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CLASSROOM SURVEILLANCE AND ATTENDANCE MONITORING

Prof. Vivekanand Thakare[1], Homal Thakre[2], Sonali Mule[3], Rupali Dighore[4], Karan Patwa[5], Abhijeet Mishra[6], Madhuri Parate[7]

Teacher, Computer Engineering, Suryodaya College of Engineering and Technology, Nagpur, India[1]

Student, Computer Engineering, Suryodaya College of Engineering and Technology, Nagpur, India[2-7]

Abstract: In this paper the automated attendance system was introduced that reduced staff members' paperwork for attendance and also introduced classroom monitoring without visiting all departments using biometric technology. Traditionally, faculties collect student attendance using roll call on the muster. The faculties are responsible for monitoring student attendance during the semester. They must calculate the attendance % of all students for each semester. They must also warn students who are less in attendance to achieve a minimum attendance of 80% as per university regulations. This whole process is still done manually, which takes a lot of time. This issue may require a system to more accurately record student attendance and eliminate the need for manual faculty checking. The system saves the class schedule and when the class is ongoing it will be visible on the web page and semester, log in/out time, subject etc. will be visible on the screen. It will be accessible from the staff and higher authorities. The database stores the fingerprint data of all students and teachers. Whenever a student marks attendance for a particular semester, the system checks against the system's database and therefore marks that particular student's attendance for that respective semester. It will be displayed on the web page using the IOT to the respective higher authorities.

Keywords: Fingerprint, identification, Attendance database, Biometric, dashboard.

I. INTRODUCTION

The current scenario is the use of advanced technology to deliver intelligent work in all areas. There are also many changes and advancements in computer science and technology. The manual attendance process took time for both students and staff when giving lectures in the department. We definitely needed a new approach to handle this manual support process.

In our work, we design a biometric device for the attendance system using biometric technology. We use a fingerprint scanning system because each person's fingerprint is unique. It also cannot be copied by anyone else as it is a safe and fair system for the support process. We have to fill in the fingerprints of every student and staff every semester. This database matches student and staff fingerprints when scanned during lectures and displays them on the OLED screen fingerprint scanned and log in/out time and on web page semester, log in/out time, subject etc.

II. ATTENDANCE MANAGEMENT

Attendance management is the act of managing the presence or presence in a work environment to avoid losses due to lecturer downtime. Attendance control was traditionally approached using clocks and muster, but attendance Management is committed to providing a work environment that maximizes and motivates employee attendance [1].

Attendance management is an important part of today's human resource systems; lead the organization towards better human resources practice, systems and excellence, therefore regular attendance and punctuality of all teachers and staff is expected in the campus. Insufficient attendance caused by unplanned absences of teachers and delays leads to loss of students, affects creativity of the student [8].

III. RELATED WORKS

Documentation numbers for electronic devices for the student's attendance record currently exists as shown below.

In [5] an integrated computerized conference attendance management system was proposed. Although it is an improved system with a series-connected electronic card reader to a personal computer, the disadvantage of such a system is that: someone can always take help from someone else if it is given the person's electronic card. The authors of [3] used attendance management system that authenticates using the iris of the individual. This system uses an offline iris recognition management system to capture images, extract accurate details, save the captured image and match it with a stored in the database. This system takes care of keying in an incorrect entry or calling in a colleague. The blow is when we the employee or student marks another person's file incorrectly.

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The only problem with this type of biometric system is that people they are usually afraid that the iris will scan a persons attendance. The authors of [4] have a system that authenticates the user based on passwords. This system still cannot delete the spoof because the password may have been shared or changed. Passwords multiple times it can be forgotten or the system can be hacked, preventing users from accessing the system.

[6] Have proposed an integrated attendance management computer system at conferences where a single-chip computer the subsystems (a makeshift electronic card and card reader) were serially connected to the serial port of the digital computer.

The electronic card is a smart card model that contains the student's identity (identification name, license plate and five pins encrypted code). The student card is authenticated by the card reader which compares the access code with the encrypted code in the card is fed through the card reader. Depending on the results of the exam, the student will be and/or refused to participate in a particular conference comparison by the backend software system running on the PC to which the card reader is serially connected. Although the system provided a low cost and simplified integrated computer system solution to address the problem of conference attendance in developing countries, but this does not eliminate the risk of phishing. The system is based on a design in which students must wear you need to install RFID cards and also RFID detectors.

[7] Have proposed real-time computer vision algorithms in automated attendance management systems using computer vision and facial recognition algorithms and integration of both into the attendance management process. The system eliminates the classic student identification such as calling the names of the students or checking the respective ID cards, but still doesn't have the ability to identify each student present in the classroom, allowing for a lower recognition rate as facial images may change between the time of registration and verification time and also represents a greater financial burden during installation and does not provide any privacy protections.

In [2], a wireless presence management system based on iris recognition using Daugman's algorithm was proposed.

The system uses an offline iris recognition management system that can complete the whole process including capturing the image of: iris recognition, minutiae extraction, storage and combination, but it is difficult to place transmission lines where the topography is only In addition, we have other solutions such as those based on RFID

GSM-GPRS based authentication and authentication system. There are issues with all of these device-based solutions.

GSM GPRS based systems use class location to: attendance score that is not dynamic. Therefore, an incorrect presence may be registered when changing locations.

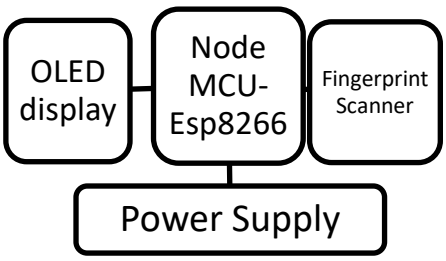
The problem with RFID authentication systems [9] is that: RFID cards can be lost, stolen and must be installed RFID detectors. RFID cards also cannot eliminate waterproofing. However, this fingerprint verification system is an economical and simplified means of identification. The fingerprint is distinctive from each individual. Even identical twins do it does not share the same fingerprint functions and can only transfer, lose or forget the password. It enables students to easily register for conferences and eliminate errors that: linked to timesheets because the system generates export at the end of the semester. The advantage of this system is that it can work as a stand-alone system unlike others fingerprint identification systems exist.

IV. System Overview

In this IoT biometric project, we will learn how to create an IoT based biometric fingerprint attendance system using NodeMCU ESP8266 12E, 0.96" OLED display and sensor. R305 fingerprint. The ESP8266 Wi-Fi module collects the fingerprint data from multiple users and send it to a website over the Internet. The fingerprint registration is done on the server using R305 or R307 or other compatible fingerprint sensor and authentication is performed on the client with fingerprint templates sent over the network.

The javascript-encoded website has a database and attendance logs. By logging into the website, you can collect all attendance data from each user, including personal information, as well as check-in and check-out times.

V. Hardware Block Diagram



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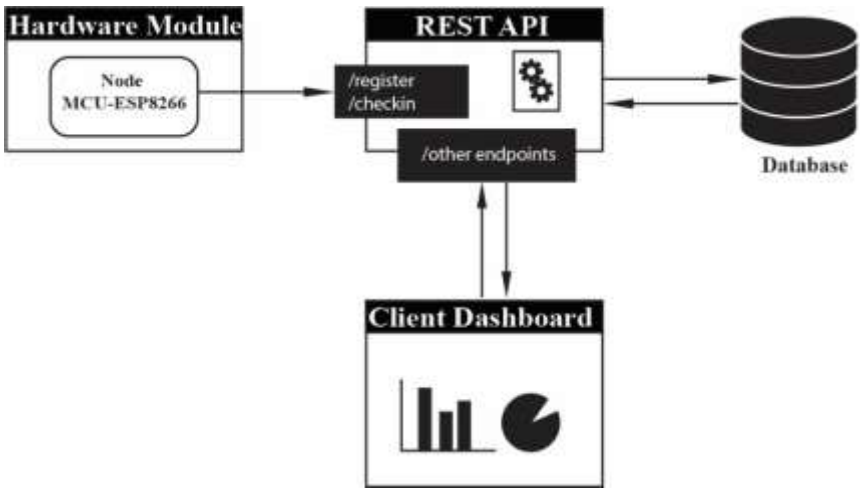
A. REQUIREMENTS:

- NodeMCU
- Fingerprint Sensor
- OLED Display
- Connecting Wires
- Computer System.

VI. SOFTWARE BLOCK DIAGRAM



B. REQUIREMENTS:

- Javascript
- Angularjs
- Database

VII. PROPOSED WORK

Presently, in this system there is a dashboard which is for teachers, in this system higher authorities can monitor lecturer attendance for a particular subject their in and out time for a lecture. And by clicking on particular semester that page will show the subject name, lecturer name, no. of students present in that lecture and in and out timing for that lecturer will be there in monitor screen. It will show accountability of the lecturer towards the students as well as towards the institution. Higher authorities can also see the attendance of individual student of dashboard.

VIII. CONCLUSION

This document successfully presented a reliable, secure and fast solution. And an efficient system that replaces a manual and unreliable system. This system can be implemented in many settings especially in academic institutions for better results in attendance management. This system saves your time, reduce the amount of work the administrator has to do and replace stationery with an electronic device. Therefore, a system has been developed with the expected results, but there is still room for improvement.

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