

Coverage Enhancing Algorithms in Directional Sensor Networks with Rotatable Sensors

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Abstract

Recently directional sensor networks have received a lot of attention. A directional sensor network is composed of many directional sensor nodes. Unlike conventional omni-directional sensors that always have an omni-angle of sensing range; directional sensors may have a limited angle of sensing range due to technical constraints, energy constraint or cost considerations. Area coverage problem is still an essential issue in directional sensor networks. In this paper, we study the area coverage problem in directional sensor networks. The problem is to maximize the area coverage of a randomly deployed directional sensor network. Each directional sensor can through rotating orientation to get better coverage in an interested region. We therefore propose two greedy algorithms to enhance the area coverage. Simulation results show that our proposed algorithms outperform the previous proposed method in term of the area coverage.

Keyword : directional sensors; coverage; greedy algorithms