PERUSAL SURVEY ON EFFICIENT ENERGY USING CLUSTERING TECHNIQUES IN WIRELESS SENSOR NETWORK WITH GRAPH BASED THEORY

K. RATHIKA [1], C. CHITHIRAISELVI [2]

Mphil Research Scholar, Department of Maths , PRIST University., THANJAVUR
Assistant Professor, Department of Maths , PRIST University., THANJAVUR

subhijose2006@gmail.com

Abstract— In recent years, researchers have focused on many challenging aspects in the area of Wireless Sensor networks (WSNs). By means of sub-meter spatial declaration of Wireless Sensor Networks is a large number of sensor nodes and data send from a sink with the assist of radio transmitter Development of energy efficient data collected works protocols became the major concern in WSN having limited energy. WSNs is emerging development and as long as enveloping compute surroundings of everyday life fitting for monitoring and environmental applications like household, industrial, military affairs, traffic management, medical applications, surveillances etc. sttA set of nodes is connected in a single network called cluster. cluster is an well-organized method to group the feeler nodes of whole esystem controlled and monitoring by a cluster head. The data is simply communicated through base station with the help of cluster head. To support high scalability and provide better data aggregation by efficient utilization of limited resources of sensor nodes and that prolongs network lifetime. A wireless network is any type of computer network that uses wireless data connections to publicize network nodes. Wireless networks are computer a network is connected via virtual cables. Using a wireless network allows to prevent the costly means of introducing cables into buildings or as a correlation between different equipment locations. The keystone of wireless systems is radio waves, occurs the physical higher level of network structure. It differs on number of dimensions but no one can notice when the nodes are connected, how far apart from these and how bandwidth is provided as additional important differences include which maybe the electromagnetic spectrums they desire and exactly how much power them consume. In this paper, in order to balance the energy among clusters algorithm to enrichment of the network competence and also network life time we discuss four famous wireless technologies: Bluetooth (802.15.1), Wi-Fi (more formally generally known as 802.11), WiMAX (802.16), and third-generation or 3G cellular wirelesses. power constrain is the most important topic in WSN and that needs be optimized to lengthen the life of source controlled the system. Communicated the data in nodes how exact power is used in cluster method proto form on graph based theory some widely explored clustering algorithms to overcome secure data aggregation in WSNs are discussed on several aspects We proposed a graph theory based secure data aggregation which has a three phases. Imagine the nodes having the transmitted power and sensing power. I phase carry out the clustering and cluster head election process. II phase Having the trust of energy and performs the each clusters are calculated the distance, . III phase carry out the shortest path calculation was transmitted the data is tenable or not. Finally the aggregated data was transmitted over the cluster heads to the base station. Our proposed models are analysis the recognized through the base stations.

Keywords – energy efficiency, wireless sensor network, clustering technique, graph based theory

I INTRODUCTION

Due to the heterogeneity of the data identifying the process of data elements in clustering is called data classification through Non Uniform data. The resulting groups are called clusters. Clustering is employed in WSNs based on some similarity measure defined for the data elements by grouping. . A necessary task in unsupervised learning is datasets are classified into two or more classes based on a similarity measure over the data, without retreated to any a previous knowledge on how the categorization should be done in pattern recognition systems are unsupervised learning directly related to clustering. A graph consists of some points and lines between them. The length of the lines and position of the points do not matter. Each object in a graph is called a node. A large set of sequence nodes using a graph-based clustering method is anticipated to connections between pairs of nodes which automatically improve clusters of the conventional single linkage

taking into consideration the edge structure of the graph in such a way that there should be numerous edges within each cluster and relatively few between the clusters. A grouping of nodes in graph clustering give input as cluster , which is the topic of this analysis, must not be confused structural similarity based on the clustering of sets of graphs; even though several techniques involved are directly related to the task of resulting clusters contained by a given graph.
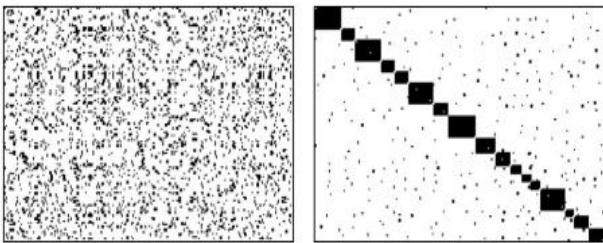

Fig: 1 Adjacency Matrix of a 210-Vertex Graph with 1505 Edges

As an equally valuable and novel platform for wireless communication and other areas of applications has a rapid technological innovation in field of wireless sensor network. The possibility of wireless sensor networks include wider areas of coverage such as environmental monitoring, resistance machinery and surveillance, ecology evaluation, industrial products manufacturing, home appliances, transportation, medical applications, general applications etc. Wireless sensors are manageable devices incorporated with a grouping of transmitter and receiver along with low energy sources. General features of a wireless sensor node constitute memory, energy and economical processor for computation purpose.

In current days that a huge number of power proficient direction-finding protocol have been projected for WSNs based on the system association and the direction-finding protocol operations. The major operational substantiality concern in WSN is its energy resource constraint. Based on energy efficient routing protocols was described and addressed issues of routing hole by utilizing mobility. Some of these focused on minimizing to reducing the communiqué space to low the power expenditure and fair-haired power allotment is used to keep away from the direction-finding problems. These protocols are appropriate in certain situations; however they might not be relevant in cases where mobility is not feasible such as earthquake, forest fire, and disaster management. A variety of other research papers focusing on energy competence routing protocol can be found. WSN power matter gives pay concentration to a lot of researchers for designing different routing techniques and MAC-layer protocols to move up the energy level in WSN. Our literature review reveals that energy efficient routing protocols have a wide range of dissimilar energy in the current history were intended mostly based on the system arrangement such as hierarchical routing, site routing, and level based routing. The open routing protocols are at rest in front of energy efficiency limitation issues also reveals that our extensive literature review. Some of the admired existing energy efficient routing protocols are critically analyzed in this current section.

II METHODOLOGY

In order to compare their performances with our proposed algorithm presents different cluster head selection algorithms. Considerately monitors or gather environmental data or conditions (i.e., temperature or humidity) in each sensor nodes and it sends information to a base station via a cluster head selected from a cluster head selection algorithm. Our experiment reveals that within a transmission range where they nodes are grouped into clusters. The sensor nodes to a cluster head forwards the data packets toward the base station. To maintain the data aggregation in the network the nodes can be accommodated in the tiny groups called the Clusters which may be in dissimilar layers depending on location and distance to the base station. Clustering can be clear as the splitting up of the nodes in the groups on the source of some methods. A major metric for evaluating the concert of a sensor network has low layer cluster refers to a group of nodes located within a transmission range closer to the base station than higher layer clusters. Assigning the role to the node on the basis of their perimeters based on arrangement of clusters. During the connection setup process each node realized the location of its neighbor nodes within the maximum transmission range by using arrival time of "Hello message". The in sequence of energy consumption, residual battery level, and distance to the base station (assuming that all nodes know the position of the base station) determination also learnt from the connection of setup process. A clustering algorithm which cleanly selects a cluster head with minimum distance or maximum residual battery level is usually used in typical wireless sensor networks. To consider important issues of both energy consumption and battery

levels in wireless sensor networks have been proposed in some other clustering algorithms. Frequently, a cost function used in a clustering algorithm for cluster head selection. In this clustering technique, the sensors are controlled into different number of clusters. In each cluster, one node acts as a cluster head (CH) and the remaining nodes act as a member of the cluster.
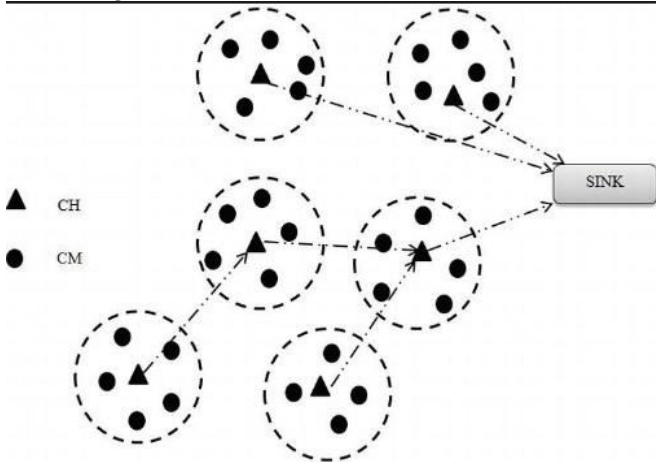
**Fig: 1 Clustering Techniques in Wireless Sensor Network**

GRAPH BASED THEORY

According to the constructed graph, the initial graph (source) vertex to the final (sink) of all arcs in the critical path weights maximum total value is calculated. This critical path will matches to the optimal enterprise ISS and also calculating process can be automated by raising a simple computational software section.

In a given graph G = (V, E), shares the different topological structures. Many investigations had undergone what is the relation between topology and graph theory. There is a one to one correspondence between the rest of all topologies and a transitive digraph with n points is proved by J.W. Evans et.al [7] in 1967, He established the result as follows. Let V be a finite set and T be a topology on V. The transitive digraph related to this topology is got by drawing a line from u to v if and only if, u is in every open set containing v.

Conversely let D be a transitive digraph on V. The family B = {Q(a) : a ∈ V } forms a base for a topology on V , where Q(a) = {a} ∪ {b ∈ V : (b, a) ∈ E(D)}.

III SIMULATION AND RESULT ANALYSIS

In this proposed section, a graph theory based secure data aggregation which has a three phases. Imagine the transmitted power and sensing power of the nodes. The clustering and cluster head election process is executed on first phase. The each cluster is calculated the distance, Energy and also dependence is executed on second phase. The shortest path calculation was transmitted the data to secured or not is executed on Third phase. At last the cluster heads to the base station were transmitted as of aggregating data's. Our proposed models the simulated results are done by NS-2 Simulator and analysis over the acknowledgement through the base stations. The table.1 shows that Energy consumption analysis of the packet delivery ratio compare with existing and proposed methodology. The figure.5 shows that Energy
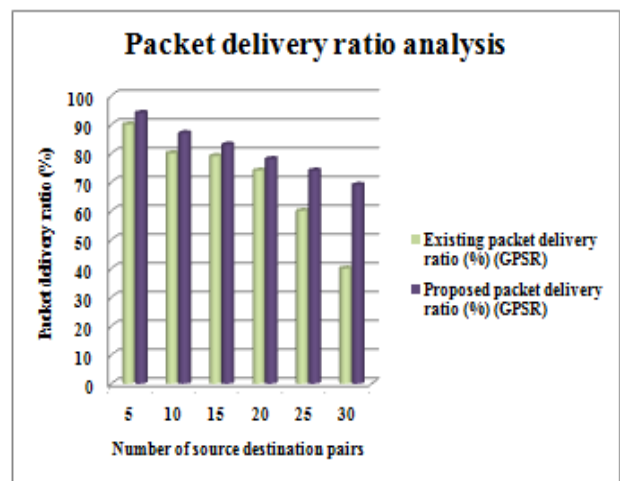
consumption analysis of the packet delivery ratio compare with existing and proposed methodology.
Fig: Packer Delivery Ratio Analysis

Fig: Energy Consumption Analysis

Energy consumption analysis
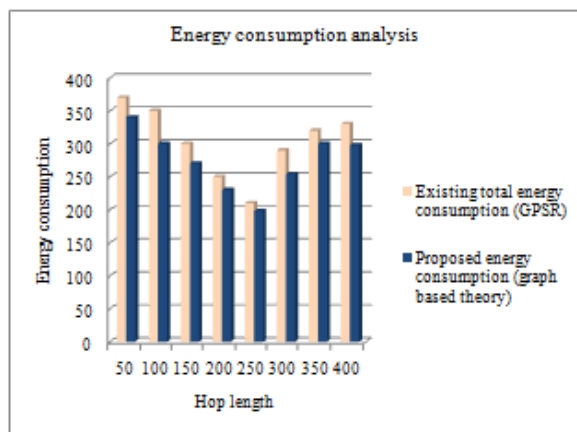
VII CONCLUSION AND DISCUSSIONS

Clustering technique is very useful to reducing the energy efficient consumption. In this paper currently we introduces there are excellent proposals of a latest tactic of clustering of each node and also taken as a whole potential of each cluster. The effectiveness of the proposed model is analysis using NS-2 and the results showed above. In a longer period of time, the sensor nodes make use of extremely less power and keep on the networks greatly . Determining the shortest path in a network is good mobility of each node to transmitted over the power from the source node to the destination node. The clustering techniques are used to determine the shortest path in a network using Fuzzy Logic as a future work perspective.

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