基于**RSSI**定位模型的非视距关系识别方法

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基金项目：

摘　要：

RSSI 定位具有无需额外的硬件、成本低等特点，在无线传感器定位领域得到了广泛的应用。为精确定位目标节点坐标，本文介绍了RSSI对数衰减模型下实现目标节点定位的最大可能性(ML)估计方法。以建立的ML估计方法的目标函数为基础，本文同时论证了节点残差和平方残差和的统计分布规律，并提出了相应的非视距（NLOS）关系识别方法。仿真结果表明当信标节点存在误差时，所设计的迭代ML估计方法能快速、准确地实现目标定位。仿真实验测试了节点残差法、平方残差和法的NLOS识别率，表明随着单个节点NLOS误差的增大，NLOS识别率逐渐提高。比较两种不同方法下NLOS的正确识别率，节点残差法的识别率稍优于平方残差和法。

关键词：无线传感器网络；定位；非视距关系；残差

NLOS Identification Approach Based on RSSI Localization Model

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Abstract:

With the advantages of low costs and no extra hardware RSSI localization is widely applied in the field of WSNs localization. To locate the target precisely, using the model of RSSI logarithmic decrement the paper proposes the maximum likelihood (ML) approach to locate the target node. Based on the optimization function of built ML estimation, the paper also demonstrates the statics distribution rule of node residual and square residual sum and proposes the corresponding approach for detecting the NLOS. The simulation results show that designed iterative ML estimation method can realize the target localization quickly and correctly when the beacon positions include errors. The simulations also test the correct ratio of NLOS identification with node residual and square residual sum. The results show that the ratio of NLOS identification is improved with the increasing of NLOS errors of single node. Comparing the correct ratio of NLOS identification with two different identification approaches, the identification performance of node residual approach is slightly better than that of square residual sum.

Keywords: wireless sensor networks; localization; NLOS; residual

投稿时间：**2013-08-25**

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