عنوان مقاله:

Energy Based Clustering Self Organizing Map Protocol For Wireless Sensor Networks

محل انتشار:

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خلاصه مقاله:

Cluster based routing are the most frequently used energy efficient routing protocols in Wireless Sensor Networks which avoid single gateway architecture through dividing of network nodes into several clusters while in each cluster, Cluster Heads work as local Base stations. However, there is several energy efficient cluster-based protocols in the literature, most of them use the topological neighborhood or adjacency as main parameter to form the clusters. This paper present a new centralized adaptive Energy Based Clustering protocol through the application of Self organizing map neural networks (called EBC-S) which can cluster sensor nodes, based on their energy level and coordinates. We apply some maximum energy nodes as weights of SOM map units; so that the nodes with higher energy attract the nearest nodes with lower energy levels. So a cluster may not necessarily contain adjacent nodes. The new algorithm enables us to form energy balanced clusters and equally distribute energy consumption on whole network space. Simulation results show the considerable profit of our proposed protocol over LEACH and LEA۲C (another SOM based protocol); by increasing the network lifetime and insuring more network coverage.

کلمات کلیدی:

energy based clustering, self organizing map neural networks, wireless sensor networks