Gnanamani

College of Technology

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AUTONOMOUS

DEPARTMENT OF BIO MEDICAL ENGINEERING

PROJECT SUBMISSION PHASE -3

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INTRODUCTION: noise pollution monitoring system, start by loading the dataset, handling missing values, and perhaps normalizing or scaling the data if needed. Consider filtering out irrelevant features and ensuring a proper time alignment if your dataset involves timestamps.

SENSORS

MICROPHONES:

Convert sound waves into electrical signals. Electret condenser microphones are commonly used for this purpose.

SOUND LEVEL METERS(SLM'S):

Dedicated devices designed for measuring sound levels. They often include a microphone and the necessary electronics to provide accurate decibel readings.

MEMS(Micro electro mechanical system):

These are miniature microphones that utilize MEMS technology. They are compact, consume less power, and can be suitable for IoT applications.

VIBRATION SENSORS:

These sensors can detect vibrations caused by sound waves. They offer an alternative approach to traditional microphones and can be useful in certain scenarios.

IoT INVOLVEMENTS:

Connectivity Module: Integrate a communication module (e.g., Wi-Fi, Bluetooth, or GSM) to transmit data from the sensors to a central server or cloud platform.

Cloud Platform: Utilize cloud services (e.g., AWS, Azure, or Google Cloud) for data storage, analysis, and visualization. This allows for remote monitoring and management.

User Interface:Create a user-friendly interface, such as a web or mobile application, for users to access and interpret noise pollution data.

AI & MACHINE LEARNING:

Data preprocessing: Use ML algorithms to preprocess raw sensor data, handling outliers, and ensuring data quality.

Real Time Monitoring:Utilize AI for real-time monitoring, providing instant insights into the noise environment and enabling quick response to emerging situations.

Integration with Other Sources: Implement machine learning to analyze patterns in user behavior,

improving the system's responsiveness to changing conditions and user needs.

Integrating AI and machine learning enhances the system's intelligence, allowing for more nuanced and adaptive noise pollution monitoring.

PYTHON PROGRAM:

```
import time
from noise_sensor_library import NoiseSensor  # Replace with actual library

def monitor_noise():
    # Initialize the noise sensor
    sensor = NoiseSensor()

    while True:
        # Read noise level from the sensor
        noise_level = sensor.read_noise_level()
```

```
        # Send noise level data to the IoT platform
(replace with actual implementation)
        send_to_iot_platform(noise_level)

        # Log the data or take further actions as needed

        # Wait for a specific interval (e.g., 1 minute)
        time.sleep(60)

def send_to_iot_platform(noise_level):
    # Replace the following line with code to send data
to your IoT platform
    print(f"Sending noise level data to IoT platform:
{noise_level}")

if __name__ == "__main__":
    monitor_noise()
```