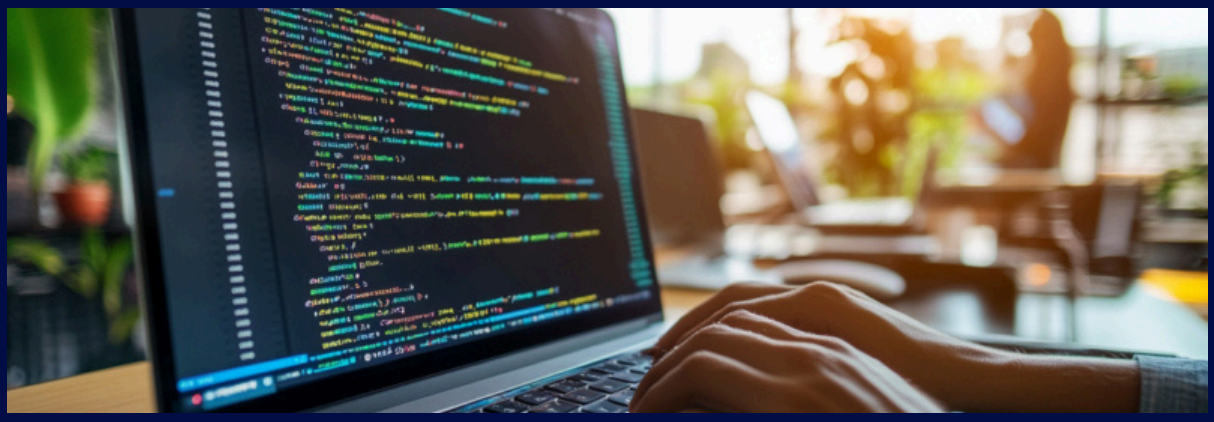
2024-25

INNOVATE INSIGHT MAGAZINE

Vasantdada Patil Pratishthan's
College of Engineering and Visual Arts
NAAC Accredited with A Grade

DEPARTMENT OF COMPUTER ENGINEERING

NBA ACCREDITED (Dated 01/07/2024 to 30/06/2027)



VISION

VISION

To develop a center of excellence in computer engineering and produce globally competent engineers who contribute towards the progress of the engineering community and society as a whole.

MISSION

MISSION

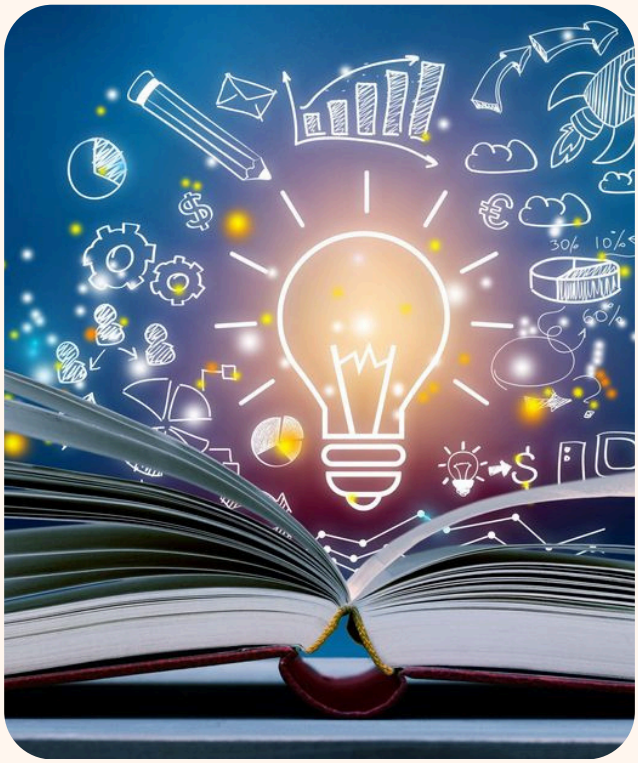
- To provide students with diversified engineering knowledge to work in a multidisciplinary environment.
- To provide a platform to cultivate research, innovation, and entrepreneurial skills.
- To produce world-class computer engineering professionals with moral values and leadership abilities for the sustainable development of society.

PEO's and PSO's

PEO's

After 3 to 4 years of graduation, the graduates will be :

- To create graduates with sound fundamental knowledge of computer engineering.
- To enhance students' skills towards emerging technologies to propose solutions for engineering problems and entrepreneurial pursuits, making them employable.
- To produce technology professionals with ethical values and commitment to lifelong learning.



PSO's

- Graduates of programme will be able to provide effective and efficient real time solutions using practical knowledge in Computer Engineering domain.
- Graduate of programme will be able to use engineering practices, strategies and tactics for the development, operation and maintenance of software system.

PRINCIPAL'S MESSAGE

Dear Readers,

It gives me immense pride to share that our institution continues to uphold the highest standards of quality, being accredited by both NBA and NAAC — a true testament to our commitment to excellence in education.

We believe in preparing our students not only with knowledge but also with the skills and confidence to excel in the professional world. Our Training & Placement Cell actively organizes mock drives, specialized training programs, and workshops, ensuring every student is industry-ready.

It is a matter of great joy that the Computer Engineering Department has been honored as the Best Department of the Year 2024–2025, and also celebrated an early Placement Start of the year — a result of the dedication of both faculty and students.

I am equally proud of our faculty members, who are relentlessly engaging in innovative research, creating valuable opportunities for students to explore, learn, and grow.

As we continue our journey towards academic and professional excellence, I extend my heartfelt wishes to all students, faculty, and stakeholders. May we keep striving for higher achievements and greater milestones together.

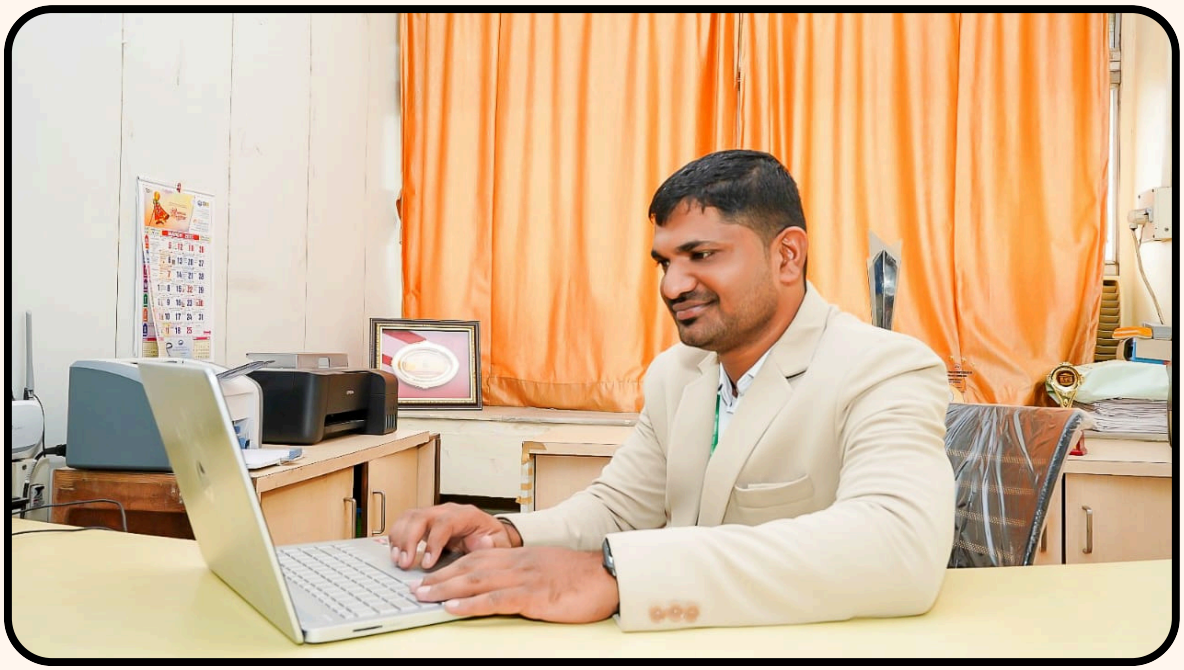
Wishing everyone the very best!

Best regards,

Dr. Alam N. Shaikh
Principal
VPPCOE & VA

HOD'S MESSAGE

It is a great honor to present the annual magazine, "Innovate Insight 23." The Department of Computer Engineering holds NBA accreditation valid until June 2027. This department is lively and progressive, combining the energy of young faculty with the wisdom of experienced educators. We are actively engaged in both academic and research endeavors across current fields of Computer Engineering and interdisciplinary areas. Our labs are well-equipped with cutting-edge software and hardware tools. Our faculty consistently contribute by publishing research papers in renowned national and international journals and conferences, and they also participate in consultancy projects. We are proud to have a team of dedicated teachers, enthusiastic students, committed support staff, and skilled technical personnel. I especially congratulate our students for their involvement in various extracurricular activities, research projects, and competitive examinations. I extend my best wishes to everyone for a bright career and a successful future.



Dr. Rais A. Mulla
Chief Editor / HOD
Computer Engineering

ABOUT OUR DEPARTMENT

The Department, led by Dr. Rais A. Mulla, provides an excellent academic atmosphere supported by a team of highly qualified and dedicated faculty members. All faculty have completed their M.E./M.Tech degrees with Distinction or First Class honors, and several are currently pursuing Ph.D. studies in cutting-edge technologies. To keep pace with evolving trends, faculty are encouraged and motivated to adopt new technologies, ensuring that the teaching and learning processes remain both informative and engaging for students. Lab assistants actively encourage students to enhance their technical skills while fostering teamwork. The staff also play a vital role in guiding students toward achieving their career aspirations.

We take pride in announcing that the Computer Engineering Department has received accreditation from the National Board of Accreditation (NBA) and National Assessment and Accreditation(NAAC), a prestigious recognition of our dedication to educational excellence, rigorous academic standards, and ongoing improvement. To bridge the gap between academia and industry, our department collaborates with renowned organizations such as EC-Council, Blocklogy, and Ekeeda Pvt. Ltd. In partnership with EC-Council, we offer specialized training programs in Cyber Security, Ethical Hacking, and Digital Forensics.

Our curriculum is designed to provide a strong theoretical foundation along with practical exposure in areas like Advanced Operating Systems, Soft Computing, Big Data & Analytics, Data Science, Distributed Computing, and Image Processing. We regularly conduct seminars, workshops, technical festivals, and training sessions on the latest topics to broaden students' interests and skills. Additionally, expert lectures, webinars, industrial visits, and national-level quiz competitions are organized to deepen students' knowledge.

The department is committed to nurturing confident professionals who are ready for real-world challenges. As a result, many of our students secure placements in reputed companies with attractive salary packages. Furthermore, students have the opportunity to enhance their industry-relevant skills by enrolling in online courses offered by platforms such as SWAYAM-NPTEL and Infosys Springboard.

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1. WOMEN SAFETY APP-AN ANALYTIC APPROACH TOWARDS PROTECTION

Women's safety remains a critical global concern, with millions experiencing harassment, assault, and various forms of gender-based violence. According to the United Nations, nearly one-third of women face physical or sexual violence during their lifetime, and countless others endure verbal harassment, stalking, or intimidation. These incidents not only threaten physical well-being but also cause deep psychological and social harm, restricting women's freedom and opportunities.

Fig.1.1 Workflow of the app

Traditional safety measures such as physical patrols, CCTV surveillance, and reactive policing have often been inadequate due to delayed responses, underreporting, and social stigmas surrounding safety issues. In response, a growing collaboration among researchers, governments, and technologists is driving the development of proactive, technology-driven solutions aimed at improving women's security in public spaces.

This paper presents a novel real-time security framework designed to enhance women's safety through an integration of multiple advanced features. The system offers live tracking of potential offenders and victims, automated identification using citizen databases, and intelligent responses to critical situations—such as monitoring lone women in isolated areas, intervening proactively when women are surrounded by groups of men, and employing motion recognition to detect distress signals.

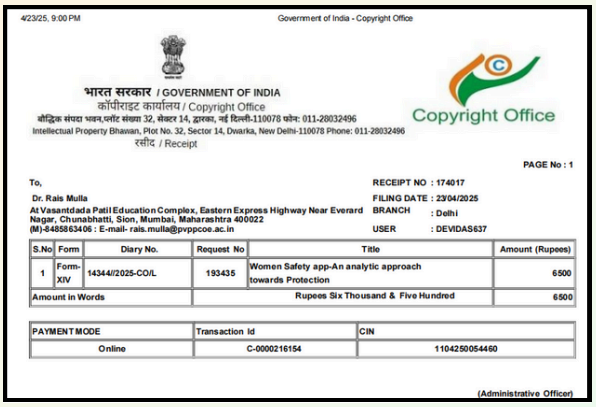

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Fig.1.2 Copyright Certificate

Additionally, the framework integrates crime hotspot data into Google Maps, providing safer route suggestions for users. By leveraging AI, IoT devices, and data analytics, the system anticipates and prevents incidents before they escalate, ensuring timely assistance and reducing crime risks in urban environments. Complementary community-driven platforms empower users to report unsafe areas and share real-time alerts, fostering greater awareness and collective vigilance.

While these technological advances offer promising improvements in women's safety, they also raise important concerns related to data privacy, ethical deployment, and equitable access across diverse socioeconomic settings. This paper discusses these challenges and emphasizes the need for responsible implementation to create a safer and more inclusive environment for women worldwide.

2. EDUTRACK: A COMPREHENSIVE LEARNING MANAGEMENT SYSTEM USING DJANGO FRAMEWORK

Education is the cornerstone of individual growth and societal progress. Yet, many academic institutions still rely on outdated or fragmented systems to handle essential tasks like course enrollment, grading, and student tracking. These disconnected tools often lead to inefficiencies, redundant data entry, and slow administrative processes.

EduTrack, a modern Learning Management System built on the Django web framework, addresses these challenges by integrating all core academic and administrative functions into a single, user-friendly platform. It allows educators to create and manage courses, track attendance, and distribute assignments seamlessly, while students gain 24/7 access to learning materials, quizzes, and resources.

What sets EduTrack apart is its incorporation of artificial intelligence. Its AI-powered chatbot, trained on individual instructors' teaching styles, offers personalized support and explanations, enhancing student engagement beyond traditional classroom hours. Additionally, built-in analytics provide educational institutions with valuable data-driven insights, enabling better decision-making on resource allocation and teaching strategies.

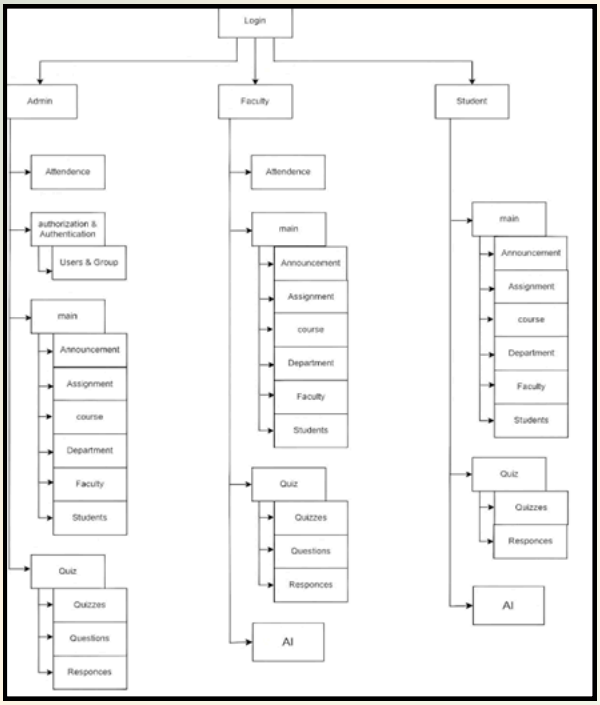
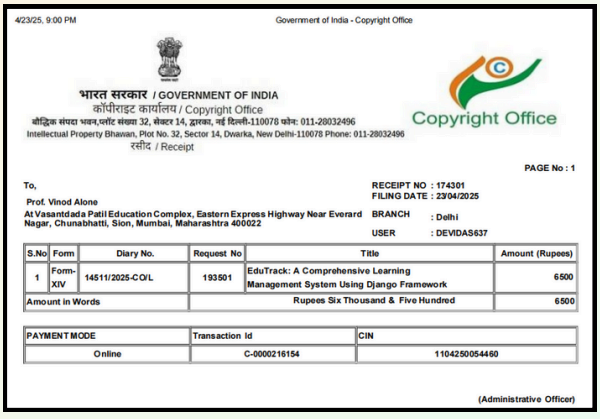


Figure 2.1 : Flowchart



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With a secure, modular architecture supporting different user roles—from students to administrators—EduTrack streamlines workflows and fosters a dynamic, interactive learning environment. By combining efficiency, personalization, and smart analytics, EduTrack is redefining the future of digital education.

3. A FLEXIBLE ANGULAR-BASED SOLUTION FOR REAL-TIME LEAD DATA MANAGEMENT AND EXPLORATION

In today's data-driven business environment, managing and analyzing lead data effectively is crucial for accelerating sales pipelines and fostering lasting customer relationships. However, many popular CRM platforms are often costly, complex, or require technical expertise, limiting accessibility for non-technical sales and marketing staff. Addressing this gap, this study introduces a scalable, intuitive web application built with Angular, Node.js, and MongoDB designed to empower users to explore, filter, sort, and export lead data independently.

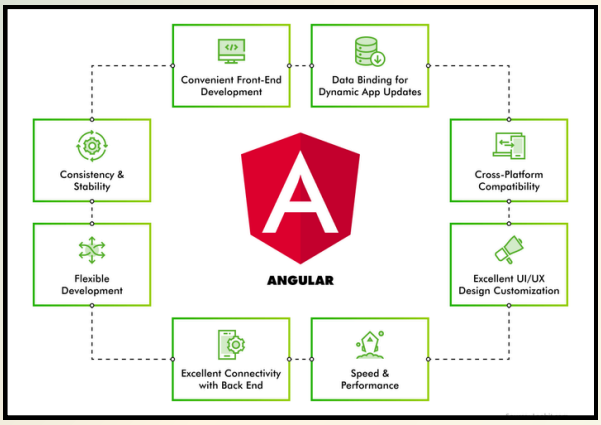
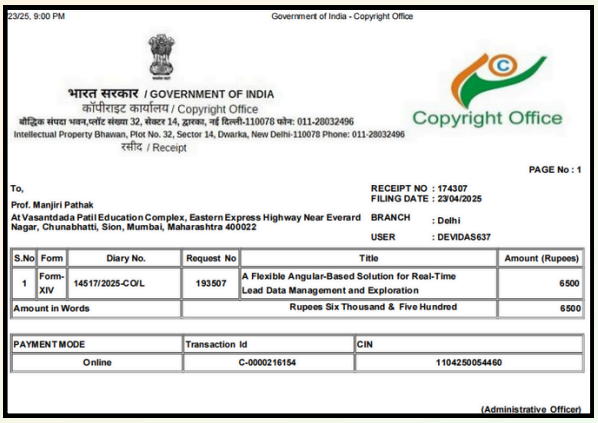


Figure 3.1 : Sample Architecture

The application features a clean, component-based Angular frontend that delivers dynamic dashboards and tables, supported by a Node.js Express backend enabling real-time, concurrent data handling. MongoDB's flexible NoSQL structure accommodates diverse lead information such as contact details, locations, and custom tags, allowing fast search and filtering capabilities. This system liberates non-technical teams from relying on IT experts for routine data operations, enabling rapid segmentation and real-time insights without coding or scripting.



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(Administrative Officer)

By granting autonomy to sales and marketing teams, the platform accelerates decision-making, enhances campaign responsiveness, and streamlines data integration through export options in CSV and JSON formats. Future expansions aim to incorporate advanced security features, offline access, and predictive analytics—all while maintaining simplicity at its core.
This Angular-based solution bridges the gap between technical complexity and user experience, offering organizations a practical tool to harness their growing lead data effectively and foster a truly data-driven sales culture.

4. ROLE OF MACHINE LEARNING TO CHECK THE GUAVA FRUIT QUALITY

With rising global demand and a growing emphasis on high-quality produce, the fruit industry is under increasing pressure to modernize its processing techniques. India, which leads the world in guava production—accounting for nearly 40% of global output—faces the challenge of meeting these demands efficiently and sustainably. Traditional fruit grading methods, such as manual sorting and semi-automated machinery, fall short in terms of speed, accuracy, and scalability. They are labor-intensive, error-prone, and ultimately result in increased waste and reduced profitability.

To address this, a fully automated fruit grading system has been developed, leveraging machine learning and computer vision technologies. Specifically designed for grading guavas, the system classifies fruits into three categories—best, average, and worst—based on features such as texture, color, size, and shape. At the core of this innovation lies a Convolutional Neural Network (CNN), enhanced with other machine learning models like SVM, KNN, Naive Bayes, Logistic Regression, and Random Forest to ensure robust performance and high accuracy.

The system is trained on a dataset of over 3,000 labeled images of guavas, enabling precise classification. Integrated hardware—such as cameras, sensors, conveyor belts, and servomotors—handles the physical automation of the sorting process. To make the technology user-friendly and accessible, a web application built with React.js, FastAPI, and SQLite allows users to monitor and analyze the grading process in real time.

This innovation not only boosts productivity but also promotes sustainability and environmental responsibility by minimizing waste and reducing manual labor. With its emphasis on real-time analysis, cost-efficiency, and scalability, this AI-powered grading system is poised to transform fruit processing—especially in guava-dominant regions—by delivering consistent quality, faster output, and smarter agricultural practices.

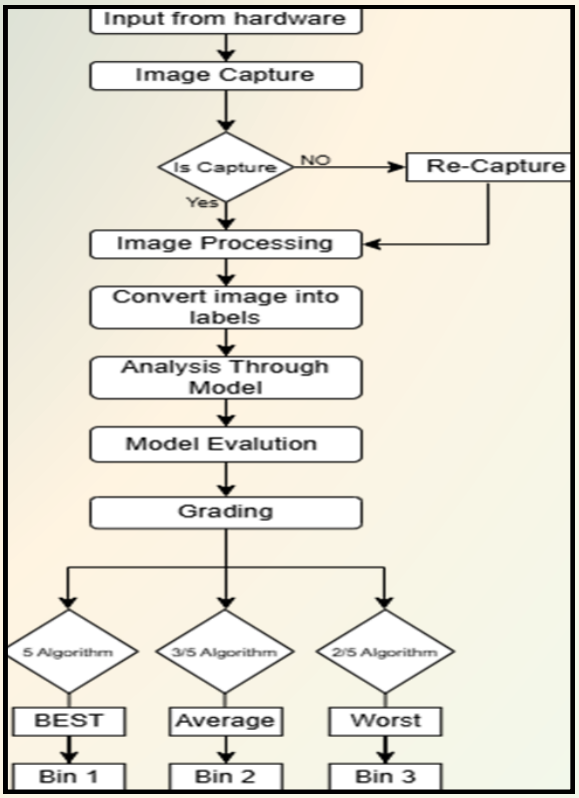

Fig. 4.1: Flowchart of Fruit Grading Process


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Paper ID-207: Role of Machine Learning to check the Guava Fruit Quality

in the Sixteenth International Conference on Computing, Communication and Networking Technologies (ICCCNT 2025), held at IIT Indore, in association with the IEEE Electronics Packaging Society and the All India Council for Technical Education (AICTE), during July 6th to 11th, 2025.

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5. GRAPHICAL PASSWORD AUTHENTICATION WITH CAPTCHA INTEGRATION: A SECURE AND USER-FRIENDLY APPROACH

Traditional text-based passwords face increasing threats from brute force attacks, phishing, and password reuse vulnerabilities. Graphical passwords offer a promising alternative by leveraging human visual memory, making them easier and more natural to recall than text passwords. However, graphical password systems are not without flaws—they remain susceptible to attacks such as shoulder surfing and spyware due to the nature of their input methods.

To address these limitations, this paper proposes an improved graphical password authentication system that integrates CAPTCHA (Completely Automated Public Turing test to tell Computers and Humans Apart) to prevent automated and distributed attacks by bots. This hybrid approach aims to balance usability—through the user-friendly nature of graphical passwords—with enhanced security, by incorporating CAPTCHA's resistance to automated threats.

Previous research has shown the advantages of graphical passwords in usability and security, with techniques evolving to counter threats such as shoulder surfing, replay attacks, and unauthorized access through multi-factor layers and biometric integration. Recent innovations include multi-line grid algorithms, blockchain-enhanced verification, and various strategies to strengthen shoulder surfing resistance.

Building on this foundation, the present work introduces CAPTCHA into the graphical password framework, resulting in a robust authentication mechanism that strengthens security without severely compromising usability. The system is designed, implemented, and evaluated as a user-centric solution, providing a secure and accessible method to meet modern authentication challenges against both human adversaries and automated attacks.

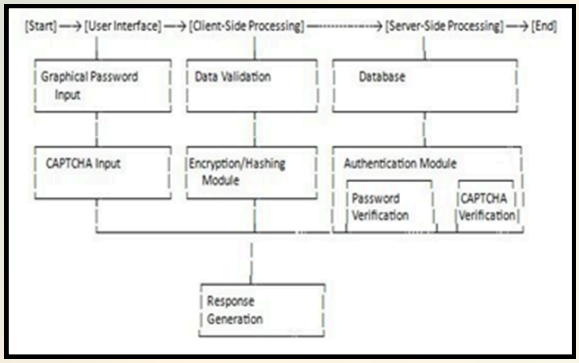


Figure 5.1: System Workflow

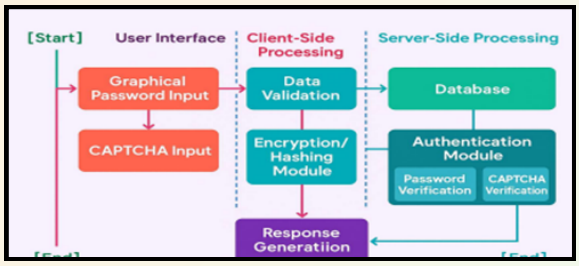


Fig. 5.2: Block Diagram of the System

6. PLANT DISEASE DETECTION USING ENSEMBLE METHODS

Plants are indispensable to agriculture, providing essential resources like food and oxygen. However, plant diseases threaten global crop yields, causing significant economic losses and impacting human and animal health. This study tackles the urgent need for efficient disease management by developing an advanced automated detection system powered by deep learning.

Using an extensive dataset of over 87,000 images from Kaggle, researchers trained cutting-edge convolutional neural networks (CNNs) — including VGG-19, Xception, MobileNetV2, and DenseNet201 — to accurately identify 38 different plant diseases affecting key crops such as apples, blueberries, cherries, grapes, potatoes, and tomatoes. These diseases, ranging from black rot in grapes to leaf scorch in strawberries, pose serious risks to food security and farmers' livelihoods worldwide.

Traditional manual inspection methods are time-consuming, error-prone, and impractical for large-scale farming, especially in developing countries. By contrast, this AI-driven model enables rapid, precise disease detection, empowering farmers to implement timely interventions and reduce crop damage.

The study's results demonstrate exceptional accuracy, outperforming existing models and highlighting the transformative potential of machine learning in agriculture. This breakthrough paves the way for smarter, data-driven farming practices that promote sustainability, improve crop health, and ensure a more secure food supply for the future.

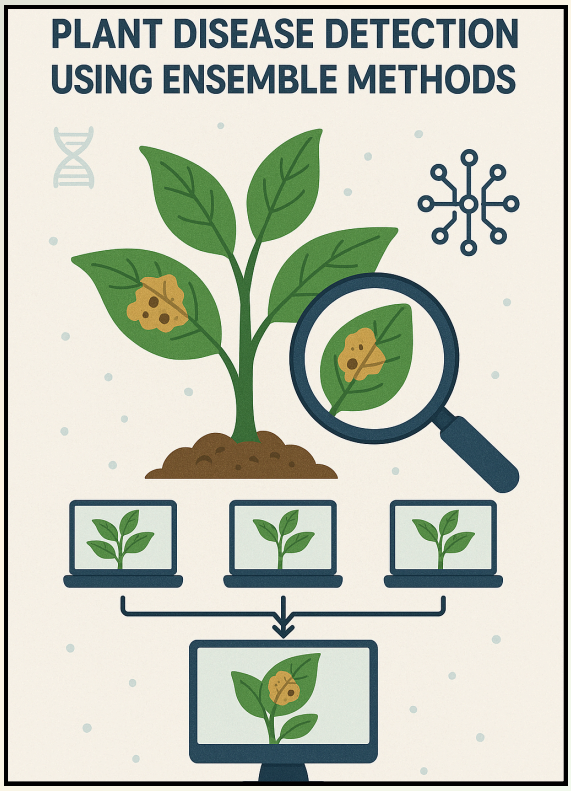
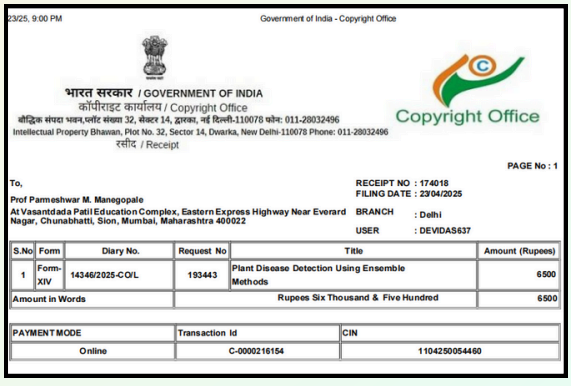


Fig. 6.1: Block Diagram of the System



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7. MIND MATE: A DIGITAL SOLUTION FOR METAL WELL BEING

Mental health is a critical component of overall well-being, influencing how individuals think, feel, and behave within their environment. Despite growing global recognition of its importance, significant barriers such as discrimination, high costs, and limited access to trained practitioners prevent many from obtaining adequate psychological support. Traditional mental health services often lack accessibility, affordability, or complementary resources such as psychoeducation, community engagement, and effective self-help tools. Additionally, privacy concerns and stigma discourage many potential users from seeking help through digital platforms.

MindMate is an innovative digital platform designed to bridge these gaps by providing a unified, accessible, and stigma-free environment for mental health exploration and support. Integrating scientifically validated assessments and interactive quizzes, MindMate offers users personalized insights into their mental well-being—highlighting strengths and vulnerabilities. It combines user-centered design, mental health expertise, and technological innovation to enhance engagement and effectiveness.

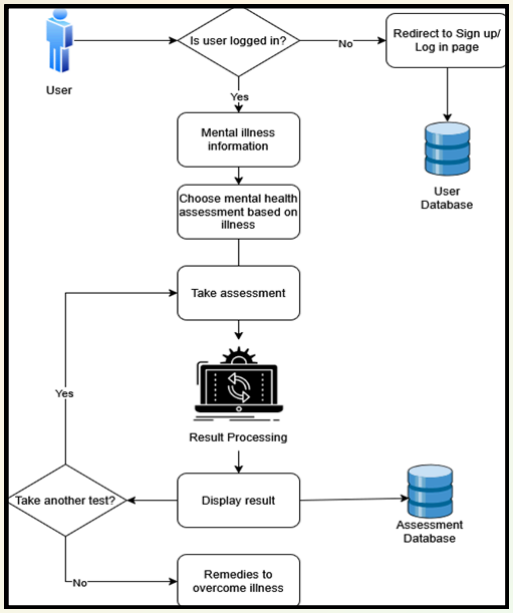

Figure 7.1: System Architecture

The platform empowers users by providing tailored recommendations to manage stress, regulate emotions, and practice mindfulness, thereby fostering self-awareness, emotional intelligence, and proactive help-seeking behavior. By offering psychoeducation, screening instruments, coping strategies, and community support features, MindMate supplements traditional therapy with critical services often missing in teletherapy alone.

Pilot testing and user evaluations have demonstrated that MindMate effectively lowers barriers to mental health care, especially for underserved populations or those hesitant to engage in face-to-face treatment. Its architecture emphasizes privacy and anonymity, addressing common concerns that hinder digital mental health adoption.

MindMate represents a comprehensive, evidence-based approach to mental health support, promoting self-care, reducing stigma, and expanding access to psychological resources through a simple, intuitive platform. Future enhancements aim to further improve its reach and impact, positioning MindMate as a scalable solution for contemporary mental health challenges.


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Paper ID-1528: MindMate: A Digital Solution for Mental Well-being

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8. SOIL ANALYSIS FOR CROP YIELDING

Soil forms the fundamental base for agricultural productivity, directly impacting global food security. This study analyzes soil samples to determine key physical and chemical properties such as pH, nutrient contents—including nitrogen (N), phosphorus (P), potassium (K)—organic matter, and texture. Maintaining soil pH between 6.0 and 7.5 ensures optimal nutrient availability, while sufficient organic matter improves water retention and supports beneficial microbial populations, all contributing to improved crop yields.

Understanding soil characteristics empowers farmers to make informed decisions regarding nutrient management, irrigation, and land use, thereby sustaining high yields and promoting sustainable farming practices. Identified nutrient deficiencies highlight the importance of site-specific fertilizing and soil management strategies to address regional variations in land use effectively.

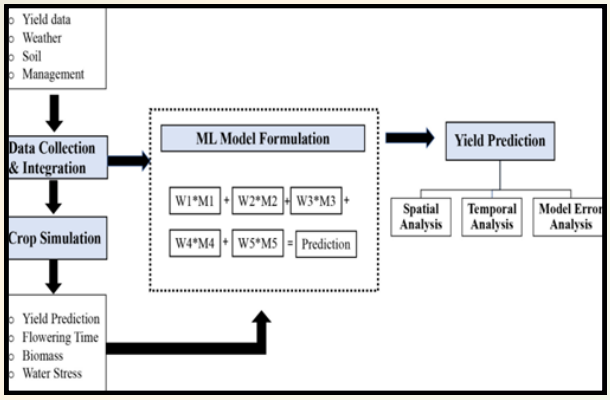
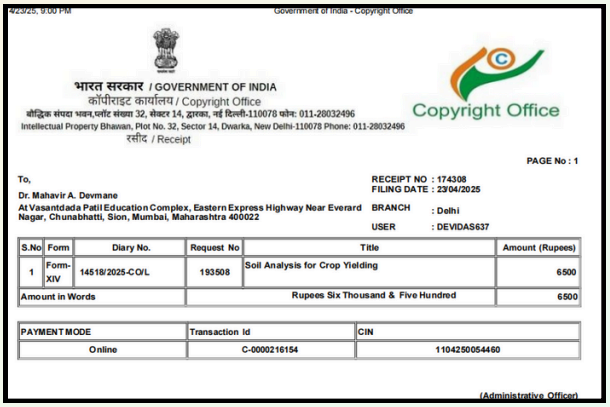


Figure 8.1: Methedology of the Project

Additionally, emerging technologies such as remote sensing and geospatial analysis offer detailed soil characterization at various scales, facilitating precise resource allocation and predictive modeling. This enhances sustainable agricultural practices and resilience to modern challenges.



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1	Form-XIV	14518/2025-CO/L	193508	Soil Analysis for Crop Yielding	6500
Amount in Words				Rupees Six Thousand & Five Hundred	6500

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(Administrative Officer)

The findings emphasize soil testing as a scientific basis for targeted interventions aimed at improving crop health, productivity, and environmental sustainability. By optimizing soil management, farmers can better meet rising food demands while ensuring long-term agricultural resilience.

9. CONTRIBUTE.IO: A COLLABORATIVE PLATFORM FOR DEVELOPERS

As software development becomes more collaborative and fast-paced, there's a growing need for platforms that go beyond basic code hosting and offer more dynamic, engaging environments for contributors. Traditional open-source platforms like GitHub and Bitbucket serve as vital repositories but often lack tools to recognize contributors meaningfully or promote continuous skill development. Contribute.io steps in to change that.

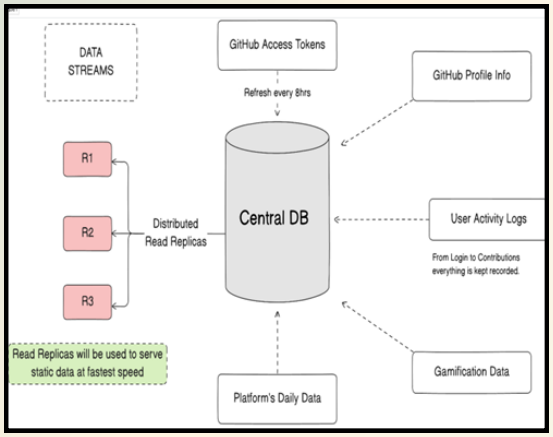

Fig. 9.1: Platform Flow Diagram

Contribute.io is an innovative platform designed to transform the open-source experience by integrating real-time collaboration, gamified learning, and a reward-based incentive system. Unlike conventional platforms that focus primarily on code sharing, Contribute.io combines project development with personal growth. Developers can improve their skills through built-in quizzes and learning modules, while their contributions are tracked and rewarded using a unique virtual currency called Contribute Coins.


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The platform introduces a performance-based ranking system that motivates users to grow and remain active in the developer community. These features not only promote engagement but also help users—especially beginners—build strong portfolios and gain recognition for their efforts in a transparent and rewarding manner.

By blending elements of gamification, project management, and social interaction, Contribute.io makes open-source contribution more than just a task—it becomes a fulfilling journey. This innovative model fosters a sense of community, encourages continuous learning, and empowers developers at all experience levels to grow, collaborate, and get rewarded. Contribute.io isn't just a tool—it's a movement toward the future of collaborative coding.

10. IOT-BASED RADAR SYSTEM

Radar technology, long valued for its critical role in navigation, surveillance, weather monitoring, and defense, is traditionally expensive and complex—limiting its use in small-scale or budget-constrained projects. However, the emergence of affordable microcontroller platforms like Arduino has revolutionized this landscape, enabling the development of cost-effective, customizable radar systems for educational, research, and practical applications.

This project explores an innovative approach to radar design using Arduino, ultrasonic sensors, and servo motors. Instead of relying on high-end radio-based radar equipment, the system utilizes an ultrasonic sensor mounted on a rotating servo motor, which scans across angles to detect object distance and movement. The sensor communicates with Arduino's digital I/O pins to collect and process data in real-time. This configuration is energy-efficient, compact, and compatible with a wide range of open-source Arduino libraries and programmers—making it ideal for students, hobbyists, and researchers.

While the detection range and resolution may be lower than advanced radar systems, the flexibility and accessibility of this setup open new doors for experimentation, especially in educational environments or prototyping scenarios. The paper also discusses current limitations such as energy efficiency, range accuracy, and integration with remote monitoring systems. Addressing these gaps could pave the way for the development of more robust and scalable Arduino-based radar solutions.

By simplifying the technology and reducing entry barriers, this work contributes to the growing field of low-cost radar systems—making cutting-edge detection tools available for a wider audience and promoting innovation in real-world applications.

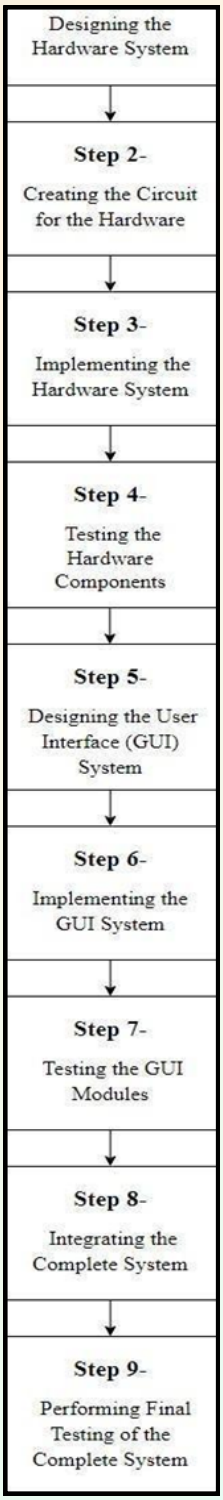

Fig.10.1: Workflow for Radar System Development

11. HEALTH WHEEL : A COMPREHENSIVE INITIATIVE FOR PROMOTING CYCLING IN URBAN AREAS

Rapid urbanization and population growth have intensified challenges like traffic congestion, poor air quality, and rising lifestyle-related health issues such as obesity and cardiovascular diseases. Sedentary lifestyles exacerbate these problems, creating an urgent need for sustainable, health-promoting solutions. Cycling stands out as a highly effective strategy to simultaneously tackle environmental and public health concerns by reducing reliance on motor vehicles, lowering emissions, and encouraging physical activity.

Despite these benefits, the widespread adoption of cycling faces obstacles including inadequate infrastructure—such as the absence of dedicated bike lanes, secure parking, and safe routes—and limited public awareness of cycling's health and environmental advantages. Addressing these gaps requires a comprehensive, integrated approach.

Health Wheel proposes a multi-faceted framework that combines the development of safe cycling infrastructure, the establishment of a community-based bike-sharing program, and targeted awareness campaigns. Partnering with local authorities and stakeholders, the initiative focuses on creating a user-friendly ecosystem where cycling is convenient, safe, and culturally embraced.

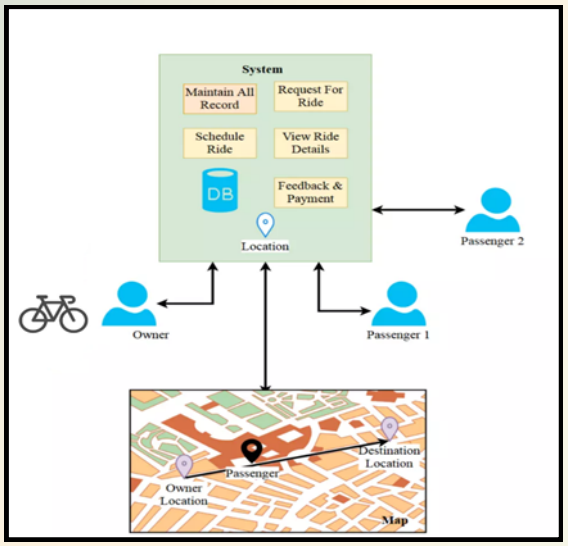

Figure 11.1: Simplified Ride Request and Management Flow


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A distinguishing feature of Health Wheel is its reliance on data-driven management, employing advanced technologies to monitor cycling usage, environmental impacts, and health outcomes. This continuous feedback loop enables adaptive improvements in infrastructure, policy, and community engagement efforts.

By fostering widespread cycling adoption, Health Wheel aims to reduce urban congestion and emissions, promote healthier lifestyles, and contribute to the creation of more livable, sustainable cities.

Prof. Asharani J Shinde
Aaryan Akhilesh Singh
Pranay Amrut Gawade
Prof. Karishma B. Shambharkar
Suraj Vijay Lawand
Aadesh Vijay Bavalekar

12. SKORE: A FLEXIBLE AND ENGAGING E-LEARNING PLATFORM

E-learning platforms have revolutionized education by offering flexibility and accessibility that traditional classroom settings often lack. However, many existing solutions suffer from static content delivery and limited personalization, resulting in reduced learner engagement and suboptimal outcomes. Addressing these gaps, Skore emerges as a modern digital learning platform designed to enhance conventional e-learning through interactive, learner-centered approaches that adapt to individual needs.

Skore offers personalized teaching methods combined with real-time performance tracking and live assessments to foster greater student interaction, retention, and achievement. Unlike typical video-based platforms, Skore integrates AI-driven feedback and customized recommendations, enabling users to navigate educational content spanning technology, business, creative arts, and self-development domains. This broad and flexible approach ensures learners from diverse backgrounds can engage with material tailored to their interests and goals.

The platform's core philosophy is rooted in providing accessible, anytime-anywhere education that supports self-paced learning—crucial for working professionals and students balancing multiple commitments. Skore's intuitive interface allows learners to set personal objectives, monitor progress, and receive certifications that reflect their mastery of skills aligned with contemporary job market demands. Furthermore, Skore supports large-scale implementations suitable for educational institutions and corporate training, delivering certified professional development programs designed by subject-matter experts.

This paper explores the design, development, and implementation strategies behind Skore, highlighting how its innovative features close the existing gap between learner expectations and current digital education offerings. By leveraging data-driven methods and multimedia content, Skore aims to create a comprehensive, engaging, and effective learning environment that prepares users not only academically but also for professional success.

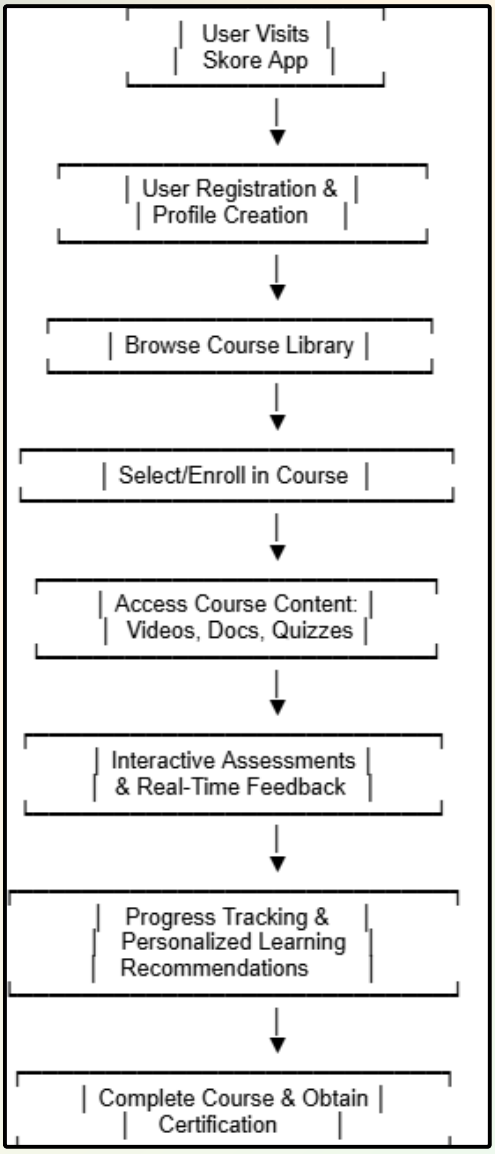

Figure 12.1: Flowchart of the Skore Platform's User Journey


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13. INSIGHT BRIDGE PLACEMENT ASSISTANCE PLATFORM

In today's fast-paced and competitive job market, both students and educational institutions face growing challenges in bridging the gap between academics and professional careers. Traditional placement processes often suffer from inefficiencies, lack of coordination, and limited student-faculty-recruiter interaction. To address these gaps, the Insight Bridge Placement Web Application has been developed as a centralized platform that enhances the entire placement experience for students, faculty, and recruiters alike.

The platform is thoughtfully designed to support three core career pathways: Higher Studies, Placements, and Start-ups. It integrates features such as job postings, resume submissions, interview scheduling, and feedback mechanisms, offering a seamless and transparent system for managing recruitment processes. More than just a job board, Insight Bridge encourages open communication between students and faculty, fosters entrepreneurial thinking, and provides valuable career guidance.

This web application not only streamlines the application and hiring process but also aims to cultivate a collaborative, growth-oriented environment. By connecting students with mentors and recruiters through an easy-to-navigate interface, it empowers them with the tools needed to succeed beyond the classroom. The platform's holistic approach supports students in preparing for higher education, launching startups, or securing employment, ultimately making them more adaptable and competitive in the modern workforce.

Insight Bridge represents a significant step forward in educational technology, offering institutions a smarter way to manage placements while equipping students with essential career development resources.

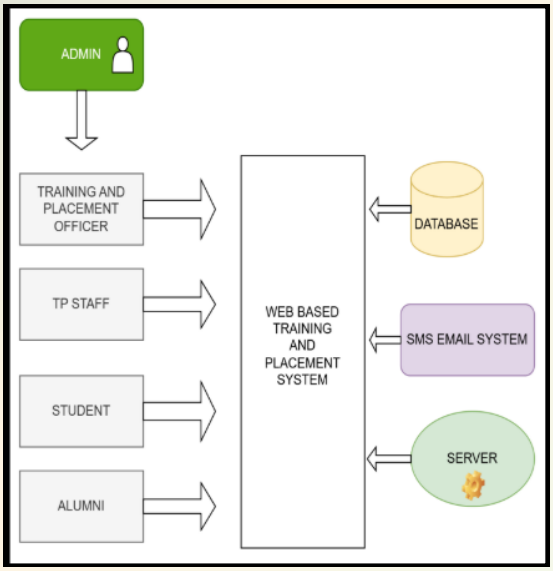

Fig 13.1:Architecture of Training & Placement System


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14. CYCLONE INTENSITY ESTIMATION SYSTEM

Cyclones rank among the most devastating natural disasters, with the potential to cause severe loss of life, property, and environmental damage. Accurate and timely prediction of cyclone intensity plays a vital role in early warning systems and disaster management. However, traditional forecasting methods rely heavily on manual interpretation of satellite imagery and meteorological data —processes that are often time-consuming and prone to human error, particularly during the early formation of storms.

To address these limitations, a new approach using deep learning—specifically Convolutional Neural Networks (CNNs)—is being introduced for cyclone intensity estimation. This system automates the analysis of satellite imagery, learning to identify crucial meteorological patterns such as cloud cover, wind structure, and pressure systems. By training on historical cyclone datasets that include both imagery and reference data, the model achieves faster and more accurate predictions than conventional techniques.

Performance evaluation using metrics like Mean Squared Error (MSE) and accuracy reveals significant improvements in prediction precision. The deep learning framework offers a scalable, real-time solution that enhances the speed and reliability of storm intensity forecasts. This advancement not only supports meteorologists but also empowers emergency response teams with better tools for early decision-making and resource deployment.

The research highlights the transformative potential of AI in climate science, setting the stage for more resilient disaster management systems. Future directions include real-time deployment and continued refinement of the model, bringing us closer to a future where machine intelligence helps mitigate the impact of natural disasters.

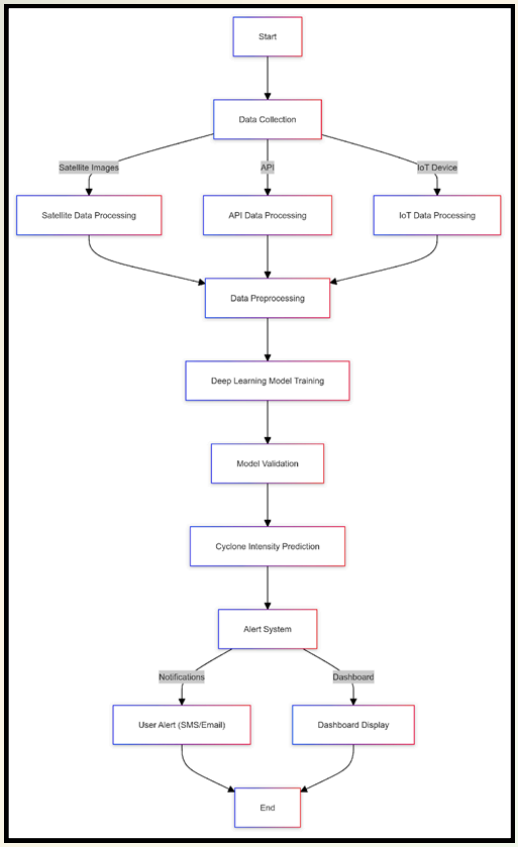

Fig 14.1 :Execution Flowchart .


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15. CLASSIFICATION OF HEART HEALTH AND EARLY DETECTION OF HEART DISEASE

In today's fast-paced world, health often takes a backseat to demanding lifestyles and mounting responsibilities. This, coupled with hereditary factors and lack of awareness, has led to an alarming rise in heart-related diseases. According to the World Health Organization (WHO), around 11 million people globally die from heart conditions each year, making early diagnosis and health awareness more critical than ever.

To address this growing health concern, the project "Classification of Heart Health and Early Detection of Heart Disease" introduces a scalable machine learning-based solution. By analyzing users' medical history and health data, the platform leverages five machine learning models to predict the likelihood of heart disease. This allows users to proactively assess and monitor their heart health without needing immediate doctor consultations—making healthcare more accessible, especially in regions with limited medical infrastructure.

Globally, there is a significant disparity in healthcare systems, particularly in developing countries where the doctor-to-patient ratio is far below the global average. For example, India has only about 12 doctors per 10,000 people compared to over 25 per 10,000 in countries like the USA. Building more hospitals and training medical staff is a time-intensive and costly endeavor. In contrast, scalable software solutions like this project offer a more immediate and cost-effective way to expand healthcare access.

Machine learning models can mimic the diagnostic thinking of experienced doctors by identifying patterns in historical health data. They can efficiently provide early warnings, assist in disease screening, and support better patient management. These digital tools also empower healthcare professionals (HCPs) by lightening their workload and improving decision-making accuracy.

By combining technology with healthcare, this system is not just a predictive model—it's a step toward democratizing early diagnosis and enhancing patient involvement. In a world where healthcare demand continues to rise, AI-powered platforms like this are crucial for building smarter, faster, and more inclusive medical solutions.

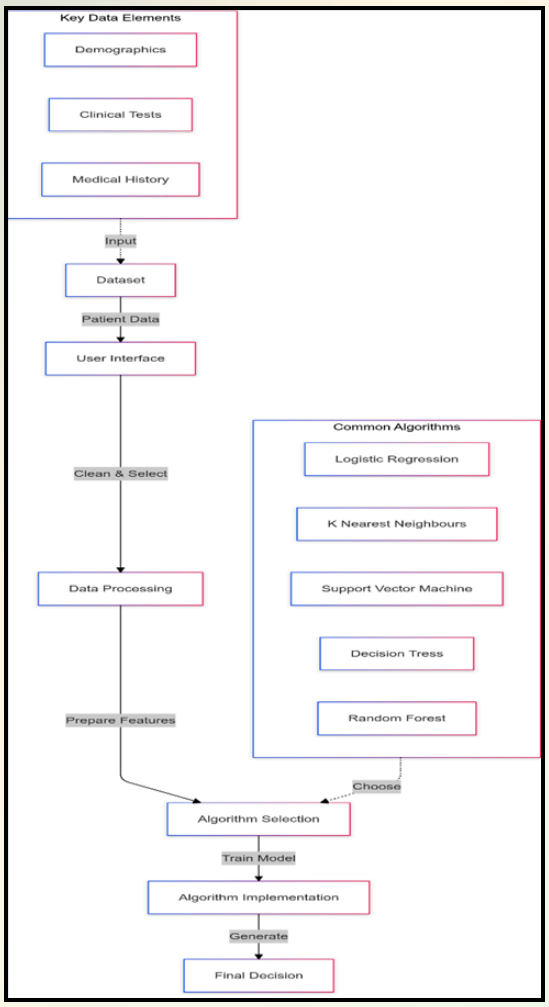

Fig. 15.1: Proposed System Architecture


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16. CRIMINAL INSIGHTS: REDEFINING FIR REGISTRATION & CRIME TREND TRACKING METHODS

In today's rapidly evolving world, the rise in both physical and digital criminal activity demands more advanced, data-driven tools for law enforcement. Recognizing this need, the Criminal Insights project offers a modern solution by leveraging machine learning (ML) to analyze and predict criminal activity patterns in specific geographic areas. The aim is to equip police and public safety departments with actionable insights that can significantly enhance crime prevention efforts.

By using historical crime data, the project applies linear regression and other ML algorithms to forecast potential hotspots of criminal activity. These predictions help law enforcement agencies anticipate high-risk zones and proactively implement safety measures. The platform also offers data visualization tools that highlight crime trends, making it easier for officers to detect patterns and respond more effectively.

Beyond predictive analysis, Criminal Insights incorporates essential utilities such as digital FIR registration and centralized data access, significantly reducing the burden of manual paperwork. These features streamline operations, improve response time, and create a more efficient data management system.

In a time where urbanization and online activities are expanding rapidly, tools like Criminal Insights become vital. By minimizing manual work and providing future-ready technology, the platform empowers law enforcement with smarter, faster, and more scalable methods for managing public safety. As students behind this project, our mission is to contribute meaningfully to crime prevention and support a safer, more secure society through the power of machine learning.

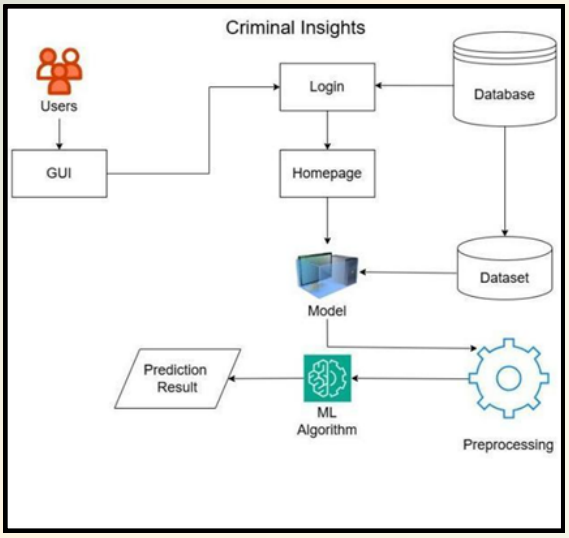

Fig. 16.1: System Architecture


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17. A GESTURE BASED HOME AUTOMATION USING RASPBERRY AND CNN

In a world increasingly reliant on smart technologies, making home environments more accessible, hygienic, and energy-efficient is essential—especially for individuals with limited mobility, visual impairments, or those living in conditions requiring minimal contact, such as during a pandemic. The Gesture-Controlled Home Automation System is a forward-thinking solution designed to meet these needs by allowing users to control home appliances using simple hand gestures.

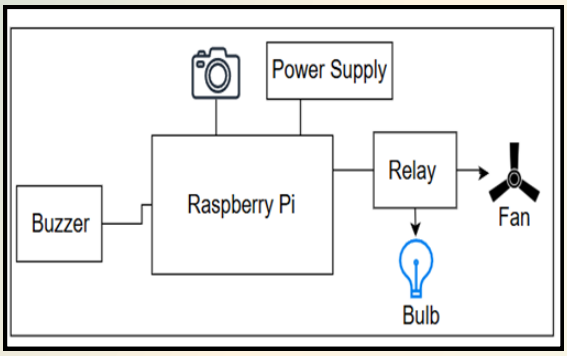

Fig.17.1: Architecture

At its core, the system uses a Raspberry Pi as a central processing unit, working with motion and orientation sensors to detect gestures in real time. These gestures are then translated into commands for smart devices, enabling control of lights, fans, temperature systems, and more—without the need for physical buttons or voice commands. This contactless interaction not only makes devices more accessible for the elderly and differently abled but also supports better hygiene in public or shared spaces.

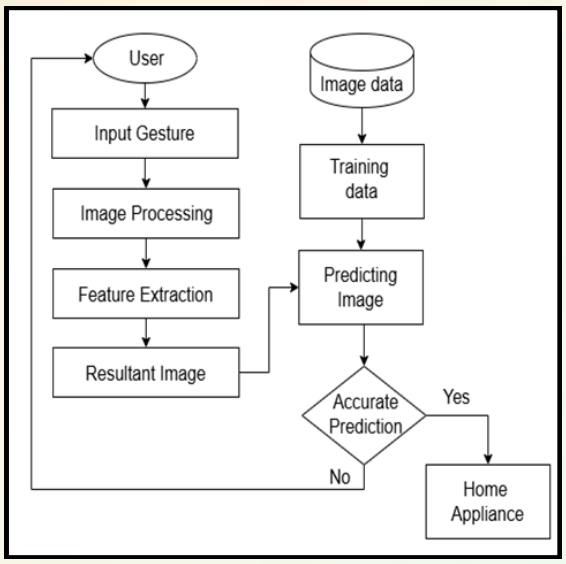

Fig.17.2: Procedure

Unlike traditional interfaces, gesture control is intuitive, fast, and non-invasive. It eliminates the need for extensive wiring or complex hardware, making it ideal for installations in places like home theaters, older homes, or temporary setups. The system is also energy-efficient, allowing users to optimize their appliance usage and gain insights into their energy consumption—ultimately reducing electricity costs.

By combining convenience with inclusivity and hygiene, this technology promises a smarter, safer, and more personalized home environment. The gesture-based control system is not just a technical innovation—it's a meaningful step toward a more accessible and sustainable future.

Prof. Prajakta S. Khelkar
Purva Tejesh Patil
Sneha Sakharam Golhe
Prof. Karishma B. Shambharkar
Ashwini Satish Mayekar
Sakshita Santosh Bodke

18. STEGANOGRAPHY BASED SYSTEM:2 FACTOR AUTHENTICATION SYSTEM

In today's digitally connected world, where information exchange over the internet is integral to daily life, ensuring the security of sensitive data is more critical than ever. While technology continues to evolve, so do the tactics of cybercriminals who exploit digital systems for malicious purposes. This calls for robust, innovative security measures that stay one step ahead of potential threats.

A widely used security mechanism is 2-Factor Authentication (2FA), which adds a layer of protection beyond traditional passwords. However, existing 2FA systems—like those relying on OTPs (One-Time Passwords)—can still be vulnerable to brute force attacks, phishing, and active channel monitoring, due to the lack of secure transmission channels.

To address these vulnerabilities, this research proposes an enhanced 2FA system that integrates steganography and Advanced Encryption Standard (AES) encryption. In this approach, the authentication data (secret codes) is first encrypted using AES to convert it into a secure cipher. This cipher is then embedded within an image using the Least Significant Bit (LSB) method of steganography, creating a covert channel that hides the authentication information from prying eyes.

This dual-layered security system offers several advantages:

- Confidentiality is preserved, as the data is hidden within an image and encrypted.
- Stealth is achieved through steganography, making it difficult for attackers to detect the presence of any secret information.
- Robustness against traditional attacks is enhanced, reducing the risk posed by brute force and phishing methods.

With minimal image distortion, the system ensures that the embedded data is imperceptible to human vision and undetectable through casual inspection. By combining cryptography and steganography, this novel 2FA approach marks a significant advancement in digital authentication—providing a secure, covert, and scalable solution to modern cybersecurity challenges.

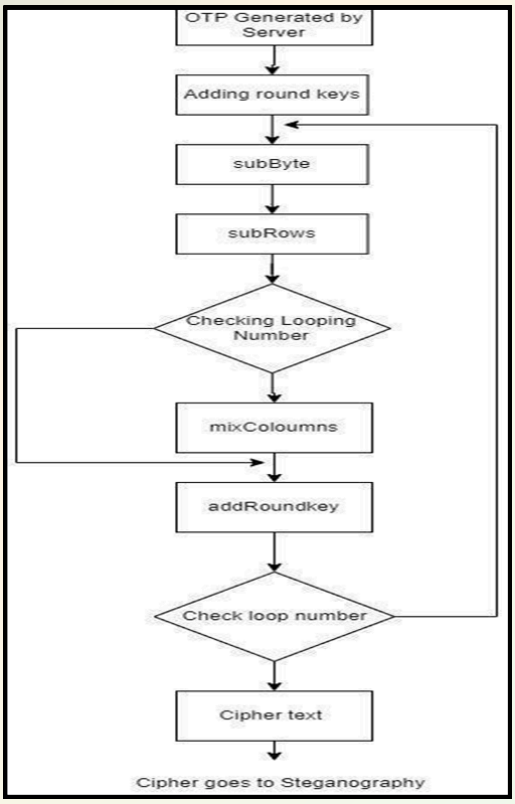

Figure.18.1: Flow of data through AES algorithm


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19. CENTRAL EXAM CONDUCTION TOOL USING CLOUD FRAMEWORK

Managing exams in educational institutions has traditionally relied on manual processes—from distributing forms and issuing hall tickets to tracking attendance and allocating classrooms. These outdated methods are often prone to errors, inefficiencies, and delays, adding unnecessary stress for both faculty and students. To address these challenges, the Exam-Central project introduces a centralized software solution designed to modernize and automate the entire exam lifecycle.

Exam-Central simplifies critical exam-related operations by streamlining tasks such as exam form distribution, hall ticket generation, attendance tracking, classroom allocation, and result publication. The system offers real-time updates and digital access, providing students with instant visibility into their schedules, seating arrangements, and results—while significantly reducing the administrative burden on staff.

Built with ERP principles in mind, the platform integrates key academic workflows into a unified interface, minimizing errors and boosting productivity. By offering a user-friendly and efficient alternative to traditional systems—often resisted due to unfamiliar interfaces—Exam-Central encourages smooth adoption and maximizes institutional efficiency. It also supports a better communication environment and ensures a more organized, accurate, and transparent exam process.

Ultimately, Exam-Central aims to deliver a seamless, error-free, and digitally empowered exam experience, allowing institutions to focus on what matters most: providing quality education while embracing the advantages of digital transformation.

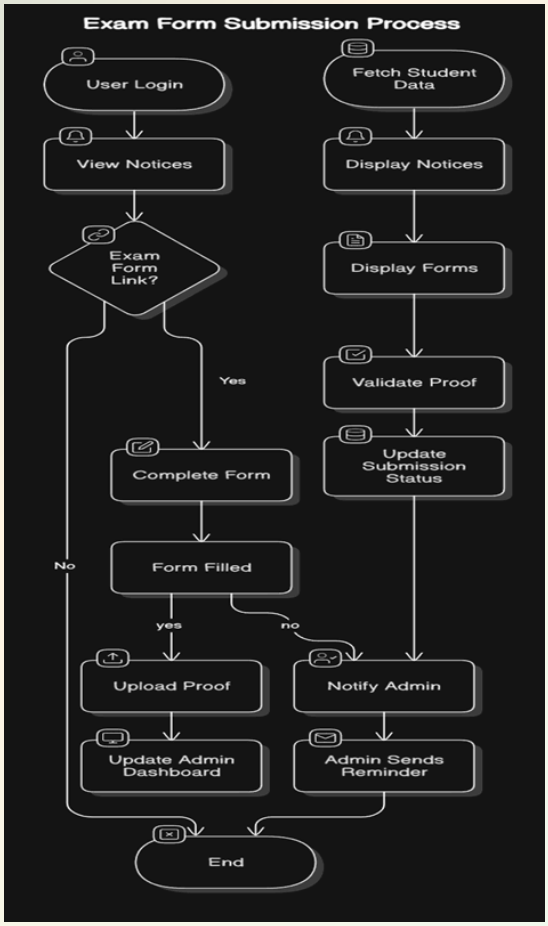

Fig.19.1: Exam form flow diagram


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20. A UNIFIED WEB-BASED PLATFORM FOR CO-PO ATTAINMENT AND LEARNING MANAGEMENT

Outcome-Based Education (OBE) emphasizes the achievement of predefined, measurable learning outcomes aligned with program objectives. Within this framework, Course Outcomes (COs) define what students should accomplish by the end of a course, while Program Outcomes (POs) represent broader skills and competencies expected upon program completion. Accurate mapping and attainment calculation of COs against POs (CO-PO mapping) are vital for monitoring student progress, curriculum effectiveness, and accreditation compliance.

Traditionally, faculty have managed CO-PO attainment using Excel spreadsheets, a process prone to errors, time-consuming manual calculations, and risks of data corruption or loss, especially with large volumes of data. To address these challenges, we developed MAPLMS (Mapping Learning Management System), a secure, web-based platform that automates CO-PO mapping, integrates both direct (exam scores, assignments) and indirect (student feedback) assessment mechanisms, and streamlines attainment calculation and performance reporting.

MAPLMS centralizes data storage to prevent loss, provides real-time analytics, and supports one-click generation of detailed reports. The system enables administrators to define CO-PO relationships, allows faculty to efficiently track individual and class-wide performance, and offers students easy access to learning resources and feedback tools. By reducing manual workload and improving data accuracy, MAPLMS facilitates data-driven academic decisions and continuous curriculum improvement.

Case studies and user testimonials highlight MAPLMS's effectiveness in enhancing monitoring efficiency, reducing errors, and supporting accreditation processes. This paper details the design, implementation, and evaluation of MAPLMS, demonstrating its potential as a comprehensive solution for outcome-based education management in academic institutions.

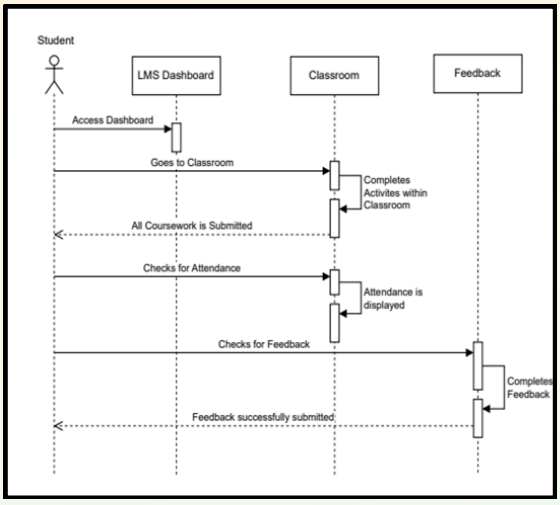

Figure. 20.1: Student-Side Diagram

21. AI-POWERED TRANSCRIPTION FOR MEET VISUALIZER

Soil forms the fundamental base for agricultural productivity, directly impacting global food security. This study analyzes soil samples to determine key physical and chemical properties such as pH, nutrient contents—including nitrogen (N), phosphorus (P), potassium (K)—organic matter, and texture. Maintaining soil pH between 6.0 and 7.5 ensures optimal nutrient availability, while sufficient organic matter improves water retention and supports beneficial microbial populations, all contributing to improved crop yields.

Understanding soil characteristics empowers farmers to make informed decisions regarding nutrient management, irrigation, and land use, thereby sustaining high yields and promoting sustainable farming practices. Identified nutrient deficiencies highlight the importance of site-specific fertilizing and soil management strategies to address regional variations in land use effectively.

Additionally, emerging technologies such as remote sensing and geospatial analysis offer detailed soil characterization at various scales, facilitating precise resource allocation and predictive modeling. This enhances sustainable agricultural practices and resilience to modern challenges.

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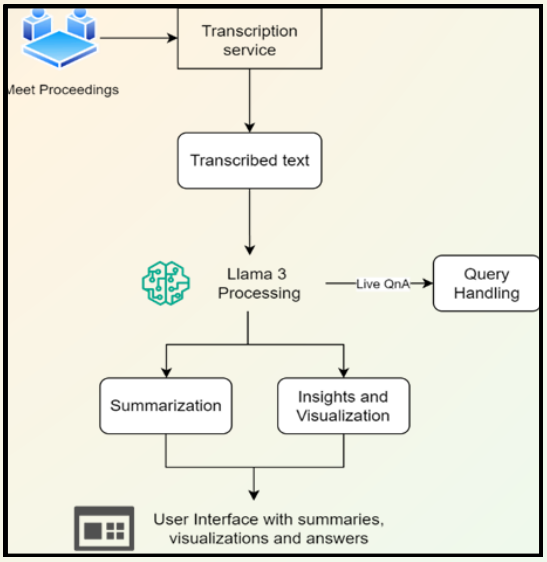

Fig. 21.1: System Architecture

The findings emphasize soil testing as a scientific basis for targeted interventions aimed at improving crop health, productivity, and environmental sustainability. By optimizing soil management, farmers can better meet rising food demands while ensuring long-term agricultural resilience.

Prof. Priya Gupta
Anuraj Anil Chavan
Anushka Ashwin Rasam
Prof. Manjiri Pathak
Arya Abhay Nikale
Vaishnavi Shankar Jadhav

22. AN IOT-BASED PLATFORM FOR MEASURING BLOOD GLUCOSE LEVELS THROUGH NON-INVASIVE METHODS

Effective diabetes management depends on regular monitoring of blood glucose levels, traditionally done through invasive finger-prick tests that can cause discomfort and inconvenience, especially for patients requiring frequent measurements. To address this challenge, this paper proposes a novel IoT-based platform that enables non-invasive blood glucose monitoring through advanced image processing and machine learning techniques.

The system estimates glucose levels by analyzing the color of blood captured via imaging, eliminating the need for skin puncturing. Utilizing OpenCV for image processing and custom-trained machine learning models, the platform compares captured images against a database of pre-calibrated color profiles to produce accurate glucose readings.

Integrated IoT functionality supports real-time data transmission and secure storage on a remote server, accessible via a mobile application. This connectivity empowers users with continuous glucose tracking and immediate health insights. Furthermore, healthcare providers can remotely monitor patient data, enabling timely medical interventions and personalized treatment adjustments.

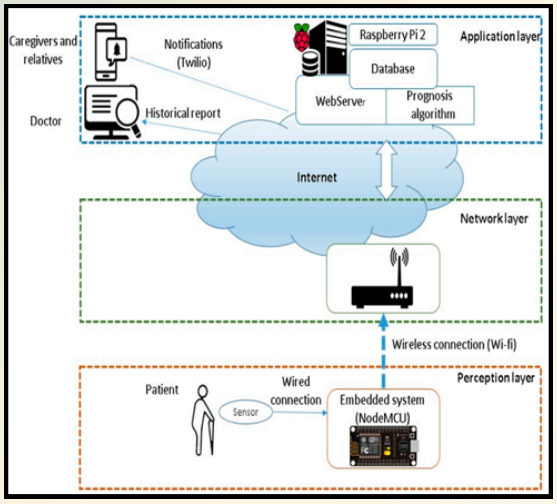

Figure.22.1: A basic cluster of cooperating Web servers.


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This innovative approach marks a significant advancement in digital healthcare by offering a comfortable, accessible, and personalized solution for diabetes management, potentially improving patient compliance and outcomes.

23. JOB XTENSION: SIMPLIFY AND AUTOMATE JOB APPLICATION MANAGEMENT

JobXtension is an innovative Chrome extension designed to simplify and improve the modern job search process. It tackles common challenges faced by job seekers, such as scattered information across multiple job portals, time-consuming manual data entry, difficulty tracking real-time application status, and managing communication for follow-ups and interviews.

By leveraging advanced web scraping and machine learning technologies, JobXtension automatically extracts important details like job descriptions, company profiles, locations, and required skills from various job sites.

The platform features a user-friendly dashboard that offers real-time application tracking, powerful filtering and sorting options, and timely reminders to help users stay organized. It also provides predictive analytics to recommend job opportunities tailored to individual qualifications and preferences.

Overall, JobXtension streamlines the job search by automating data collection, improving application management, and increasing the chances of success through personalized insights. The research focuses on the platform's architectural design, implementation, and evaluation, demonstrating its effectiveness in addressing the complexities of today's job market.

Feature	JobXtension	LinkedI	Glassdoor
Cross-Platform	Yes	No	Limited
Automation	High	Medium	Low
Real-Time	Yes	No	No
Personalized	Advanced	Basic	None
Interview	Yes	No	No
Data Security	AES-256	Limited	Basic
Follow-Up	Yes	No	No

Table.23.1: Feature Comparison


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24. YOU-TUBE MIDDLEWARE A SECURE CONTENT UPLOADING FRAMEWORK.

Digital video content creation is experiencing exponential growth, especially on popular platforms like YouTube, which hosts over 65 million creators and 2.6 billion users. However, this surge brings significant challenges including managing the complex workflow of video production, facilitating effective and real-time communication between content creators and editors, and ensuring secure handling and delivery of digital assets.

Inefficiencies often arise due to fragmented processes where creators and editors work separately, frequently requiring manual downloads and uploads, leading to delays and risks of data loss or breaches. To tackle these challenges, a YouTube middleware platform has been developed that centralizes and automates key aspects of the video creation process. This platform enables creators to create dedicated workspaces where tasks can be assigned to editors, and progress can be tracked through an interactive, real-time dashboard. Features such as instant notifications and task management ensure that teams remain aligned and responsive, reducing communication gaps and streamlining decision-making.

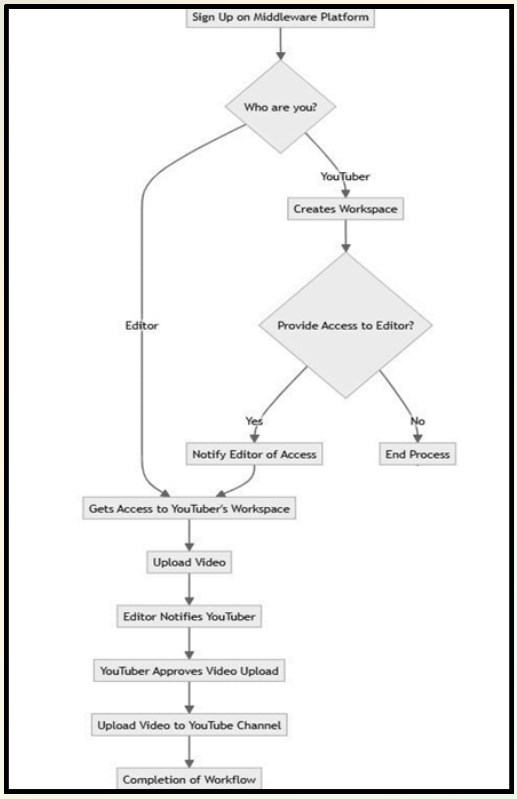

Figure.24.1: System Architecture

Additionally, the platform uses cloud-based storage solutions to provide scalable, secure content management, protecting creators' intellectual property and ensuring the integrity of video files throughout the editing and publishing stages. By integrating directly with YouTube's API, the middleware allows for seamless publishing of finalized content without the need for repetitive manual uploads, drastically cutting down time-to-release.

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Amount in Words			Rupees Six Thousand & Five Hundred		6500

PAYMENT MODE	Transaction Id	CIN
Online	C-0000216154	1104250054460

Overall, this middleware solution improves collaboration, enhances workflow transparency, and supports creators in maintaining a consistent publishing schedule. It addresses key pain points in the digital content creation lifecycle by providing a user-friendly, secure, and efficient environment, ultimately helping creators to focus more on creativity and less on logistical hurdles. With these capabilities, the platform promises to significantly boost productivity and quality in the fast-growing digital video landscape.

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Prof. Swapnil Desai
Shubham Sandip Jadhav
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25. SUMMARIZE IT: AN AI-BASED SUMMARIZATION SYSTEM

In today's digital era, the overwhelming flood of textual information from websites, social media, and academic sources has created a pressing need for efficient tools to distill and understand vast amounts of data quickly. Text Summarization using ChatGPT answers this call by leveraging advanced AI to generate coherent, context-aware summaries, significantly reducing the time and effort required to grasp key insights.

Moving beyond traditional rule-based methods, modern automatic text summarization harnesses powerful deep learning and natural language processing techniques. ChatGPT's transformer architecture, trained on diverse datasets, excels at capturing linguistic nuances and contextual meaning, enabling human-like, relevant summaries. Beyond summarization, features like Explainer Mode and Flash Mode support deeper topic breakdowns and interactive learning, making the platform valuable for students, educators, and professionals alike.

Powered by robust machine learning ensembles and user-friendly web technologies, this system delivers real-time, accurate summaries accessible via any modern browser without special hardware. Looking ahead, future developments aim to integrate multimodal data—combining text with images or videos—unlocking richer applications like automated captioning and personalized education tools.

While challenges remain, including data privacy, model bias, and occasional inaccuracies, ongoing research is dedicated to making ChatGPT-based summarization scalable, reliable, and indispensable for managing the world's ever-growing information landscape.

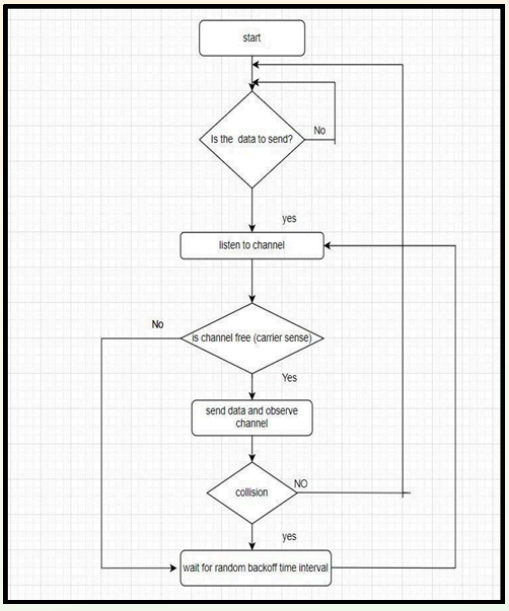
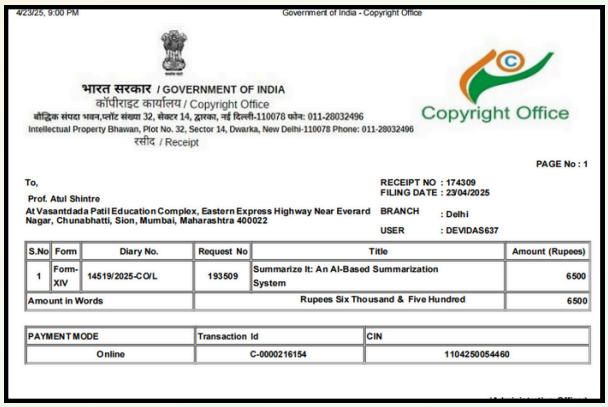


Figure.25.1: System Flowchart



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Amount in Words			Rupees Six Thousand & Five Hundred		6500

PAYMENT MODE	Transaction Id	CIN
Online	C-0000216154	1104250054460

26. DEEP LEARNING MODEL FOR BONE AGE AND GENDER DETERMINATION

Accurate bone age assessment is critical in pediatric healthcare, helping doctors diagnose growth disorders and plan effective treatments. Traditionally, this task relies on radiologists manually comparing hand X-rays with reference atlases, a time-consuming process prone to subjective errors and inconsistencies.

To overcome these challenges, this study presents a deep learning–based system that automates bone age estimation and simultaneously detects patient gender from standard hand radiographs. Using an Xception-based convolutional neural network combined with a simple neural network, the model performs regression for bone age prediction and classification for gender recognition. The approach includes comprehensive data collection, preprocessing, and rigorous evaluation, demonstrating predictions with acceptable error margins.

This technology promises to reduce radiologists' workload, improve diagnostic consistency, and enhance screening capabilities—particularly in resource-limited settings. By integrating AI into routine workflows, pediatric care can become faster, more objective, and better equipped to monitor children's growth accurately.

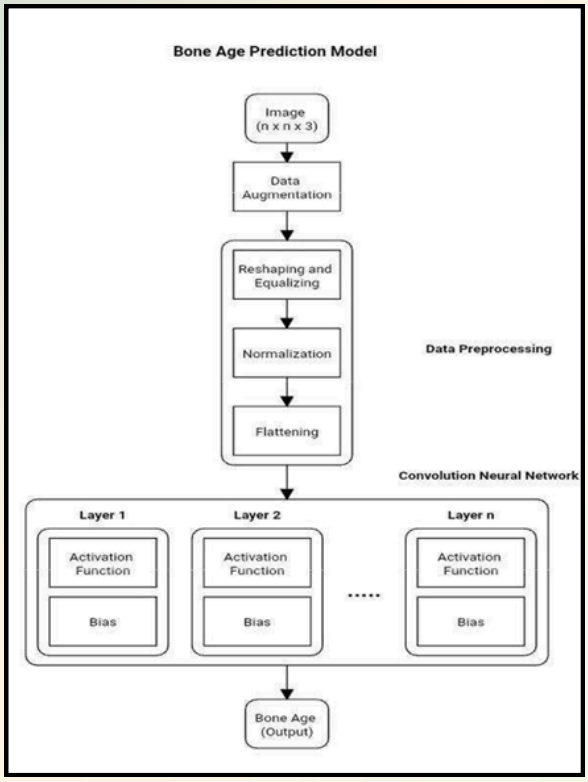

Figure.26.1: Bone Age Prediction Model


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27. A COMPARATIVE STUDY ON MULTIPLE SCLEROSIS SEGMENTATION USING DEEP LEARNING MODELS

Multiple Sclerosis (MS) affects over 2.8 million people globally, causing progressive neurological disability. Accurate and timely detection of MS lesions through Magnetic Resonance Imaging (MRI) is critical for effective treatment and disease management. However, manual segmentation of these lesions is tedious, inconsistent, and prone to error due to variations in lesion size, shape, and MRI image quality.

Recent breakthroughs in deep learning, especially with convolutional neural networks (CNNs), offer promising solutions by automating lesion segmentation with improved accuracy and reproducibility. This study presents a comparative analysis of the popular U-Net architecture and its variations, exploring how they perform on MS lesion detection tasks.

The research highlights key challenges such as limited labeled data and differences in imaging protocols, which affect the robustness of AI models. By examining preprocessing techniques and performance metrics, the paper outlines current limitations and suggests directions for future work to enhance clinical utility.

With continued innovation, deep learning tools have the potential to transform MS diagnosis—making it faster, more reliable, and accessible to healthcare providers worldwide.

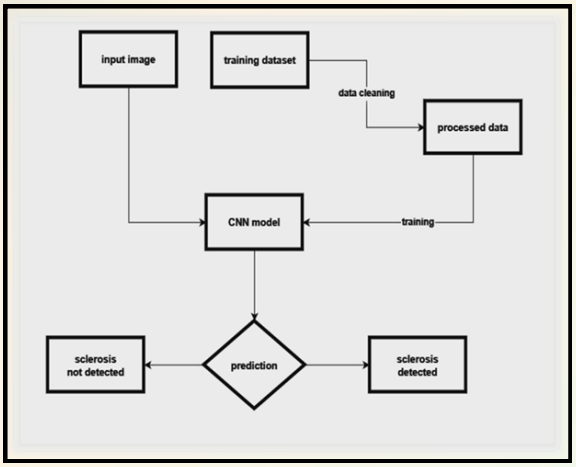

Figure.27.1: CNN-based pipeline fo ekr sclerosis detection


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28. ACCOUNTSEASE

"In the present educational scenario, there is an urgent need for efficient financial management for stabilizing institutional operations and upgrading services for prospective students. The Account Module is created in a cooperative working environment to ameliorate student fee collection and reporting; thus, it is a valuable tool for educational institutions. The module allows for the efficient handling of financial transactions while ensuring transparency and accountability that directly impinge on the appropriateness of the student fees.

To meet various needs of schools and colleges, the Account Module allows for ready addition of student data, categorization of fee types, and arrangements for branches. It allows for easy creation of receipts and checks for ease of administrators, as well as the classification of fees into relevant heads for better organization.

In addition, the module provides a full range of reporting capabilities, providing insight into daily, monthly, yearly fee transactions, as well as individual student accounts. The information provided by the Account Module supports informed decision-making through detailed analyses, thereby promoting proactive management of finances. Ultimately, the module's intention is to bring about efficient management, improve financial oversight, and contribute to overall success when managing fee collection processes at educational institutions. Additionally, the Account Module is scalable, allowing educational institutions to scale up to increasing student numbers without sacrificing efficiency or accuracy. By automating tasks such as fee reminders, payment tracking, and receipt generation, it minimizes the administrative load, freeing staff to concentrate on more strategic aspects. This automation also reduces human errors that are prevalent in manual processes, hence strengthening the reliability of the data and that no fee is left out or inaccurately reported.

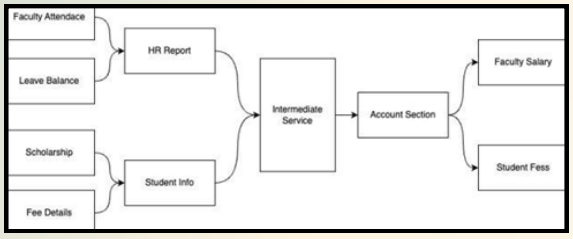
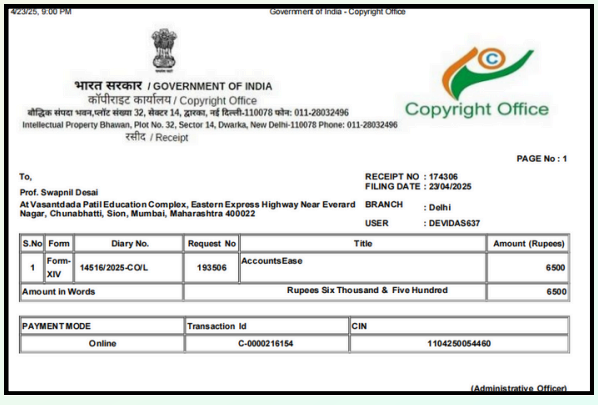


Fig.28.1: Flowchart

Additionally, the module provides features that are customizable to enable schools and colleges to tailor the system to suit their particular requirements. Institutions can customize the fee plan based on different parameters like course type, category of student, or scholarship details. This ensures that every student's financial history is correctly maintained. With such flexible functionalities integrated, there is a more personalized fee management approach, which eventually leads to a smoother, more user-friendly experience for both the administrators and students.This design flexibility ensures the institution's long-term growth and financial viability through providing adaptability and effective control over fee operations."



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29. WILDWATCHAI: WILDLIFE DETECTION AND ALERT SYSTEM

This paper introduces "Wild Watch AI," a leopard object detection and alert system for detecting leopards and sending alerts to affected residents in areas where human-wildlife conflict is on the rise. The growing incidences of human-wildlife conflict, especially those concerning leopards near urban regions adjoining national parks, pose a serious threat to public safety and wildlife conservation.

Based on the YOLOv10 architecture of object detection, our proposed system enhances the contribution to public safety and helps in wildlife conservation by providing real-time alerts and monitoring information. Extensive testing has validated its efficiency across a wide assortment of different environmental conditions that cameras are required to operate in. The scalable design in our system points toward the possibility of this being implemented in expanded programs for broader wildlife monitoring at large. This paper is aimed at presenting "Wild Watch AI," a real-time leopard detection system for monitoring and warning the residential community of the presence or transiting of leopards within their premises. This work implements YOLOv10 architecture for object detection; the system contributes to enhanced public safety and the conservation of wildlife through real-time alerts and monitored data. This design is scalable, thus can be used in broader initiatives for this wildlife's monitoring.

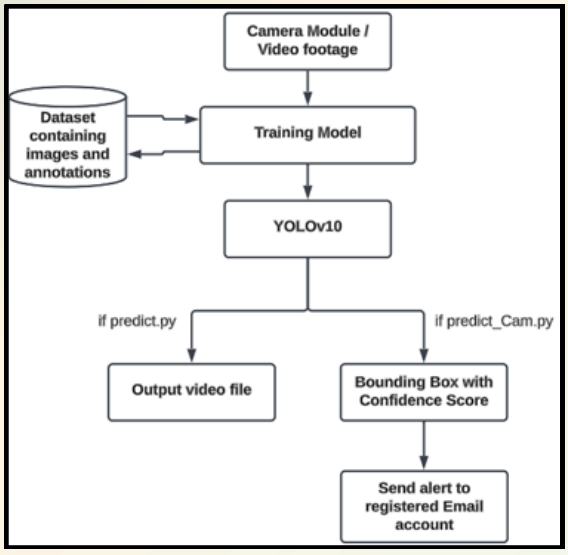

Fig.29.1: System Architecture


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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

2nd INTERNATIONAL CONFERENCE ON ALGORITHMS AND COMPUTATIONAL THEORY FOR ENGINEERING APPLICATIONS (ICACTEA-2025)

Certificate of Presentation

This is to certify that Dr. / Mr./ Ms./ Mrs. Dr.Mahendra Eknath Pawar from Vasantdada Patil Pratishthan's College of Engineering & Visual Arts has participated and presented a paper entitled WildWatchAI: Wildlife Detection and Alert System

In the 2nd International Conference on Algorithms and Computational Theory for Engineering Applications (ICACTEA-2025) organized by Department of Computer Science and Engineering, on 4th & 5th April 2025.

Publication Chair Dr. P. Subba Rao, Associate Professor - CSE

Convener Dr. K. Swaroopa, HoD - CSE

Conference Chair Dr. S. Rama Sree, Pro Vice-Chancellor (Academics)

Patron Dr. M. B. Srinivas, Vice - Chancellor

30. TRIPTO: A DECENTRALIZED B2B PLATFORM FOR REVOLUTIONIZING THE PASSENGER VEHICLE MARKET

The outstation passenger vehicle market in India remains highly fragmented, operating primarily through informal communication methods that result in inefficiencies, fraud risks, and limited scalability. Tripto introduces a revolutionary B2B platform to bridge these gaps, offering a structured approach to collaboration between car owners, local vendors, and digital service providers. By combining technological advancements such as GPS tracking, secure payment systems, and real-time analytics with localized expertise, Tripto addresses the shortcomings of existing systems. The platform fosters a decentralized ecosystem that creates opportunities for entrepreneurs, empowers smaller operators, and ensures fair pricing. Unlike dominant B2C players like Ola and Uber, which monopolize the market and inflate fares, Tripto's model democratizes access and facilitates sustainable growth.

India's outstation travel industry is a critical part of its transportation network, connecting cities, towns, and remote areas. This segment is overlooked by large-scale players, leading to its reliance on informal networks. Bookings are often coordinated through platforms like WhatsApp, resulting in: Disorganized workflows Delays Inconsistent pricing While B2C platforms dominate urban mobility, their centralized operations create monopolistic market conditions, driving up costs for passengers and limiting vendor opportunities. Recognizing these challenges, Tripto presents an innovative B2B solution that connects car owners, local vendors, and digital service providers.

Market Challenges

Challenge	Impact
Fragmentation and Lack of Organization	Inefficient resource allocation and inconsistent service quality.
Dominance of B2C Platforms	Marginalization of smaller vendors; inflated fares for customers.
Trust and Payment Issues	Increased fraud risk due to informal systems.


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31. AQUA ALERT DISASTER MANAGEMENT SYSTEM

Flood is one of the most devastating natural disasters which has occurred in the world causing wide spread loss to life and property. The early detection of flood and timely response is essential to avoid the damage and the impact which can affect the communities. There are few flood causing events which have occurred in India. The recent flood causing incident is of Assam which had caused around 109 deaths and affected around 1,325 villages across 19 districts

In July 2024 the Flood causing incident occurred near Pune had relentless rainfall leading to prompting evacuations from affected housing societies. Traditional system though it was effective lack real-time data integration affecting communities to high water levels flood-prone areas where resources for rapid disaster response may be limited. The “Aqua Alert Disaster Management System” is designed to address these issues. It combines Internet of Things(IOT) and Web-based platform for improving flood detection and response coordination. This system uses water sensor to continuously measure water levels when threshold is met. These alerts then are sent to locals automatically through telephone calls to provide critical early warning to help residents take immediate action. Along with this there is a real time monitoring of web-based platform which allow users to input their current location, also help users to contribute financially to relief with the help of donation gateway.

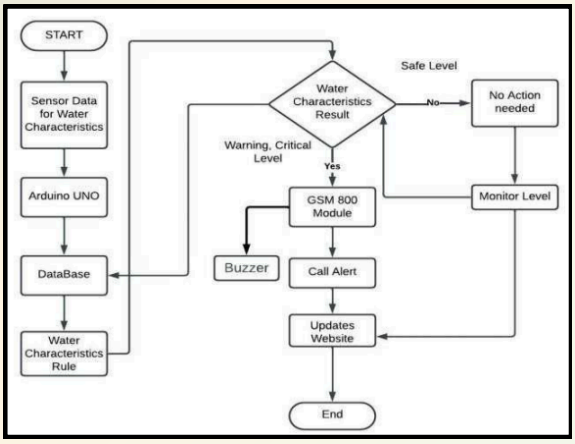

Fig.31.1: Block diagram of Flood Warning System


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32. COLLABORATIVE PLATFORM FOR CREATORS

A collaborative platform for creators is a graphic design collaboration platform in a cutting-edge online environment where technology and creativity coexist. Regardless of where they are physically located, designers may collaborate and communicate easily on this platform, working on projects together. With features like real-time editing, video conferencing, and cloud-based design software, the platform improves workflow efficiency and provides immediate feedback, which raises the caliber of outputs. It also serves as a professional marketplace where designers may display their work, draw in customers, and make money from crowdfunding, licensing, and project commissions. Through tutorials, workshops, and design challenges, the site also encourages ongoing learning and skill development while fostering professional development and networking. Through the integration of learning, collaboration, and economic prospects, this platform enables graphic designers to produce outstanding

One of the other core functions of the platforms is to allow creators to act as a marketplace and resource centre. Creators have the opportunity to upload their portfolios and gain exposure which allows them to attract employers as well as customers. These platforms also aid in showcasing their professional expertise with the help of relevant tutorials and guides which in turn assists them in perfecting their existing skills. Alongside that, there are a plethora of user interactions available such as discussions, feedback loops and creative challenges to help foster learning. All of that being said, such platforms are largely beneficial for networking and professionalism to help individuals grow.

Many of these platforms give creators the chance to make money in addition to fostering community and collaboration. The website assists creators in monetising their passion by enabling them to sell their works, license their work, or even crowdfund projects. For contemporary creators, collaborative platforms are a vital ecosystem that enables them to work more effectively and creatively while broadening their professional reach since they include networking, learning, collaboration, and economic prospects

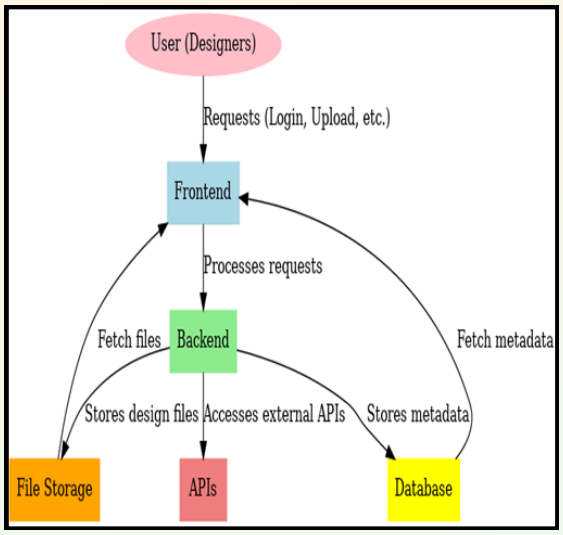

Fig.32.1: Design Implementation


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एतद्द्वारा यह प्रमाणित किया जाता है कि प्रतिलिप्यधिकार अधिनियम, 1957 के प्रावधानों के अनुसार, उपर्युक्त आवेदन में प्रकट किए गए "Collaborative Platform For Creators" नामक कार्य के लिए प्रतिलिप्यधिकार प्रदान किया गया है।

This is to certify that a copyright has been registered for the work titled "Collaborative Platform For Creators" as disclosed in the below mentioned application in accordance with the provisions of the Copyright Act,1957.

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33. HEALTH EASE, ENHANCING HEALTHCARE ACCESSIBILTITY DEVELOPMENT AND IMPLEMENTATION OF COMPREHENSIVE MEDICAL SERVICES BOOKING PORTAL

The accessibility and efficiency of healthcare services are pivotal in improving patient outcomes and overall public health. This paper presents the design, development, and implementation of a Medical Services Booking Portal aimed at streamlining the booking process for various medical services, facilitating home-based care, managing medical records, and providing medical delivery services. By integrating these functionalities into a single platform, the portal seeks to enhance user convenience, optimize healthcare delivery, and ensure secure management of medical information. This study outlines the system architecture, key features, security measures, and potential impacts on the healthcare ecosystem. Preliminary evaluations indicate that such a portal can significantly reduce logistical barriers, improve patient satisfaction, and support healthcare providers in delivering timely and personalized care. By combining AL/ML learning, HealthEase offers personalized healthcare suggestions that let customers successfully manage their medicines, track symptoms, predict illnesses, and schedule nurse appointments. It improves the user experience by giving users a simple and efficient platform. The intention is to enable patients to make doctor and nurse appointments along with ordering prescriptions online from the comfort of their own homes, thereby avoiding hospital visits. In addition to saving time, this will allow a patient to receive door-to- door support at home. We have a highly trained and skilled group of doctors, nurses, and pharmacists. The necessity for highly qualified professionals is critical so that patients can trust. We also provide drugs through our own app, health Ease. The patients' health is monitored on our databases using artificial intelligence, and the patients can view and follow their progress using dashboards. The health meter or progress card will be often updated. Disease prediction and symptoms, as well as treatments to those symptoms, can be accomplished using patient data and AI models. Health Ease will have a distinct UI/UX in which the profiles of doctors and nurses will be shown.

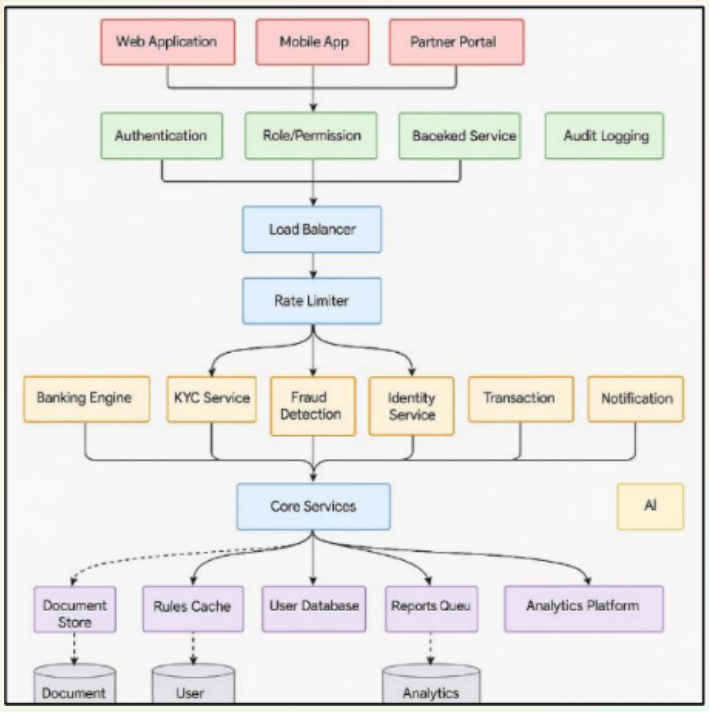

Fig.33.1: System Architecture

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