CHAPTER 6

CONCLUSION AND FUTURE ENHANCEMENT

This chapter summarizes the results of the research work and provides the future research directions.

6.1 CONCLUSION

In this thesis, a Stable and Energy aware Service Discovery protocol for MANET has been formulated. A detailed literature survey was made about the service discovery protocols, and the inferences of the analysis showed that cross layer service discovery performs better than the pure application layer service discovery protocols. Hence a network layer protocol was initially formulated based on multicasting. M-EEMC protocol was designed to provide energy efficient routing solution based on mobility. The protocol was implemented and compared with ODMRP, and the results showed that M_EEMC performs better than ODMRP. But the tree- and mesh-based multicasting structure used in M-EEMC was found to undergo frequent updates. As a result, the tree maintenance procedure created more control overhead. Therefore, the multicast protocol was refined to reduce the control overhead.

A zone-based multicasting protocol, SEMC, was suggested. To add more strength to the protocol, a link strength-based link stability model was formulated. Neighbor discovery was carried out based on the stability model and energy awareness. The zone administration and multicast participant management were carried out in an efficient way using zone administrators and organizer nodes to provide load balancing. A tree structure was established between the source and the receiving multicast participants. The multicast
participants were managed under each zone, and hence the maintenance procedure became simple. The protocol was implemented using NS2, and the results were analysed. The results showed that SEMC achieves better performance than the existing multicast protocol. The results obtained in simulations suggested that the use of SEMC multicasting algorithm for the construction of the backbone for service discovery would result in reduced overhead.

Therefore, SEMC was used as the base routing, and the Stable and Energy aware Service Discovery in MANET (SESD) was implemented. The cross layer service discovery protocol thus formulated utilized the stability model, energy awareness and performs service discovery. Multicasting tree structure was formed between the service requestors and service providers. SESD was implemented in NS2, and the results were analysed. The proposed SESD achieved 9% less control overhead than the existing protocol and provided 93.5% service success ratio. The better service success ratio proved the superiority of SESD.

6.2 FUTURE ENHANCEMENT

SESD provides highly efficient method for implementing service discovery. There are still some issues which when addressed would result in very efficient use of the protocol in real scenarios. Service design, context aware service discovery, service discovery based on user’s preferences and caching model are some of the areas which could be addressed in future to provide the user with a service discovery that fully satisfies the user needs.