

## 一种基于预测策略的目标跟踪算法研究

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摘要:

移动目标跟踪是无线传感器网络中的一项重要应用, 引起了越来越多的关注。本文采用静态网格网络结构, 针对现有无线传感器网络目标跟踪算法不能兼顾精度和能耗的问题, 提出了一种基于预测策略的目标跟踪算法。当目标进入监控区域后, 节点携带的震动传感器感知到目标, 簇头节点根据节点检测目标信号强度值来计算目标位置, 目标位置计算采用一种基于检测信号强度的加权质心定位算法; 簇头节点根据目标移动的已知信息来预测移动目标未来的位置。仿真结果表明, 改进后的目标跟踪算法具有跟踪精度高, 目标丢失率降低的优点。

关键词: 无线传感器网络; 目标跟踪; 预测策略; 分段线性拟合

## A Target Tracking Algorithm Based on Prediction

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**Abstract:**

Tracking of moving target has attracted more and more attention due to its importance in utilizing sensor network for surveillance. The algorithm adopts static grid network structure. In this paper, we propose a target tracking algorithm based on prediction aim at the issue of energy and precision in wireless sensor networks. When the target moving into the monitoring area, vibration transducer in sensor node can detect it. The cluster head node compute the target's location on the basis of detection signal strength. The position computation adopts the weighted centroid localization algorithm based on detection signal strength. The cluster head node predicts the future forecast goal position according to the target's known position information. The results demonstrate that the improved target tracking algorithm can achieve higher tracking precision and the missing rate can reduce to a reasonable range.

**Keywords:** wireless sensor network(WSN) target tracking prediction piecewise linear fitting

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