

Energy-Efficient Big Data Specific Gathering Algorithm for a WSN

C.Nandagopal, G.Shanmugavadivel

Abstract: Big data become as hot topic due to increase in the communication technology. Distributor wireless sensor networks is major factor in generating big data. We come across various challenges in gathering real time data. Various routing algorithms are supposed to overcome these challenges. Clustering communication is done by is done by residual energy available in the sensor nodes. We propose here BDSEG algorithm to have a better live time for sensor nodes. We verify this algorithm using MATLAB

Keywords: Big data, gathering, matlab, residual energy

I. INTRODUCTION

In a couple of years we have various advancements young technology. This result in producing more data in all fields. we are generating data in both public and private sector. We have problem in storing analyzing gathering and processing big data using the methods available now as shown in Fig 1.



Fig. 1 Big data and its application

The big data helps in investigating and various applications improve the supply chain profit. Big data finds application in transportation, hazards management, infrastructural management as shown in Fig 2. The regular period updating is needed in industry to ensure the product.



Fig. 2 Big data and its application

Revised Manuscript Received on March 08, 2019.

C.Nandagopal, Assistant professor, M.Kumarasamy college of Engineering, Karur

G.Shanmugavadivel, Assistant professor, M.Kumarasamy college of Engineering, Karur

Wireless sensor network is a heart of big data collection. Real environment data are gathered by sensor like humidity , magnetic , position, flow. The another challenge is to transmit big data. Wireless sensor networks conditioned lifetime due to battery power. To utilize the power effectively many energy efficient algorithms have been proposed. we designed various routing algorithm and data gathering. algorithms give solutions in energy Optimization and efficient transmission. To conserve energy various algorithms proposed. The depletion of battery is reduced using this algorithms. Here we propose algorithm which is a Same kind. here we propose idea in clustering of wireless sensor nodes. We already have various algorithms like LEACH and TEEN. We propose model which adopt mechanism for cluster head selection and reducing the consumption of energy.

II. PROPOSED SYSTEM

The proposed model gives new infrastructure of clustering group of nodes. The group of nodes is clustered in small numbers to avoid flooding of message among sensors. normal clustering algorithm gives you architecture of nodes, cluster head, BS. here this paper we propose new infrastructure consist of sensor nodes, relay nodes, cluster head, cluster manager.

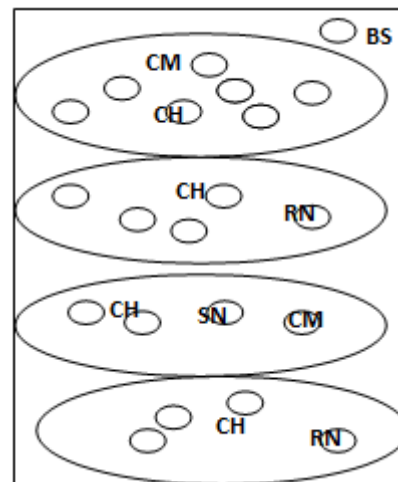


Fig. 3 Structure of BDSEG

In previous methods cluster head selection is done by random manner election.

In proposed paper also we are using process of electing cluster head using residual energy available in the nodes. This method set a threshold level for selecting cluster head using residual energy the battery.



In spite of electing cluster head, cluster manager also found here. The setup of cluster manager, cluster head, relay nodes increase the performance of data transmission. Cluster head is sync node for all the node available in clusters. Distance between cluster head and nodes is more.

In this section, we are going to say about algorithm what we proposed. Before that we are seeing overview of working of clustering process.

The clustering process deals with how many number of clusters need to be formed and how to form the clusters. Clustering process also should concern the optimal data transmission energy required. Clustering also happens because of distance in transmitting the message from the node to the station. This clustering scheme also access the challenges like residual energy decrease on Path loss high. The analytical model describes sensor network with the help of proposed of clustering technique in this way. The structure of sensor network will be starting from sensor node in the lower and followed by relay node with in cluster. The cluster also have cluster head . Cluster head is also connected to base station through cluster manager. The role of cluster manager, cluster head , relay node in this algorithm is making sensor network energy efficient and to reduce path loss. Here in this algorithm area is divided into clusters. The data from the nodes are collected by cluster head at regular intervals. The cluster here are 100 sq.m. The following factors have been considered for analyzing the network.

Table. 1 Parameters Used in the Proposed Scheme

Parameters Used	Parameter Value
Network Size (x, y)	100 m × 100 m
BS location (x/2, y)	100 m, 100 m
Nodes count	750
clusters count	6
Data length	2000 bits
Initial energy	0.5J
Data Transmission Frequency	240 bits/second

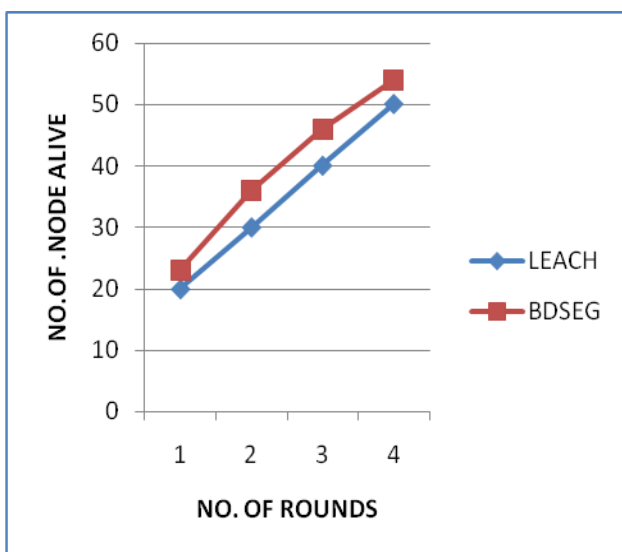


Fig. 4 Graph showing No. of rounds Vs No. of nodes

III. CONCLUSION

From the discussion, we have found the proposed algorithm BDSEG will be providing the residual energy more in case of classic LEACH protocol. Various measurements have been done with MATLAB and the number of rounds were increased in terms of hundreds and measurements are done. The BDSEG protocol gives you better gathering and life period in terms of using big data gathering

REFERENCES

1. Chamberland J-F, Veeravalli V. Decentralized detection in sensor networks. *IEEE Transactions on Signal Processing* 2003;51(2):407–16.
2. Chang R-S, Wang S-H. Self-deployment by density control in sensor networks. *IEEE Transactions on Vehicular Technology* 2008;57(3):1745–55.
3. Chen A, Kumar S, Lai TH. Designing localized algorithms for barrier coverage. In: *Proceedings of the 13th annual ACM international conference on mobile computing and networking*, ser. *MobiCom'07*. New York, NY, USA: ACM; 2007. p. 63–74.
4. Chen A, Lai TH, Xuan D. Measuring and guaranteeing quality of barrier-coverage in wireless sensor networks. In: *Proceedings of the 9th ACM international symposium on mobile ad hoc networking and computing*, ser. *MobiHoc'08*. New York, NY, USA: ACM; 2008. p. 421–30.
5. Chen B, Jamieson K, Balakrishnan H, Morris R. Span: an energy-efficient coordination algorithm for topology maintenance in ad hoc wireless networks. *Wireless Networks* 2002;8:481–94,doi:10.1023/A:1016542229220.
6. Cheng W, Li M, Liu K, Liu Y, Li X, Liao X. Sweep coverage with mobile sensors. In: *IEEE international symposium on parallel and distributed processing*, 2008. *IPDPS 2008*; 2008a. p. 1–9.
7. Cheng X, Du D-Z, Wang L, Xu B. Relay sensor placement in wireless sensor networks. *Wireless Networks* 2008b;14:347–55, doi:10.1007/s11276-006-0724-8.
8. K. Sujatha, C. Nandagopal “ Realization of gateway relocation using admission control algorithm in mobile WIMAX networks”, 4th IEEE International Conference on Advanced Computing(ICoAC), pp. 1-5, 2012.
9. C. Nandagopal“ A Comparative analysis of coding schemes in low power baseband Transceiver IC for WBAN”, International Conference on computing, Electronics and Electrical Technologies (ICCEET), pp. 812-817, 2012.
10. S. Sariga, C.Nandagopal “Network on Chip Architectures”, *Journal of Engineering and Technology Research*, Vol. 4, issue. 5, pp.1-9,2016 .