JAI SHRIRAM ENGINEERING COLLEGE
TIRUPPUR – 638 660
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DEPARTMENT OF
ELECTRONICS AND COMMUNICATION ENGINEERING

IBM - Naan Mudhalvan

Internet of Things

Group 3

Phase 3 - Project Submission

PROJECT TITLE:NOISE POLLUTION MONITORING

NAME : C.RANGANAYAKI
NM ID :AU711221106027
YEAR : III

INNOVATION:

Hardware Setup:

Use IOT-ready microcontrollers such as Raspberry Pi or Arduino with built-in Wi-Fi or add Wi-Fi modules for connectivity.Connect a sensitive microphone sensor or an array of microphones to capture ambient noise.

Data Collection:

Capture audio samples at regular intervals and convert them to digital data.Measure noise levels in decibels (dB) and store the data locally or in the cloud.

Connectivity:

Utilize Wi-Fi or other IOT protocols (e.g., LORA, NB-IOT) to send data to a central server or cloud platform**.**

Data Processing:

Implement noise analysis algorithms to classify noise events (e.g., traffic, construction, parties) and track trends.Apply signal processing techniques to filter and refine the data**.**

User Interface:

Develop a web or mobile application for users to access the noise data.Include features like real-time noise level monitoring, historical data, and customizable alerts**.**

Alerts and Notifications:

Set up notifications for users when noise levels exceed predefined thresholds**.**

Enable customization of alert preferences.

Data Visualization:

Create interactive graphs and charts to display noise data trends.Offer geographic visualization through maps**.**

Machine Learning (Optional):

Train machine learning models to predict noise patterns and recognize specific noise sources.

Energy Efficiency:

Implement power-saving features to ensure the system runs efficiently, such as sleep modes for sensors.

Cloud Integration:

Store data in the cloud for scalability and remote access.Utilize cloud services for data analysis and reporting.

Community Engagement:

Allow users to report noise complaints through the app.Foster a sense of community involvement in noise control.

Legal and Ethical Considerations:

Ensure compliance with privacy regulations and data protection laws.Address any potential concerns related to audio surveillance.

Maintenance and Updates:

Plan for regular maintenance and software updates to keep the system running smoothly.

Data Analytics:

Use collected data for urban planning, noise pollution studies, or public policy decisions.

Cost Considerations:

Balance cost-effectiveness with system quality to make it accessible to a wide range of users.This project combines IOT, data analysis, and user engagement to create a valuable noise monitoring system that can contribute to a quieter and more livable environment.