

System Architecture of WiFi Positioning Database for Indoor Location Based Services

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ABSTRACT

Nowadays, the demand for the vehicle navigation systems and location-based services are increasing greatly regardless of where people go to. Therefore the advanced infrastructure for the development of LBS technologies has been developed for mobile phones which can be carried anywhere. So far LBSs have developed mostly for outdoor activities, so research issues on existing outdoor LBS need to be adapted or extended to indoor LBSs which are required for people moving in the buildings. In complicated building structures such as airport, train station, and large store, GPS signal is not available or reduced by the wall or objects. To address this problem, location information determined based on the wireless communication devices such as WiFi signal can be utilized. To guarantee accuracy of indoor location we need more information such as the floor, POI, Mac address, SSID, and other device's attributes as well as WiFi signal. In this paper, we design the data model to manage the WiFi information collected from indoor environment and propose system architecture to provide location information to users in indoor place. In our system, the collected information from WiFi are stored to raw data database and generate positioning database with estimated physical location by analyzing raw data database. The system transmits the optimized location of the WiFi to users whenever users require the LBS in any building which they are placed.

KEYWORDS: Indoor LBS, WiFi, Positioning Database, Location Information, Positioning Database System