COLLEGE NAME: PRIYADARSHINI ENGINEERING COLLEGE

COLLEGE CODE: 5119

COURSE NAME: INTERNET OF THINGS

GROUP NUMBER:2

PROJECT TITLE: NOISE POLLUTION MONITORING

PROJECT SUBMITTED TO:SKILL UP ONLINE

YEAR: 3

DEPARTMENT:ECE

SEMESTER:05

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PROJECT DESCRIPTION :

The primary goal of this project is to measure, analyze, and mitigate noise pollution in a defined area, ensuring a healthier and quieter environment for residents.

PROJECT COMPONENTS:

1.DATA COLLECTION:

°Install a network of noise sensors at strategic locations across the target area.

°These sensors will continuously record noise levels,

2.DATA ANALYSIS:

°Process and analyze the collected data to identify noise pollution trends.

°Establish noise level thresholds and identify areas with excessive noise.

3.COMMUNITY ENGAGEMENT:

°Collaborate with local residents to gather noise-related complaints and observations.

°Encourage citizen participation through a dedicated platform or app.

4.NOISE MAPPING:

°Develop noise maps to visualize noise pollution distribution in the area.

°Identify hotspots and areas in need of noise reduction measures.

5.REGULATARY COMPLIANCE:

°Ensure that noise levels comply with local regulations and standards.

°Work with authorities to address violations and enforce noise control measures.

6.MITIGATION STRATEGIES :

°Implement noise reduction initiatives such as sound barriers, green buffers, or traffic management in high-noise areas.

7.PUBLIC AWARENESS :

°Educate the community about the effects of noise pollution and the importance of sound management.

°Promote responsible noise behavior through awareness campaigns.

8.REPORT AND RECOMMENDATION'S :

°Produce regular reports on noise pollution status and trends.

°Provide recommendations for noise control policies and community action.

9.LONG-TERM SUSTAINABILITY:

°Develop a sustainable plan for ongoing noise monitoring and mitigation efforts.

°Seek funding sources or partnerships for continued maintenance and improvement.

PROGRAM:

To create a noise pollution monitoring device using Python, you'll need a compatible noise sensor or microphone. One commonly used sensor is the Raspberry Pi along with a USB microphone. Here's a basic Python program that captures noise data from a microphone and displays it in real-time:

```python
Import pyaudio
Import numpy as np
Import matplotlib.pyplot as plt
From scipy.io import wavfile
From scipy.fftpack import fft
Import time

# Constants
FORMAT = pyaudio.paInt16
CHANNELS = 1
RATE = 44100  # Sample rate (samples per second)
```

```
CHUNK = 1024  # Number of data points to read at a time


# Initialize audio input
P = pyaudio.PyAudio()
Stream = p.open(format=FORMAT,
                Channels=CHANNELS,
                Rate=RATE,
                Input=True,
                Frames_per_buffer=CHUNK)


# Create a figure for plotting
```

“less noise,more peace – Earth’s release”