Chapter 10

Scope for further Research

*Given below is the scope for further Research*

- Genetic Algorithms is a promising Artificial Intelligence technique and is proving to give promising results in the area of prediction and forecasting. The technique can be used to check if the results are better than using the ANN technique.

- Classification algorithms can be applied, for analyzing air quality information and for forecasting air pollutant concentration levels in a dense urban area. Different types of algorithms for classification, Nearest Neighbor With Generalization, rule-based classifiers, as Conjunctive Rules, OneR, Decision Tables, decision trees (C4.5, ADTrees), along with Bayesian Classifiers (NaiveBayes), can be used. For instance, conventional statistical regression models like Auto-Regressive Integrated Moving Average model (ARIMA), (b) Linear Regression Analysis (LRA), and (c) Principal Components Analysis (PCA), can be used for forecasting and time-series analysis can be applied to predict air pollutant levels.

- The predictions in the study area of Mumbai and Navi Mumbai. This can be further extended to other cities of India in order to estimate the air pollutants.

- The study undertaken focuses on only three air pollutants namely SO$_2$, NOx and RSPM. The other three amongst the common air pollutants namely CO,
lead and ground level ozone can also be considered and estimated for further analysis and predictions.

• The 6 common air pollutants once measured can be further used to estimate the Ambient Air Quality Index for that particular city.

• The data of the Meteorological Department and the air pollutants can be integrated with each other so that the data can be directly fed into the model.