Project : Air Quality Assessment TN

Phase 2 : Innovation

Innovation:

In this phase we are going to put our design into Innovation and to incorporate machine learning algorithm to solve the problem.

Machine Learning Algorithms:

Let us discuss some of the machine learning algorithms that is more appropriate and used to build efficient predictive model for air quality assessment or analysis.

1.Linear Regression Model:

Linear Regression is a data analysis technique that predicts the value of unknown data by using another related and known data value . It is the relationship between dependent variable and the independent variable is a linear one.

=>Linear Regression is used to relate our data attributes such as SO2 , NO2 and RSPM whether they are linearly related or not.

=>It is used find the linear equation that best describes the correlation of the explanatory variables(SO2,NO2) with the dependent variable(RSPM).

2.Random Forest Regression:

Random forest is a supervised ML , Ensemble technique that combines the prediction from other models that by increasing the accuracy of our predictions.

=>Our air quality analysis dataset is divided into many different subsets and by using the subset different decision tress were created.The prediction is made by aggregating the results of many decision trees and then outputs the most optimal solution.

=>By using the Random forest classifier in our project we could improve our accuracy and can produce effective solution for our problem.

3.AdaBoost Algorithm:

Boosting refers to the algorithm which converts the weak learner into strong learner and do the prediction.

=>Adaboost Techinque gives the most accurate result as it changes it weights to get better prediction of our problem.

=>The more accuarte classifier will have more contibution to the final answer.

=>Adaboost has a stronger capability to explai the complex features contained In air quality data.

4.Artificial Neural Network(ANN):

A neural network is method in AI that teaches computer to process data in a way that is inspired by the human brain and it is also known as deep learning.

=>ANN has multilayered perceptron and the first input layer contains the input variable. The hidden layer is used optimize the ANN performace.The output layer cosist of target variable.Here SO2 ad NO2 are used as output variables.

=>ANN produces best prediction for air quality analysis compared to other models.