

Geofence Based Staff Attendance Tracking System Using Android Mobile Application

Ilham Syahmin Nasruddin¹, Mohd Nizam Osman²

¹*ilham.syahmin99@gmail.com*

²*mohdnizam@uitm.edu.my*

ABSTRACT

Attendance system provides many advantages to organizations. It allows employers to monitor their employees' working hours and helps to control labor costs by reducing over-payment, which is usually caused by transcription error, intentional error. Besides, previous methods such as biometric attendance system, RFID attendance system and card magnetic attendance system may have lots of bugs. The bugs that occur may come from either human error or system or device error. Those problems may lead to long queues, which for some attendance systems, it has to take sometimes to register staff or employees' attendance and cause recorded time of employees register their attendance are not accurate as they reach the workplace. As every organization has a specific location which can be detected by GPS satellite, attendance of the staff and employees can be taken by tracking their GPS device which is their smartphone. This system can ensure the attendance record of the staffs and employees more accurate as the time they enter the geofence of premise area (workplace area). Users are required to allow the use of GPS after downloading this android mobile application to ensure the application functions well. Notification will be sent when the user enters or exits the geofence area that has been set by code and the timestamp of user enter and exit will be recorded in firebase database firebase. In the testing phase, user acceptability test and network's performance test were carried out. User acceptance testing was implemented with a questionnaire evaluation method to thirty participants. The survey results showed that the majority of respondents well accepted all the categories offered. In addition, the outcome of the network performance test regarding the recorded timestamp of when the geofence trigger revealed satisfactory result. As for the future work, this application can be improved by allowing other platforms to use this application such as for iOS user since it has been one of the biggest platforms that being used nowadays. It also can be improved by adding more features for users used and employer used.

Keywords: Geofencing technology, GPS, Attendance, Android mobile application, Timestamp