

可变周期的基于贝叶斯估计的TPSN改进算法

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摘要:

文章在介绍无线传感器网络的时间同步协议TPSN的基础上, 针对TPSN算法在节点间交换消息时因传递延迟引起的误差以及同步时的能耗问题, 引入贝叶斯估计法以及可变周期同步法进行改进, 以达到减小误差并降低能耗的目的; 运用N2仿真环境进行仿真, 仿真结果表明, 改进后的算法不但同步精度得到提高, 而且耗能显著减小, 更有利于延长无线传感器网络的寿命。

关键词: 无线传感器网络; 时间同步; TPSN; 贝叶斯估计; 可变周期同步

Changeable cycle for Improvement Based on the Bayes Estimation of the TPSN Algorithm

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Abstract:

Based on the introduction of wireless sensor network time synchronization protocol TPSN , the paper focused on the error caused by the time deviation during the nodes exchanging news ,and the energy consumption problems during the synchronization in TPSN algorithm, and introduced the Bayes Estimation Method and the changeable cycle synchronization method to decrease error and reduce energy consumption; Using N2 simulation environment to simulate the algorithm,the results show that the improved algorithm not only improved the synchronous accuracy , but also reduced the energy consumption significantly .it is contribute to prolong the life of the wireless sensor network.

Keywords: wireless sensor network; time synchronization; TPSN; Bayes Estimation Method ; variable cycle synchronization method

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