

**LOCALIZATION USING FINGERPRINT METHOD IN
EMERGENCY SITUATION FOR INDOOR NAVIGATION SYSTEM**

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ABSTRACT

Since Global Positioning System (GPS) can only be applied outdoor environment where signals will be blocked by the construction materials inside a building and it is not suitable for the implementation for INS. Wi-Fi is the alternate for making the INS a possible. Implementing Wi-Fi by exploiting the Received Signal Strength (RSS) is one of the techniques for implementation of INS as Wi-Fi network has already exists in most building. There are three components in the proposed INS which are localization, navigation and modeling database. The method for the Wi-Fi localization is the Wi-Fi fingerprint method will be used. In navigation, the connection or paths between each RP can be created to provide the best route to the destination. The technique used for the route planning is Dijkstra's algorithm. In modelling database for Indoor Navigation System, the system only relies on the use of identification of nearby Wi-Fi access point. In order to create database for indoor navigation system, Wi-Fi access point is required to create the reference point which use fingerprint technique by collecting the RSSI value for each access point (AP). The method used is the collection of data using Wi-Fi fingerprint Apps on smartphone. The results of the fingerprint algorithm for localization shows higher accuracy compare to other methods and the implementation of this method are easy as user require only a mobile device equipped with Wi-Fi facilities to determine the location. This method can produce better positioning and reliable in the building as it has better accuracy compare to the other method, which is triangulations. For navigation, higher accuracy can be achieved in terms of shortest distance taken to the destination compared to other technique and the implementation of this technique are easy since users only have to manipulate the weight between each RPs according to obstacle that exist along the paths. Bigger obstacles will gives higher value of weight. Route planning using Dijkstra's algorithm can produce better accuracy and more reliable in indoor environment since the only factor taken into account is the weight for each path.

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