GRAPH THEORY BASED ADAPTIVE TRANSMISSION POWER TECHNIQUE TO IMPROVE THE NETWORK LIFE TIME IN WIRELESS SENSOR NETWORKS

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ABSTRACT

Energy Efficiency in wireless sensor networks is a highly issues area for the researches. 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 Existing methodology are broadly classified two categories called tree based approaches and clustering techniques. Clustering techniques is suitable for real time applications. The Clustering techniques using the Minimum Spanning tree[MST] to detect the shortest path. In this paper, a simple novel technique is proposed to detect the shortest path using Graph Theory to transmit the power in the wireless sensor node. Life time of network to make longer is important in the wireless sensor networks. The simulation results are done show that the proposed scheme can be used in wide area of applications in WSNs.

Keywords: Neighbour Node Identification, Shortest Path, Transmitted Power

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I. INTRODUCTION

A wireless sensor node consists of thousand of sensor nodes to some predefined information. It can collect reliable and accurate information in distant and hazardous environments [1]. A Sensor Network is required fast and easy to install and maintain In design and development of wireless sensor networks the main issue is sensors energy source limitation. Transmit power Control is a highly powerful technique for minimize the interference and energy consumption wireless sensor networks. The Two nodes are communicated through lower transmission powers and also corresponding transmission power to the minimum value [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. The Network Structure can be designed in the form of tree which in turn utilized vertices and edges. Network topologies can be done using graph theory concepts. The shortest path between two Edges in a neighbour node. The network activity is used to solve large number of computational network structure problems [3].Adaptive Transmission Power technique to improve the Network Life Time in Wireless Sensor Networks using graph theory.

II. RELATED WORK

The Clustering Technique using the minimum spanning tree [MST] to detect the shortest path in wireless sensor networks. The data from nearby the cluster heads will be directly transmitted to the sink node. 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].

III. 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

3.1 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.

3.2 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].

3.3 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.

IV. ALGORITHM

1. Start the Program
2. Read the Number of Nodes
3. Read the Number of Edges
4. Read the Number of Neighbour Nodes
5. Label the Start edges as 0.
6. Label of each edges is connected to the edges with its distance.
7. From this edges, consider the distance to each connected edges.
8. If the edges is greater than one of its edges, to calculate the distance and also read the distance
9. If the edges is less than one of its edges to calculate the distance and also read the distance.
10. If there is no distance at the edges, write down the new distance.
11. Calculate the Shortest path Detection.
12. Read the Transmitted Power.
13. If the Edges are less than the distance, write down the transmitted power and then calculate the total transmitted power consumed value.
14. Stop the Program.

V. FLOW CHART

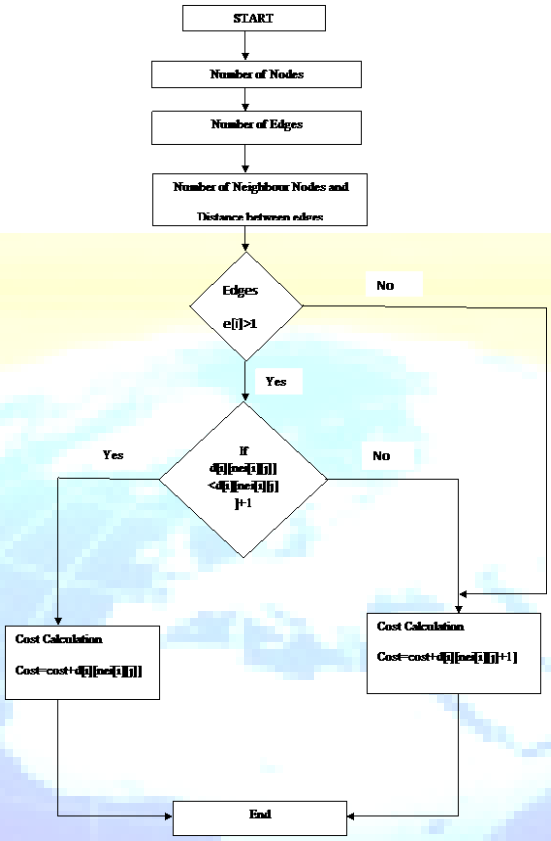

Figure 1: Cost Calculation

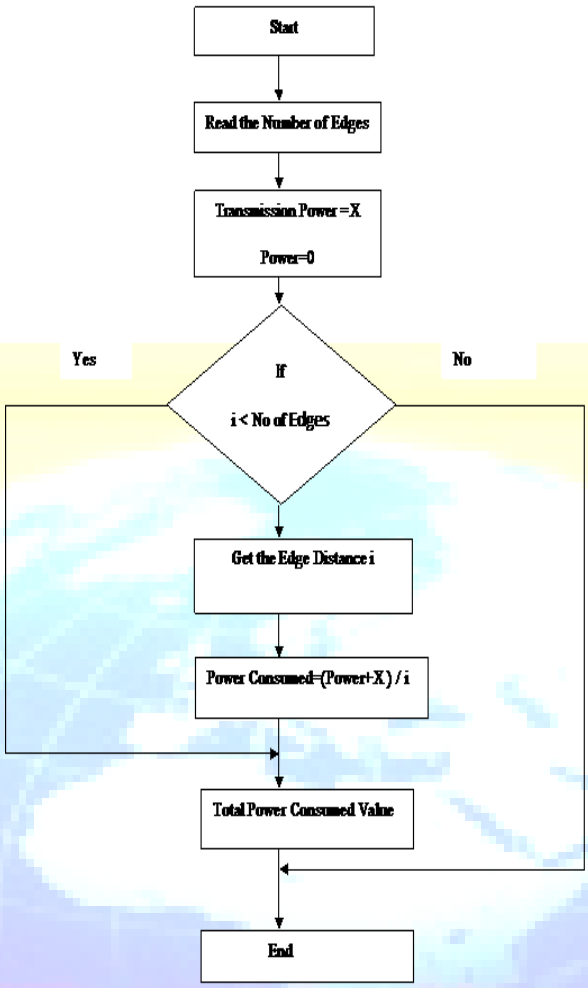

Figure 2: Transmitted Power Calculation

VI. Results and Discussion

Simulated Results are done by using the C++ simulator. **Figure 3** we consider the read the number of node in a network. **Figure 4** shows the number of edges from the neighbour node and also calculate the distance between the edges. **Figure 5** shows the distance between each edges of the neighbour node and then calculate the shortest path in a network.

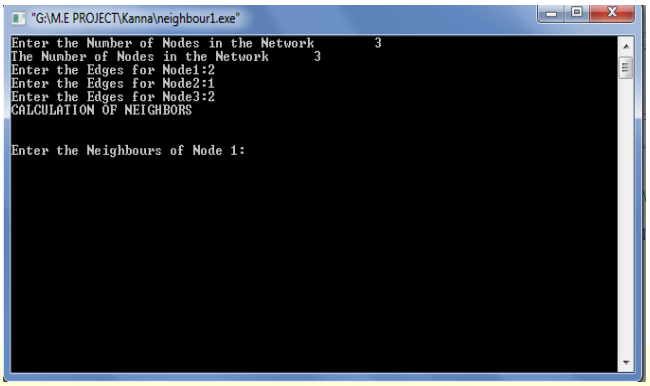

Figure 3: Node Results

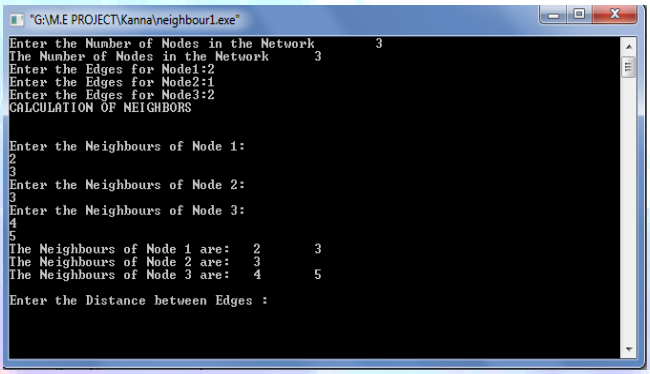

Figure 4: Neighbors Node Calculation

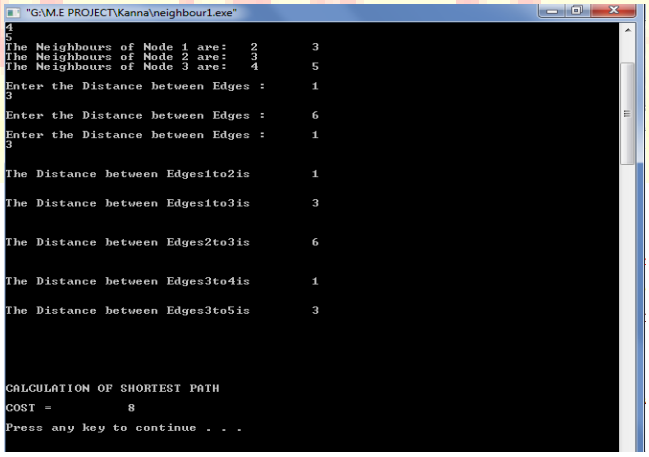

Figure 5: Shortest Path Calculation

VII. CONCLUSION AND FUTURE WORK

This paper presents the tasks performed by sensor nodes, communication consumes most of the energy. These methods to improve network lifetime and performance by the transmission power technique. The detect the shortest path in given network structure is good mobility of each node to transmitted the power from the source node to the destination node. As future work, the clustering technique is used to detect the shortest detection in a network to transmitted power technique using fuzzy logic.

VIII. REFERENCES

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