Abstract

As the use of Wireless sensor networks (WSNs) has grown enormously in the past few decades, the need of scalable & energy efficient routing and data aggregation protocol for large scale deployment has also risen. LEACH is a hierarchical clustering protocol that provides an elegant solution for such protocols. One deficiency that affects the performance of the protocol is existence of very large and very small clusters in the network at the same time. This leads to decrease in lifetime of WSNs. Sensors operate on battery of limited power, so it is a great challenging aim to design an energy efficient routing protocol, which can minimize the delay while offering high-energy efficiency and long span of network lifetime. In this paper, a new protocol is proposed. The proposed protocol is energy efficient multi level cluster-based routing protocol for continuous stream queries in WSN for large network areas. We incorporate multi hop concept into LEACH [3] by dividing clusters into levels as in TL-LEACH [8] and consider a set of cluster heads, head-set, for cluster-based routing. The head-set members are responsible for control and management of the network. On rotation basis, a head-set member receives data from the neighboring nodes and from previous level, then aggregated data is transmitted to node of next level and so on, until it reaches the distant base station. For a given
number of data collecting sensor nodes, the number of control and management nodes can be systematically adjusted to reduce the energy consumption, which increases network life and multi hop transmission reduces energy consumption as distance between transmitting nodes is reduced.

References


Index Terms

Computer Science

Artificial Intelligence

Keywords

Cluster based routing  Energy efficient  Multilevel  Head Set Members  Wireless sensor networks