

基于拥塞预知的WSN多径寻优路由协议

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Multi-path Optimizing Routing Protocol Based on Predicting Congestion for Wireless Sensor Network

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摘要

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摘要 针对无线传感器网络中常出现传输拥塞的问题, 该文提出了一种基于拥塞预知的多径寻优路由协议(MOPC)。该协议基于主动避免拥塞的设计思想, 依据节点的拥塞预知度、剩余能量和最小跳数建立路径满意度模型, 实现了最优路径的选取; 通过设定最优路径上节点的转发满意度变化率阈值, 实现局部路由的动态维护。仿真结果表明, 该协议具有良好的实时性和可靠性, 并能显著提高能量利用率, 延长网络生命周期。

关键词: 无线传感器网络 路由协议 拥塞预知 路径满意度模型 能量利用率

Abstract: In order to solve the issue that congestion often occurs in the process of data transmission, a Multi-path Optimizing routing protocol based on Predicting Congestion is proposed for wireless sensor network (which is named as MOPC protocol). This protocol is designed in the thinking of avoiding congestion initiatively. According with congestion predict degree, remaining energy and minimum hop count, path satisfaction degree model is build, which is used to realize the optimal path selection. It achieved local routing maintenance dynamically by setting change rate threshold of node's forwarding satisfaction degree on the optimal path. Simulation results show that, MOPC routing protocol has good real-time performance and reliability, it could improve energy efficiency and extend network lifetime significantly.

Keywords: Wireless Sensor Network (WSN) Routing protocol Congestion predict Path satisfactory degree model Energy efficiency

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