Abstract

Wireless Sensor Networks (WSNs) comprise of a large number of sensor nodes. These sensor nodes have limited energy resources, processing and storage capabilities. The network layer protocols have thus to ensure reliable communication under these conditions. A higher network lifetime is one of the key issues of WSNs. Clustering is a very basic topological concept that cuts down the energy expenditure in WSNs. At present, majority of research is directed towards a homogeneous environment, wherein all the sensor nodes have initially the same amount of energy. Contrary to this, in a heterogeneous environment, a certain population of the sensor nodes is furnished with additional energy resources, thus leading to an energy-hierarchy. This heterogeneity in the sensor nodes results in a higher network lifetime. In this paper, we have proposed an energy efficient clustering scheme called ETDEEC (Enhanced Threshold Distributed Energy Efficient Clustering). Simulation results demonstrate the protocol performs better in terms of network lifetime and packet delivery capacity as compared to others.
An Enhanced Energy Efficient Clustering Scheme for Prolonging the Lifetime of Heterogeneous Wireless Sensor Networks


Index Terms

Computer Science Wireless
Keywords
Clustering; Heterogeneous Wireless Sensor Network; Hierarchical Routing