Gnanamani College Of Technology

**Topic**

**Environmental monitoring**

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**Environmental monitoring problem with solutions using IOT and Arduino**

**Problem:**

**Inadequate Air Quality Monitoring in a Workspace**

**Description:**

**In a workspace or indoor environment, it’s essential to monitor air quality to ensure the health and well-being of occupants. However, traditional monitoring systems can be costly and may not provide real-time data.**

**Solution:**

**Create an IOT-based Air Quality Monitoring System using Arduino**

**Components Needed:**

**Arduino board (e.g., Arduino Uno**

**Air quality sensors (e.g., MQ series sensors for detecting gases like CO2, CO, or VOCs)**

**Temperature and humidity sensor**

**Wi-Fi module (e.g., ESP8266)**

**Display (e.g., LCD screen)**

**Smartphone or computer for data visualization**

**Steps to Implement:**

**Sensor Integration:**

**Connect air quality sensors (e.g., MQ series) and the temperature and humidity sensor to the Arduino.**

**Program the Arduino to read data from these sensors.**

**Data Collection:**

**Collect air quality data, temperature, and humidity data at regular intervals.**

**Store this data locally on the Arduino or transmit it to a cloud-based platform.**

**Connect to Wi-Fi:**

**Use a Wi-Fi module (e.g., ESP8266) to enable internet connectivity.**

**Send the collected data to a cloud-based server for remote access.**

**Data Visualization:**

**Develop a web or mobile app to visualize the air quality data in real-time.**

**Display the data on a user-friendly interface, including values for various pollutants and comfort parameters.**

**Alerts and Notifications:**

**Implement threshold values for air quality parameters.**

**Send alerts or notifications to users when air quality falls below acceptable levels.**

**Benefits:**

**Real-time monitoring: Get up-to-the-minute air quality information for better decision-making.**

**Cost-effective: Arduino-based solutions are affordable compared to commercial systems.**

**Remote access: Access data remotely using a smartphone or computer.**

**Health and safety: Ensure a safe and comfortable environment for occupants.**

**This IoT-based air quality monitoring system using Arduino helps address the issue of inadequate air quality monitoring in indoor spaces. It provides real-time data, alerts, and remote access for improved environmental health and safety**