INFOSYS SPRINGBOARD INTERNSHIP 6.0

Air Aware Smart Air Quality Prediction System

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Batch – 7 (Python)

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CONTENT

INTRODUCTION

1. Air pollution is one of India's most critical environmental issues.
2. Cities like Delhi, Chennai, and Mumbai frequently record unsafe AQI levels.
3. People lack real-time, easy-to-understand air-quality insights.
4. AirAware provides a modern solution through monitoring, alerts, and visual analytics.

PROBLEM DEFINITION

1. No unified platform that shows real-time AQI + pollutant breakdown.
2. Existing tools are complex, lack trend analytics, or do not provide health guidance.
3. Users cannot make informed decisions about outdoor safety.
4. Need for a simple, accurate, intelligent air quality dashboard.

OBJECTIVES

1. To monitor real-time Air Quality Index (AQI).
2. To display pollutant levels (PM2.5, PM10, NO_2, SO_2, CO, O_3).
3. To visualize pollution trends using interactive charts.
4. To display weather parameters affecting AQI.
5. To provide alerts and health recommendations.

PROPOSED SOLUTION

1. A responsive, user-friendly dashboard for real-time AQI monitoring.
2. Backend APIs fetch pollution and weather data.
3. Trend charts for daily/hourly pollution changes.
4. Color-coded AQI categories with health messages.
5. Alerts when AQI crosses unsafe limits.
6. Downloadable PDF/CSV air-quality reports.

TECHNOLOGY STACK

- Frontend
    1. React.js
    2. Tailwind CSS
- Backend
    1. Python
    2. Node.js
- Chart & Visualizations
    1. Line Chart
    2. Bar Chart
    3. Area Chart
    4. Radar Chart
    5. Pie Chart

TECHNOLOGY STACK

- Machine Learning Algorithms
  - XGBoost
  - Random Forest
- Model Saving & Deployment
  - Joblib
- Data Processing & Analysis Libraries
  - Pandas
  - NumPy
  - Matplotlib

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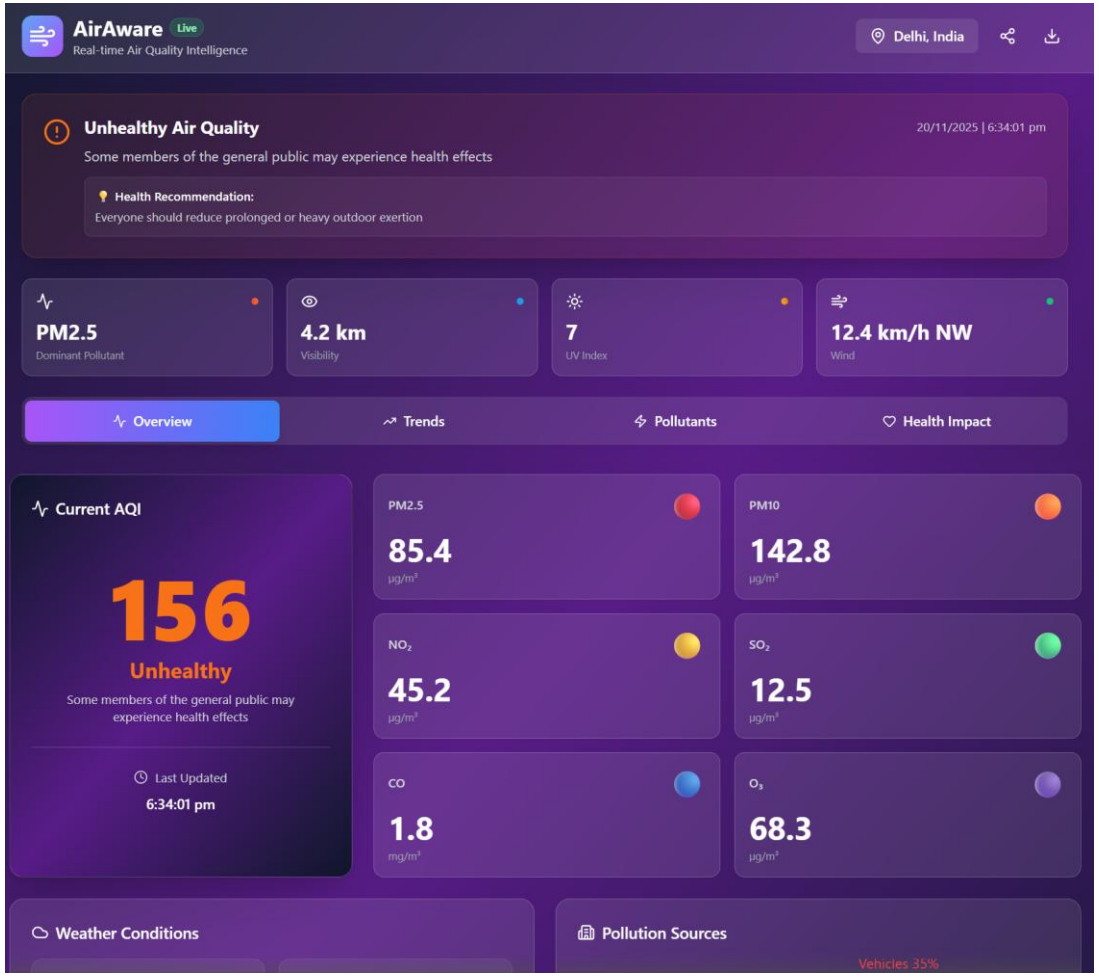
PROJECT REVIEW



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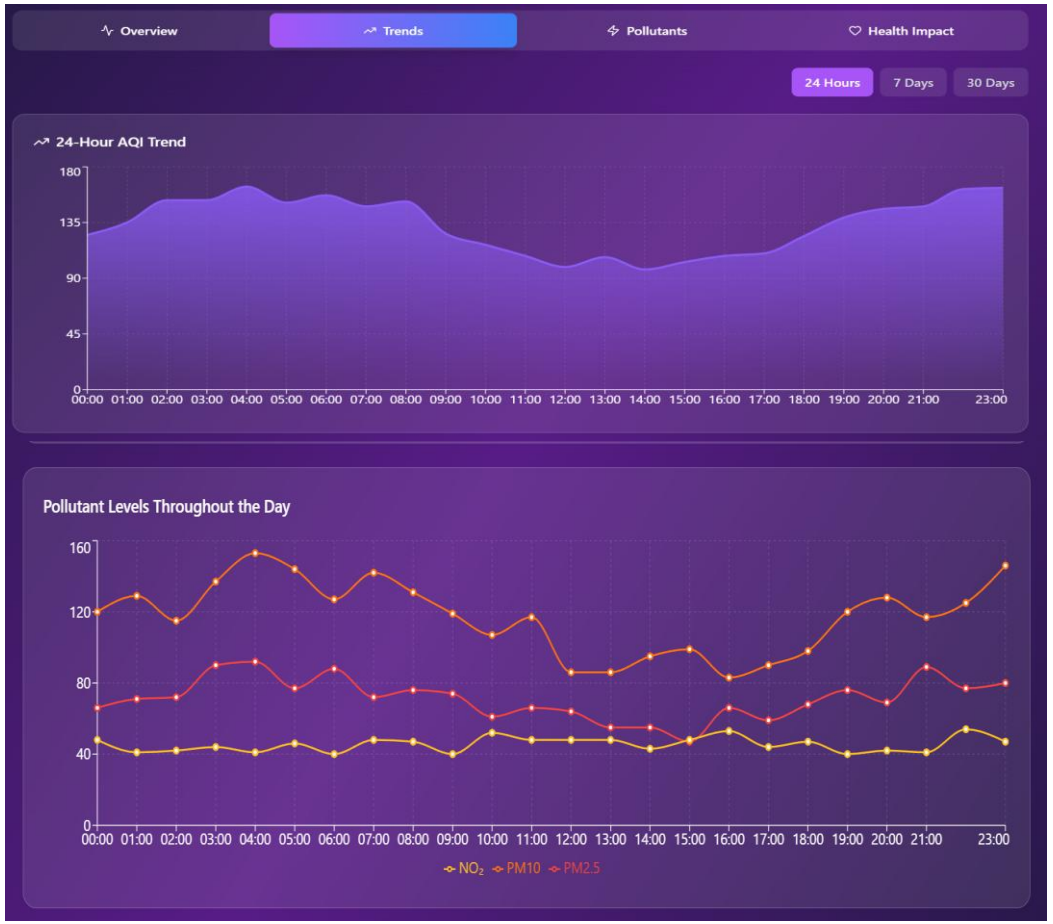

RESULT & OUTCOMES

1. Users get real-time pollution insights.
2. Enables safer decisions about outdoor activities.
3. Helps students/researchers analyze air-quality trends.
4. Easy, modern dashboard improves public awareness.
5. Solves the need for transparent environmental data.

THANKYOU