

AIR QUALITY MONITORING_USING_IOT

(PHASE 1: NAAN MUDHALAVAN)

1. Select Monitoring Locations:

Determine where to measure air quality.

This may include urban areas, industrial zones, or specific sites near pollution sources.

2. Choose Monitoring Parameters:

Decide which air pollutants to measure.

Common parameters include particulate matter (PM_{2.5} and PM₁₀), nitrogen dioxide (NO₂), sulfur dioxide (SO₂), carbon monoxide (CO), ozone (O₃), and volatile organic compounds (VOCs).

3. Select Monitoring Instruments:

Acquire the appropriate monitoring instruments for chosen parameters. This could include air

quality sensors, samplers, and analyzers. Ensure they are calibrated regularly.

4. Data Collection:

Install monitoring equipment at selected locations. Collect data continuously or at regular intervals. Ensure data integrity and quality control.

5. Data Transmission:

If monitoring is remote, set up a system to transmit data in real-time to a central database. This can be done via the internet or other communication methods.

6. Data Storage and Management:

Store collected data securely. Use databases or software to manage and analyze the data.

7. Data Analysis:

Analyze air quality data to identify trends, patterns, and potential issues. Compare results to air quality standards and regulations.

8. Reporting:

Generate regular reports summarizing air quality measurements and any deviations from standards. Share this information with relevant authorities and the public.

9. Maintenance:

Regularly maintain and calibrate monitoring equipment to ensure accurate measurements. Replace sensors or parts as needed.

10. Interpretation:

Interpret the data to understand the impact on public health and the environment. Identify areas where air quality improvements are needed.

11. Action:

Based on data analysis, take corrective actions to mitigate air quality issues. This may involve implementing

pollution control measures imposing regulations, or advising the public on reducing exposure.

12.Public Awareness:

Inform the public about air quality conditions through various channels, such as websites, apps, and public announcements.

13.Continuous Monitoring and Improvement:

Continue to monitor air quality over time and adjust monitoring strategies as needed. Strive for continuous improvement in air quality management.

Block diagram for Air Quality Monitoring :

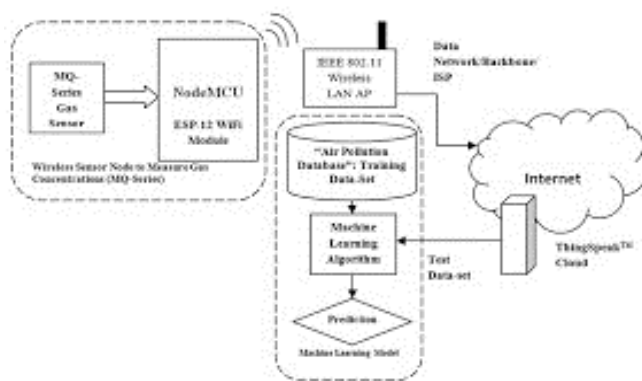
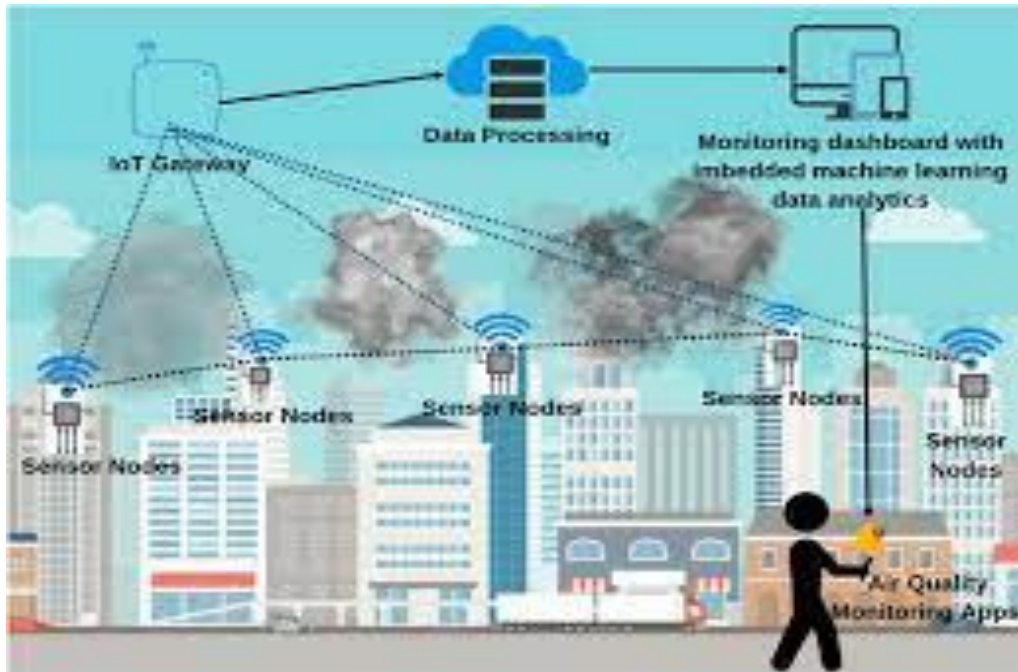


Diagram :



Program :

```
python
```

```
import requests
```

```
# Replace these with your actual API endpoint and key
```

```
API_ENDPOINT = 'https://example.com/api/air-quality'
```

```
API_KEY = 'your_api_key_here'
```

```
def get_air_quality(location):  
    headers = {'Authorization': f'Bearer {API_KEY}'}  
    params = {'location': location}  
  
    try:  
        response = requests.get(API_ENDPOINT,  
headers=headers, params=params)  
        if response.status_code == 200:  
            data = response.json()  
            air_quality_index = data.get('air_quality_index')  
            pollutants = data.get('pollutants')  
            print(f'Air Quality Index for {location}:  
{air_quality_index}')  
            print('Pollutants:')  
            for pollutant, value in pollutants.items():  
                print(f'{pollutant}: {value}')  
        else:
```

```
        print(f'Error: Unable to fetch data. Status code  
{response.status_code}')
```

```
    except Exception as e:
```

```
        print(f'An error occurred: {e}')
```

```
if __name__ == '__main__':
```

```
    location = input('Enter a location for air quality  
monitoring: ')
```

```
    get_air_quality(location)
```