

一种节能的无线传感器网络多跳自适应时间同步算法

作者: 王越, 万洪

单位: 重庆理工大学计算机科学与工程学院

基金项目:

摘要:

研究能量长期有效的的时间同步协议是成功部署生命力强的无线传感器网络的一项关键策略, 对此, 提出一种低能耗的多跳自适应时间同步算法 (MATS: Multi-hop adaptive time synchronization), 该算法设计了一套灵活的机制来调整同步模式、全网重同步周期以及每对节点同步时的信标数, 并且利用最大似然估计原理同时对节点的时钟偏移和频率偏移进行估计, 达到用最小的能量损耗完成长期的、全网的时间同步的目的, 最后通过数学分析和仿真的方法对所提出的改进算法进行了验证。

关键词: 无线传感器网络; 时间同步; 重同步周期; 最小能量损耗

One of energy efficient wireless networks multi-hop adaptive Time synchronization algorithm

Author's Name:

Institution:

Abstract:

Researching the long-term effective energy time synchronization protocol is a key strategy for successful deployment of the vitality of wireless sensor networks. This proposes a low-power multi-hop adaptive time synchronization algorithm (the MATS: Multi-hop adaptive time synchronization).The algorithm designs a flexible mechanism to adjust the synchronization mode, re-synchronization cycle, and each pair of node synchronization beacon number, and using the maximum likelihood estimation principle at the same time on the node clock offset and frequency offset estimate achieved with minimum energy loss to the completion of a long-term, network-wide time synchronization purposes. At last, the improved algorithm is verified through mathematical analysis and simulation methods.

Keywords: time synchronization ;wireless sensor network;heavy synchronization cycle;minimum energy loss

投稿时间: 2013-05-27

[查看pdf文件](#)