A Weighted Multilateration Positioning Method for Wireless Sensor Networks
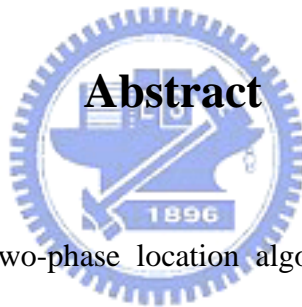
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Abstract

In this thesis, we present two-phase location algorithm for wireless sensor networks (WSNs). In the first phase, each sensor node obtains its initial position by DV-hop method; in the second phase, each sensor node utilizes neighbors' positions and distances to neighbors to update and exchange location information periodically, and then operates multilateration with different weight values. According to the simulation results, when the average number of neighbors is low, the average position error is less than 20% of the radio range, and the number of sensor nodes which can be located is larger than 70% of total nodes. Finally we prove the performance of our proposed algorithm is better than other location systems.