Abstract

Wireless Sensor Networks (WSNs) are resource-constrained systems. Efficient use of resources especially, energy is most important for their lifetime extension. Clustering of sensor nodes is a well-known approach for achieving high scalability and efficient resource allocation in WSN. We propose a dynamic, distributive, and self-organizing algorithm that utilizes a simplified clustering approach to organizing the WSN into two-level of the hierarchical network. We consider three-level energy heterogeneity of sensor nodes and takes the advantage of the local information such as residual energy, a number of neighbors and distance to the base station as criteria for CH election and cluster formation. Simulation results show that compared with the existing three-level energy heterogeneity based clustering algorithms, our algorithm can achieve longer sensor network lifetime.

References

1. Jennifer Yick, Biswanath Mukherjee, Dipak Ghosal, Wireless sensor network survey, The
Randomized Clustering Scheme for Heterogeneous Wireless Sensor Networks


Index Terms

Computer Science Wireless
Keywords

Wireless sensor networks, Clustering, self-organizing, distributive, three-level energy heterogeneity