# Noise pollution monitoring

**IoT_phase2**

### Noise Pollution Data Analytics

**Data Collection:** Gather noise level data from various sensors placed strategically around the area of interest. This data could include decibel levels, timestamps, and geographical coordinates.

**Data Preprocessing:** Clean and preprocess the collected data to remove outliers and inconsistencies, ensuring the data is accurate and reliable**.**

**Feature Engineering:** Extract relevant features from the data, such as time of day, day of the week, weather conditions, and location attributes, which can help in identifying patterns and sources**.**

**Pattern Identification:** Utilize machine learning algorithms to analyze the data and identify noise pollution patterns. This might involve clustering analysis to identify high-noise areas and time series analysis to detect temporal patterns**.**

**Source Localization:** To identify potential noise sources, you can use techniques like sound source localization, which involves triangulating the source based on data from multiple sensors.

**Visualization:** Create visualizations like heatmaps or GIS-based maps to display noise pollution hotspots and potential sources**.**

**Predictive Analytics:** Implement predictive models to forecast noise pollution trends and assess the impact of future developments or changes**.**

**Alerting System:** Develop an alerting system that can notify relevant authorities or residents when noise pollution levels exceed certain thresholds**.**

**Feedback Loop:** Continuously collect and analyze data to refine the noise pollution identification models and improve their accuracy**.**

**Policy and Action:** Use the insights gained from data analytics to inform noise pollution mitigation policies and take targeted actions to reduce noise in high-noise areas