

Data Clustering in Wireless Sensor Network Implemented on Self-Organization Feature Map (SOFM) Neural Network

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Abstract : Wireless sensor network is one of the most promising communication networks for monitoring remote environmental areas. In this network, all the sensor nodes are communicated with each other via radio signals. The sensor nodes have capability of sensing, data storage and processing. The sensor nodes collect the information through neighboring nodes to particular node. The data collection and processing is done by data aggregation techniques. For the data aggregation in sensor network, clustering technique is implemented in the sensor network by implementing self-organizing feature map (SOFM) neural network. Some of the sensor nodes are selected as cluster head nodes. The information aggregated to cluster head nodes from non-cluster head nodes and then this information is transferred to base station (or sink nodes). The aim of this paper is to manage the huge amount of data with the help of SOM neural network. Clustered data is selected to transfer to base station instead of whole information aggregated at cluster head nodes. This reduces the battery consumption over the huge data management. The network lifetime is enhanced at a greater extent.

Keywords : artificial neural network, data clustering, self organization feature map, wireless sensor network

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