

# Classroom Attendance Application

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**Abstract**— In this paper, we are discussing about our project Classroom Attendance Application. The development of this application is motivated due to the fact that the students' attendance records are one of the important elements that reflect their academic achievements in the higher academic institutions. The literature review reveals that a more systematic and revolutionary system is indeed needed to be reinforced in order to improve the process of recording and reporting the attendances in the higher academic institution. This application will help teachers to take attendance easily, in an efficient way with the help of their smart phones. And the record of the students' attendance taken by the teachers will be stored in the server system of the institution. It will also help in managing and displaying the students' database easily.

**Keywords**- Attendance Management System, students' attendance, higher academic institution.

## I. INTRODUCTION

Classroom Attendance Application<sup>[1]</sup> is an android based application which will run on mobile. It provides an efficient way to the teachers to take attendance of students in their mobile phones. Database of students will be stored in the server computer and as per the requirement it will be fetched from it. And the attendance will be taken on it. After the attendance is done, result will be stored back in the system.

The recording of the students' attendances are mainly done by pen and papers. The attendance sheets will be distributed in the classes for the students to sign and this practice of course, will consume a lot of time. With the manual system, the process will become more difficult for the management to regularly update the record and manually calculate the percentage of classes attended.

All of these limitations regarding the manual system indicate the needs to improve the process of attendance recording and reporting. Using papers are not just inefficient but it will require the management of the academic institution to provide a well-managed filing system to cater the attendance records.

The scope of the project is the system on which the software is installed, i.e. the project is developed as an ANDROID<sup>[2]</sup> application, and it will work for a particular institute. The system being developed is economic with respect to School or College point of view. It is cost effective in the sense that has eliminated the paper work completely.

Android is a mobile operating system (OS) based on the Linux kernel and currently developed by Google. With a user interface based on direct manipulation, Android is designed primarily for touch screen mobile devices such as smart phones and tablet computers. Android gives you a world-class platform for creating apps and games for Android users everywhere, as well as an open marketplace.

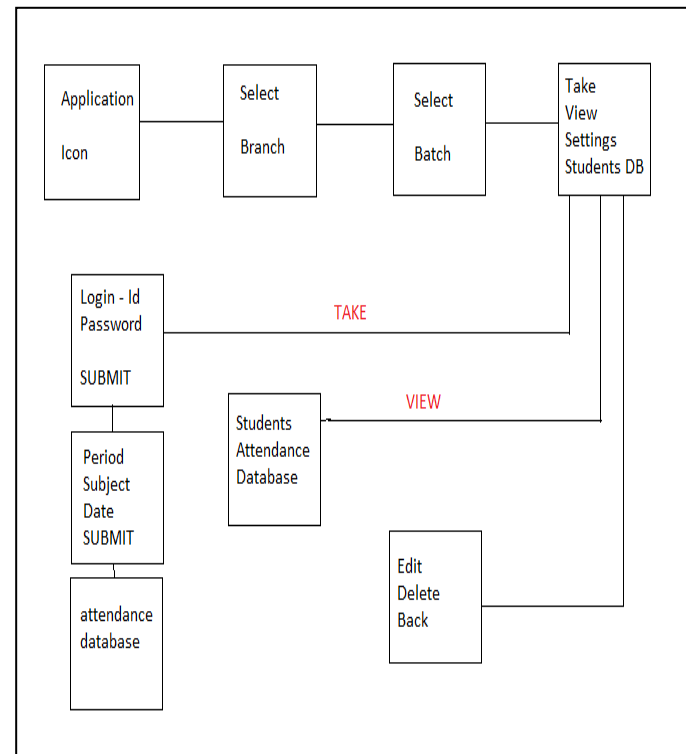


Fig1: Flow chart of management of application

## II. ATTENDANCE MANAGEMENT SYSTEM

Attendance Management System is a software developed for daily student attendance in schools, colleges and institutes. It facilitates to access the attendance information of a particular student in a particular class. The information is sorted by the operators, which will be provided by the teacher for a particular class.

## III. METHOD USED

RAD<sup>[3]</sup> approaches to software development put less emphasis on planning tasks and more emphasis on development. RAD approaches emphasize the necessity of adjusting requirements in reaction to knowledge gained as the project progresses. This causes RAD to use prototypes in addition to or even sometimes in place of design specifications. RAD approaches also emphasize a flexible process that can adapt as the project evolves rather than rigorously defining specifications and plans correctly from the start. In addition to James Martin's RAD methodology. RAD is especially well suited (although not limited to) developing software that is driven by user interface requirements.

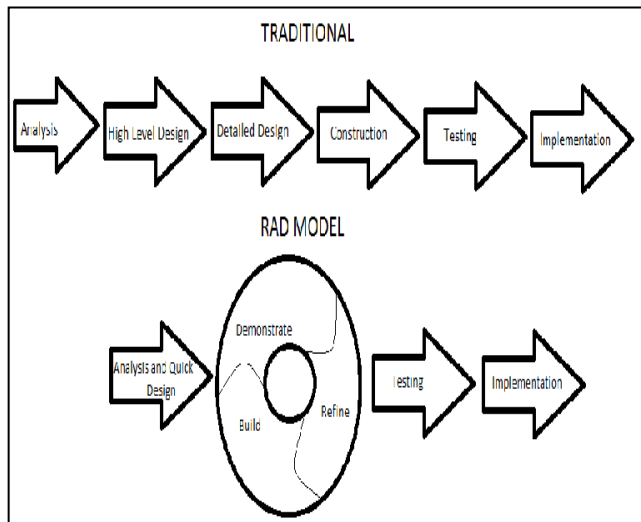


Fig 2: RAD model

### A. Requirements Planning phase

It combines elements of the system planning and systems analysis phases of the Systems Development Life Cycle (SDLC)<sup>[4]</sup>.

### B. User design phase

During this phase, users interact with systems analysts and develop models and prototypes that represent all system processes, inputs, and outputs.

### C. Construction phase

It focuses on program and application development task similar to the SDLC<sup>[4]</sup>. In RAD, however, users continue to participate and can still suggest changes or improvements as actual screens or reports are developed.

### D. Cutover phase

It resembles the final tasks in the SDLC implementation phase, including data conversion, testing, changeover to the new system, and user training.

## IV. WORKING PRINCIPLE

### A. Working of Attendance Application

Firstly the user will click on the Application icon which will take user to the page for selecting the branch such as CSE, IT, MECH etc.

After choosing the branch, a new page will appear corresponding to the selected branch. And the corresponding date of which we are taking the attendance will be automatically selected. A screen will appear where we can choose the option of viewing or taking the attendance. After choosing any one, database of the corresponding will appear.

On opting TAKE option, user can take as well as view the attendance. The user is required to enter the Login-Id and password of their own to make available database on the screen. Thus, the result of the updated records will be stored in the server computer. On opting VIEW option, user cannot edit the database and is only allowed to view the attendance records and details. Hence, View option is just to view the student's attendance record.

There is one more option called Setting, which will help the user to do the necessary changes required in the database like **edit, delete**.

### B. Working of Attendance System

Database will be created and stored in the server system with the help of PHP. And through the use of JSON parser it will be fetched from the system and will be passed to the connected android device (mobile phone) where the attendance will be taken and on clicking the save option in the android device, the resultant database will be transferred and stored back into the system by the same.

## v. RESULTS AND DISCUSSION

### A. Discussion

The classroom attendance application named "Easy Attendance" is initially being developed for the technical college. Thus its logic is built up basically for engineering campus. The app is ready for a single device, in it we can see the list of the Students and can then do further actions. The GUI displays a Menu based interface in which the user

has to click on the option to proceed further for attendance. The user will have to select the branch name of engineering, passing batch name and proceed. The time and date will be automatically fetched from the device and stored in the database with the attendance record.

### 1) Unit Testing

Unit testing<sup>[6]</sup> focuses verification effort on the smallest unit of software design—the software component or module. Using the component-level design description as a guide, important control paths are tested to uncover errors within the boundary of the module. The relative complexity of tests and uncovered errors is limited by the constrained scope established for unit testing. The unit test is white-box oriented, and the step can be conducted in parallel for multiple components.

### 2) Integration Testing

Integration testing<sup>[9]</sup> is a systematic technique for constructing the program structure while at the same time conducting tests to uncover errors associated with interfacing. The objective is to take unit tested components and build a program structure that has been dictated by design.

### 3) System Testing

System testing<sup>[10]</sup> is actually a series of different tests whose primary purpose is to fully exercise the computer-based system. Although each test has a different purpose, all work to verify that system elements have been properly integrated and perform allocated functions. A classic system testing problem is “finger-pointing”

#### B. Results

Firstly we will select the branch and the batch of the class of which we are taking the attendance then it will automatically navigate to a page where we will mention the period and subject. And we also have to choose the corresponding date of which we are taking the attendance. A screen will appear where we can choose the option of viewing or taking the attendance.

After choosing any one, database of the corresponding will appear. On opting View option, we cannot edit the database. Hence, View option is just to view the student's attendance record. There is one more option called Setting, which will help the user to do the necessary changes required in the database.

#### 1. Teachers

Lecturers will have the authority to add the attendance via the Web. Each lecturer will be assigned to a few classes and

the attendances will be recorded on daily basis. The records will be stored in the database

#### 2. Student

Students can only view their attendance records. If the happen to be absent but later on they provide some proofs for their absences, requests can be made to the lecturers to update the records in the system

#### 3. Administrator

The administrator will be granted the full access to the records in the Attendance Management System. Other than issuing the warning letters that can be generated by Attendance management System, the administrator can also update any lecturers' and students' records via Attendance Management System .They can also view the attendance records.

TABLE I. COMPARISON BETWEEN MANUAL SYSTEM AND ONLINE SYSTEM OF RECORDING ATTENDANCE.

	Factors	Strongly Agreed	
		Manual System	Online System
1	Attendance system needs	8.4%	32.9%
2	Attendance system is efficient & effective	5.8%	33.8%
3	Attendance sheets are easy to allocate	12.5%	27.8%
4	Record keeping is more organized	5.1%	38.9%
5	The potential of losing attendance sheets is low	4.5%	40.2%
6	Easy to track students' absences	10.4%	36.2%
7	The format of the report for students' absences is consistent	6.2%	34.9%
8	Delivery of reports for students' absences are easy to produce	5.8%	34.4%
9	The process to report students' absences is easy	6.7%	36.9%
10	Students are not difficult to contact to attend the discipline trials via emails	8.2%	27.3%
11	The process to inform student's status to parents are effective	12%	26.2%
12	Cost to develop, manage & maintain the attendance system is low	13.8%	34.9%
13	The attendance system process is fast	7.1%	40.2%
Average		8.2%	34.2%

#### Brief about JSON parser

(For connecting device to server system)<sup>[11]</sup>

JSON (Java Script Object Notation)<sup>[12]</sup> is very light weight, structured, easy to parse and much human readable. JSON is best alternative to xml when your

android app needs to interchange data with your server. If your app consuming xml data, you can always refer to Android xml.

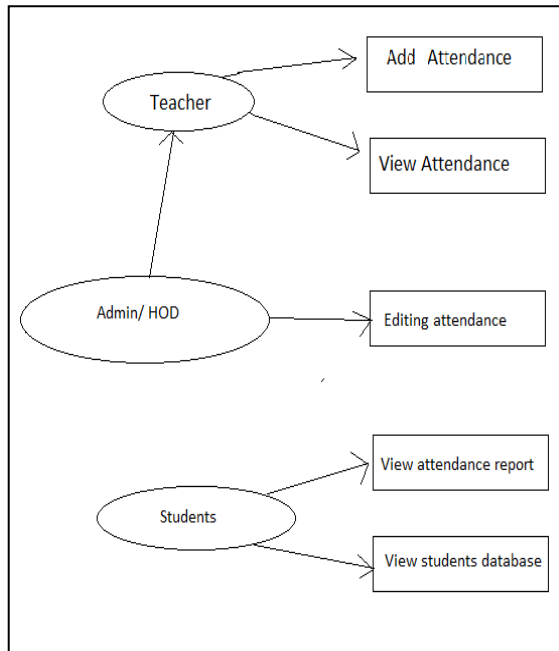


Fig 3: flowchart of logical design of system

## VI. CONCLUSION AND FUTURE ENHANCEMENT

Thus the Attendance Management app runs only on a single device. The purpose of developing classroom attendance application and management system is to computerized the tradition way of taking attendance. Another purpose for developing this software is to generate the report automatically at the end of the session or in the between of the session. It has revealed that an online system for recording and reporting students' attendances is indeed a needed application in order to make the process more efficient and time-saving where more than 70% of the

sample group agreed to that matter. The high-end technologies used to develop this system will provide users with rapid access to any information regarding the students' attendances.

Initially, this application is designed for a single branch. It is planned to make it used globally. So that it can be used by any institution. So in future, we can generalize the application for every other institution. Also few features like displaying individual student's attendance, students' basic information database, etc can be added further.

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