Context-Aware Alert Method in Hajj Pilgrim Location-Based Tracking System

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Abstract : As millions of people with different backgrounds perform hajj every year in Saudi Arabia, it brings out several problems. Missing people is among many crucial problems need to be encountered. Some people might have had insufficient knowledge of using tracking system equipment. Other might become a victim of an accident, lose consciousness, or even died, prohibiting them to perform certain activity. For those reasons, people could not send proper SOS message. The major contribution of this paper is the application of the diverse alert method in pilgrims tracking system. It offers a simple yet robust solution to send SOS message by pilgrims during Hajj. Knowledge of context aware computing is assumed herein. This study presents four methods that could be utilized by pilgrims to send SOS. The first method is simple mobile application contains only a button. The second method is based on behavior analysis based off GPS location movement anomaly. The third method is by introducing pressing pattern to smartwatch physical button as a panic button. The fourth method is by identifying certain accelerometer pattern recognition as a sign of emergency situations. Presented method in this paper would be an important part of pilgrims tracking system. The discussion provided here includes easy to use design whilst maintaining tracking accuracy, privacy, and security of its users.

Keywords : context aware computing, emergency alert system, GPS, hajj pilgrim tracking, location-based services
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