

无线传感器网络按需时间同步算法研究

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摘要：

节点的时间同步是无线传感器网络的一项支撑技术。鉴于目前对低能耗的多跳时间同步算法的研究相对缺乏，本文在分析了TPSN时间同步算法的基础上，提出了一种适合低流量无线传感器网络的低能耗多跳按需时间同步算法。具体阐述了单点同步和多点同步算法，分析了算法的精度与复杂度。仿真实验表明本文提出的算法与TPSN算法相比，在相同精度的前提下，具有复杂度低、节能等优点。

关键词：无线传感器网络；时间同步；TPSN协议；节能；按需

Research on the Algorithm of On-Demand Time Synchronization in Wireless Sensor Networks*

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Abstract:

Time synchronization is a supporting technology in Wireless Sensor Networks. But now there is relatively less research on lowering energy consumption in multi-hop time synchronization. As above reasons, on the groundwork of TPSN, this paper presents a low energy-consumed time synchronization algorithm which fits the multi-hop wireless sensor networks. In this algorithm, we expatiate single-node and multi-nodes synchronization algorithm, and analyze their precision and complexity. Emulational experiments prove that, comparing with TPSN, our algorithms have the same precision, lower complexity and lower energy consumption.

Keywords: Wireless Sensor Networks; Time Synchronization; TPSN Protocol; Low Energy Consumption; On-Demand

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