ENVIRONMENT MONITERING

INNOVATION

INTRODUCTION

In our rapidly advancing world, environmental concerns have become paramount. The degradation of our environment due to factors like pollution, climate change, and deforestation necessitates innovative solutions for monitoring and managing our surroundings. The Internet of Things (IoT) emerges as a powerful tool in this context, revolutionizing how we collect and interpret environmental data.

COMPONENTS OF IOT-BASED ENVIRONMENTAL MONITORING:

Sensors and Devices: IoT devices are equipped with sensors like temperature sensors, gas sensors, and moisture sensors. These sensors collect data from the environment and convert it into digital information.

Connectivity: IoT devices use different communication protocols (Wi-Fi, Bluetooth, LoRa, etc.) to transmit the collected data to centralized servers or cloud platforms. This data can be accessed and analyzed from anywhere globally.

Data Processing and Analysis: The data collected from sensors is processed and analyzed using advanced algorithms and machine learning techniques. This analysis provides valuable insights into environmental patterns and trends.

Visualization: The processed data is presented in a comprehensible format through dashboards and visualizations. This enables stakeholders to understand complex environmental data easily.

Alerts and Automation: IoT systems can be programmed to send alerts in real-time when certain environmental parameters cross predefined thresholds. Automation features allow for immediate responses to changing environmental conditions.

We are using the ESP32 and audrino UNO for making the iot based project on environmental monitering

SENSORS USED IN ENVIRONMENT MONITERING

Various types of sensors are used in environmental monitoring

1. Temperature Sensors
2. Humidity Sensors
3. Air Quality Sensors
4. Water Quality Sensors
5. Noise Sensors
6. Light Sensors
7. Soil Moisture Sensors
8. Radiation Sensors
9. Gas Sensors
10. Biological Sensors
11. Motion Sensors

These are all the sensors i am going to use in environmental monitering

CONNECTIVITY

1. Sigfox
2. Zigbee
3. NB-IoT (Narrowband Internet of Things)
4. Wi-Fi (Wireless Fidelity)

CLOUD

Beeceptor

PROTOCOL

* 1. MQTT
  2. HTTP
  3. AMQP

PUBLIC PLATFORM

AirVisual:

Focus: Air Quality Monitoring

Description: AirVisual provides real-time and forecast air quality data for cities worldwide. The platform offers a mobile app and a website where users can access air quality indices, pollution levels, and health recommendations.

These are the innovative ideas I am going to use in environmental monitering use (IOT)



ESP 32 is a microcontroller it is used in environmental monitering