Abstract

Wireless sensor networks (WSNs) consist of a large number of power constrained inexpensive sensor nodes, which aggregate data from the environment and transmit to sink node or base station, saving energy; lifetime; energy efficiency; fault tolerance; deployment of nodes, and latency have become the main great challenges in WSNs due to its wide range of applications. Clustering in routing protocols is a key technique to optimize energy consumption in WSNs. In this paper, we propose routing protocol to prolong stability and life time of the network. Hence, with the increased complexity of the application, WSN heterogeneity and energy level are also increased. Simulation of 100 sensor node in a field of 100×100m, nodes are deployed random, base station is centered in the field and have unlimited power, hence ignoring the effect caused by interference and signal collision in the wireless channel was carried out. Simulation results show that the proposed routing protocol performs better performance measures than all presented traditional techniques: LEACH, SEP, TEEN, DEEC and DDEEC with more stability and effective messages.
References


Effectiveness of Power Harvesting in Hierarchical Routing Protocols in Wireless Sensor Networks


Index Terms

Computer Science Wireless

Keywords

Wireless Sensor Networks (WSNs), Quality of Service (QoS), Low Energy Adaptive Clustering Hierarchy (LEACH), Stable Election Protocol (SEP), Energy Efficient Sensor Network (TEEN), Distributed Energy Efficient Clustering (DDEEC).