Abstract

Wireless Sensor Networks (WSNs) are an important focus of research due to their many envisioned applications. They are formed by small, inexpensive and resource limited devices that can interact with the environment and communicate in a wireless manner with other devices. For energy conservation, the clustering technique is used where network organizes around a small set of cluster heads which then gather data from their local cluster aggregate this data and transmit it to the base station. Here we present two models for adding fault-tolerance to clustering algorithms with a hierarchy maintained among various levels of cluster heads from base station. Since, sensor nodes are often deployed in harsh environments, they are prone to failure. Cluster-head failure can leave a cluster disconnected from the base station until the network reorganizes again. The proposed model FTHC: Fault Tolerance in Hierarchical Clustering Environment for WSN is used for both Inter and Intra clustering environment. We evaluate the proposed model and compare it with protocol MECH in terms of network lifetime when the cluster head fail.

References


Index Terms

Computer Science  Wireless
Keywords

Wireless Sensor Networks  Radio Model Hierarchical Clustering  Cluster Head Failure  Fault Tolerance