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Modern WLAN Fingerprinting Indoor Positioning Methods and Deployment Challenges

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Abstract: *Wireless Local Area Networks (WLANs) have become a promising choice for indoor positioning as the only existing and established infrastructure, to localize mobile and stationary users indoors. However, since WLANs have been initially designed for wireless networking and not positioning, the localization task based on WLAN signals has several challenges. Amongst the WLAN positioning methods, WLAN fingerprinting localization has recently garnered great attention due to its promising performance. Notwithstanding, WLAN fingerprinting faces several challenges. This paper consists of three main parts: 1) Conventional localization schemes; 2) state-of-the-art approaches, and 3) practical deployment challenges. , we compare some of the representative localization schemes in a single real environment and assess their localization accuracy, positioning error statistics, and complexity. Our results depict an illustrative evaluation of the approaches in the literature and guide to future improvement opportunities.*

Keywords: Indoor positioning, WLAN fingerprinting, real-time processing, clustering, sparse recovery, outlier detection

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