Adaptive RLS-Received Signal Strength Algorithm in Wireless Network Area for Multi-Mobile Nodes Location Estimation System

Abstract

Recently, the current Received Signal Strength based positioning systems have been designed to monitor the location information of mobile nodes and Patients. The positioning systems are designed with different wireless communication technologies and adapted algorithms in wireless network area. The adaptive algorithms improve the accuracy of location of mobile nodes in RSS (Received Signal Strength) based positioning systems. The proposed work introduced adaptive Recursive Least Square - Received Signal Strength (RLS-RSS algorithm) algorithm to reduce the effect of multipath propagation in Trilateration Localization system. In the proposed work the entire three reference node receives the RSS-values from the multi-mobile nodes and then RLS-RSS algorithm is used to estimate the RSS-values at each reference node. The estimated RSS-value provides the coordinates of multi-mobile nodes. From the simulation results it is shown that the accuracy of the coordinate’s point of the multi-mobile nodes is improved for different environments.

References

- Nicolas L. D., Florian Gain, Per Zetterberg, "Wi-Fi Fingerprint Indoor Positioning


- Zhiqiang Kan, Li Tan, Chongchong Yu, Zijun Wu, "Research and Implementation of Intelligent Mobile Phone Location Based on RSSI in Smart Space”, International Conference on Systems and Informatics (ICSAI), IEEE, May 2012, pp. 1635-1639.


- Peisen Zhao, Chunxiao Jiang, Chen H., Yong Ren, "Probabilistic Neural Network for RSS-Based Collaborative Localization”, IEEE Vehicular Technology Conference (VTC Spring), IEEE, May 2012, pp. 1-5.


Index Terms

Computer Science

Wireless
Keywords
Trilateration Localization System; Recursive Least Square Adaptive Filtering;
Received Signal Strength (RSS)