MULTIPATH ROUTING IN WIRELESS NETWORK SYSTEM: A REVIEW

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***Abstract*: Wireless sensor networks are used for environmental monitoring, security, medical applications and more. The device contract is usually deployed in a very specific area. This device contract collects its information and sends it to the base station (BS) via some routing protocol. This contract cannot be charged from time to time to keep it alive. They must follow the protocols that must ensure that their power is used effectively, so that these nodes can be operated for long periods without outside help. Steering technology plays a major role in energy consumption. Some routing protocols use partitioning as a routing technique. The goal of all routing protocols is to reduce power consumption, thus improving network time periods, especially network health. During the network life cycle, we tend to represent the time period from the beginning of the network to the death of the last node, and the amount of stability represents the time period from the beginning of the network to the initial node death. This was opposed to the development of sensitive assembly rules for the energy-efficient burst threshold by dynamically identifying cluster headers using multiple jumps and multiple paths, resulting in load balancing across different combinations. This will eventually enhance the node header or legacy node network and compare the performance of the proposed protocol by pre-mixing (LEACH & TEEN). Will enhance the energy use of the WSN node. Ultimate network life cycle improvement.**

***Keywords*: Hybrid Protocol, WSN, LEACH, TEEN, MATLAB.**

1. Introduction

The wireless sensor network is a set of sensor nodes with limited power and limited computing and transmission capabilities. Because of the limited transport and arithmetic capabilities and the high density of the sensor node, packet rerouting occurs in multi-hop data transfer. Therefore, guidance in wireless sensor networks has been an important area of research over the past few years. The sensor contract works on non-rechargeable batteries, so in Addition to effective routing, the network must be energy efficient and efficient in use resources are therefore an important research issue. Developments in wireless technology have led to the development of low-cost sensor nodes to introduce low-power wireless sensor networks. Because the sensor is versatile and easy to deploy, it can be used in a variety of applications such as goal tracking, environmental monitoring, health care, forest fire detection, inventory control, energy management, and surveillance and reconnaissance. The primary responsibility of sensor nodes in the network is to reorient information collected from the source to the receiver for further operation, but resource constraints [2], the unreliable connections between the sensor nodes and the different application requirements for different applications in wireless sensors are the design of effective network routing algorithms daunting task. The design of the appropriate routing algorithms for different applications has been identified to meet different performance requirements as an important issue in wireless sensor networks.

1.1 Multipath Routing in Wireless Sensor Networks

The restricted capacity and transmission capability of multi hop path and high dynamics of wireless links single path approach is not able to provide efficient data rate in transmission in Wireless Sensor Networks. To overcome these issues now a day's multi-path approach is used extensively. As mentioned before multi-path routing has demonstrated its efficiency to improve the performance of wireless sensor and ad-hoc networks. In the following, we review the gain in performance that can be achieved by using multi-path approach.

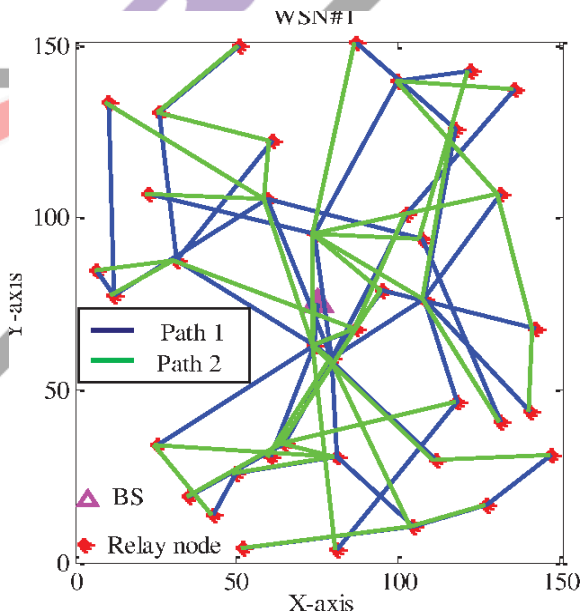

Fig 1: Multipath Routing in WSN

1.3 Applications of WNS Sensors

Military Applications.
Environment Monitoring.
Agricultural Applications.
Support for logistics.
Human Centric Applications.

2. Literature Survey

S. Taruna, Rekha Kumawat, G.N.Purohit proposed a multi-hop cluster based routing protocol that is more energy efficient than a single hop protocol. The simulation results show that the proposed protocol provides better performance than the single-hop clustering routing protocol in terms of network life cycle and energy consumption by improving FND. These sensor nodes can sense, measure, and collect information from the environment, and based on some local decision making process, they can transmit the sensed data and send it to the source to the destination. WSNs usually have little or no infrastructure. It consists of many sensor nodes, which can be ten or thousands, and work together to monitor an area to get data about the environment. These sensors have the ability to communicate with each other or directly with an external base station (BS). A greater number of sensors allow for greater geographic area to be sensed with greater accuracy. Sensors typically send these collected data to the command center (receiver) either directly or through a data center (gateway) via a radio transmitter. Not in the wireless network. The nodes we can communicate with. The number of nodes makes the cluster and all nodes in the cluster the cluster head. The cluster head communicates with the base station through another cluster head. Farther base stations, they can communicate directly with the cluster's base station, and the base station does not. Nodes and these nodes make the cluster heads in the cluster. These cluster heads communicate with the base station. Taruna, Sheena Kohli, Department of Computer Science, G.N. Purohit, and University of Banasthali proposed a routing algorithm related to the energy and distance factors of each node. The scheme is then compared to the traditional LEACH protocol, which involves selecting the cluster head closest to the particular node. We conclude that the proposed protocol effectively extends network lifetime while reducing energy consumption in the network. Avani Patel, Chandresh R. Parekh proposed a cluster-based hierarchical protocol TEEN (Threshold Sensitive Energy Efficient Sensor Network Protocol) transaction. The sensor network architecture in TEEN is based on hierarchical clustering. TEEN is a data-centric, reactive, event-driven protocol that is best suited for time critical applications. It transmits data based on hard and soft thresholds. If the threshold is not reached, the node will never communicate. Md.Zair Hussain1, M. P. Singh and R. K. Singh Maulana Azad College of Engg. &Tech. Patna, India proposed a routing protocol based on application and network architecture. Because awareness is a mandatory design standard, many new protocols are dedicated to routing, power management, and data dissemination. Efficient routing in sensor networks requires routing protocols that must minimize network energy dissipation and maximize network lifetime. Aswini Kavarthapu: Andhra Pradesh, India, Ongole, Department of Computer Science and Engineering, QIS College of Engineering and Technology. Narasimha Rao Sirivella proposed a method for detecting faulty sensor nodes by comparing the actual RTT with the current RTT by discrete path selection techniques. The method is simulated on WS2 with NS2, with eight sensor nodes using a circular topology design. Pavithra B Raj, R Srinivasan proposed a faulty node recovery algorithm to improve the lifetime of wireless sensor networks when certain sensor nodes are turned off. Wireless sensor networks (WSNs) typically contain hundreds or thousands of sensor nodes that are equipped with sensing, computing, and communication devices, such as short-range communication devices over a wireless channel. These nodes can be distributed over a large area. Sensor nodes in wireless sensor networks are equipped with batteries for their energy sources, but because of the sudden release of energy, it is not convenient to charge or replace batteries. Yanwei Wu et.al designed a TDMA-based MAC layer protocol. In this protocol, time slots are used for various sensor nodes to schedule their operations. These time slots are used for various radio activities performed by the sensor nodes. However, TDMA-based schemes may result in inefficient allocation of time slots, where there may be idle time slots in which no station transmits any data. Shibo He et.al. Designs a distributed MAC layer protocol for scheduling wireless sensor stations. The author believes that there is a strong correlation between the MAC layer and the routing layer, so in order to improve the MAC layer based scheduling, it is necessary to consider various routing parameters. They use routing, power control and link layer random access parameters to design protocols. They developed a probabilistic mathematical model to improve MAC layer scheduling by obtaining optimal solutions. Alma et.al. proposed a wireless body domain sensor network scheme based on wake-up scheduling.

3. Motivation

The design of clustering techniques in wireless sensor networks is affected by the limited power of batteries that require the design of energy-efficient clustering protocols. A number of studies have been recently conducted on different aspects of low power protocols, network establishment, coverage issues, and the establishment of reliable wireless sensor networks. However, even after many efforts, there are still some design options for improvement. This led me to motivate me to design a new protocol that would use panic resources more efficiently on the various sensor nodes of the application.

4. **Proposed Work**

This paper addresses the structure of the cluster protocol and designs an algorithm for improving the life cycle and energy consumption of the hybrid contract. This requires identifying the tools to be implemented according to the proposed approach as well as the basics of the tool.

4.1 Paper Proposal

The multi-hop concept and multiple paths of the WSN development node are introduced. Because the cluster is constantly changing, the nodes must have properties such as multimode and multath. This will use multiple hop and multiple paths to increase network life and reduce power consumption. Power consumption will be lower because load balancing is on the group header for each group. Sensor networks have very different quality characteristics and measurements compared to traditional networks. Because of the high degree of collaboration and application objectives that are very specific to sensor nodes, the router does not have a "one-size-fits-all" solution, so the specific features determine which routing mechanism to use. In this research, we performed simulations showing that asymmetric communication with multiple leaps lengthens the life of sensor networks based on large groups. We also studied the utility of applying a minimum separation distance between

cluster headers in a cluster-based sensor network to extend network life.

5. Conclusion and Future Scope

Wireless sensor networks are usually deployed in hazardous or inaccessible environments, so the power source for the sensor contract is often limited and cannot be updated. Due to these limitations, the power consumption of the node must be reduced while maintaining network connectivity to increase useful life. After the nodes are deployed in custom mode, the wireless connection is often self-regulated. These self-regulating sensor networks contain limitations in system resources such as battery power, communication range, storage space, and processing capacity. Low processing power and wireless connectivity make designing such a network a real challenge. Self-regulation can be defined as the process through which the system tends to achieve a specific goal with minimal human intervention. . In addition, the nodes may fail (due to lack of power or physical damage) and the new nodes may join the network. Therefore, the network must be able to reconfigure hybrid periodically so that it can continue to work. Each node can be separated from the rest of the network, but must remain highly connected. Extensibility requires the distribution of any initialization process and the use of local information only, the classic problem faced by all self-regulatory systems, how to obtain global optimization of future local modifications.

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