Abstract

Wireless sensor network consists of large number of tiny sensor nodes which are usually deployed in a harsh environment. Self configuration and infrastructure less are the two fundamental properties of sensor networks. Sensor nodes are highly energy constrained devices because they are battery operated devices and due to harsh environment deployment it is impossible to change or recharge their battery. Energy conservation and prolonging the network life are two major challenges in a sensor network. Communication consumes the large portion of WSN energy. Several protocols have been proposed to realize power-efficient communication in a wireless sensor network. Cluster based routing protocols are best known for increasing energy efficiency, stability and network lifetime of WSNs. Low Energy Adaptive Clustering Hierarchy (LEACH) is an important protocol in this class. One of the disadvantages
of LEACH is that it does not consider the nodes energy and distance for the election of cluster head. This paper proposes a new energy efficient clustering protocol DE-LEACH for homogeneous wireless sensor network which is an extension of LEACH. DE-LEACH elects cluster head on the basis of distance and residual energy of the nodes. Proposed protocol increases the network life, stability and throughput of sensor network and simulations result shows that DE-LEACH is better than LEACH.

References


- S. Kumar, M. Prateek, B. Bhushan, "Distance based cluster protocol for heterogeneous wireless sensor network," IJCA, Vol 76, No 9, pp. 42-47, August 2013

Index Terms

Computer Science       Wireless

Keywords

Cluster       Energy Efficiency       Initial Energy       Residual Energy       Wireless Sensor

Network