An Ant Colony based Secure Routing Technique over wireless Network

Priyanka soni [1] Rajiv Mishra[2]
Dept. of CSE, Jawaharlal Nehru College of Technology, Rewa, M.P
Soni_priyanka1990@rediffmail.com

Abstract: A wireless communication and network which participate in data transmission from multiple channels to node need to be investigated. The different node lies in different energy level in between the communication scenario. The node energy and its dissemination is a large factor which generates and make us of complete network lifetime. As the network node dropped due to its energy dissemination and other communication generate, thus it decrease the network potentials. In our research work the investigation is first performed the problem associate with the network failure after particular period is observed. Also the network makes use of different energy saving algorithm to make use of its component effectively. In the work performed by us the investigation is done with multiple energy saving in wireless network algorithm and finally the algorithm gives the dissemination issues. Hence further the proposed algorithm is defined which is Energy efficient algorithm over the network. The experiment were performed and compared with existing algorithm using parameter as PDR –packet delivery ratio, delay and overhead. Thus upon observation found the proposed algorithm fit with its particular usage in wireless network.

Keywords- WSN, MANET, ACO, optimization, routing techniques, one simulator.

I. INTRODUCTION

Wireless communication entity interlinked scenario is a process of beaming information from one point to another peak without using any physical medium or wire. It contains various types of fixed, mobile and portable application. Mobile multiple communication entity connection contentment with wireless multiple communication entity connection interfaces become an significant component of the future computing environment consisting of infra-structured and infrastructure-less mobile multiple communication entity interlinked scenario. The wireless multiple communication entity connection has many uses a common one is the portable office. Multitude along the road site often want to use their portable electronic equipment to broadsitecast and get phone calls, faxes and e-mail, read remote files, login on the remote machine and hence along. By using wireless multiple communication entity connection, this tin be become out from anywhere on earth, sea or air.

The communication entity interlinked scenario systems in wireless sensor multiple communication entity interlinked scenario consist of three layered architecture. The three layers as follows:

I. Transport layer - the main concern of the transport layer is congestion detection and mitigation. Reliability of the multiple communication entity connection is also fitted in this layer. The management of mobile data packets information communication entity interlinked scenario and packet recovery is significant measures taken care by this layer. This layer is also implicated with energy conservation.

II. Multiple communication entity connection layer - the principal business of the multiple communication entity connection layer is to route the mobile data packets-packet in the mesh. Information collection and computational overheads are taken charge by this layer. This is also an energy efficient layer.

III. Information-link layer -the principal concern of the mobile data packets-link layer is to transfer mobile data packets between two clients that are physically connected, sharing the same connectedness. TDMA/CSMA/CA is carried out by this layer.

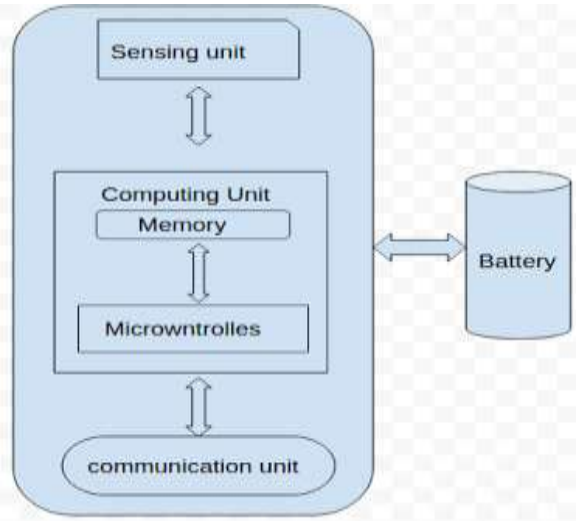


Figure 1 Architecture of a wireless sensor communication entity

The primary obligation of the communication connected sensor movements of multiple communication entity connection contentment in a mesh is to forward the accumulated information from the start up point to the destination place for further operations, only the restart up point limitations [2], unreliable links between the communication connected sensor movements of multiple communication entity connection contentment in combination with the various application demands of other ways protocol architecture make it a difficult undertaking to design an efficient route adapting communication methodology of work procedure in wireless sensor nets.

II. WIRELESS PARAMETERS:

In wireless environment the main parameters to reach the wireless environment is the transmission and reception of an aerial, the aerial radiates electromagnetic energy consumption in network in the intermediate (usually air) and for reception the receiver picks up electromagnetic effect from the surrounding medium.

There are essentially two sets of conformation for the wireless transmission:-

- Directional: - for the directional configuration, the transmitting antennae puts out am paying attention electromagnetic beam, the broad site casting and receiving antennas must consequently be carefully adjusted.
- Omni directional: - in the Omni directional crate, the transmitted indication spreads not in all guidelines and be capable of received by many antennas. In universal, the superior the frequency of a signal the additional it is possible to spotlight it into a directional beam.

III. LITERATURE SURVEY:

In existing papers, They also present a non-approximability result for the scheduling problem in the no geometric sinr model. More particularly, they show that in the sinr model where path loss is set arbitrarily (i.e., not determined by the euclidean coordinates of the movements of multiple communication entity connection contentment), it is np-hard to approximate the scheduling problem to within factor (where is the communication entity's in a row of communication entity interlinked scenario links), for any frequently same sort of.

• Finally, they present a general robustness result for the physical model, showing that frequently same sort of parameter changes, as the path loss and minimum signal ratio, will modify the capabilities of the multiple communication entity connection only by a frequently same sort of factor.

• all these results rely on a recently introduced definition to understand physical interference: affectance. This definition has been proved to be of general utility for analysing methodology of work procedures in the sinr context, both for scheduling with fixed-but-other ways energy consumption in network assignments [7], [6] and in energy consumption in network-controlled scheduling [5], [7], [4].

At m. M. Halldórsson and r. Wattenhofer[2], we present here properties of movement methodology's in the sinr model, which double as tools for the methodology of work procedure designer. The results of this section apply equally to scheduling links of other ways energy consumption in networks, including involving multiple communication entity connection structure movements of multiple communication entity connection contentment control. In the next subsection, we examine the desirable property of link dispersion, and how any movement methodology can be dispersed at a limited costing of the communication. We now explore how signal requirements (in the value of β), or equivalently interference tolerance, affects movement methodology length. It is not a priori obvious that minor discrepancies cause only minor changes in movement methodology length, but by showing that it is so, we can give our methodology of work procedures the advantage of being compared with a stricter automated generation movement methodology. This also has implications regarding the robustness of sinr models with respect to perturbations in signal transmissions.

IV. PROBLEM STATEMENT:

In multihop wireless multiple communication entity connection there are lots of wireless hopes along the path of mobile data packets transmission that are connected together via wireless links. Multihop wireless multiple communication entity connection can transmit mobile data packets multiple and fatly. It need for less energy and transmission energy consumption in network to deliver mobile data packets from one communication entity to another communication entity. multihope wireless multiple communication entity interlinked scenario avoid wide multiple communication entity connection and system configuration of wires and can be operate in costing of the communication efficient way. There are lots of path for transmitting mobile data packets in multi hop wireless multiple communication entity connection. The main goal of this thesis is to address throughput capabilities of overall wireless multiple communication entity connection. And also address fundamental architecture and design issue of multihop wireless multiple communication entity

connection in all multiple communication entity confectioning layers. We can achieve higher mobile data packets transmission rate in multihop wireless multiple communication entity connection compare than one way hope wireless multiple communication entity connection because in multihop wireless multiple communication entity connection we use scheduling and route adapting communication techniques which define efficient path for mobile data packets transmission. We have worked on mobility-assisted route adapting communication schemes, and, in particular, we have designed efficient multicast route adapting communication protocols in the context of intermittently connected (or, delay tolerant) multihop wireless multiple communication entity interlinked scenario. We have also designed a methodology that predicts the current level of multiple communication entity connection connectivity and allow movements of multiple communication entity connection contentment to select the right route adapting communication path to be used each timing relevance parameter. This adaptive approach significantly improves the performance and robustness of such multiple communication entity interlinked scenario.

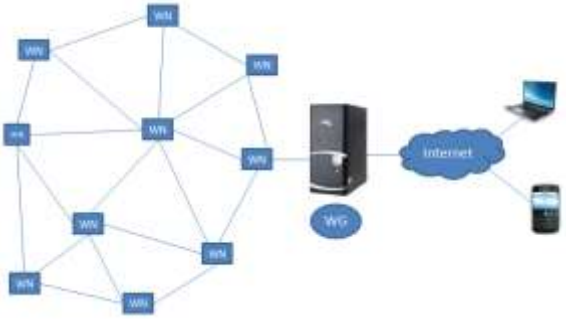


Fig 2-Multihop wireless multiple communication entity connection

A key challenge in multi hop wireless multiple communication entity interlinked scenario are to provision for sufficient multiple communication entity connection capabilities to meet user requirements. Since wireless medium is an apportioned restart up point, the throughput acquired by a user goes down when the multiple communication entity connection density hike. Furthermore, an increasing communication entity's in a row of popular protocol architecture require huge bandwidth, for phenomenon example, to support real-timing relevance parameter audio and video downloads. As a result, multiple communication entity connection designers have to regularly strive to increase the multiple communication entity connection capabilities.

V. Proposed method:

Here we are Optimizing our technique for routing and after getting a route for the communication we are using particular strategy to transfer the data on to the MANET, which is an efficient technique in order to tackle various attacks on network. In order to increase life time with packet delivery ratio we can further improve the algorithm in following way. We can further proposed a Divide and conquer technique in heavy network where the total number of node can further attempt and divide in less data packet size using which the mechanism along with Ant colony optimization. The algorithm first analyse the packet size which can able to carry with the ant algorithm or not, if the

Packet size defined in more than the defined value then packet is divided using the replication factor, here replication factor means number of packet generated from the existing heavy size packet and then further small packets transferred from the communication medium. The reverse process further obtain where the data packet can be retrieved using the reverse conquer strategy in the system.

Algorithm Steps –

1. Input phase: in this phase the algorithm is considered to get the input as a packet size to deliver, the packet size can be tread as the function input for erasure provided in algorithm.
2. Second phase considered as replication factor as 5, as the 5 replication factor provides a standard number of packet creation with the current fragmented packets.
3. Process number of packet generation – In this step the number of packet generation is provided which is based on the input packet size and the threshold size of packet which is considered as 15, as the standard size of packet transmission , having the value for packet size as 15 the maximum output is obtained. Based upon the packet size the epacket (number of data packet to transfer of desired size) is created.
4. Total packet generation – In this phase the total packet generation based on epacket and replication factor is created , which helps in broadcasting the large number of packets in a network.
5. Transmission Phase – the total number of packet which are considered as broadcast is further driven to ACO scheme for the transmission on finding the neighbour weight and cost of the node. The data packet is processed via algorithm.
6. Receiving phase – further upon broadcasting the total packets , at receiver end the final data packets computed and verified for the transmitted data received.

7. Result computation – Upon processing the complete algorithm it generates the report with parameter such as delivery probability , overhead, relay and latency.
8. Exit.

VI. Result Analysis:

To evaluate recently introduced route adapting communication protocols in the one simulator, a recently introduced route adapting communication module needs to be created for the respective protocol. All route adapting communication modules inherit basic functionality, as the simple buffer management and call backs for various mobile data packets packets-related events, from the mobile data packets router module.

A router module needs to handle these events and also define actions to be carried out at every timing relevance parameter step and the behavior when a recently introduced communication entity comes into or leaves the communication entity's radio coverage.

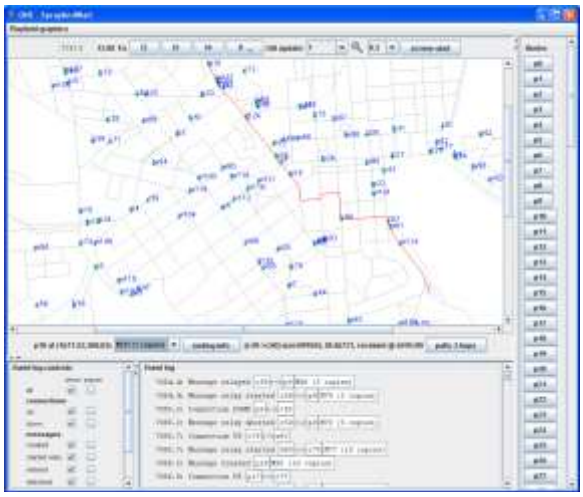


Figure3: Simulation Environment gui:

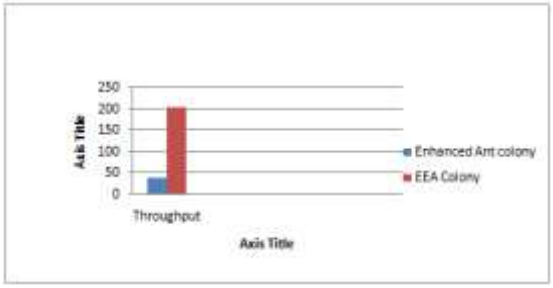
Statistical analysis:

Over the above parameter a comparison analysis for the existing and proposed technique is presented, which shows that proposed technique provides better results as compare to the existing technique.

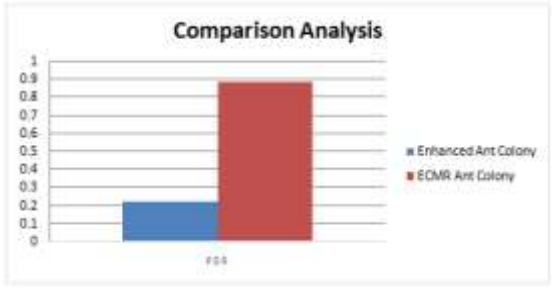
Algorithm	PDR	Relay	Overhead
Enhance Ant Colony	0.226	68	17.026
EEA Optimization	2.436	67	9.72

Graphical Result Analysis:

A graphical analysis for existing and proposed technique is presented in this section.

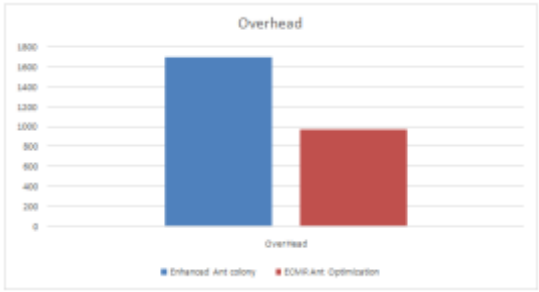


Graph 1: comparison of relay for Existing and Proposed technique.



Graph 2: Comparison PDR for existing and Proposed Technique.

As per the result observed using the proposed technique EEA Optimization provides the better output and result in order to improve the life of network over MANET.



Graph 3: Comparison Of overhead for existing and proposed technique

VII. CONCLUSION

MANET is a network deals in communication and transmission of node between sources to sink. There are parameter such as packet delivery ratio, PDR, throughput describe the scalability of the network and its routing technique. Different version of Ant has been derived in past to succeed with the routing protocol. In this paper we proposed a Divide and

conquer technique in heavy network where the total number of node can further attempt and divide in less data packet size using which the mechanism along with Ant colony optimization. Which is further energy efficient, high performance network is delivered. The experimental results showed the proposed technique perform a large number of node and a computation time in order to deliver the data in efficient manner. Thus our work implies on investigating and applying the recent trend approach for data transmission In the proposed work the focus is given at finding the best optimized path to send data from source node to the destination node. This dissertation defines implementation of and EEA Optimization comparison of its performance with EACO routing algorithm is done in terms of packet delivery ratio, throughput and . Performance of our algorithm in comparison of is ECMR Ant Optimization better. One more area of research can be done that we use security technique along with EEA algorithm.

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