

## 改进的DV-Hop定位算法在输煤生产线上的应用

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摘要：

DV-Hop定位算法是一种与距离无关的定位算法，文中对该算法的定位原理、误差来源进行了分析。在输煤现场复杂环境下，通过一种定位辅助手段——信号强度（RSSI）测距技术，来减小定位误差，提高定位系统精度。并利用最小均方差改进无线传感器网络中传统的DV-Hop定位算法。通过matlab进行仿真，结果表明，在相同的网络环境下，改进后算法的精度大约提高了8%。从而更加准确地监测到输煤生产线上值守人员的相对位置。

关键词：无线传感器网络；DV-Hop定位算法；RSSI；最小二乘法；

## Implementation of improved DV-Hop localization algorithm for coal transportation line

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**Abstract:**

DV-Hop localization algorithm, independent of the distance, is an important localization algorithm. In this paper, the localization principle and error sources of the DV-Hop localization algorithm, are analyzed. In the complex environment for coal site, a localization supplementary means—RSSI ranging technology, is applied to reduce the localization error and improve the accuracy of this localization system. And LMS is used to improve the DV-Hop localization algorithm in the traditional wireless sensor networks. Simulation with matlab shows that, in the same network environment, by the improved algorithm, the accuracy increases by 8%. Therefore, the relative position of duty officer can be monitored more accurately.

**Keywords:** wireless sensor networks; DV-Hop localization algorithm; RSSI; Least squares

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