International Journal of Science and Research (IJSR)
ISSN: 2319-7064
ResearchGate Impact Factor (2018): 0.28 | SJIF (2019): 7.583

Employee Tracking System by Google Geo Fencing

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Abstract: ***A geo-fence is a virtual boundary for a real-world geographic area. A geo-fence can be generated as per user's need by considering different radius, or a geo-fence can be a predefined set of boundaries. Geo-fencing is use of geo-fence. Geo fencing is a feature that uses the global positioning system (GPS) to define geographical boundaries. It has widely increasing scope. Very few applications are dealing with geo-notifications that are intended to inform the mobile/stationary user proactively about location-specific information. In our proposed system, we will assign a geo fenced location to an employee. Employee can check-in and out only if he/she is inside the assigned location.***

Keywords: Google, Polygon fencing, Employee Tracking.

1. Introduction

Geo-fencing (geo-fencing) is a feature in a software application/program that uses the global positioning system (GPS) or radio frequency identification (RFID) to define geographical boundaries.[1] A geo-fence is a virtual barrier. These alerts can be in form of text messages, e-mail notifications, phone calls or similar means of communication. Geo-fencing is executed on the mobile devices. The mobile device considered to be a client that is mainly responsible to locate itself whereas the continuous comparison of the mobile's position with a large set of dedicated zones, called geo-fences. Geo-notification plays important role in geo-fencing. Generally the geo-fencing refers to the idea in which the user defines the boundaries virtually over a geographical area, and once the transition is detected over a boundary the notification is send to performed the desired action .The paper is organized in following sections 1.location based services, 2.geofencing, 3.working, 4.applications.In our proposed system, we will assign a geo fenced location to an employee. Employee can check-in and out only if he/she is inside the assigned location.

2. Literature Survey

Today, location-specific services are an essential feature of mobile devices like smart phones or tablets. While taking the client's location into account, they are mainly used to enable the search for location-based information (e.g. surrounding shops, nearby friends, available rental cars. Thereby, an LBS is being queried and the required information is being introduced by a mobile application only on request by the user. In the existing system user need to find individually point of interest on the map, and there no such provision to provide a point of interest on current location for any to-do list.

In many papers, they implemented a context-aware, specifically, location and activity aware mobile sensing platform called context-aware mobile sensor data engine (C-MOSDEN) for the IoT domain. We evaluated the proposed platform using three real-world scenarios that highlight the importance of selective sensing. The computational effectiveness and efficiency of the proposed environment are investigated and are used to highlight the advantages of context-aware selective sensing.

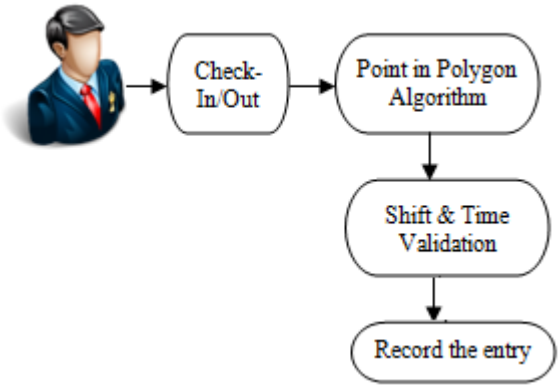
3. System Design

Our system using the Point in Polygon concept. We ae taking the advantages of the google map polygon geo fencing and one traditional mathematical algorithm to calculate the current point is whether inside or outside the polygon in 2D graph.

For implementing the employee tracking system by google geofencing, we need to follow some methodologies. The certain steps need to be performed for this process. Those steps are as follows:

- Enrolment: The employee will be enrolled to the database using their general information's and shift details.
- Company Branch: Creating branches with basic information. Mark the geofencing polygon based on the company building infrastructure.
- Employee assignments: Created employees should be assignment to at least one branch in the system
- Point In Polygon: At the time of attendance employee app send current location coordinates to the system, which will be verified according to the company branches assigned to the employee.
- Attendance marking: After all the validation, the attendance will be marked on the server

The system is basically a web-based admin panel for HR administrator and iOS based mobile app for the employees. The backend includes the Microsoft SQL database which stores and supplies information to and from the system. Highly focused on best user experience to manage the application. Admin panel can be managed easily by any of HR officer with very minimal training. All the pages are highly explained by itself and achieved drag and drop for drawing the geo fencing polygon. Admin can draw the location with infinite number of points.



4. Conclusion

Attendance is a key factor in all the organizations. In this project, the potential benefits of implementing geo polygon-based attendance environment were investigated. This is done in order to eliminate the challenges and limitations of the current biometric and geo circle-based attendance systems. This project is centred on how to enhance attendance marking. However, the system also facilitated the surfacing of other components such as venue status at the organization.

In a nutshell, the core motive of geo-based attendance was studied. We went further by investigating how google geo fencing by polygon can solve the disturbing challenges in current attendance systems. Based on the knowledge derived from this paper, it was safely concluded that implementing the proposed system at any organization will not only eliminate the challenges that are faced in the current system but will also provide a rich, sound , and more flexible environment that will have a positive effect on attendance and provide a big platform to track and provide services to employee.

For ICT growth that will lead to a rich, efficient, and result driven mode of attendance at any multinational or large-scale industry, we recommend that the google based geofencing system should be used.

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