基于加权的无线传感器网络优化覆盖算法

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摘　要：

针对无线传感器网络探测网络环境的自适应休眠算法（Probing Environment and Adaptive Sleeping，PEAS)在节点调度过程中，存在节点能耗不均衡、网络的生命周期较短的问题，提出一种基于加权的优化覆盖算法。该算法对最小频繁项的目标所对应的传感节点按能量高低进行划分集合，使各集合能够独立覆盖最小频繁项的目标，以达到局部的优化。考虑到传感节点覆盖目标数和剩余能量对无线传感网络生存周期的影响，对边缘未覆盖的目标节点采用加权的方式进行覆盖。仿真结果表明：该算法能够均衡网络节点的能耗，有效地延长了网络的生命周期。

关键词：无线传感器网络；集合；最小频繁项；加权； PEAS算法

Weighted Optimize Coverage Algorithm for Wireless Sensor Network

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Abstract:

We propose a method called weighted optimize coverage algorithm to improve the problems of the imbalance energy consumption of node and the shortage of life cycle in wireless sensor network for the PEAS(Probing Environment and Adaptive Sleeping) algorithm in node scheduling process. In this algorithm, the nodes are divided into sets according to different energy levels which are corresponding to the minimum frequent items, these sets will cover the minimum frequent items independently in order to achieve suboptimization. Then, we consider the covered number of sensor node and surplus energy which would influence the life cycle of wireless sensor network to cover the uncovered edge node with weighted way. Simulation result shows that new algorithm could balance the energy consumption of network node and prolong the life cycle of the network effectively.

Keywords: wireless sensor network; set; minimum frequent item; weighted way; PEAS algorithm

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