

PROJECT :Air Quality Monitoring:

Phase-1:

Project Objectives:

Air quality monitoring refers to continuous measurement of specific air pollutants also known as “criteria air pollutants”. Obtained air pollution data together with natural background/trace gas monitoring and stationary source emission monitoring helps to define what kind of air pollution people are exposed to. Air pollution monitoring data is essential for air pollution assessment, countermeasures and environment pollution policies by local and national authorities, private and public companies, and national organizations.

Tamil Nadu Pollution Control Board is operating eight ambient air quality monitoring stations in Chennai, Three ambient air quality monitoring stations in Thoothukudi, Three ambient air quality monitoring stations in Coimbatore ,One ambient air quality monitoring stations in Salem, Three ambient air quality monitoring stations in Madurai, Five ambient air quality monitoring stations in Trichy, Three ambient air quality monitoring stations in Cuddalore and Two ambient air quality monitoring stations in Mettur under National Air Quality Monitoring Programme (NAMP) funded by Central Pollution Control Board.

IOT Sensors Design:

This project proposes an idea to install monitoring applications on smartphones. It is innovative because it provides easy access to the public to monitor real time air quality in their area. It uses low cost and readily available devices such as a dust sensor, carbon monoxide gas sensor, carbon dioxide gas sensor, and nitrogen dioxide gas sensor

Carbon Dioxide Sensor: CO₂ sensor is an instrument for the measurement of carbon dioxide gas. The most common principles for CO₂ sensors are infrared gas sensors (NDIR) and chemical gas sensors. Measuring carbon dioxide is important in monitoring indoor air quality,[1] the function of the lungs in the form of a capnograph device, and many industrial processes.

1.Awair: Offers IoT-enabled air quality monitors that measure parameters such as temperature, humidity, CO₂, VOCs, PM_{2.5}, and more. The data is accessible through a mobile app or web platform.

2.AirVisual: Provides IoT-based air quality monitors that measure outdoor and indoor air quality. The data is visualized through a mobile app and offers real-time updates and historical trends.

3.Foobot: Monitors indoor air quality parameters, including VOCs, CO₂, PM_{2.5}, temperature, and humidity. It uses IoT technology to provide data and analysis via a smartphone app.

4.Airthings: Offers IoT-based indoor air quality monitors that measure radon, CO₂, humidity, temperature, airborne particles, and more. The data can be accessed through a mobile app or web dashboard.

Integration Approach:

Air quality monitoring is an important tool for improving air quality, protecting public health, and ensuring compliance with regulations. It can also be used to identify pollution sources, monitor climate change, or support research and development. In conclusion, an IoT-based air pollution monitoring system is a revolutionary solution that can provide accurate and real-time data about the air quality in a particular area. It can help identify the sources of pollution and take necessary measures to reduce it, protecting the environment and human health.