

基于粒子群优化和最小生成树聚类的能耗均衡算法

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摘要: 提出了一种无线传感网络的能耗均衡算法.算法基于粒子群优化方法求解适应值,选择最佳簇头以减少簇内节点的传输能耗;利用最小生成树聚类规则,以剩余能量和距离等因素来选择最优簇头数量,在保证数据传输质量的同时优化了簇头总能耗.仿真结果表明,相比 EEMDC 算法和 DE 算法两种能耗均衡算法,本文算法节点平均能量效率分别提高了 6.7% 和 31.76%,网络节点的失效节点数分别降低了 22%和 27%.

关键词: 无线传感网络; 能耗均衡; 粒子寻优; 最小生成树聚类

Energy Balance Algorithm Based on Particle Swarm Optimization and Minimum Spanning Tree Clustering

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Abstract: A new energy balance algorithm for wireless sensor networks is proposed. This algorithm through adaptive **value** to choose the best cluster head to reduce the energy consumption of the cluster nodes; The algorithm uses the minimum spanning tree clustering rules, the residual energy and distance and other factors to select the optimal number of cluster heads in order to ensure the quality of data transmission at the same time optimize the cluster head total energy consumption. Simulation results show that compared EEMDC algorithm and DE algorithm two energy balancing algorithm, the algorithm of the node average energy efficiency were increased by 6.7% and 31.76%, the network node failure node number were decreased by 22% and 27%.

Key words: wireless sensor networks; energy balance; particle optimization; minimum spanning tree clustering

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