CHAPTER 5

CONCLUSION

In order to solve the issues of sink repositioning, this thesis has presented a Multiple Sink Positioning and Relocation (MSPR) technique for placing optimal number of sinks in sensor networks. Initially, the optimal number of sinks is determined using the optimal sink algorithm satisfying the h-hop constraint. Then a K-Partitioned Minimum Depth Tree (k-PMDT) is constructed for positioning multiple sink nodes and setting up the routes. After determining the optimal number of sink positions and routing, best sink reposition is selected by optimum search method. Sink movement is done by using the intelligent movement and it limit the sinks movements while maintaining their direction to the optimal positions. The main advantage of this method is using of node life time in the construction of tree the tree lifetime are improved.

The proposed MSPR technique is compared with the k-PMDT technique based on the performance metrics such as packet delivery ratio, packet drop, residual energy, and delay. By using NS2 simulation results, it is shown that MPSR outperforms KPMDDT by 43% in terms of delay, by 18% in terms of delivery ratio, by 55% in terms of packet drop and by 5% in terms of residual energy when the number of nodes is increased.

In order to solve the issues of localization and tracking, a Cluster-Based Architecture for Localization and Tracking (CBALT) is proposed. The target localization and tracking is performed in three phases. In the first phase, a cluster-based architecture is developed. The entry of the target into the cluster is detected and then based on the RSS, a priority table is created at the base station. Only the cluster head with the greatest priority is allowed to transmit data. In the second phase, prediction based target tracking is performed. Trisensor pattern of the received details is formed and stored in the database. The pattern which keeps repeating many times and has high confidence value is predicted the next time. In phase 3, data from sensor nodes is compressed by the cluster head to reduce the delay involved in data signal transmission.

Simulation results using NS2 show that the proposed CBALT outperforms the existing prediction based tracking technique using sequential patterns (PTSP)
technique by 18.8% in terms of delay, by 21.5% in terms of delivery ratio, by 17% in terms of packet drop and by 15% in terms of energy consumption, when the number of nodes is increased.
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