Smart Employee Manager System Using Geo Fencing Algorithm.

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Abstract: *This paper discusses the various Geofencing concepts. Constructs are concepts, models, or schematic ideas: In our case they are the theoretical constructs of the Geofence used as a Security Strategy Model. In our concept considers Location Based Services and RFID as central to the security of wireless network security. In this Location Based Service and RFID Technology emerge as key constructs. Geofencing application used in framework an organization can turn from less secure when it uses a wireless network to highly secure. This Geofencing application framework was developed with the projection that applying the concepts of statistical process control to wireless network security .This wireless network encourage secure method of communication by organizations prone to war driving and hacking. Paper is divided into two parts. In first part is experimental work, in which field measurement trials were conducted in order to observe and collect Positioning TechnologyTest Bed environment and the measurement scenarios data - taking into account the different noises. And In the second part of this paper presents the experiment setup, components and positioning methodology with a brief description of future work for researchers and industry practitioners.*
Now a days in India or other countries in Schools, Colleges and Universities even in offices the small but important responsibilities of employees like check-in, checkout, leave application, leave details and working hours, etc. done manually. And it takes a lot of time of the employees. So to reduce their work we are going to implement this android application using Geo fencing Algorithm which we can do all the above things automatically by only tapping on our smart-phones. This android app can be used anywhere and anytime.

I. Introduction

In this paper, we present a Wi-Fi network environment compliant with the IEEE protocol using the 802.11b. We organized this system using a client-server, access points, antennas and a Phone as client devices. In our project we gathered position data using a control monitoring system and server in order to analyze and coordinate the various tasks. It was necessary toprofile the mobile devices location and movement by access points and antennas to raise accuracy. Raise accuracy and the triangular surveying abilityusing Location determination method was implemented on the basis of signal strength, using various factors. Our method utilized the profile data of our laboratories server to correct the signal strength variation which is very large according to determination environments. The main task of the project was to collect location data in order to examine the overall performance of the positioning model under optimum to adverse operating conditions e.g. noise and interference. Differenttype's dataare collected from different location and stored in different files. In the organization use experimental testing was carefully designed taking into consideration dynamic and static user measurement scenarios in urban, rural and open space navigation environments. In order to evaluate our Geofencing Security model, a dataset of a user's movement is required. Our experiment will focus on the movement of a mobile phones attached to an RFID tag whose movement together with that of its user is monitored through a wireless controller system. Our experiment will probably typically be used as a service in an office therefore the ideal dataset will be that from a room with office measurements, say like that of an open floor plan were hot can take place. Our experiment aims to generate movement on a pre-defined line within a pre-defined parameter. The environment in which the monitoring takes place is a Wi-Fi enabled open plan office (test bed) and has the necessary components for a mobile to connect to a wireless controller system. Our Geofencing Security Trust Model was developed as a result of the challenges that wireless networks face from the leakage of radio waves which they use to transmit their data. The project used Airstrike's Huntingdon laboratory as its test bed and proved that Geofencing can be used as a security access measure for securing wireless networks. The Geofencing Security Trust Model is the result is better than the last few years work from concept to implementation. Funds were provided for the project by the Haberdashers Fund and the Emerald

Fund and the project collaborated with Airstrike (An independent Wi-Fi tracking solutions company) to obtain Proof of Concept.

II. Location Based Service Infrastructure

Smart employee manager system using Location Based Service technology is that the location of mobile devices has to adhere to international regulations. There two types of attendance system are available, i) Manual and ii) Automated. Manual time and attendance systems use paper time cards and time sheets that employee's fill out and managers oversee for accuracy. However, time and attendance information is due to human error when other employees such as workers, managers, and payroll administrators all perform tasks that involve recording the numbers. In every organization Employees punch in and out when they arrive at work, go to lunch, take a break, or leave for the day. Generally, managers must add up the minutes and hours worked, using each employee's time card, and fill in a time sheet indicating hours worked for the week. Managers also spend lots of time filling out attendance records based on whether employees punched the clock. A lot of man hours and manpower go into calculating time and attendance when using a manual system. Automated time and attendance systems will use electronic tags, bar-code badges, magnetic stripe cards, biometrics (hand, fingerprint, or facial), and touch screens in place of paper cards which employees automatically identify themselves and store their working hours as they enter or leave the work area. The recorded information is then ideally automatically transferred to a computer for processing although some systems require an operator to physically transfer data from the clocking point to the computer using a portable memory device. The computer may then be employed to perform all the necessary calculations to generate employee timesheets which are used to calculate the employees' wages and keep the record of that data. An automated system reduces the risk of errors that are common in a manual system, and allows the workforce to be more productive instead of wasting time on tedious administrative tasks. This paper proposed an Automated Time and Attendance System that use Location instead of traditional methods. Considering the wide popularity of smartphones, we introduce the use of smartphone for this time and attendance tracking purpose.

III. How It Works

The earth twice a day in a very precise orbit and transmit signal information to earthGPS satellites circle. This informationGPS receivers take and use trilateration to calculate the user's exact location. The time a signalcompares the GPS receiver was transmitted by a satellite with the time it was received. This time difference tells us the GPS receiver or user how far away the satellite is. The distance measurements from a few more satellites, the receiver can determine the user's position and display it on the unit's electronic map.

The GPS receiver must be in coverage area of the signal of at least 3 satellites to calculate a 2-D position (latitude and longitude) important part is the track movement. The GPS unit can calculate other information with user's position has been determined, such as speed, bearing, track, trip distance, distance to destination, sunrise and sunset time and more. The 24 satellites that make up the GPS space segment are orbiting the earth about 12,000 miles/ 20000 km above us. They are moving constantly.Making two complete orbits in less than 24 hours. These satellites travelling at speeds of roughly 7,000 miles an hour. GPS satellites are powered by solar energy. They have backup batteries on-board to keep them running in the event of a solar eclipse, whenever there's no solar power. Each satellite have the Small rocket boosters on keep them flying in the correct path. Theoretically, there are no limits on the size of your geofence, but in the interests of maintaining accuracy we recommend a minimum radius of 10 meters and a maximum radius of 200 kilometers.
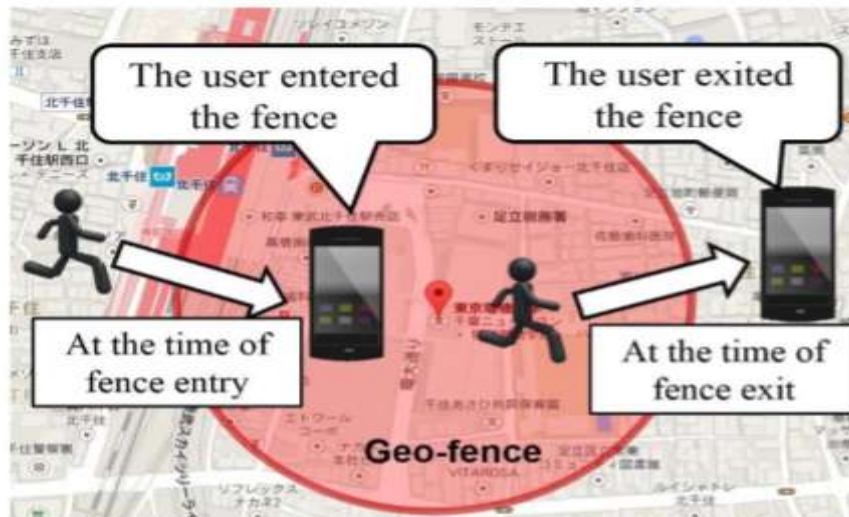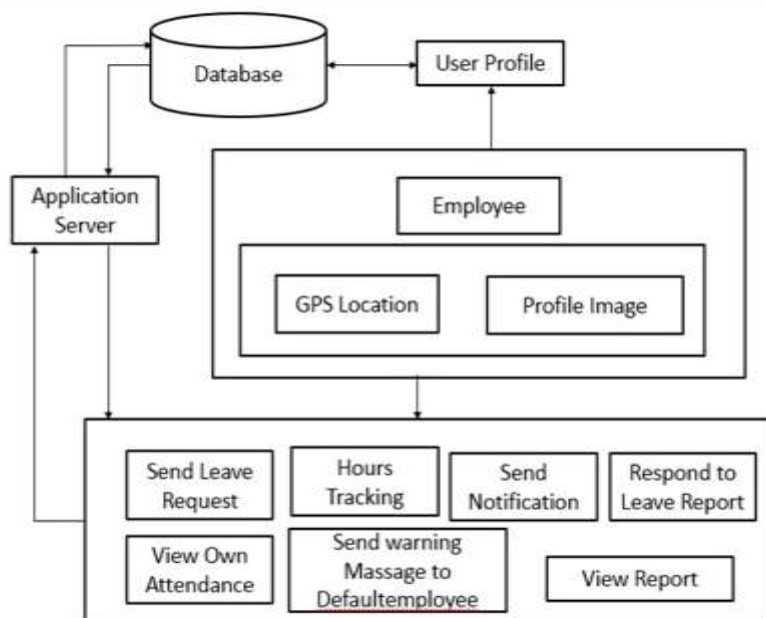

Fig- 1: Circular Geo Fence.

Fig- 2:Geo-fence Example.

IV. System Architecture

V. Motivation

Recently, most companies or organizations need the system to record employee attendance.The accurate employees attendance data is very necessary for maintaining the employees supervisionand discipline.

VI. Propose System

Now a day with the use of android phone every work can be optimized and modified. Our aim is to optimize the work of faculty member through our application. So we are developing online attendance management application.

VII. System Requirements

1) Hardware Requirements
 Processors: Intel Core 2 Duo and ahead versions
RAM: 2 GB
Hard Disk: 40GB or Higher
2) Operating System Requirements:
 Operating System: Windows 7 & advance version
3) Application or Web server Requirements:
  Environment: Android Studio
4) Database server Requirements:
Data Base: Google Firebase
5) Tools and Technologies Requirements:
 Language: JAVA,XML

VIII. Algorithm

Algorithm: Smart employee Manager
1.   Input: r is the radius of the
2.   Output: true if r does not violate g, otherwise false
3.   Geofence. g = [go , gi]
4.   gi is the position of the interest, go is the position of user.
5.   if pointInGeofence(gi , r)then
6.   return true
7.   end if
8.   for all go(i) in go do
9.   if pointInGeofence(r, go(i)) then
10. return false
11. end if
12. end for
13. return true z

IX. Conclusion

        The Smart Employee Manager App gives reduced paper work and saves time to generate accurate results from. It provide security by using individual login id and password. This application is very useful for colleges and organizations.Geofencing technology is increasing in utilization and functionality, and it is currently used for various security solutions and business applications.

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