

A MACHINE LEARNING MODEL TO MONITOR AIR POLLUTION

Abstract

By

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October, 2021

Abstract

OBJECTIVES:

In present world, air pollution and the hazards due to excessive pollution is a global concern. Scientists are finding ways to assess the level of pollution present in the atmosphere of a certain place, thereby taking up precautionary means in order to control and reduce the pollution.

The objective of the project is to get the value of present AQI of a particular city based on the current concentration of various gases present in the atmosphere. Then through that value of AQI we can determine the level of pollution in the city.

CHALLENGES:

- Getting values for different concentration of gases is a problem as in many cases the dataset has null values.
- The data is not uniformly distributed among the different cities, some city has much more data than others.
- Several factors that affect Air Quality Index (AQI) fluctuate a lot and data cannot be collected in such a short time span in real life.

METHODOLOGY:

First the dataset is imported from Kaggle and the data is visualized. Null values are handled. Correlation between various factors are visualized to understand the factors on which AQI depends the most (Feature Engineering). The data is then splitted into training and test sets.

Various machine learning models are deployed and the models are fed with the training dataset and tested with the validation dataset. Based on the error and accuracy of the different models the best model is selected.

APPLICATION AREAS:

- A GUI application can be made from the model which helps a user to know about the pollution level of a city and be aware of the health hazards possible there.
- The model can be used by Pollution Control Boards at grassroot level to segregate the cities which are prone to high pollution levels and act accordingly to reduce the pollution.

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DATE: 05-10-2021