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Article

Reliable multicast routing based on energy for wireless sensor networks

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Abstract

Wireless sensor network (WSN) has recently become promising network architecture and is widely used in many applications, including environmental monitoring, object detection, event tracking, and security surveillance. In WSNs, nodes in the area of interest must report sensing readings to the sink, and this report always satisfies the report frequency required by the sink. Reliable multicast routing is proposed for achieving an energy-efficient and reliable routing path. It consists of four phases. In first phase, the cluster routing is established to ensure load balancing and longer network lifetime. In second phase, secure multicast routing is deployed with clustering to provide data packet integrity. In third phase, the energy consumption of wireless sensor nodes are determined. In this phase, the energy consumption threshold model is developed. By simulation results, the proposed RMR achieves less end to end delay, better packet delivery ratio, less overhead, less end to end delay and energy consumption in terms of mobility, speed, simulation time, time and number of nodes than the existing scheme LTDMS and HDTMP.

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