ISSN No:-2456-2165

To Identify Dead Node and Provide Appropriate Solution For Data Transfer in WSN.

Dr. Sandeep kumar[1], Mrs. Vandna Bansla[2] Mr. Sanjay kumar [3]
Tula's institute Dehradun

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 requirements. Power consumption is one of the issues for WSNs. Route protocols are the hot spot of the quality of services 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 Quality of services 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 protocol is most applicable to terms of low power intensity, but sometimes when node mode changes from sleep functionality, efficiency decreases as data packets that need to wait initially indicate where the package has been sent and this increases the waiting time to eliminate packet expiration delays leading to increased power consumption. Our problem identifies dead nodes and selects the most appropriate data transfer method to make it easier and less energy efficient. To address these issues, we propose the power used to transfer power to a protocol known as PDORP. The proposed PDORP protocol contains both the Power Output Performance Management System (PEGASIS) and DSR delivery procedures. In addition, the mixing of GA and BFO is used in the proposed process to identify alternative energy-saving alternatives. Performance analysis, comparison using the proposed hybridization method Route protocol provides better results consisting of a small error rate, less delay and less power consumption than other route tracking agreements that lead to better Quality of services and extend network life.

Keywords:-*Wireless Network, PDORP, Sensor Network.*

I. INTRODUCTION

Wireless Network according to the requirements of various applications. Some of the applications are Border monitoring, environmental monitoring, industrial sensor, water congestion, infrastructure monitoring, city smart projects and temperature sensors etc. Due to the natural reconfiguration these nodes are sent randomly via ad-hoc to an inaccessible monitoring area. These nodes are used to process data and the processed data is returned to a low-level station and is called a sink. The link between the sink and the nodes has been used by many channels initially as a popular direct data transfer method, multi-hop data transfer and solid integration nodes, but these methods did not work, the same reason initially for hearing loss due to limitations. battery life. Agreements and algorithms suggested for standard wireless networks cannot be used for a variety of purposes for 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 way in which nodes use power while transmitting information from source code to your destination. Random insertion of nodes into a network of wireless nerves draws the attention of many researchers in this field [2-4]. Powerful topology, strong transmissions of nodes is a major cause of battery power that illuminates nodes, leading to damage to the network performance of nodes. Various features namely. Power efficiency, network reliability, distribution of sensor nodes and limited resource management are the main challenges behind the process of designing route algorithms.

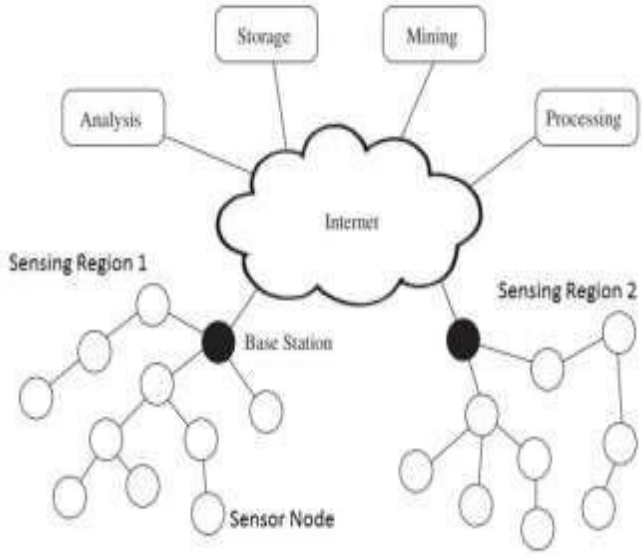

Fig.1: Architecture of a typical WSN

- **Power Efficiency**: This is one of the key features of WSN to Use the power to hear the notes effectively. As the cord is missing the sensor node is activated by insufficient batteries With power enabled, the sensory network cannot function

ISSN No:-2456-2165

surprisingly after a while the number of nodes comes with less power. Energy-saving route agreements are required for energy efficiency.

- **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.
- **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.
- **Network Stabilization:** The number of sensors in the nervous system can be billions and even billions depending on applications. In this way, distribution is fundamental, the network response is not harmful as the size of the network increases.
- **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.
- **Data Accuracy**: Getting direct data from various nodes is one of the major WSN bonds; can be upgraded with an integrated signal Processing.
- **Information Security**: This is one of the major network requirements that sensor data can be processed, transmitted securely.
- **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.
- **System Software**: Due to the geographical location of the network The advantage is that the nodes consume less power than the mobile nodes.
- **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.
- **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 large amount of information as a result, as well as a route protocol should know the collection of information.
- **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.

II. RELATED WORK

We have suggested a novel approach based on a mixed process. As [5-7] our work also has many objectives which means to show improvements 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 an efficient and effective system and uses 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 that lead to minimal power stored in nodes. Finally, the use of a hybrid is used to select the right method.

An ad hoc network protocol protocols can be used as a 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

Hierarchical-based route 3 Local-based route.

Hierarchy Clustering Hierarchy Low-Energy Adaptive Clustering (LEACH) is a energy-saving method that saves node energy and thus extends network life. The author describes the formation of a protocol that recognizes vital forces in order to extend the battery life of the sensor node thereby extending the life of the network. LEACH protocol, an energy-saving protocol is defined that stores node energy using a sequence method as a routing process. This paper therefore introduces a LEACH protocol review and highlights the differences introduced to the LEACH protocol in order to further reduce energy 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 in [15] determines the use of WSN is impaired due to the limited power limits of the sensory areas. The Gaussian termination algorithm is used to detect a combination of nodes that can be used as a header to extend the life of WSN. Route protocol performance was tested in the simulation area, which clearly shows the performance 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 chances of node failure are very high. To maintain high WSN quality, detection of failed or malfunctioning sensory nodes is essential. The reason for the failure of the sensor node may be due to battery failure or communication. Failure may be natural or due to any part of the sensory node. Checking a failed node sensor in such an area is problematic. This paper introduces a new way to detect node sensitivity or malfunction in such an environment. The proposed method uses the return time delay (RTD) to measure the confidence factor of the RTD route. The confidence factor is also used to detect failed or dysfunctional nerves. Hardware-based simulation results show an easy and advanced way to locate a failed or malfunctioning sensory location in a compatible WSN.

A new data integration process called BPNDA 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 techniques play an important role in data integration and extend the life of a wireless network. In addition to the traditional method of data integration the author has proposed a new method of data integration called Computational Intelligence. This approach continues to integrate neuro-computing, evolutionary computing and incomprehensible computer techniques or may be a combination of these complex processes. It concludes with the work that instead of standard data integration techniques we need to focus on some 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 is therefore more effective than using efficient routes depending on the level of package delivery and energy consumption. In [19] the author reviewed the widespread use of the wireless sensor network leading to the introduction of new integrated technologies to overcome challenges. The analogy between the wireless sensor network and the neural network emphasizes the integration of both strategies for the optimal use of the wireless network. The Neural Network itself is not a power saving system, it helps save energy and navigation algorithm on the wireless sensor network. The author focuses on the neural back distribution network as a monitored neural network training that facilitates data collection at WSN.

III. OBJECTIVES AND PROPOSED METHODOLOGY

A. Problem Formulation

Energy saving is a serious obstacle to Wireless Sensor Networks (WSNs). The main problem with WSN is that these networks are attacked by packet overhead is the cause of excessive power consumption on the networks. Excessive use of WSN is limited to limited resources ie. Power limit, limited processing, low memory of sensory nodes. To address these issues researchers are focused on building energy savings / route information. When a node expires, 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 their failures. As the previous method contains system failures and the power required to send data to node failure is eliminated so the node to send data to node failure takes more power to transfer data to its location than is required. The finished node does not receive the package and does not transfer the package. Another challenge ahead of WSN is getting data from trusted encryption sites or malicious sites that do not interfere with the route.

Dealing with the problems mentioned above namely. Reliability, power efficiency, shortcuts, delays, high connectivity and resource management, we have promoted the PDORP protocol that ensures network reliability by building a trust list of transmission sites. The proposed method wisely uses both active route protocols (PEGASIS) and reactive (DSR). The concept of direct transmission ensures a slight decrease in the intermediate levels of communication, resulting in less energy savings. Additionally, the cache memory concept is useful when a node becomes very aggressive during a transfer and previously was not in the cache memory, the other node will receive a packet on it and thus may cause damage to existing routes. To address this situation the proposed objectives of the route and the proposed 43rd route build trust for the first time in each round on the basis of the planned boundaries. In addition, in PDORP, the Hybridization of GA and BFO will be used in the proposed route navigation system to identify energy-saving measures. In the applied power the sensor nodes at various stages are displayed. Minor error rate, delay, power consumption and usage metrics are used to calculate and evaluate the performance of selected router processes on a wireless sensor network. Using MATLAB simulations the effectiveness of the proposed PDORP router protocol compared to other routing methods such as PEGASIS, DSR, LEACH, and ERP. In addition the Integrated Model is authorized to evaluate, compare and validate the performance of the proposed route protocol.

B. Objectives

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

To achieve objective two hybridization of GA & 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 namely. Installation delays, end-to-end, congestion, packet delivery rate, minimum error rate, power consumption and Router Management are calculated and compared. Goal 4 has been successfully achieved by creating a new route rule. The new PDORP protocol contains both the (Active) PEGASIS and (Active) DSR protocol agreements. In addition, the combination of GA and BFO is used in the PDORP route protocol to obtain the most efficient methods. Comparison performance performance using the new route protocol hybridization method yields the best results compared to existing PRP, DSR, LEECH and OD-PRRP protocols, which contain less error rate, less delay, less power consumption and more. Which leads to the best quality of services. And extend network life. The various simulation parameters used in the study are shown below.

- Network width: 1000 m
- Network height: 1000 m
- E = Power to assemble nodes
- E = Power consumption when packet transfer;
- E = Power consumption in receiving packets.
- Network type: GPS
- Nodes: 100 to 500
- Network share: Random
- Network. Coverage: (x - x ") + (y - y")
- Network. Caching: DSR cache
- Network.Travelway: PEGASIS Inspired

ISSN No:-2456-2165

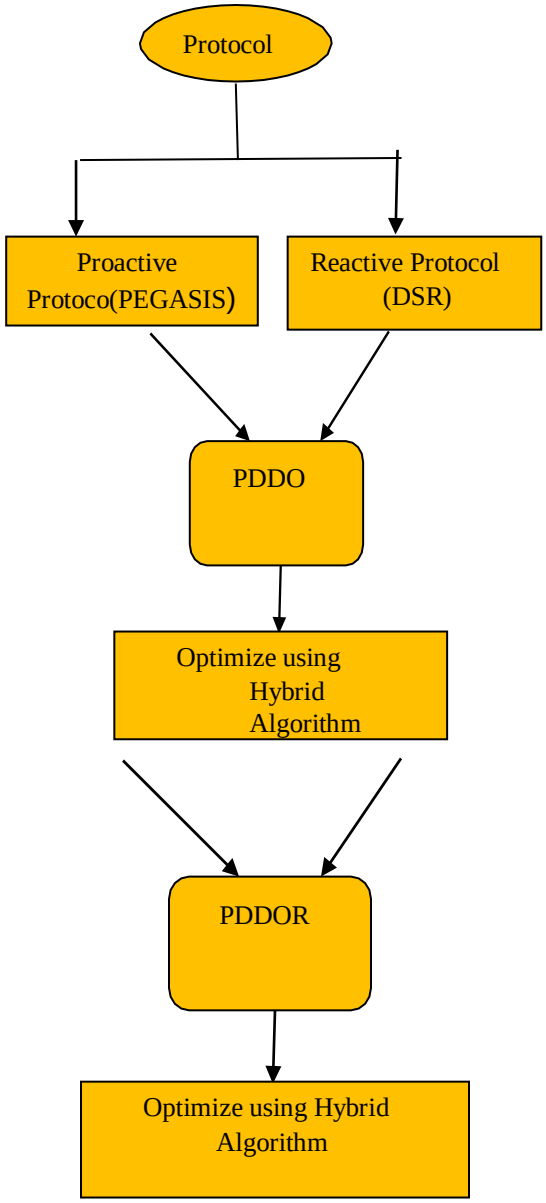

Fig. 2: Simulation Model

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

IV. 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 protocoling 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 protocol 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.

V. THROUGHPUT

This metric describes the average number of effective messages delivered by network in a given time. As shown in Figure 3, the LEACH protocol is the most advanced other candidate algorithms. DSR is also better than PRP, PDORP and OD-PRRP protocol. It is clearly shown by the results that LEECH is doing very well by coming out on top targeted applications. Performance of PRP, PORP and OD-PRRP approx. the same in case of exit.

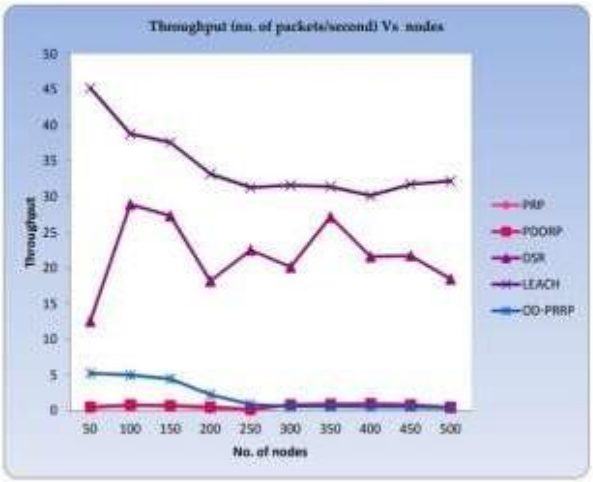

Fig.3: Comparison of throughput with no of nodes

VI. CONCLUSION

Imitation results indicate the effectiveness of the proposed route The protocol is higher than most performance metrics i.e.. Minor error rate, E2E transmission delays, power consumption and performance. After using the test model, points algorithm-1 (DSR) is 13.77, algorithm-2 (LEACH) is 4.84, points on algorithm-3 (PEGASIS) 6.77, the algorithm-4 score (OD_PRRP) is 8.93 and above all points algorithm-5 PDORP (proposed route protocol) is 17.93, which clearly guarantees the proposed route protocol more efficient than its own candidate route protocols.

REFERENCES

[1.] Akyildiz, I.F., et al., (2002), "Wireless sensor networks: a survey," Computer Networks, Vol. 38(4), pp. 393–422...

[2.] Subramaniam, Y., Akyildiz, I. F. and Mchughlin, S. W., (2003), "Energy Efficiency based Packet Size Optimization in Wireless Sensor Networks," IEEE.

[3.] Ahn, C. W. and Ramakrishna, R. S., (2002), "A Genetic Algorithm for Shortest Path Routing Problem and the Sizing of Populations", IEEE transactions on evolutionary computation, Vol. 6(6), pp. 566-579.

[4.] Carretero, J., Xhafa, F. and Abraham, A., (2007), "Genetic algorithm based schedulers for grid computing systems," International Journal of Innovative Computing, Information and Control, Vol. 3(7), pp. 247-272.

[5.] Rani, S. et al., (2015), "A Novel Scheme for an Energy Efficient Internet of Things Based on Wireless Sensor Networks," Sensors, Vol. 15(11), pp. 28603-28626.

[6.] Kumar, R. and Kumar, D., (2016)," Multi-objective fractional artificial bee colony algorithm to energy aware routing protocol in wireless sensor network", Wireless Networks, pp. 1-14.

[7.] Kumar, R. and Kumar, D., (2016),"Hybrid Swarm Intelligence Energy Efficient Clustered Routing Algorithm for Wireless Sensor Networks", Journal of Sensors, 501, Paper ID 5836913.

[8.] Johnson, et al., (2001), "The dynamic source routing protocol for mobile ad hoc networks," Internet Draft, Internet Engineering Task Force Perkins, C., Royer, E. and Das, S., (2001), "Ad hoc on demand distance vector (AODV) routing," Internet Draft, Internet Engineering Task Force.

[9.] Perkins C. and Bhagwat, P., (1994), "Highly dynamic destination sequenced distance-vector routing (DSDV) for mobile computers," in ACM SIGCOMM'94 Conference on Communications Architectures, Protocols and Applications, pp. 234–244.

[10.] Tilak, S., Abu-Ghazaleh, N. B. and Heinzelman, W. B., (2015), "A Taxonomy of Wireless Micro-Sensor Network Models," Mobile Computing and Communications Review, Vol. 6(2), pp. 28- 36..

[11.] Sood, T., (2014) "An Approach to LEACH based Energy Efficient Protocol for the Wireless Sensor Network", International journal of scientific engineering and technology research, Vol.3 (9), pp. 1709-1713..

[12.] Rezaei Z. and Mobininejad, S.,(2012), "Energy Saving in Wireless Sensor Networks", International Journal of Computer Science & Engineering Survey, Vol.3 (1), pp. 24- 37, DOI: 10.5121/ijcses.2012.3103 23

[13.] Younis, M. and Akkaya, K., (2007), "Strategies and techniques for node placement in wireless sensor networks: A survey", Ad Hoc Networks, Vol. 6, pp. 621–655

[14.] Nikolidakis, S. A., (2013), "Energy Efficient Routing in Wireless Sensor Networks Through Balanced Clustering", Algorithms, Vol. 6, pp. 29-42. doi: 10.3390/a6010029.

[15.] Duche, R. N. and Sarwade, N. P., (2012)," Sensor Node Failure or Malfunctioning Detection in Wireless Sensor Network", ACEEE Int. J. on Communications, Vol. 03, No. 01, pp. 57-61. DOI: 01.IJCOM.3.1.3_1

[16.] Sun, L .Y.,(2010), "Data aggregation scheme using neural networks in wireless sensor networks", 2nd International Conference on Future Computer and Communication IEEE Vol. 1, pp. 725-729

[17.] Farooq, M. U., (2012),"Computational Intelligence Based Data Aggregation Technique in Clustered WSN: Prospects and Considerations," Proceedings of the World Congress on Engineering and Computer Science, San Francisco, USA, Vol. 2.

[18.] Bansal, P., Brar G. S. and Singh, A., (2016), "Neural Network in Wireless Sensor Network," International Journal on Emerging Technologies (Special Issue on RTIESTM- 2016) Vol. 7(1), pp. 59-62.

[19.] Sachdeva, S., Bansal, V. and Brar, G. S., (2016), "Trend towards EnergyEfficient UWSN Protocols," International Journal on Emerging

[20.] Technologies (Special Issue on RTIESTM-2016) Vol. 7(1), pp. 24-32.

[21.] Singla, D., Brar, G. S. and Sachdeva, S., (2016), "Roadside TrafficManagement Unit to Mitigate Prankster attack in

Vanet Cluster, "International Journal on Emerging Technologies (Special Issue on RTIESTM-2016) Vol. 7(1), pp. 14-17.

[22.] Brar, G. S. and Malhotra, R., (2014), "Performance Analysis of ReactiveRouting Protocol of Wireless Ad-hoc Networks, "Global Journal ofComputers & Technology (GJCT), Vol. 1(1), pp. 15-21.

[23.] Kaur, H., Brar, G. S. and Malhotra, R., (2014), "To propose a novel technique to reduce Link Failure Problem in MANET, " International Journal of Advanced Research in Computer Engineering & Technology (IJARCET) , Vol. 3(10), pp. 3517 – 3521.

[24.] Brar, G. S. and Singh, R., (2011), "A Quality Computation Model for Software Artifacts," International Journal of Computer Applications, Vol.25(6), pp. 38-42.

[25.] Heinzelman, W. R., Chandrakasan, A. and Balakrishnan, H., (2000),"Energy efficient communication protocol for wireless micro-sensornetworks," Proceedings of the IEEE Hawaii International Conference onSystem Sciences, pp. 1– 10, Maui, HI, USA.