Abstract

Wireless Sensor Networks are extremely densely populated and have to handle large bursts of data during high activity periods giving rise to congestion which may disrupt normal operation. It usually occurs when most of the data packets follow one route to reach from source to destination. Thus, there is a need of some new approach which could control congestion to meet increasing traffic demand and improved utilization of existing resources. Chance of congestion increases when both source and sink node are mobile. Due to mobility of source or sink, there is a need of determining optimal path every time when source or sink changes its position. So selection of optimal path is necessary in order to mitigate chance of congestion in the network. This paper employs new genetic algorithm based approach to determine an optimal path from source to destination for different scenarios of source or/and sink node mobility. Concept of connection value and localization region has been employed to determine an optimal path each time the data packet is being sent. An optimal path is the path that has minimum number of connections. In order to send the data packet from source to destination, there is requirement of genetic algorithm that automatically controls congestion. Simulations are performed for different scenarios of source or/and sink mobility. Significant improvements have been observed in terms of congestion value for genetic algorithm. Simulations results determine best route with minimum connection value by incorporating genetic algorithm.
Congestion Controlled WSN using Genetic Algorithm with different Source and Sink Mobility Scenarios

References

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Index Terms

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Keywords

Genetic Algorithm  Connection value  Optimization  Wireless sensor network