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THEORY : Opportunistic Routing Algorithm for Relay Node Selection in Wireless Sensor Networks

By saif ul haq

ABSTRACT:

Energy savings optimization becomes one of the major concerns in the wireless sensor network (WSN) routing protocol design, due to the fact that most sensor nodes are equipped with the limited no rechargeable battery power. In this paper, we focus on minimizing energy consumption and maximizing network lifetime for data relay in one-dimensional (1-D) queue network. Following the principle of opportunistic routing theory, multihop relay decision to optimize the network energy efficiency is made based on the differences among sensor nodes, in terms of both their distance to sink and the residual energy of each other. Specifically, an Energy Saving via Opportunistic Routing (ENS_OR) algorithm is designed to ensure minimum power cost during data relay and protect the nodes with relatively low residual energy. Extensive simulations and real testbed results show that the proposed solution ENS_OR can significantly improve the network performance on energy saving and wireless connectivity in comparison with other existing's routing schemes.

EXISTING SYSTEM:

The most forward within range (MFR) routing approach has also been considered in 1-D queue networks, which chooses the farthest away neighboring node as the next forwarder, and eventually results in less multihop delay, less power consumption. Another approach proposed to reduces the total consumed energy based on two optimization objectives, i.e., path selection and bit allocation. Geographic random forwarding (GeRaF), and efficient QoS-aware geographic opportunistic routing (EQGOR), take advantage of the broadcast nature of the wireless medium, and allow multiple neighbors that can overhear the transmission to participate in forwarding packets. However, these routing protocols did not address exploiting OR for selecting the appropriate forwarding list to minimize the energy consumption, and optimize the design of an energy-efficient OR protocol for wireless networks.

DISADVANTAGES OF EXISTING SYSTEM:

- Increase the energy consumption

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- Decrease the network lifetime
- Existing protocols did not address the opportunistic routing

Objective:

- Increase the network lifetime
- Decrease the energy consumption
- Improvement in delivery ratio
- Improvement in delay