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GPS Based Attendance System

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Abstract: *We all know that it is unquestionable that expert system application gaining admiration. Evolution in computer technology has changed the development in many other domains including environment security. For many years the procedure of manual attendance has been taken out which is not only time consuming but also furnish inaccurate sequel. Motorized time and attendance monitoring system provides numerous eases to organizations. This lowers the necessity of pen and paper based manual attendance pursuing system. Ensuing this conviction, we have put forward an attendance system based on location using global positioning (GPS) technology which administered on mobile application on smartphone. The location of a smartphone which can be resolute by the GPS. The location is interpreted as a key of time and attendance tracking on our paper and the attendance is gathered using Geo-Fence technique which find out whether the location of the student is within the Geo-Fence locality or not. Our project accredit child Tracking System in an application that allows parents to surveil their child cell phone. All incoming and outgoing calls, text and multimedia messages can be perceive and cut in by the parents, who can also prefect where their children are (via GPS), and access history of where they've been and settle alerts if their children are going out of approved geographical zones!.*

Keywords: Android, route learning techniques, GPS, MANS, LBD, SMS, Ad Hoc Network ; Autonomous Clustering, Mesh Network

I. INTRODUCTION

Any organization's time management strategy must include managing attendance. In the past, tracking attendance required a time-consuming, laborious manual process that was prone to mistakes. However, technological developments have improved the precision, effectiveness, and practicality of attendance tracking. The GPS-based attendance system application is one such technology that has transformed attendance tracking.

The GPS-based attendance system application is a piece of software that tracks the attendance of students or employees using GPS (Global Positioning System) technology. Real-time attendance tracking is provided, removing the need for handwritten documentation and lowering the possibility of mistakes. For institutions like schools, colleges, universities, and businesses who want to streamline their attendance monitoring process, this technology is appropriate.

II. METHODOLOGY

- System Design: The first step in developing a GPS-based attendance system is to design the system architecture. This includes defining the system requirements, designing the user interface, and creating a database schema to store attendance data.
- GPS Integration: The next step is to integrate GPS technology into the system. This includes selecting the appropriate GPS hardware and software, configuring the GPS device for the required accuracy, and developing the necessary GPS-based algorithms to calculate attendance based on location.
- Authentication: The GPS-based attendance system should also have authentication mechanisms to ensure that only authorized personnel can access the system. This may include the use of passwords, biometric verification, or RFID tags.
- Attendance Tracking: Once the GPS device is integrated with the system and authentication is established, the system can start tracking attendance. The GPS-based attendance system should be capable of tracking the

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attendance of employees or students in real-time, with location data automatically recorded when the individual enters or leaves the premises.

- Data Management: The attendance data collected by the GPS-based attendance system needs to be stored in a database. The system should be capable of generating reports that summarize attendance data, identify absenteeism or tardiness, and help managers take appropriate action to improve attendance.
- System Testing: Before deploying the GPS-based attendance system, it is crucial to test the system thoroughly to ensure it meets the specified requirements. This includes testing the system's accuracy, security, and usability under different scenarios and conditions.
- Deployment: After successful testing, the GPS-based attendance system can be deployed in the organization. This includes training the users, ensuring proper hardware and software installation, and configuring the system for optimal performance.

III. IMPLIMENTATION OF PROPOSED MODEL

3.1 Implementation of GPS Based Attendance System

The implementation of a GPS-based attendance system requires a thorough understanding of the system's scope and objectives. This involves identifying the target audience, attendance tracking requirements, and expected outcomes. Once the objectives are clear, suitable GPS hardware and software should be selected. The hardware must have the ability to accurately track location and a long battery life, while the software should be capable of recording and transmitting location data with precision. A well-defined system architecture should be developed, including the hardware and software components, database schema, and user interface. The system must be designed to manage real-time attendance tracking, secure authentication, and efficient data storage and management.

The attendance algorithm used for GPS-based tracking should be designed to account for entry and exit times, authorized personnel, and exceptions such as sick leave or vacation. Additionally, the user interface should be user-friendly and intuitive, and must include authentication mechanisms such as password or biometric verification to ensure that only authorized personnel can access the system. To ensure the proposed model meets the specified requirements, it must undergo thorough testing to validate its accuracy, security, and usability under different scenarios and conditions.

Once successfully tested, the proposed GPS-based attendance system can be deployed by installing the hardware and software components, configuring the system for optimal performance, and training users. Regular monitoring and evaluation of the system are also necessary to ensure that it continues to meet the intended objectives. Analysis of attendance data can be used to identify areas for improvement and make necessary changes to the system, resulting in improved attendance tracking accuracy, reduced administrative costs, and increased overall productivity. In conclusion, careful planning and execution are necessary for successful implementation of a GPS-based attendance system.

3.2 Implementation of GPS Based Attendance System Based System Architecture

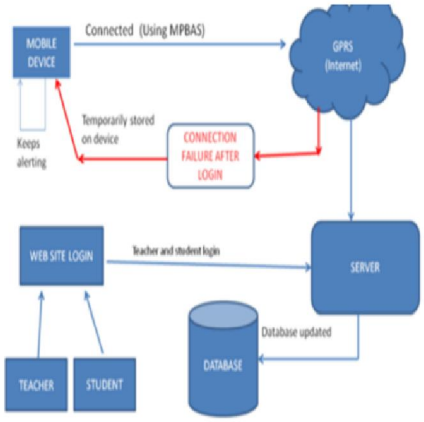

Figure 1.1: System Architecture

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The system architecture of a GPS-based attendance system comprises hardware and software components that work together to track attendance based on the location of an employee. The hardware component includes GPS devices installed on employees' mobile phones or wearable devices to accurately track their location. The software component includes a server, a database, an attendance algorithm, and a user interface. The server acts as a central point where the attendance data is collected and processed, while the database stores the attendance data and employee information. The attendance algorithm processes the location data and determines if the employee is present or absent based on predefined attendance rules. The user interface allows employees to view their attendance records and submit requests for changes or corrections. The system architecture also includes security measures such as authentication mechanisms to ensure that only authorized personnel can access the attendance data.

IV. CONCLUSION

Employing a GPS-based attendance system, which provides a precise method of tracking employee attendance based on their location, might be advantageous for institutions. The system's design is adaptable and may be modified to fit the requirements of many organisations, including schools, governmental bodies, and for-profit businesses. By eliminating manual errors and minimising fraudulent attendance reporting, GPS technology automates the attendance monitoring process, saving up administrative staff members' time while enhancing accuracy. Through a user-friendly interface, employees may examine their attendance records and submit requests for adjustments or changes. Together, the system's hardware and software components guarantee the security of attendance data and enforce authorization constraints. An organization's attendance monitoring process is streamlined, accurate, and more effective overall using a GPS-based attendance system.

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