Abstract

The network technology is growing continuously and rapidly, their applications are also improved in the similar manner. Among these utilities and applications the location aware applications are also in high demand. These applications are required to evaluate more accurate positioning for improving the quality of applications services. Therefore in this presented work the techniques of location estimation are investigated. There are two main location estimation techniques are observed in literature, namely predictive and statistical estimation techniques. Therefore, in this presented work the neural network based location approximation technique is evaluated. During implementation of neural network based predictive algorithm two key deficiencies are observed first the long training time and quality of training patterns. In order to improve both the issues in neural network the data pre-processing technique is proposed and implemented. The presented improvement helps in initializing neural network and frequent learning. Therefore, the neural network is effectively trained in less amount of time with higher accuracy. The implementation of the proposed technique and traditional neural network technique is provided using NS2 network simulation environment and the neural network is implemented using JAVA environment. The performance evaluation of both the technique is given in terms of memory consumption, time consumption and predictive accuracy. According to the obtained results the performance of modified neural network is
much higher than the traditional neural network. In addition of that the modified algorithm is able to train less amount of time as compared to the traditional neural network.

References

- N. Husted and S. Myers, "Mobile Location Tracking in Metro Areas: Malnets and Others", CCS, Chicago, pp. 4–8, October 2010.
- M. R. Gholami, S. Gezici, and E. G. Strom, "Improved Position Estimation Using Hybrid TW-TOA and TDOA in Cooperative Networks", Copyright (c) IEEE, 2012.

**Index Terms**

Computer Science       Wireless

**Keywords**

Wireless Sensor Network  Neural Network  NS2  TOA and AOA.