

### ABSTRACT

Wireless sensor network are formed by small sensor nodes communicating over wireless links without using a fixed network infrastructure. Wireless sensor network (WSN) is a collection of three kinds of nodes: sensor node, and sink node, etc. Each node has a limited processing capability and energy sources and communication is performed via wireless medium. The wireless sensor network are increasingly used in military surveillance, industrial monitoring, environmental monitoring, education, drug identification. In this paper, the study of the Wireless sensor network (WSN) using various techniques has been given. The different techniques has been reported in literature for the improvement. The comparison of the different classification methods of the medical image database is also given in the paper.

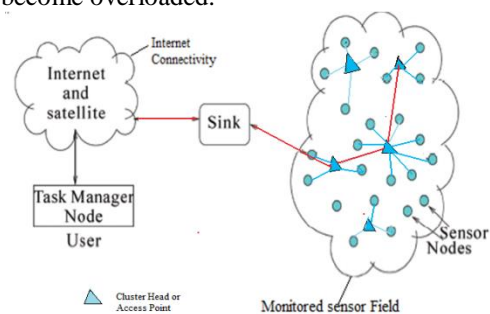
**KEYWORDS:** Genetic algorithm (GA), Wireless sensor network (WSN), PSO, Clustering, metric, etc.

### INTRODUCTION

A wireless sensor network consists of large number of sensor nodes scattered in an environment to collect information concerning the environment. Among the main features of such network are that they do not have fixed station or any wire connection to exchange information and to manage the network. The nodes present in such networks work in cooperation with each other. There must be communication among which send information. Wireless sensor network are challenging networks as resources are limited and different network topologies are possible. Since sensor is a small, lightweight, battery-powered device, unmetered, it has limited energy. Energy consumption is a critical issue in sensor network which affect the network's lifetime. To maximize the network's lifetime, and transmit data from normal node to CH (cluster head) and from CH to BS (base station) in sensor networks. The selection of an optimum CH has an effective role in increasing a sensor network's lifetime.

Similarly reliability and traffic overhead is an important issue in WSN. For improving the reliability, there for must transmit the data in multiple paths from source node to sink node. Source node is a node which collects data through its sensing devices, if the finds neighbor nodes and sends message to

them. And relay nodes are transit nodes which receive data and forward it to another reachable relay node according to the routing policy of the network with the objective of finally reaching the sink node. Sink node is a high energy communication node network, which acts as a base station (BS). It collects all the data from relay node and sends them to a home base station where the data are processed. If we transmit the data in those paths which are unable to reach the destination then it is necessary to retransmit the data increasing overhead. Again if we transmit the same data in different path then the network become overloaded.



*Fig: 1 Wireless sensor Network*

A model for energy consumption in] guaranties successful transmission in wireless sensor networks, but also leaves enough space for optimization system, and this is the main problem for this paper. The numerical evaluation based on multiplying of all input variations is proposed in but, as a consequence, makes the system non run-time applicable. The calculations required to solve the problem are beyond the computational capability of most sensor nodes. The biggest disadvantage of the numerical method is that it requires calculation of  $113 \times 84$  complex equations and then finding minimum among them. The problem has been already addressed by utilization of modified hill climbing in and lookup tables. In the continuing research in this field, this paper is devoted to solving the problem with genetic algorithm (GA). The GA is a search heuristic that mimics the processes of natural evolution. We believe that GA can be used for transmission energy optimization in WSNs.

### LITERATURE REVIEW

In the many researchers have been done in field of economic dispatch problem some of the work is described in this paper.

**Wei Qu [1]**, in this paper, energy-efficient routing control strategy based on genetic optimization in wireless sensor networks is proposed for solving the problem of selecting optimal routing set of nodes for WSN with high density. Our strategy adopted the elitist operate to improve the speed of optimization; It introduced the idea of taboo and designed the scheme of using chromosome template as taboo object and establish searching neighborhood base on the template to achieve the effective local search process, which can improve the ability of global optimization techniques. Simulation and analysis showed that premature convergence of genetic algorithm can be inhibited effectively and global optimization can be accessed in a greater degree, the energy consumption of nodes was reduced and the lifetime of network was prolonged effectively.

We consider the energy consuming of each node and the total energy consuming of network as the optimization targets to study the problem of energy-efficient routing control in WSN with density nodes, and proposed the energy-efficient routing control strategy based on genetic and taboo hybrid optimization. Simulation and theoretical analysis showed that the cracking introducing and elite operation optimized the quality of population and improved the speed of optimization.

**Riham S. Elhabyan [2]**, ther is paper, clustering is an efficient topology control approach for maximizing the lifetime and scalability of Wireless Sensor Networks. It is many cluster-based routing techniques have been proposed in the literature. In most of the proposed protocols, the communication between a sensor node and its designated cluster head (CH) is assumed to be single-hop nodes. In multihop communication can be used when the communication range of the sensor nodes is limited or the number of sensor nodes is very large in a network. Clustering is known to be non-deterministic polynomial (NP)-hard problems for a WSN. Particle Swarm Optimization (PSO) is a swarm intelligent approach that can be applied for finding fast and efficient solutions of such problems. we propose a novel centralized PSO protocol for Hierarchical Clustering (PSO-HC) in wireless sensor network (WSN). Our objective is to maximize the network lifetime by minimizing the number of active CHs and to maximize the network scalability by using two-hop communication between the sensor nodes and their respective cluster head (CH). The effect of using a realistic network and energy consumption model in cluster-based communication for WSN was investigate. In the extensive simulations show that PSO-HC outperforms the well-known cluster-based sensor network protocols in terms of average consumed energy and throughput. The protocol enhances WSN energy efficiency by setting an upper bound on the number of CHs and trying to minimize the number of CHs compared to that upper bound. It enhances the network scalability by using two-tier cluster structure. The protocol was developed and tested under realistic network and energy consumption model.

**Sunil R. Gupta [3]**, in a wireless sensor network (WSN), many researchers proved that the clustering technique improves the longevity of the network holes. But the load of handling traffic increases on the nodes which are closer to the sink or the base station, as it has to carry others traffic along with its own towards the BS and depletes more energy which causes network holes system. The power transmitted by the nodes could be controllable and each sensor can transmit directly to the BS but the farthest nodes consume more power and die earlier. Develop an efficient clustering technique in which cluster heads (CH) are formed and are supposed to send the data to the BS and the role of CH is changed in each turning round. The finalization of the CH is based on the energy distribution and its selection procedure is optimized using genetic algorithm (GA). The results show that with this approach the stable operating period increases and is compared with probabilistic

and EC algorithm. Result shows that our approach achieves a greater value for network lifetime, network throughput and also analyzed that the delay in packet delivery is minimized. We have gone through multiple strategies that can reduce the hot spot problem. In future the proposed algorithm can be tested for the wireless sensor network consisting of static BS and other mobile nodes.

**Smidling Bojan [4]**, In this paper we present a method for minimization of energy consumption during packet sending procedure in wireless sensor networks utilizing genetic algorithm (GA). The proposed solution depends on careful observation of the optimization space and complete customization of genetic algorithm to suit the specific type of energy. This way, in energy minimum can be found with over 99.9% precision with additional minimization of error or memory space or CPU consumption energy, at the same time, as shown in this paper. We present genetic algorithm as means to transmission energy minimization in wireless sensor networks. With 650 000 measurements, that energy efficiency can be achieved either with high precision, small amount of memory space or even low number of calculations, when the genetic algorithm is customized to suit the specific platform and goal. We conclude that genetic algorithm can be used for energy optimization purposes in wireless sensor networks.

## OBSERVATION

The energy consumption is the major parameter on which the performance of different methods has been evaluated. The various results of different paper are summarized in the table below,

Method	Energy consumption
Genetic algorithm	40 Joules
PSO-HC	80 Joules
genetic and taboo hybrid optimization	100 joules

## CONCLUSION

In above Literature we have observe that genetic algorithm provide minimum power energy consumption in Wireless sensor area network as compare to PSO-HC and Genetic and taboo hybrid optimization methods.

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