Geographic Routing in Wireless Sensor Networks based on a Partitioned Architecture

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Abstract

Multiple sinks routing is envisioned as a possible solution to the bottleneck research problem in Wireless Sensor Networks (WSN). In addition to focusing on minimizing the energy consumption in a WSN, it is also equally important to design routing protocols that fairly and evenly distribute the network traffic; in order to prolong the network life time and improve its scalability. In this paper we present an enhancement to the GRPW algorithm for wireless sensor networks. Performance of GRPW algorithm algorithm depends heavily on single sink position , we propose a protocol called GRPW-MuS( Geographic Routing to Multiple Sinks in connected wireless sensor networks) based on Multiple Static Sinks, we modified the existing sink location privacy protection scheme by dividing nodes in the network containing multiple sink into different levels in which real packets are forwarded to sink belong to corresponding logical levels and the intermediate node generating fake packets and sending it to fake sinks. Using OMNET++ simulation and the MiXiM framework, it is shown that proposed protocol significantly improves the robustness and adapts to rapid topological changes with multiple mobile sinks, while efficiently reducing the communication overhead and the energy consumption.
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Index Terms

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Keywords

Wireless Sensor Network (WSN), Routing, Multiple Sink, Localization, Geographic Routing