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College Students Attendance System Review

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ABSTRACT: In today's era regardless of the field of study or preference for defining data (quantitative, qualitative), accurate data collection is essential for maintaining the integrity of research. Selection of appropriate method and the device used for data acquisition reduces chances of errors occurring. Proposed system has a small handy hardware, a remote server and software components for acquisition of data manually or from sensors electronically. It could be used in doing survey's, closed loop control monitoring systems in industries, hospitals, attendance management system of schools and colleges etc. This paper presents a design and framework for taking attendance in schools and colleges, for making troublesome process of taking and compiling of attendance simple and efficient. As its targeted users are educational institutes, where there is a requirement of affordable, user friendly, portable, energy efficient and secure automated system. Hence, this prototype provides an amalgamated solution for replacing existing conventional attendance system with embedded attendance system.

I. INTRODUCTION

1.1 GENERAL

In modern educational institutions, student attendance plays a crucial role in monitoring academic performance, ensuring discipline, and maintaining institutional accountability. Traditional methods of tracking attendance such as manual roll calls or paper-based registers—are time-consuming, prone to errors, and susceptible to manipulation. As technology continues to reshape academic environments, there is an increasing demand for more accurate, efficient, and automated systems to manage student attendance. Attendance plays a crucial role in the academic success and discipline of students in any educational institution. Traditional methods of recording attendance, such as manual registers or paper based systems, are often time-consuming, errorprone, and inefficient. With the advancement of technology, there is a growing need for a robust, accurate, and user-friendly attendance management system that can streamline this process. The College Students Attendance System is designed to address these issues by providing a digital platform for managing and tracking student attendance. This system automates the process of taking and maintaining attendance records, offering real-time updates and analytics to faculty and administrative staff. It reduces paperwork, minimizes errors, and enhances data security. This review aims to evaluate the features, benefits, and limitations of various college attendance systems, while exploring how modern tools such as web or mobile applications are revolutionizing attendance tracking in educational institutions.

1.2 SCOPE OF THE PROJECT

Hence, this prototype provides an amalgamated solution for replacing existing conventional attendance system with embedded attendance system. The College Students Attendance System is designed to automate and streamline the process of recording, managing, and analyzing student attendance in a college or university setting. The scope of this project includes the development, deployment, and usage of a digital platform that allows faculty members to take attendance efficiently and allows administrators to monitor attendance trends and reports in real-time.

II .LITERATURE SURVEY

Development And Acceptability of a Student Daily Attendance Monitoring System, M. Acasamoso, Ernie C. Avila, Spenser Vargas,(2021)

Attendance plays an important part in education-students who attend classes regularly have a higher chance of succeeding in school and becoming a valued member of the school community. It is also important for tracking time and attendance when they are at school. The researchers developed a tool that is capable of tracking and recording students attendance in school for reference purposes using the Waterfall Model and is initially implemented in the Polytechnic University of the Philippines, Ragay, Camarines Sur Branch. The proponents evaluated the developed tool using survey evaluation which was participated by 50 students to identify the level of acceptability of the proposed student attendance monitoring system which shows a promising result of 4.63 with a verbal interpretation of Highly Acceptable.

Facial Recognition and Machine Learning-based Student Attendance Monitoring System, Namrata Narkhede, Anupama Menon, Itisha Mathane, Sayali Nikam, Suchita Dange,(2023)

AI-based student monitoring system provides an innovative approach that enables schools and institutions to monitor student attendance performance and behavior. By utilizing cutting-edge technologies like face recognition, the system makes it easier for teachers to keep track of students' attendance while also giving administrators useful information. The technology automatically logs student attendance, doing away with the necessity for manual human attendance taking. Each student's attendance rate is determined, and the attendance analysis is made available. Administrators can more easily identify students with strong or poor attendance records thanks to the visualization module of the system, which presents attendance data as a graphical representation.

Biometric Based Portable Student Attendance System, Bheemesh K. Gudur, Tejashwini Ivanagimath, arunkumar Rathod,(2024)

Managing student information and attendance is a crucial task in any classroom. In the current system, these activities are handled manually, which leads to three 3 major challenges. First, the manual process is time-consuming. Second, it is prone to proxy attendance, which affects the accuracy of student performance records. Third, it requires significant time and effort to manage the data and communicate attendance updates to parents. This project addresses these issues by implementing an IoT-based student information management system. A controller, integrated with a fingerprint scanner, ensures accurate student identification. The controller's wireless capability makes the system portable, allowing students to mark attendance from their desks while providing real-time access to information.

Student Attendance Management System Based on Fingerprint Identification Technology, YiYi,(2023)

Accurate and efficient management of student attendance is a prerequisite for ensuring the healthy development of students and cultivating high-quality talents, and is also a top priority in school work. The establishment of attendance management system can solve the problems of delays and low efficiency in human resource management and attendance rate statistics in the past. The aim of this paper is to study the design and implementation of a student attendance management system based on fingerprint recognition technology. The design requirements and principles of the fingerprint recognition assisted management system are analysed, the overall structure of the system is designed, the functions and applications of fingerprint recognition technology are reasonably designed and adopted, and finally the fingerprint recognition assisted management system is implemented. The results show that after the system is implemented, it makes attendance more convenient, fast and standardized compared with the traditional methods of punching cards and signing on behalf of students, which greatly improves the learning efficiency of students in universities.

III. EXISTING SYSTEM

Existing system is a manual entry for the students. Here the attendance will be carried out in the hand written registers. It will be a tedious job to maintain the record for the user. The human effort is more here. The retrieval of the information is not as easy as the records are maintained in the hand written registers.

This application requires correct feed on input into the respective field. Suppose the wrong inputs are entered, the application resist to work. Therefore, the user find it difficult to use.

Disadvantages of Existing system

- The human effort is more here
- The user find it difficult to use.
- Maintain for long time .

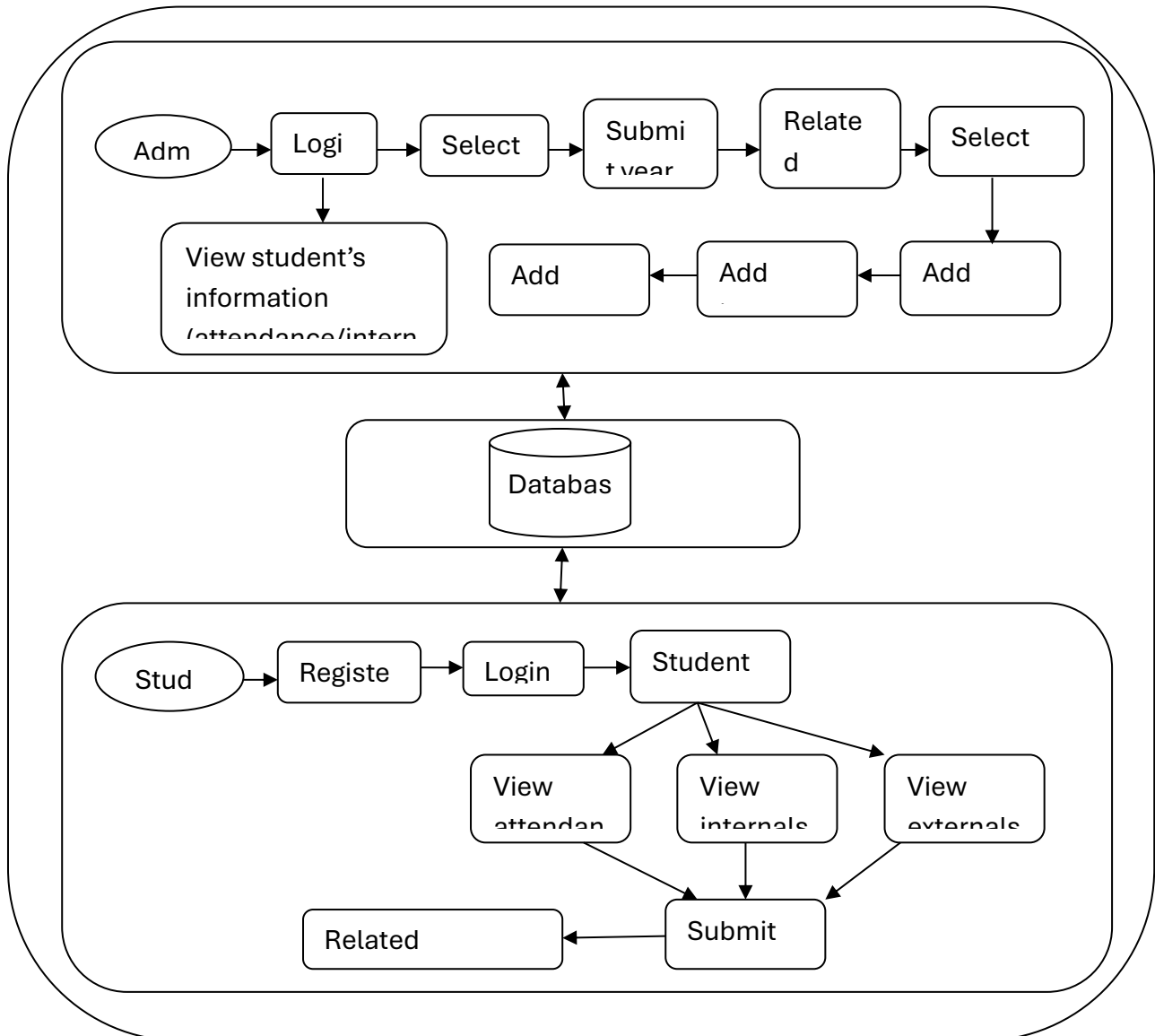
IV. PROPOSED SYSTEM

To overcome the drawbacks of the existing system, the proposed system has been evolved . This project aims to reduce the paper work and saving time to generate accurate results from the student's attendance. The system provides with the best user interface. The purpose of developing attendance management system is to computerized the tradition way of taking attendance.

Advantages of Proposed System

- It is trouble-free to use
- It is a relatively fast approach to enter attendance is highly reliable, approximate result from user best user interface and efficient reports.

V. SYSTEM ARCHITECTURE



VI. METHODOLOGY

Modules Names:

- User interface design
- Admin Upload Module
- Admin Audit Module
- Student Performance Module

User Interface Design

This is the first module of our project. The important role for the user is to move login window to user window. This module has created for the security purpose. In this login page we have to enter login user id and password. It will check username and password is match or not (valid user id and valid password). If we enter any invalid username or password we can't enter into login window to user window it will shows error message. So we are preventing from unauthorized user entering into the login window to user window. It will provide a good security for our project. So server contain user id and password server also check the authentication of the user. It will improves the security and

preventing from unauthorized user enters into the network. In our project we are using JSP for creating design. Here we validate the login user and server authentication.

Admin Upload Module

This is the second module of our project. When the admin had successfully executed the first module then only he will entered in to the second module otherwise he will get error /login page. In the second module the admin had right to upload student's information to the server databases which will be further viewed by the students to analyze their academic performances. Admin upload different types of student information such as attendance details, internals and externals details. Whatever the information that is properly stored at the server side.

AdminAudit Module

This is the third module of our project. When the admin had successfully executed the first module then only he will entered in to the third module otherwise he will get error /login page .In the third module ,admin is able to audit the student registration details with the help of this he can analyze the strength of the college. He can also able to audit the low level attendance student details and their internal and external scores too.

Student Performance Module

This is the fourth module of our project. This module will work properly when only the admin had successfully done their works such as uploading the student's information regarding to attendance, internal and external details. Students must have to be authorized then only they will enter in to this module. In this module the user/student can view their academic performances based on different aspects such as attendance, internal and external. The students can get their performances based on their user-ids, which are unique to identify.

VII. ANALYSIS AND DISCUSSION

1. Security Analysis

The attendance review system must ensure the security and confidentiality of student data. Attendance records contain sensitive academic information, so unauthorized access may lead to misuse or manipulation of records. Secure login authentication, role-based access control, and encrypted data storage help protect information from unauthorized users. Digital attendance systems also reduce the possibility of manual errors and fake attendance entries. Proper backup and recovery mechanisms further ensure data safety and continuity.

2. Performance and Efficiency

An attendance management system improves the overall efficiency of attendance tracking and monitoring. Automated systems reduce manual paperwork, minimize calculation errors, and save faculty time. Attendance reports can be generated quickly, allowing teachers and administrators to monitor student performance effectively. Real-time data processing enhances accuracy and helps institutions identify irregular attendance patterns immediately. Efficient systems also support faster communication between students, faculty, and administration.

3. Scalability Analysis

A scalable attendance system can handle increasing numbers of students, courses, and attendance records without affecting performance. As colleges grow, the system should support multiple departments and large databases efficiently. Cloud-based or centralized systems provide better scalability by allowing easy expansion of storage and processing capabilities. Scalable systems ensure smooth operation even during peak usage periods such as examination reviews or semester-end reporting.

4. Usability and Practical Implementation

The attendance review system should be user-friendly and easy to implement in educational institutions. Faculty members should be able to record attendance quickly with minimal technical knowledge. Students should also have access to attendance status and reports through portals or mobile applications. Practical implementation requires proper training, technical support, and reliable infrastructure. Integration with existing academic systems further improves usability and operational convenience.

5. Comparison with Existing System

Compared to existing systems, the proposed solution:

1. Attendance is recorded automatically.
2. Provides accurate and error-free records.
3. Generates reports quickly.

4. Easy to store and access data digitally.
5. Enables real-time attendance monitoring.

6. Discussion

Attendance review systems play a significant role in improving academic monitoring and student discipline. Traditional attendance methods often involve manual effort, delayed reporting, and record management difficulties. Modern digital systems address these limitations through automation, real-time analysis, and centralized data management.

However, successful implementation depends on proper infrastructure, technical support, and user acceptance. Institutions must also ensure data privacy and system reliability. By combining effective monitoring with student motivation and academic support, attendance review systems can positively influence academic performance and institutional efficiency.

VIII. CONCLUSION

Improving attendance tracking and promoting student attentiveness involves the integration of various evolving technologies and tested methodologies. Our exploration encompassed technologies like, Local Binary Search Patterns, and Principal Component Analysis, along with a review of diverse attendance monitoring systems. Drawing from this knowledge, we propose a system that employs facial consciousness and image tagging to detect and recognize the presence of individuals.

IX. FUTURE ENHANCEMENT

The implementation of an online student attendance system offers numerous benefits to educational institutions. This system streamlines record-keeping, enhances accuracy, and provides real-time insights into student participation. It promotes accountability, facilitates communication between educators and students, and enables better identification of attendance patterns for early intervention. Moreover, it offers a convenient, accessible platform for both students and faculty, fostering a more efficient learning environment. Overall, the online student attendance system is a valuable tool that not only automates the attendance process but also contributes to a more productive and engaged educational experience.

REFERENCES

- [1] Bhumika G. Bhatt, Zankhana H. Shah "Face Feature Extraction Techniques: A Survey", National Conference on Recent Trends in Engineering & Technology, 13-14 May 2011.
- [2] G. Yang and T. S. Huang, "Human face detection in complex background," Pattern Recognition Letter, vol. 27, no.1, pp. 53-63, 1994.
- [3] A. M. Pati!, Dr. Satish R. Kolhe, Dr. Pradeep M. Pati!, "Face Recognition by PCA Technique", Second International Conference on Emerging Trends in Engineering & Technology (ICETET).
- [4] Facial Recognition-based Attendance Management System" by S. Hussain and S. R. Das.
- [5] S. Kadry; K. Smaili, A Design and Implementation of A Wireless Iris Recognition Attendance Management
- [6] Dan Wang, Rong Fu, Zuying Luo, "Classroom Attendance Auto-management Based on Deep Learning", Advances in Social Science, Education and Humanities Research, volume 123, ICESAME 2017.
- [7] Dishant Mohite, Avinash Monde, Namrata Musale, Ramesh Holkar "Image Tagging and Classification", International Journal of Engineering Research & Technology (IJERT), ISSN: 2278-018, Vol. 8 Issue 03, March-2019.
- [8] E. Varadharajan, R. Dharani, S. Jeevitha, B. Kavinmathi, and S. Hemalatha, "Automatic Attendance Management System using Face Detection," in 2016 Online international conference on green engineering and technologies, 2016.
- [9] P. S. H. Smitha, "Face Recognition based Attendance Management System.," Int. J. Eng. Res. & Technol., vol. 9, no. 05, 2020.
- [10] O. Godswill, O. Osas, O. Anderson, I. Oseikhuemen, and O. Etse, "Automated Student Attendance Management System using Face Recognition," Int. J. Educ. Res. Inf. Sci., vol. 5, no. 4, pp. 31–37, 2018.
- [11] F. Susanto, F. Fauziah, and A. Andrianingsih, "Lecturer Attendance System using Face Recognition Application an Android-Based," J. Comput. Networks, Archit. High Perform. Comput., vol. 3, no. 2, pp. 167– 173, 2021, doi: 10.47709/cnaphpc.v3i2.981.
- [12] V. Hava, S. Kale, A. Bairagi, C. Prasad, S. Chatterjee, and A. Varghese, "Free & Generic Facial Attendance System using Android," Int. Res. J. Eng. Technol., vol. 06, no. 09, p. 6, 2019.

- [13] D. Prangchumpol, "Face Recognition for Attendance Management System Using Multiple Sensors," in Journal of Physics: Conference Series, 2019, vol. 1335, no. 1, doi: 10.1088/1742-6596/1335/1/012011.
- [14] D. M. V. Salac, "PRESENT: An Android-Based Class Attendance Monitoring System Using Face Recognition Technology," Int. J. Comput. Sci. Res., vol. 2, no. 3, pp. 102– 115, 2018, doi: 10.25147/ijcsr.2017.001.1.28.
- [15] M. Acasamoso, Ernie C. Avila, Spenser Vargas, "Development And Acceptability of a Student Daily Attendance Monitoring System," IEEE Access, 2021.
- [16] Namrata Narkhede, Anupama Menon, Itisha Mathane, Sayali Nikam, Suchita Dange, "Facial Recognition and Machine Learning-based Student Attendance Monitoring System," IEEE Access, 2023.
- [17] Bheemesh K. Gudur, Tejashwini Ivanagimath, arunkumar Rathod, "Biometric Based Portable Student Attendance System," IEEE Access, 2024.
- [18] Yi Yi, "Student Attendance Management System Based on Fingerprint Identification Technology," IEEE Access, 2023.
- [19] Soham Pati, Souvik Bhanja, Arpan Majumder, Spandan Sahu, Subhabrata Banerjee, Gobinda, "A Novel QR Code Based Smart Attendance Tracking System," IEEE Access, 2023.



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