ESTD: 2009

CMR TECHNICAL CAMPUS

UGC AUTONOMOUS

Kandlakoya, Medchal Road, Hyderabad, Telangana- 501 401

DEPARTMENT OF CSE [ARTIFICIAL INTELLIGENCE & MACHINE LEARNING]

List of Student Journals published in A.Y. 2025-26

S.No	Name of the Authors	Title of the Paper	Name of the Journal	Volume No.&Issue No.	Page Numbers	Month &Year of Publications
1	S Rao Chintalapudi, B.Manohar Reddy , G. Vivek Sai	Smart Garbage Segregation Using Resnet Model	International Journal of Scientific Research in Engineering and Management (IJSREM)	Volume:10 Issue: 06	1-5	Jun-26
`2	Lalitha Manglaram, R.Chandrika, M.Ruchitha, B.Narender	AI Driven Agriculture-Predictive Analytics&Climate Smart Agriculture	International Innovations & Scholarly Trends Journal (IISTJ)	Volume:02 Issue: 06	1944-1950	Jun-26
3	Ravindran M, Katkam Teja, Miyapuram Abhiram, Shria Varma	Smart Civic Issue Reporting System	International Journal of Scientific Research and Engineering Development	Volume:09 Issue:0 3	2092-2099	May Jun-26
4	P Vishnu,Ch Gagan Raj, Jain Sairaj , A Harsh Vardhan	An AI-Agent Platform for Sustainable and Budget-Friendly Travel Planning	International Journal of Scientific Research in Engineering and Management (IJSREM)	Volume:10 Issue: 06	1-4	Jun-26
5	G.Parvathi Devi, Sankeerthana, Bhavana, Bhavya sri	Navy Hydroacoustic Surveillance System	International Innovations& Scholarly Trends Journal(IISTJ)	Volume:02 Issue: 06	1615-1620	Jun-26
6	G. Parvathi Devi,G. Harika ,M. Sravani, S. Dhaneesha	Transforming Unstructured Data into Accessible Braille Content Using AI	International Journal of Technology & Emerging Research (IJTER)	Volume:02 Issue 06	114-120	Jun-26
7	G. Parvathi Devi,B. Varun Reddy,P. Raghava Patel, Priyanshu Rai	Swatch AI: An Android-Based Smart Waste Segregation and Collection System Using Convolutional Neural Networks	International Journal of Creative and Open Research in Engineering and Management	Volume:02 Issue: 06	1-6	Jun-26

8	Sheri RamachandraReddy, Rajesh Banothu, Harshita Kusunuri, Nithya Reddy Kura	An AI-Based Medical Chatbot Model for Infectious Disease Prediction	International journal of innovative research in technology	Volume:13 Issue: 01	6872-6880	Jun-26
9	Azmeera Ramesh, Gulam Mahabub Subhani, A. Shiva Reddy, Rathod Bheem Singh, J. Vignesh	Agriconnect: integrated framework for crop and livestock trading	International journal of progressive research in engineering management and science (ijprems)	Vol:06, Issue: 06	847-853	Jun-26
10	P.Rashmitha, B.Sathwika, P.Rishitha, M.Spoorthi	Ai– poweredsmartfire detection from CCTV using deep learning	International Innovations & Scholarly Trends Journal (IISTJ)	Volume:02 Issue: 06	2257-2266	Jun-26
11	Sk. Sharif , g. Anusha, g. Nithish, p. Sumanjali	Prediction of Breast Cancer, Comparative Review of Machine Learning Techniques, and their Analysis	International Journal of Creative and Open Research in Engineering and Management	Volume:02 Issue: 06	1-10	Jun-26
12	Balaji M, Lakhe Bhavani, Mohammed Yasir, Ramavathu Gnaneshwari,Gulam Mahabub Subhani	Medical Image Analysis-Based Early Tonsillitis Detection Using Deep Learning Techniques	International journal of versatile research and analysis (ijvra)	Volume:04 Issue:06	217-225	Jun-26
13	B. Swaroopa Rani, ANV Anoushkha, CH. Bala Sri Bhavya, A. Sai Pranav Kumar	AI-Powered Green Home Planner: An easy approach to Sustainable Homes	International Journal of Scientific Research and Engineering Development	Volume:09 Issue:0 3	2128-2133	May Jun-26
14	Dr. G. Vinoda Reddy,N. Sai Priya V. Shashank,Ch. Mani Kethan Reddy	AI based Content Summarization using RAG	International Journal of Engineering Research & Technology (IJERT)	Volume:15 Issue: 06	1-6	Jun-26
15	Pantham vishnu,b kalyani,k sravani,n nithin sai	Crime report management and tracking system	International journal of versatile research and analysis (ijvra)	Volume:04 Issue:06	808-811	Jun-26

16	P Vishnu,Ch Gagan Raj,Jain Sairaj, A Harsh Vardhan	An AI-Agent Platform for Sustainable and Budget-Friendly Travel Planning	International Journal of Scientific Research in Engineering and Management (IJSREM)	Volume:10 Issue: 06	1-4	Jun-26
17	Dr. K. Mahesh ,Anees,Chille Nainika,Javeriya Nazneen	Eduscholar AI - Ai-powered Scholarship Recommendation System	International Journal of Engineering Research & Technology (IJERT)	Vol. 15 Issue 07	2278-0181	July-26

Coordinator

HOD CSE(AL&ML)

Head
Department of CSE (AI & ML)
CMR Technical Campus
Kandlakoya (V), Medchal Road,
Hyderabad, Telangana - 501 401.

International Journal of Scientific Research in Engineering and Management (IJSREM)
Volume: 10 Issue: 06 | Jun - 2026 SJIF Rating: 8.659 ISSN: 2582-3930

Smart Garbage Segregation Using Resnet Model

S Rao Chintalapudi [1], B. Manohar Reddy [2], G. Vivek Sai[3]

[1] DEPARTMENT OF CSE (AI&ML) , CMR TECHNICAL CAMPUS, HYDERABAD
[2] DEPARTMENT OF CSE (AI&ML) , CMR TECHNICAL CAMPUS, HYDERABAD
[3] DEPARTMENT OF CSE (AI&ML) , CMR TECHNICAL CAMPUS, HYDERABAD

Abstract - The significant contribution of the pollution and health risks on the population is improper waste segregation. It is tedious, unsanitary, and inaccurate as people do not understand the process that should be used in sorting waste manually. The current paper is devoted to a Smart Garbage Segregation Mobile Application that facilitates Artificial Intelligence and image classification methods to identify and classify garbage automatically. People can scan or upload pictures of waste products and the system identifies them as biodegradable, recyclable, hazardous or general waste. Clear instructions on disposal and bin suggestions are given in the application, which promotes proper disposal of waste. Points and badges are some of the Gamification features present to attract more user engagement and foster sustainable behavior. The suggested system will be an effective, scalable, and user-friendly solution to enhance waste separation and waste sustainability by integrating machine learning, cloud services, and mobile technology.

Keywords:Smart Waste Management, Garbage Segregation, Image-Classification, Artificial Intelligence, Mobile Application , Environmental Sustainability

1.INTRODUCTION

Waste-management, environmental-awareness and environmental-responsibility are what creates a clean and sustainable environment. Nevertheless, the majority of waste-disposing procedures including household waste, plastic substances, or other hazardous materials, are implemented without any clear information or advice. The resulting lack of alignment between waste-management information and actual practice tends to cause improper-segregation, environmental-pollution, and health risks of people in that they do not know which category should be used to dispose of a waste product.

Waste segregation is the major issue in everyday life, and it is essential to have a clean and sustainable environment. A majority of the wastes produced at homes, offices and other places are not sorted out according to the biodegradable, recyclable and hazardous materials. Lack of proper segregation results in environmental pollution, health hazards, poor recycling system, and landfills congestion. Even after they have been sensitized, there are still a lot of individuals who struggle to determine the proper category of waste to place in a particular case.

It is quite possible that the current system of waste segregation is still very much reliant on human judgment and manual labor. Individuals usually use guesswork or lack of full information when discarding waste material and this leads to wrong choices. Sanitation workers find it expensive to sort manually, which is also unhygienic and they are in contact with dangerous substances. Guidelines are not always practical to follow in real-time even in cases where there are guidelines available to follow considering that the user may not be certain about a given waste item.

As the sphere of artificial intelligence and mobile technology rapidly develops, it is now possible to fill this gap by offering an intelligent and near-instant waste sorting assistance. Image recognition and machine learning can be used to classify waste items and direct users on how to get disposed of in a straightforward and user-friendly manner.

The Smart Garbage Waste Segregation App is aimed at aiding users in their everyday waste disposal tasks, and not substituting the current waste management strategies. The user is able to scan or post an image of a waste product and the system gives a clear classification and disposal directions. The app allows users to make informed decisions when they dispose of waste by a combination of automated image analysis and an interactive mobile interface.

The system is also very time and effort saving as waste segregation rules do not have to be searched out or it is not necessary to use trial and error. Users can also get immediate results by scanning a crowd of long guidance rather than having to make assumptions or peruse a lot of guidelines. It is also very beneficial in cases of households, students and small communities where failures to access expert advice on waste management is widespread. The Smart Garbage Waste Segregation App will help promote a better and cleaner environment by making waste segregation easier, faster, and more reliable.

AI Driven Agriculture-Predictive Analytics&Climate Smart Agriculture

[1]Lalitha Manglaram, [2]R.Chandrika, [3]M.Ruchitha, [4]B.Narender
[1]Assistant Professor, [234]Student
[1234]Department of CSE(AI&ML)
[1234]CMR Technical Campus,Hyderabad

***Abstract*—Farming in the modern world is faced with the challenge of producing sufficient food with fewer wastes of water, fertilizer and crop losses. A recently developed AI-based technology named Crop Health and Disease Management can assist farmers and detect diseases and yield forecasts through computer vision and detailed predictions. It consists of three major components namely Crop Recommendation, Nutrient Analysis and Plant Disease Detection. The system involves a number of machine-learning models, which include Random Forest, XG Boost, SVM, the Decision Trees and the Naive Bayes to examine variables including fertilizer levels, temperature, and humidity and provide the recommendations on each field. It also possesses an intelligent nutrient module illustrating them as to how to improve soil well-being and PyTorch deep-learning apparatus telling farmers how to treat and prevent plant illness. It is effective in 92% test and its precision is 90%. The solution located in a Flask web application is simple to use, scalable, and assists farmers to increase in a more sustainable manner.**

***Index Terms*—AI in Agriculture, Machine Learning, Crop Recommendation, Plant Disease Detection, Nutrient Optimization, Disease Prevention, PyTorch, Sustainable Farming.**

I. Introduction

The modern day agriculture is facing a challenge to produce higher outputs with less input. This is being handled by the AI Driven Agriculture (Crop Health and Disease Management) project that entails the integration of a single platform that fuses predictive modeling and computer vision. It also depicts that it uses various machine-learning algorithms such as Random Forest, XG Boost, SVM, Decision Trees, and Naive Bayes to process primary environmental data such as NPK levels, temperature, humidity or rainfall to offer localized planting recommendations to the farmers.

In contrast to simple diagnostics uses the platform also includes a smart nutrient-optimal module that finds deficiencies in the soil nutrients and suggests solutions to them and an in-depth learning platform (PyTorch) that hints at the illnesses in the plants as well as the leaves. This holistic practice does not merely relate to diagnosing sickness but it gives the farmer obvious means of administering diseases and averting problems along with curing the soil. It builds on a Flask web-app and can rate high in terms of performance with a pre-high score of 92 92 and a precision score of 90, however, it offers a scalable solution that is easy to use and will increase production and close to sustainable farming.

II. Related Work

The technology of precision agriculture has developed significantly through the help of machine learning and computer sight in a fight to help farmers to increase crop production and reduce diseases.

RESEARCH ARTICLE OPEN ACCESS

SMART CIVIC ISSUE REPORTING SYSTEM

Ravindran M*, Katkam Teja**, Miyapuram Abhiram***, Shria Varma****
*(CSE(AI&ML), CMR Technical Campus, and Hyderabad
Email: raviswamy42@gmail.com)
**(CSE(AI&ML), CMR Technical Campus, and Hyderabad
Email: tejakatkam2005@gmail.com)
***(CSE(AI&ML), CMR Technical Campus, and Hyderabad
Email: abhirammiyapuram@gmail.com)
****(CSE(AI&ML), CMR Technical Campus, and Hyderabad
Email: varmashria7999@gmail.com)

----------**********----------

Abstract:

In many urban regions, addressing civic issues such as garbage accumulation, water leakage, and potholes remains inefficient due to manual reporting procedures and delayed responses. The *Smart Civic Issue Reporting System (SCIRS)* presents an AI-integrated, web-based platform designed to streamline this process and promote transparency between citizens and municipal authorities. The system allows citizens for register, log in/log out, and report issue of any civic problems by capturing the image, adding a description, and the location is captured automatically. The issue reports are then assigned to respective municipal officer based on constituency, where the municipal officer can be review, accept, and updated the status of the civic issue. The system executes a deep learning model based on MobileNetV2 to identify images as garbage or non-garbage using a 0.65(65%) limit, helps to prevent manual verification of civic issue reported. From approving local officials right through to watching users across regions, admin holds every string. Oversight stretches everywhere without exception. At times, it might limit entry for a town without warning. A unique visual using charts appears alongside charts. When people share what they think, it gives a second look at whether things are done right. This extra check makes outcomes more accurate because real experiences shape the results. Trust grows when actions match what users actually face citizen trust. This approach ties into broader aims for city management that rely on technology. It uses artificial intelligence to help cities run better. Automation takes over repetitive tasks so systems respond faster. Instead of waiting for human input, decisions happen as conditions change. Efficiency grows when processes adapt in real time. Cities become more responsive because data guides actions. Tools like these, shape how places grow without slowing down daily life.

Keywords — **Smart City, Civic Issue Reporting, Deep Learning, MobileNetV2, AI Automation, Urban Governance.**

----------**********----------

I. INTRODUCTION

Managing civic facilities is a big problem for developing cities. Piles of trash pile up where streets go uncleaned. Roads crack and break apart under constant wear. Sewage seeps through broken pipes beneath sidewalks is referred from [1][2]. Problems stack when basic systems fail streetlights not working properly.

Still, many complaint systems run on paper. Getting help means visiting city buildings. Some folks must make phone calls instead. Offices stay busy with face-to-face requests. Voice lines fill up fast each morning. Few places offer online options yet. Workers write details by hand is

International Journal of Scientific Research in Engineering and Management (IJSREM)
Volume: 10 Issue: 06 | Jun - 2026 SJIF Rating: 8.659 ISSN: 2582-3930

An AI-Agent Platform for Sustainable and Budget-Friendly Travel Planning

P Vishnu[1], Ch Gagan Raj[2], Jain Sairaj[3], A Harsh Vardhan[4]
[1,2,3,4]Dept. of Computer Science - AIML, CMR Technical Campus, Hyderabad, India
pantham.vishnu@gmail.com, chinkagaganraj@gmail.com, jainsairaj784@gmail.com, ambaraeharshvardhan@gmail.com

***

Abstract - Modern travelers face a persistent dilemma in balancing cost efficiency with environmental responsibility. This paper proposes an AI-driven multi-agent platform that addresses this challenge by coordinating specialized agents to generate travel itineraries optimized simultaneously for cost-effectiveness, emission reduction, and user preference satisfaction. The architecture integrates generative language models to produce transparent, human-readable explanations for each recommendation. Experimental analysis demonstrates a 15% reduction in carbon emissions compared to price-only optimization approaches, while keeping costs within a 10% margin, confirming the feasibility of jointly optimizing financial and environmental objectives in real-world travel planning.

Key Words: AI Agents, Sustainable Travel, Budget Optimization, Multi-Agent Systems, Explainable AI.

1. INTRODUCTION

Travel planning requires simultaneous evaluation of numerous variables across reservation systems, transportation options, accommodation, and activities, all while staying within budget constraints. This manual process is time-consuming and often produces suboptimal outcomes [1]. Environmental concerns add further complexity, as tourism accounts for nearly 8% of global greenhouse gas emissions [3], yet most booking platforms do not factor ecological considerations into their recommendations.

We propose a multi-agent system that distributes the planning task among specialized agents: a Cost Agent (budget optimization), an Environmental Agent (ecological impact assessment), a Personalization Agent (individual preference matching), and a Coordination Agent (cross-agent synchronization). This addresses a key gap in existing solutions by providing holistic, transparent budget-sustainability optimization [12].

Contributions: (1) a multi-agent architecture for joint travel itinerary optimization; (2) integration of optimization techniques with generative models to produce interpretable recommendations; (3) a balanced scoring mechanism that prioritizes competing objectives; and (4) a functional prototype validated through experimental evaluation.

2. RELATED WORK

Traditional Systems. Existing booking platforms typically optimize isolated metrics such as minimum cost, requiring users to manually synthesize information across multiple sources, which imposes a significant cognitive burden [9].

Multi-Agent Systems. Agent-based frameworks allow competing objectives to be processed concurrently within a modular architecture [1]. Lenfers et al. [2] demonstrated multi-modal travel integration through a case study of Hamburg; however, existing implementations do not adequately address sustainability-budget optimization.

Sustainable Tourism. Ecological footprint computation has been studied extensively [17, 18]. Gössling et al. [4] reviewed mitigation strategies, and Rodríguez-Moreno et al. [5] validated such approaches in practice, yet few of these methods have been incorporated into platforms offering practical, sustainability-balanced recommendations.

Multi-Objective Optimization. Sun et al. [14] applied ant colony optimization to route planning, while Silva et al. [15] proposed bi-objective approaches. Ruiz-Meza et al. [8, 10, 11] examined fuzzy trip design for heterogeneous preferences using self-adaptive evolutionary algorithms and a GRASP-VND algorithm. Chen et al. [16] addressed stochastic traffic conditions, and Ntakolia et al. [13] focused on personalization; however, none of these approaches integrate generative AI for explainability.

Explainable AI. Recent research has emphasized transparency in AI systems [6]. Luo and Specia [7] surveyed explainability approaches for large language models (LLMs). Integrating such models bridges the gap between optimization output and human understanding through natural-language descriptions.

3. PROPOSED METHODOLOGY

A. System Architecture

The platform employs a four-layer architecture: a Presentation Layer (user interface), an Agent Orchestration Layer (coordination), an Intelligence Layer (AI and optimization), and a Data Layer (APIs and storage). This modular structure provides clear interfaces between layers and enables independent development of each component.

B. Problem Formulation

Given a set of travel configurations O = {o1, ..., on}, the objective is to maximize:

$$F(o) = w_c f_c(o) + w_e f_e(o) + w_p f_p(o) \quad (1)$$

where fc, fe, and fp are normalized scores representing cost-effectiveness, environmental sustainability, and preference satisfaction, respectively, and the weights satisfy wc + we + wp = 1. The optimization is subject to: C(o) ≤ Bmax (budget constraint), Tstart ≤ tdeparture ≤ Tend (date constraints), and additional logical-consistency constraints.

Navy Hydroacoustic Surveillance System

[1]G Parvathi Devi, [2]Sankeerthana, [3]Bhavana, [4]Bhavya sri
[1]Assistant Professor, [234]Student
[1234]Department of CSE (AI & ML)
[1234]CMR Technical Campus, Hyderabad

Abstract—**Maintaining maritime security across vast ocean regions is a complex and resource-intensive task, often relying on manual monitoring and conventional radar systems that may fail to detect underwater threats effectively. This paper proposes an AI-Assisted Navy Hydroacoustic Surveillance System that enhances maritime situational awareness by combining underwater acoustic analysis with computer vision techniques. The system processes real-time data from hydrophones and surveillance cameras, applying deep learning models such as CNN and LSTM to detect anomalous underwater sounds including submarine movements, torpedo activity, and unusual vibrations. Simultaneously, computer vision models analyze sea-surface imagery to identify suspicious vessels and objects.**

The monitored ocean region is divided into multiple zones, and each zone is assigned a threat score based on normalized outputs from acoustic and visual models. These scores are integrated to generate an overall threat intensity level for each zone. Detected threats are visualized through an interactive dashboard featuring maps, heatmaps, and alert indicators, enabling naval personnel to quickly identify high-risk areas and take appropriate action.

Experimental evaluation on simulated and real-world datasets demonstrates high detection accuracy and efficient real-time processing capabilities.

The proposed system provides a scalable and intelligent framework for multi-modal maritime surveillance, improving threat detection, response time, and decision-making in modern naval operations.

I. Introduction

Maritime security plays a critical role in protecting national boundaries, trade routes, and naval operations. Traditional surveillance systems primarily rely on radar and manual monitoring, which are often limited in detecting underwater threats such as submarines, torpedoes, and abnormal acoustic activities. These conventional approaches require continuous human supervision, are resource-intensive, and may fail to provide timely and accurate threat identification in complex ocean environments.

Recent advancements in artificial intelligence (AI), signal processing, and computer vision have enabled the development of intelligent surveillance systems capable of analyzing multi-modal data in real time. Techniques such as deep learning models, including Convolutional Neural Networks (CNN) and Long Short-Term Memory (LSTM), have shown significant success in processing acoustic signals and visual data. These technologies allow automated detection of anomalies in underwater sounds as well as suspicious activities on the sea surface.

In this work, we introduce an **AI-Assisted Navy Hydroacoustic Surveillance System** designed to automatically monitor maritime regions by integrating acoustic and visual intelligence. The system captures real-time data from hydrophones and surveillance cameras, processes it using deep learning algorithms, and identifies potential threats. The monitored area is divided into multiple zones, where each zone is analyzed and assigned a threat score based on combined acoustic and visual outputs. The system generates alerts and visualizes results through an interactive dashboard, enabling faster and more effective decision-making for naval personnel.

Transforming Unstructured Data into Accessible Braille Content Using AI

Mrs. G. Parvathi Devi[1]*, G. Harika[2], M. Sravani[3] and S. Dhaneesha[4]

*[1]Assistant Professor Department of CSE (AI & ML)

[2,3,4]studentsCMR Technical Campus, Kandlakoya, Medchal, Telangana, India

DOI: 10.64823/ijter.2606010

Abstract: The conversion of unformatted electronic data into the useable formats is crucial in making sure that visually impaired people have equal opportunities to access. The paper is a proposal of an AI-based tool that will transform unstructured data into standardized Braille material in an efficient and accurate way. The proposed solution combines Optical Character Recognition, Natural Language Processing and Machine Learning and extracts, cleanses and analyzes text on scanned documents, images, PDF files, and web pages. Deep learning models also increase the quality of Braille translation because, in addition to the character recognition, it also increases the contextual understanding. The system will do automated text extraction, noise reduction, language detection and semantic processing and encode the material in Braille that can be displayed digitally and embossed or cut into digital displays and embossing machines. The experimental results prove that the solution can serve real-time processing and decrease the amount of effort required to conduct manual transcription considerably. The suggested system helps enhance the availability of information and introduce inclusive online communication.

Keywords: Braille Accessibility • Artificial Intelligence • Unstructured Data • NLP • Assistive Technology • OCR1

I. INTRODUCTION

The current digital age is producing and storing enormous volumes of information that are stored in unstructured forms, as scanned documents, images, web pages, emails and PDF files. Although this information is readily available to the average user, it is inaccessible to those who have visual impairment and as such, poses a huge obstacle to the even availability of information. Traditional Braille transcription is notable as being mostly manual and time consuming, cost and expertise intensive, and it is hard to scale to high content volumes [1][2].

Using the Artificial Intelligence to convert raw data into easy to read Braille files is a good solution to this problem. The system combines the use of technologies like Optical Character Recognition (OCR), Natural Language Processing (NLP) and Machine Learning to automatically extract, comprehend, and transpose raw digital content to common Braille models. These smart techniques facilitate proper identification of characters, words and contextual meaning of a noisy or complicated data source [3][4].

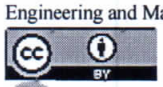
The suggested solution ensures that the amount of human work is significantly decreased, the processing speed will be enhanced, and the quality of the output will be constant. It also facilitates real time access via digital Braille displays and embossing equipment, and makes learning, professional and online resources

International Journal of Creative and Open Research in Engineering and Management
ISSN: **3108-1754 (Online)**
Volume 02 Issue 06 June-2026 | Impact Factor: 3.5

SwatchhAI: An Android-Based Smart Waste Segregation and Collection System Using Convolutional Neural Networks

[1]G. Parvathi Devi, [2]B. Varun Reddy, [3]P. Raghava Patel, [4]Priyanshu Rai
[1]Assistant Professor, [234]B.Tech Students,
[1234]Department of CSE (AI & ML)
[1234]CMR Technical Campus, Hyderabad

How to Cite this Article:
Devi, G. P., Reddy, B. V., Patel, P. R. & Rai, P. (2026). SwatchhAI: An Android-Based Smart Waste Segregation and Collection System Using Convolutional Neural Networks. International Journal of Creative and Open Research in Engineering and Management, 02(6). https://doi.org/10.55041/ijcope.v2i6.278



https://doi.org/10.55041/ijcope.v2i6.278

ABSTRACT

Rapid urbanization has intensified the challenges of municipal solid waste management, particularly in ensuring proper waste segregation at the source. This paper presents SwatchhAI, an Android-based smart waste segregation and collection system that leverages Convolutional Neural Networks (CNN) and cloud-based services to automate waste classification without the need for physical sensors or IoT hardware. The proposed system allows users to capture or upload images of waste materials through a Flutter-based mobile application. These images are processed by a CNN model deployed using TensorFlow Lite, which classifies waste into three categories: dry, wet, and hazardous. The system integrates Firebase for secure user authentication, real-time database management, and cloud storage. Additional features include GPS-based waste pickup requests, real-time tracking, push notifications, and a reward-based incentive mechanism. Experimental evaluations demonstrate an overall classification accuracy of 85–92%, confirming the viability of the proposed approach. The system contributes to smart city initiatives by promoting responsible waste disposal and reducing environmental pollution through intelligent, scalable, and cost-effective technology.

I. INTRODUCTION

Urban waste management is one of the most pressing environmental challenges facing modern cities. Improper disposal and the absence of waste segregation at the source lead to contamination of recyclable materials, increased landfill burden, and heightened environmental and public health risks. Traditional waste management systems rely on manual sorting, which is labor-intensive, error-prone, and exposes workers to health hazards.

The proliferation of smartphones and advancements in artificial intelligence (AI) present a compelling opportunity to build accessible, software-driven solutions to this problem. SwatchhAI addresses these challenges by providing an intelligent, sensor-free waste classification system deployable on any Android device. The application uses deep learning—specifically a Convolutional Neural Network—to analyze waste images and produce real-time segregation guidance.

© June 2026 | IJIRT | Volume 13 Issue 1 | ISSN: 2349-6002

An AI-Based Medical Chatbot Model for Infectious Disease Prediction

Sheri RamachandraReddy[1], Rajesh Banothu[2], Harshita Kusunuri[3], and Nithya Reddy Kura[4]
[1]*Assistant Professor, Department of CSE (AI & ML), CMR Technical Campus, Hyderabad, TG, India*
[2,3,4]*Students, Department of CSE (AI & ML), CMR Technical Campus, Hyderabad, TG, India*

***Abstract*—An AI-Based Medical Chatbot Model for Infectious Disease Prediction is proposed to support early identification of diseases and improve access to basic healthcare services. The system leverages artificial intelligence, machine learning, and natural language processing to interact with users, collect symptom information, and analyze health data in real time. By providing preliminary risk assessment and health guidance, the chatbot assists users in understanding possible infectious conditions without immediate dependence on healthcare professionals. The chatbot integrates a trained predictive model capable of identifying patterns associated with common infectious diseases based on user-reported symptoms. Through a conversational interface, the system delivers accurate, timely, and personalized responses while maintaining ease of use. This approach helps reduce the burden on healthcare systems, minimizes delays in diagnosis, and supports informed decision-making for patients. The proposed model aligns with Sustainable Development Goal 3 (Good Health and Well Being) by promoting early detection, preventive care, and healthcare accessibility, particularly in remote and underserved areas. Overall, the AI-based medical chatbot demonstrates potential as a scalable and cost-effective solution for enhancing public health monitoring and improving overall healthcare outcomes.**

***Index Terms*—Artificial Intelligence (AI), Disease Prediction, Electronic Health Records (EHR), Healthcare Informatics, Infectious Disease Prediction, Long Short-Term Memory (LSTM), Machine Learning (ML), Medical Chatbot, Natural Language Processing (NLP), Symptom Analysis].**

I. INTRODUCTION

The scope of this project includes the design and development of an AI-based medical chat bot capable of predicting infectious diseases based on user-reported symptoms. The system focuses on providing preliminary health assessment, basic medical guidance, and recommendations for further consultation. It is intended to act as a supportive tool rather than a replacement for professional medical diagnosis, ensuring ethical and responsible use of artificial intelligence in healthcare [1].

The project covers the implementation of machine learning models, particularly for symptom-based disease prediction, along with natural language processing techniques to enable effective user interaction. The chatbot is designed to handle multiple user queries simultaneously and provide real-time responses. Integration with a backend database allows secure storage of medical datasets, user interactions, and prediction results for analysis and future model improvement [2].

The scope also includes the development f a user-friendly web or mobile interface that ensures accessibility for users with varying levels of technical expertise. The system supports features such as symptom checking, health tips, and emergency guidance, making it useful for daily health monitoring. Emphasis is placed on usability, response speed, and clarity of information delivered to the user [3].

Finally, the project scope extends to system evaluation and performance analysis using standard metrics to measure prediction accuracy and response efficiency. Security and data privacy considerations are addressed to protect user information. The system is scalable and can be enhanced in the future to include additional diseases, advanced AI models, and integration with external health data sources, aligning with broader public health objectives [4].

www.ijprems.com
editor@ijprems.com

INTERNATIONAL JOURNAL OF PROGRESSIVE RESEARCH IN ENGINEERING MANAGEMENT AND SCIENCE (IJPREMS)
(Int Peer Reviewed Journal)
Vol. 06, Issue 06, June 2026, pp : 847-853

e-ISSN : 2583-1062
Impact Factor : 7.001

AGRICONNECT: INTEGRATED FRAMEWORK FOR CROP AND LIVESTOCK TRADING

Azmeera Ramesh[1], Gulam Mahabub Subhani[2], A. Shiva Reddy[3], Rathod Bheem Singh[4], J. Vignesh[5]

[1,2]Assistant Professor Department of Computer Science and Engineering (AI & ML) CMR Technical Campus (UGC Autonomous), Kandlakoya, Hyderabad, Telangana.

[3,4,5]UG Scholar Department of Computer Science and Engineering (AI & ML) CMR Technical Campus (UGC Autonomous), Kandlakoya, Hyderabad, Telangana.

[1] ramesh.aiml@cmrtc.ac.in, [2] gulammahabubsubhani.aiml@cmrtc.ac.in, [3] adupalashivareddy842@gmail.com

[4] rathodbheemsingh2000@gmail.com, [5] vigneshjanagani05@gmail.com

DOI: https://www.doi.org/10.58257/IJPREMS53855

ABSTRACT

The Agri-Livestock Hub is a web-based digital platform designed to facilitate transparent, direct, and location-based trading of agricultural crops and livestock between farmers and traders [3][4]. By removing intermediaries, the platform ensures that prices are directly accessible to producers, allowing buyers to efficiently source fresh, local inventory. The listing process requires detailed information—quantity, type, age, condition, and value as determined by each producer. Fluctuations in daily demand inform traders' purchasing decisions, enabling dynamic market participation. The platform is developed utilizing contemporary technologies, including React and TypeScript, and employs Tailwind CSS to maintain a streamlined and efficient user interface. Supabase is integrated to provide secure authentication, real-time database management, and data storage, thereby simplifying the technical infrastructure. The platform's user-friendly design accommodates individuals with varying levels of digital proficiency, ensuring broad accessibility. Location-based sorting capabilities assist farmers in identifying nearby buyers, thereby reducing logistical costs and mitigating geographic barriers. The implementation of digital tools within the Agri-Livestock Hub allows for real-time price visibility, reducing uncertainty in the valuation of agricultural goods.[4]

This technological intervention addresses longstanding issues such as opaque pricing mechanisms and delayed payments, which have traditionally hindered agricultural markets. The transition from paper-based to digital record-keeping enhances transparency and minimizes errors, fostering increased trust among stakeholders. Ultimately, improved information flow facilitates incremental advancements in profitability and operational efficiency, providing a sustainable solution to persistent challenges in the agricultural sector.

Keywords: AgriConnect, Smart Agriculture, Livestock Trading, Digital Marketplace, Web Application, PostgreSQL.

1. INTRODUCTION

Agriculture and livestock farming are essential for sustaining rural economies around the world [1][2]. For generations, these sectors have provided a primary source of income and stability for rural households. Despite their importance, farmers continue to encounter significant challenges due to traditional trading systems. Price volatility, dependence on intermediaries, and limited access to fair markets often restrict farmers' ability to secure equitable returns for their products. Meanwhile, buyers frequently experience difficulties in sourcing high-quality goods efficiently and responding to fluctuating market prices.

The emergence of digital technologies is transforming the landscape of agricultural trade. Online platforms are streamlining transactions, reducing the influence of intermediaries, and fostering greater transparency and trust among participants. jThe Agri-Livestock Hub is designed as a digital solution that directly connects farmers and buyers, enabling straightforward and structured trading of crops and livestock.Within the Agri-Livestock Hub, farmers can list their products by providing essential information such as quantity, type, breed, age, health status, and desired price. Registered traders are able to post their purchasing rates, while the platform continuously updates with real-time market data. Location-based filters further assist farmers in identifying nearby buyers, minimizing transportation costs and logistical challenges, particularly in remote areas.The platform's architecture leverages contemporary web technologies to ensure security, reliability, and user-friendliness. Its intuitive interface accommodates users regardless of their technical proficiency, and role-based access ensures that both farmers and buyers have a streamlined experience tailored to their specific needs. By addressing longstanding barriers in agricultural trade, the Agri-Livestock Hub aims to promote efficiency, equity, and growth within the sector.

AI–POWEREDSMARTFIREDETECTIONFROMCCTV USING DEEP LEARNING

[1]Mrs.P.Rashmitha, [2]B.Sathwika, [3]P.Rishitha, [4]M.Spoorthi
[1]Assistant Professor, [234]Students
[1234]DepartmentofCSE(AI& ML)
[1234]CMR Technical Campus, Kandlakoya,Medchal,Telangana,India

***Abstract*—When fire breaks out in places like building, shopping malls, colleges, schools and industries, most of the time, this leads to serious damages, as they are not spotted at an early stage. The standard systems of fire detection, such as smoke and heat sensors tend to be responsive after a long time and may also give false alarms. To alleviate these shortcomings, this paper will propose a smart fire detection systems which involves the use of computer vision and deep learning algorithms to detect fire at an early stage using camera footage of a CCTV camera. The proposed system will be based on the YOLOv8 deep learning and OpenCV to analyze the video streams in real-time and identify any visuals related to fire (flame and smoke). This system does not require physical sensors and instead uses the already existing surveillance cameras which makes the system very cost efficient and simple to install. After a fire is identified with high confidence, an automatic notification is forwarded to the emergency department via email, which will aid in prompt response and minimise the use of human surveillance. The system is created on the basis of such technologies as python, Django framework and MySQL database to control the video processing, the results of video processing, and alerts. According to the experimental results, the system is effective and has an accuracy of about 92 percent with a rapid response time in various indoor environmental conditions. On the whole, this piece of writing shows that the regular CCTV systems CCTV systems may be converted to intelligent fire monitoring systems, helping to enhance safety and minimize the risk of fires.**

***Index Terms*—Vision-based Fire Detection, YOLOv8 Nano, Computer Vision, Real-Time Surveillance, Deep Learning, CCTV Systems, Automated Emergency Alerts.**

I. Introduction

Fire accidents remain to be among the most grave and most frequently recurrent hazards in residential, commercial and industrial setups like residences, shopping centers, offices and industries. A small-scale fire can be easily expanded into a big tragedy unless it is recognized at the early stages, hence leading to human fatalities, extensive destruction of property, and adverse environmental impact. The early fire detection is thus very critical in reducing the losses and the safety of people and infrastructure. The timely detection of fire incidences will enable emergency services to be deployed within a shorter time, and they will avoid instances that may lead to an outburst.

The conventional fire systems primarily rely on smoke and heat detectors. However, despite its popularity, these equipment have serious disadvantages. As an example, smoke alarms might not perform the role of quickly notifying in large or open areas hence pending the production of alarms. In addition, heat detectors are normally opened at a higher temperature of heating that is, the fire is most probably at an advanced stage. More than this, the appliances are prone to false alarms that may occur frequently and hence lower trustworthiness and confidence of the users. Accordingly, the traditional methods of fire detection are bound to be erroneous and lack timeliness in most of the real life applications.

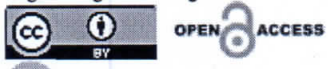
International Journal of Creative and Open Research in Engineering and Management
ISSN: **3108-1754 (Online)**
Volume 02 Issue 06 June-2026 | Impact Factor: 3.5

Prediction of Breast Cancer, Comparative Review of Machine Learning Techniques, and their Analysis

[1] Mr. SK. Sharif , [2] G. ANUSHA, [3] G. NITHISH, [4] P. SUMANJALI
[1]Assistant Professor, [234]Student
[1234]Department of CSE (AI & ML)
[1234]CMR Technical Campus, Hyderabad

E-Mail: gangapuramanusha40@gmail.com nithishchinnu390@gmail.com sumanjalipanjala30@gmail.com

How to Cite this Article:
ANUSHA, G., NITHISH, G. & SUMANJALI, P. (2026). Prediction of Breast Cancer, Comparative Review of Machine Learning Techniques, and their Analysis. International Journal of Creative and Open Research in Engineering and Management, 02(6). https://doi.org/10.55041/ijcope.v2i6.208



https://doi.org/10.55041/ijcope.v2i6.208

ABSTRACT

Breast cancer remains one of the most prevalent and life-threatening diseases affecting women worldwide. Early and accurate prediction plays a crucial role in improving patient outcomes and survival rates. With the advancement of computational intelligence, machine learning (ML) techniques have emerged as powerful tools for disease prediction and diagnosis. This study provides a comprehensive comparative review of various machine learning algorithms applied to breast cancer prediction, including Support Vector Machines (SVM), Decision Trees, Random Forest, K-Nearest Neighbors (KNN), Naïve Bayes, Logistic Regression, and Neural Networks. The performance of these models is evaluated based on key metrics such as accuracy, precision, recall, F1-score, and AUC-ROC values using standard datasets such as the Wisconsin Breast Cancer Dataset. Our analysis highlights the strengths and limitations of each method, with ensemble models and deep learning approaches showing higher prediction accuracy and robustness. The review also discusses preprocessing techniques, feature selection, and the importance of balanced datasets in improving model performance.

I. Introduction

Breast cancer is a significant global health concern and ranks as one of the leading causes of cancer-related deaths among women. According to the World Health Organization (WHO), early detection and timely diagnosis of breast cancer can substantially increase the chances of successful treatment and survival. Traditional diagnostic methods, such as mammography, biopsies, and ultrasound imaging, though effective, often involve manual interpretation and are time-consuming, expensive, and subject to human error. In recent years, the integration of data science and artificial intelligence, particularly machine learning (ML), has

INTERNATIONAL JOURNAL OF VERSATILE RESEARCH AND ANALYSIS (IJVRA)
© 2026 IJVRA | Volume 4, Issue 6, June 2026 | ISSN: 2984-8903 | IJVRA.ORG

Medical Image Analysis-Based Early Tonsillitis Detection Using Deep Learning Techniques

[1]Lakhe Bhavani
Department of CSE (AI&ML)
CMR Technical Campus (UGC Autonomous)
Kandlakoya, Medchal, 501401
Telangana, India.
Mail id:
lakhebhavani3@gmail.com

[2]Mohammed Yasir
Department of CSE (AI&ML)
CMR Technical Campus (UGC Autonomous)
Kandlakoya, Medchal, 501401
Telangana, India.
Mail id :
mohammadyasirx96@gmail.com

[3] Ramavathu Gnaneshwari
Department of CSE (AI&ML)
CMR Technical Campus (UGC Autonomous)
Kandlakoya, Medchal, 501401
Telangana, India.
Mail id:
gnaneshwari9492@gmail.com

*** [4]Balaji M**
Assistant Professor
Department of CSE (Al & ML)
CMR Technical Campus (UGC Autonomous)
Kandlakoya, Medchal, 501401, Telangana, India.
Mail id: balaji.aiml@cmrtc.ac.in

*** [5]Gulam Mahabub Subhani**
Assistant Professor
Department of CSE (Al & ML)
CMR Technical Campus (UGC Autonomous)
Kandlakoya, Medchal, 501401, Telangana, India.
Mail id: gulammahabubsubhani.aiml@cmrtc.ac.in

Abstract:

Tonsillitis is a common inflammatory disorder of the tonsils that affects individuals of all age groups, particularly children and young adults. In its early stages, tonsillitis often presents symptoms similar to minor throat irritation, which leads many individuals to delay professional medical consultation. Conventional diagnostic practices rely mainly on physical examination and subjective clinical interpretation, which may vary among practitioners and result in inconsistent assessment. These challenges are further amplified in rural and resource-limited regions where access to specialized healthcare professionals is restricted. This paper presents a deep learning–based framework for early tonsillitis detection using throat images. The proposed system strictly focuses on automated image classification and categorizes throat images into two classes: healthy and tonsillitis-affected. A custom Convolutional Neural Network (CNN), along with transfer learning architectures ResNet50 and EfficientNetB0, is employed to extract discriminative visual features and enhance classification performance. The framework integrates data augmentation, class-imbalance handling, and optimized training strategies. Experimental evaluation is conducted using accuracy, precision, recall, and confusion matrices. The system is implemented as a digital screening platform that allows users to upload throat images and receive real-time predictions. The framework is intended only as a screening and decision-support tool. The results demonstrate that deep learning models can effectively support early tonsillitis screening.

Keywords:*Tonsillitis Detection, Deep Learning, Medical Image Classification, Convolutional Neural Networks (CNN), Transfer Learning, Computer-Aided Diagnosis.*

1.Introduction

Tonsillitis is an inflammatory condition of the tonsils caused primarily by viral or bacterial infections. The tonsils are lymphoid tissues located at the back of the throat and play a vital role in immune defence by trapping pathogens entering through the oral cavity. When infected, the tonsils become swollen and inflamed, leading to throat pain, fever, difficulty swallowing, and general discomfort. Tonsillitis is

International Journal of Scientific Research and Engineering Development-– Volume 9 Issue 3, May-June 2026
Available at www.ijsred.com

RESEARCH ARTICLE OPEN ACCESS

AI-Powered Green Home Planner: An easy approach to Sustainable Homes

B. Swaroopa Rani*, ANV Anoushkha[1], CH. Bala Sri Bhavya[2], A. Sai Pranav Kumar[3]
*Assistant Professor, Department of Computer Science and Engineering (AI&ML), CMR Technical Campus,
Hyderabad, India
roopa.kk15@gmail.com
[1,2,3] UG Scholar, Department of Computer Science and Engineering (AI&ML), CMR Technical Campus, Hyderabad, India
vedaanoushkha@gmail.com, balasribhavyachilukuri@gmail.com, pranav.05a@gmail.com

Abstract:
The non-expert users may have difficulties balancing cost, climatic suitability, terrain limitations, and environmental footprint when constructing a sustainable home. This paper presents Green Home Planner, an AI-based recommendation system that generates cost-effective and green plans to build a residential building. The system uses machine learning regression model to predict the cost of construction using user inputs such as built-up area, floors, budget, climate, terrain, and priority. The feasibility is checked using rule based checks. It also has a sustainability score due to material and system choices to be included with the detailed recommendations and cost breakdowns pertaining to making informed decisions.

Keywords: Sustainable Construction · Cost Estimation · Machine Learning Regression · Rule-Based Recommendation · Climate Feasibility · Green Building · Residential Planning

1.Introduction

Sustainable housing is increasingly gaining relevance as the cost of construction is increasing and environmental issues are becoming a major concern. Nevertheless, due to the selections of budget estimation, materials, climate-appropriateness, terrain-feasibility, and sustainably, it is difficult to make a home design that is not only economical but also friendly to the environment in non-expert consumers. The traditional methods of planning primarily depend on hand calculations and expert advice which is often expensive and time consuming.

In the traditional planning of homes, manual methods of cost estimation and expert advice are highly utilized by the users. Despite the fact that this technique may be reliable, it is often very expensive, time-intensive, and not available during the initial stages of building planning. Moreover, instead of being integrated into the planning process, such sustainability measures as the usage of low-carbon materials, energy-saving systems, and water-saving techniques are often perceived as an additional option. The consequence is the creation of designs that may not be cost effective or environmentally friendly.

The advancement in artificial intelligence has enabled the utilization of the intelligent recommendation systems and cost estimation based on the data to aid construction planning. Machine learning models are able to provide more accurate estimates of construction costs, based on the requirements of the user and historical information. Also, decision logic that is based on rules may ensure that recommendations remain viable due to terrain and climatic constraints. Such hybrid systems help users make more informed decisions and reduce the use of specialists.

In order to eliminate all these challenges, we apply GreenHome Planner, a computer-aided design that

Published by :
https://www.ijert.org/
An International Peer-Reviewed Journal

International Journal of Engineering Research & Technology (IJERT)
ISSN: 2278-0181
Vol. 15 Issue 06 , June - 2026

AI based Content Summarization using RAG

Dr. G. Vinoda Reddy[1] N. Sai Priya[2] V. Shashank[3] Ch. Mani Kethan Reddy[4]

1 Professor Department of Computer Science and Engineering
(Artificial Intelligence and Machine Learning), Kandlakoya, Hyderabad.

2 Student Department of Computer Science and Engineering
(Artificial Intelligence and Machine Learning), Kandlakoya, Hyderabad.

3 Student Department of Computer Science and Engineering
(Artificial Intelligence and Machine Learning), Kandlakoya, Hyderabad.

4 Student Department of Computer Science and Engineering
(Artificial Intelligence and Machine Learning), Kandlakoya, Hyderabad.

Abstract: - The increased use of digital documents in academic, technical, and professional fields has resulted in a demand for systems that can provide concise, document, based summaries answering user queries. Large language models alone for document, based question answering generally give answers that are only loosely based on the source content, thus, Retrieval, Augmented Generation (RAG) is used. In this paper, the author presents a content summarization tool that is entirely dependent on PDF, DOCX, and text files uploaded by end users, and that adapts its retrieval behavior based on inferred user expertise.The documents are passed through a well, organized ingestion pipeline consisting of text extraction, overlapping semantic chunking, and dense embedding with a lightweight sentence, level transformer, while the similarity search is performed by a FAISS [4, 5] index over normalized embeddings. A heuristic cognitive assessment module examines query features such as length, use of technical terms, clarification patterns, and interaction history to identify the user expertise and, thus, retrieves between two and four relevant document chunks for prompt construction.The answers are generated by a language model running locally and equipped with real, time streaming [10] support. The trials demonstrate that adaptive retrieval leads to higher

Key words: Document Summarization, Adaptive Retrieval, Cognitive State Estimation, Vector Similarity Search, Large Language Models, Interactive Question Answering.

I. INTRODUCTION

The ever, expanding collection of digital documents has turned the demand for systems that can provide clea, r context aware summaries and even answers straight from the user, supplied content, to be very high. In the past document summarization tools only generated one single, static summary. Lately, many question answering systems have been built upon large pretrained models but without structured retrieval, thus resulting in answers that are only loosely backed up by the source documents or being quite inefficient if the texts are long.

Retrieval, augmented generation [1] has been proposed as a solution to these issues by combining semantic retrieval with language model generation. However, most methods based on RAG, only use a fixed retrieval depth for all users and query types, thus disregarding the variations in user expertise or query complexity.

Indeed, in the real world usage scenarios, simple questions usually need very little contextual information while complicated or technical questions require a broader coverage. Hence, applying the same retrieval policy to all can either lead to a shower of background information for naive users or it may constrain the completeness of the answers for advanced users. To get rid of this limitation, a content summarization and question answering system is put forward that dynamically adjusts its retrieval strategies, the, guided, by a user's.

II. RELATED WORKS

Document summarization methods have transformed from extractive methods based on lexical or positional heuristics to neural abstractive methods. The latter increased the fluency of the output but frequently generated ungrounded facts. RAG (Retrieval, augmented Generation) was developed to address this issue. It combines dense retrieval with conditional text generation so that the generated answers can be directly grounded in the retrieved document passages. RAG has been demonstrated to be effective in

INTERNATIONAL JOURNAL OF VERSATILE RESEARCH AND ANALYSIS (IJVRA)
© 2026 IJVRA | Volume 4, Issue 6, June 2026 | ISSN: 2984-8903 | IJVRA.ORG

CRIME REPORT MANAGEMENT AND TRACKING SYSTEM

[1]PANTHAM VISHNU, [2]B KALYANI, [3]K SRAVANI, [4]N NITHIN SAI
[1]Assistant Professor, [2]Bachelor's Student, [3]Bachelor's Student, [4]Bachelor's Student
[1]CSE (ARTIFICIAL INTELLIGENCE & MACHINE LEARNING),
[1]CMR TECHNICAL CAMPUS, HYDERABAD, INDIA

Abstract:
The increasing difficulty of crime trends and the amount of data related to crime necessitates intelligent and automatic methods of effective management of crime. The traditional way of reporting on crime is more reliant on the paper work and un-organized digital information, thus resulting in an inefficient way of handling the crime, sluggish investigation and unavailability of the crime data. In this research paper, the suggestion is Crime Report Management and Tracking System with Human Suspicious Activity Detection as an efficient way to manage crime reports, track the investigations, and analysis of surveillance. The suggested system will have a centralized online system of registering crimes and managing criminal records, tracking of the cases, and storing evidence safely. In addition, computer vision that is run using deep learning is utilized in analyzing CCTV images and identifying suspicious human behavior by default. The suggested approach will reduce human interaction, enhance the accuracy of investigation, enhance citizen safety, and achieve proactive policing by using intelligent surveillance and making decisions based on data. Clime management system, crime report tracking, biometric identification, finger print recognition, facial recognition, deep learning, criminal record management, Multi, mode search, law enforced, and public safety.

I. INTRODUCTION

The control of crime has relevance to the security of the citizens and the police. However, crime is increasing with the advance between technology and urbanization. In the traditional methods, crime reports are submitted on paper or personal computers and so managing the crime is slow and subject to inaccurate results. Officers are not able to find the previous records and status of cases. Machine learning, AI, and computer vision have the potential to enhance the reporting and investigation of crime. The automated crime systems and intelligent surveillance can help respond more quickly, employ less staff, and be transparent. The focus of the research is to develop a system that will control and monitor crime reports and identify suspicious behavior. The system will enable individuals to report things online, store all the records of crime at one location, monitor cases in real time, and separate suspicious occurrences automatically on CCTV footage. It will combine crime management and intelligent surveillance analysis.

2 Related Work

Crime-management systems based on the newest computer techniques have received more and more attention of researchers in the recent years. Such techniques are enhanced database architecture, biometric identification and machine learning. Their aim is to find criminals in a better and quicker way. The initial computer-based crime recordkeeping system utilized mostly text programming and relations databases. It would be able to hold criminal records, fingerprints, and incident reports. It was efficient at managing data and was unable to analyze unformatted biometric data and authenticate identities automatically. Using new biometric technology, scientists began to construct systems that have been used to identify criminals with the help of fingerprints and face recognition. As an illustration, in 2004, Jain and others demonstrated that fingerprint recognition in forensic programs was more effective than the archaic ones. People applied eigenface and Fisherface models to face recognition in the early 2010s and subsequently included deep learning models, such as convolutional neural networks, to perform better when using different lighting and poses. These biometric systems were used to verify identity and were not normally linked to complete crime-management systems. New current research combines machine learning and deep learning to provide an improved biometric match. An example of this is that Zhang (2018) and Taigman (2014) deployed deep neural networks to form facial embeddings and identify similarities between them with high precision when applied to real-world scenes. Other scholars constructed the multi-modal biometrics systems that combine fingerprints, iris scans, and faces. This is useful where a single form of biometric information is poor. There are also researches on improved database and tracking systems. Gupta and Ahuja (2017) have examined the construction of distributed databases on the criminal systems, which allows you to query with data within various locations in real-time. Nonetheless, the majority of these systems do not include a biometric analysis, hence, such systems depend on individuals manually search or external biometric applications.

International Journal of Scientific Research in Engineering and Management (IJSREM)
Volume: 10 Issue: 06 | Jun - 2026 SJIF Rating: 8.659 ISSN: 2582-3930

An AI-Agent Platform for Sustainable and Budget-Friendly Travel Planning

P Vishnu[1], Ch Gagan Raj[2], Jain Sairaj[3], A Harsh Vardhan[4]
[1,2,3,4]Dept. of Computer Science - AIML, CMR Technical Campus, Hyderabad, India
pantham.vishnu@gmail.com, chinkagaganraj@gmail.com, jainsairaj784@gmail.com, ambaraeharshvardhan@gmail.com

***

Abstract - Modern travelers face a persistent dilemma in balancing cost efficiency with environmental responsibility. This paper proposes an AI-driven multi-agent platform that addresses this challenge by coordinating specialized agents to generate travel itineraries optimized simultaneously for cost-effectiveness, emission reduction, and user preference satisfaction. The architecture integrates generative language models to produce transparent, human-readable explanations for each recommendation. Experimental analysis demonstrates a 15% reduction in carbon emissions compared to price-only optimization approaches, while keeping costs within a 10% margin, confirming the feasibility of jointly optimizing financial and environmental objectives in real-world travel planning.

Key Words: AI Agents, Sustainable Travel, Budget Optimization, Multi-Agent Systems, Explainable AI.

1. INTRODUCTION

Travel planning requires simultaneous evaluation of numerous variables across reservation systems, transportation options, accommodation, and activities, all while staying within budget constraints. This manual process is time-consuming and often produces suboptimal outcomes [1]. Environmental concerns add further complexity, as tourism accounts for nearly 8% of global greenhouse gas emissions [3], yet most booking platforms do not factor ecological considerations into their recommendations.

We propose a multi-agent system that distributes the planning task among specialized agents: a Cost Agent (budget optimization), an Environmental Agent (ecological impact assessment), a Personalization Agent (individual preference matching), and a Coordination Agent (cross-agent synchronization). This addresses a key gap in existing solutions by providing holistic, transparent budget-sustainability optimization [12].

Contributions: (1) a multi-agent architecture for joint travel itinerary optimization; (2) integration of optimization techniques with generative models to produce interpretable recommendations; (3) a balanced scoring mechanism that prioritizes competing objectives; and (4) a functional prototype validated through experimental evaluation.

2. RELATED WORK

Traditional Systems. Existing booking platforms typically optimize isolated metrics such as minimum cost, requiring users to manually synthesize information across multiple sources, which imposes a significant cognitive burden [9].

Multi-Agent Systems. Agent-based frameworks allow competing objectives to be processed concurrently within a modular architecture [1]. Lenfers et al. [2] demonstrated multi-modal travel integration through a case study of Hamburg; however, existing implementations do not adequately address sustainability-budget optimization.

Sustainable Tourism. Ecological footprint computation has been studied extensively [17, 18]. Gössling et al. [4] reviewed mitigation strategies, and Rodríguez-Moreno et al. [5] validated such approaches in practice, yet few of these methods have been incorporated into platforms offering practical, sustainability-balanced recommendations.

Multi-Objective Optimization. Sun et al. [14] applied ant colony optimization to route planning, while Silva et al. [15] proposed bi-objective approaches. Ruiz-Meza et al. [8, 10, 11] examined fuzzy trip design for heterogeneous preferences using self-adaptive evolutionary algorithms and a GRASP-VND algorithm. Chen et al. [16] addressed stochastic traffic conditions, and Ntakolia et al. [13] focused on personalization; however, none of these approaches integrate generative AI for explainability.

Explainable AI. Recent research has emphasized transparency in AI systems [6]. Luo and Specia [7] surveyed explainability approaches for large language models (LLMs). Integrating such models bridges the gap between optimization output and human understanding through natural-language descriptions.

3. PROPOSED METHODOLOGY

A. System Architecture

The platform employs a four-layer architecture: a Presentation Layer (user interface), an Agent Orchestration Layer (coordination), an Intelligence Layer (AI and optimization), and a Data Layer (APIs and storage). This modular structure provides clear interfaces between layers and enables independent development of each component.

B. Problem Formulation

Given a set of travel configurations O = {o1, ..., on}, the objective is to maximize:

$$F(o) = w_c f_c(o) + w_e f_e(o) + w_p f_p(o) \quad (1)$$

where fc, fe, and fp are normalized scores representing cost-effectiveness, environmental sustainability, and preference satisfaction, respectively, and the weights satisfy wc + we + wp = 1. The optimization is subject to: C(o) ≤ Bmax (budget constraint), Tstart ≤ tdeparture ≤ Tend (date constraints), and additional logical-consistency constraints.

Published by :
https://www.ijert.org/
An International Peer-Reviewed Journal

International Journal of Engineering Research & Technology (IJERT)
ISSN: 2278-0181
Vol. 15 Issue 07 , July - 2026

Eduscholar AI - Ai-powered Scholarship Recommendation System

Dr. K. Mahesh
Associate Professor
Department of CSE(AI&ML)
CMR TECHNICAL CAMPUS

Anees
Department of CSE (AI & ML)
CMR Technical Campus,
Kandlakoya, Hyderabad,
Telangana

Chille Nainika
Department of CSE (AI & ML)
CMR Technical Campus,
Kandlakoya, Hyderabad,
Telangana

Javeriya Nazneen
Department of CSE (AI & ML)
CMR Technical Campus,
Kandlakoya, Hyderabad,
Telangana

Abstract - In many educational institutions, students often struggle to find suitable scholarships because information is spread across multiple sources, eligibility conditions are complex, and personalized guidance is limited. EduScholar AI is a web-based scholarship recommendation system designed to address these challenges by simplifying and automating the scholarship search process. The platform allows students to create an account, log in, and enter relevant academic, financial, and personal details such as their course of study, category, family income, and achievements. Using this information, the system evaluates eligibility requirements and suggests scholarships that best match each student's profile.

Machine learning techniques are used to compare student data with available scholarship schemes, improving recommendation accuracy while reducing manual effort. The system also includes an administrative module through which authorities can manage scholarship records, track user activity, and update eligibility criteria using a centralised dashboard. Analytical tools such as charts and reports provide insights into application patterns and student participation. Through providing tailored suggestions and maintaining transparency in accessing information, EduScholar AI enhances awareness, equity, and efficiency in the distribution of scholarships, which will provide equity and equality in education and governance through digital means.

Keywords: Scholarship Recommendation System, Artificial Intelligence, Machine Learning, Personalized Learning, Educational Technology, Digital Governance

I. INTRODUCTION

Finding the right scholarship is a common challenge for students in many educational institutions. Information about scholarships is often spread across different platforms, eligibility rules can be difficult to understand, and there is very little personalized guidance available. Most students still depend on manual methods such as browsing multiple websites, checking notice boards, or visiting college offices. These approaches are timeconsuming and sometimes confusing, which can cause deserving students to miss out on scholarships that suit their academic profile or financial situation.

With the increasing use of digital platforms in education, there is a growing need for smarter systems that can simplify the scholarship search process. EduScholar AI has been developed to meet this requirement by offering a web-based solution that provides personalized scholarship recommendations. Students can enter their academic details, financial background, and personal information, allowing the system to accurately assess eligibility and suggest relevant scholarship options. This reduces the effort required for manual searching and improves decision-making.

The system is built around three main user roles: Student, Administrator, and Scholarship Authority. Students keep their profiles and get personalized suggestions of scholarships, administrators control the work of the system and data correctness, and scholarship authorities update the information about scholarships and their requirements. Analysis of student information and corresponding it to appropriate scholarship programs is done using machine learning methods to enhance accuracy and relevance.

Overall, this approach reduces manual work while promoting transparency, accessibility, and