

ENERGY EFFICIENT ROUTING AND FAULT NODE RECOVERY ALGORITHM FOR WIRELESS SENSOR NETWORKS

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ABSTRACT

Life time of Wireless Sensor Networks (WSNs) has always been a critical issue and has received increased attention in the recent years. Generally wireless sensor nodes are equipped with low power batteries which are infeasible to recharge. Wireless sensor networks should have enough energy to fulfill the desired requirements of applications. In this paper, we propose Energy Efficient Routing and Fault node Replacement (EERFNR) Algorithm to increase the lifetime of wireless sensor network, reduce data loss and also reduce sensor node replacement cost. Transmission problem and sensor node loading problem is solved by adding several relay nodes and arranging sensor node's routing using Hierarchical Gradient Diffusion. The Sensor node can save some backup nodes to reduce the energy for re-looking the route when the sensor node routing is broken. Genetic algorithm will calculate the sensor nodes to replace, reuse the most available routing paths to replace the fewest sensor nodes.

KEYWORDS: Genetic Algorithm, Hierarchical Gradient Diffusion, Gradient Diffusion, Wireless Sensor Networks