

Abstract

Finding the best route to our destination room may be an issue when we are inside a foreign building, moreover, if the building is crowded or it has a complicated layout. A conventional directory board that usually provided in a building still has weakness; it's immobile. It also contains a lot of information that force the reader to filter out the irrelevant things, causing more times are spent just to find the best route to the destination room.

To overcome the weakness of a conventional directory board, a prototype of a mobile indoor directory application has been designed in this final task. It has a feature to estimate the user position inside a building, as well as finding the best route to the user's destination room. To support the indoor positioning, this application use a Wireless Positioning System (WPS) technique based on WiFi, called WiFi Fingerprinting. It estimates the user position inside a building by comparing the pattern of received signal strength at that time and the pattern of recorded signal strength on a database. Meanwhile, Djikstra's Algorithm is used to find the shortest route to the destination.

In this Final Task, the parameter performance is validation rate and computation time. From the experiment performed at the N Building of Institut Teknologi Telkom, the validation rate is 91,67% for positioning and 100% for pathfinding. The average computation time is 95734.86 ms on smartphone with 600 MHz processor.

Keyword: indoor, directory, wifi, wifi fingerprinting, positioning, pathfinding, djikstra's algorithm, mobile application, android, prototype