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Air Quality Prediction System using Machine Learning

K. Pazhanivel[1], U. Dinesh Kumar[2], K. Naveen[3], M. Niranjan[4]
Assistant Professor, Department of Computer Science Engineering[1]
Students, Department of Computer Science and Engineering [2,3,4]
Anjalai Ammal Mahalingam Engineering College, Thiruvarur, India

Abstract: *Environmental protection measures cannot now be effectively ensured due to the rapid industrialization of recent years. The main issue influencing the standard of living in the country now is the severity of environmental challenges. To comprehend the potential air pollution process beforehand, we must therefore develop a reasonably good air quality prediction model. To reduce air pollution, it is crucial to establish and implement the appropriate control measures, according to the model's forecast results. This study makes extensive use of data mining techniques like neural networks, mutual information theory, and intelligent optimization algorithms. We leverage the fundamental information from open monitoring locations' long-term predictions of air quality as our training and test sets. Secondly, the association between the various monitored pollutants is examined using the SOM neural network model for unsupervised grouping of pertinent pollutant data. A NSGA-II-optimized neural network is suggested as a solution to the issues of a vast amount of data and the lengthy computation time of the technique, paired with the findings of clustering. According to the experimental findings, contaminants can be predicted with an accuracy of more than 90%.*

Keywords: Air Quality

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