Abstract

In wireless sensor networks it becomes infeasible to recharge or substitute the dead batteries of
the sensor nodes. As soon as, some of the sensor nodes in a Wireless Sensor Network (WSN)
run out of energy, they stop functioning initiating progressive deconstruction of the network.
Hence, each and every protocol should be so designed in such a way that minimum energy
should be expended during sensing, processing and communication. This work suggests the
development of an enhanced hierarchical clustering method, the Energy Efficient Hierarchical
Clustering Mechanism (EEHCM) for wireless sensor network fields. This is a well-distributed
clustering mechanism and the cluster head selection is based on the residual energy,
communication cost and the distance to the base station. The main distinguishing feature of the
proposed algorithm is that the cluster head selection is accomplished in mere few steps and its
hierarchical nature. Simulation results clearly display that the proposed EEHCM scheme depicts
an excellent reduction in communication energy and backbone energy consumption. Also, the
energy efficiency in EEHCM is enhanced to a great extent. It is noted that the first node death
and the last node death are delayed, and hence the overall network lifetime is prolonged.
References


Index Terms

- Computer Science
- Wireless

Keywords
Base station, routing efficiency, clustering efficiency, network lifetime, distributed clustering.