Abstract

Wireless sensor network consists of large number of inexpensive tiny sensors which are connected with low power wireless communications. Most of the routing and data dissemination protocols of WSN assume a homogeneous network architecture, in which all sensors have the same capabilities in terms of battery power, communication, sensing, storage, and processing. However the continued advances in miniaturization of processors and low-power communications have enabled the development of a wide variety of nodes. When more than one type of node is integrated into a WSN, it is called heterogeneous. Multihop short distance communication is an important scheme to reduce the energy consumption in a sensor network because nodes are densely deployed in a WSN. In this paper M-EECDA (Multihop Energy Efficient Clustering & Data Aggregation Protocol for HWSN)
Heterogeneous WSN) is proposed and analyzed. The protocol combines the idea of multihop communications and clustering for achieving the best performance in terms of network life and energy consumption. M-EECDA introduces a sleep state and three tier architecture for some cluster heads to save energy of the network. M-EECDA consists of three types of sensor nodes: normal, advance and super. To become cluster head in a round normal nodes use residual energy based scheme. Advance and super nodes further act as relay node to reduce the transmission load of a normal node cluster head when they are not cluster heads in a round.

References

- Qing, Li, Qingxin Zhu, and Mingwen Wang. "Design of a distributed energy-efficient clustering algorithm for heterogeneous wireless sensor networks."


Index Terms

Computer Science Wireless

Keywords