

一种基于非均匀分布双簇头的无线传感器网络分簇算法

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摘要:

针对无线传感器网络分簇路由协议中因簇间路由产生的节点间剩余能量不平衡问题, 提出一种非均匀分布双簇头的分簇方法。此方法基于LEACH算法产生主簇头, 然后根据簇头所属区域离基站远近及其剩余能量确定各簇内数据转发簇头的产生概率, 再按此概率产生非均匀分布的数据转发簇头, 以减轻信息转发负担。仿真表明新算法和LEACH等算法相比能更有效地平衡网络中的能量消耗, 延长整个网络的生存周期。

关键词: 无线传感器网络; 路由协议; 非均匀分布; 双簇头

Clustering Algorithm Based on Uneven Distributed Double Cluster Heads for Wireless Sensor Networks

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Abstract:

Aimed at the problem of unbalanced residual energy of each node caused by inter-cluster communications in wireless sensor network routing protocols, a novel algorithm named clustering algorithm based on uneven distributed double cluster heads(BUDC) is presented in this paper. BUDC selects main cluster head at random as LEACH scheme, and decides the probability of the relay cluster head generating, according to the distance between the areas node belongs to and base station. To reduce main cluster head's load of relaying message, the relay cluster head is determined by the probability and its residual energy. Simulation shows that BUDC is more effective than LEACH in balancing energy consumption and improving system lifetime.

Keywords: wireless sensor network; routing protocols; uneven distributed; double cluster heads

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