

Automated Attendance System (Application)

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Abstract - Marking attendance in any organization used to be troublesome due to the use of pen and paper scheme. Until today, most lecturers in universities are found still using the conventional methods of taking students' attendance either by calling out the students names or by passing around an attendance sheet for students to sign confirming their presence. In addition to the time-consuming issue, such a method is also at higher risk of having students cheating about their attendance, especially in a large classroom. The Proposed application, once installed the student list can be provided into the teacher's personal mobile phone. This application is based on the hotspot of the mobile device, by using hotspot SSID application will recognize and generate the attendance sheet and mark the attendance to the database.

1. INTRODUCTION

Attendance is a vital part of daily routine in educational institutes, offices, and many other organizations. In schools and colleges this attendance marking is done manually but with the advent of new technologies like smartphones, tablets, and palmtops the world is just a click away. Today there isn't need of paper based attendance registers instead people can use very easy and efficient methods like taking e-attendance. Based on this idea introducing a project which is an Android-based mobile application Called "Automated Attendance System". This system is an efficient and user-friendly android mobile application for Attendance Monitoring. This system aims to reduce the manual efforts taken daily by the lecturers and the time being wasted, also system wants to emphasize reducing the paper wastage that happens daily. The scope of the project is the system on which the software is installed, i.e. the project will be developed as a mobile application, and it will work for a particular institutes. The reach of the application mostly for college students and application used by the college personals and employees.

2. BACKGROUND

Attendance plays a vital role in figuring out a person's attentiveness and activeness. Whether it's a school or college or workplace, attendance is often required to keep track of students and employees. Earlier, we used to have registers or regular A4 sheets, which our teachers and instructors used to take attendance. With the changing times, we have come up with a new and exciting way of tracking attendance. So from this article, you will see an app using which the teachers can take the student's attendance and keep track of their attendance. The Online Attendance App is an android application that allows teachers to take attendance of the

students registered in their classes. It's an excellent alternative to the hectic old registers or sheet method. But this is not an optimized solution for solving this problem. It is sometimes time-consuming and human errors occur in this term.

3. SCOPE

The scope of the project is the system on which the software is installed, i.e. the project will be developed as a mobile application and it will work for a particular institute and corporate companies. But later on, the project can be modified to operate online on the play store. The scope of the application is mostly for college students. Application is used by college personals and corporate employees.

4. OBJECTIVES

The main objective to design an android-based mobile attendance application for the management of attendance records in the educational organization. The main objective of this application are as follows:

- To reduce admin work by integrating the details of the students of all departments into a single database.
- To reduce manual work.
- To reduce the time while taking attendance.
- To reduce errors.
- It eliminates duplicate data entries in time and attendance entries.
- To avoid plagiarism while attendance.

5. System Design and Architecture

This part of the report illustrates the approach and architecture of the attendance system i.e. shows the steps and flow of the data into the system, and how data will be updated in the database and retrieved from the database.

- User register and log in.
- Students turn on the hotspot.
- Teacher takes attendance.
- By recognizing the SSID (Which is set as a unique id) system checks if it is valid.
- Attendance data updated by the teacher in the database.

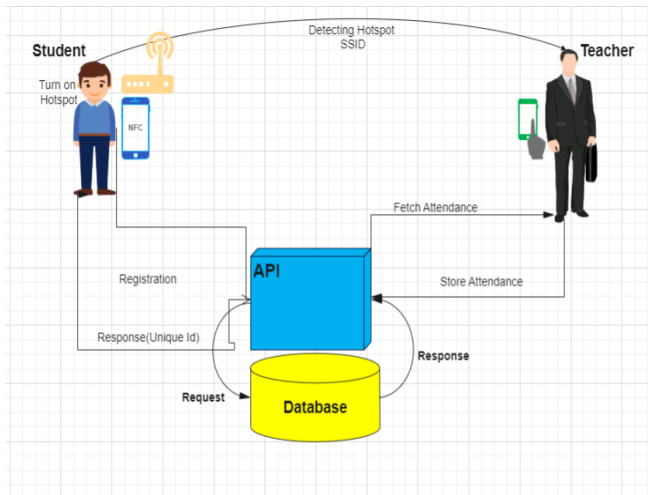


Fig-1: System Design & System Architecture

6. CODING & IMPLEMENTATION

- Steps:
 - Student Registration and verification.
 - System automatically generates a unique id for students.
 - Admin will create the teacher's account credentials.
 - Teacher selects class, branch and subject.
 - Teacher takes attendance.
 - Store attendance in the database.
 - Download the attendance sheet.
- Software & Hardware Requirements:
 - Software Requirements:

In the software development Android Studio used to develop the application for android smart phones.

 1. Frontend: XML.
 2. Backend: Java.
 3. API Development Framework: Node JS.
 4. Database: MongoDB.
 - Hardware Requirements:

For building the project below requirements are needed:

 1. Operating System: Any.
 2. RAM: 4GB and above.
 3. Processor: Intel i3/ Ryzen 3000 and above versions.
 4. Tools: Android Studio and VS Code.
 5. Running Environment: Android Smart Phone.

Data Flow Diagrams:

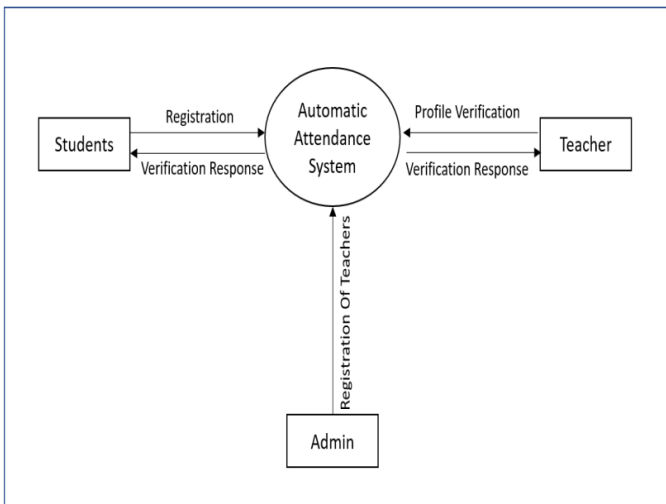


Fig-2: Data Flow Diagram-0

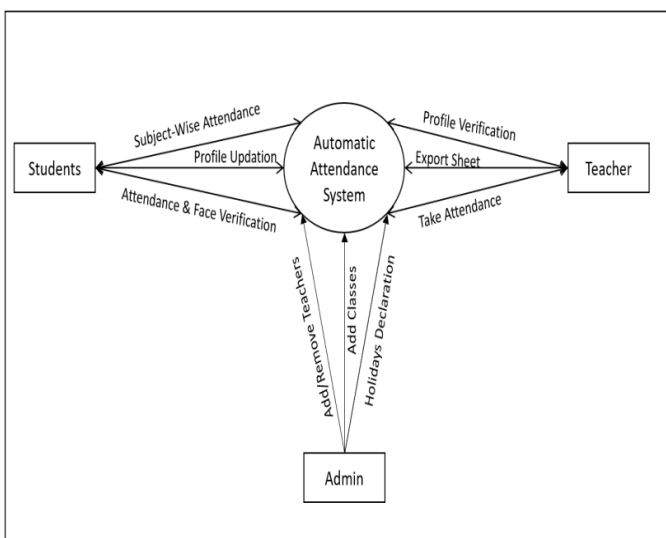


Fig-3: Data Flow Diagram-1

7. TESTING

Testing is the process of judging a structure or allure component(s) accompanying the intent to find either it answer the particularized necessities a suggestion of correction. In plain dispute, testing is killing a whole so that label some break, mistakes, or missing necessities in a suggestion of correction the real necessities. Software Testing is a process of proving and ratifying either the program is performing right accompanying no bugs. It is the process of resolving or operating program for the purpose of judgment bugs. It again helps to identify the defects that grant permission perform in the use rule, that needs expected fixed. Testing not only way repairing the bug in the rule, but more to check either the program is functioning in accordance with the given qualifications and experiment approaches.

Black Box Testing:

Black Box testing also known as Behavioural Testing, is a software testing method in which the internal structure/design/implementation of the item being tested is not known to the tester. These tests can be functional or non-functional, though usually functional.

This method is named so because the software program, in the eyes of the tester, is like a black box; inside which one cannot see. This method attempts to find errors in the following categories:

- Incorrect or missing functions
- Interface errors
- Errors in data structures or external database access
- Behaviour or performance errors
- Initialization and termination errors

White Box Testing:

White Box Testing is as known or named at another time or place Clear Box Testing, Open Box Testing, Glass Box Testing, Transparent Box Testing, Code-Based Testing or Structural Testing. It is a spreadsheet experiment means at which point the within form, design, exercise of the article being proven is popular to the experimental. The exploratory picks inputs to exercise courses through the rule and decides the appropriate outputs. Programming talent and exercise information is essential. White box experiment is experiment further the program that controls display and into the basic facts of a whole. This design is chosen so cause the operating system program, in analysis of the experimental, is like a silvery or obvious box; inside that individual distinctly sees.

Test Cases:

Test Case is the set of inputs along with the expected output and actual output some additional information.

Testcase ID 1:

Scenario - Storing the details of students while registering in the database.

Input – Students Details.

Expected output – Registration Successful and Generate unique id.

Actual output - Registration Successful and Generate unique id.

Result - Pass

Testcase ID 2:

Scenario - Fetching students' unique ids from SSID's.

Expected output - Fetched all the present filtered students of the classroom.

Actual output - Fetched all the present filtered students of the classroom.

Result - Pass

Testcase ID 3:

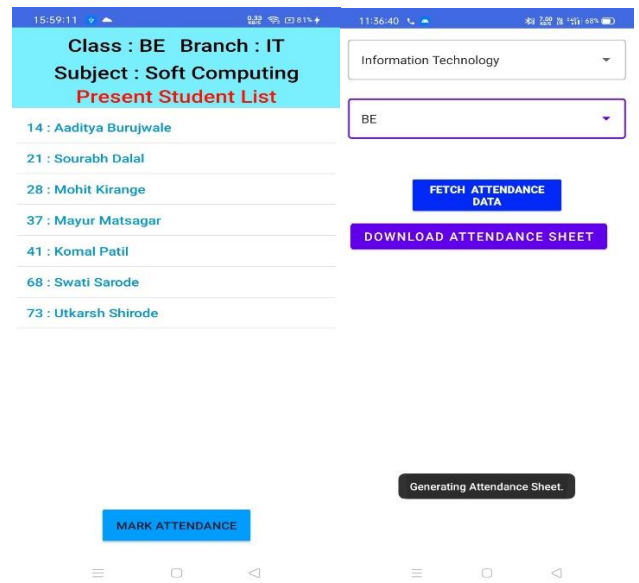
Scenario - Download Excel sheet.

Expected output – Excel Sheet download in the Downloads folder.

Actual output - Excel Sheet download in the Downloads folder.

Result – Pass.

8. OUTPUT:



9. CONCLUSION:

The proposed solution is used to change the system for maintaining the student's attendance and also saves time and manpower. Automated Attendance Application using hotspot will significantly develop the conventional procedure of student attendance framework in university/college/school surroundings. Attendance Application using the hotspot is a computerized information accumulation technology, which leads to more precise data entry. The stored student attendance data are framed and investigated inevitably without any loss of data, compared to a traditional recording method.

ACKNOWLEDGEMENT

The heading should be treated as a 3rd level heading and should not be assigned a number.

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