



# Air Quality Analysis in Tamilnadu

## PHASE 3 PROJECT

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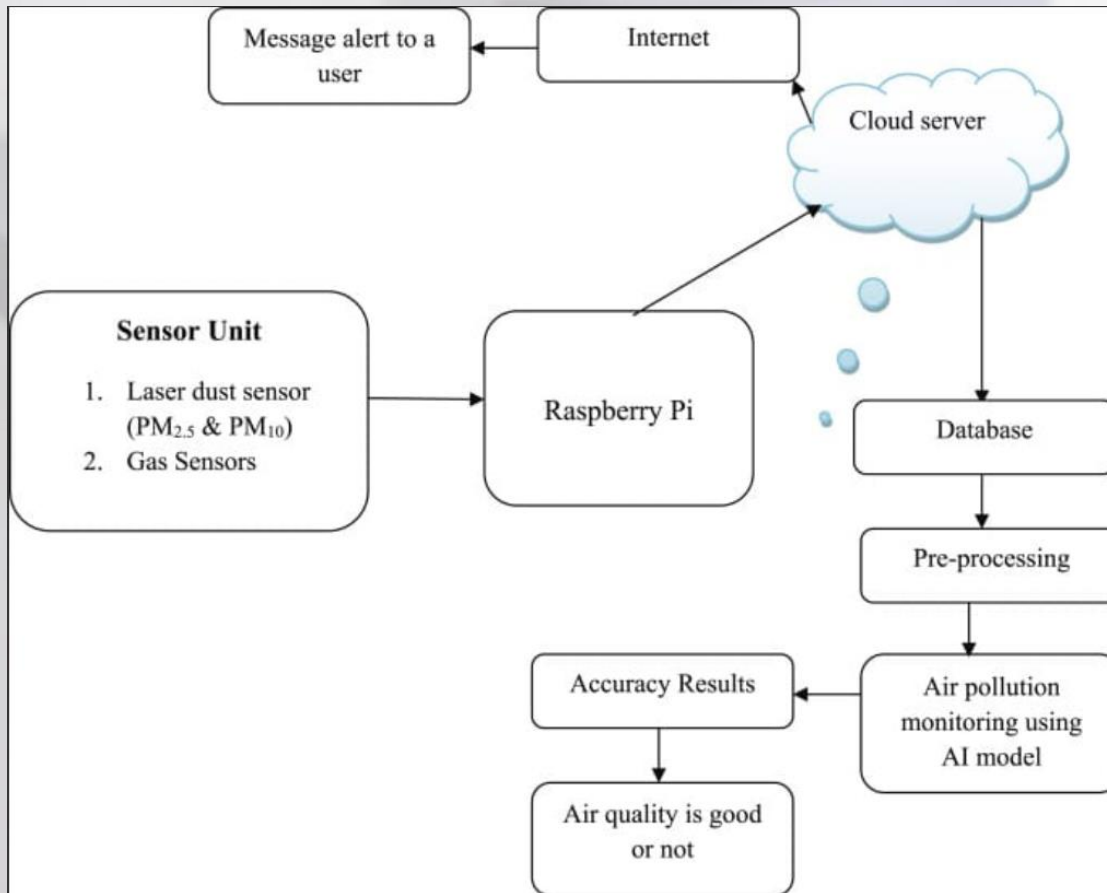
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# Introduction

- ❖ The term air quality refers to the degree to which the air in a particular place is free from pollutants.
- ❖ Air pollutants are substances present in the atmosphere at concentrations above their normal background levels which can have a measurable effect on humans, animals and vegetation.

# DATA PREPROCESSING





# DATA MANIPULATION

A data manipulation language is a computer programming language used for adding, deleting, and modifying data in a database.

A DML is often a sublanguage of a broader database language such as SQL, with the DML comprising some of the operators in the language.

## Techniques for Data Manipulation

1



Gather data from several sources

2



Organize and purify data.

3



Combine data and eliminate redundancies.

4



Utilize data analysis to discover important information.

# PROGRAM

```
import pandas as pd
url=https://tn.data.gov.in/resource/location-wise-daily-ambient-air-quality-tamil-nadu-year-2014
data = pd.read_csv(url)
# Drop unnecessary columns
data = data.drop(['Date', 'Time'], axis=1)
# Convert categorical variables into numerical variables
data['City'] = data['City'].astype('category').cat.codes
data['State'] = data['State'].astype('category').cat.codes
# Handle missing values
data = data.dropna()
# Calculate the average AQI for each city and state
average_aqi = data.groupby(['City', 'State']).mean()
# Find the city and state with the highest average AQI
highest_aqi_city = average_aqi['AQI'].idxmax()[0]
highest_aqi_state = average_aqi['AQI'].idxmax()[1]
print(f"The city with the highest average air quality index (AQI) is {highest_aqi_city}, and the state is {highest_aqi_state}.")
```

# SAMPLE OUTPUT :

	PM2.5-AVG	PM10-AVG	NO2-AVG	NH3-AVG	SO2-AG	CO	OZONE-AVG	air_quality_index
0	190	131	107	4	42	0	63	190
1	188	131	110	4	40	0	62	188
2	280	174	155	2	37	0	52	280
3	302	181	144	2	39	0	78	302
4	285	160	121	3	19	0	71	285



**Thank You**