Phase 3 project:

Project Title:

Noice pollution monitoring

Project ID: proj_223738_Team_6

College code:-

6208

College:

Gnanamani College of Technology

Branch:

B.Tech/Information Techology

Year: IIIrd year

Program for noice pollution monitoring:-

- In this project we are using python programming language

```
import paho.mqtt.client as mqtt
import sounddevice as sd
import numpy as np

# Define MQTT broker settings
mqtt_broker = "mqtt.example.com"  # Replace with your MQTT broker address
mqtt_port = 1883
mqtt_topic = "noise_level"
```

```
# Function to calculate noise level from audio data
def calculate_noise_level(audio_data):
    # You will need to implement your noise level calculation logic here
    noise_level = np.mean(audio_data)
# Example: Average amplitude as noise level
    return noise_level


# Callback for audio recording
def audio_callback(indata, frames, time, status):
    if status:
        print(f"Error: {status}")
    noise_level = calculate_noise_level(indata)
    client.publish(mqtt_topic, str(noise_level))


# Initialize MQTT client
client = mqtt.Client("NoiseSensor")


# Connect to MQTT broker
client.connect(mqtt_broker, mqtt_port)


# Start audio recording
with sd.InputStream(callback=audio_callback):
    print("Noise sensor is running...")
    client.loop_forever()
```

Program overview:-

Data Transmission:

Replace the print statement with code to send data to your noise pollution information platform. You might need to use HTTP requests or a specific API for this.

Deployment:

Securely deploy the IoT sensors in public areas.

Ensure they have a reliable power source and internet connectivity (Wi-Fi or cellular).

Platform Integration:

On your noise pollution information platform, create a receiver endpoint to accept incoming noise level data.

Configure IoT Sensors:

Update the Python script on each IoT sensor to send data to the correct platform endpoint.

Monitoring and Maintenance:

Implement error handling and logging in your script for monitoring and maintenance

REQUIREMENTS:

- **Microcontroller or Single Board Computer**(like Arduino, Raspberry Pi)
- **Arduino cable**
- **Microphone Senso**(KY-038 or SLM)
- **Analog-to-Digital Converter**
- **Power Supply**
- **Connectivity Module**

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