Name of Category: Product Development/Sustainability

The Bombay Salesian Society's

Don Bosco Institute of Technology, Mumbai- 400070

(An Autonomous Institute Affiliated to University of Mumbai)

Department of Information Technology,

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EcoGauge: Air & Noise Pollution Monitoring Dashboard for Mumbai

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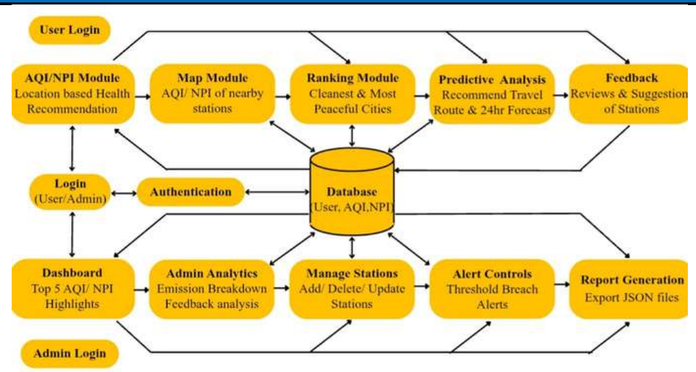
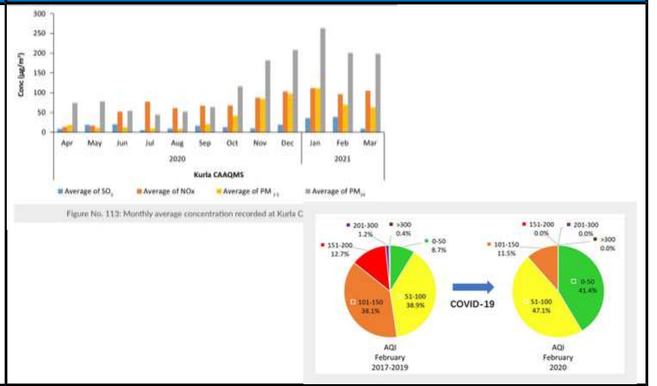
Abstract

Our project presents "**EcoGauge**," a web-based real-time environmental monitoring dashboard that integrates and visualizes data from a network of monitoring stations across Mumbai, displaying both the Air Quality Index (AQI) and the Noise Pollution Index (NPI) on an interactive map. Key features include **Real-time data**, detailed **Pollutant breakdowns** through Application Programming Interface (APIs), data analytics such as **Regional comparisons**, **Historical Trend analysis**, **Geospatial analysis** and Location-specific **Health recommendations**. The **Admin panel** provides control over station data, alerts, and insights through graphical dashboards, empowering authorities with transparency and actionable intelligence.

Architecture / Design Detail



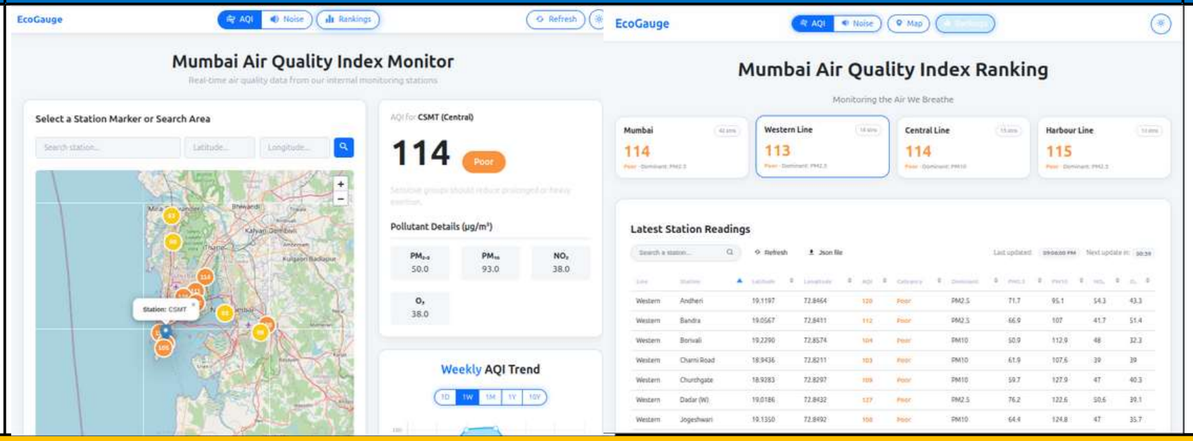
Results



Objectives

- To design and implement a unified, real-time monitoring dashboard that integrates and visualizes both Air Quality Index (AQI) and Noise Pollution Index (NPI) data across the Mumbai region.
- To translate complex environmental data into an accessible, user-friendly interface using an interactive geospatial map, regional comparisons and historical trend charts.
- To empower citizens with location-specific, real-time data and actionable health recommendations, enabling them to make informed daily decisions to mitigate personal health risks.
- To aid researchers, and inform urban planners, fostering greater environmental awareness and enabling data-driven decisions for a healthier city.

Methods/Algorithm/Application Description



Future Scope

- **Geographic Expansion:** Scale the platform to include other major cities in Maharashtra (Pune, Nagpur) or across India.
- **Mobile App:** Develop native iOS and Android applications for better performance, offline capabilities (limited), and push notifications.
- **Public Transport Suggestions:** Suggest routes with lower pollution/noise exposure based on real-time data.
- **Layer Toggling:** Allow users to switch between viewing AQI, Noise, Traffic, Weather layers on the map.
- **User Accounts**: Allow users to save favorite locations, customize their dashboard view,
- **API Development:** Create a public API for your aggregated/processed data that other developers or researchers could use.

Mini Project 2025-26