基于 RSSI 测距自修正的遗传定位算法

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摘　要： 在基于 RSSI 的无线传感网络定位算法中，未知节点定位精度过度依赖于 RSSI 物理测量的精度和锚节点密度，对此提出一种基于 RSSI 测距自修正的遗传定位算法.在节点定位的第一阶段，为消除测量误差，在未知节点通信范围内找出接收信号强度最大的锚节点作为误差消除的参考节点；在节点定位的第二阶段，为削弱“虚假适应度”现象提出一种新的适应度函数.在同等的仿真条件下，该算法比 GAL 定位精度更高.

关键词： 遗传定位算法；锚节点；自修正；定位精度

An Error Self-calibration Genetic Localization Algorithm Based on Received Signal Strength Indicator

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Abstract： Aiming at the problem which positioning accuracy of unknown node overly depends on physical measurement accuracy and anchor nodes density among the localization algorithms based on RSSI in wireless sensor networks, an error self-calibration genetic localization algorithm based on RSSI is proposed in this paper. In the first period of positioning, in order to eliminate the measurement error, the maximum received signal strength indicator anchor node within communication range of the unknown node is selected as the bias reduction reference minutiae; In the second period of positioning, a modified fitness function is introduced, which weaken the phenomenon of unreal fitness. The simulation results show that the positioning accuracy of the proposed algorithm is higher than that of genetic localization algorithm under the same simulation condition.

Key words：genetic localization algorithm； anchor node； self-calibration； positioning accuracy

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