

WSN跟踪中基于链路质量的动态簇簇内通信机制

作者: 辛玲, 陈涤, 李耀伟

单位: 山东大学

基金项目:

摘要:

短距离低功耗的无线传感器网络的链路往往采用理想的通断模型, 未考虑实际的链路质量问题。真实的无线传输区域中存在连接区, 过渡区和非连接区。本文针对实际的工程环境, 提出了一种应用于目标跟踪的基于链路质量的动态簇簇内通信机制。该机制在竞选簇头时把衡量链路质量的指标LQI(Link Quality Indication)也作为考虑因素。在簇成员与簇头通信时, 采用了多跳可靠通信方式。本文利用MATLAB对该机制进行了仿真。仿真结果表明, 该机制降低了网络平均丢包率, 减少了网络能量消耗, 降低了网络时延。

关键词: WSN; 目标跟踪; 动态簇; LQI; 多跳可靠通信方式;

A Communication Mechanism in the Dynamic Clusters Based on Link Quality in WSN Target Tracking

Author's Name:

Institution:

Abstract:

In many papers, the idealized binary perfect-reception-within-range model used in common network simulation. But many studies have revealed the existence of three distinct reception regions in a wireless link: connected, transitional, and disconnected. So, we propose a communication mechanism in the dynamic clusters based on link quality in WSN target tracking. A voting approach was developed for the cluster head selection by taking the LQI into consideration in the paper. When the cluster members communicate with cluster head, we adopt multi-hop reliable communication way. We used MATLAB to simulate the improve solution. The simulation results show that the new mechanism reduce the network packet loss rate, the network energy consumption and the network delay.

Keywords: wireless sensor network (WSN); target tracking; dynamic cluster; link quality indication (LQI); multi-hop reliable communication

投稿时间: 2011-12-07

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