A Dynamic Protocol for Routing Of Mobile Agent in WSN

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***Abstract*- Wireless sensor networks are widely considered as one of the most important technologies. WSN has provided a small and low cost sensor node with the capability of sensing various types of environmental phenomena and wireless communication. Routing is done in Wireless Sensor Networks between two nodes. Routing provide the best and correct path between two nodes. Wireless sensor networks is one of the most popular and hot research topic for the researchers ,where routing is one of the major issues in wireless sensor networks as nodes are operated by battery power and when a node sense some information then the sensed information is routed to the destination node.**

Various routing protocols have been introduced but the main objective is to introduce such a hybrid protocol which is defined a correlation between energy accuracy band delay .This correlation can form a triangle which influence the performance of a WSN. In this routing is done through mobile agent using zone creation .Here Zone is Created in the Network to traverse all the nodes of network. To Remove the Security issue we have use Authentication for the node. If the nodes are valid then data will be aggregate by Mobile Agent otherwise not.

***Index Terms*- WSN, Routing, Mobile Agent, Routing Protocol, Security.**

I. INTRODUCTION

Wireless Sensor Networks is widely considered as one of the most important technologies. WSN has provided a small and low cost sensor node with the capability of sensing various types of environmental phenomena and wireless communication.

In most WSN application ,sensor nodes are deployed in ad hoc fashion without engineered once deployed sensor nodes are expected to autonomously organize themselves into wireless medium .it consist of protocol and algorithm with self-organizing capabilities the main goal of WSN is detect the occurrence of events ,classify a detected object and track an object in recent year WSN are most widely used military applications the sensor nodes performs various functions therefore these nodes are called multifunctional.

The nodes of WSN communicate with each other by using wireless medium.

These nodes are capable of sending and receiving messages to each other .the path between these nodes is considered as route; and the process of selecting or establishing a particular path between these nodes for communication is known as routing.

The nodes of WSN are here considered as mobile nodes or mobile agents. mobile agents are autonomous program that can travel from computer under their own control .

A mobile agent may be able to roam over multiple hosts or may have return to its home server after each hop, instead of proceeding to another destination.

II. WHAT IS MOBILE AGENT?

In computer science, a mobile agent is a composition of computer software and the data which is able to move from one computer to another autonomously and it does continue its execution on the destination computer.

In reality, the mobile agent is the object on move which travels in its itinerary within the network of connected nodes.

A mobile agent is a process that can transport its state from one environment to another, with its data intact, and be capable of performing appropriately in the new environment.

Mobile agents decide when and where to move.

There are two types of mobile agent.

The classification is based on their migration path:-

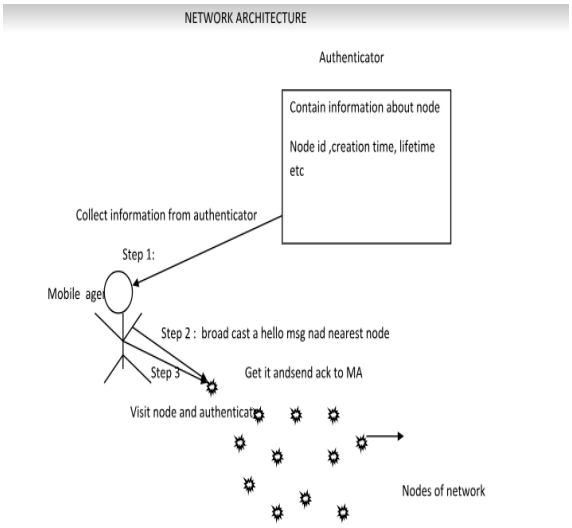
1. Mobile agents with predefined path, have static migration path.

2. Free roaming mobile agent, have dynamic migration path. Depending up on the present network condition the mobile agent chooses its path. An open multi-agent system (MAS) is a system in which agents that are owned by a variety of stakeholders continuously enter and leave the system.

III. DESIGN ISSUES OF WIRELESS SENSOR NETWORKS

- Fault tolerance
- Scalability
- Production cost
- Operating environment
- Power consumption
- Data aggregations
- Quality of service

IV. NETWORK ARCHITECTURE



Algorithm for aggregate data from the network:

1. Mobile Agent stores information about into itself from authenticator.
2. Mobile Agent Broadcast HELLO msg.
3. Nodes that receive the hello msg first send acknowledgement to Mobile Agent.
4. MA visit node and authenticate it.
5. If node = VALID ; then aggregate data and count i = 1.
6. If node = not valid ; move to its previous location .
7. Then go to step 2.
8. Do until i = N ; where Nis the total no of nodes and i is the no of visited node.

V. SECURITY

Security provides protection against the danger, loss and criminal activities; however within the networks it's the Protection of knowledge from theft, corruption or natural disaster and allows the information to be accessible only to the intended users. A wireless sensor network (WSN) consists of geographically distributed sensors to monitor physical or environmental conditions like temperature, sound, pressure, etc. and also the corresponding information are transmitted through the network to a main location. The modern networks are bi-directional in nature that enables control of sensor activity. The introduction of WSN was motivated by military applications like battlefield surveillance

Security issues in Wireless Sensor Networks: In the WSNs the security issues manage by these categories: cryptography techniques, a key management schemes, secure routing protocols, secure data aggregation and intrusion detection.

VI. OBJECTIVES

Wireless sensor networks is one of the most popular and hot research topic for the researchers ,where routing is one of the major issues in wireless sensor networks as nodes are operated by battery power and when a node sense some information then the sensed information is routed to the destination node .

Various routing protocols have been introduced but the main objective is to introduce such a hybrid protocol which is defined a correlation between energy accuracy band delay .this correlation can form a triangle which influence the performance of a WSN.

The main objectives of this project are as follows:

- To design a shortest route between two node.
- To enhance the performance of WSN.
- To design a protocol that is fault tolerant.
- To design a protocol which can also be used in large and dense networks?
- To provide more capacity to nodes.
- To reduce the packet loss in network.

- To design a protocol which is of low cost?
- To design a protocol which can overcome the shortcomings of previously introduced protocols.

VII. PROBLEM STATEMENT

The growing interest in WSN and the emergence of new architectural technique is the reason for studying of routing protocols. In wireless sensor networks various research's have been done. After all research it is found that a routing protocol for a wireless sensor networks should be:

- Energy conserving
- Scalable
- Robust
- Fault tolerance
- Self organizing

A WSN must be used with such a routing protocol which is valuable in all conditions including accuracy , performance, energy, delay and much more of It .as the data transmission in WSN networks is a multi-hope from node to node. Sensor nodes are limited in power, computational and communication bandwidth.

As in wsn the current location of a mobile node is unknown. Therefore other node cannot detect where is the destination node is present, it leads to blind search.

Another problem is that if any fault is occur at any node then other nodes cannot identify or aware about the disconnection of path which leads to packet loss, wastage of energy and time. In this research we are assuming to design a dynamic routing protocol which can be established during a fixed interval of time so that after a particular amount of time the routing can be done automatically.

VIII. CONCLUSION

The result of this project work will leads to such a hybrid protocol which is defined a correlation between energy accuracy band delay .this correlation can form a triangle which influence the performance of a WSN.

Some of the resultant points are here to be noted are as follows :

- A shortest route between two node.
- Enhance the performance of WSN.
- A protocol which is fault tolerance.
- A protocol which can also be used in large and dense networks.
- More capacity to nodes.
- Reduced packet loss in network.
- A protocol which is of low cost.
- A protocol which can overcome the shortcomings of previously introduced protocols.
- Each node is aware about the activities of all the neighbouring node.

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REFERENCES

[1] Zhu and W. Zhang, A mobile agent-based clustering data fusion algorithm in wsn, International Journal of Electrical and Computer Engineering

[2] Mobile Agent, Wikipedia.

[3] Jamal N. Al-Karaki Ahmed E. Kamal. "Routing

[4] Techniques in Wireless Sensor Networks: A Survey", Wireless Communications

[5] Enabling Short-Term Active Broadband Intelligent Network

[6] Implementation", in Proc. of Intenral Working Conference on Active Networks

[7] Singh S., Woo M., Raghavendra C.S. Power-aware routing in mobile ad-hoc networks.