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A NEW ALGORITHM EECA POWER EFFICIENT FOR WIRELESS SENSOR NETWORK

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ABSTRACT

This paper highlights on power optimization protocol for a wide variety of wireless sensors network. This protocol is used to enable cluster and takes place distribution of sensor nodes in optimized topology and communication specification in order to get maximum power conservation and improved management of communication schemes. . Our major focus is based on maximizing node-degree that is defined as the number of alive nodes that lie within the transmission range of a given node is more as compare to LEACH algorithm. In this dissertation we have proposed an improved clustering algorithm LEACH-I based on the LEACH algorithm with additional constraints for selection of cluster heads in stationary wireless sensor networks. Experimental results have shown that the proposed algorithm behaves better than LEACH and LEACH-C on wireless sensor networks for long system life time

KEYWORDS:- LEACH,EECA,SEP.

I.INTRODUCTION

The wireless sensor networks are a latest area that performs a comprehensive process of sensing and measurement acquisition, measurement data logging, data transfer and management of data via a wireless data network. The wireless sensor is a device that combines all functions in specific measurements and computational work. A group or set of sensors are connected though network in mesh form to perfume a networking protocol. The hopping data of the sensors from one sensor to another is a major protocol and technique, the sensors that hopping data from one to each other is so called “NODE”. The connection and cooperation of large number of nodes makes a rigid network with high capabilities and specifications [1].

The capability of any wireless sensor networks lies in deployment of connectivity of large number of nodes that is nothing but a represents a very smaller devices, that forms a network. These types of network are currently deployed for use in wide variety of applications associated with a suitable cost with respect to its usage [2].

The wireless sensor networks are majorly utilized for measurement of specialized field, storing and monitoring its measurements in host, and this is the most widely used application known to direct benefits.

It may be used to control few applications or actuators in that field. It also, decreases the cost of installation of hardware and cabling, knowing from the fact that, it doesn’t require large hardware installation. On the other hand, omission of large hardware installations and cabling, decreases the cost of maintenance significantly, neither momentarily maintenance nor proactive maintenance. Over that, the outdoor installations, mainly cables, almost are subjected to be stability. This type of topology of wireless sensors decreases the probability of stopping the equipment and hardware, because of there is no requirement of cables [3].

In addition to low cost of installation, cheaper devices, tinier sensing transducers, long lasting, it may be noted that it is adaptive and may be configured again to work in another areas. For example, in a big land, there is a network that measure temperature, pressure, and humidity and other parameters like same, can be configured to measure the wind speed or any other factor, also, few configurations may enable that network that can sense the existence of specialized materials in outer atmosphere. Costs of the single device of wireless sensor networks less than $1 in most of the applications [3].

There is no requirement that the wireless sensor nodes should communicate directly with the nearest available control tower that posses high power or even don’t ha any requirement to communicate directly to the base station. But there is communication between the nodes of local peers only. So, there will be a connection between pear-to-pear connection

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nodes, making a mesh network. The mesh architecture results in a flexible networking of various hopping branches. The system is adaptive in nature for node failure replacement and compensation [4].

PROBLEM STATEMENT

Problem of energy optimization in wireless sensor networks is important case for the modern researchers, and taken into place for all manufacturers and developers of such systems. Whereas, the main issue of this problem - from computer systems and information technology side – is the clustering of the wireless sensors network.

The wireless sensor depends on its battery to run along its life time, thus, the life time depends on the consumption of the ENEGRY. This is related to multiple variables, including the distance between the sensor and the head of cluster, the transfer packet size, the energy slope of that sensor which is related to its physical measuring structure, and other effects.

PROPOSED METHODOLOGY

System Proposed:- General mode of the Energy Efficient Clustering Algorithm "EECA" adaptive software system. In this paper firstly collect network data collection, it includes the calculation, find out the energy of each sensor and the beginning nodes clustering (distributing on the cells) over the measurement space and initialization.

The initialization is plotting the location of every sensor in measurement space and applying (FCM) traditional clustering algorithm to get the starting location of the head of each cluster. After receiving the number of clusters that is require to be used for cells from the base station.

The next is to start the EECA clustering procedure, which is continue overall running period of the network. During this mode, the network is re-clustered every transfer time and re-localizes a new head of cluster and new distribution of nodes (sensors) in the cells (clusters). When the nodes start to die, the base station should stop collecting data from the network and generates the decision and command to replace the sensors.

SIMULATION RESULTS

TO SIMULATE "Heterogeneous wireless sensor network with Optimize energy efficient clustering and enhance stable election protocol in WSN" A Matlab Test bench is created.

Table 1.1 shows that the input parameter for simulation result

Parameter	Test conditions 1	Test conditions2
No. of wireless sensors	1000	1500
Transmission packet length "bits"	4000	4000
D (distance between transmitter and receiver)	70 m	70 m
Transmission-Distance(m)	30 m	30 m
P(cluster-head section probability used during cluster creation)	0.1	0.1
Energy at Starting	0.5 J	0.5 J

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ENERGY CONSUMPTION

This is amount of energy consumed by devices during the periods of transmitting, receiving, idle and sleep, and dead condition. The unit of energy consumption used in the simulations is m Joule.

Fig 1.1 Shows that no of packet send to the base station is 15000 .no of dead nodes at round is 500 is 40 .and sum of energy of nodes 500 is 10 j to 0.5 j to 1000 round.

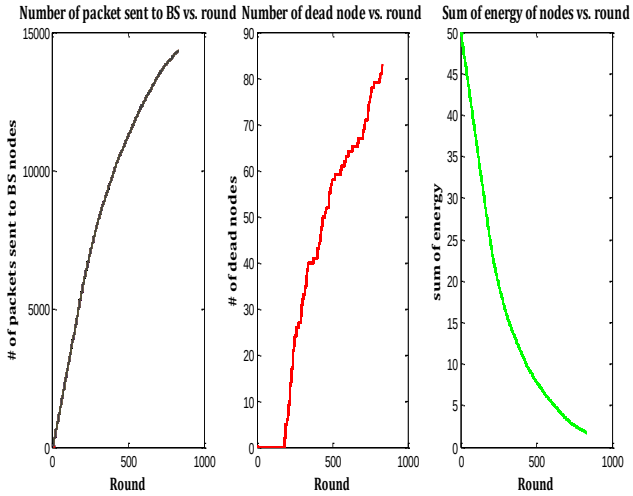

Fig 1.1 shows that no packet send to BS, Dead nodes and sum of energy

CONCLUSION AND FUTURE WORK

This paper concerns to implement a new methodology for wireless sensors adaptive clustering in order to optimize energy and power consumption in the network. Many researches in past and current information systems world are concerning in the energy optimization. The optimization of wireless network energy researches either concerns on hardware modification and optimization or either software management. The energy of wireless sensor networks is important issue and needs more hardware and software solutions to get good optimization methods. Energy optimization can significantly be done by a suitable clustering algorithm. This paper is a novel clustering algorithm for improving the conservation of energy in WSN's

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