Abstract

Mobile sink based data gathering for improving network lifetime in Wireless Sensor Networks (WSNs) has been extensively studied in literature. Mobile sinks are useful in mitigating energy-hole problem that can occur due uneven energy consumption among sensor nodes. However, the approach introduces new challenges during data delivery due to continuous change in the sink location. For efficient data delivery, sensor nodes need to readjust their routes toward the latest sink location with minimal overhead in large networks. In this paper we propose Virtual Grid based Data Collection (VGDC) scheme which allows sensor nodes to deliver data with minimal route reconstruction overhead toward the latest location of mobile sink. We evaluate and analyze the performance of the approach using simulations. Simulation results demonstrate that VGDC scheme reduces overall energy consumption of the network and enhances network lifetime.


Index Terms

Computer Science

Wireless
Keywords

Wireless Sensor Network, Mobile sink, Virtual Grid, Data Gathering, Route Adjustment