sandeep Kumar M 2. Dr R Sukumar 3.Dr Manjula Sanjay Koti 4.Mr S Satheesh Kumar 5.Mrs Arpana G K 6.Mr K Suresh.

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.

Dr. Manjula Sanjay Koti, HOD-MCA , has published a Patent on “IoT driven Real-Time Patient Health Monitoring Using Federated Learning for Secure Data Aggregation ” on 15th Aug , 2025.

(12) PATENT APPLICATION PUBLICATION (21) Application No.202541073014 A

(19) INDIA

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(54) Title of the invention : IoT driven Real-Time Patient Health Monitoring Using Federated Learning for Secure Data Aggregation

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(57) Abstract :
The invention discloses a real-time patient health monitoring system, termed FL-HealthGuard, that employs a novel method known as Secure Federated Aggregation and Personalized Edge Learning (SFAPEL) to ensure decentralized, secure, and privacy-preserving aggregation of sensitive health data. The system integrates wearable IoT devices and edge computing nodes to continuously collect and process physiological parameters such as heart rate, blood pressure, glucose levels, and ECG signals. Each edge node performs local training using the Personalized Adaptive Gradient Descent (PAGD) technique and transmits only encrypted model updates to a central federated learning coordinator. The coordinator applies Federated Averaging with Differential Privacy (FADP) to securely aggregate updates and enhance the global model without accessing raw patient data. The updated model is redistributed to all edge devices for improved inference and personalized health monitoring. The FL-HealthGuard system ensures data confidentiality, minimizes latency, supports real-time alerting, and is scalable for chronic disease management, elderly care, and remote patient monitoring environments.

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

Dr. Manjula Sanjay Koti, HOD-MCA , presented a Research Paper in the “17th International Conference on Contemporary Computing(IC3)” entitled “An Intelligent and Automated Medical Dispensing System Utilizing IOT for Enhanced Healthcare Management”.

CSE/IC3-2025/347

2025 Seventeenth International Conference on Contemporary Computing (IC3)

7-9 August 2025

Organized By

Jaypee Institute of Information Technology, Noida, India

Jointly with

University of Florida, USA

CERTIFICATE

This is to certify that **Dr. Manjula Koti** from **Dayananada Sagar Academy of Technology and Management** has presented a paper titled **An Intelligent and Automated Medical Dispensing System Utilizing IoT for Enhanced Healthcare Management** during the 17th International Conference on Contemporary Computing (IC3- 2025) held from 7th – 9th August, 2025 at Jaypee Institute of Information Technology (JIIT, Noida) through hybrid mode.

Prof. Vikas Saxena, JIIT, INDIA
General Co-Chair (IC3-2025)

Prof. Sartaj Sahni, University of Florida, USA
General Co-Chair (IC3-2025)

IEEE

Dr. Manjula Sanjay Koti, HOD-MCA , has received “Best Professional Performers 2024-25” for the valuable contribution towards Professional Achievement in Quality Publications(6 No’s) & Patent(1 No's) during 2024-25.

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Presented to

Dr/Mr/Mrs Manjula Sanjay Koti of MCA Dept. for the valuable contribution towards Professional Achievement in Quality Publications/Patent Grants/Book published 06 Research Paper's 01 Patent Grant. during 2024-25.

Faculty Appreciated on the occasion of Teachers’ day celebration, 15th September 2025.

Principal, DSATM

Dr. Manjula Sanjay Koti, HOD-MCA , has participated in FIP on “AI For Educators” conducted by DSATM in association with Smayan Foundation on Aug 18-22, 2025.

Smayan Foundation®

in association with

Dayananda Sagar Academy of Technology & Management

(Autonomous Institution under VTU)

This certificate is proudly presented to

Dr. Manjula Sanjay Koti

for successfully completing the Faculty Immersion Program “AI For Educators” held between 18th August and 22nd August 2025 at DSATM Campus in association with Smayan Foundation.

Dr. Ravishankar M
Principal
DSATM

Srinivas Gumaste
Founder & CEO
Smayan Foundation®

Dr. Manjula Sanjay Koti, Professor & Head, Department of MCA, was the KETNOTE SPEAKER at the International Conference on Multidisciplinary Approaches on Education, Science, Engineering, Social Science & Humanities during.

IFERP Academy CERTIFICATE OF KEYNOTE SPEAKER ICMAESESH

International Conference on Multidisciplinary Approaches on Education, Science, Engineering, Social Science & Humanities

28th - 29th August 2025 | Hybrid Conference

14 CPD HOURS

Certificate No : IFERP282025_2808_ICMAESESHSP_1331

IFERP - express its gratitude to

Manjula Koti

from Dayananda Sagar Academy of technology and Management for serving as the KEYNOTE SPEAKER at the "International Conference on Multidisciplinary Approaches on Education, Science, Engineering, Social Science & Humanities (ICMAESESH-2025), " organized by IFERP Academy held on 28th-29th August 2025 as a hybrid conference. Accredited by CPD, the conference offers 14 credit hours of professional development.

The CPD Standards Office CPD PROVIDER: 41183 2024-2026 www.cpdstandards.com

Mr. Siddth Kumar Chhajer

Mr. Rudra Bhanu Satpathy

Under the Guidance of Dr. Manjula Sanjay Koti, Professor & Head, Department of MCA, Satheesh Kumar defended his Ph.D. Viva Voce on September 12, 2025, with the dissertation titled “Analysis and Reconciliation of Healthcare Data and Security Using Crypto System

Under the Guidance of Dr. Manjula Sanjay Koti, Professor & Head, Department of MCA, Alamma BH defended his Ph.D. Viva Voce on December 21, 2025, with the dissertation titled "Predictive Model For Healthcare Data Using Big Data Analysis"

Dr. Manjula Sanjay Koti, HOD-MCA , has chaired a Technical session at the International Conference on Data Science, Computation and Security organised by the Christ University on Nov 14-15,2025.

SPRINGER NATURE

International Conference on Data Science, Computation and Security

CERTIFICATE OF APPRECIATION

This certificate is presented to

Dr Manjula Sanjay Koti, DSATM, Bangalore

for Chairing a technical session during the International Conference on **Data Science, Computation and Security (IDSCS-25)** Organised by the **CHRIST (Deemed to be University), India in technical association with The Tejas Scientific Researcher Foundation, India** from **November 14-15, 2025**

Dr Samiksha Shukla
General Chair, IDSCS'25

Dr Fr Jossy P George
Director, BGR Campus,
Christ (Deemed to be University),
Bangalore

IDSCS-2024\Sessionchair\027

Dr. Chitra K, Assoc. Prof., Dept. of MCA, has published an paper in the International Journal of Engineering System Modelling and Simulations on "Transforming electrical simulation and management with smart grid technologies" in Scopus-indexed Q3 Journal on June,2025

Transforming electrical simulation and management with smart grid technologies

K. Chitra

S. Silvia Priscila* and Edwin Shalom Soji

R. Rajpriya and B. Gayathri

A. Chitra

Dr. Chitra K, Associate Professor, Dept. of MCA , participated in the FDP on National Level Awareness Program on Institutional Development Plan(IDP) conducted by IAE, Hyderabad, on 6th March 2025 .

Telangana Council of Higher Education

IAE

Sl.No. : 11487/R2025

CERTIFICATE

OF PARTICIPATION

National Level Awareness Program on

Institutional Development Plan (IDP)

For Higher Educational Institutions (HEIs)

This is to certify that Prof./Dr./Mr./Ms. Dr. Chitra K, Associate Professor, MCA, Dayananda Sagar Academy of Technology and Management has participated in the "National Level Awareness Program on Institutional Development Plan (IDP) for Higher Education Institutions" held on 6th March, 2025 through Online, jointly conducted by Telangana Council of Higher Education (TGCHE), and Institute for Academic Excellence (IAE), Hyderabad.

DIRECTOR
Institute for Academic Excellence, Hyderabad.

CHAIRMAN
Telangana Council of Higher Education (TGCHE) Hyderabad.

Dr. Chitra K, Associate Professor, Dept. of MCA, has contribution towards excellent academics students' performance achieving 100% results for the subject "Object Oriented Programming using Java" in VTU examination held during 2024-2025.

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Principal, DSATM

Dr. Chitra K, Associate Professor, Dept. of MCA, has participated in FIP on "AI For Educators" conducted by DSATM in association with Smayan Foundation on Aug 18-22, 2025.

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Dr/~~Mr/Mrs~~ Chitra. K. of Dept of MCA for ~~his~~/her valuable contribution towards excellent academics students performance achieving 100 % result for the subject MMC104 - Object Oriented Programming using Java in the VTU examination held during 2024-2025.

Faculty Appreciated on the occasion of Teachers' day celebration, 15th September 2025.

Principal, DSATM

Dr. Chitra K, Associate Professor, HOD-MCA has participated in FIP on "AI For Educators" conducted by DSATM in association with Smayan Foundation on Aug 18-22, 2025.

Dr. Chitra K, Associate Professor, Dept. of MCA, has presented the paper entitled "AI-Driven Load Balancing and Energy Resource Optimization in Mobile Edge Computing : A Comprehensive Review" in the First International Conference on Transformative Computing Technologies(ICTCT-2025)organized by Acharya Institute of Graduate Studies on Sept 18-19,2025.

.

Mrs. Ushasree S, Assistant Professor, Dept. of MCA,presenting a paper titled " AI based feminist advocacy Global south and North" in "International Conference on State of Gender Equity in the Asia-Pacific" organized by JAIN(Deemed-to-be University, on 13th - 14th Feb 2025.

JAIN

Australian Consulate-General
Bengaluru

INTERNATIONAL CONFERENCE

Certificate for Paper Presentation

This certificate is presented to USHASREE R.

for presenting a paper titled .....

in the International Conference on State of Gender Equity in the Asia-Pacific,

13th-14th February 2025 organised by Centre for Research in Social Sciences and Education (CeRSSE),

JAIN (Deemed-to-be University) in collaboration with Australian Consulate-General, Bengaluru.

Hilary McGeachy
Consul General
Australian Consulate-General
Bengaluru, India

Dr. Priyanca Mathur
Head and Associate Professor
CeRSSE
JAIN (Deemed-to-be-University)

Dr. Jitendra Kumar Mishra
Registrar
JAIN (Deemed-to-be University)

Mrs. Ushasree R, Assistant Professor, Dept. of MCA, participated in the ATAL FDP on "Design Thinking for Healthcare Innovation" at Global Institute of Technology,

ATAL/2025/1736668167

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AICTE Training and Learning (ATAL) Academy

Certificate

It is certified that Mrs. Ushasree R, Assistant Professor of Dayananda sagar Academy of Technology & Management has successfully participated & completed AICTE Training And Learning (ATAL) Academy Faculty Development Program on Design Thinking for Healthcare Innovation at GLOBAL INSTITUTE OF TECHNOLOGY from 17/02/2025 to 22/02/2025.

[redacted]

Reema Ajmera
Professor Level (AICTE Institute), Coordinator
GLOBAL INSTITUTE OF TECHNOLOGY

Dr. Sunil Luthra
Director & Bureau Head
Training and Learning Bureau, AICTE

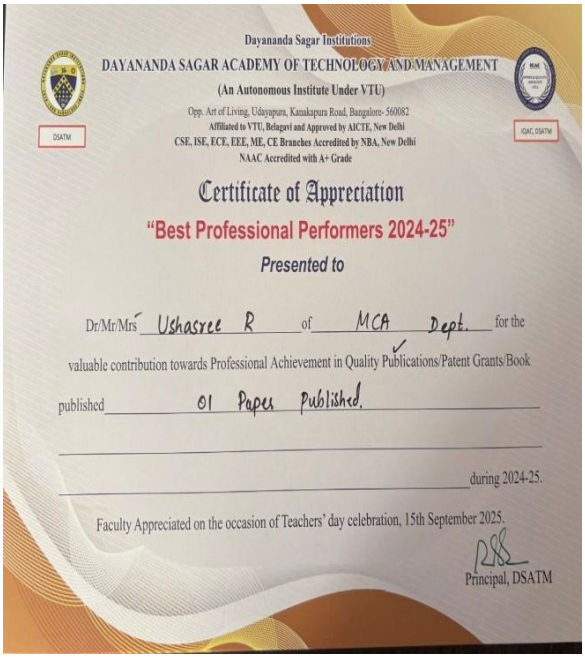
Mrs. Ushasree R, Assistant Professor, Dept. of MCA, participated in a Facilitator of "AI for Future Workforce Program "in India, on 24th January 2025.

Mrs. Ushasree R, Assistant Professor, Dept. of MCA, in participated in the EBSCO Training on VTU-EBSCO & AMA, on 3rd March 2025

Mrs Ushashree R, Assistant Professor, Dept. of MCA, participated in the FDP on "AI Tools for Teaching" conducted by Brindavan college of Engineering, Bengaluru on June 28, 2025.
19th February 2025

Mrs. Ushasree R, Assistant Professor, Dept. of MCA, has participated in "SQL using AI Workshop"

Mrs. Ushasree R, Assistant Professor, Dept. of MCA, has received “Best Professional Performers 2024-25” for the valuable contribution towards Professional Achievement in Quality Publications(1 No’s) during 2024-25.



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Principal, DSATM

Mrs. Ushasree R, Assistant Professor, Dept. of MCA, has contribution towards excellent academics students performance achieving 100% results for the subjects “RDBMS,UID,MAD & IOT” in VTU examination held during 2024-2025.

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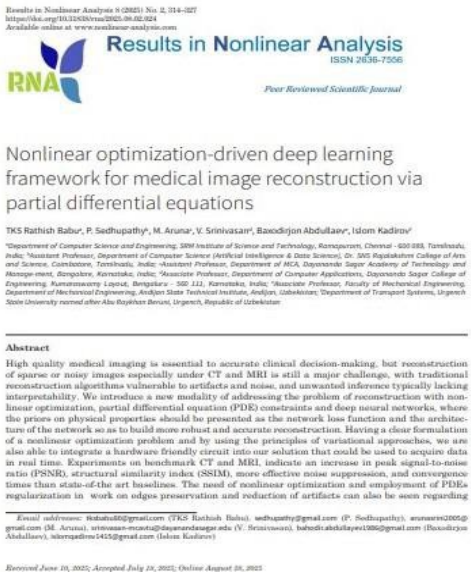
Faculty Appreciated on the occasion of Teachers' day celebration, 15th September 2025.

Principal, DSATM

Mrs. Ushasree R, Assistant Professor, Dept. of MCA, has participated in FIP on "AI For Educators" conducted by DSATM in association with Smayan Foundation on Aug 18-22, 2025.

Mrs. Ushashree R, Assistant Professor, Dept. of MCA, completed the FIP on "Introduction to Artificial Intelligence" from Infosys springboard ,on Oct 06, 2025.

Dr.. Aruna M, Assistant Professor, Dept. of MCA , has published a paper on “Nonlinear optimization-driven deep learning framework for medical image reconstruction via partial differential equations” on 2nd Aug , 2025.



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Available online at www.nonlinear-analysis.com

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Nonlinear optimization-driven deep learning framework for medical image reconstruction via partial differential equations

TKS Rathish Babu, P. Sedhupathy, M. Aruna, V. Srinivasan, Baxodirjon Abdullaev, Islom Kadirov

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Abstract

High quality medical imaging is essential to accurate clinical decision-making, but reconstruction of sparse or noisy images especially under CT and MRI is still a major challenge, with traditional reconstruction algorithms vulnerable to artifacts and noise, and unwanted inference typically lacking interpretability. We introduce a new modality of addressing the problem of reconstruction with nonlinear optimization, partial differential equation (PDE) constraints and deep neural networks, where the priors on physical properties should be presented as the network loss function and the architecture of the network so as to build more robust and accurate reconstruction. Having a clear formulation of a nonlinear optimization problem and by using the principles of variational approaches, we are also able to integrate a hardware friendly circuit into our solution that could be used to acquire data in real time. Experiments on benchmark CT and MRI, indicate an increase in peak signal-to-noise ratio (PSNR), structural similarity index (SSIM), more effective noise suppression, and convergence times than state-of-the art baselines. The need of nonlinear optimization and employment of PDEs regularization in work on edges preservation and reduction of artifacts can also be seen regarding

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Received June 10, 2025; Accepted July 18, 2025; Online August 28, 2025

Dr. Aruna M, Assistant Professor, Dept. of MCA , has published an article on “Securing electronic health records using block chain-enabled federated learning for IoT-based smart healthcare” on 17 April , 2025.

Contents lists available at ScienceDirect
Clinical eHealth
journal homepage: ww.keaipublishing.com/CEH
KeAi CHINESE ROOTS GLOBAL IMPACT

Securing electronic health records using blockchain-enabled federated learning for IoT-based smart healthcare

A. Althaf Ali [a], M.A. Gunavathie [b], V. Srinivasan [c], M. Aruna [d], R. Chennappan [e], M. Matheena [f]

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ABSTRACT

The integration of smart city applications with healthcare has revolutionized patient monitoring and medical data management. However, ensuring the privacy and security of Electronic Health Records (EHR) remains a critical challenge, especially in IoT-based environments with resource-constrained devices. This paper proposes a novel Blockchain-Enabled Federated Learning (BFL) framework to enhance privacy preservation in EHR processing. The proposed framework leverages zero-knowledge proofs (ZKP) for authentication and homomorphic encryption for secure computation, ensuring robust data security without exposing raw patient data. Federated Learning (FL) enables decentralized model training across IoT devices, reducing privacy risks while maintaining data utility. Additionally, blockchain technology enhances the integrity and transparency of EHR transactions by creating a tamper-proof ledger. The performance of the proposed BFL framework is evaluated based on data utility, model accuracy, execution time, and scalability across varying sizes of EHR datasets. Results demonstrate improved privacy preservation, reduced computational overhead, and enhanced model efficiency, making it a promising approach for secure and privacy-aware IoT-based smart healthcare systems.

Introduction

The integration of the Internet of Things (IoT) in healthcare has led to the generation of vast amounts of electronic health records (EHRs), enabling advanced data-driven diagnostics, remote patient monitoring, and personalized treatment plans. However, ensuring the privacy, security, and integrity of sensitive medical data remains a critical challenge. Traditional cloud-based EHR management systems are susceptible to cyber threats, unauthorized access, and single points of failure, making them inadequate for modern, large-scale smart healthcare environments. Federated learning (FL) has emerged as a promising privacy-preserving paradigm that enables collaborative model training without transferring raw data, reducing the risks associated with centralized data storage. Despite its advantages, conventional FL frameworks remain vulnerable to issues such as data poisoning, inference attacks, and unreliable model updates. Moreover, secure computation mechanisms in FL often suffer from inefficiencies in trust management and transparency. Existing privacy-preserving techniques, such as differential privacy and homomorphic encryption, either introduce excessive computational overhead or fail to fully mitigate data leakage risks in adversarial environments.

Blockchain technology offers a decentralized and tamper-resistant solution to these challenges by providing immutable audit trails, smart contract-based automation, and secure authentication mechanisms. While several blockchain-enabled federated learning (BFL) frameworks have been proposed, many rely on resource-intensive consensus mechanisms or lack fine-grained access control, leading to scalability and efficiency bottlenecks. A collaborative privacy-preserving federated learning framework improves diabetic eye disease detection by training models on decentralized datasets while maintaining

E-mail addresses: (A.A. Ali), (M.A. Gunavathie), (V. Srinivasan), (M. Aruna), (R. Chennappan), (M. Matheena)

Dr. Aruna M, Assistant Professor, Dept. of MCA, has participated in FIP on “AI For Educators” conducted by DSATM in association with Smayan Foundation on Aug 18-22, 2025.

Dr. Aruna M, Assistant Professor, Dept. of MCA, has published a Patent on “Ai–ml Enabled Framework For Personalized Customer Behavior Analysis, Product Recommendation, Sales Prediction, And Finance Optimization” on Oct 17 , 2025.

(12) PATENT APPLICATION PUBLICATION (21) Application No. [illegible] A

(19) INDIA

(22) Date of filing of Application: [illegible]-2025 (43) Publication Date: 17/10/2025

(54) Title of the invention: AI ML ENABLED FRAMEWORK FOR PERSONALIZED CUSTOMER BEHAVIOR ANALYSIS, PRODUCT RECOMMENDATION, SALES PREDICTION, AND FINANCE OPTIMIZATION

(51) International classification	[illegible]	(71) Name of Applicant: 1)Durga Prasad Nowdu [illegible] 2)Ms. Narmatha Jayachandran 3)Govind Singh Makara 4)M. Anusha [illegible] 5)Dr. Samarth Singh 6)Tanay Singh 7)Dr. M. Aruna 8)Dr. Ashutosh Kumar Sharma 9)Dr. Deepak Sundrani 10)S. [illegible] 11)Priyadarshini S 12)R. Kalpana
(31) Priority Document No	:NA	
(32) Priority Date	:NA	
(33) Name of priority country	:NA	
(86) International Application No Filing Date	[illegible]	(72) Name of Inventor: 1)Durga Prasad Nowdu 2)Ms. Narmatha Jayachandran 3)Govind Singh Makara 4)M. Anusha [illegible] 5)Dr. Samarth Singh 6)Tanay Singh 7)Dr. M. Aruna 8)Dr. Ashutosh Kumar Sharma 9)Dr. Deepak Sundrani 10)S. [illegible] 11)Priyadarshini S 12)R. Kalpana
(87) International Publication No	:NA	
(61) Patent of Addition to Application Number Filing Date	:NA :NA	
(62) Divisional to Application Number Filing Date	:NA :NA	

(57) Abstract:
AI ML Enabled Framework for Personalized Customer Behavior Analysis, Product Recommendation, Sales Prediction, and Finance Optimization is the proposed invention. Forecasting helps businesses scale responsibly—hiring the right number of employees, allocating marketing budgets wisely, and investing in growth without costly course corrections later. The proposed invention focuses on understanding the functions of Personalized Customer Behavior Analysis. Traditional forecasting [illegible]

Mrs. Aruna M, Assistant Professor, Dept. of MCA, has presented the paper in "International Conference on NexGen Networks and Cybernetics" entitled "Interpretable Deep learning for Early Detection of Diabetic Retinopathy Using Lightweight Vision Transformers" on Dec 1-3,2025.

C. No: 0367

International Conference on
NexGen Networks and Cybernetics
IC2NC 2025

Organized by Department of Computer Science and Engineering

CERTIFICATE OF PRESENTATION

This is to certify that

Dr./Mr./Ms. M.Aruna

has successfully presented the paper titled

Interpretable Deep Learning for Early Detection of Diabetic Retinopathy Using Lightweight Vision Transformers

at the IEEE Sponsored 2025 International Conference on NexGen Networks and Cybernetics (IC2NC) held at Nandha Engineering College, Erode, India, during December 1-3, 2025.

Session Chair | Dr. T. Rajasekaran, Conference Chair | Dr. U. S. Ragupathy, Principal

ISBN: 979-8-3315-9484-8

Dr. Aruna M, Assistant Professor, Dept. of MCA, has completed Google's Gemini Academy by Google.

Google

Gemini Academy

Dr. Aruna M

Dwarakanath Cheyyur

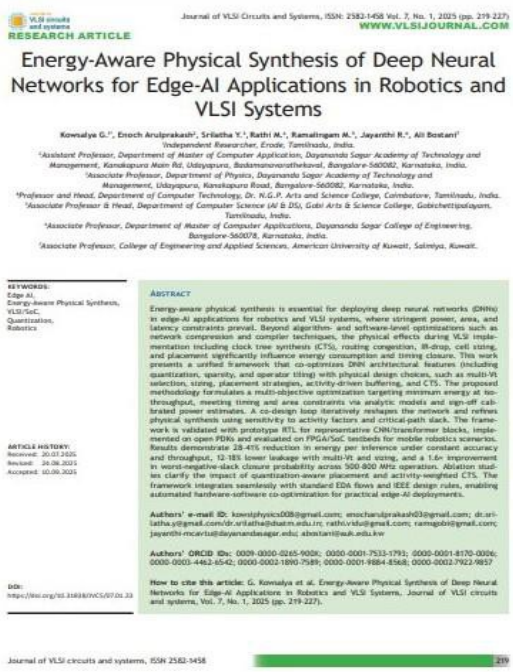
Sanjay Jain

Dr. Enoch Arulprakash, Assistant Professor, Dept. of MCA, participated in the FEP on "JavaScript" & HTML5- The Language" on 15th February 2025.

Dr. Enoch Arulprakash, Assistant Professor, Dept. of MCA, has participated in the FDP on "AI Tools for Teaching" by Brindavan college of Engineering, Bengaluru on June 28,2025.

Dr. Enoch Arulprakash, Assistant Professor, Dept. of MCA, has participated in FIP on "AI For Educators" conducted by DSATM in association with Smayan Foundation on Aug 18-22, 2025.

Dr. Enoch Arulprakash, Assistant Professor, Dept. of MCA, has published a paper entitled "Energy-Aware Physical Synthesis of Deep Neural Networks for Edge-AI Applications in Robotics and VLSI Systems" in the Journal of VLSI Circuits and Systems inScopus-indexed Q3 Journal on October,2025.



Dr. Enoch Arulprakash, Assistant Professor, Dept. of MCA, has published a Patent on “An IoT And Machine Learning Based System For Automated E-waste Sorting And Recycling In Smart Cities” on Oct 24 , 2025.

(12) PATENT APPLICATION PUBLICATION
(19) INDIA
(22) Date of filing of Application :22/09/2025

(21) Application No.202541090315 A
(43) Publication Date : 24/10/2025

(54) Title of the invention : AN IOT AND MACHINE LEARNING BASED SYSTEM FOR AUTOMATED E-WASTE SORTING AND RECYCLING IN SMART CITIES

(51) International classification	:B29B0017020000, C22B0007000000, H04W0012060000, G01N0015140000, C22B0011000000
(31) Priority Document No	:NA
(32) Priority Date	:NA
(33) Name of priority country	:NA
(86) International Application No Filing Date	: :01/01/1900
(87) International Publication No	: NA
(61) Patent of Addition to Application Number Filing Date	:NA :NA
(62) Divisional to Application Number Filing Date	:NA :NA

(71)**Name of Applicant :**
1)K. Lokesh
Address of Applicant :Association Professor, Department of Artificial Intelligence & Data Science, Mother Theresa Institute of Engineering and Technology, Palamaner-517408 Palamaner Andhra Pradesh India
2)Dr.M.Chittaranjan
3)Dr. Enoch Arulprakash
4)Dr. Pankaj Ramnath Modak
5)Dr Uttam J Jadhav
6)Dr.S.Arulmozhi
7)Dr. S.Vijay
8)Dr.Sachin Sambhaji Patil
9)Dr Deepak Sundrani
10)Dr. B. Senthilnayaki
11)Dr. Manasi Vyankatesh Ghamande
12)Dr Saurabh Sanjay Joshi
(72)**Name of Inventor :**
1)K. Lokesh
2)Dr.M.Chittaranjan
3)Dr. Enoch Arulprakash
4)Dr. Pankaj Ramnath Modak
5)Dr Uttam J Jadhav
6)Dr.S.Arulmozhi
7)Dr. S.Vijay
8)Dr.Sachin Sambhaji Patil
9)Dr Deepak Sundrani
10)Dr. B. Senthilnayaki
11)Dr. Manasi Vyankatesh Ghamande
12)Dr Saurabh Sanjay Joshi

(57) Abstract :
An IoT and Machine Learning Based System for Automated E-Waste Sorting and Recycling in Smart Cities is the proposed invention. The proposed invention focuses on understanding the functions of Automated E-Waste. The invention focuses on analyzing the parameters of E-Waste Sorting and Recycling in Smart Cities using algorithms of IoT Approach.
No. of Pages : 13 No. of Claims : 4

Dr. Enoch Arulprakash, Assistant Professor, Dept. of MCA, has completed Google’s Gemini Academy by Google.

Ms. Amsaveni M, Assistant Professor, Dept. of MCA , attended FDP on “AI Tools for Teaching” conducted by Brindavan college of Engineering, Bengaluru on June 28, 2025.

PENCIL BITZ PUBLICATION CERTIFICATE

This Certificate is Presented to :

Amsaveni M

MCA

DSATM COLLEGE

has actively participated in the One Day FDP on "AI Tools for Teaching" Organized by the Department of Master of Computer Applications, Brindavan college of Engineering, Dwarakanagar, Yelahanka, Bengaluru, Karnataka in association with Pencilbitz on 28th June, 2025.

Prof. Jabeen Taj MK, Assistant Professor/MCA

Prof. R. Y. Naidu, HoD/MCA

Dr. Bhagappa, Principal, Brindavan college of Engineering

Sangeetha Subramanian, Founder & CEO PencilBitz

Ms. Amsaveni M, Assistant Professor, Dept. of MCA ,has attended FDP on “AI Driven Cyber Security for Smart Devices” conducted by Annam Acharya PG College of Computer Studies from June 16-20,2025.

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OF PARTICIPATION

WE ARE PROUDLY PRESENT THIS TO

M.Amsaveni

Assistant Professor, Department of MCA,

Dayananda Sagar Academy of Technology & Manangement - Bangalore

Have actively Participated in the Five Days Online FDP on " **AI Driven Cyber Security For Smart Devices** " Organized by Department Of MCA, Annamacharya PG college Of Computer Studies,Annamayya Dist,Andra pradesh in Associate With Oliva International Publications On **16th June - 20th June**

Dr.D.J Samatha Naidu, MCA., Mphil., M.Tech., Ph.D (Principal)

Joseph lenin.D, Proprietor, Oliva International Publications

Ms. Amsaveni M, Assistant Professor, Dept. of MCA , has participated in the FDP on “Advanced AI applications Research and Paper Writing” by Ponda Education Society Ravi.S Naik College of Arts and Science Farmgudi,Ponda,Goa from June 30 to July 4,2025.

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CERTIFICATE
OF APPRECIATION

THIS CERTIFICATE IS PRESEND TO :

M.Amsaveni
Assistant Professor, Department of MCA,
Dayananda Sagar Academy of Technology & Manangement
Bangalore

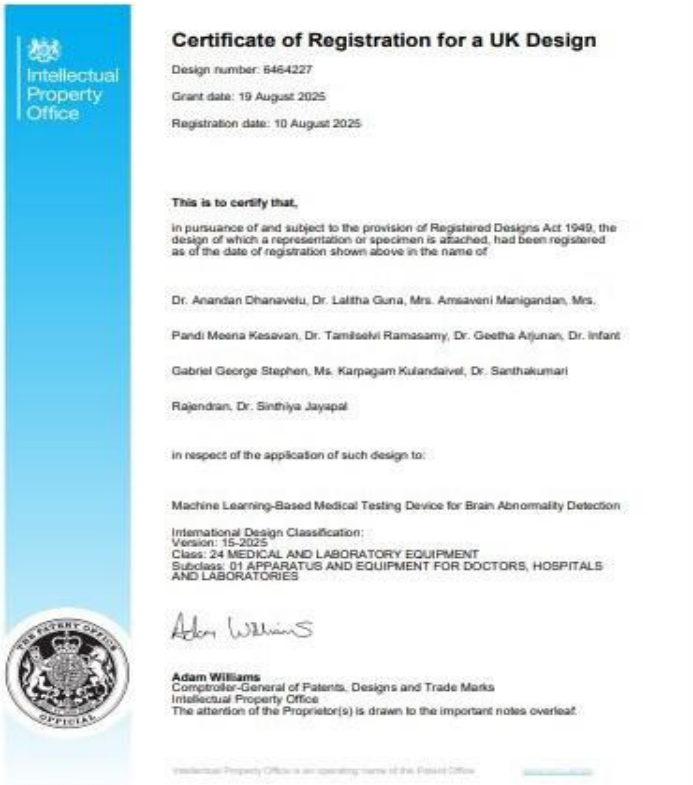
Have actively Participated in the Five Days Online FDP on
“ Advanced AI applications Research and Paper Writing” Organized by
Department Of MCA, in Associate With Oliva International Publications On
30 June - 4 July

Dr. Neelakanta
Principal

Joseph lenin.D
Proprietor, Oliva International
Publication

1

Mrs.Amsaveni M, Assistant Professor, Dept. of MCA , has published a Patent on “Machine Learning-Based Medical Testing Device for Brain Abnormality Detection” on 19th Aug , 2025.



Intellectual Property Office

Certificate of Registration for a UK Design

Design number: 6464227

Grant date: 19 August 2025

Registration date: 10 August 2025

This is to certify that,

in pursuance of and subject to the provision of Registered Designs Act 1949, the design of which a representation or specimen is attached, had been registered as of the date of registration shown above in the name of

Dr. Anandan Dhanavelu, Dr. Lalitha Guna, Mrs. Amsaveni Manigandan, Mrs. Pandi Meena Kesavan, Dr. Tamilselvi Ramasamy, Dr. Geetha Arjunan, Dr. Infant Gabriel George Stephen, Ms. Karpagam Kulandaivel, Dr. Santhakumari Rajendran, Dr. Sinthiya Jayapal

in respect of the application of such design to:

Machine Learning-Based Medical Testing Device for Brain Abnormality Detection

International Design Classification:
Version: 15-2025
Class: 24 MEDICAL AND LABORATORY EQUIPMENT
Subclass: 01 APPARATUS AND EQUIPMENT FOR DOCTORS, HOSPITALS AND LABORATORIES

Adam Williams
Comptroller-General of Patents, Designs and Trade Marks
Intellectual Property Office
The attention of the Proprietor(s) is drawn to the important notes overleaf.

Ms. Amsaveni M, Assistant Professor, Dept. of MCA, has participated in FIP on "AI For Educators" conducted by DSATM in association with Smayan Foundation on Aug 18-22, 2025.

Ms. Amsaveni M, Assistant Professor, Dept. of MCA , has participated in Faculty Development Program on "AI-Driven World: Innovation, Automation, and Human Empowerment with respect to Health, Agriculture and Education" at ACHARYA BANGALORE B SCHOOL from 22/09/2025 to 27/09/2025Aug 28-29,2025 held at China.

Ms. Amsaveni M, Assistant Professor, Dept. of MCA , presented a Research Paper in the "7th International Conference on Innovative Data Communication Technologies and Application(ICIDCA 2025)" entitled Personalized Meta Reinforcement Learning for Adaptive Shared Control in Semi-Autonomous Vehicles at RVS College of Engineering and Technology, Coimbatore.

Certificate of Presentation

This is to certify that

Amsaveni Manigandan

has successfully presented the paper titled

Personalized Meta Reinforcement Learning for Adaptive Shared Control in Semi Autonomous Vehicles

at the

7th International Conference on Innovative Data Communication Technologies and Application (ICIDCA 2025)

organised by RVS College of Engineering and Technology, Coimbatore, India on 6-8, October 2025.

Session Chair

Dr. S. S. Sivaraju
Organising Chair

Dr. G. Mohan Kumar
Principal

Mrs. Priyadarshini S, Assistant Professor, Dept. of MCA, participated in the EBSCO Training on VTU-EBSCO & AMA, on 3rd March 2025

Ms. Priyadarshini S , Assistant Professor, Dept. of MCA, participated in the FDP on "AI Tools for Teaching" conducted by Brindavan college of Engineering, Bengaluru on June 28,

Ms. Priyadarshini S, Assistant Professor, Dept. of MCA, has contribution towards excellent academics students performance achieving 100% results for the subjects "OOP's using Java & Python for Data Science" in VTU examination held during 2024-2025

Dayananda Sagar Institutions

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Presented to

~~Dr/Mr~~/Mrs Priyadarshini.S of Dept of MCA for ~~his~~/her valuable contribution towards excellent academics students performance achieving 100 % result for the subject MMC104- OOP using Java., 23MCA22- Python for Data Science in the VTU examination held during 2024-2025.

Faculty Appreciated on the occasion of Teachers' day celebration, 15th September 2025.

Principal, DSATM

Ms. Priyadarshini S, Assistant Professor, Dept. of MCA, has participated in FIP on "AI For Educators" conducted by DSATM in association with Smayan Foundation on Aug 18-22, 2025.

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Dayananda Sagar Academy of Technology & Management

(Autonomous Institution under VTU)

This certificate is proudly presented to

Priyadarshini S

for successfully completing the Faculty Immersion Program **"AI For Educators"** held between 18th August and 22nd August 2025 at DSATM Campus in association with Smayan Foundation.

Dr. Ravishankar M
Principal
DSATM

Srinivas Gumaste
Founder & CEO
Smayan Foundation®

Ms. Priyadarshini S , Assistant Professor, Dept. of MCA, completed the FIP on “Introduction to Artificial Intelligence” from Infosys springboard ,on Oct 03, 2025.

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for successfully completing the course

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Mrs. Priyadarshini S, Assistant Professor, Dept. of MCA, has published a Patent on “AI–ML Enabled Framework For Personalized Customer Behaviour Analysis, Product Recommendation, Sales Prediction, And Finance Optimization” on Oct 17 , 2025.

(12) PATENT APPLICATION PUBLICATION
(19) INDIA
(22) Date of filing of Application :19/09/2025

(21) Application No.202541089339 A
(43) Publication Date : 17/10/2025

(54) Title of the invention : AI-ML ENABLED FRAMEWORK FOR PERSONALIZED CUSTOMER BEHAVIOR ANALYSIS, PRODUCT RECOMMENDATION, SALES PREDICTION, AND FINANCE OPTIMIZATION

(51) International classification :G06Q0030020200, G06Q0030020000, G06Q0030060100, G06Q0040060000, G06Q0010040000
(31) Priority Document No :NA
(32) Priority Date :NA
(33) Name of priority country :NA
(86) International Application No :
Filing Date :01/01/1900
(87) International Publication No : NA
(61) Patent of Addition to Application Number :NA
Filing Date :NA
(62) Divisional to Application Number :NA
Filing Date :NA

(71)**Name of Applicant :**
1)Durga Prasad Nowdu
Address of Applicant :Assistant professor, Department of Mathematics, Siddhartha Academy of Higher Education (deemed to be University), Vijayawada, 520007 Vijayawada Andhra Pradesh India
2)Ms. Narnatha Jayachandran
3)Govind Singh Mahara
4)M.Amshavalli
5)Dr Samarth Singh
6)Tanay Singh
7)Dr.M.Aruna
8)Dr. Animesh Kumar Sharma
9)Dr Deepak Sundrani
10)S Senthilnathan
11)Priyadarshini S
12)R.Kalpana
(72)**Name of Inventor :**
1)Durga Prasad Nowdu
2)Ms. Narnatha Jayachandran
3)Govind Singh Mahara
4)M.Amshavalli
5)Dr Samarth Singh
6)Tanay Singh
7)Dr.M.Aruna
8)Dr. Animesh Kumar Sharma
9)Dr Deepak Sundrani
10)S Senthilnathan
11)Priyadarshini S
12)R.Kalpana

(57) Abstract :
AI-ML Enabled Framework for Personalized Customer Behavior Analysis, Product Recommendation, Sales Prediction, and Finance Optimization is the proposed invention. Forecasting helps businesses scale responsibly—hiring the right number of employees, allocating marketing budgets wisely, and investing in growth without costly course corrections later. The proposed invention focuses on understanding the functions of Personalized Customer Behavior Analysis. Traditional forecasting methods are often static, providing snapshots that can quickly become outdated. In contrast, AI-powered tools offer real-time updates, granting immediate visibility into sales performance, pipeline health, and potential risks. Instead of waiting for end-of-quarter reports to see what went wrong, you can course-correct on the fly and stay ahead. The invention focuses on analyzing the parameters of Product Recommendation, Sales Prediction, and Finance Optimization using algorithms of AI Approach.
No. of Pages : 15 No. of Claims : 3

Mrs. Priyadarshini S, Assistant Professor, Dept. of MCA, presented a Paper in the "2nd Asian Conference on Intelligent Technologies(ACOIT)" entitled "Hybrid Deep Learning and Ensemble Approach for Detecting Fake Reviews on E-Commerce Platforms" organized by Dr.T.Timmaiah Institute of Technology, Kolar from Oct 10-11,2025**.**

DR. T. THIMMAIAH INSTITUTE OF TECHNOLOGY
Accredited by NBA & NAAC with 'A' Grade
Oorgaum, Kolar Gold Fields, Karnataka - 563120
Affiliated to Visvesvaraya Technological University, Belagavi
Approved by AICTE - New Delhi,
ISO 21001:2018 Certified

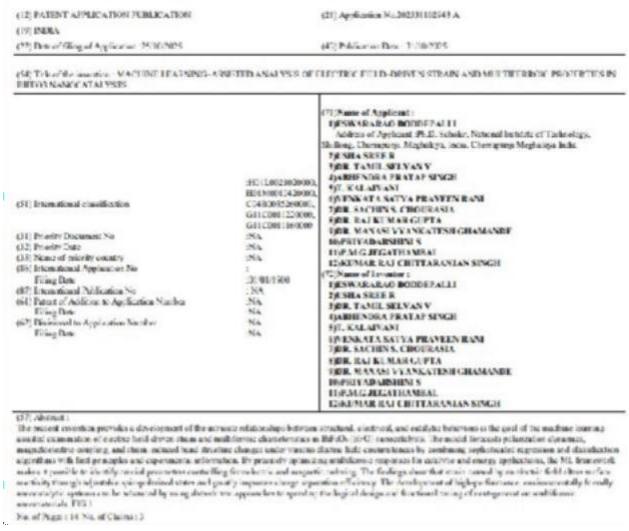
IEEE

CERTIFICATE

This is to certify that
Dr./Prof./Mr./Ms. **Priyadarshini S**
has presented paper entitled **Hybrid Deep Learning and Ensemble Approach for Detecting Fake Reviews on E-Commerce Platforms.** in 2025 2nd Asian Conference on Intelligent Technologies (ACOIT) organized by **Dr. T. Thimmaiah Institute of Technology, Kolar** from 10th October 2025 to 11th October 2025.

Dr. Vijaya Geetha R	Prof. Ruckmani Divakaran	Dr. H.G.Shenoy	Dr. Syed Ariff
Organizing Chair, ACOIT 2025	General Chair, ACOIT 2025	Vice Principal, Dr.TTIT, Patron, ACOIT-2025	Principal, Dr.TTIT, Patron, ACOIT-25

Mrs. Priyadarshini S, Assistant Professor, Dept. of MCA, has published a Patent on "Machine Learning–assisted Analysis Of Electric Field–driven Strain And Multiferroic Properties In Bifeo3 Nano catalysts" on Oct 31 , 2025.



Mrs. Priyadarshini S, Assistant Professor, Dept. of MCA, has completed Google's Gemini Academy by Google.

Mrs. Pushpanjali, Assistant Professor, Dept. of MCA, participated in the FEP on 29th April 2025.

Pushpanjali S, Asst. Prof., Dept. of MCA, has completed FEP on "Frontend Web Technologies", from Infosys Springboard on Jan 27th – Jan 31st ,2025.

Mrs. Pushpanjali, Assistant Professor, Dept. of MCA, participated in the FEP on "Front End Web Developer Certification" on 24th February 2025.

Mrs. Pushpanjali, Assistant Professor, Dept. of MCA, participated in the FEP on "Basics of python & Python Foundation Certification" on 28th February 2025.19th February 2025

Mrs. Pushpanjali, Assistant Professor, Dept. of MCA, participated in the FEP on "JavaScript" on 19th February 2025

Ms. Pushpanjali S, Assistant Professor, Dept. of MCA, participated in the FDP on "AI Tools for Teaching" conducted by Brindavan college of Engineering, Bengaluru on June 28, 2025.

Ms. Pushpanjali S, Assistant Professor, Dept. of MCA, completed the FDP on "Programming Fundamentals using Python-part-1" from Infosys springboard, on July 18, 2025.

Ms. Pushpanjali S, Assistant Professor, Dept. of MCA, has contribution towards excellent academics students' performance achieving 100% results for the subjects "Internet of Things" in VTU examination held during 2024-2025.

Ms. Pushpanjali S, Assistant Professor, Dept. of MCA, has contribution towards excellent academics students' performance achieving 100% results for the subjects "Internet of Things" in VTU examination held during 2024-2025.

Ms. Pushpanjali S, Assistant Professor, Dept. of MCA, completed the FIP on "Introduction to Artificial Intelligence" from Infosys springboard ,on Oct 03, 2025.

Mrs. Pushpanjali, Assistant Professor, Dept. of MCA, has –Level 1 by Google on Dec 2,2025.

Google Certified Educator

Level 1

This qualification is awarded to

Pushpanjali S

for having demonstrated the knowledge, skills, and basic competencies needed to use Google for Education tools.

Certificate issued on 12/02/2025 | Certificate valid through 12/02/2028

Google for Education

Mrs. Pushpanjali, Assistant Professor, Dept. of MCA, has published a Patent on "Real-time Air Pollution Monitoring In Smart Cities Using An IOT And Machine Learning-based Framework" on Oct 17 , 2025.

(12) PATENT APPLICATION PUBLICATION (21) Application No.202541077647 A

(19) INDIA

(22) Date of filing of Application :14/08/2025 (43) Publication Date : 17/10/2025

(54) Title of the invention : REAL-TIME AIR POLLUTION MONITORING IN SMART CITIES USING AN IOT AND MACHINE LEARNING-BASED FRAMEWORK

(51) International classification	:G06N0020000000, G01N0033000000, H04L0041160000, G06Q0050040000, A61B0005000000	(71)Name of Applicant : 1)Priya K Address of Applicant :Assistant Professor, Department of Computer Science and Engineering, Ramaiah Institute of technology, Bangalore - 560054 Bangalore Karnataka India 2)Akshatha Kamath 3)Dr. Love Kumar 4)Dr. T. Rambabu 5)Dr. G. Purushothaman 6)Jotiram Krishna Deshmukh 7)Pushpanjali S 8)Dr. Prashant Mandeja 9)Dr.P.Ramakrishnan 10)P.Jayaprabha 11)Dr Saurabh Sanjay Joshi 12)S Nagoorkani
(31) Priority Document No	:NA	
(32) Priority Date	:NA	
(33) Name of priority country	:NA	
(86) International Application No Filing Date	: :01/01/1900	(72)Name of Inventor : 1)Priya K 2)Akshatha Kamath 3)Dr. Love Kumar 4)Dr. T. Rambabu 5)Dr. G. Purushothaman 6)Jotiram Krishna Deshmukh 7)Pushpanjali S 8)Dr. Prashant Mandeja 9)Dr.P.Ramakrishnan 10)P.Jayaprabha 11)Dr Saurabh Sanjay Joshi 12)S Nagoorkani
(87) International Publication No	: NA	
(61) Patent of Addition to Application Number Filing Date	:NA :NA	
(62) Divisional to Application Number Filing Date	:NA :NA	

(57) Abstract :

Real-Time Air Pollution Monitoring in Smart Cities Using an IoT and Machine Learning-Based Framework is the proposed invention. The proposed invention focuses on understanding the functions of Smart Cities. The invention focuses on analyzing the parameters of Real-Time Air Pollution Monitoring using algorithms of Machine Learning Approach.

No. of Pages : 14 No. of Claims : 4

Mr. Bharath Kumara J, Assistant Professor, Dept. of MCA, has participated in the FDP on "AI Tools for Teaching" by Brindavan college of Engineering, Bengaluru on June 28,2025.

PENCIL BITZ PUBLICATION CERTIFICATE

This Certificate is Presented to :

Bharath Kumara J

Master of Computer Applications

Dayananda Sagar Academy of Technology and Management

has actively participated in the One Day FDP on "AI Tools for Teaching" Organized by the Department of Master of Computer Applications, Brindavan college of Engineering, Dwarakanagar, Yelahanka, Bengaluru, Karnataka in association with Pencilbitz on 28th June, 2025.

Prof. Jabeen Taj MK, Assistant Professor/MCA
Prof. R. Y. Naidu, HoD/MCA
Dr. Bhagappa, Principal, Brindavan college of Engineering
Sangeetha Subramanian, Founder & CEO PencilBitz

Mr. Bharath Kumar J, Assistant Professor, Dept. of MCA has attended ATAL Academy FDP on "Advancements in Quantum Generative AI: its Applications and Future Prospects on Aug 4-9, 2025 at DSATM.

ATAL/2025/1753948544

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AICTE Training and Learning (ATAL) Academy

Certificate

It is certified that Mr. Bharath Kumara J, Assistant Professor of Dayananda Sagar Academy of Technology and Management has successfully participated & completed AICTE Training And Learning (ATAL) Academy Faculty Development Program on Advancements in Quantum Generative AI :Its Applications and Future Prospects at DAYANANDA SAGAR ACADEMY OF TECHNOLOGY & MANAGEMENT TECHNICAL CAMPUS from 04/08/2025 to 09/08/2025.

Dr NANDINI PRASAD K S
Professor Level (AICTE Institute), Coordinator
DAYANANDA SAGAR ACADEMY OF TECHNOLOGY & MANAGEMENT TECHNICAL CAMPUS

Dr. Sunil Luthra
Director & Bureau Head
Training and Learning Bureau, AICTE

Mr. Bharath Kumara J, Assistant Professor, Dept. of MCA, has participated in FIP on "AI For Educators" conducted by DSATM in association with Smayan Foundation on Aug 18-22, 2025.

Mr. Bharath Kumar J, Assistant Professor, Dept. of MCA has completed Innovation Ambassador(IA)training on "Advanced Level conducted in online mode by MoE's Innovation Cells & AICTE.

Mr. Bharath Kumara J, Assistant Professor, Dept. of MCA, has presented a paper entitled “Securing the Perimeterless Enterprise: A Comparative Analysis of Zero Trust Architectures and Their Efficacy in Threat Detection” in International Conference on Digital Technology and Engineering(ICDTE-2025) organized by RV Institute of Technology and Management on Oct 16-17,2025 .

RV Institute of Technology and Management®

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This is to recognize the contribution of

Bharath Kumara J, Surabhi Das, Monisha L, Shree Charan B

PID – 213Securing the Perimeterless Enterprise: A Comparative Analysis of Zero Trust Architectures and Their Efficacyin Threat Detection

as **PRESENTER** for **International Conference on Digital Technology and Engineering (ICDTE -2025)** organized by **RV Institute of Technology and Management, Bengaluru**, 16-17 October, 2025.

Dr. Malini M Patil
Organizing Chair
ICDTE-2025, RVITM

Dr. Manjunatha Prasad. B
General Co-Chair
ICDTE-2025, RVITM

Dr. Nagashettappa Biradar
General Chair
ICDTE-2025, RVITM