IOT BASED NOISE POLLUTION MONITORING SYSTEM

1) Problem Statement Understanding

- The noise pollution is growing day by day and very few people are taking it seriously.
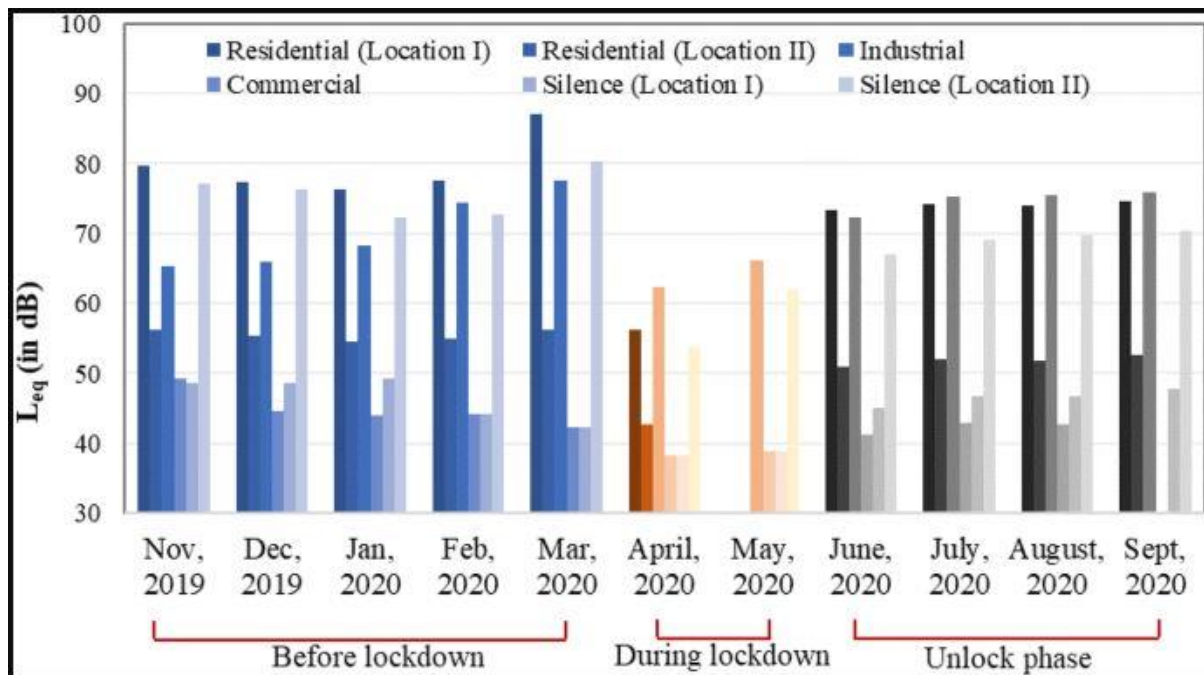

Figure 1. Noise pollution graph at different areas and different time

(Anirudh Mishra, Sanhita Das, Deepesh Singh & Akhilesh Kumar Maurya 2021)

- As can be seen from figure 1(Anirudh Mishra 2021) the noise pollution got reduced when there was a lockdown phase but before lockdown & after lockdown, it was increasing day by day when compared with the lockdown phase.
- Noise pollution is an emerging environmental threat, prolonged exposure of which can cause annoyance, sleep disturbance, hypertension, psychiatric disorders, and also hormonal dysfunction.
- The average noise levels before lockdown and during lockdown were found to be in the range of 44.85 dB to 79.57 dB and 38.55 dB to 57.79 dB, respectively, for different zones.
- Although a significant reduction in the noise levels was observed during lockdown, except for commercial zone, all other monitoring stations had reported sound levels quite higher than the recommended noise limits set by the Central Pollution Control Board (CPCB) of India.

- Noise caused by increased urbanization and industrialization is recognized as environmental nuisance that affects human health and well-being (Mansouri et al. 2006).
- The main motive for creating this project is for taking precaution for the future and also managing the present by controlling the noise pollution level.

2) Hardware and Software Required

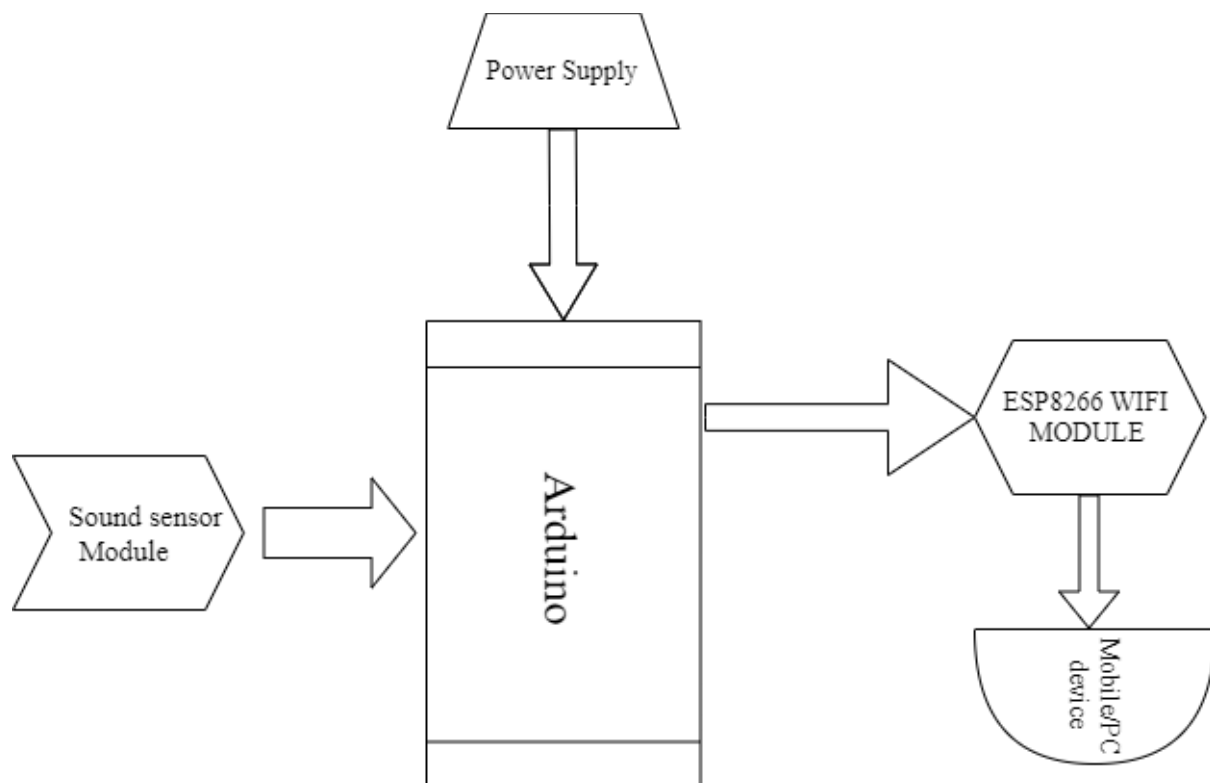| Hardware	Software
Arduino Uno board	Proteus
Sound Sensor Module	Arduino IDE
ESP 8266 Wi-Fi Module	

Figure 2: Block Diagram of System

3) Addition and Updates

- We can also add Air pollution monitoring to the given problem statement as that is also very important to discuss as it is also growing rapidly and very dangerous.
- If we consider both the problems together and try to find one solution, then it will be easy to handle both the situation at a time without requiring two different machines and making it easy and fast too.

4)

- **Application**: -
    I. Hospital
    II. Environmental Section
    III. School Area

- **Advantages**: -
    I. Remotely we can Monitor Pollution.
    II. Cheap In Cost.
    III. Data is useful for government Health departments.
    IV. Data can be used to control pollution.
    V. Small in size

- **Challenges**: -
    I. Requires proper internet connectivity.
    II. Construction noise can be reduced due to which the sensor may show warning continuously due to this.

5) Conclusion

The system is very much helpful for real time sound pollution monitoring. The System can be applied at remote areas and can be used to control pollution. The system will cheaper in cost and smaller in size and it can be applied in industries as well as public sectors.

6) Reference

- Pravin J, Deepak SankarA, "Industrial pollution monitoring system using LAB VIEW and GSM", International Journal of Advanced Research in Electrical, Electronics and Instrumentation Engineering, Issue 6, June 2013

- Shadrach Tunde, Akinkaude, Kowawole, Peter Fasae, "A Survey of Noise Pollution in Ado-Ekiti Metropolis Using Mobile Phone," Science Technology Department, Science Research Publishing, October-2015.

- Navreetinder Kaur, Rita Mahajan, Deepak Bagai, "Air Quality Monitoring System based on Arduino Microcontroller", International Journal Innovative Research in Science, Engineering and Technology (IJIRSET), Vol 5, Issue 6- June 2016.