Abstract

This paper apprised the issue of finding the location of a single sensor node with a single beacon in a terrestrial wireless sensor network (WSN). Generally, the localization of a single sensor node in a terrestrial sensor network can be solved using multilateration technique with respect to three or more known beacon nodes. However, there is an area of concern, when the localization of a single sensor node (i.e. mobile station, cell phone) is to be measured with respect to only one known beacon node i.e. base transceiver station (BTS). Such a challenge is aimed to be solved with the help of received signal strength (RSS) survey data for a particular location within the desired environment. A simulated terrain and a model has been created based on RSS Survey data that defines the contours of radio frequency (RF) coverage in a particular test facility under a single beacon node. Simulation results show that our proposed model gives a solution which converges to determine the location of a single sensor node with respect to a single beacon node.
3. Huiyu Liu, Yunzhou Zhang, Xiaolin Su, Xintong Li, and Ning Xu, "Mobile Localization Based on Received Signal Strength and Pearson’s Correlation Coefficient", Hindawi Publishing Corporation, International Journal of Distributed Sensor Networks, Volume 2015, Article ID 157046, 10 pages.


**Index Terms**

Computer Science  
Signal Processing

**Keywords**

Wireless Sensor Networks, Received Signal Strength, Localization, Single Beacon, Heat map