Optimization of Energy of WSN using Modified SEP through MATLAB: A Reviews

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Abstract: Wireless Sensor Network plays an important role in our daily life. In real life applications we have to send data from one location to another location via mobile nodes and sensor nodes. In wireless sensor network one base station is required and one controlling station is required which controls sink node for transferring data from base station to destination station. In this paper, three protocols are used for transferring data from base station to destination station which are given: SEP(Stable Election Protocol and SEP with three level of heterogeneity i.e. three types of nodes are used which are normal nodes, advanced nodes and intermediate nodes. Energy is totally distributed equally in nodes. WSNs are used for biological, safety, medical applications, etc. Device node is usually not performed all the way in a particular region. These devices collect their data and send it to the base Station (BS) in other ways of tracking. These nodes cannot be renewed from time to time to stay alive. They must follow the principle that ensures that their energy efficiency is effective, so those nodes can work as long as there is no external assistance. The fasting process plays an important role in the exercise of power. Several travel contracts use integration as their travel procedures. So collecting plays an important role in increasing the number of sounds and time of network. Cluster Heads (CHs) collects information from all nodes in their collection, combination and eventually submits to BS. These device numbers must follow a straight tracking path to send their information successfully to BS. The main purpose of all transport policies is to reduce energy consumption, so the time of network time and especially the overtime of the network is also upgraded.

Keywords- WSN, SEP, Base Station, Cluster Heads,

I. INTRODUCTION

Wireless Sensor Networks are networks of tiny, battery powered sensor nodes with limited onboard processing, storage, and radio capabilities. Nodes sense and send their reports toward a processing center which is called "sink." The design of protocols and applications for such networks has to be energy aware in order to prolong the lifetime of the network because the replacement of the embedded batteries is a very difficult process once these nodes have been deployed. A remote sensor system sensor is assembled with remote power and limited processing and transmission capabilities. Due to limited transmission and

processing force and high sensor hub thickness, the transfer of multi-democratic information is [9] transferring parcel. With the lines, direct sensor [2] system has been an important source of research in the past few years. Since Sensor Nodes run non-rechargeable batteries, the importance of efficient routing source resources and efficient use make network energy an important investigation problem. Remote innovation and easy-to-use sensors are offered low-speed remote sensors [2] systems. Sensor nodes are elastic and easy to use, so that they can be used in rating usage, for example, following targets, environmental observations, medicinal services, wood berg fireplace, stock management, board library, observation, monitoring, and so on. The main role of the sensor nodes in the network is to move to transmit the receipt for the media, but the resources barriers, incredible links between sensor nodes, and the maximum of applications for different applications. Are wireless determining the formation of special instructions in the sensor system is a problem starting. Designing a suitable algorithm for different applications to meet different performance requirements has been recognized as an important issue in the road wireless sensor networks [4], [12]. In this case, many preventive algorithms have been offered to improve the performance requirements of different applications through the wireless network sensor network layers through network layers, but most of them walk on the same path. In a steering procedure, one source basically selected a single method that meets the requirements of the application and changes to take advantage.

While a single way between the source and sink is used as a unique computing multi-nature nature and asset, it can be used with different factors, for example, accessible access through limited access to individual paths. Second, the mood has been given a remote connection, the only way connecting to steering disadvantages can be connected, bad system implementation. After interrupting the main way to continue to transfer the database, adds an extra way to the optional path and increases the dimensions of the data transfer. Due to these factors, effective way of single-pass routing is not considered to meet the performance of different application requirements.

Multipath routing policies (also known as alternative routing routes) have come to overcome the performance of these performance issues and solve the boundary strategy of single-way routing. As the name affects, the way the goal is achieved

between the source and purpose, it provides information in different ways. Now the way to use these links is based on another routing strategy. Some routing algorithms use the best way to send data, use to maintain backup alternatives as backups, if the primary way fails to use. Over the last few years, multi-string steering techniques have been used in a wired and remote system, however, in remote sensor systems are organized as different systems, for example, the direct directive to bear the reduction, transmission dependency Improvements, clerical control, and nature of the management (QS) support have been widely used for administrative purposes. Unique features and short ranges make new challenges to wireless communication capabilities that need to be addressed when designing multipath routing protocols. [1]

1.1 Classification of sensor network
The sensor network activated rating and target application types are rated below.

Proactive Networks
In the system change nodes interchangeable sensors and transformers to make the difference between the earth and transfer the ideal information. Therefore, they provide snapshots of regular related parameters. These types of networks are ideal for applications that need to monitor regular data.

Reactive Networks
In this situation, Nodes react quickly to the exposure of Mumbai and emotional transformations. These type systems are perfect for basic applications of the time. The remote sensor system encourages several new planning conventions for the late progress sensor system, where unity recognition is a basic idea. In any case, for example, to ensure life rotation compatibility between sensor nodes to move escort, direct posts and at least geography. It is permissible to respect a sensor hub on a legal basis at a separate station directly in the synced convention. As a result, the first node of BS is the first dead node. Then, transferring information about one-way transmission consultant is transferred through the middle of the road nodes. In this way, despite the detection status, goes to every center as a switch. Hub located near the BS is the main data gathering points. Yet, cluster based technology is a way to improve the entire life and stability of the entire sensor. The production guidelines that make the most of the group depend on different groups, for example, group development and information collection form. Shape as shown in fig 1 is an organizational status of various routing protocols widely used in WSN.
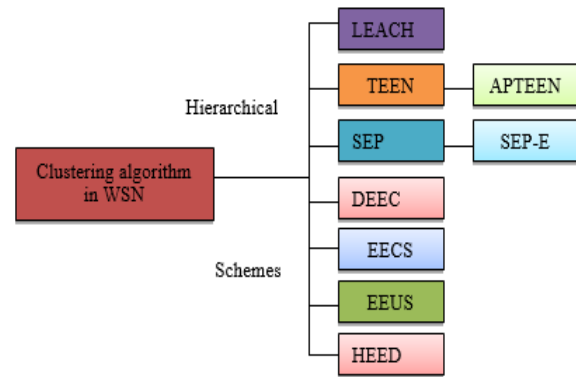

Figure 1. Classification of widely used clustering schemes in WSN

1.2 SEP (Stable Election Protocol)
SEP protocol is an improvement and enhancement of LEACH [2] protocol which uses clustering based routing strategy based on the node heterogeneity of the sensor node in the networks. In this protocol and technique, some of the sensor nodes have the high energy they are referred to as the advanced nodes and the probability of the advanced nodes to become CHS is more as compared to the normal nodes and the normal nodes have lower energy as compared to the advanced nodes in the network.
SEP strategy uses a distributed method to select a CH in WSNs. It is heterogeneity-aware protocol [1] and CH selection probabilities of nodes are weighted by initial energy of each node compared to the other nodes in WSN. So basically, SEP protocol is based on two levels of node heterogeneity as normal nodes and advanced nodes.

Advantage of SEP
Any identification or global knowledge of energy of sensor node is not required in SEP [7] technique at each selection round of cluster head.

Limitations of SEP
The cluster head (CH) selection among sensor nodes is not dynamic, which results that nodes that are far away from the powerful nodes will die first.

II.　　　BACKGROUND
Feng et al. (2019) A studying node failure is one of the most serious problems that detect wireless sensor and activity network (WSANs). Specifically, disappointment of actuator nodes may quickly accelerate results, such as closing, parceling, foundation and insufficient basic leadership of WSAN. This paper proposes an effective close-up project called LANTR, and solves the patriarchal patronage between executing acoustic activists at the nodes. If the general actor's node fails, LANTR can restore the fastest top maintenance to a non-failing node instantaneous

neighbor, while helping the original land potentially Will be To take the size of cutting vertical actuators on the connection, LANTR has created a new method for the vertical cutting of vertical, in which to select specific surveillance nodes, with minus or lower with neighboring cutting points. Less than that. Effectively reduce the coverage. Reviewed the proposed project performance and its current and current dimension plan. The results show that LANTR can be managed successfully. A. Noda (2019) proposed Small sensor (such as temperature and behavior sensor) is proposed on the body surface, which includes smart watches, provide more detailed information about body condition, single with sensor and wearable devices. Rather than point measurement. Electricity/data transmission is an inevitable problem with the distribution of Microsoft sensors. This demonstration displays wireless access to battery and antenna sensor located on conductive textiles. Twofold sided conductive structure is used as power and mark transmission transport. Two conductive airplanes are separate from each other and work as a transmission line while moving DC power and radio frequency (RF) signals. In the demonstration system, two RF carriers are modular to move slightly sterile from each sensor by an internal integrated circuit (I2C) type digital signal. Thus, it is compatible with the System of Shelf I2C Interface Digital Sensor. For example, a demonstration system is provided using a distributed temperature sensor. However, moisturized sensors, accelerometers, and electrical sensors can be used in different systems such as different sensors. Krikidis (2019) this letter depicts the data age (AoI) of sensor systems with remote power exchange (WPT) capacities. Specifically, we reviewed an easy-to-use network where the sensor collects energy from the nodes radio frequency indicator (sent from dedicated energy sources) and sends real-time status updates. Sensor Nodes produces an update when its shadows / battery is completely energetic and uses all the accessible life without moving the board without any library. The average AOI performance of greedy policy is considered as a closed form and is a function of capacitor size. The capacitor is an ideal estimate that is directly related to the increase in the increase in the freshness of the data, which requires a dimensional inquiry. The optical results obtained provide a useful performance range for the real WPT network. Zhang el al. (2019)The proposal presented as the development of semiconductor technology, the maximum amount of energy generated by the ecosystem, RF Energy, is being promoted to promote low-power electronics. Nevertheless, in order to think of operating high power modules, this disability is very low, with those visits, limiting its unusual use in remote sensor system (WSNs). Integration with dedicated wireless power transfer (WPT) has been analyzed to include environmental energy combinations in WSN. In this way, low power gadgets can be kept in force, while high power modules can be implemented by the WPT committed. During a practically uniquely dedicated break-in using low-edge rectifiers used to use and to prepare for all organized organizations. In order to get

compact retains, we use less harm, to guide two different energy flows that compact circular. Analysis of analyzed integration and ideological WSN applications are analyzed. Elhabyan et al. (2019)the coverage of wireless sensor networks (WSN) coverage can be checked to effectively monitor how sensor node network fields are. For many years, this problem has got a lot of attention, many references have been presented. In this study, we first proposed a rating to rank coverage protocols in WSN. At this time, regarding the duration of the better joining system, the three-convention convention (i.e. incorporated, regulatory management convention, the comfort plan for the comfort of the system, and the rest of the booking convention on the group's basis) Is different For all types, according to the compensation technology, the relevant contractors are well-rated. Finally, we discuss non-resolved issues with the design of realistic compensation contracts (and recommend future directions to address them). Realistic sensing models, real energy models, real touch models, and sensor positioning are included. Tutunovic & Wuttidittachott (2019) the monitoring wireless sensor networks (WSNs), has a significant impact on network performance in power consumption. It should be at least because it affects network availability, reliability and longevity. Because experiments using real devices and networks are expensive and complicated, simulators can be used as an alternative to facilitate the research environment. The simulator used in this article is running Chick Simulator ContikiOS. It is usually used on the WSN hardware platform. Four parameters are used, energy consumption is measured in five different tests, changing the sink node space without converting the number of sine nodes. Consequently, if a node is not only working as a chloride node, but its neighbor transit nodes, the average power consumption of every node is not necessarily connected to the least number nodes, and the energy consumption How to increase the node.

Altoaimy et al. (2019) Study about sharing information between Nodes is an important feature in wireless sensor networks (WSN) applications. Gupta Protocol provides a database and can be used to ensure data transmission on the sink node. In this article, we have proposed two protocols to enhance conventional guppy protocols that distance-based lightweight methods to select the best node for the next Rapid Transmission message. The first proposed protocol, SN Gipships, uses close neighborhood metrics, and the second grip uses the urban block metric. The main advantage of using these two technologies is the ability to maintain energy because the calculation is easy and fast. The proposed convention offer was reviewed, on the traditional vacuum convention gasping and the appropriate tile convention FEL challenge. Experimental results show that the use of the protocol can be used to maximize network life cycle and resulting in reducing elasticity guarantees effective bandwidth. **Liu et al. (2019)** use distributed sensing to study the recovery of the speaker signal in the wireless sensor network (WSNs). Sensex marks from multiple sensors are presented by a half-bold buster set model that describes the signature

connection through a common support set and talks with the bold set of individual capabilities. A new algorithm, Co-Innovation Subspace Tracking (CISP), is offered to estimate the general innovation set-up and reduce the construction error and time of calculation. Algorithm consists of two stages, a common subsidy track based on the aggregate reduction and projection-oriented subscriptions. The converter performance of the CISP algorithm which is analyzed by the reconstruction error. Similarly, exhibit exhibitions performed in the development of entertainment and trials were reviewed. Depending on the BSINGING depending on the level, depending on the error and implementation time for the sensor system, according to the recommended CISP, the parallel coordinate in the direction of the following calculation is calculated on the basis of the suggested CISP happens. In addition, real information investigations from the temperature and mosquito sensors reaching Intel Barkley Labs really show that a defective flag can be reversed by the number of CISPs calculated. **Nishikawa *et al.* (2018)**this article explains the monitoring process of the Wireless Sensor Network (WSN) system shield using IEEE 802.15.4 (Zig-Bee). The purpose of this research is to create a wireless sensor network system, which detects and monitor the earth's changes due to the heavy rain in the middle of the mountain using wireless communication devices and sensor devices. There is a need to solve many electronics and environmental issues to collect stable data. In this paper, they offer a technique for continuous development on the mode of dependent on an ideal plan of receiving a light from the battery, providing a strategy to save remote centers, and WSN receiving wire. Experimental results of the suggested system installed on the original test site show dynamic wireless network settings. In addition, the field conditions can be offered through a better system data. *Fukuda* **et al. (2018)**A wireless parameter conversion sensor network (PhyC-SN) uses sensitive information frequency module to identify all sensitive information from the sensor spectrum. For long-sensor sensors, event-based sensor sensors decide to transfer sensor information based on a certain amount of information change. As it may happen, the distribution of information on this occasion is a problem with PCCNN, with an opportunity based sensor. In this paper, we propose PhyC-SN transmission control and data separation using event-based sensors. Future inspection data can be used to review gas prospects. The effect of the proposed method is estimated by computer simulation. **Khedkar & Asutkar (2018)**A connected studies connected to the wireless sensor network (WSNs) are nodes network connected, and can detect, process, and transmit data between twenty and twenty stations independently. A video wireless sensor network (VWSN) is used to capture and transfer video data. In VWSN, a camera, memory, processing unit, communication unit, and battery containing every node. Because of small size nodes and limited battery life, there is a difficult task for moving video data, because it requires more bandwidth and more processing

power. In this paper, moving the video using Dust to harm the video using harmful compression techniques using the low energy-applied extracellant concentration (LEACH) Convention Focus on the first energy to compress the video. Nodes used to be used. In the LEACH protocol, the cluster head nodes are randomly selected to get uniform energy distribution. **Verma et al. (2018)**this suggests a node data aggregate mechanism of the legislation of Gravity's New York. The requested device focuses on nodes and deletes frequent information focuses on information sources (sensor nodes) in managing information remote sensors. The analysis shows that the proposed mechanism applies to temporary sensor's data and significantly reduces the number of message exchange between the sensor nodes, the next-level node in the network. **Jude & Diniesh (2017)**Early years, flexibility in real-time surveillance detection in large-scale remote applications shows the amazing development of the wireless sensor dust deployment in different types of applications. Multiple data transmission sensors cause network flow / buffer overflow in the gateway and eliminates the overall performance of WSN in real-time surveillance. In this article, a new duty cycle based crowd identification, Algorithm designed animated animation control (DCC) to overcome the limitations of the sensor based on FIFA based in the gateway. The DACC uses two sub algorithms: Two sub hubs through that detect rapid stress in the initial phase, and the two subtle through of the sensor nodes, which dynamically change the duty cycle based on the broadcasting fields. . The DC algorithm is tested and checked on real-time wireless sensor test benches. The results show that DCC improves stability, reminds the sensor nodes, and classifies negative data and non-negative data, and the pre-congress control nodes in the wireless sensor network in the nodes.

III.   CONCLUSION

One of the main challenges in designing wireless sensor network routing protocols is how to effectively utilize the available energy because energy resources are very limited. The main purpose of designing a routing protocol is to extend the life of the node as much as possible. From our perspective, we conclude that sensor networks will be more energy efficient if the existing technology includes improvements to the Cluster Head process and multi-hop technology. They reduce energy consumption and extend their life. In this article, we investigated various SEP-based protocols and discussed how they can reduce the energy consumption of wireless sensor networks and extend the life cycle of the network.

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