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Student Attendance Tracker System in Android

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Abstract

Student Information Tracking System is an Android application to manage student attendance on mobile. In many colleges teachers use to take attendance manually. Main objective of this project is to add mobility and automation in the existing attendance process. This system helps teachers to take attendance through mobile and also keep in touch with student in some aspect. This System allow teachers to take attendance, edit attendance, view student's bunks, send important documents in pdf format such as exam time table, question bank etc. and also helps teachers to inform students about the events that college is going to organize.

This system also helps students in specifying bunks, deleting bunks, viewing their bunks. This system gives a prior intimation to student as soon as his attendance goes below the specified attendance deadline in the form of an alert. This system helps students to keep in touch with the events that college is going to organize.

Keyword: Android, mobility, automation, attendance, bunk.

1. INTRODUCTION

We have seen over the years that the process of manual attendance has been carried out across almost all educational institutions. The process is not only time consuming but also sometimes inefficient resulting in the false marking of attendance. Today, we need not maintain pen and paper based attendance registers. Following this thought, we have proposed an attendance monitoring system based on the concept of web services which is implemented as an Android mobile application that communicates with the database residing on a remote server. The mobile application would require connecting to the database using either General Packet Radio Service(GPRS) or Wi-Fi technology.

Our project is an efficient and user friendly Android mobile application for an Attendance Monitoring. The application will be installed on the user's (in this case teacher's) smart phone. It intends to provide an interface to the teacher who will require minimal details to input for marking of attendance of a particular class of students. Apart from that, the application would support strong user authentication and quick transmission of data via the web service. Lecturers will login to the phone application and get connected to the server. After login, they will take attendance using mobile phone.

Staff within the same class track attendance differently even when provided with sophisticated tracking systems. Many track attendance only at the beginning of class which can lead to tardies being counted as absences, that's why this application going to built.

In his application student can also registered with their name, branch, and year and with the roll number. If the student wants to see their

attendance then they can see it by the application, after entering the authorized user id and the roll no.

Staff can also upload the any notice through the mobile which is visible to student by their own smart phone.[2]

2. EXISTING SYSTEM AND PROPOSER WORK:

2.1 Working of Existing System:

In the present system all work is done on paper. The whole session attendance is stored in register and at the end of the session the reports are generated. We are not interested in generating report in the middle of the session or as per the requirement because it takes more time in calculation. At the end of session the students who don't have 75% attendance get a notice.

2.2 Disadvantages of Present Working System:

- Not User Friendly
- Difficulty in report generation
- Manual control:
- Lots of paperwork
- Time consuming

2.3 Characteristics of Proposed System:

- **User Friendly:** The proposed system is user friendly because the retrieval and storing of data is fast and data is maintained efficiently. Moreover the graphical user interface is provided in the proposed system, which provides user to deal with the system very easily.
- **Reports are easily generated:** reports can be easily generated in the proposed system so user can generate the report as per the requirement (monthly) or in the middle of the session. User can give the notice to the students so he/she become regular.
- **Very less paper work:** The proposed system requires very less paper work. All the data is feted into the computer immediately and reports can be generated through computers. Moreover work becomes very easy because there is no need to keep data on papers.
- **Computer operator control**: Computer operator control will be there so no chance of errors. Moreover storing and retrieving of information is easy. So work can be done speedily and in time.[1]

3. Why we choose the Android Operating System:

Android is basically an operating system for smart phones that is based on a modified version of Linux. It was originally developed by a startup of the same name, Android. Now the Android is a market-mover.

Now is an exciting time for mobile developers. Mobile phones have never been more popular, and powerful smart phones are now a regular choice for consumers. Stylish and versatile phones packing hardware features like GPS, accelerometers, and touch screens are an enticing platform upon which to create innovative mobile applications. Android hardware will be designed to tempt consumers, but the real win is for developers. Android developers are free to write applications that take full advantage of increasingly powerful mobile hardware. As a result, developer interest in Android devices has made their 2008 release a hugely anticipated mobile technology event. Built on an open source framework, and featuring powerful SDK libraries and an open philosophy.

We find it now in integrated into PDAs, touch pads or televisions, even cars or net books. The mobile-application space is crowded and difficult to gain footing for a newcomer. Android is important is because of its application model.

For users of smart phones, Android provides easy access to social networking sites like Facebook, Twitter, and YouTube and smooth integration with Google products like Gmail, Google Maps, and Google Calendar. Access to the Android software development kit (SDK) suggests that the number of applications will continue to swell as professional developers provide new o_ erring. In Addition, the App Inventor, which provides a web-based visual development environment for those new to this kind of programming, is meant to entice students and developers from outside the computer science department to write their own applications and thereby ensure a growing base of apps going forward.

Now, everyone having the Android smart phone, because it is cheapest because nowadays mobile companies like 'Carbon' , 'Micromax ' ,

'Lava' are also develop the smart phone and provide it in low cost. Android Android devices come in all shapes and sizes. As of late November 2011, the Android OS powers the following types of devices:

- Smartphone's
- Tablets
- E-reader devices
- Netbooks
- MP4 players
- Internet TVs

Android use, the recommended IDE is Eclipse, a multi-language software development Environment featuring an extensible plug-in system. It can be used to develop various types of applications, using languages such as Java, Ada, C, C++, COBOL, Python, are freely available on Internet and the Android SDK contains a debugger, libraries, an emulator, documentation, sample code, and tutorials are also downloaded from the net. And when the SDK Manager is started, it first checks for the packages that are available for installation. The packages contain the documentation and SDK specific to each version of the Android OS. They also contain sample code and tools for the various platforms.

All these are freely available on Internet hence we chose to develop Student Attendance tracking application in Android.[5][7]

3.1 SAMPLE ANDROID MOBILE PHONE:

3.2 Android Versions

Android has gone through quite a number of updates since its first release. Table 1-1 shows the various versions of Android and their codenames.

ANDROID VERSION	RELEASE DATE	CODENAME
1.1	9 February 2009	
1.5	30 April 2009	Cupcake
1.6	15 September 2009	Donut
2.0/2.1	26 October 2009	Éclair
2.2	20 May 2010	Froyo
2.3	6 December 2010	Gingerbread
3.0/3.1/3.2	22 February 2011	HoneyComb
4.0	19 Octomber 2011	Ice cream sandwich
4.1	26 July 2013	Jelly Bean

[7]

1.1 ANDROID SHARE

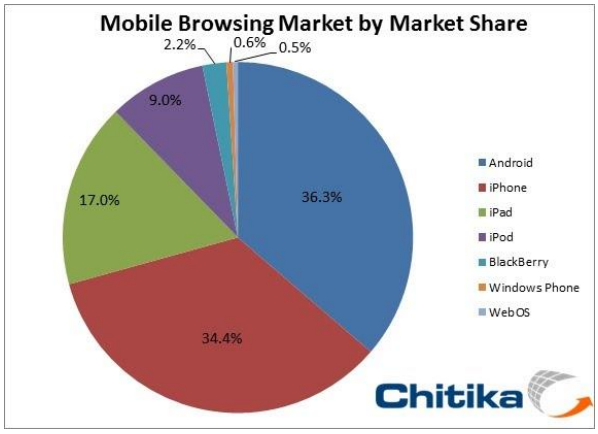


DIAGRAM- *ANDROID SHARE IN MARKET*

4. IMPLEMENTATION:

Implementation is the stage of the project when the theoretical design is turned out into a working system. Thus it can be considered to be the most critical stage in achieving a successful new system and in giving the user, confidence that the new system will work and be effective.

The implementation stage involves careful planning, investigation of the existing system and it's constraints on implementation, designing of methods to achieve changeover and evaluation of changeover methods.

This project will be the platform independent, i.e; project will be run on any operating system. Because any one can be access the project and upload it of their use.

Modules Implementation:

Attendance Tracker is a Bunk Lord app which is designed especially for students to keep track of their attendance level and get notified when attendance drops down. Its having two module. They are-

4.1 Staff Module:

The main purpose of the staff module is to provide security. This module is specially designed for staffs, which use mobile phone to take attendance. Each staff enter username and password before enter in to attendance list. If username and password cannot match, he/she can enter in to attendance page.

4.1.1 Attendance Entry Module:

The purpose of Attendance Entry Module is to enter the attendance using cell phone. In this module Lecturer takes the attendance using the cell phone. Lecturers select the branch, semester and year. After this session he enters in to attendance page. Here staff makes a mark on the absentees.

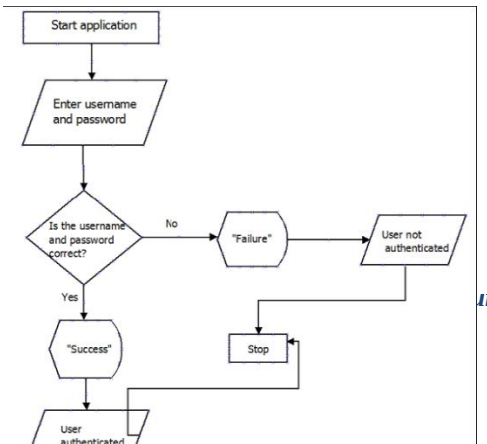


***Figure 4.1(b)**- Flow of the Staff authentication*

4.1.2 Database Module

The first function of this module is to update the attendance list from the cell phone. When the attendance list from the cell phone receives, server automatically updates its database. The server updating the database whether any change from cell phone occurred.

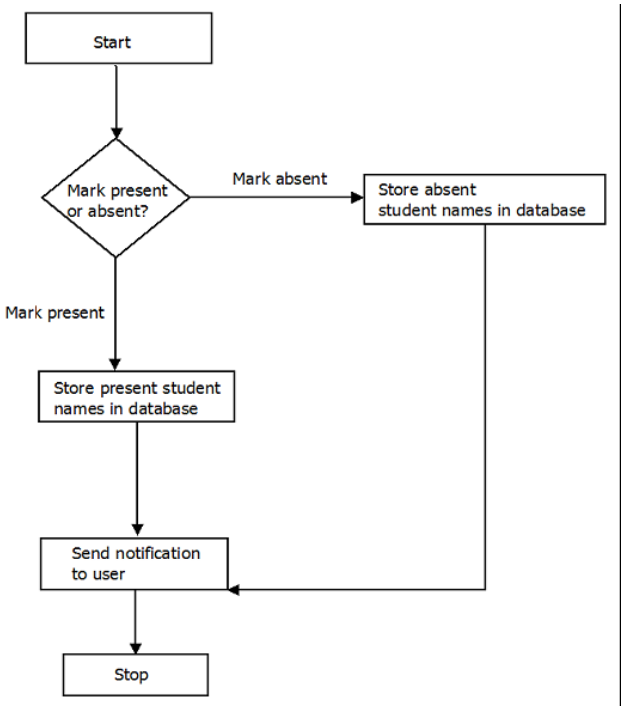


***Figure 4.1(a)**- While Taking the attendance by android smart phone*

4.1.3 Adding the time table:

Adding the time table is very simple as the application stored the all university subject and simply they have to select from the drop down list.

4.1.4 Email Module :

This module is used to send email to the students about their attendance, curriculum activities.[3]

4.2 **Student Module:**

4.2.1 Add Details:

Add your name, roll number and minimum percent of the attendance. This is a onetime process.

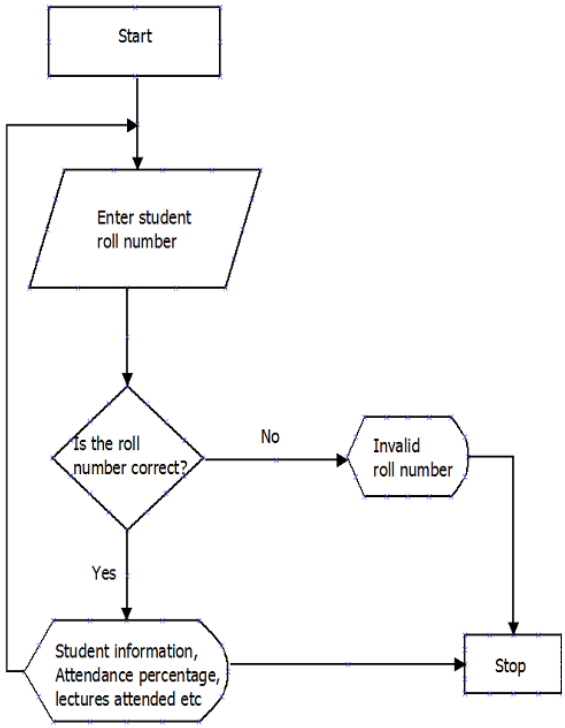


Figure 4.2*- Flow of student entry*

4.2.2 Dashboard:

You can view all pages from the dashboard. You'll be shown the dashboard every time the app runs.

4.2.3 View bunks:

You can either view all bunks or view by subject. View by subject displays a list of subjects and on clicking it takes you to the summary. View all lists all your bunks which are arranged by date.

4.2.4 Alerts:

In order to view the overall attendance clicks on alerts button in dashboard. Alerts page also notifies you when the overall percent drops down.

4.3 Server Module

In this we simply build the database module which is use to store all the data of the staff as well as student also.

Any one authority member can easily access the data from the server as their use.

5. USE BACKEND:

As the backend mostly use the SQL, MYSQL, ORACLE these all use. Follows the same query but the way of organizing the data is different in all.

SQLite can be a powerful tool that makes it easy to store, access, and manipulate data. Say that you have designed a game for Android, and you would like to keep track of the user's high scores for the game. You could store the high scores in a SQLite database, and retrieve the scores sorted from highest to lowest to display to the user.

SQLite is embedded into every Android device. Using a SQLite database in Android does not require a setup procedure or administration of the database.

In the Android *SQLite* is an Open Source database. SQLite supports standard relational database features like SQL syntax, transactions and prepared statements. The database requires limited memory at runtime (approx. 250 Kbyte) which makes it a good candidate from being embedded into other runtimes.

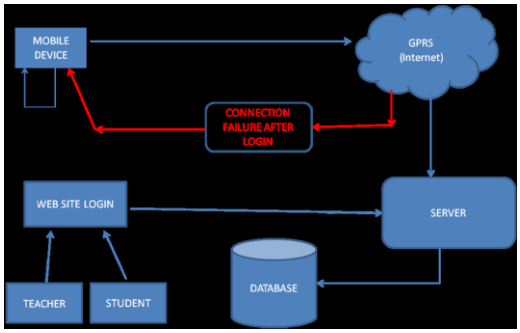
SQLite supports the data types TEXT (similar to String in Java), INTEGER (similar to long in Java) and REAL (similar to double in Java). All other types must be converted into one of these fields before getting saved in the database. SQLite itself does not validate if the types written to the columns are actually of the defined type, e.g. you can write an integer into a string column and vice versa.

Access to a SQLite database involves accessing the file system. This can be slow. Therefore it is recommended to perform database operations asynchronously.

The android.database package contains all necessary classes for working with databases. The

android.database.sqlite package contains the SQLite specific classes.

6. FLOW DIAGRAM:



DIAGRAM(6)*- FLOW OF THE APPLICATION*

7. ADVANTAGES:

After installing this software into the android smart phone

- Calculating the attendance it will too time consuming for the staff.
- Improve the accuracy.
- Less paper work
- No chance of the mistake while calculating the attendance manually.
- Staff work will be less.

8. FUTURE SCOPE:

- On the college level this software is beneficial for the staff as well as student also.
- As soon as the students log in the application in the class, they will be available for the attendance. The lecturer will then submit the attendance using the availability of the students those who are logged in.
- It informs students about low attendance and various events.
- Student doesn't have to visit the notice board every time.[2]

9. CONCLUSION:

An Android based mobile application for Attendance Monitoring is presented. The application offers reliability, time savings and easy control. It can be used as a base for creating similar applications for tracking attendance colleges and in offices or any workplace.

And seminar will help the lecturers to reduce their workload by reducing the time and calculations required to update the attendance manually. Students and their parents will also view the attendance and curriculum details using the website. And students also see their attendance at any time.

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