Title:

4115-Environmental Monitoring:

Proj_227836_Team_2:

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AIM OF THE PROJECT:

1.Measure Key Air Quality Parameters: Utilize a network of sensors to measure crucial air quality parameters, including pollutants such as CO_2, CO, NO_2, humidity, and temperature.

2.Ensure Data Accuracy: Implement calibration and maintenance procedures to ensure accurate and reliable data collection from the sensors.

3.Real-Time Data Analysis: Process the collected data using a microcontroller to provide real-time insights into air quality conditions.

4.Alerting Mechanism: Design an alerting system to notify users when air quality falls below predefined thresholds, enabling timely responses to poor air quality events.

5.User-Friendly Interface: Create an intuitive user interface that displays current air quality data and historical trends through visualizations like graphs and charts.

6.Integration with IoT Platforms: Explore the possibility of integrating the project with Internet of Things (IoT) platforms for remote monitoring .

SCOPE OF THE PROJECT:

1.Air Quality Monitoring: The project will focus on monitoring key air quality parameters, including but not limited to CO_2, CO, NO_2, humidity, and temperature.

2.Data Collection and Analysis: It will involve the collection of real-time data from sensors and the subsequent analysis of this data to provide insights into air quality conditions.

3.User Interface: A user-friendly interface will be designed to display current air quality data and historical trends through visualizations like graphs and charts.

4.Integration with IoT: The project may explore the integration of IoT technology for remote monitoring and control, enabling users to access air quality data from anywhere.

5.Environmental Awareness: The project aims to raise awareness about air quality issues among individuals, communities, and organizations, thereby contributing to improved environmental consciousness.

6.Documentation: Comprehensive documentation of the project, including hardware setup, software code, and user instructions, will be within the scope.

COMPONENTS USED:

1. ESP8266

2. MQ135 SENSOR

3. DHT11 SENSOR

4. LCD DISPLAY

5. I2C CONVERTER

6. CONNECTION CABLE

OTHER ITEMS TO MONITOR:

Temperature monitoting:

1.Measurement: Temperature is typically measured in degrees Celsius (°C) or Fahrenheit (°F) using temperature sensors (e.g., thermistors, thermocouples, or digital temperature sensors).

2.Importance: Monitoring temperature is important for understanding the thermal comfort, energy efficiency, and climate control of indoor and outdoor environments.

HUMIDITY MONITORING:

1.Measurement: Humidity is measured in percentage (%) using humidity sensors (e.g., capacitive humidity sensors).

2.Importance: Monitoring humidity levels is crucial for assessing indoor air quality, preventing mold growth, and ensuring the comfort and health of occupants.

GASES MONITORING(Gas Concentrations):

1.Measurement: Gas concentrations are typically measured in parts per million (ppm) or parts per billion (ppb) using gas sensors specific to the target gases (e.g., CO_2, CO, NO_2 sensors).

2.Importance: Monitoring gas concentrations is essential for assessing air quality, identifying pollutants, and ensuring health and safety. Elevated gas levels can indicate pollution or potential health hazards.

CONCLUSION:

All these monitoring technique plays a crucial role in ensuring environmental quality and safety. It involves measuring and analyzing the concentration of gases and particles in the air using various monitoring devices. This information is vital for maintaining healthy indoor environments, assessing outdoor air quality, and ensuring workplace safety. Accurate monitoring helps in making informed decisions to protect both human health and the environment.

THANK YOU!