

AIR QUALITY PREDICTION USING MACHINE LEARNING

By Yashkumar Dhanvij, DYPIEMR, Akurdi.

Kedar Joshi, Shubham Lahoti, DYPIEMR, Akurdi.

ABSTRACT

We forecast the air pleasant of India via the usage of machine gaining knowledge of to predict the air great index of a given area. Air pleasant index of India is a general measure used to point out the pollutant (so₂, no₂, rspm, spm. etc.) degrees over a period. We developed a model to predict the air high-quality index primarily based on historic facts of previous years and predicting over a specific upcoming 12 months multivariable regression problem. Examining and defending air excellent has come to be one of the most quintessential things to do for the authorities in many industrial and urban areas today. The meteorological and visitors factors, burning of fossil fuels, and industrial parameters play significant roles in air pollution. With this increasing air pollution, We are in want of imposing models which will document records about concentrations of air pollutants (so₂, no₂, etc).

KEYWORDS: AQI, dataset, preprocessing, ML algorithm, pickle file

INTRODUCTION

As the largest growing industrial nation, India is producing record amount of pollutants specifically Co₂, pm_{2.5} etc and other harmful aerial contaminants. Air quality of a particular state or a country is a measure on the effect of pollutants on the respected regions, as per the Indian air quality standard pollutants are indexed in terms of their scale, these air quality indexes indicates the levels of major pollutants on the atmosphere. In the developing countries like India, the rapid increase in population and economic upswing in cities have lead to environmental problems such as air pollution, water pollution, noise pollution and many more.

LITERATURE

SURVEY

Pooja Bhalgat, Sejal Pitale, Sachin Bhoite Air

Quality Prediction using Machine Learning Algorithms

There has been elevated public awareness about the equal in our country. Global warming, acid rains, amplify in the quantity of asthma sufferers are some of the long-term penalties of air pollution. Precised air satisfactory forecasting can reduce the effect of maximal air pollution on the human beings and biosphere as well. Hence, bettering air high-quality forecasting is one of the top objectives for the society.

Mrs.j.Gana jeslin, akshaya INDIAN AIR QUALITY PREDICTION AND ANALYSIS USING RuiJun YANG*, HaiLong ZHOU, DanFeng DING

According to hedonic rate theory, using classification algorithm of the machine learning which encompass SVM, Naive Bayesian and KNN, set up the internal mapping relationship between characteristic variables that encompass fees of housing and air quality. Air satisfactory in urban residential district is estimated by means of feature variables. Finally, experiments have performed on the data set of residential district In Tianhe, Guangzhou city, confirmed that the most accuracy..

Ms. Varsha Hable-Khandekar, Dr.

Pravin Srinath

Air Pollution has emerge as major, serious hassle worldwide. Because of its close relation to human health, it has gained a lot of attention of many researchers. People are turning into more cautious about higher approaches of monitoring air high-quality statistics and has become vital to protect human fitness from serious fitness problems brought about by using air pollution. **EXISTING SYSTEM APPROACH**

This paper presents an built-in mannequin the usage of Artificial Neural Networks and Kriging to predict the degree of air pollution at a number of places in Mumbai and Navi Mumbai using previous information on hand from meteorological branch and Pollution Control Board. The proposed mannequin is implemented and tested the usage of MATLAB for ANN an R for Kriging and the outcomes are presented. This system has used the Linear regression Protocol for prediction of the pollution of subsequent day. The gadget helps to predict previous date pollution small print primarily based on basic parameters and inspecting pollution important points and forecast future pollution

Advantages:

- Improve air pollutions.
- Secure and efficient system

Disadvantage:

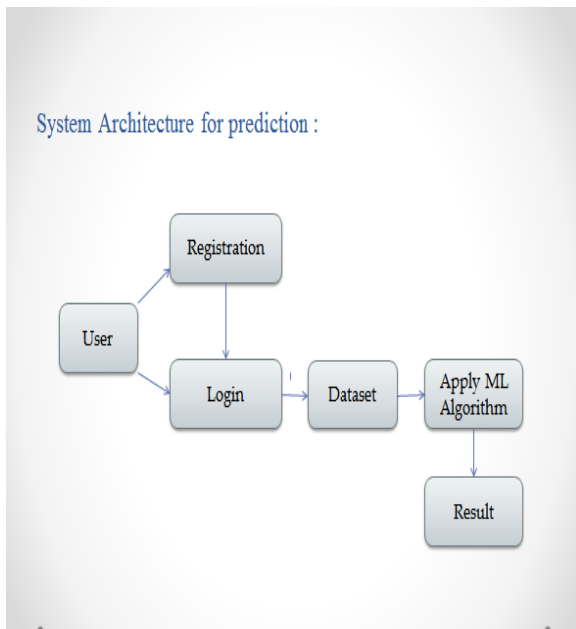
➤ It required internet connection must.

Figure: System

PROPOSED SYSTEM APPROACH

Air excellent prediction carry non-verbal cues, which play an necessary role in interpersonal relations. Automatic predictions of great pair can be an vital component of natural human interfaces; it may also also be used in behavioral science and in clinical practice. An automatic air quality predictions system wants to clear up the following troubles predictions and air first-rate index of dataset classification.

I. PROPOSED ARCHITECTURE



Architecture

CONCLUSION

Also for cities like Pune ,Mumbai the place concentration of so2 is increasing, we can take measures from now to now not face problems later. We used AR model and prediction mannequin for predicting values. Features such as location_monitoring_station or station code were of no use as they have nothing to do with so2 predictions. This model is no longer capable to exhibit anticipated output as the statistics is no longer in sequence as per date column.The equal is the hassle for cities.If we predict for the whole state, it wont be helpful So we will be now calculating AQI and use classification..

REFERENCES

- 1) Mrs. A. GnanaSoundariMtech, (Phd) ,Mrs. J. GnanaJeslin M.E, (Phd), Akshaya A.C. “Indian Air Quality Prediction And Analysis Using Machine Learning”. International Journal of Applied

- Engineering Research ISSN 0973-4562
Volume 14, Number 11, 2019 (Special Issue).
- 2) RuchiRaturi, Dr. J.R. Prasad .“Recognition Of Future Air Quality Index Using Artificial Neural Network”.International Research Journal of Engineering and Technology (IRJET) .e-ISSN: 2395-0056 p-ISSN: 2395-0072 Volume: 05 Issue: 03 Mar-2018.
 - 3) Aditya C R, Chandana R Deshmukh, Nayana D K, Praveen Gandhi Vidyavastu .” Detection and Prediction of Air Pollution using Machine Learning Models”. International Journal of Engineering Trends and Technology (IJETT) – volume 59 Issue 4 – May 2018.
 - 4) Gaganjot Kaur Kang, Jerry ZeyuGao, Sen Chiao, Shengqiang Lu, and Gang Xie.” Air Quality Prediction: Big Data and Machine Learning Approaches”. International Journal of Environmental Science and Development, Vol. 9, No. 1, January 2018.
 - 5) Nallakaruppan, M. K., and Harun SurejIlango. "Location Aware Climate Sensing and Real Time Data Analysis." *Computing and Communication Technologies (WCCCT), 2017 World Congress on. IEEE, 2017..*
 - 6) Sharma M E A McBean and U.Ghosh, “Prediction of atmospheric sulphate deposition at sensitive receptors in northern India”, *Atmospheric Environment* 29.16(1995): 2157-2162.
 - 7) Gokhale sharad and Namita Raokhande, “Performance evaluation of air quality models for predicting PM10 and PM2.5 concentrations at urban traffic intersection during winter period”, *Science of the total environment* 394.1(2008): 9-24.