Abstract

In recent years a lot of work has been done on Wireless Sensor Network (WSN) as it finds its application in many applications including environmental monitoring and military field surveillance. In these applications tiny sensor nodes are deployed across the application regions. Data gathered by the sensor nodes are periodically collected by the base stations. As the nodes are deployed and left unattended for a long time it becomes quite difficult to recharge the node batteries. Several WSN applications require only an aggregate value to be reported to the base station. In this case sensors in different regions of the field can collaborate to aggregate their data and provide more accurate reports about their local regions. This type of data aggregation can reduce the communication overhead in the network and can increase the network lifetime. In order to support data aggregation through efficient network organization, nodes can be partitioned into a number of small groups called clusters. Each cluster has a coordinator, referred to as cluster head and a number of member nodes. The member nodes report their data to the respective Cluster Heads (CHs). The CHs aggregate the data and send them to the central base station through other CHs. This process improves the network lifetime which is an important metric to evaluate the network performance. In this type of system the challenging issue is to selection of CHs in each cluster along with the cluster head rotation to increase network life time and to reduce the communication overhead among the nodes in a
WSN. In our work we have proposed an election algorithm to select the CHs in a democratic fashion by the nodes in the network. The performance of the proposed algorithm has been successfully demonstrated by the simulation of the proposed system.

References

- Quan Zhou, Xiaowei Li, Yongjun Xu Mean Shift Based Collaborative Localization with Dynamically Clustering for Wireless Sensor Networks volume: 2, Page(s): 66-70.

- Yizong Chen. August 1995 Mean Shift, Mode Seeking, and Clustering. IEEE
Transactions on pattern analysis and machine intelligence, Vol. 17, No. 8.
- Vivek Katiyar, Narottam Chand, Surender Soni, 2011.
Int. J. Advanced Networking and Applications Volume: 02; Issue: 04, Pages: 745-754.

Index Terms

Computer Science Wireless Networks

Keywords

LEACH Mean Shift Cluster-Head Base-Station Sensor Node Network Life Time