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IDENTIFYING THE LOCALIZATION NODE AND MANAGING AWARE-BASED ENERGY EFFICIENT ROUTING PROTOCOL

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Abstract
Localization is an efficient technique for many wireless network applications. The deployment of the real world shows that, in a node behavior, a network is not always completely local. Because the node is the moveable position then changes range in theoretically, it called non-localization nodes in this situation. We focus to identify Localization node, which basically has three steps: node localization test, structure analysis, and network adjustment. In our research paper, we have developed a "Location-Aware Identify Efficient Energy Routing (LAIEER)" protocol. It considers the developed on-demand routing protocol location and reduces the consumption energy of nodes in the route of a metric. Only those forwarding covers the neighboring nodes in routing whereas non-forwarding nodes are switched to an inactive state. This ensures a reduction in energy consumption in the network. It is not necessary to say that reducing control overheads for efficient reactive routing protocols is very important. The presentation of the proposed LAIEER protocol is compared to LAL. It reviews simulation results for that, to calculate the proposed LAIEER protocol results, the following parameters include the throughput, control overhead, PDR, average end-to-end delay, and LAIEER Managing An Aware-based Energy Efficient Routing Protocol.

Keyword:-LAIEER, AODV, DREAM, Energy Efficiency, Localization Node, MANET.

Introduction
Each device in MANET is free to move independently in any direction and therefore will often change its link to other devices. Everybody ought to advance the traffic inconsequential to their own utilization, and in this manner ought to be a switch. Directing has been an overwhelming errand in promotion systems since the appearance of the remote system. The principle explanation behind for this is the constant change in the network topology due to the high levels of node mobility. Several protocols have been creating to accomplish this assignment In an ad hoc network there are major who communicate with portable radio. This network can be deployed without any wired base station or infrastructure support, where the routes are primarily multi-hop due to limited radio spreading range. An ad hoc network is adaptive in nature and is self-organized. "Mobile Ad-hoc Network" is an autonomous system of mobile hosts that is free to roam randomly and to organize arbitrarily. This wireless topology can have fast and unexpected changes.
MANETs are self organized networks whose nodes are free to move randomly while being able to communicate with each other without the help of an existing network infrastructure. MANETs are suitable for use in situations where any wired or wireless infrastructure is inaccessible, overloaded, damaged or destroyed such as emergency or rescue missions, disaster relief efforts and tactical battlefields, as well as civilian MANET situations, such as conferences and classrooms or in the research area like sensor networks. MANETs eliminate this dependence on a fixed network infrastructure where each station acts as an intermediate switch.

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Figure 1: Mobile Ad hoc Network (MANET)

Algorithm for LAIEER

Implementation of the algorithm for location-aware identification of node and efficient energy route adjustment algorithm.

Location-Aware Identify Efficient Energy Route Adjustment algorithm

1. S_x, three anchor N_1, N_2, N_3, node localizability.
2. Add neighbor node N_i and two edges (N_i, N_1), (N_i, N_2) into S_x
3. **while** not all nodes are localizable **do**
4. Find a non-localizable node N_i
5. Find two vertex disjoint paths from N_1 to N_2
6. Obtain path $LBAN_1$ *and* $LBAN_2$
7. Join $LBAN_1$, $LBAN_2$ and edge $LBAN_3$ (N_2, N_3) to form a path Pi
8. **for** each non-localizable vertex N_i on P**do**
9. Connect N_j to its two-hop neighbors on P
10. Mark N_j as localizable
11. **end for**
12. **While** Connected anchor path S_x to R_x(S_x, N_1, N_2, N_3, Rx) **do**
13. Send data packet S_x to Rx
14. **end while**

Result

This chapter presents simulation results carried out with the purpose of analyzing LAL and the proposed routing protocol LAIEER. Comprehensive simulations have been carried out to evaluated and compared to the protocol performance in MANETs by using Network Simulator NS2 in its version 2.31. It is freely available and widely used for research in Mobile Ed-Hawk Network.

Performance Metrics:

We use different metrics to evaluate the performance of the routing protocol. Simulation environment settings used in these experiments are shown in Table 1.

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Table 1: Parameter in Simulation

Simulator Used	**NS-2.31**
Number of nodes	50
Dimension of simulation Area	800×800
Radio Range	500m
Simulation time	100sec
Traffic type	CBR
Traffic connection	TCP/UDP
Packet size	512 bytes
Protocol used	DREAM & AODV

Throughput:
Throughput is the number of packets successfully received in a unit time and is represented in BPS. The throughput is calculated using the awk script that processes the trace file and produces the result. Which shows the throughput simulation in figure 2 proposed LAIEER is a better throughput approach than LAL because it supports location-based dream protocol which helps us to find the shortest path to reach the destination node. To send data information as packet LAIEER applies multiple algorithms to achieve a better way to reach its location, likes he applies energy efficiency to find the nearest available node. That is why Proposed LAIEER throughput is better than LAL. Here we clearly see that in the proposed scheme maximum packets are sent per unit in the network. The only reason for the throughput increase is that all nodes in the MANET remain aware of the position of the neighboring location. Figure 2 show x-axis indicates "TIME" and y-axis indicate "PACKET DELIVERY".

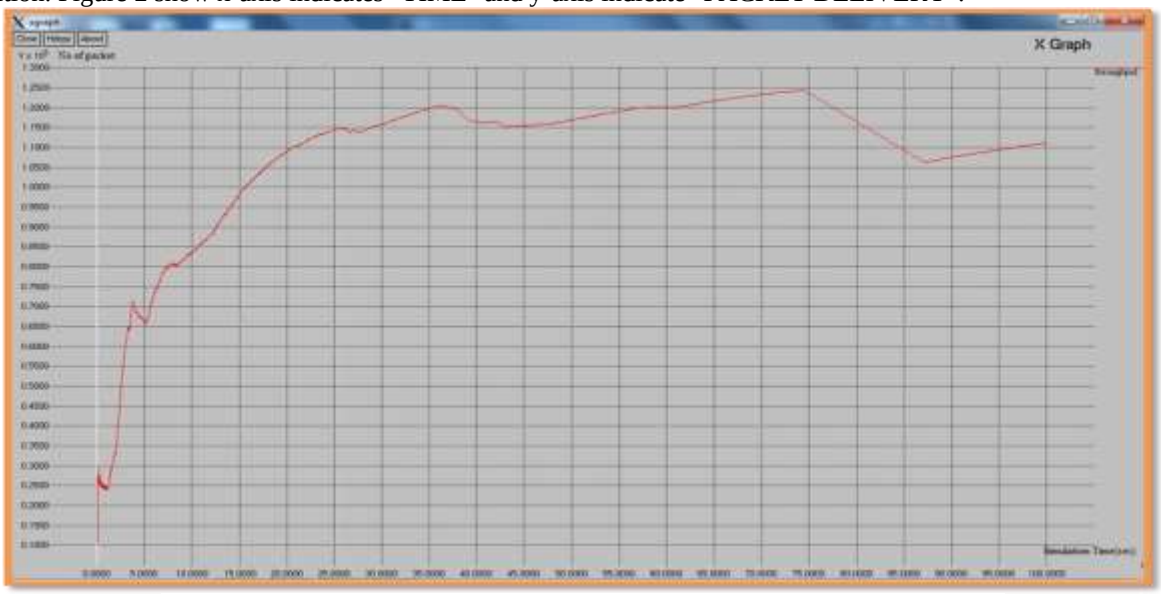

Figure 2: Screenshots of Throughput using DREAM and AODV Protocols

Packet Delivery Ratio:

The ratio between the total number of sending data packets and the data packet actually received. Packet Delivery Ratio (PDR) is the percentages data packet is successfully received in the network. But this factor completely depends on the number of packets are send and receive in the network. If a small number of data packets are distributed and most of them are received, it means that the PDR is very good. In this graph PDR proposed LAIEER is more than PDR LAL due to the efficient use of node localization in a network. In this graph "x-axis" represent "TIME" whereas "y-axis" represents "PACKET DELIVERY".

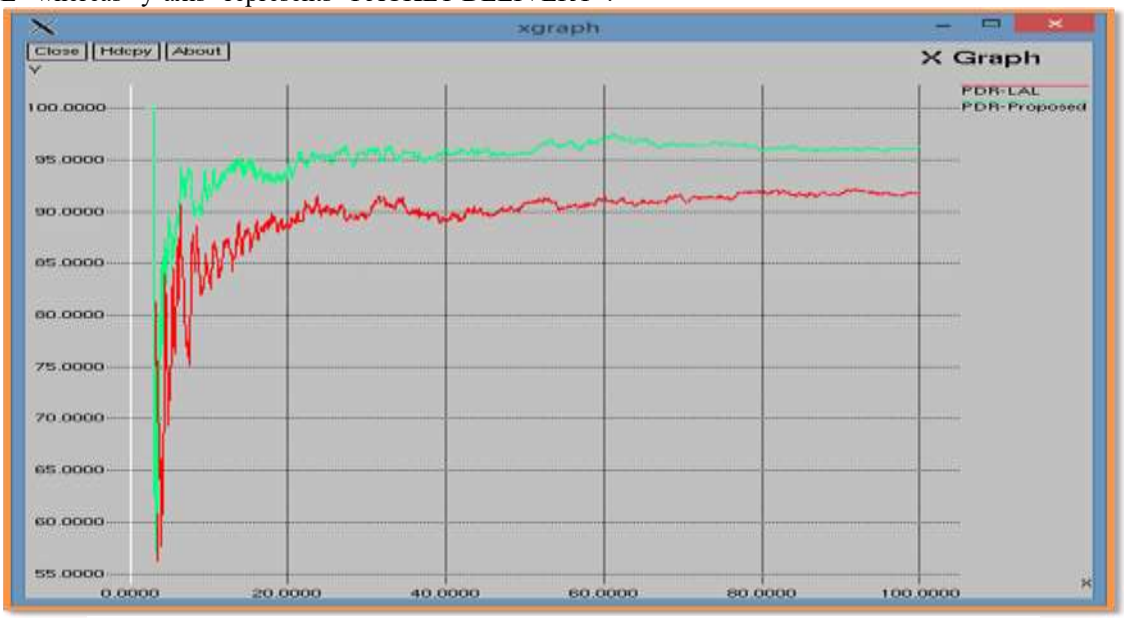

Figure 3: Screen Short PDR represents existing LAL vs Proposed Routing LAIEER

UDP Packet Loss Analysis:

Packet loss in MANET is due to the lack of localization of the node. This situation arises in the network due to the constant movement of the node. The sender and receiver lose contact due to lack of location awareness of their neighbour node, and the packet gets lost on the path to the MANET. Figure 5.5 shows a comparison of packet loss in the proposed scheme LAIEER and existing scheme LAL. While the proposed LAIEER scheme has only 232 packet loss, the existing scheme LAL has more than 345 packets in the MANET.

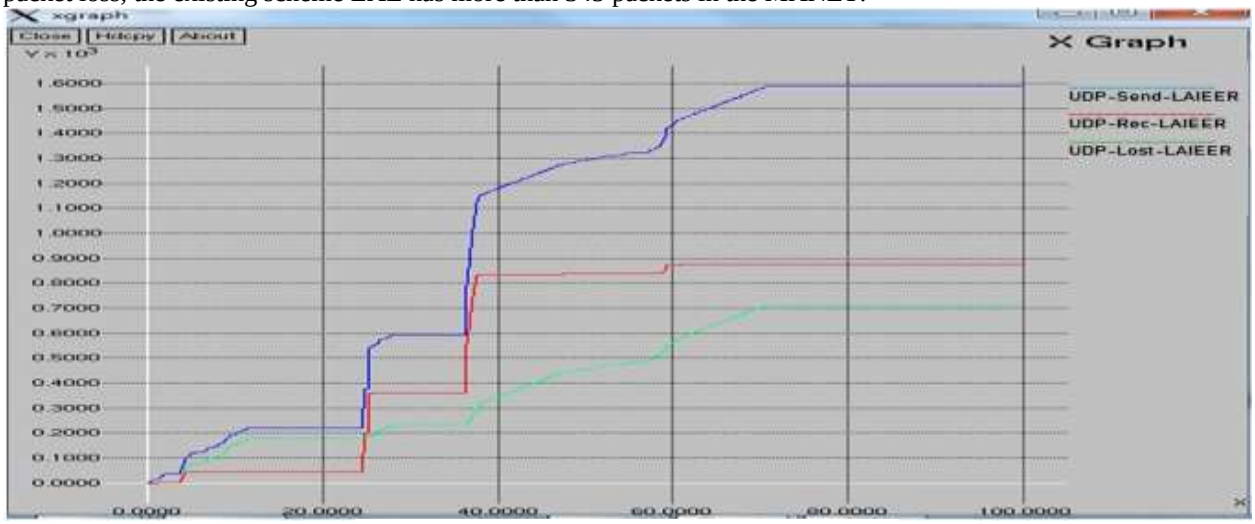

Figure 4: Screen Short UDP packet loss analyis

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Performance Comparison

Analysis performance the proposed LAIEER and existing LALs basically compare the packet delivery ratio, calculating the PDR by the ratio of the total number of packets sent over the network by the source and the total number of packets received by the destination. Simultaneously, performance can be understood by reviewing throughput, routing packets, NRLs, average E-E delays (ms), and the number of dropped data in the network. A comparison of the data based on these parameters to the proposed LAIEER and the existing LAL is shown in Table 2.This data clearly shows the routing information in a network with the help of localized nodes. The data shows the no. of dropped data from the total no. of packet send in a network. The PDR packet delivery ratio is a ratio of received packet from packet send at time unit.

PDR= (Received/send)*100

Table 2: Compression existing LAL and Proposed LAIEER

Parameter	Existing LAL	Proposed LAIEER
Send Packet	4281	6057
Received Packet	3936	5825
Throughput	39/sec	58/sec
ROUTINGPKTS	2398	3019
PDR	91.94	96.17
NRL	0.61	0.52
Avg. e-e delay(ms)	593.56	327.5
No. of dropped data	345	232

The PDR ratio in proposed LAIEER scheme which is about 96.17 where as in LAL-existing the fraction is about 91.94 which clearly shows the more no. of routing packet are successfully transmitted over the network in proposed scheme as compare to LAL-existing scheme. With this the simulation performance increases which helps in minimizing location error.

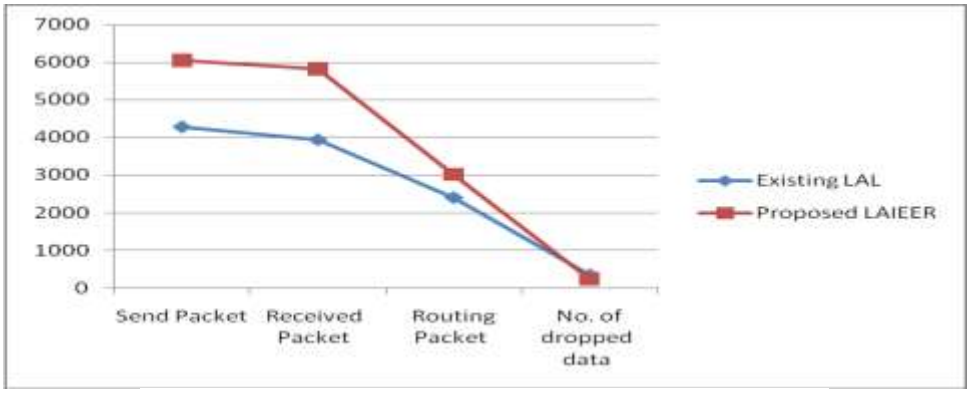

Figure 5: Compression existing LAL and Proposed LAIEER

Conclusion

The presence of location information are reduces the unnecessary flooding of packets in network and also provide the base in security to the network by successfully transmitting the data in a network from sender to receiver with less no. of drooped packet .If the nodes in network knows about the status of location of node than it is easy to find the localized node in a radio range. In our simulation experiments, we simulated the normal routing load, packet delivery ratio etc. In the proposed LAIEER scheme the PDF fraction is about 96.17% whereas in LAL-existing scheme is about 91.94%. This PDF fraction between the proposed and old scheme clearly shows that proposed scheme is much better than old scheme.

In future we have planned a more secure method should be implemented which helps in increasing the network lifetime with the help of localized and non-localized node identification.

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