CHAPTER 7

CONCLUSION AND FUTURE ENHANCEMENT

Predicting the location of the vehicle can be used in many fields and purposes. Vehicle location prediction is an essential part of the transport system. Its results may assist transport management for design of future transportation systems. Congestion may be improved by diverting some vehicles to alternate routes. In this research work, initially the vehicles visiting paths in different time periods are collected and then frequent paths are computed for each vehicle. After that, the frequent paths are given to the optimization process to select a most frequent path for each vehicle. The most frequent paths from the optimization process are given to the FFBNN for performing training and this well trained FFBNN is utilized to predict the vehicle’s future location efficiently.

In order to perform vehicle location prediction, the optimization algorithm is used in various ways along with a FFBNN that improves the prediction accuracy. This research work proposes three approaches, namely GA-FFBNN, PSO-FFBNN and ABC-FFBNN. These are indeed robust because the methods have selected optimal frequent paths. Besides, they reduce the time complexity and increase accuracy. They also give the most frequent future vehicle location. The performance evaluation of the proposed algorithms shows that these algorithms accurately find the vehicle’s future location with higher accuracy than the existing moving location prediction technique.
Evidently, the results make it clear that ABC-FFBNN is the best among the three algorithms implemented. Finally, the implementation results indicate that the ABC-FFBNN algorithm clearly achieves the targeted objective. In GA-FFBNN and ABC-FFBNN algorithm, the number of frequent paths should be known in advance. The most frequent paths obtained from the GA-FFBNN are not adopted at global optimization. They provide only local optimization and it does not guarantee the execution time. Even though the best paths are obtained from PSO-FFBNN, its performance is not up to the expected level because of more execution time.

This research work proposes a new algorithm for co-location pattern mining with dynamic threshold technique. This technique for mining spatially co-located objects uses spatial data mining techniques. The candidate co-location patterns satisfy the dynamic threshold values obtained from the neighborhood membership functions. The performance of the proposed ABC-FFBNN is better than GA-FFBNN, PSO-FFBNN and existing static technique for mining co-location pattern. The simulation results shows that the proposed technique efficiently finds the co-located moving objects with less execution time.

To conclude the work, the following are some of the suggestions on which the future work can be done. These techniques can be effectively used to predict the vehicle location and co-located objects. Further, these algorithms can be extended to solve the problem of vehicle’s travel time prediction. From the perspective of the traveler, predicting travel time saves travel time and increase reliability by selection of travel routes pre-trip and route optimization end travel plans. These algorithms can be used to reduce crime by improving the quality of life. Driving patterns combining with weather conditions could be analyzed to improve routing systems. In future, the node membership function may be used to select candidate co-location by finding the number of co-location patterns.