

LECTURE ATTENDANCE MANAGEMENT SYSTEM WITH ANDROID DEVICE USING FINGERPRINT READER

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Abstract- *Student's attendance tracking is a Major issue in order to check student's performance in the classroom as well as in their studies. The Existing attendance system needs student's to physically sign the attendance sheet each time for the attendance of each class. This is unnecessarily time consuming to check and mark student's name on the attendance sheet. This also happens that some students may accidentally or forcefully mark the student's name like as proxy. Using Smartphone like as Android Technology the course teacher will be able to take attendance easily by our designed mobile application and save the attendance in the phone as well as in server and can check percentage and also can print as hard copy. Using the stored information, this system is able to mark attendance, attendance percentage calculations, send email and send SMS to the guardian to keep them updated about their child's attendance at the Institute.*

Keywords: Mobile Application, Web Server, Student's Attendance, Smartphone, SQLite Database, MySQL Database.

1.INTRODUCTION

Maintaining the attendance of the students in the college and the school requires lots of time. The Attendance of the students needs to be calculated every month. This can create extra burdens on the teachers of any college or school. The Attendance recorded in the college are mostly manually i.e. by using the paper and pen. There are chances of miscalculation in the attendance of the students. The main focus of this paper is to introduce the application of Smartphone in attendance system. Nowadays Smartphone is very common to all the teachers so that they can easily take attendance and process the attendance where it needs. The main advantage of this system is that the teacher can get computed percentage, can print hard copy with detail. Attendance information can save data in phone database as well as save data to remote server database which ensures that the information will never lose, can use the data where it needs.

1.1 SMARTPHONE VS RFID AND BAR CODE SYSTEM

- The Smartphone can control only by course teacher and teacher can retake or modify the attendance which is not possible in RFID and bar coding.
- The Smartphone is cost effective and faster where the price of RFID reader or bar code reader is much higher. In this system, there is no extra cost for buying RFID card or bar code reader.
- In RFID or bar coding system one student must carry his/her RFID card or bar code card which is difficult to do always, even one student carry another's card.
- Reading from RFID or bar coding is time-consuming and sometimes it needs an operator to operate but in Smartphone requires minimum time and no need an extra operator to operate.
- Endeavoring to peruse a few tags at any given moment may bring about flag impact and eventually to data misfortune in RFID system, our system is free from this type of problem.
- Assembling of tags is not yet 100% disappointment free today; around 20-30% of tags utilized as a part of early RFID pilots have been faulty.
- In bar coding system there arise some problems like as optical observable pathway checking, constrained perceptibility, confined traceability, unequipped for item level tracking, work concentrated, defenseless to ecological destruction, inclined to human blunder.

2.HIGH LEVEL SYSTEM DESIGN:

The Smartphone-based Student Attendance System using mobile application improves automated recording of student attendance in school/college/university. With a specific end goal to framework plan, various Smartphone-based strategies and systems have been implemented. Related research on the framework improvement and testing were additionally studied to give direction in assessing the system while taking the reasonable approach in planning the proposed framework. Our proposed framework comprises of three fundamental modules namely the Mobile application, Database module and Web server module. Those modules are integrated together to get the desired result.

Every module conveys its own capacities and unique elements.

A. Mobile Application :

The mobile application provides all the facilities of the system of Smartphone-based Student Attendance. The application provides a user interface which communicates with the course teacher and helps to take attendance. Then it can be saved in phone SQLite database as well as in MySQL database simultaneously. The MySQL database is placed in web server which ensures the remote store of attendance. By using this application user can calculate percentage automatically.

B. Database and Web Server :

A database is characterized as a composed gathering of data. Our database is utilized to particularly store the data gathered by the mobile application. The web server provides the facility of MySQL database. The server is the remote store of attendance record. Only the mobile application can communicate with the web server. The application can update the MySQL database and can retrieve data from web server. If the loss of data occurs user can restore from web server MySQL database. An instructor may alter details of a student yet a student is not permitted to do any alteration to their information.

3. TECHNICAL IMPLEMENTATION

1. Mobile Application:

The system employs in Android API level 28. The application is implemented in Android Studio as IDE. The system used the internal SQLite database as phone database. The server holds MySQL database.

2. MySQL Database and SQLite Database:

The Smartphone-based Student Attendance System is precisely associated with MySQL database. In our database, there are four principle tables developed to store the recorded data. A table called the Attendance table is utilized to store all student's taken attendance data with date and other information.

These data collected by the application is putting away the data onto the database. The Teacher table is another table in the database that is utilized to record the teacher's subtle elements that incorporate their profile

data, for example, name, ID, address, email, telephone number and so on.

The Course table contains course details like Class and Year. The student data table holds the details information of all the students. In the interim, the investigated student's attendance data is recorded in the Attendance database. An arrangement of pre characterized SQL inquiries are built into regular capacities permitting simple information additions, refresh and recoveries for both phone and web server is gathering reason.

3. Graphical User Interface (GUI):

A course teacher is permitted to enter the application user interface by signing in to the framework through a login page by providing his/her Fingerprint. This kind of validation is vital with a specific end goal to counteract access by intruders. The course teacher has full access to the system.

4. FEATURES OF OUR APPLICATION

A. *Taking Attendance and Percentage Calculations*

Every student attendance against each course is set apart on the premise of stay in the class. Student is need to mark the attendance by giving the fingerprint to the scanner. If stay time in the class ties with the required time, then attendance is denoted as 'Present'. The attendance of students who were out of class during a class hour is marked as 'Absence'. There is no chance of duplication record in the system. The percentage calculations are performed automatically by server for every student in each registered courses in order to check his/her performance to attend in the examination. If the calculated percentage is less than the required percentage then the student will be suffered.

B. *Emailing System and Messaging System*

In the case of low percentage an e-mail is sent to student's guardian including the percentage details as well as a warning. By this the students' parents will be automatically updated about his /her child's progress. For sending Short Message Service (SMS), the mobile application is used. Whenever the student acquires a low percentage an SMS is sent to his/her guardian to update them about their Child's Progress in case they are not able to check their email

5. SYSTEM TESTING AND RESULTS

To guarantee the framework exactness and fruitfulness, framework testing has been done over the framework condition that incorporates the client-side application, server-side application, and mobile application. The mobile application was tested by inserting sample

teacher information, course information, and student information and then checked the operation of check attendance, modify attendance, print attendance. In overall our goal to improve a model of a Smartphone-based Student Attendance System was effective. The login menu of Smartphone-based Student Attendance System ensures the access the application system. The client login verification procedure was effectively tested, which keeps an interloper's

Entrance into restricted access of the application. Anyone without ID and password can't the framework. At the point when a Admin is effectively signed in the admin gets the entrance to the primary page that shows a menu containing an

Arrangement of features provided to the Admin. Smartphone based Student Attendance System Take Attendance page contains a list of the Name, Roll No and corresponding Attendance. Only the course teacher can take attendance.

6.CONCLUSIONS

Smartphone-based Student Attendance System will Significantly develop the conventional procedure of student attendance framework in university/college/school surroundings. Smartphone-based Student Attendance System is a computerized information accumulation technology, which leads to more precise data entry. The stored student attendance data are framed and investigate inevitably without any loss of data, compared to a traditional recording method. A course teacher can easily monitor the attendance of students which may develop the excellence of instruction because the fewer time required to collect and process data. Implementing the system in educational environment helps the user to identify attendance, proxy attendance, calculate percentage etc. SMS and Email messages are sent via the system automatically to inform parents so that they can get notified about their child's progress in the institution.

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