Ph: 9585554590, 9585554599
Email: support@salemsmartreach.com
URL: www.salemsmartreach.com

Localization-oriented Network Adjustment in Wireless Ad-Hoc and Sensor Networks

Abstract:

Localization is an enabling technique for many sensor network applications. Real-world deployments demonstrate that, in practice, a network is not always entirely localizable, leaving a certain number of theoretically non-localizable nodes. Previous studies mainly focus on how to tune network settings to make a network localizable. However, existing methods are considered to be coarse- grained, since they equally deal with localizable and non-localizable nodes. Ignoring localizability induces unnecessary adjustments and accompanying costs. In this study, we propose a fine-grained approach, Localizability-aided Localization (LAL), which basically consists of three phases: node localizability testing, structure analysis, and network adjustment. LAL triggers a single round adjustment, after which some popular localization methods can be successfully carried out. Being aware of node localizability, all network adjustments made by LAL are purposefully selected. Experiment and simulation results show that LAL effectively guides the adjustment while makes it efficient in terms of the number of added edges and affected nodes.