Abstract

Wireless Sensor Networks consist of a large population of sensor nodes capable of computation, communication and sensing. Limited energy resource is the inherent limitation of Wireless Sensor Network, Most routing algorithms for Sensor Network focus on energy efficient paths, Due to this, power in the sensor, along the energy efficient paths gets depleted very
quickly, and therefore Sensor Networks becomes incapable of monitoring events from certain parts of the targeted area. Ideally, routing algorithm should consider not only energy efficient (shortest) path but also available energy at every Sensor node along the path, thereby delaying the non-functioning of sensors due to early power depletion. In this paper, we are introducing two new metric like thresholds, energy cost to find energy critical sensor node and energy efficient path respectively. These two metric gives rise to the design of Distributed Energy Aware Routing Protocol (DEARP) for Wireless Sensor Networks. DEARP is designed to generate routing paths in a decentralized manner, while considering the energy efficiency, and available energy in each sensor node to avoid early power depletion. Experimental result shows the effectiveness of proposed algorithm in terms of network lifetime, energy consumption and Quality of Service (QoS) parameters. Comparative analysis of DEARP with the widely used AODV shows that energy cost along with available energy in each node should be considered to extend lifetime of Sensor Network.

Reference

Distributed Energy Aware Routing Protocol for Wireless Sensor Network

- Qualnet Simulator www.scalable-networks.com

Index Terms

Computer Science Wireless

Key words

Wireless Sensor Network Energy efficient routing algorithm
Routing Protocol Distributed Energy Aware