Chapter 8

Conclusions and Scope of Future Work

8.1 Conclusion:

Clustering is an important issue in WSN. Information gathering and routing are carried out based on the position of the sensor node. It can be easily achieved by enabling GPS in every node. The sensor nodes are deployed in the WSN which aware of their own position information. By knowing the position of the entire sensor node in the WSN, cluster the sensor nodes based on the energy, shortest path distance. The cluster head will be selected based on Centroid position Clustering of nodes by using modified k means clustering algorithm can minimize the residual energy and maximize the performance. It improves the network lifetime and reduces network traffic.

In this work, a detail simulation survey of the different clustering algorithms considering Energy Consumption Value, Latency Value, Packet Delivery ratio and Residual energy are being presented for energy constrained WSN. Simulation results are discussed to describe the effect of CH selection and the size of the cluster based on the parameters like Energy Consumption Value, Latency Value, Packet Delivery ratio and Residual energy. The proposed Algorithm i.e. LACBRP should be able to adapt the network clusters to maintain network connectivity while reducing the wasteful resources associated with periodic re-clustering and also performs better and provides the high performances like different routing parameter i.e. Energy Consumption Value, Latency Value, Packet Delivery ratio and Residual energy value in ns-2 in different routing scheme such as LEACH routing scheme, Base Station Position routing scheme and Energy-Balanced routing scheme.

Here we compare the performance of proposed LACBRP protocol with the existing clustering protocols LEACH, BSP and BEC. Simulation Result illustrate that proposed LACBRP outperforms than LEACH but has almost similar performance to BSP and BEC protocols in terms of network energy consumption. From the Figure 7.3 it can clearly observed that the LACBRP routing scheme respond at a faster rate means it has the minimum latency value in comparison to the other routing scheme i.e. LEACH routing scheme, Base Station Position routing scheme and Energy-Balanced routing scheme. We can also said that from the Figure 7.4 that LACBRP routing scheme has the maximum Packet delivery Ratio (the ratio of no. of packet received to the no of packet send) in comparison to the other routing scheme i.e. LEACH routing scheme, Base Station Position routing scheme and Energy-Balanced routing scheme. Figure7.5 show that LACBRP achieves higher Residual Energy Values after the 30 sec time which is taken in this simulation work. LACBRP starts the higher level at the beginning and maintains this level upto the last. All other routing schemes i.e. LEACH routing scheme, Base Station Position routing scheme and Energy-Balanced routing scheme maintain a certain level of Residual Energy, lower than the LACBRP scheme, due to the energy dissipation in different simulation time.

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8.2 Scope of Future Work:

WSNs are widely being used in location monitoring, military surveillance etc. In these cases, the information transmitted from the nodes to the base station should be secure (i.e.) communication between two nodes must be encrypted. This requires the generation of secure keys between the sensor nodes in the WSNs to avoid attackers. Finally future works need to investigate the methods to handle the challenges associated to the mobility of the nodes in the network such as the topology changes in the node-mobility applications.

In conclusion, it should be noted that the WSNs routing protocols are very application specific. Furthermore, each application has its own requirements which should be considered in the design.