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A Specific Structure of Protocol to Increase the System Lifetime of Wireless Sensor Network

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Abstract: ***In present time there are many research are going on in the field of wireless sensor network which is defined by software that is known as Software defined wireless sensor network that is used for after the distributing of nodes in the network. . In this research work we propose an algorithm for the energy consumption of software defined wireless sensor network. This algorithm is used for to control of selected nodes in the network that are provide the many task dynamically, to make the system network functional manner . The control nodes in the networks are selected as a Nondeterministic Problem to reduce the energy and transmission distance in the system. The LEACH protocol is very useful protocol ti increase the system lifetime of the network. In this paper we consider the low energy adaptive protocol that combines the ideas of Media Access Control protocol and routing algorithm.***

I. INTRODUCTION

The large amount of data and cloud technology is useful for the development of wireless sensor network technology [3]. In wireless sensor network the sensor of the network contain the different type of unit as power supply, data transmission, processing and storage unit of data network of system [4]. Mobile WSN contain the sensor that has limited energy in stationary and mobility medium that control with randomly and changing with environment. The Wireless sensor network has the wide range of application in the physical world for example tracking, in the field of environment, military network etc [6]. The Low Energy Adaptive Clustering Hierarchy protocol consume the low energy when transmitted the amount of data from transmitter to receiver due to this the system life time increased the network. There are many types of algorithm and routing protocol are used to enhance the performance of the network system for example Media Access control protocol and routing algorithm. In the figure (1) there is shown main server control that is controlled the communication between the nodes with different types of task provided to the network sensor.

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In the figure 2 is shown the operation of sensors in different types of layer of OSI model. The wireless sensor network mainly operated in the application layer, network layer to control the nodes in network layer and physical layer to establishment of communication of the network.

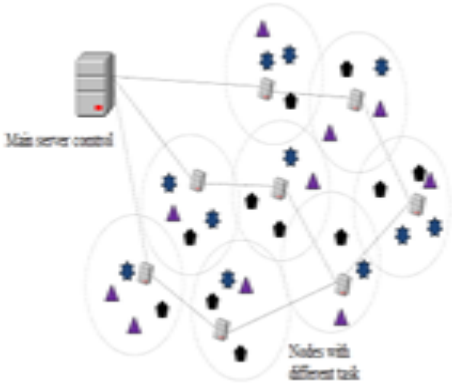

Figure 1: A wireless sensor network with different task

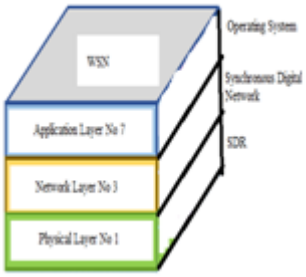

Figure 2: An OSI model of Wireless Sensor Network.

The distance between main server node of the network and control server of system that is denoted by dnode and where N is the total number of nodes. (xs andys) are the coordinates of control server and xi and yi are the nodes of sensor input. The function is expressed as

(1)

II. SIMULATION AND RESULT

To simulate the research work we have used the MATLAB software and here we see the figure 3 the number of nodes are taken 100 in cluster base area. There are 3000 iteration taken to improve the performance of the network. The figure 4 shows the alive nodes per round that is shown the every round has how many round for alive node and figure5 shows the energy per round of the network.

$$\text{Distance between sensor node and control server (d node)} = \sum_{i=1}^{N} \sqrt{(x_i - x_s)^2 + (y_i - y_s)^2}/|N|$$

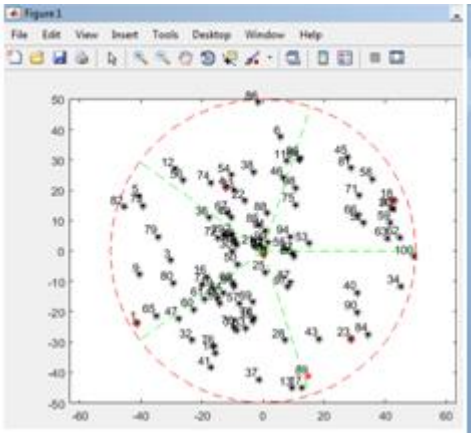

Figure3: A geographical area N =100

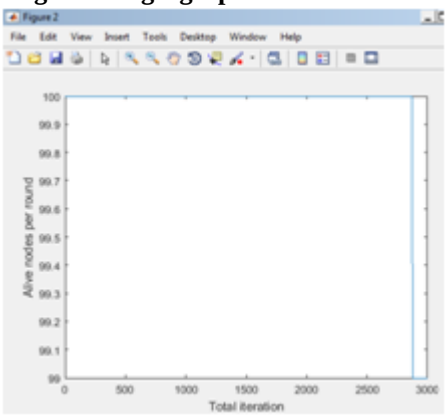

Figure4: Alive nodes per round of Wireless Sensor Network.

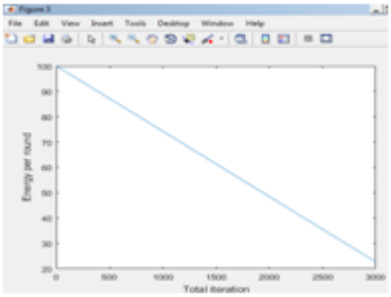

Figure 5: Energy of nodes per round of Wireless Sensor Network.

III. CONCLUSION

To design an architecture of protocol for wireless sensor network as LEACH there are following thing should be consider for the application of network as deployment of nodes in the network and consumption of energy of the system. To design a LEACH protocol these things are involved to remove the amount of data that is transmitted in the network and many types of operations are involved for the network configuration as Media Access control protocol, local control and routing protocol for low energy transmission in the system. In this research we get the high performance result for the system

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