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A STUDY ON OUTDOOR AIR POLLUTION AND NOISE DATA COLLECTED USING SENSOR DEVICES IN DELHI, INDIA

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Abstract

An increase in the urban population leads to a rise in air pollution, such as particulate matter, carbon monoxide, nitrogen dioxide, and noise pollution. All pollutants have some adverse health effects on the human body. Statistical evaluations can be used for prediction purposes, which may help to reduce pollution in the future. Real-time air pollution and noise data were collected using commercially available customized eight sensing devices installed in residential zones, near industrial zone and traffic interception zones in Delhi for the years 2018 and 2019. Real-time monitoring of air pollutants and noise levels give a large amount of data, which is very helpful for statistical operations. The Pearson correlation and Spearman correlation methods are used to calculate the correlation coefficient among air pollutants, meteorological parameters, and noise. The results show a negative correlation between noise (Leq) and air pollutants. As compared to the air pollutant concentrations of 2018 and 2019, it is observed that the concentration is lower in 2019 and the similar trend was observed in temperature as well. The correlation coefficient values are mostly affected in the winter season due to the difference in the surrounding temperature. This work is focused on the data analysis of sensor data of air and noise pollution on the Internet of Things platform which would be a step towards mitigating environmental pollution.

Key words: air pollution, correlation, noise pollution, particulate matter, real-time, sensors

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