

SmartDot – Location Based Attendance

Ms. Aria¹, Ms. Urvi Verma², Ms. Simran Swamy³

¹B.Tech.(IT), SRM Institute of Technology, Kattankulathur, Tamil Nadu, India.

²B.Tech.(IT), SRM Institute of Technology, Kattankulathur, Tamil Nadu, India.

³B.Tech.(IT), SRM Institute of Technology, Kattankulathur, Tamil Nadu, India.

Abstract:

SMARTDOT is a composite application used to maintain the information of the students such as their personal details, attendance details and marks details. This project is mainly focused on location based attendance identifying system. Most of the educational organizations use computer based software for maintaining the student records but the existing system doesn't reduce manual work. The proposed system aims in implementing an android application that helps to maintain student information which can be accessed by the mobile via location identification and calculating distance. The proposed system provides portability and accessibility and is based on J2ME technology. The purpose of this project is to build an application which reduces the manual work for managing the student information using GPS to identify the location and calculate distance to mark attendance automatically. In modern times everyone has an access to android supported smart phones. This application is portable and can be easily installed on mobile phones supporting android OS. The use of this application can result in the reduction of number of hours spent by teachers on entering attendance for students in PC as it also generates report. It also provides a user-friendly interface and greatly helps in reducing manual errors.

In this Paper, specialists survey the different modernized framework which is being produced by utilizing distinctive strategies for "Attendance System". In light of this survey, another approach is fabricated for different colleges or academic institutes.

Keyword: Mobile Android Application, College Attendance Management System, Location Based, API.

LITERATURE REVIEW ON DIFFERENT ATTENDANCE MANAGEMENT SYSTEM

1. Computerized Attendance System

This is a desktop application developed by S. K. Jain, U. Joshi, and B. K. Sharma (2010), where the list of all the registered students in a particular course will be displayed when the lecturer starts the application. The attendance is marked by clicking on the check box next to the name of the students that are present to mark their presence. But in this, human involvement for attendance tracking is mandatory.

2. Bluetooth Based Attendance System

In 2013, Vishal Bhalla, Tapodhan Singla, Ankit Gahlot and Vijay Gupta, proposed an attendance system using Bluetooth. In this project, attendance is taken by the teacher via mobile phone. Application software installed in teacher's mobile enables it to query student's mobiles via Bluetooth connection and through transfer of student's Media Access Control (MAC) addresses to teacher's mobile, presence of student can be confirmed. The problem of this proposed system is Bluetooth range may not be sufficient for seminars inside a big auditorium.

3. Fingerprint based Attendance System

Seema Rao and Prof.K.J.Satoa (2013) proposed a system for employee attendance via fingerprint. This system checks one finger impression with all impressions stored in the database, likewise it checks for all employees. It is very time consuming as it checks one finger impression with all the impressions stored in the database.

(Neha Verma, Komal Sethi and Megha Raghav, 2013) Fingerprint based system is designed for student identification. This system is used to mark attendance in NIT Rourkela. Fingerprint analysis time is reduced by partitioning the database. In this system all students will have to stand in a long queues for attendance and relies on a fingerprint device. Major disadvantage is that it works within a short distance.

4. Iris Based Attendance System

In 2010, Seifedine Kadry and Mohamad Smaili proposed a system which implemented a wireless iris recognition system. (Daugman, 2003). Biometrics and wireless techniques reduces fake attendance. It can mark the users' attendances more easily and effectively. The system is based on RF wireless technique, it is too expensive. In this system all students of every class will have to stand in long queues for attendance, and most important disadvantage is that it works within short distances and is an expensive system.

5. Face Recognition based Attendance System

In 2013, Muthu Kalyani.K and Veera Muthu.A proposed Facial Recognition Attendance System, where CCTV camera is fixed at the entrance of the classroom. This captures the image of the person and matches the observed image with the face database. It is used for two purposes. Marking attendance for students by comparing with the database and recognising an unauthorized person. Verification of image is done via 3D Face recognition that provides more accuracy in matching image database. The main problem of this system is recognized face will compare

with all the entire database to authenticate the individual's attendance. This will again be time consuming and expensive.

6. Mobile Based Attendance System

In 2013, Dr. S. Ramnarayan Reddy, Deepanshu Goyal and Ankit Bansal, implemented a system which overcomes the limitations of the existing approach by taking the attendance through teacher's mobiles. Mobile phones help save resources as well as enables an interactive access to the attendance records. This system is implemented on S60 Symbian platform, so teacher must be having S60 Symbian platform mobile phone. But this also has human involvement and doesn't reduce manual work.

EXISTING SYSTEM

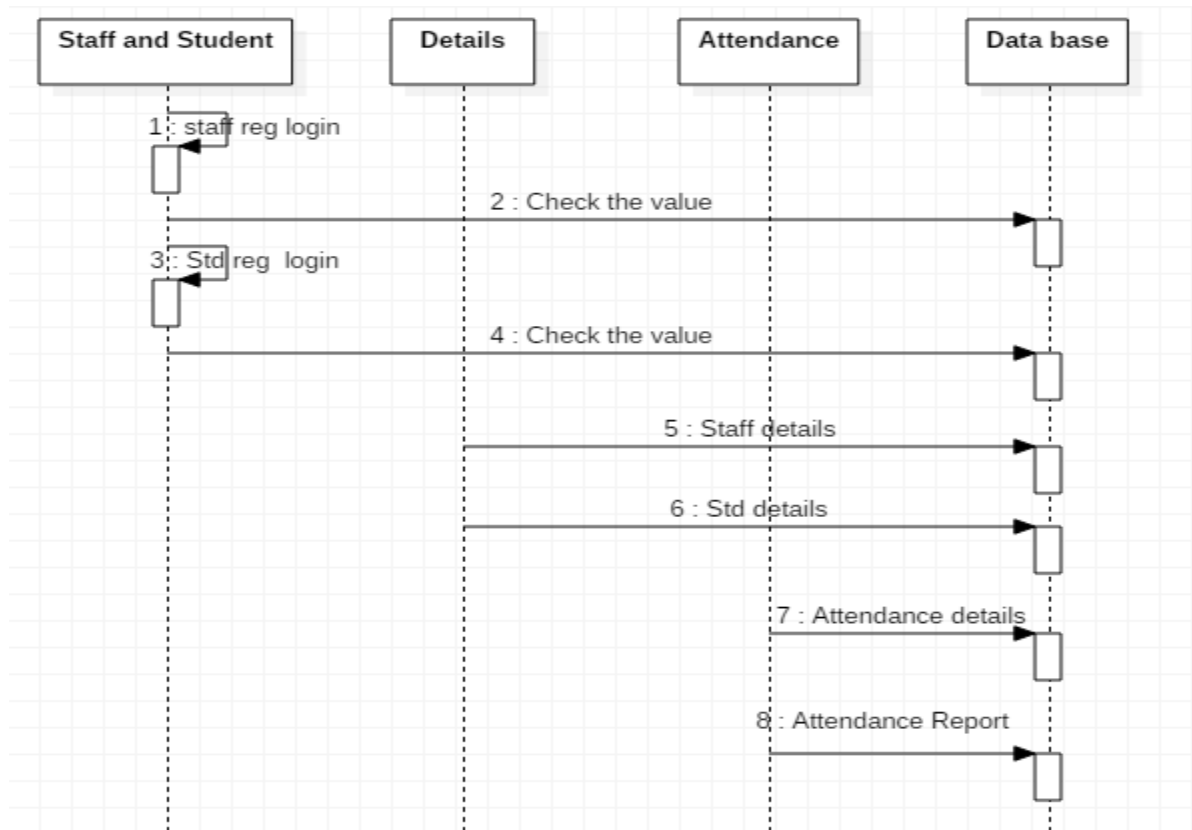
In the existing system all the information is to be maintained in a hard file or Website. While searching any information it is difficult to access and time consuming. Some computer based software's are also used nowadays but they are not user-friendly and don't provide portability. Faculty takes time to maintain these records. Some organizations uses various software for

maintaining student's records but they are not very efficient. The main drawback of existing system is that it does not provide portability and is time consuming.

PROPOSED SYSTEM

Since there are so many drawbacks in the existing system we go for a mobile based android application. In the proposed system, a smart phone based android application using android can be used to make the process more easier, secure and less error prone. Thus reduction of manual and more efficient information system will be achieved through this proposed system. The main advantage of proposed system is that it provides portability and also provides access from anywhere and at any time. Here, both the faculty and the students can make use of this application by installing it in their mobile phone where student is given the authority only to view their record whereas the faculty has the authority to modify and make changes in the record. The proposed system is a fully automated one using wireless android. The proposed android application introduces portability as it is used on a mobile device and can be carried anywhere.

SEQUENCE DIAGRAM OF PROPOSED SYSTEM



FRAMEWORK OF PROPOSED SYSTEM

(A) *Android Developer Tools:* ADT extends Eclipse's capabilities by setting up new Android projects, creating

application's interface, adding packages based on API, debugging using SDK tools, and exporting signed (or unsigned) .apk format files in order to dispense the application.

(B) NetBeans 8.0 for Web Service: Web services are distributed application components used to integrate computer applications that are written in different languages and run on different platforms. Web service applications are deployed to a Java EE application server, such as Glassfish / Sun Java System Application Server.

(C) MapViews as API: In this application, we've used MapViews as supported by Google APIs 10 or higher which would allow the use of app in devices starting from Gingerbread itself. The MapViews automatically initializes the maps system and the view and give latitude and longitude of the location which is then used to calculate the distance.

(D) SQLyog as Database: We have used an Apache Server with PHP & SQLyog support for remote database use. The distance is calculated with the help of stored values in the database.

(E) J2ME Technology: J2ME brings the cross-platform functionality of the Java language to smaller devices, allowing mobile wireless devices to share applications. J2ME enables the Java platform for small computing devices.

Currently, two configurations exist for J2ME,

(1) Connected Limited Device Configuration (CLDC) is used specifically with the KVM for 16-bit or 32-bit devices with limited amounts of memory. It is used for developing small J2ME applications.

(2) Connected Device Configuration (CDC) is used with CVM for 32-bit architectures with more than 2 MB of memory.

Two profiles have been defined for J2ME and are built upon CLDC:

(1) KJava: KJava is Sun's proprietary profile and contains the KJava API. The KJava API is similar to the J2SE Abstract Windowing Toolkit (AWT). Its main package is com.sun.kjava.

(2) MIDP: The Mobile Information Device Profile (MIDP) defines classes for mobile devices such as cellular phones and pagers. It provides a standard run-time environment that allows new applications and services to be deployed dynamically on end user devices.

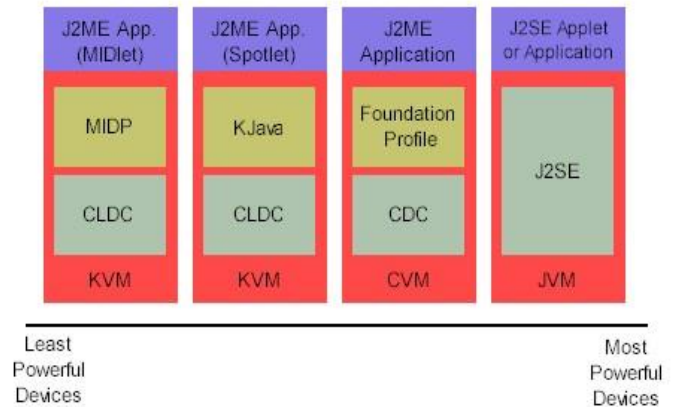


Figure. J2ME Technology Framework

CONCLUSION

Mainly, this project aimed to develop an automated system to reduce the time and manual work done for recording attendance. SmartDot is an Automated Location Based Attendance Monitoring and Registration system offering a total solution that electronically records student's attendance, academic scores and also provides a platform to share study material. It is also an advanced system that enables to run attendance monitoring in short period of time using student's location. The system records individual student's location in real time and calculates their distance from the teacher to mark the attendance. There are a lot of advantages for this system like time saving, economical efficiency, reduce personnel usage, user friendly and protected program. The system reduces manual work for teachers as it also generates reports for the attendance. In future, we can also have two way security by sending OTP for the attendance.

REFERENCES

- [1] S. K. Jain, U. Joshi, and B. K. Sharma, "Attendance Management System," Masters Project Report, Rajasthan Technical University, Kota.
- [2] Vishal Bhalla, Tapodhan Singla, Ankit Gahlot and Vijay Gupta, "Bluetooth Based Attendance Management System", International Journal of Innovations in Engineering and Technology (IJJET) October 2013.
- [3] Seema Rao and Prof.K.J.Satoa, "An Attendance Monitoring System Using Biometrics Authentication", International Journal of Advanced Research in Computer Science and Software Engineering, April 2013.
- [4] Neha Verma, Komal Sethi and Megha Raghav, "An Efficient Automatic Attendance System Using Fingerprint Reconstruction Technique", International Journal Of Advance Research In Science And Engineering (IJARSE), March, 2013.

- [5] Seifedine Kadry and Mohamad Smaili, "Wireless attendance management system based on Iris Recognition", Scientific Research and Essays Vol. 5(12), 18 June, 2010,
- [6] Muthu Kalyani.K and Veera Muthu.A, "Smart Application for AMS using Facial Recognition", Computer Science & Engineering: An International Journal (CSEIJ), October 2013.
- [7] Dr. S. Ramnarayan Reddy, Deepanshu Goyal and Ankit Bansal, "Mobile Based Attendance System". (2013)