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Comparison of WiFi-based Indoor Positioning Techniques

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Abstract

Indoor positioning systems is an actively researched area of computer science and various techniques, methods and applications were developed in the last decade. This paper focuses on WiFi-based positioning techniques and presents our experimental results of trilateration and fingerprinting methods. The trilateration method was improved with genetic algorithm and simulated annealing based heuristics which methods were shown superior than the standard one. Correlation was used to calculate the similarity of the measurements in the fingerprinting database. A web service and a mobile application were developed to test these methods. Experimental results showed that approximately 3–4 meter accuracy can be achieved with the tested methods.

Keywords: Indoor positioning, WiFi, trilateration, fingerprinting

MSC: AMS classification numbers