

无线传感器网络的多目标覆盖控制策略

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摘要:

针对无线传感器网络中能耗、能耗均衡和覆盖率互相矛盾的问题, 提出了一种多目标优化覆盖控制策略。在构建网络模型的基础上, 以覆盖率、能耗和网络能耗均衡为优化目标, 设计针对自由搜索算法的适应值函数和编码方案。仿真结果表明, 该覆盖控制策略在保证高覆盖率的同时, 能有效地降低能耗和保持网络能量均衡。

关键词: 无线传感器网络; 覆盖控制; 多目标覆盖; 自由搜索算法

Multi-objective Coverage Control Strategy for Wireless Sensor Networks

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Abstract:

A multi-objective optimization coverage control strategy is proposed for solving the contradictory problem of energy consumption, equilibrium of energy and coverage in wireless sensor networks. Network coverage, energy consumption and network energy equilibrium are the optimization goals, then the fitness functions and coding schemes are designed for free search based on established network model. Simulation shows that the strategy can reduce and balance the energy consumption effectively while ensuring the high network coverage.

Keywords: Wireless sensor networks; Coverage control; Multi-objective coverage; Free search

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