

VOLUME 03 | ISSUE 01 | MAY 2025

DEPARTMENT OF
INFORMATION TECHNOLOGY

it CHRONICLES

THE OFFICIAL STUDENT TECH MAGAZINE

INNOVATE.
IMPLEMENT.
INSPIRE.



INNOVATIVE
IDEAS



YOUNG
MINDS



SMART
SOLUTIONS



BETTER
TOMORROW

Exploring Ideas. Building Solutions. Creating Impact.



Institute Vision

To become a globally recognized institution that develops professionals with integrity who excel in their chosen domain making a positive impact in industry, research, business and society



Institute Mission

- To provide the ambience necessary to achieve professional and technological excellence at the global level.
- To undertake collaborative research that fosters new ideas for sustainable development.
- To instill in our graduates ethical values and empathy for the needs of society.

Department Vision

“To become a globally recognized centre of excellence in the field of Information Technology, providing technology excellence that advances learning, teaching, research to produce budding IT professionals, researchers, innovators and entrepreneurs.”

Department Mission

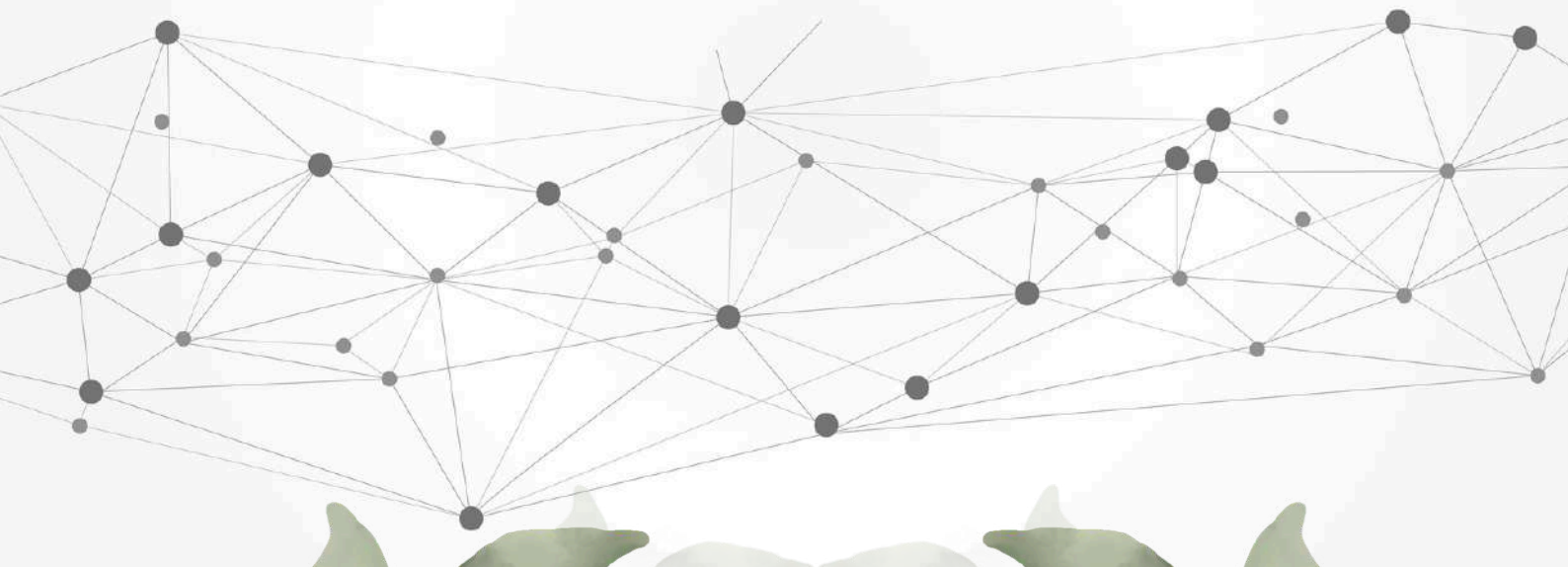
- Produce graduates with the best knowledge and practical skills by imparting innovative skills, research aptitude, ethics, and social responsibility.
- To create ambience of academic excellence through state of the art infrastructure and learner centric pedagogy leading to employability, and research.
- Imbibe and in still in them the required qualities to become leaders who can make positive contribution to the society.
- Enhance the student’s knowledge in the latest technologies by organizing and participating in technical programs
- Interact and work closely with industries and research organizations to accomplish technology transfer

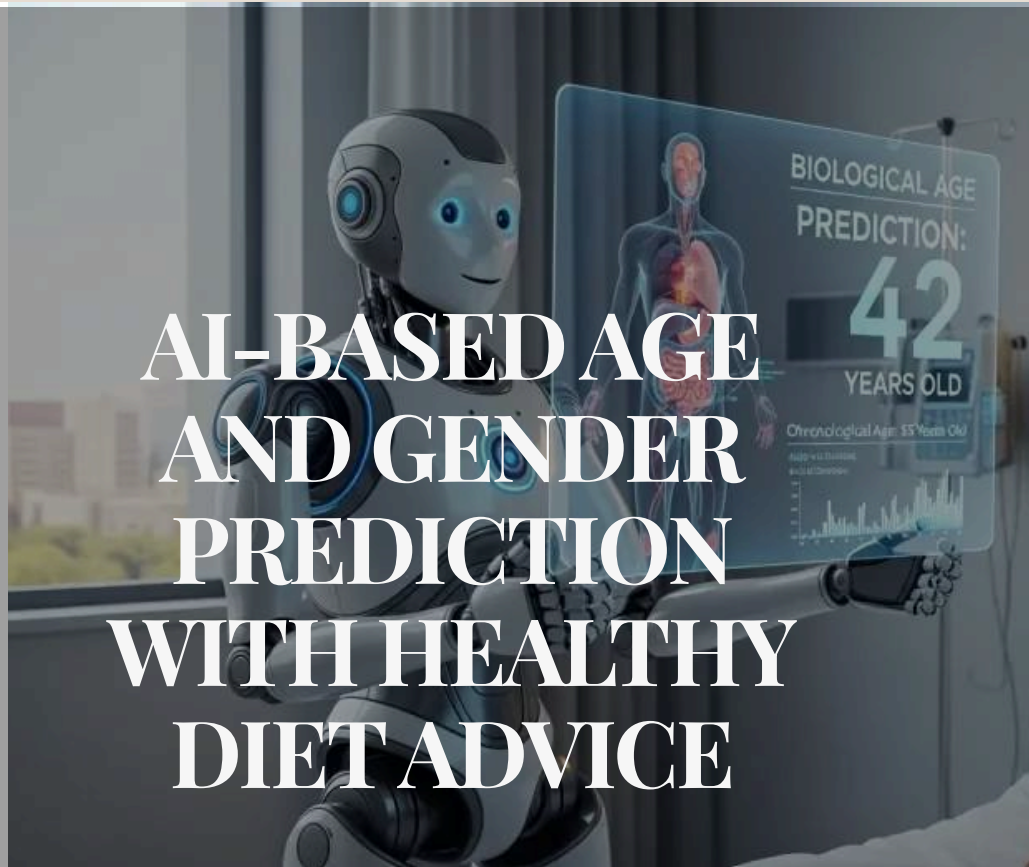
UTCHRONICLES

2024-25



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AI-BASED AGE AND GENDER PREDICTION WITH HEALTHY DIET ADVICE



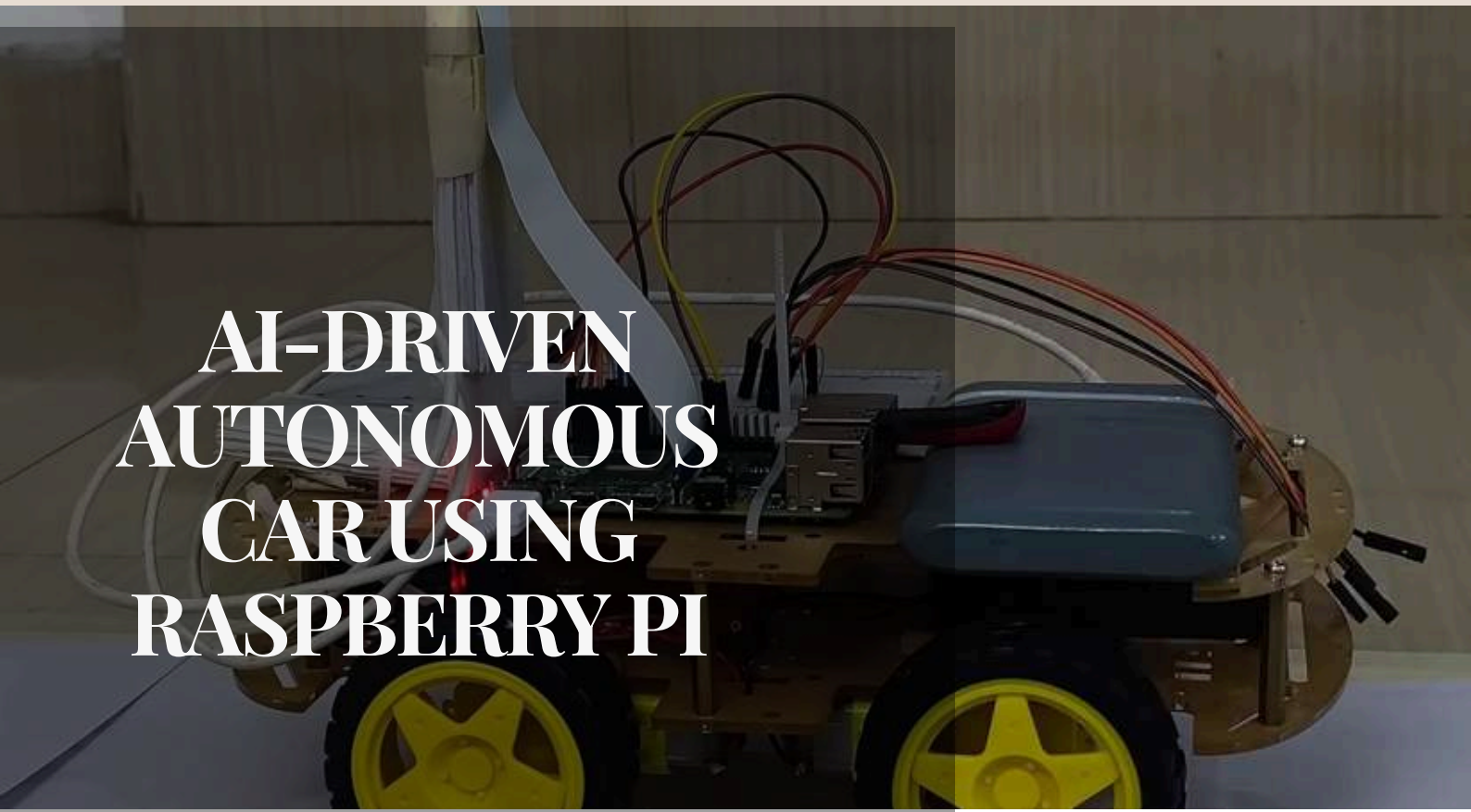
ABSTRACT

This mini project utilizes the power of artificial intelligence to predict a person's age and gender from facial images, followed by the provision of personalized diet recommendations based on the predicted age group. By using webcam the system can accurately classify facial images and categorize individuals into age groups such as children, teenagers, adults, and seniors. Once the system predicts the age and gender, it generates tailored diet advice designed to meet the specific nutritional needs of the individual. For example, children may receive suggestions for calcium-rich foods to support bone development, teenagers could be advised to focus on balanced proteins to support growth, adults may be encouraged to consume fibre-rich foods for heart health, and seniors might be guided toward anti-inflammatory foods to maintain joint and bone health. This integration of AI with personalized health advice demonstrates a scalable solution that can be deployed in various real time applications, such as mobile health apps, wellness platforms, or edge devices like IoT gadgets, providing users with instant and relevant health guidance. The system's ability to offer these insights without requiring vast amounts of data makes it suitable for wide accessibility and real-time use, enhancing healthcare, wellness, and nutrition services. This technology not only ensures a high degree of personalization but also opens up new avenues for virtual wellness assistants, telemedicine, and personalized health marketing, offering a practical, data-driven approach to improving health outcomes globally.

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AI-DRIVEN AUTONOMOUS CAR USING RASPBERRY PI

ABSTRACT

Autonomous driving technology has revolutionized transportation, offering safer and more efficient mobility solutions. This project aims to develop a cost-effective self-driving car prototype using Raspberry Pi, integrating advanced autonomous driving functionalities to enhance safety, navigation, and data collection. By leveraging computer vision techniques and sensor-based control mechanisms, the system ensures real-time decision-making for navigation and obstacle avoidance.

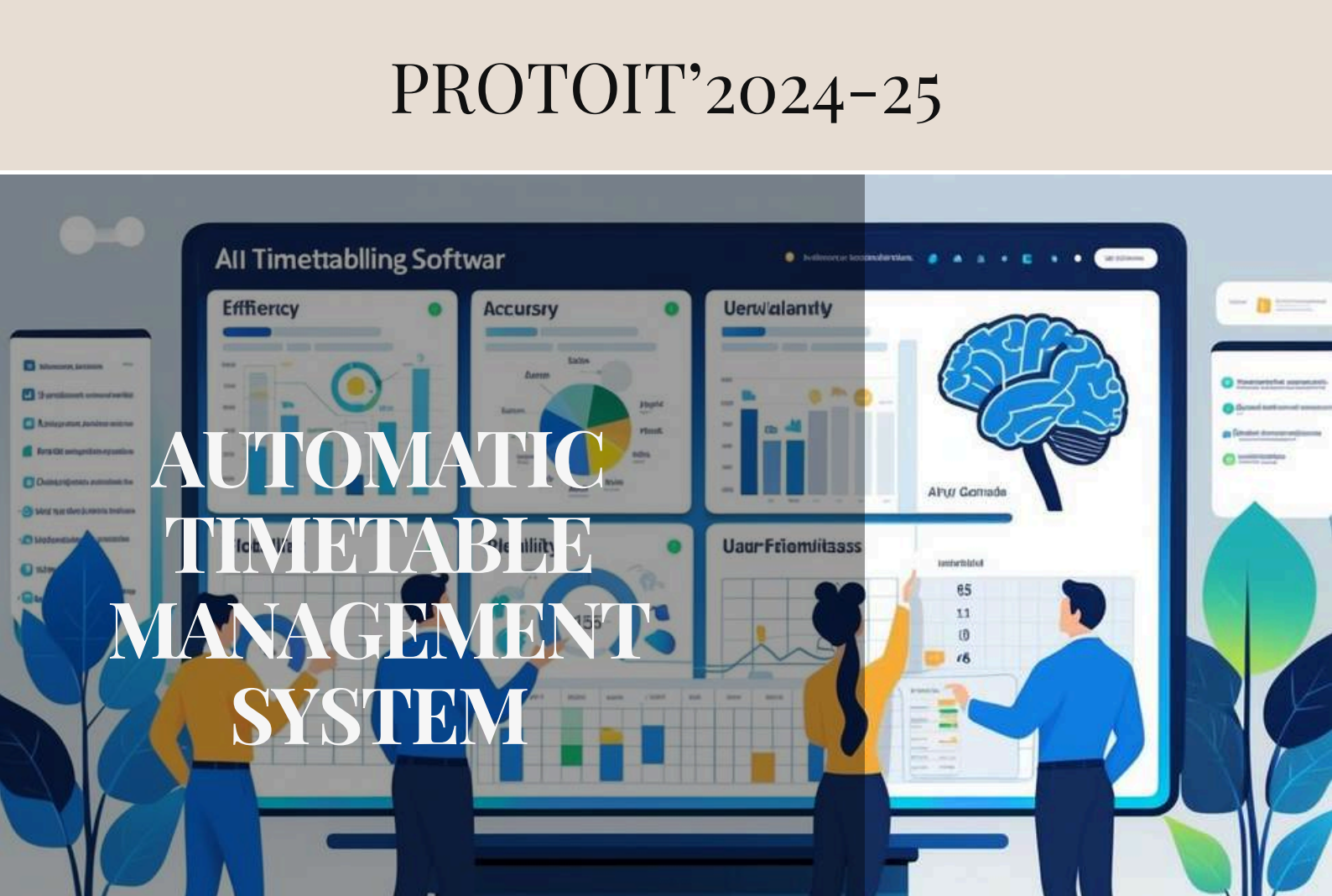
One of the key features of this project is lane detection, which enables the vehicle to maintain proper alignment within road boundaries, ensuring a structured and collision-free driving experience. Additionally, traffic signal and stop sign recognition allow the vehicle to adhere to traffic rules, stopping at intersections and designated locations when required. These functionalities contribute to improved road safety by reducing human error and enforcing traffic compliance autonomously.

To achieve these capabilities, the system employs a Raspberry Pi 4B as the primary processing unit, working in conjunction with a Raspberry Pi 5V camera for lane detection, traffic signal recognition, and object detection. HC-SR04 ultrasonic sensors are strategically placed on the vehicle for real-time obstacle detection and avoidance, preventing collisions in dynamic environments. The L298N motor driver controls the geared DC motors, ensuring smooth acceleration, deceleration, and turning maneuvers.

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AUTOMATIC TIMETABLE MANAGEMENT SYSTEM

ABSTRACT

This project develops an Automatic Timetable Management System to streamline academic scheduling in educational institutions by automating the creation of conflict-free timetables. It addresses inefficiencies of manual scheduling, such as time consumption, resource mismanagement, and conflicts, using advanced algorithms and a user-friendly interface. The system incorporates role-based access control, allowing administrators to input and modify timetables, teachers to indicate availability and request changes, and students to view and print schedules. Key features include automated timetable generation, flexibility and scalability, and a secure, user-friendly interface. By ensuring optimal resource allocation and adherence to institutional constraints, the system reduces administrative workload and improves communication.

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BITMATE: AI ANIMATED VOICE ASSISTANT

ABSTRACT

This mini project aims to develop an animated virtual assistant overlay using Python, providing an interactive and visually appealing solution to enhance user assistance. The system features a custom character that remains as an always-on-top transparent overlay to guide users and simplify tasks. The virtual assistant utilizes Pygame for graphics and animation, while PyWin32 ensures transparency and topmost behavior. Key features include character animations, mouse click responses, and audio guidance through text-to-speech technologies like pyttsx3 or gTTS. Task automation using PyAutoGUI allows the assistant to perform predefined actions such as typing or controlling the cursor. Speech recognition enables voice commands, making the system highly interactive.

Additional functionalities include file management for navigating and performing operations like deletion, renaming, and copying, voice-controlled browser navigation for hands-free web surfing, and ChatGPT model integration for answering user queries. The project also emphasizes accessibility for blind users, leveraging voice-controlled features and audio guidance, and support for programmers by automating repetitive coding tasks and providing instant access to resources. The system is evaluated based on responsiveness, animation smoothness, and usability. This project demonstrates the potential of combining graphical and interactive technologies to advance human-computer interaction.

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ABSTRACT

Air pollution is a growing environmental concern that impacts both human health and the ecosystem. Traditional methods of monitoring air quality often rely on manual data collection and centralized monitoring stations, which are expensive and limited in coverage. The advent of the Internet of Things (IoT) has facilitated the development of more efficient and widespread air pollution detection systems. This paper proposes a system for real-time air pollution detection using IoT sensors that measure various air quality parameters such as particulate matter (PM2.5 and PM10), carbon dioxide (CO₂), nitrogen dioxide (NO₂), and ozone (O₃). The system leverages low-cost, wireless IoT sensors to collect data continuously, which is then transmitted to a central cloud-based platform for analysis and visualization. The use of IoT enables not only real-time monitoring but also the ability to track pollution levels across different geographic locations, providing a more comprehensive understanding of air quality trends. The integration of mobile applications allows users to access real-time air quality information, thus raising awareness and encouraging informed decisions. The system also offers potential for early warnings of hazardous air quality conditions, helping to mitigate health risks and environmental damage. The proposed approach demonstrates the potential of IoT in advancing environmental monitoring and air quality management through cost-effective and scalable solutions.

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TOC22IT015



WEB BASED DEPARTMENT LIBRARY MANAGEMENT SYSTEM

ABSTRACT

This project focuses on developing a Department Library Management System, aimed at optimizing the library's operations for educational institutions. The application will enable users, including students and faculty, to efficiently access, borrow, and manage academic resources. Key features include a robust catalog system that organizes books, journals, and digital materials by categories, subjects, and authors. The software incorporates advanced search capabilities, allowing users to locate resources through keywords, titles, or authors, while providing real-time updates on availability and status. It also includes a user-friendly interface for borrowing, returning, and reserving items, with automated reminders for due dates to enhance accountability. For library administrators, the system provides functionalities for inventory tracking, late fee management, and generating analytical reports to monitor usage patterns and resource allocation. Additionally, it integrates security measures to prevent unauthorized access and ensure data integrity. By offering a centralized and accessible platform, it empowers academic communities to focus on their educational and research goals, aligning with the institution's vision of promoting knowledge and learning.

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EDITORIAL TEAM

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