Geofence alerts application with GPS tracking for children monitoring (CTS)

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ABSTRACT

Geofence Alerts Application with GPS Tracking for Children Monitoring (CTS) is a mobile application that helps parents to track the location of their child. It provides the parents with the route and real-time location of the children. Parents often face difficulties in getting hold of the whereabouts of their children when they are not in sight. This situation increases the insecurity of parents toward the safety of their children. The first objective of this paper is to obtain a latitude, longitude, and time information of a child's location in real-time using GPS tracker. The second objective is to develop a smartphone application that capable to track the location of children in real-time. The third objective is to evaluate the functionality of the developed smartphone application in tracking children's location. Features, advantages, and disadvantages of three commercialized application are compared to collect requirements for the CTS application. The requirements are then used to design and develop the interface of CTS application using Rapid Application Design (RAD) framework. Three main modules, which are the View Current Location module, View History Route module and Setup Geofence module are proposed for the application. Additionally, a GPS tracker based on Arduino Uno board is developed to provide the longitude and latitude of children's current location. The functionality of the CTS application and the GPS tracker is then evaluated to determined bugs and its usability. It was discovered that CTS is in helping parents to track the location of their child in real-time, view the past route taken by the child, set up geofence area, and receive notification when their child enters or leave the geofence area within the scheduled time.

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