



JAI SHRIRAM ENGINEERING COLLEGE

TIRUPPUR – 638 660

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**DEPARTMENT OF
ELECTRONICS AND COMMUNICATION ENGINEERING**

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Internet of Things Group 3

Phase 3 - Project Submission

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YEAR : III

NOISE MONITORING SYSTEM

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.