

## 室内环境下对OLOS误差具有鲁棒性的TOA无线传感器网络定位算法

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基金项目:

摘要:

针对无线传感器网络及室内环境的特点,在综合考虑节点定位所需的通信量、计算量和定位精度的基础上,提出一种室内环境下对受阻的视距(OLOS)误差具有鲁棒性的低计算量的残差加权无线传感器网络定位算法。该算法利用对残差优选再加权的方法,在未知信道特性和无须反复通信的条件下对距离测量值的组合进行优化。分析表明该算法与同类算法相比具有低计算量的特点。大量仿真结果表明该算法提高了定位精度,有效地抑制了室内环境下OLOS误差。

关键词: 无线传感器网络、无线定位、室内环境、信号到达时间、低计算量的残差加权算法

## An OLOS Error Robust TOA-based WSN Localization Algorithm in Indoor Environment

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**Abstract:**

With the consideration of the character of WSN and the indoor environment, weighing the amount of communication, computation and localization accuracy, a Low-Computational Rwgh(LCRwgh) algorithm which is robust to Obstructed Line of Sight(OLOS) is presented. By picking out the subsets of range measurements with minimum mean Residual Square and calculating the weighted mean of their position estimations, this algorithm can optimize the combinations of range measurements without knowing the channel characters, it also escaped iterative communication. The algorithm's computational complexity is lower than the cogeneric algorithms, and its performance is tested by simulations which show the improvement of location accuracy and the ability of OLOS error mitigation.

**Keywords:** Wireless Sensor Network, Localization, Indoor Environment, TOA, LCRwgh

投稿时间: 2010-03-29