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Lab Attendance Using Fingerprint Sensor

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Abstract: In today's world regularity of student attendance is concerned in the administration of Educational Institutions. Overall academic performance is affected by the student's attendance because poor attendance leads students in detention list. Student's attendance is taken manually by using attendance sheet given by the faculty members in the classroom, which is a time-consuming event. Furthermore, it is very difficult to verify one by one student in a large classroom whether the authenticated students are responding or not. The proposed system describes a method for Students Attendance System which will integrate with the fingerprint technology. This paper proposes the system in that various fingerprints of students will be gated through the fingerprint module. The fingerprints will be mapped against the data set for authentication of student attendance. The student whose fingerprint matches the most with the data set is marked present for the particular lecture. As well as this paper demonstrates how fingerprint recognition can be used for an efficient attendance system to automatically record the presence of an enrolled individual within the respective venue. Also, it maintains a log file to keep records of the entry of every individual with respect to subjects and also generate a report of attendance. This paper also provides the design method of fingerprint-based student attendance with help of GSM. This system ignores the requirement for stationary materials and personnel for keeping of records.

Keywords: fingerprint, attendance management, enrolment, authentication, Xampp/Wamp Server- Version 7.4.27 size 671bytes, HTML, CSS, JavaScript, PHP- Version:-7.3.21, MySQL- Version:- 8.0.13

I. INTRODUCTION

Fingerprint identification is one of the most crucial building blocks for smart interactions. Amongst the identification methods, fingerprint recognition is identified to be the most natural ones, that uses to identify people in day by day lives. Although other methods, such as magnetic cards, can provide enhanced performance, those are not appropriate for natural smart interactions due to their intrusive nature. In comparison, fingerprint recognition provides passive identification that is the person to be identified does not need to cooperate or take any specific action. Attendance record plays an important role in the academic achievement of institute students. Attendances of all students are being maintained by every school, college and university. Attendance Management Falls into two categories Namely: Conventional and Automated Methods. The manual attendance record system is not efficient and requires more time to arrange record and to calculate the average attendance of each student. Hence there is a requisite of a system that will solve the problem of student record arrangement and student average attendance calculation. Faculty has to maintain proper record for the attendance. The major problems faced by organizations are time consuming in manual. Basically, this do research is aimed for implementing a system that is capable of identifying the employees in an organization, students in institute marking their attendance. As a result, fingerprint recognition is used to mark the attendance of the employees as well as student. This system provides flexibility optimizing the attendance of the students and the employees at the same time separately, rather than identifying one by one and the absentee's details are sent as SMS to the higher authorities using GSM modem. The proposed system will store the absent and present students' attendance details in electronic format so that management of attendance becomes effortless.

II. LITERATURE SURVEY

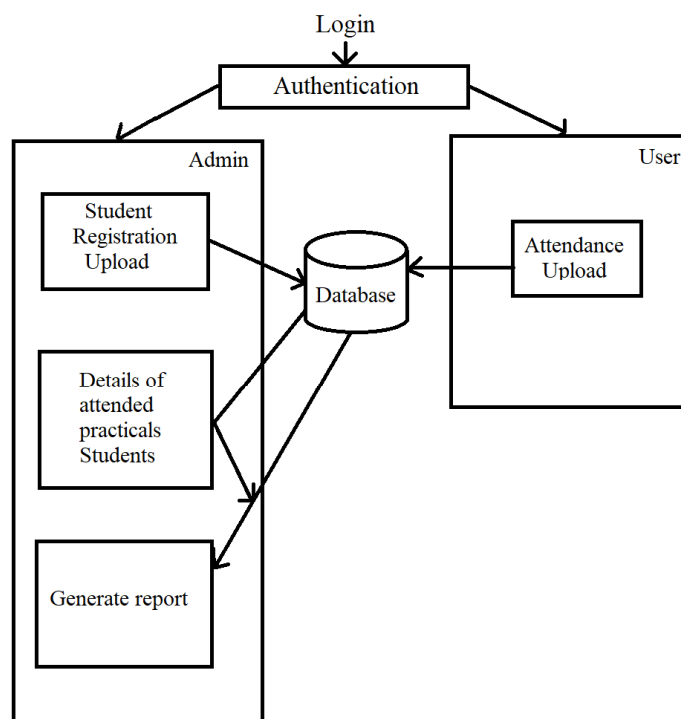
- 1) "Web Based Student Information Management", S.R. BHARAMAGOUDAR et al., this paper assist in automating the existing manual system. It can be monitored and controlled remotely. This paper provides accurate information always. All years together gathered information can be saved and can be accessed at any time. The purpose is to design a college website which contains up to date information of the college. That should improve efficiency of college record management.
- 2) "Attendance Management System G. GANGAGOWRI et al., this system is used Way to SMS software. This software is used to send SMS easily to their parent's. This system can store their data about the students and those cares absent student details. It is an efficient method to store the attendance in the Web Site rather than wasting the paper. It also updates the student report directly on the server reducing the faculty's time on logging from the computer.

III.PROBLEM STATEMENT

Designing a student attendance management system based on Fingerprint recognition and faster one to many identifications that teachers or staff records for attendance in institutions like DKTE's Yashwantrao Chavan Polytechnic.

IV. PROPOSED METHODOLOGY

Fig. 1 Architecture Diagram



A. Admin/User Module

This is admin/user module where only can teachers would be able to login. After login the staff would be able to take attendance of the students. This module is created for security purpose and only restricted for only staff.

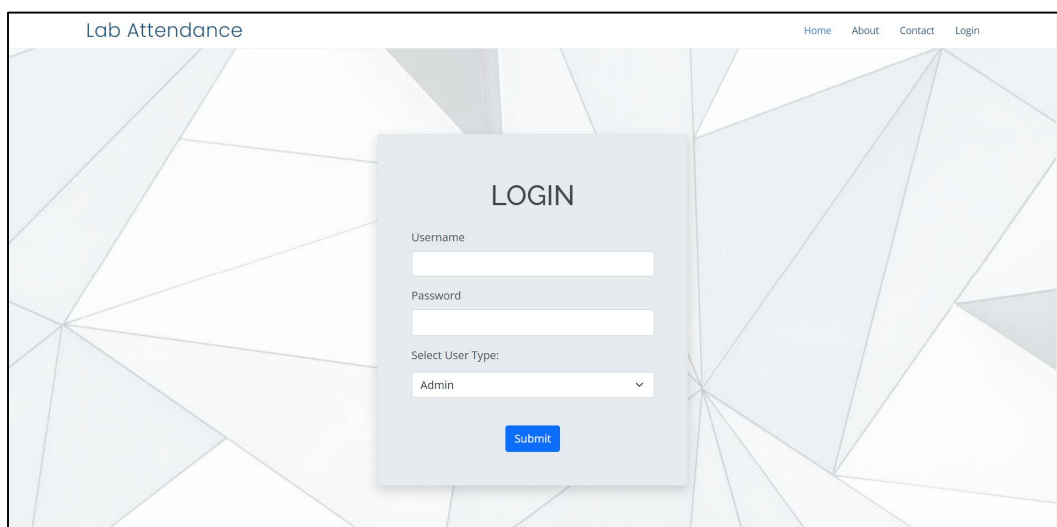
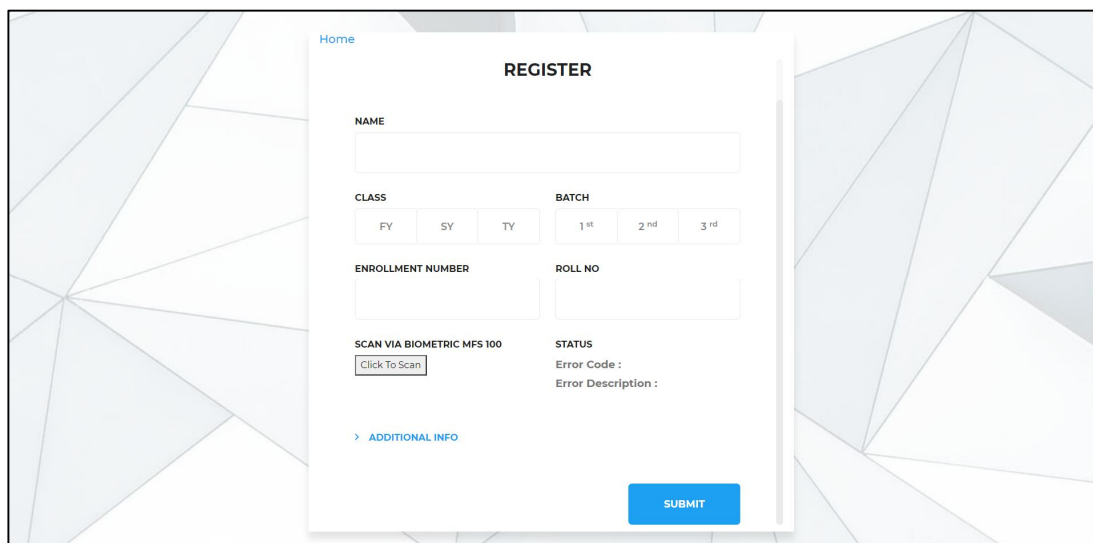


Fig. 2 Admin/User Module

B. Student Registration Upload

In this module, we can register a new student in attendance sheet or the staff can register a new class student.



The screenshot shows a web interface for student registration. It includes a 'REGISTER' title, a 'NAME' input field, a 'CLASS' dropdown with options 'FY', 'SY', and 'TY', a 'BATCH' dropdown with options '1st', '2nd', and '3rd', an 'ENROLLMENT NUMBER' input field, and a 'ROLL NO' input field. There is a 'SCAN VIA BIOMETRIC MFS 100' section with a 'Click To Scan' button. A 'STATUS' section shows 'Error Code :' and 'Error Description :'. A blue 'SUBMIT' button is at the bottom right. A link '> ADDITIONAL INFO' is also present.

Fig. 3 Student Registration Upload Module

C. On-line Attendance Report Generation

Database for attendance would be a table having following fields as a combination for primary field: (1) Day, (2) Roll, (3) Subject and following non-primary fields: (1) Attendance, (2) Semester. Using this table, all the attendance can be managed for a student. For on-line report generation, a simple website can be hosted on NIT Rourkela servers, which will access this table for showing attendance of students.

D. Attendance Details

This is our Attendance Details module. In this module, admin/staff can see the attendance details each and every class/batch by selecting the option from the drop-down list. We also provide a facility to the staff, where staff can see the attendance by that one particular date or which date, they want to see the attendance of a batch or class.

| Attendance Details | | | | | | |
|----------------------------------------------------------------------------------------------------|-------------------|-----------------|-------|-------|--------------|-------------------------|
| <div> <div>Select Class</div> <div>Select Batch</div> <div>dd-mm-yyyy</div> <div>Show</div> </div> | | | | | | |
| Roll Number | Enrollment Number | Name | Class | Batch | Phone Number | Email Address |
| 45 | 1234 | Swapnil Akolkar | FY | First | 7385307897 | click2swapnil@gmail.com |
| 12 | 123456 | Sachin Shelke | FY | First | | |
| 45 | 1234 | Swapnil Akolkar | FY | First | 7385307897 | click2swapnil@gmail.com |
| 45 | 1234 | Swapnil Akolkar | FY | First | 7385307897 | click2swapnil@gmail.com |
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| 45 | 1234 | Swapnil Akolkar | FY | First | 7385307897 | click2swapnil@gmail.com |
| 45 | 1234 | Swapnil Akolkar | FY | First | 7385307897 | click2swapnil@gmail.com |
| 45 | 1234 | Swapnil Akolkar | FY | First | 7385307897 | click2swapnil@gmail.com |
| 99 | 5671234 | Akash Singh | FY | First | 8900000000 | akashsingh@gmail.com |
| 15 | 1020010 | Pratap Singh | FY | First | | |

Fig. 4 Attendance Details Module

V. CONCLUSIONS

This project mainly comprised of development of attendance management system and fingerprint identification system. Attendance management is very helpful in saving valuable time of students and teachers, paper and generating report at required time. This project presented a framework using which attendance management can be made automated and on-line.

The proposed system offers the process of monitoring attend students, it aims to help the teacher in the classroom or laboratories to manage and record students' presence electronically and directly without the need to list on paper so it will save time and effort. The system can analyze the data and displays statistics about the student's absences.

Fingerprint Identification System used for student identification is faster in implementation than any other fingerprint identification systems. The developed system is very helpful in saving valuable time of students and lecturers, paper and generating report at required time. The system can record the clock in and clock out time of students and workers in a very convenient manner using their fingerprint to prevent impersonation and reduce level of absence. Also, it reduces most of the administrative jobs and minimizes human errors, avoids proxy punching, eliminates time-related disputes and helps to update and maintain attendance records.

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