

AI Driven Students' Attendance Monitoring System

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Abstract- The student attendance monitoring system offers a device-free approach for managing attendance in educational settings. It has a mobile app for students and a web interface for professors, with real-time data transmission to a centralized cloud database. Advanced authentication provides precise record-keeping, while timestamping prevents misuse. The system provides real-time attendance tracking, automated report generation, interaction with existing management systems, and notifications to students and instructors.

Keywords- Device-free attendance. Cloud-based system. Real-time monitoring. Automated reports.

I. INTRODUCTION

An attendance monitoring system monitors and records the presence or absence of persons inside an organization or educational institution. This strategy eliminates the need for manual attendance tracking methods like paper-based systems or sign-in sheets. An attendance monitoring system online aims to streamline the tracking process, improve accuracy, reduce time, and enhance efficiency. An attendance monitoring system records individuals' presence or absence inside an organization or educational institution.

II. OBJECTIVE

1. System Design:

- Create a customized attendance tracking system, taking into account user interface design, data storage, and security measures to secure important information.

2. User Authentication and Registration:

- Implement a secure authentication and registration system for authorized users, including students, teachers, and administrators, to create accounts, verify identities, and maintain profiles.

3. Real-time Monitoring and Reporting:

- Create capabilities for real-time monitoring of attendance records, allowing administrators and teachers to access data as it happens. Create detailed reports and analytics to identify attendance trends and data.

4. Notifications and Alerts:

- Implement a notification system to provide attendance-related alerts to students, parents, and supervisors, facilitating effective communication.

5. User Testing and Evaluation:

- To investigate how AI systems can be used to generate data for public education campaigns, raising awareness about the negative impacts of illegal dumping and promoting responsible waste management behavior.

III. LITRETURE SURVEY

Title :Face Recognition based Attendance Management System

Author:P. S. H. Smitha

Description: The idea of finding human faces in referenced photographs or videos is known as face detection. A face recognition system is a type of tech that can compare face images from a video or photograph to a database of known and unknown faces. The Face, Recognition-based Attendance Management System, was developed by Smitha to develop an organized classroom attendance system using face recognition methods

Title :Mobile Based Attendance System: Face Recognition and Location Detection using Machine Learning

Author : M. S. M. Alburaiqi, G. M. Johar, R. A. A. Helmi, and M. H. Alkawaz

Description: Developed a methodology that solved three key elements: First, using mobile phone cameras and automatically recognizing and analyzing faces. The second is a machine-learning based facial recognition API. Lastly, maps API. The outcome demonstrates that face recognition has

attained high accuracy in identifying students' faces even in unfavorable conditions. The system displayed practical examples of responses by marking the student's attendance after identifying the student's face and location, as well as the lecturer has the option to access a report of submitted attendance.

Title : An Android Based Course Attendance System using Face Recognition

Author : D. Sunaryono, J. Siswantoro, and R. Anggoro

Description : To assure student attendance in the course, Sunaryono et al. suggest "an Android-based course attendance system using face recognition." . The course information is encoded into a QR code and presented from the front of the class. The student is just required to use their phone to take a photo of their face and display a QR code. The picture will subsequently be transmitted to the server to manage the attendance.

Title : Automated Attendance System

Author : H. Sutar, S. Chaudhari, P. Bhopi, and D. Sonavale

Description: Another approach depends on gathering attendance and updating data in one area. The suggested method, which was built utilizing QR code technology and is based on research by Sutar et al, is a smart attendance system that would speed the attendance process by creating and scanning QR codes. The system runs as an application on mobile devices and is built on QR Technology.

Title : AI-based Attendance Monitoring System

Author : Ayushi Verma, Divy Shukla, Jayendra Kumar, Chhaya Sharma

Description: Explores the development and implementation of an AI-driven system to automate and enhance attendance tracking in educational settings. The authors propose a solution that leverages computer vision and machine learning algorithms, specifically using facial recognition technology, to accurately identify and record student attendance. The system aims to eliminate the need for manual attendance marking, reducing human errors and potential time wastage. It focuses on ensuring accuracy, privacy, and scalability, making it applicable to various educational institutions. The paper details the underlying technical framework, including image processing, model training, and real-time detection. Additionally, it discusses the challenges faced during implementation, such as handling diverse lighting conditions and ensuring data security. The authors emphasize the potential for such AI-based systems to improve efficiency, reduce administrative workload, and increase overall

classroom engagement. They also highlight future improvements, including the integration of more sophisticated AI models for better accuracy and adaptability.

IV. METHODOLOGY

This approach can be modified to fit the amount of time allotted to finish the work. Each stage must be completed statement of requirements.

Phase of Analysis: It has been decided to move forward with the School Attendance Management System. The decision has been made. this undertaking with the supervisor. Additionally, this system will be developed so that teachers and administrators can undertake an online attendance in school and colleges.

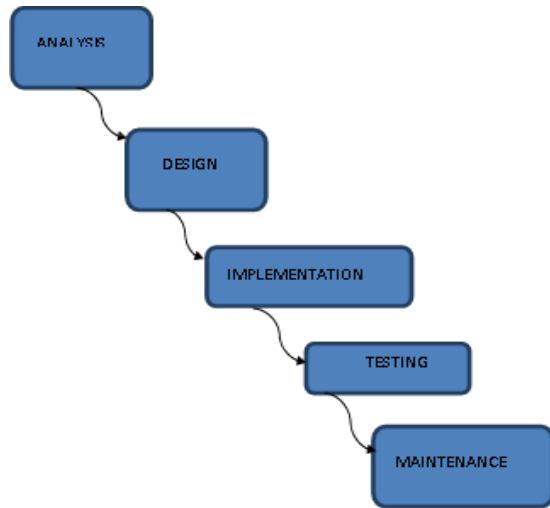
Phase of Design: This design phase will include the Context Diagram, Data Flow Diagrams (DFD) creating an Entity Relationship Diagram (ERD) and an interface sketch. Every stage serves as a roadmap for user to comprehend how the system will operate, and the system's database will grow at this stage.

Phase of Implementation: PHP programming will be used to create this system, and MySQL will be used to run its database. The XAMPP implementation is utilized for localhost server.

Phase of Testing: The system's single module is tested in order to evaluate its component. Additionally, system testing will identify and report application problems that require attention. This stage frequently necessitates a rerun of the earlier coding stage in order to adequately address any issues that are discovered.

Phase of Maintenance: Since this is the last stage, the system is prepared for release and user use. The system will accomplish all of the project's requirements, aims, and objectives once it is in a stable state.

V. SYSTEM ARCHITECTURE



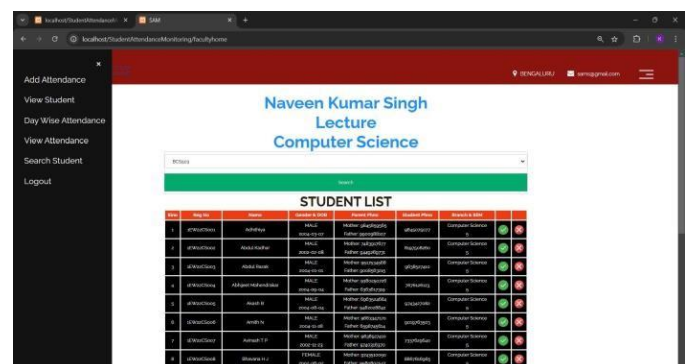
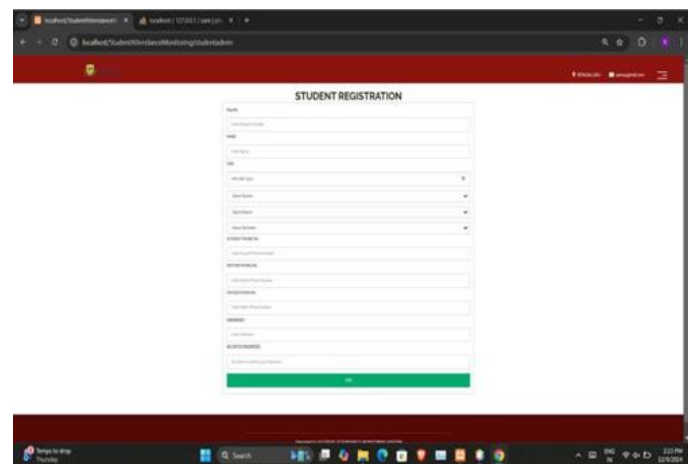
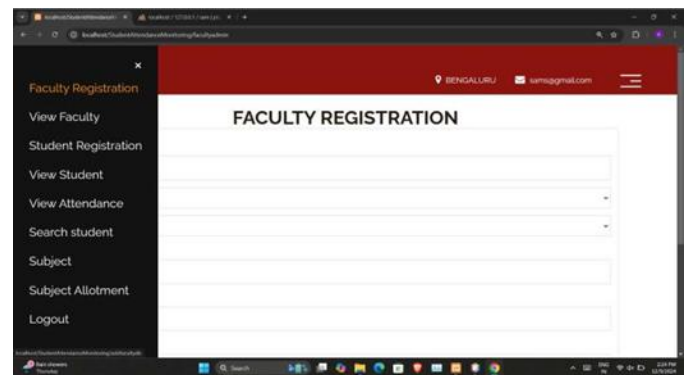
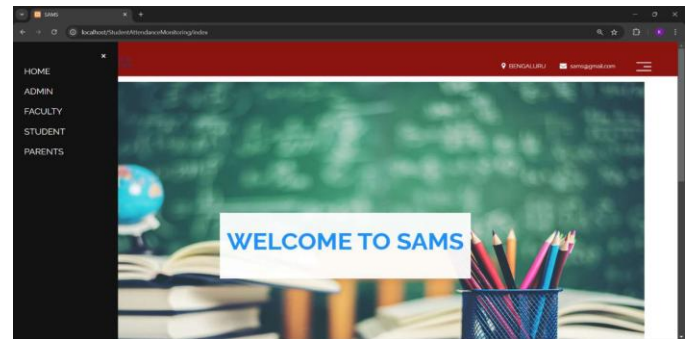
The following factors led to the selection of the waterfall model:

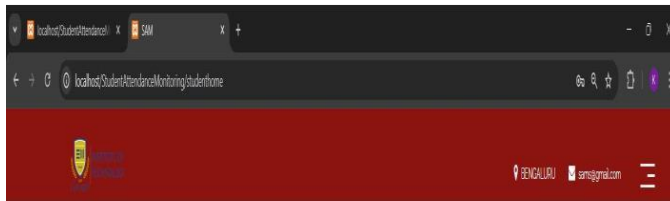
- i. Project Monitoring: Every stage of the development process is periodically reviewed to make sure that the system's modules meet the requirements.
- ii. Permits design modifications: Any modifications made to the system's development can be applied at any stage to make it better.
- iii. Testing is simplified: Test scenarios are already covered in detail in the requirements phase's functional definition. This facilitates and increases the ease of the testing process clear.

VI. RESULT ANALYSIS

The analysis of the student attendance monitoring system's results reveals numerous crucial elements. The solution enhances attendance accuracy and efficiency by automating processes and allowing professors and administrators to view data in real time. However, user feedback identifies interface issues such as inconsistent design and difficulties exploring specific features, indicating the need for a more understandable structure. The system performs well under normal workloads, but there are delays during peak usage, and compatibility concerns with particular browsers and devices limit access. While security measures are in place, they need to be improved to address vulnerabilities including inadequate authentication and insufficient encryption to secure sensitive information. Furthermore, the lack of sophisticated reporting and analytics capabilities limits the system's ability to give meaningful information. Integration issues with existing systems and APIs. APIs also highlight the need for a more robust framework to ensure seamless data synchronization. Overall, while the system shows promise in

modernizing attendance management, improvements in usability, security, and integration are essential for its future development.





SNo	Subject	Classes	Percentage	Status
1	Software Engineering	4 / 7	57.14%	Not eligible (Attendance < 75%)
2	Computer Networks	10 / 10	100%	Eligible
3	Theory Of Computation	9 / 10	90.00%	Eligible



Adhithiya (1EW22CS001)

Search

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VII. CONCLUSION

The student attendance tracking has significant advancements in both accuracy and efficiency. It has increased accountability among students, teachers, and administrators while providing a transparent system for recording and reporting attendance. Real-time access to attendance data enables timely interventions, effective communication, and early detection of irregularities. The automation of the process has optimized resource management by identifying areas needing additional support, and a positive correlation has been observed between regular attendance and improved student performance, contributing to a better learning environment.

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