e-ISSN: 2582-5208
International Research Journal of Modernization in Engineering Technology and Science
Volume:03/Issue:01/January -2021 Impact Factor- 5.354 www.irjmets.com

PERFORMANCE OF LEACH, MOD-LEACH, PEGASIS FOR WSN

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ABSTRACT

The Wireless Sensor Network is in great demand these days. We have seen a wide growth of wireless sensor devices with laptops, laptops, cell phones, PDAs etc. Wireless Sensor networks involve thousands of tiny sensor areas. In a wireless network the node is affected by power consumption, packet rate, battery life, inputs and so on etc. to avoid this problem many processes are introduced, but most of the position is given sequential terms. In this paper, we have suggested the use of LEACH, MOD-LEACH, PEGASIS protocol on the network that demonstrates alternative use of strategies in the event of network failure to use power.

Keywords: WSN, LEACH, MODLEACH, PEGASIS and APTEEN.

I. INTRODUCTION

A wireless sensor networks consist of tiny sensor nodes to observe physical or environmental conditions such as temperature, pressure, sound, humidity etc. The network must possess self-configuration capabilities as the positions of the specific sensor nodes are not scheduled. Routing policies and safety issues are a great research challenge now days in WSN but in this paper we will highlight on the routing protocol. A number of routing protocols have been suggested for WSN but the most well-known are hierarchical protocols like LEACH [1] and PEGASIS [2]. Hierarchical protocols are distinct to reduce energy consumption by collecting data and to reduce the communications to the Base Station. LEACH is considered as the most prevalent routing protocol that use cluster based routing in order to reduce energy consumption. A PEGASIS being chain based various leveled convention transmits the information by selecting pioneer hubs. The pioneers speak with the Base Station. This methodology is vitality proficient as well as disseminates vitality stack equally. The pioneer hub continues pivoting arbitrarily as the information transmission adjusts, the rounds specifically chain development, pioneer choice and information transmission, proceed. Beginning from an irregular hub, the hubs will be composed to frame a chain, which can be achieved by the sensor hubs themselves utilizing an insatiable calculation. Wireless Sensor Network (WSN) is a device for gathering information about the natural world. WSN technology introduced a low-cost, low-power featured hardware consisting of microcontrollers, storage memory, power supply, single chip radio transceivers, one or more sensors. Typical phenomenon data are collected by sensors and then transmitted to a server. These battery powered sensor nodes are used to monitor and control the physical environment of forest from isolated locations. The sensors are able with small amount of computing and communication capability and can be deploy in ways that wired sensor systems could not be deployed. Even sensor nodes are capable for judgment of illegal logging of some objects in Forest. In the past few years, the applications of Wireless Sensor Network have been widely used and applied in forest and agricultural for environmental monitoring.

II. RELATED TO WORK

WSN technology can be used for various large scale monitoring purposes, providing sensor measurements at high resolution. This technology, therefore, provides various information regarding different monitoring applications such as forests, waterways, buildings, security, agriculture, battlefield etc. Wireless Sensor Networks (WSNs) can also perform operations such as event detection, aggregation, sensing [4]. Author [5] illustrates the kind of WSN in forest based on Zigbee communication. Authors [6] explain the various frequency spectrum of WSN in regards with its application. Air pollution monitoring

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using WSN had been explained [7]. The networks allow coordinated signal detection, monitoring, and tracking to enable sensor nodes to simultaneously capture geographically distinct measurements [8]. Authors [9] discussed long-term challenges for WSN technology in environmental monitoring.

III. SIMULATION MODEL

Edified by traditional methods, proposed method has been based on **LEACH, MOD-LEACH, PEGASIS** protocol for optimization of parameters.

3.1 Methodology

Step 1 - Implement the WSN system. The system, that comprises of numerous little sensor hubs with detecting, control, information transforming, interchanges, and systems administration abilities.

Step 2 - Failed hubs may diminish the nature of administration (Qos) of the whole WSN. The hub status in WSNs can be separated into two sorts: ordinary and defective. Defective thusly can be "lasting" or "static". In, hub shortcomings of WSNs can be separated into two classes: hard and delicate.

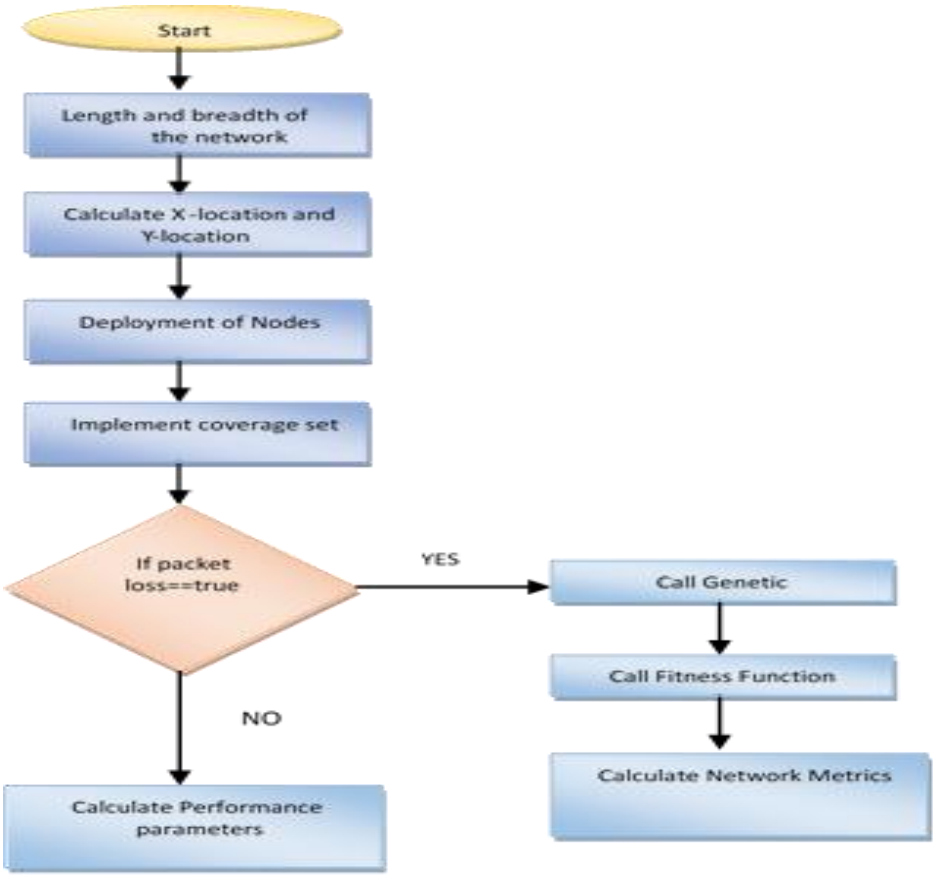

Fig.-1: Proposed model algorithm for WSN

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IV. RESULTS

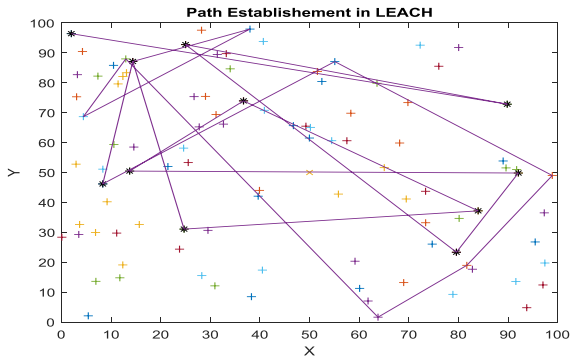


Fig.-2(a) Path Establishment in LEACH

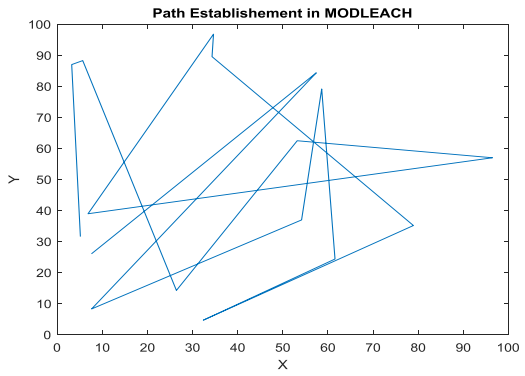


Fig.-2(b) Path Establishment in MODLEACH

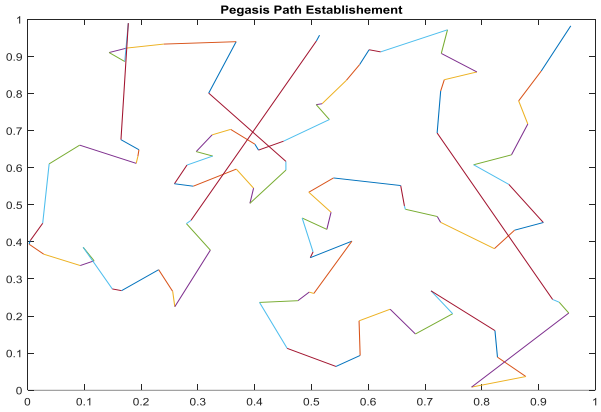
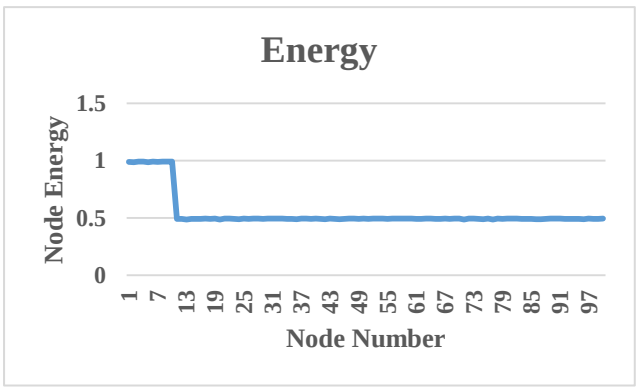


Fig.-2(c): Path Establishment in PEGASIS

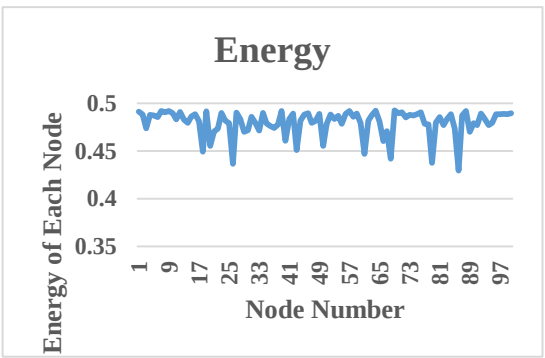
The above figure 2 shows the WSN network with sensor deployment. Also the source and destination is plotted in the network. The nodes are deployed in the network area which is considered as 1000*1000 in meters.

4.1 ENERGY CONSUMPTION



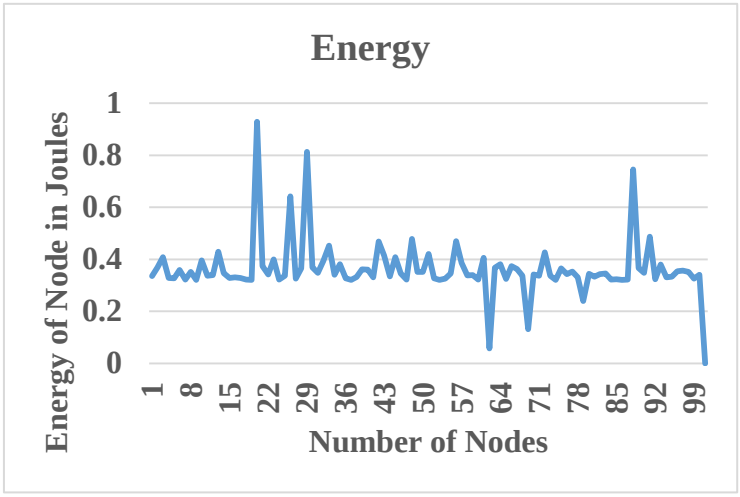
Average Energy of Each node= 0.54117J

Fig.-3(a) Energy in LEACH



Average Energy of each node = 0.4800 J

Fig.-3(b) Energy in MODLEACH



Average Energy of each node= 0.3665 J

Fig.-3(c): Energy in PEGASIS

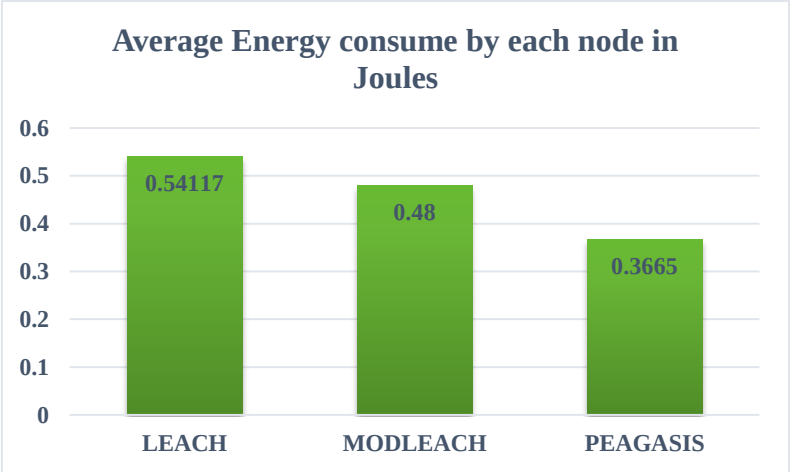


Fig.-4: Comparative analysis of Energy Consumption

The above figure 3 shows the energy consumption of the network which shows that the energy consumption is the Network load after optimization approach and shows that the network is having fewer loads to increase the network lifetime. The genetic approach provides the better performance of the protocol for the better efficiency of the network.

Table-1: Comparative analysis of Performance parameter

Parameter	**LEACH/ MODLEACH**	**PEGASIS**
Type of protocol	Hierarchical	Hierarchical
Network Lifetime	high	Very High
Power consumption	High	Maximum
Data Delivery model	Cluster base	Chain based
Specified Path	Yes	Yes

V. CONCLUSION

The proposed review is expected not only to solve most of the challenges affecting routing process in WSN, but also to have a network with high throughput, minimal delay and able to predict the communication between the nodes. The best result for increasing the quality of sensing with low power consumption and low cost. The further author will simulate the above protocols and find the best optimum solution to be used for WSN.

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