CHAPTER 7

CONCLUSIONS AND FUTURE ENHANCEMENT

7.1 CONCLUSIONS

To improve the quality of Services (QoS) for single and multipath routing in MANETs, we have designed and implemented the following protocols to achieve the objectives of our research.

i. Re-Pro routing Protocol
ii. Multipath routing Protocol
iii. Delay based Ad Hoc On-demand Multipath Routing Protocol
iv. Energy aware delay based ad hoc on demand routing protocol
v. Link Stability and Energy aware Routing Protocol

- To overcome the demerits of proactive and reactive protocol in single path routing, a new “Re-Pro routing protocol” is designed which reduces the throughput and packet delivery ratio. This protocol updates the routing information in the routing table on demand basis. It does not maintain all the information about the other nodes. This procedure is simulated with network simulator (NS2) and comparative studies have been done with AODV routing protocol and the results clearly show that the ‘Re-Pro routing protocol’ improves the throughput and packet delivery ratio.
• The Re-Pro routing protocol is extended to multipath routing which overcomes route failure occurring in single path routing. Our proposed protocol “Multipath Routing Protocol (MRP)” finds multiple paths in route discovery phases. It provides the shortest path when route failure occurs without initializing route discovery process. The working procedure is simulated in network simulator (NS2) and the results have been compared with AODV routing protocol.

• Our research study also concentrates on delay of the routing. We propose “Delay based Ad Hoc On-demand Multipath Routing Protocol (DAOMDV)” which reduces the overall delay in the route network. In route discovery process, the rely nodes update the delay in route request (RREQ) packets which has been sent by source node. The destination node calculates End-to-End delay of entire route and sent reply to the source node through route reply (RREP) message. The simulated model and comparative study have been shown in Chapter 5.1 and the results reveal that DAOMDV is better than AODV and AOMDV.

• We have designed an “Energy aware delay based ad hoc on demand routing protocol (EOMADV)” protocol to find the remaining energy in each node which may be useful for route selection process. To strengthen the link stability, “Link Stability and Energy Aware (LSEA) Routing Protocol” is designed and described clearly in chapter 6. This protocol finds the quality of link with the help of
transmission radius, node movement and velocity. Both the algorithms have been simulated using network simulator and the results are compared with existing protocols.

- Based on the analysis it is evident that all our routing protocols are superior to existing routing protocols.

7.2 FUTURE ENHANCEMENT

The proposed LSEA protocol is simulated using network simulator. This protocol produces better results in view of more quality such as less delay, more packet delivery ratio, less energy consumption, increased lifetime of the network and increased throughput and more stability of the link. But the results may vary in real time implementation due to physical and environmental constraints. So future research may take this direction.