A Novel Energy-Link Failure Recovery Routing (E-LFRR) Algorithm for QOS Optimization in Wireless Sensor Network

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Abstract- Wireless Sensor Network (WSN) is a collection of sensor devices capable of sensing and transmitting environmental changes to a common base station (BS) or sink. Energy efficiency and lifetime enhancement is complex in these networks due to lack of centralized control system, data intensive nature and battery limited communications. Several energy preserving techniques including clustering and tree based routing were proposed to overcome energy drain and data handling issues, as a part of optimizing network. The fore said authentication process compromise with Quality of Service (QoS) and increases complexity that ceases the performance of the routing algorithm. We propose an integrated approach for energy optimization and node recovery post failure method, Energy-Link Failure Recovery Routing (E-LFRR) algorithm that utilizes both traditional routing process and specific node selection scheme in an adaptive fashion. E-LFRR monitors node energy level through Monitored Transmission (MT) and pursues communication through Replaced Transmission (RT. E-LFRR intend to minimize early energy drain and uncontrolled broadcasts in the network. Simulation results prove the combined approach minimizes overhead, energy utilization and delay, retains appreciable count of alive nodes and thus improving network performance.

Keywords: WSN, Energy Efficient Routing, Duty Cycle, Link Failure Recovery, Energy Hole, Link Utilization

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