一种改进的无线传感器网络**DV-Hop**定位算法

作　者：石为人, 贾传江, 梁焕焕

单　位：重庆大学自动化学院

摘　要：

针对DV-Hop定位算法以平均跳段距离代替实际直线距离而导致定位误差较大这一问题，提出了一种改进的DV-Hop定位算法。在改进算法中，锚节点通过实际距离和估计距离的误差来修正每跳平均距离。改进DV-Hop节点坐标计算方法，摒弃传统的三边定位算法而采用新的二维双曲线定位算法计算节点坐标。最后求得包含误差修正值的最终节点坐标，它更接近实际节点坐标。仿真结果表明，与传统DV-Hop算法相比，改进算法在不需要增加节点的硬件开销的基础上能更有效地提高定位精度。

关键词：传感器网络；DV-Hop定位算法；每跳平均距离；双曲线定位算法

An Improved DV-Hop Localization Algorithm for Wireless Sensor Networks

Author's Name:

Institution:

Abstract:

Conventional DV-Hop localization algorithm considers the average hop distance as the expected distance, so it will lead to larger error in position. In response to this problem, an improved DV-Hop localization algorithm is proposed. In improved algorithm, anchor nodes correct the average hop distance by the total error between calculated distances and estimated distances. Improving the method of nodes coordinates computing, we will not adopt traditional Triangulation algorithm but use 2-D Hyperbolic location algorithm .Then ,we will get the ultimate node coordinates which includes error correction. It is closer to the actual coordinates. The simulation results show that improved algorithm can improve the localization accuracy effectively without increasing hardware consumption in nodes comparing with conventional DV-Hop algorithm.

Keywords: Sensor networks; DV-Hop localization algorithm; Average hop distance; hyperbola location algorithm