Abstract

The noise is a major environmental hazard at present. It causes hearing problem, tinnitus, high blood pressure, mental depression, heart palpitation etc. Noise is a usual problem everywhere and involves high health risk, but in today's fast life we ignore its harmful consequences and it results in high health risk having long term effect. From past few decades there has been a lot of research in this area but still it is a major challenge to minimize the effect due to noise and even more difficult is to predict. It becomes necessary that we design our habitats and surroundings in a way that it is noise absorbent and the noise effects on us stays minimum. Hence it becomes necessary that we assess the noise that would be generated from various sources, to aid an effective habitat design to combat this hazard. Modelling is an important tool to model and predict noise. Modelling and prediction using various mathematical methods have been done in the past, but ANN is a tool which is more effective in a complex linear and non-linear large scale problem. In this present work single layer Artificial Neural Network (ANN) modelling of noise due to road traffic in Agra-Firozabad highway has been done. 95 data set has been used by measuring the noise intensity across various points along the Agra-Firozabad Highway (most busy highway in Agra) at regular interval of distance. In the ANN model, series of experiments resulted into the performance evaluation, considering 20% data for testing and 20% data for cross validation at 1500 Epoch with 0.70 momentum. The Levenberg-Marquardt...
algorithm (LMA) was found as the best of BP algorithms with a minimum mean squared error for training (MSE) and cross validation.

References

Artificial Neural Network Modelling of Traffic Noise in Agra-Firozabad Highway


Index Terms

Computer Science  Artificial Intelligence

Keywords

Variable Traffic Flow  Traffic Speed  Back Propagation Algorithm  Noise Pollution