

# A Survey On Data Routing Approaches In WSN

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**Abstract - Routing in Wireless Sensor Networks (WSN) is the most researched issue in few years. Development a model for routing is a huge task that can detect an optimal route on the basis of various performance parameters. Several models have been employed and their benefits and shortcoming has been studied. In this work water-wave algorithm is used for optimal path selection for the transmission of data from source to destination. The proposed algorithm is rely on the shallow water wave models, when a wave travels from deep water to shallow water, its wave height increases and its wavelength decreases and vice versa.**

**Keywords - Data Routing, WSN**

## I. INTRODUCTION

Now days, wireless communication technologies are continue to the growth in diverse areas to offer the better opportunities for general business systems. The micro-electro mechanical advances systems made the building like kind of sensors a possibility. These sensor networks are transmitted of tiny or miniaturized electronic devices that are arranged as sensors. Sensors can sense, store, compute, send out and collect information of interests from an environment in that they are located estimated to minute size of sensors, a huge size battery supply that cannot be embedded into them, thus sensors require mechanism for an energy utilization to enhance the life time of sensors in wireless sensor networks, it plays an important role. The objective of protocols is to ignore the unwanted data reception and transmission. For this reason, switch the nodes into sleep mode if there has no data to receive or send. For an efficient utilization, many routing protocols are described. A Sensor Node is included of processor, transceiver, sensor, and power units. In an addition of performing the functionalities, an excessively sensor node has ability of routing. Sensors nodes can optimization of face energy and quickly route the discovery problems and different routing techniques which have been used to address the issue. Moreover, these wireless Sensor Networks are tiny, battery powered network sensor nodes with limited storage, on-board processing and radio capabilities. These Nodes sense send their reports to a processing centre, called "sink." Wireless sensor networks provide the newest applications for police investigation and military applications. Recently, various developments within hardware shrinking related with less-cost production or advancement in wireless communications technologies that have created presumably varied applications with high numbers of sensors . In alternative cases of ground access space of objectives needs to monitor is dangerous or troublesome, thus an answer to set up the sensors is to find them from craft. While not locating the position, there's solely the way to allow adequate target coverage by sensors to use multiple sensors than the fastened range. Each sensing node has personal system. To support totally different variety of application software system on sensing system, the event of newest platforms, storage schemes and operative systems can be required. The communication protocols alter communication between the sensors and application. They permit the communication between sensing nodes. The services that are developed to extend applying of improve network potency and system performance sensing nodes can arrange themselves very efficiently within the network. The sensing nodes will organize themselves into network and are ready to the management with efficiency manage them.

## II. LITERATURE REVIEW

Lo, Shou-Chih et al. [1] proposed a water wave based approach for delivering the messages in the vehicular ad-hoc network. Network congestion and detection protocols are used for the delivery of the information and to reduce the loss of packets in the network.

Rawat, Priyanka et al. [2] presented a survey on the recent approaches to solve various wireless sensor network related problems. They discussed both proactive and reactive routing approaches used for routing of data in WSN. The strategies used in recent years for solving the problem of congestion are also discussed in their work.

Alam Bhuiyan et al. [3] proposed an energy and frequency efficient algorithm for the WSNs. In their approach they worked on the optimize use of energy for sending of data. For this they find out optimum location for the placement of Cluster Heads so that nodes require approximately equal amount of energy for the transfer of data.

Mao, Guoqian et al. [4] presented techniques for WSNs localization .The proposed approach provides an introduction of the measurement methods in sensor network localization or one-hop localization algorithms technique based on measurements. A detailed inspection on multi-hop connectivity-based and distance-based algorithms are discussed.

Owojaiye et al. [5] proposed the cooperative operation of the WSNs to brings vital benefits over the ancient communication technologies for oil and gas pipeline monitoring, The recent advances of WSNs are discussed to understand the inexpensive embedded electrical utility observance and diagnostic system for monitoring underground pipelines and sensor deployment in sub-sea environments.

Imani et al. [6] proposed a mathematical model for solving the non linear equations based on the nature inspired travelling wave algorithm. The algorithm can be used to solve various solutions which requires iterative schemes to produce the solution. The equation is based on the propagation, breaking and refraction properties of the waves.

Gholami et al. [7] proposed a neural network based approach to solve the problem of localization and optimum placement of wireless sensors in the network. They use Neural based approaches to find the optimum location in which the sensors must be placed to give the better results in terms of improvement in effectiveness and accuracy.

Plumerault et al. [8] presented a mathematical equation to solve the problems which requires repetitive iterations to reach to the global best solution. The equation is based on the aerated water waves which flow down in the ocean. The major consideration related to these waves is their height. The equation can be formulated and used in order to get the optimum value of various parameters.

Domingo, Mari Carmen [9] proposed a congestion detection and avoidance algorithm to solve the problem of congestion in underwater wireless sensor network. In their approach, they work on the sonar waves for the communication between sensors and base station. The waves follow different rules and different set of methodologies to tackle the problem of congestion.

### III. CONCLUSION

There are many approaches proposed for routing in wireless sensor networks. Many researchers suggested various approaches and protocols which proved to be the advancement of each of the category of protocols. In few approaches the optimal placement problem of cluster head is discussed. In order to achieve maximum energy efficiency the cluster head must be placed at an equal distance from the other nodes in the network. While in the other approaches mathematical modeling of the nature inspired algorithms is proposed and implemented.

### IV. REFERENCES

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