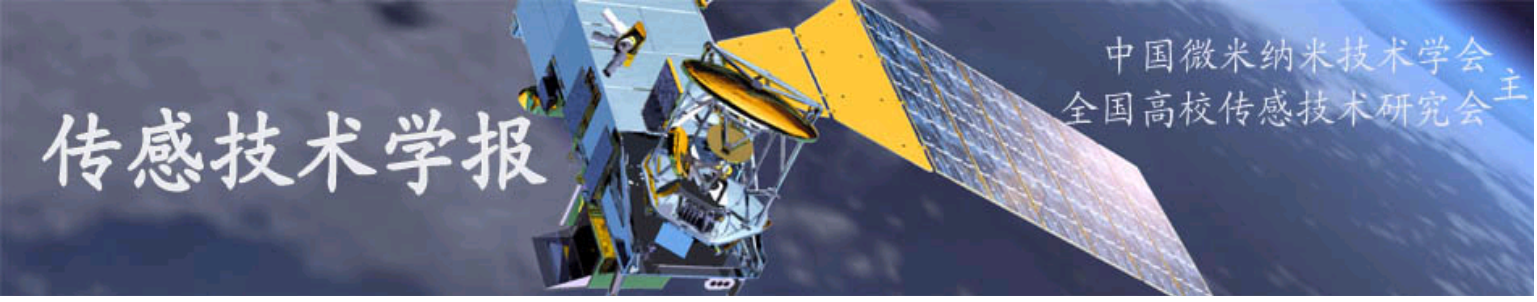

基于ZigBee的RSSI测距研究

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摘　要：

基于RSSI的测距技术是一项低成本和低复杂度的距离测量技术，被广泛的应用于无线传感器网络基于距离的定位技术中。本文在对RSSI测距的原理以及环境对的影响进行详细分析和研究的基础上，提出了三种实验数据处理方式，并在基于ZigBee的硬件平台上进行实验，得到了三种数据处理方式的测距精度。实验结明，在消除环境因素的影响后，高斯模型数据处理方式的测距精度最高——在20m的近距离测距时，精度在2m以内。

关键词：无线传感器网络，节点定位，RSSI测距，高斯模型

Research on Distance Measurement Based on RSSI of ZigBee

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Abstract:

Distance measurement based on RSSI, featuring low communication overhead and low complexity, is widely applied in the range-based localization of the Wireless Sensc Networks. We first analyze the theory of distance measurement based on RSSI and the influence of environment on RSSI, and then we propose three experimental data processing methods. After using the ZigBee-based hardware platform to test the measurement error of the three methods, we draw the conclusion that the measurement e of Gauss model is 2 meters within 20 meters without consideration of circumstances effects.

Keywords: wireless sensor networks; node localization; distance measure based on RSSI; Gauss model

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