

基于RSSI&DFP的无线传感器网络声源目标定位算法

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摘要:

声源目标定位是无线传感器网络应用研究的一个重要问题, 如何在传感器节点随机分布的条件下对目标进行快速定位, 并保证较高的定位精度是定位问题的一个难点, 本文基于二维空间中声音信号传播时的能量强度指示 (RSSI) 将声源目标的定位问题转化为似然函数的最优化问题, 利用最优化理论中的DFP方法求出目标位置的全局最优解。仿真结果表明, 算法达到了快速准确的要求, 具有一定的实际应用价值。

关键词: 无线传感器网络; 目标定位; 能量强度指示; 能量衰减模型; DFP方法

Acoustic Target Location Based on RSSI and DFP in WSN

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Abstract:

Acoustic target location is an important question in WSN's application study. It is difficult to make a quick target location with high location accuracy under the condition that the sensor nodes are random distributed. The article converts acoustic target location to optimization of likelihood function based on RSSI of acoustic signal in two-dimension space. Then, it makes out the global optimum solution using DFP method in optimization theory. The emulation result shows that the method meets the need of rapid and accurate location and possesses practical application value.

Keywords: wireless sensor network; target location; received signal strength indicator; energy attenuation model; DFP method

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