Abstract

Wireless sensor networks include deployment of large number of sensor nodes to sense, process and communicate the data to the sink. The small sized sensor nodes are cheap and can be easily deployed in harsh physical environments but the low battery source for the nodes act as a major limitation for the sensor networks to operate efficiently. The protocols have been proposed in recent times to make optimum use of the energy. Power Efficient Gathering in Sensor Information System (PEGASIS) has been considered as an efficient approach as compared to the Low Energy Adaptive Clustering Hierarchy (LEACH). In this paper, a new approach for selecting the leader of the chain has been proposed using Fuzzy Logic in which residual energy and proximity to the base station has been taken as two parameters and combining these two parameters the leader is selected which aggregates and communicates the data further to the sink. The simulation results have shown that this proposed work has improved the performance metrics of the network and thus extended the lifetime of network.

**Index Terms**

Computer Science, Fuzzy Systems
Keywords

Environment, Sensor nodes, lifetime, optimum