

一种基于能量均衡的分区成链路由算法

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摘 要: 提出了一种基于能量均衡的分区成链路由算法 CDEB (A Chain By Division Based on Energy Balance Routing Algorithm). 该算法假定网络范围为一圆形, 通过选定圆心角 θ 将网络分成 $2\pi/\theta$ 个区域; 成链时, 链上的节点根据相邻节点到本节点的距离是否小于设定的阈值来决定是否将其加入链中; 成链后, 综合考虑链上每个节点的剩余能量、到基站的距离以及节点的度数来选取链首. 仿真结果表明, 该算法能够避免“长链”产生, 改善节点能量消耗的不均衡, 有效延长网络生命周期.

关键词: 无线传感器网络; 长链; 链首; 圆; 分区; 阈值

A Chain By Division Based on Energy Balance Routing Algorithm

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Abstract: A Chain By Division Based on Energy Balance Routing Algorithm (CDEB) is proposed. The algorithm assumes that the network range is a circle, which is divided into $2\pi/\theta$ regions according to a center angle θ . when forming a chain, a node would decide to whether to join into the chain by comparing the set threshold with the distance between neighbor node and itself. When the chain is completed, chain-head is selected by considering the node's residual energy, the degree and the distance with the base station. Simulation results show that the algorithm could avoid the produce of the "long-chain", optimize the status of unbalanced energy consumption and effectively prolong the network life cycle.

Key words: wireless sensor networks; long chain; chain-head; circle; division; threshold

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