

NOISE POLLUTION MONITORING SYSTEM

PHASE 1: PROBLEM DEFINITION AND DESIGN THINKING

I.PROBLEM DEFINITION

Noise pollution are a prominent subject that in our country continues to be highlighted every year. In industrial areas, the permissible limit is 75 dB for daytime and 70 dB at night. In commercial areas, it is 65 dB and 55 dB, while in residential areas it is 55 dB and 45 dB during daytime and night respectively. Sound amplitude must be monitored for a better and safer life for everybody.

We present here a method for sound pollution monitoring system that enables us to monitor the sound contamination by IOT in a region.

II.DESIGN THINKING

1. PROJECT OBJECTIVES:

- **Real-time noise pollution monitoring:** A Real-Time Noise Monitoring System Based On Internet Of Things For Enhanced Acoustic Comfort And Occupational Health
- **Public awareness: Silence is golden; maintain the silence.** The more sound you hear, the faster you will lose your ears. Be sound, and do not pollute the environment. Stop noise pollution.
- **Noise regulation compliance:** The noise levels in any area shall not exceed the ambient air quality standards in respect of noise as specified in the Schedule.
- **Improved quality of life:** This allows authorities can keep a watch on the noise pollution near schools, hospitals and no honking areas, and if system detects air quality and noise issues it alerts authorities so they can take measures to control the issue.

2. IOT SENSOR DESIGN:

I. Choose appropriate IOT sensors:

- ❖ Arduino Uno - It Is A Microcontroller.
- ❖ It Is Based On Atmega328p.
- ❖ ESP8266 Wifi Module – ESP8266 Is An Low-Cost Wifi Module That Enables An Existing Microcontroller Project To Be Supplied With Wi-Fi Capability.
- ❖ Sound Sensor – Microphone Sound. Sensor That Measures High Decibel Sounds.
- ❖ LCD Display

- ##### II. Determine deployment strategy:
- Plan the installation and placement of IOT sensors in the identified noise to ensure optimal data collection and coverage. Consider factors such as proximity to noise sources, easy of access for maintenance, and minimizing tampering.

3. NOISE POLLUTION INFORMATION PLATFORM:

- **Design user interface:** Develop a user-friendly mobile app interface or website that displays real-time water consumption data in an easily understandable format.
- **Interactive features:** Include interactive features such as charts, graphs, and notifications to engage users and raise awareness about water conservation.
- **Data privacy and security:** Implement robust security measures to protect the collected data and ensure user privacy.

4. INTEGRATION APPROACH:

- **Communication protocols:** Determine the communication protocols to be used for transmitting data from the IOT sensors to the data-sharing platform. Consider factors such as reliability, data transfer rate, and compatibility with existing infrastructure.
- **Data-sharing platform:** Develop a centralized data-sharing platform where the collected noise data can be stored and accessed by the mobile app or website.
- **Integration with IOT technology and Python:** Use IOT technology and Python programming to integrate the IOT sensors, data-sharing platform, and user interface. This will involve developing APIs, setting up data transfer protocols, and implementing data analytics and visualization tools.

III. CONCLUSION :

- In conclusion, the noise pollution monitoring System project aims to address the problem of eradicate noise in public places through the implementation of an IoT-based solution. By defining clear objectives, designing IoT sensors, creating a user-friendly interface, and integrating the system using IoT technology and Python, the project intends to monitor noise pollution in real-time, raise public awareness about reduce noise, improve the quality of life and contribute to sustainable resource management.