传感技术学报
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基于人工势场方法的WSN传感覆盖率提高算法

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摘　要：

传感覆盖率是WSN系统中重要的性能指标之一。Sink节点的移动性能提高系统的传感覆盖率，人工势场能描述普通节点与Sink节点之间的关系。提出了一种利用人工势场方法有效的Sink节点移动控制策略，通过Sink节点的移动能够提高系统的传感覆盖率。普通节点搜集的数据能通过多跳的方式传送给Sink节点。在最初的随机部署之后，由人工势场产生的力迫使Sink节点移动到整个环境中的平衡点以获得更高的传感覆盖率。在整个算法执行过程中无需事先了解环境的情况，此方法能在实时的环境中采用。给出了具体的算法步骤，最后利用一个仿真实例对控制效果进行了说明。

关键词：传感覆盖率；　移动Sink节点；无线传感器网络；人工势场方法

Artificial Potential Based WSN Coverage Enhanced Algorithm

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Abstract:

Coverage is one of the most important performances of WSN. Sink’s mobility can improve it . Artificial potential is suitable to illustrate the relationship between common nodes and mobile sinks. A novel artificial potential based algorithm for sinks moving to improve coverage is proposed. Data collected by nodes could be sent to sinks by multi-hop. The force derived from the artificial potential makes the sink move to equilibrium state in order to achieve higher coverage after the random nodes deployment at first. It’s not necessary to know the environment of whole WSN before band, so the method can be done in real-time. The specific steps of this algorithm are given. Finally, the effectiveness of this method is illustrated by a simulation.

Keywords: Coverage; mobile Sinks; wireless sensor networks ;artificial potential

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