



# To Proposed a hybrid optimization-based Protocol for active transmission and delayed decrease in transmission.

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**Abstract** – Various researchers in the WSN field are trying to find a way to save energy so that nodes can survive longer in the network, remembering the ultimate goal of overcoming such challenges of power but with their own ambitions. Power consumption is one of the issues for WSNs. Route protocols are hot spots to address quality-related (QoS) issues. Power consumption, network life time, network failure and packet over. A key problem for WSN is that these networks are attacked by a packet overhead, which causes high power consumption and lowers QoS in sensory networks. Performance analysis comparing using the hybridization method of active and reactive protocol provides better results that contain a better rate of packet transfer with less error, less chance of node failure and extension of network life.

At WSN, there are several router protocols used for development Network performance. In those processes, the DSR protocols is most applicable to terms of low power intensity, but sometimes when node mode changes from sleep functionality, efficiency decreases as data packets need to wait at first indicate where the package was sent and this increases the waiting time to end packet expiration delays lead to increased power consumption. Our problem identifies dead nodes and select another appropriate method for data the transmission becomes smoother and less energy is saved. To solve these problems, we propose the energy used to move energy a protocol known as PDORP. The proposed PDORP protocol contains both features Power Collection Sensor App (PEGASIS) and DSR delivery procedures. In addition, the hybridization of GA and BFO is used in the proposed process for the identification of energy-saving alternatives. The performance analysis, comparison using the proposed hybridization method The routing protocol provides the best results containing a measure of minor errors, minor and minor delays the use of force than other route tracking agreements that lead to better QoS and extend network life.

congestion, infrastructure guard, smart city projects and heat sensor etc. Due to reorganization naturally these nodes are sent randomly via ad-hoc to

Inaccessible monitoring area. These nodes are used to process data then the processed data is returned to a low-level station and called a sink. Ok we the connection between the sink and the nodes has been used for many routes originally as a preferred direct data transfer, multi-hop data transfer and static integration Nodes, but these methods did not work, the same reason is in the beginning hearing loss due to limited battery life. Agreements with algorithms suggested by traditional wireless networks cannot be used for a variety of purposes WSN application requirements [1]. Below the points clearly show the differences between ad-hoc and WSN networks. Mainly wireless network performance depends on system technology, the method of way nodes use power while transferring information from the source code to your destination node. Random installation of nodes on a wireless sensor network attracts attention of many researchers in this field [2-4]. Powerful topology, strong deployment of nodes is a major cause of battery power illuminated nodes, leading to degradation of nodes network performance. Various features viz. energy efficiency, reliability of network, distribution of sensor nodes and limited resource management are the main ones challenges after the process of designing routing algorithms.

**Key words:**-Wireless Network, PDORP, Sensor Network

## 1. INTRODUCTION

Wireless sensor network according to the requirements of various applications. Some of the applications Border monitoring, environmental monitoring, industrial sensor, water

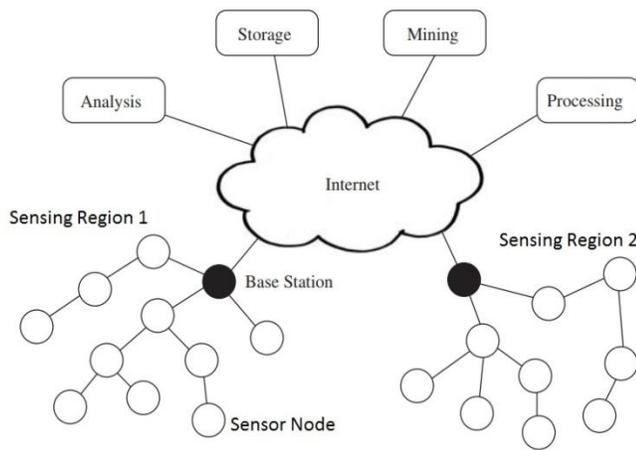


Fig-1.1

**1. Energy Efficiency:** This is one of the key features of WSN to Use the power of sensing nodes effectively. Since there is no cord The sensors node are configured with insufficient charge batteries Given the power, the sensor network cannot function impressively after a while the number of nodes comes with less power. Energy-saving route Agreements are needed for energy efficiency.

**2. Node deployment:** Sensor node transmissions to WSN can be Categorized as determined or random and subject to use so. The nerves are physically sent to the place of a designated delivery method. Predetermined routes applied to moving data over a network, however with a conflicting node sending, sensor nodes scattered randomly to measure thing.

**3. Node Heterogeneity:** This is another reason to reduce the life expectancy of network, has sensors with different capabilities, for For example the node power is different, the different sensitivity of Nodes, differences in computer power etc. as compared to similarities Sending of nodes.

**4. Network Scalability:** The number of sensors in the sensory system it can be billions and even millions depending on the apps. In In this way, distribution is the basic foundation, the network response does it not an injury when network size increases.

**5. Fault Tolerance:** Sometimes node failures occur in the system due to battery shortages, if this type of situation occurs should be the case filed and considered a sensitive matter in order to achieve consensus on the network.

**6 Data Accuracy:** Getting direct data from various nodes is one of the major WSN bonds; can be upgraded with an integrated signal Processing.

**7. Information Security:** This is one of the major network requirements that sensor data can be processed, transmitted securely.

**8. System Software:** For the sole purpose of prolonging the life of Network software system should be easy to build buildings and be less than size as this network has a resource problem.

**9. System Software:** Due to the geographical location of the network The advantage is that the nodes consume less power than the mobile nodes.

**10. Network Reliability:** As WSN is a specific and limited app battery therefore reliability is important for each node. Wireless sensor network is about time and accuracy.

**11. Data Reporting Model:** Hearing data and reporting on WSN depends on it request and critical reporting time. In Reporting details of wireless sensory systems consistently, question Continuing or running time. The data transfer model is influential system layer framework, e.g., non-statistical reporting a large amount of information as a result, as well as a route protocol should know the collection of information.

**12. Quality of Service:** For a few applications, the data needs to be transferred at a set time, from the time it is collected. Once these lines the limited delay in the transmission of information is another situation of critical applications. Therefore, route agreements that know the power you are obliged to meet this requirement

## 2. RELATED WORK

We have suggested a novel approach based on a hybrid process. As [5-7] our work also has many objectives which means that it has shown improvement not only in the power parameter but also in measuring the error rate and maintaining the end delay. Our proposed route protocol has been identified as a viable and efficient system and has used direct transmission to select the shortest route to the location and cache memory ensures minimal reliability and delay by creating a list of trust nodes leading to less power stored at nodes. Finally, the use of a hybrid is used to select the appropriate method.

Ad hoc network protocol protocols can be used as WSNs network protocols [8 - 11]. There are some reasons why ad-moving terms are incorrect / Differences in certain WSNs of the application. Some of these are listed below:

Resource constraints Battery, Memory, Processing capabilities Scalability As network size increases, more memory is needed to store node traffic information across the network Transfer / contact mode WSNs are designed for E2E transmission speaking of ways Requirements for dealing with temporary route processes are different compared to WSNs Increased data integration / data integration / integration Ad hoc routing protocols do not work naturally, on the other hand in WSN this feature of the protocol is very important Hierarchical Route

As power is a critical barrier to WSNs, it is more important to save energy by hearing nodes by sending sensory information to neighbors / clusters rather than direct transmission.

In [12] Wireless Sensor Network (WSN) is defined as sub-network networks that are distributed randomly. WSN travel can be divided into: Flat-based route 2) Hierarchical-based route 3) Local-based route. The Hierarchy Clustering Hierarchy Low-Energy Adaptive Clustering (LEACH) is an energy-saving method that saves node energy and therefore extends the life of the network. The author describes the formation of a power-aware protocol that is essential to maximize the battery life of the sensor node thereby extending the life of the network. LEACH protocol, a power-saving protocol is defined that saves node power by using a sequence method as a routing process. This paper therefore presents a review of the LEACH protocol and also highlights the differences introduced in the LEACH protocol to further reduce power consumption.

The author of [13] provides an overview of energy-saving practices and key energy-saving measures such as functional bicycle schemes that represent a more consistent energy-saving process. The major sources of energy waste in WSNs leading to node power consumption have been discussed in the paper. The author also discussed various MAC agreements in terms of channel access policy and works very well with viz. Protocols based on TDMA, based on controversy and hybrid. Also, their benefits and problems are summarized. Various data-driven methods are also described. The author reviews some of the communication agreements proposed for sensory networks.

The author of [14] describes the various functional and non-functional challenges during the design of the WSN to address power and

communication issues. The operational challenge includes data delays and the challenge of not working data integrity. The author is very focused on the good placement of the nodes that will be able to achieve the construction objectives. Divided placement strategies are stagnant and powerful depending on whether the performance is done during the deployment or while the network is operating, respectively.

The author at [15] determines the use of WSN is hampered due to limited power restrictions of the sensory areas. The new Equalized Cluster Head Election Routing Protocol (ECHERP) protocol is proposed by the author to help save energy by using a balance integration method. The Gaussian termination algorithm is used to detect a combination of nodes that are also used as a header to extend WSN life time. The effectiveness of the routing protocol was tested in the simulation area, which clearly shows the effectiveness of this protocol in terms of network capacity compared to other tracking agreements.

The author of [16] describes ways to detect node failure as the probability of node failure is very high. To maintain high WSN quality, detection of failed or malfunctioning sensor nodes is essential. The cause of the sensor node failure may be due to battery failure or communication. Failure can also be natural or due to any part of the sensor node. Checking a failed sensor node manually in such a location is problematic. This paper introduces a new way to detect node sensor failure or malfunction in such an environment. The proposed method uses the return time delay (RTD) to estimate the confidence aspect of the RTD route. The confidence feature is also used to detect failed or malfunctioning sensor nodes. Hardware-based simulation results show an easy and advanced way to detect a failed or malfunctioning sensor node in a compatible WSN.

The data collection strategies are described by the author in [17]. A new data integration process called BPNDAs is proposed by the author based on the neural distribution network to reduce data loss, leading to improved accuracy of data collection. In the proposed route a back layer network is used. The first insertion neurons are found in the group members, the second means the hidden layer and the third output neurons are found in the group head. In this way only the extracted data is transferred to the sink to improve the efficiency of the data collection results in reducing the total power consumption.

The author in [18] describes the compilation of data as the subject of a recent study at WSN. It improves the roadmap process that leads to improved WSN's overall performance. The author suggested that WSN integration strategies play an important role in data integration and extend the life of the wireless network. In addition to the standard method of data integration the author has proposed a new method of data integration called Computational Intelligence. This approach continues to include neuro-computing, evolutionary computing and incomprehensible computing techniques or it may be a combination of these hybrid processes. It concludes with the work that instead of standard data integration techniques we need to focus on other unconventional strategies for making effective data integration strategies.

The author in [84] discussed the effective DSR, AODV and TORA as well as the effective procedures for DSDV and OLSR in MANNET. Compared to these methods the performance parameter delay is low in the OLSR where the number of nodes is small where the results the OLSR can be used with a small network size. The throughput parameter value is higher in the DSR protocol, where the number of nodes increases and that is why it can be used with a larger network size. If due to heavy traffic, there is traffic congestion, the applicable law is appropriate. Where the network is static which means that without going there then active route agreements can be used. While, as the movement of nodes in a network increases, active contracts can provide better performance. AODV packet delivery rate is better than DSR and DSDV. DSR generally works better than DSDV and AODV. Effective law enforcement therefore works better than the implementation of efficient routes depending on the rate of packet delivery and energy consumption.

In [19] the author reviewed the widespread use of the Wireless sensor network leading to the inclusion of new technologies in combination to overcome challenges. The existing analogy between the wireless

sensor network and the neural network emphasizes combining both strategies for better use of the Wireless sensor network. The Neural network itself is not a power saving system, it helps save energy and the algorithm for navigating a wireless sensor network. The author focuses on the neural back distribution network as a supervised neural network training system which assists data collection in WSN

### 3. OBJECTIVES AND PROPOSED METHODOLOGY.

#### 3.1 PROBLEM FORMULATION

Energy conservation is a serious obstacle to Wireless Sensor Networks (WSNs). A key problem for WSN is that these networks are attacked by a packet overhead which is the cause of excessive power consumption on sensory networks. Excessive use of WSN is restricted to limited resources i.e. Power limit, limited processing, low memory of sensory nodes. To address these issues researchers are focusing on building energy-efficient / route know-how. When a node runs out of power, the node is said to be dead or failed. This affects the neighbors of the dead node. Neighbors continue to transfer data to failed nodes regardless of its failure. As the previous method contains system failure and the power required to send data to the node failure is wasted so the node sending data to the node failure consumes more energy to transfer the data to its destination than required. The exhausted node does not receive the package and does not transfer the package. Another challenge ahead of WSN is getting data from trusted nodes for encryption or bad nodes that do not interfere with the route. To deal with the problems mentioned above namely. Reliability, power efficiency, shortcut, delays, high connectivity and resource management, we have proposed the PDORP protocol that ensures network reliability by building a trust list for the transmission area. The proposed method wisely uses both active (PEGASIS) and reactive (DSR) routing protocols. The concept of directed transmission ensures a slight decrease in the intermediate levels of communication, resulting in less energy being saved. In addition, the concept of cache memory is useful when the node becomes very aggressive during the transfer and previously was not in the cache memory, the other node will receive a packet on it and thus can cause damage to existing routes. To address this situation the proposed objectives of the route route and the proposed route 43 build trust for the first time in each round on the basis of the demarcated boundaries. In addition, in PDORP, the Hybridization of GA and BFO will be used in the proposed route navigation process to identify energy efficient methods. In the applied power the sensor nodes in the various phases are shown. Minor error rate, delay, power consumption and usage metrics are used to calculate and evaluate the performance of selected router protocols on the wireless sensor network. Using MATLAB simulation the effectiveness of the proposed PDORP route protocol compared to other routing methods such as PEGASIS, DSR, LEACH, and ERP. In addition the Integrated Model is approved to evaluate, compare and validate the performance of the proposed route protocol.

#### 3.2 OBJECTIVES

1. Apply the applicable and effective Wireless Sensor network protocol using Network Simulator and optimization using MATLAB.
2. Focus on energy efficiency management strategies used by Protocols during WSN transfer.
3. Calculation of network parameters viz. Consumption, BER, termination of the delay and the use of force and comparison with other agreements.
4. Demonstrate improved performance compared to existing strategies

To achieve objective 2, hybridization of GA and BFO is applied to both route pathways. It uses the first BFO process which involves the chemo taxi process and the production process and the robust function called BFO utilization and then the recycling process is eliminated. After initiating the BFO release the GA is used as a census and the strength function is calculated by GA and selected, crossover and transformation are performed to create a positive performance path. Thereafter the performance parameters test is based on the hybridization process. The whole process is based on the number of times to find the most effective optimization solutions so that we can calculate the parameters by which we can compare the performance over time of the WSN power reduction network. To achieve objective 3, two CAES are considered, CASE-1 (20-60) and CASE-2 (50-500) node. Various simulation parameters viz. Installation delays, end-to-end, congestion, packet delivery rate, Bit error rate, power consumption and Routing Overhead are calculated and compared. Goal 4 has been successfully achieved by creating a new route rule. The new PDORP protocol has both the (Proactive) PEGASIS and (Reactive) DSR routing protocols. In addition, the hybridization of GA and BFO is used in the PDORP routing protocol to detect high-efficiency methods. Comparison of performance analysis using the hybridization method of the new routing protocol gives better results compared to existing PRP, DSR, LEECH and OD-PRRP agreements, which contain less error rate, less delay, less power consumption and more the best leads to better QoS and extend the life of the network. The various simulation parameters used in the study are shown below.

1. Network width: 1000 m
2. Network height: 1000 m
3. E = Power to assemble nodes
4. E = Power consumption when packet transfer;
5. E = Power consumption in receiving packets.
6. Network type: GPS
7. Nodes: 100 to 500
8. Network share: Random
9. Network. Coverage:  $(x - x'') + (y - y'')$
10. Network. Caching: DSR cache
11. Network.Travelway: PEGASIS Inspired3

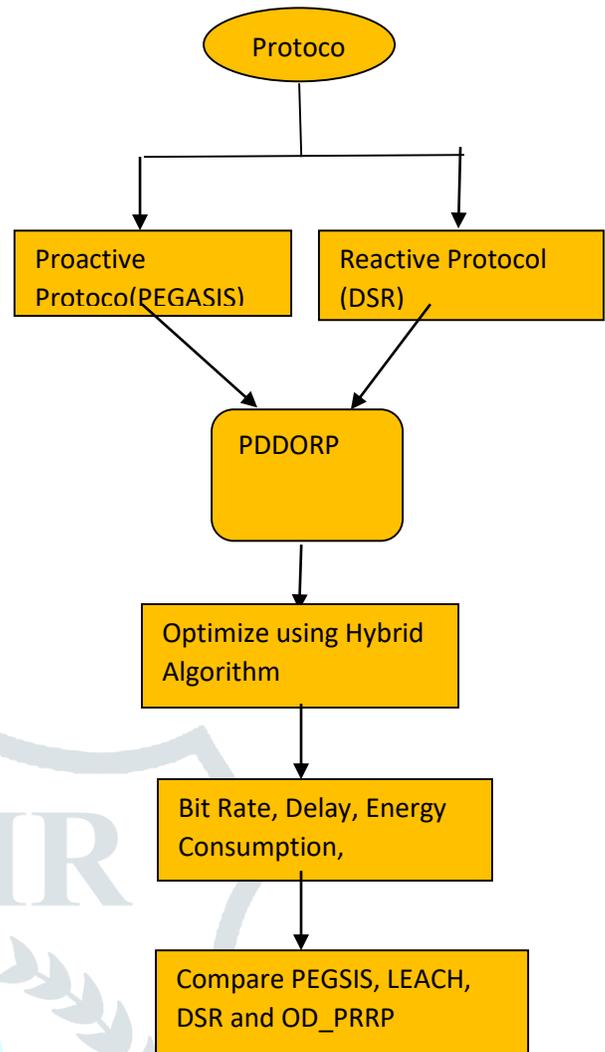


Fig-3.1

Calculation time and start time is much faster compared to other preferred simulation tools. The use of the toolbox is also easy for new users. The basic windows / tools used during WSN implementation are listed as follows:

- Control Window
- Control History
- Workplace
- Current folder / directory

#### 4. PERFORMANCE OVER PROACTIVE AND REACTIVE ROUTING USING SOFT COMPUTING APPROACHES

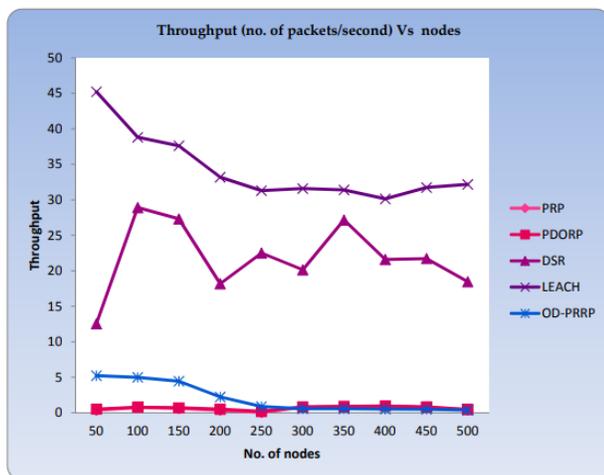
Power consumption is used to improve WSN time, making it more efficient. For optimal performance, additional data packets are thought to be transmitted via Routing Overhead (RO) and a small Bit Error Rate (BER). In the current analysis, the performance of an effective and efficient algorithm should be evaluated. Computer-based protocolling techniques namely Genetic Algorithm (GA) and Bacterial Foraging Optimization (BFO) have been used separately in the Destination Sequence Distance Vector (DSDV) and Dynamic Source

Routing (DSR) protocols routing. In addition, the hybridization of GA and BFO will be applied to both route pathways. Two CAES should be considered, in CASE-1 (20-60) and CASE-2 (50-500) nodes should be considered. The analysis shows that the DSDV scores for GA, BFO and Hybrid are 5.886, 5.845 and 7.716 respectively. Similarly the standard DSR scores for GA, BFO and Hybrid in CASE-1 are 6.434, 6.714 and 7.748 respectively. In addition to CASE-2 DSDV points are 5.571, 5.967 and 11.565 and in DSR with GA, BFO and Hybrid it is 13.155, 13.656 and 16.804. Comparison of performance analysis using a proactive hybridization method and reacting protocoling provides better results containing a better rate of packet transfer with less error, fewer chances of node failure and increased network life time. In addition, the Computation model will be adopted for testing and the performance of both routes compared to soft computer systems. The results are encouraging.

**Hybrid Algorithm** This hybrid method incorporates GA and bacterial BFO. It uses the first BFO process which involves the chemo taxi process and the production process and the robust function called BFO utilization and then the recycling process is eliminated. After initiating the BFO release the GA is used as a census and the strength function is calculated by GA and selected, crossover and transformation are performed to create a positive performance path. Thereafter the performance parameters test is based on the hybridization process. The whole process is based on the number of times to find the most effective optimization solutions so that we can calculate the parameters by which we can compare the performance over time of the WSN power reduction network.

#### 4. Throughput.

This metric describes the average number of effective messages sent to a network over a period of time. As shown in Figure 5.9, the LEACH rule is better than all other algorithms of choice. DSR is also better than PRP, PDORP and OD-PRRP 0 100 200 300 400 500 700 700 100 200 200 250 250 350 350 350 400 450 500 Power consumption Number of nodules Power consumption (Joules) Vs nodes PRP PDORP DSR LEACH OD -PRRP Performance Discussion and Analysis of PDORP Routing Protocol With Hybrid Approach 123 protocols. It is clearly shown by the results that LEECH works better in exit-focused applications. The functionality of PRP, PORP and OD-PRRP is almost the same in the case of performance



Comparison of throughput with change in no. of sensor nodes

#### 5. CONCLUSION:

In this study, we introduced the use of hybrid optimization based PEGASIS-DSR-prepared protocoling (PDORP), which used a repository concept for active transmission and guidance for active protocols. The simulation results clearly show that the suggested algorithm shown shows a delayed decrease in transmission delay and error level without compromising on power performance. In PDORP, a combination of effective and efficient strategies works to find the

fastest and least costly route and low delivery delays. For PDORP performance, our proposed route algorithm is measured using a variety of metrics and compares the same with other advanced candidate algorithms. PEGASIS, LEACH, DSR and OD-PRRP. Imitation results indicate that the performance of the proposed route protocol is higher than most performance metrics i.e.. Minor error rate, E2E transmission delay, power consumption and mobility. After installing the test model, algorithm-1 (DSR) rating is 13.77, algorithm-2 (LEACH) is 4.84, algorithm-3 (PEGASIS) 6.77, algorithm-4 (OD\_PRRP) is 8.93 and above for all algorithm points. The PDORP (proposed route protocol) is 17.93, which clearly confirms the recently proposed route protocol being made better than the protocol of their designated route.

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