

# Experimental Evaluations of RSS Threshold Based Optimized DV-HOP Localization for Wireless Ad-Hoc Networks

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DV-HOP is a well-known connectivity-based range-free scheme which offers cost effective localization solution for resource-constrained wireless ad-hoc and sensor networks. However, it generates prominent error amount with small-scale networks due to the multi-hop nature of it. To minimize the error and to make it be applicable to small to large scale networks, we propose to configure the connectivity of the network by using available Received Signal Strength (RSS) measurements and a predefined RSS threshold. An approximate formula for the optimal RSS threshold value that shows minimum amount of error for a particular network to be localized is derived as a function of the total number of nodes and the network size. Experimental results confirm that utilizing the proposed RSS threshold based connectivity configuration significantly improves the localization accuracy of DV-HOP in practical environment without any extra hardware.