



ANNA UNIVERSITY
REGIONAL CAMPUS COIMBATORE
IBM NAAN MUDHALVAN PHASE 2
CLOUD COMPUTING
EFFECTIVE NOISE MONITORING SYSTEM

SUBMITTED BY

ROOBASRI B

710021106031

Dept. of Electronics and communication engineering

ABSTRACT

- *Noise in cities has increased in the past decades, due to a growing urban development. In the last century, population movement to the greater cities, disorder planned city development and increase of the motor vehicle in the traffic have been produced noise pollution and other environmental problems. Noise community ordinances have been approved at national and local levels in various countries of the world. They usually establish noise limits for various activities and zones, according to the land uses, and define the basis of noise management strategies. It is required to draw noise maps, as a noise management tool, to be integrated in the land use plans and to be used as a basis for noise reduction plans where the noise levels exceed maximum prescribed levels. In the project we have implemented a mapping with noise levels which is helping for reducing noise in the environment.*

SOURCES OF NOISE DISTURBANCES

- *CONSTRUCTION WORKS*
- *EMERGENCY VEHICLES SIRENS*
- *ROAD AND RAIL TRAFFIC*
- *AIRCRAFT*
- *LOUD MUSIC*
- *EVENTS AND CROWDS*

Effects Of Noise

- *Stress and Anxiety*
- *Hearing loss*
- *Sleep Disturbances*
- *Cardiovascular Effects*
- *Communication Interference*
- *Impact on Learning and Performance*
- *Workplace Productivity*
- *Quality of Life*
- *Social and Recreational Disruptions*
- *Effects on Wildlife*

Components Requirements

- *Microphones*
- *Pre-amplifiers*
- *Analog to digital converters*
- *Data acquisition system*
- *Global positioning system*
- *Mapping software*
- *Data storage*

Components required

To create an urban noise monitoring system project, you'll need the following components:

- 1. **Microphones/Sensors:** Quality microphones or noise sensors to capture ambient sound levels.*
- 2. **Microcontroller/Processor:** A microcontroller (e.g., Arduino, Raspberry Pi) to process data from the sensors.*
- 3. **Power Supply:** Depending on the deployment location, consider a reliable power source or battery.*
- 4. **Data Logger/Storage:** For storing the recorded noise data, you might need an SD card or other data storage solutions.*
- 5. **Communication Module:** A module for data transmission, such as Wi-Fi, GSM, or LoRa, to send the collected data to a central system.*
- 6. **GPS Module:** If you want to include location information in your monitoring, a GPS module is useful.*
- 7. **Weatherproof Enclosure:** Protect the components from environmental factors like rain, dust, etc.*

Cont...

- 8. **User Interface:** A display or a web-based interface for users to visualize and interpret the noise data.*
- 9. **Power Management:** Efficient power management system to optimize battery usage if applicable.*
- 10. **Centralized Database/Server:** A centralized system to collect and store data from multiple monitoring points.*
- 11. **Software/Algorithm:** Develop algorithms for analyzing noise data and identifying patterns or trends.*
- 12. **Alert System:** If needed, implement an alert system to notify relevant authorities or users based on predefined thresholds.*
- 13. **Security Measures:** Implement security protocols to protect the system from unauthorized access.*
- 14. **Maintenance Plan:** Plan for regular maintenance to ensure the system's continued functionality.*

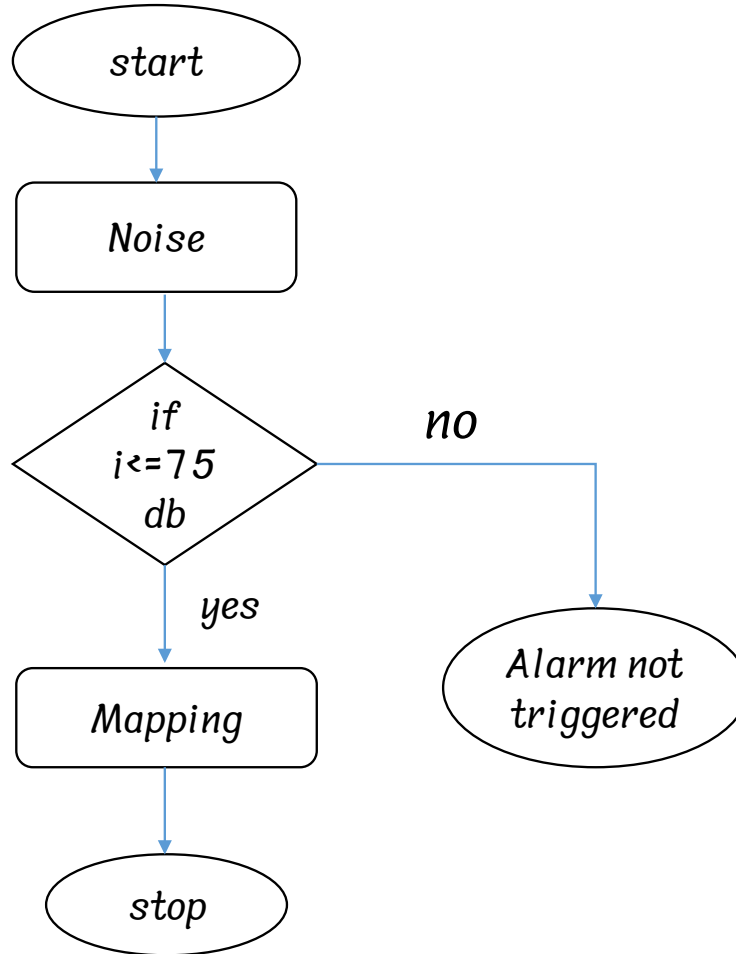
Sound level meter

Fusion™ by Acoem is the only IEC 61672 Class 1 sound level meter/analyser on the market with a built-in 4G modem and your choice of trigger, advanced indicators, aircraft indicators and push data options.

With Fusion 4G, conduct all your measurements – environmental, buildings and/or monitoring with one compact and reliable device.

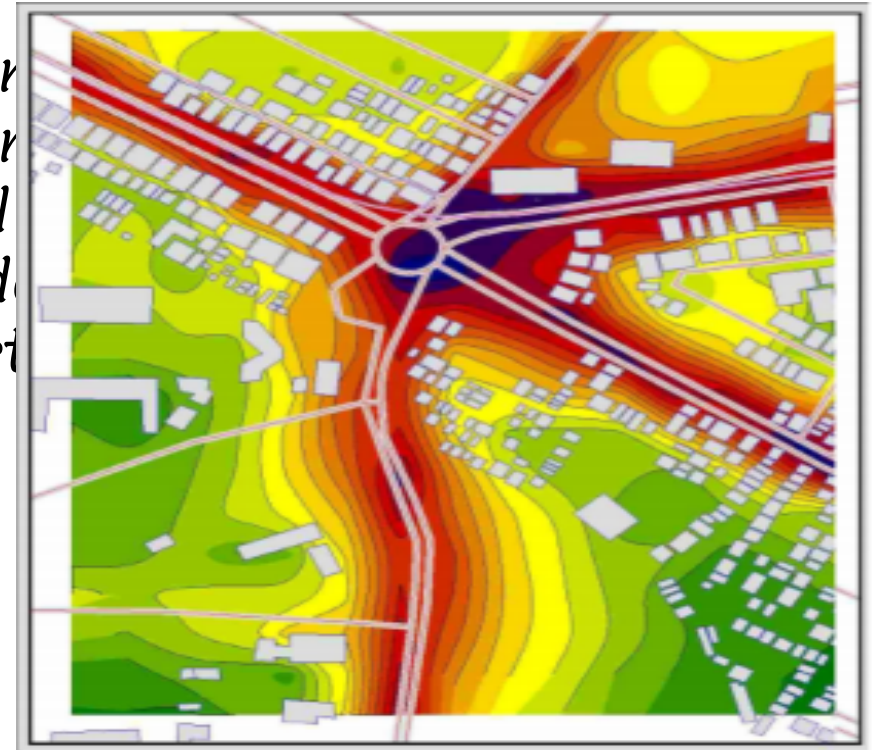


Flow chat



Noise mapping in india

- In Noise mapping procedure, Sound Sensor plays a key role. Noise level monitoring Sensors are placed at various locations in the study area. Data is collected from these noise sensors and it is used to create a noise map. The map shows the distribution of noise levels in the study area.



Conclusion

- *Noise in cities has increased in the past decades, due to a growing urban development. In the last century, population movement to the greater cities, disorder planned city development and increase of the motor vehicle in the traffic have been produced noise pollution and other environmental problems. Management and reduction of urban noise has been called for in urban development plans. Noise community ordinances have been approved at national and local levels in various countries of the world. The comprehensive system for real-time noise monitoring is an effective tool for advancing urban quality of life.*

THANK YOU