

ZigBee RF Signal Strength for Indoor Location Sensing – Experiments and Results

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Abstract— This paper discusses about the variation of signal strength due to the presence of obstacles in an indoor environment. An experimental analysis of impact of various obstacles on ZigBee RF signals strength has been done. The results obtained by the analysis have been used to locate a user inside a smart home. The parameters like Received Signal Strength (RSSI), Link Quality Indication (LQI) and Packet Error Rate (PER) has been measured and analyzed. The location of the user is an important context, based on which various controls and services can be rendered. The objective of finding out the location is to provide various services and controls like location based luminance, personalized HVAC systems. In this paper k mean clustering algorithm has been implemented to predict the location of the user. The results show that 3 to 5 m of location accuracy has been achieved.

Keyword—ZigBee, RSSI, Packet Error Rate, Localization, Fingerprinting



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