

Location Based Smart Attendance System Using GPS

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Abstract— Over the years the tactic of manual attendance has been administrated which isn't only time-consuming but also provides the erroneous result. Automated time and attendance monitoring system provides many benefits to organizations. This reduces the need for a pen and paper-based manual attendance tracking system. Following this thought, we have proposed a wise location-based time and attendance tracking system which is implemented on the android mobile application using smartphone reducing the requirement for added biometric scanner devices. Things of the organization encompass a selected location, which could be determined by GPS. Each student's location is decided by the GPS using smartphones. This location is defined as a key of some time and attendance tracking in our paper.

Keywords—Location-based-Tracking-Monitoring-Attendance-Fingerprint.

I. INTRODUCTION

Nowadays attendance monitoring become an essential for every organization and institution in order to maintain the working hours of their affiliates[1-2]. There are two major types of attendance systems are used biometric and paper-based attendance systems. A paper-based attendance system involves the usage of paper or records of the book for taking attendance where the staff has to verify the physical presence of the candidate. This method could be imprecise because the sheet could be damaged or lost. Our proposed system for this project is based on the concept of developing an application that connected with the local remote server in the organization. From there using Wi-Fi or cellular data location can be contacted with the remote server of the organization. If a person crosses over the particular area with a smartphone application that runs in the background will automatically detect and makes the students as present or the particular hour

II. LITERATURE REVIEW

Attendance of the students had been maintained in several methods. Lawson et al [3]developed a low-cost embedded-based attendance monitoring system with the help of the management electrically verify the attendance for monitoring with the help of an electronic card which is improvised. These cards store the information of a particular cardholder. By insertion of these cards in an electronic machine will record the timing and valuable information to store. The authentication-based password and attendance verification monitor system of any particular person has also been stored in the literature.

Cheng et al [4] had implemented a new system with user name and password of a particular individual for authentication. By the way, an issue arises when these electronic

cards or password usage can be allowed for impostor because, cards and passwords may be shared or someone will use another person's card and password while inserting. This situation will be overcome by using biometrics like fingerprint or iris. A system was developed and used by developers to identify fingerprints and verify attendance and develop the reports after a specific time period. With the help of fingerprint scanner ones, fingerprints are registered for attendance when they keep their finger on the fingerprint scanner. The solution to the problem using a wireless attendance system where the eye i.e; iris of a particular individual is used for verification[6-7]. Iris is also the same as a fingerprint it can't be the same for two people. With the help of a scanner, eyes will be scanned, and log the person in. Unless like a fingerprint, the iris is more safely covered from the external environment safely. But both the fingerprint and iris usage-based systems need some extra devices and scanner which can be connected to the server for computation system[8-11]. In this work, the addressing of the problem faced while usage of smartphones internet connection for monitoring and verifying the presence or attendance of a particular individual in an attendance monitoring system. Monitoring system based on smart mobile phones reduces the over the cost of additional scanning device because nowadays almost every student possess a smartphone of his own.

III. PROPOSED METHODOLOGY

The proposed system provides an answer to the manual attendance-taking problem. This method may be a location-based smart time and attendance tracking system supported by the concept of web services which is implemented as an android mobile application. The coed has got to install the respective APK files developed for them on their android devices. Initially, it's important to avoid wasting the college coordinates by entering the latitude, longitude, and radius of the area. Students must save the IP (internet protocol) address of the college internet. At the identical time, one student can save their information through the data menus of App



Fig.1 Block diagram of Proposed method

This location-based time and attendance tracking system shown in fig.1 locates your position and logs your login and logout time, because the student enters his workplace area, the system connects to the college internet and sends the code id and native time to the server. Then the server gets the civil time and stores the knowledge in an exceeding database. Again when a student leaves the school area, the system notifies the college server that the scholar is leaving. To run the entire system accurately it's important that both the scholar device and college server are within the same internet connection (WiFi/3G).

A. SYSTEM DESIGN

The smart, location-based time and attendance tracking system shown in fig.2 could be a client-server approach and follows specific hardware and software architecture. Integrating the hardware and software is that the main challenge here and also the hardware and software work together. This system is divided into two specific types

1) Application for mobile 2) Application for pc

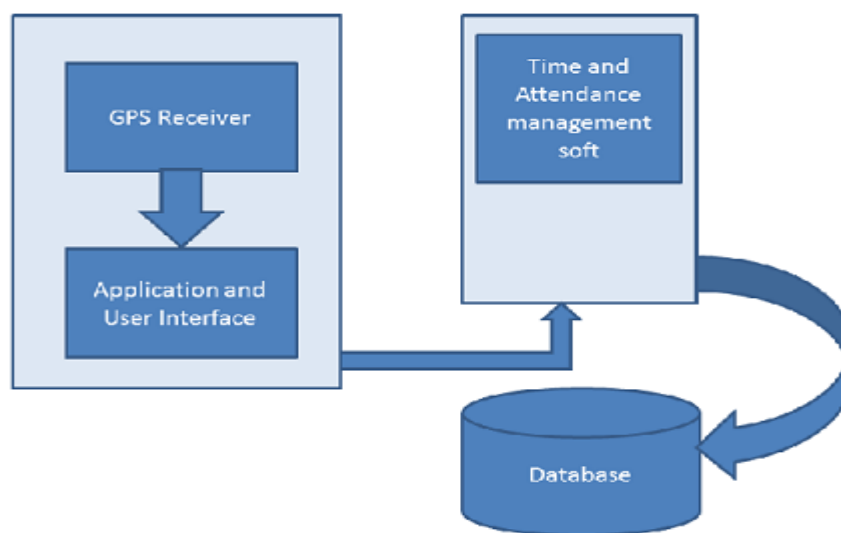


Fig.2. Schematic diagram of location-based attendance system.

B. SOFTWARE ARCHITECTURE

The software architecture shown in fig.3 consists of the database, the applying program, and also the server.

- **Database:** The database consists of a variety of tables, which stores records. We used the apache derby database which is simple, fast, and efficient and might store an oversized number of records and requires a bit of configuration.

- **Application Program:** The appliance program is developed with Android artificial language using the Eclipse framework. The applying program provides a computer program to both the scholars and college server.

Programming in Android is straightforward, user-friendly and android offers wonderful data connectivity.

- **Server:** The server is deployed on the private computer using apache-Tomcat7. Tomcat7 is free, robust, and straightforward to deploy.

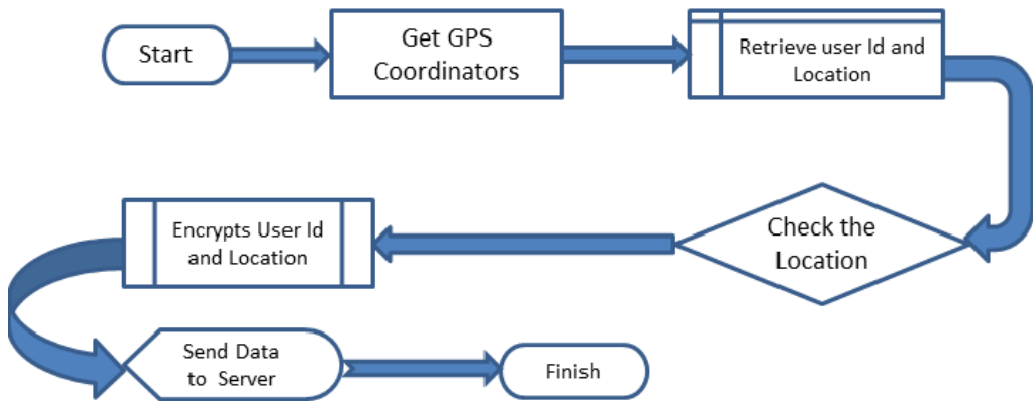


Fig.3 Flow of operations for mobile application

The basic requirement of the situation-based time and attendance tracking system shown in fig.4 is an android device, which is able to run the applying, with the assistance of which the scholars will mark their attendance and take their login, logout time automatically with no hassle. The opposite requirement could be a laptop computer on the server-side, which is able to store the database

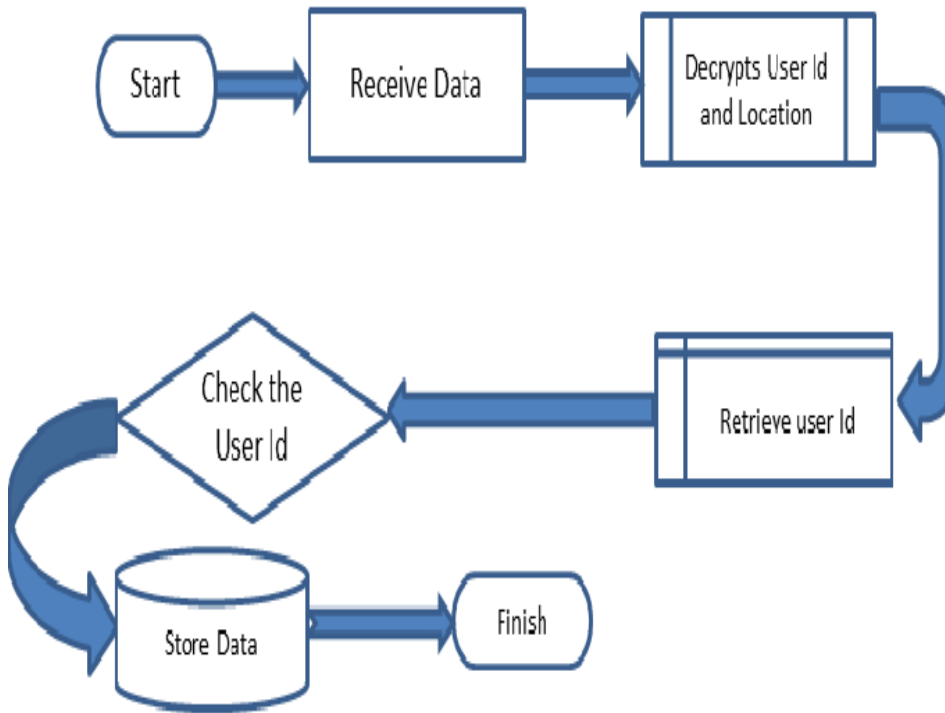


Fig.4 Flow of operation for Time and Attendance Management software

C. FLOWCHART

The step by step process can be explained in the following flowchart fig.5.

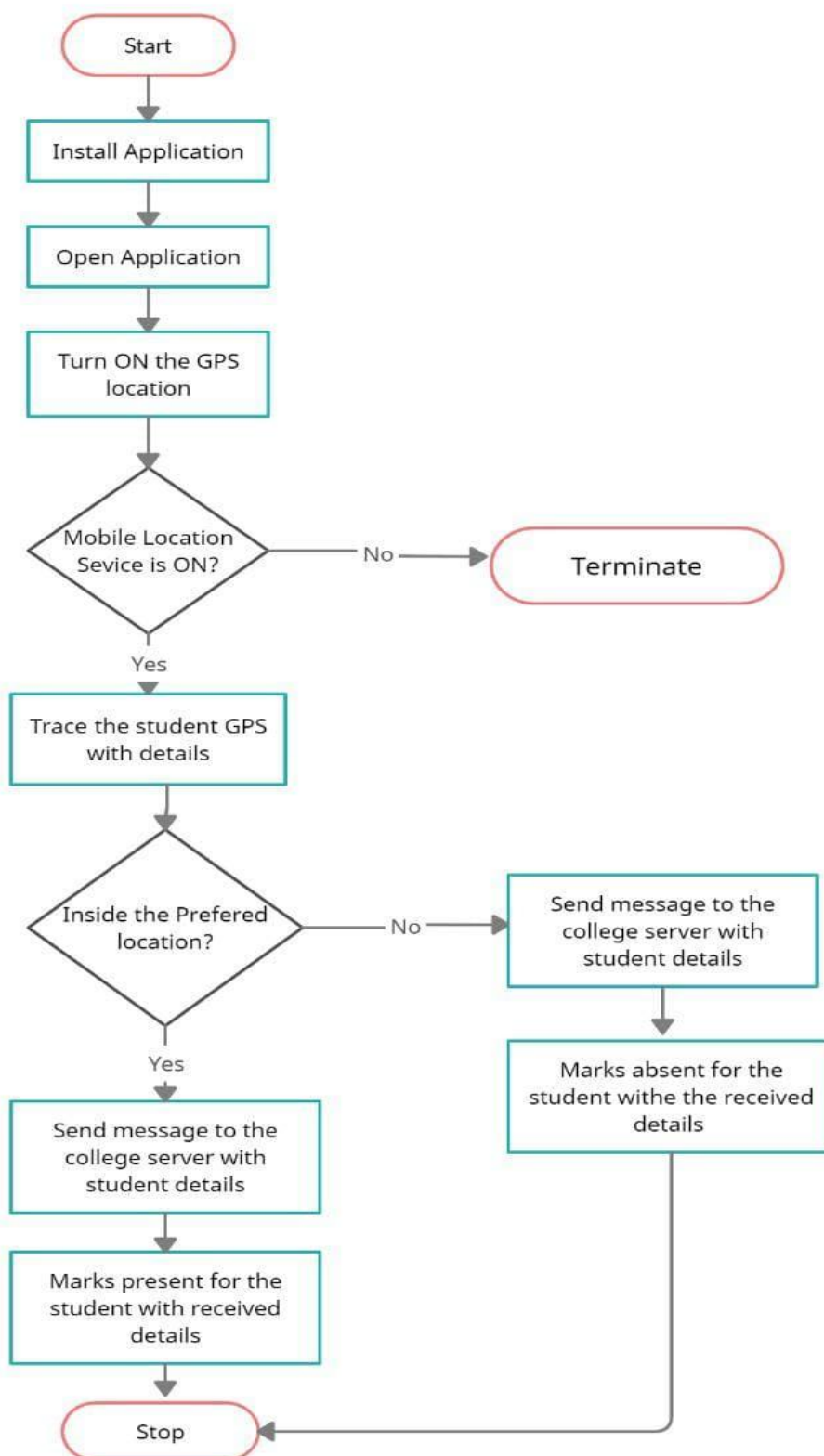


Fig.5 Flowchart of location-based attendance system.

IV. RESULTS AND DISCUSSION



Fig.6 Login page

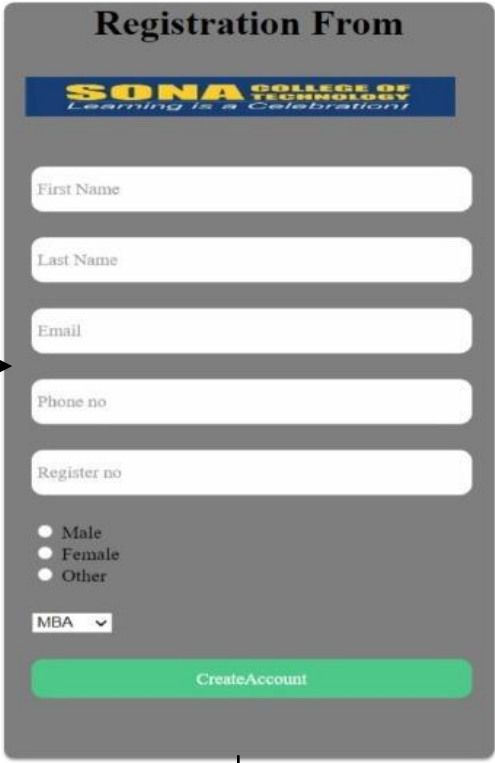


Fig.7 Registration Form

Id	registration	name	email	LoginTime	insidecollege
1	1517102910	Sathyarajan	sathyaraja@gmail.com	9:22 am	present
2	1517102910	Raviheji	Sakthideviahaji@gmail.com	10:00 am	present
3	1517102910	Saidhar	saidhar@gmail.com	9:15 am	present
4	1517102910	Bharath	bharath@gmail.com	-	absent
2	1517102910	Raviheji	sakthideviahaji@gmail.com	10:00 am	present
3	1517102910	Saidhar	saidhar@gmail.com	9:15 am	present
4	1517102910	Bharath	bharath@gmail.com	-	absent
5	1517102912	Raju-Ang Kumar Reddy	rajukumarreddy@gmail.com	9:00 am	present
6	1517102942	Saindi	saindi@gmail.com	-	absent
7	1517102905	Naga Rohith	nagarohith@gmail.com	2:30 pm	present

Fig.8 Database

Find your Current location

Your current location is (Latitude: 17.4246, Longitude: 78.5069)

Fig.9 Location Access

V. CONCLUSION

This paper introduces an attendance tracking system using a location-based application that helps to track the students using a smartphone. The student should be inside the specified area of the GPS to be tracked. We developed this project with the main aim of final year students to make the physical presence in the project hour to be inside the campus.

VI. REFERENCES

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