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Power Consumption Technique to Improve the Network Life Time in Wireless Sensor Networks

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Abstract

Energy efficiency in wireless sensor network [WSN] is the highly important role for the researchers. Transmission power control is a highly powerful technique for minimize the interference and energy consumption in wireless sensor networks. Wireless Sensor Networks have many nodes are connected to the network to calculate the network performance like transmission power. The power consumption is directly related to the size and weight of the nodes. It gains low cost and also to detect shortest path to transmitted the power through the network .The proposed the clustering technique using Minimum Spanning Tree [MST] and shortest path concept with its strength and limitations.

Keywords: Clustering, Cluster Head Selection, Shortest Path.

Introduction

Wireless sensor networks (WSNs) have become a hot research topic in recent years. Wireless sensor network is one of the pervasive networks which sense our environment through various parameters like heat, temperature, pressure, etc…[1]Since sensor networks are based on the dense deployment of disposable and low-cost sensor nodes, destruction of some nodes by hostile action does not affect a military operation as much as the destruction of a traditional sensor, which makes the sensor network concept a better approach for battlefields. [2]. The transmission between the two nodes will minimize the other nodes to show the improve throughput and greater than spatial reuse than wireless networks to lack the power controls. Adaptive Transmission Power technique to improve the Network Life Time in Wireless Sensor Networks [3].

Related Work

The data from nearby the cluster heads will be directly transmitted to the sink node [4]. The data from sink nodes to calculate the distance whereas the cluster head will be transmitted through the shortest multihop path [5].The distance between the cluster head and sink node. The shortest path between each cluster head to the sink node. To find the Predominant node [Maximum number of path].Transmission power techniques is to improve the performance of the network in several aspects. Transmission range in the wireless networks should be change the ranges in each link. The traffic capacity decreases when more nodes are added to increases the interference [6].Routing graph theory to multiple paths from data sources to a neighbor's node. A Novel approach Adaptive state based multipath routing protocol, which demonstrate the directed acyclic graphs from each mesh router to gateways between any given routers [7].

Proposed Work

This Paper presents is to detect the shortest path between the neighbour nodes in the network to transmitted the power and improve the network life time of the network using Graph theory. It includes three phases to improve the network performance using adaptive transmission technique

Neighbour Identification

Network nodes are represented by the vertices and also direct connectivity between the nodes by the edges. Sensor nodes are maximum flow from one node to the other node to calculate the distance. The Combinatorial Structure are called as network structure. The Number of vertices are connected to the source node in a network is called its neighbour node and the number of edges are its size. Two or more edges of a network joining the same pair of vertices are called multiple edges and corresponding network is known as multipath network.

Shortest Path Detection

Networks can be represented by weighted graphs. The nodes are the vertices. The communication links are the edges. Edge weights can be used to represent metrics, e.g. cost associated with the communication links. The distance between two vertices i and j is the length of a shortest path joining them and is denoted by D[i,j].

Transmission Power

In wireless sensor networks, the nodes are read the number of edges from the source node to the neighbour node. First we initialize the transmission power is denoted X. If the node i is less than number of edges then get the distance between the edges to transmitted power in the networks. If the Edges is less than the distance, write down the transmitted power and then calculate the total transmitted power consumed value. Final we calculate the Total power consumed of the whole networks.

Transmission Power Using Shortest Path

Networks can be represented by clustering approach. The distance between two vertices of node i and j is the length of a shortest path joining them and is denoted by D[i,j]. If there is no path between cluster head of each node joining i and j then we define as D[i,j]=0**.** First we initialize the transmission power is denoted R. If the node i is less than number of edges are connected to the each cluster head node selection then get the distance between the edges to transmitted power in the networks. Final we Calculate the Total power consumed of the whole networks**.**

Results and Discussion

The performance of our Transmission power technique is through C++ Simulator. Figure 1 shows that the performance of Neighbour Node Identification. Figure 2 shows that the performance of the distance calculation of the networks. Figure 3 shows overall power consumption in the networks.

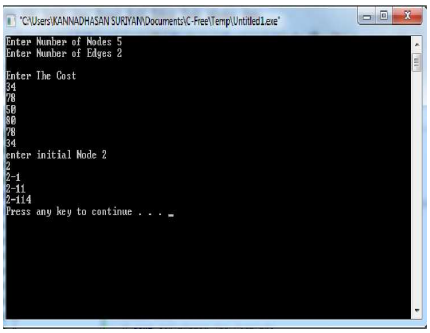

Figure 1: Neighbour Node Identification

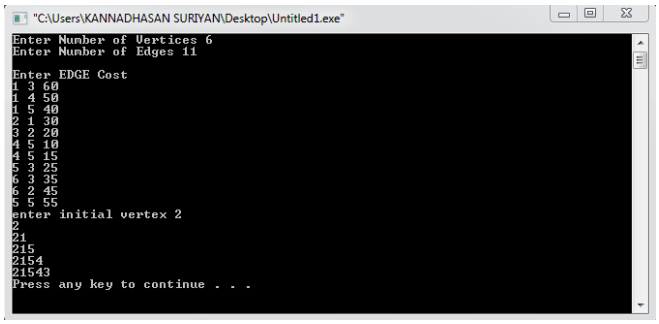

Figure 2: Distance Calculation

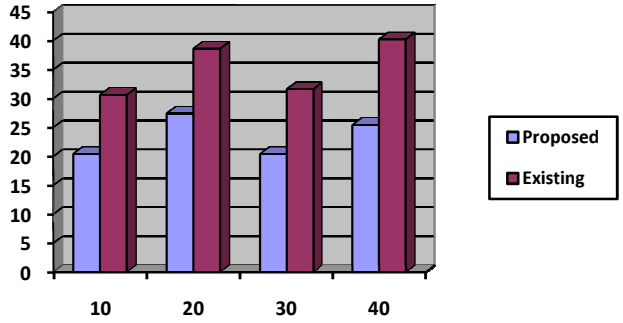

Figure 3: Power Consumption of the Network

Conclusion

The proposed system of Transmission power technique is to enhance the lifetime of the entire sensor network. The eligible sensor nodes are chosen depending on their power levels and association with number of nodes in transmission area. The efficiency of the proposed model is experimented and evaluated in C++ and the results accomplished showed that in this technique, sensor nodes utilize extremely less power and stay in the network for a greater period of time.

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