Project : AirAware Smart Air Quality Prediction System

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Group: 1

MILESTONE 1

Problem Statement

- Air pollution levels are rising and need continuous monitoring.
- Manual monitoring is slow and not easily accessible to the public.
- Users need a **simple web interface** to view real-time/processed air quality status.
- This project provides a clean solution using modern web technologies.

Objectives

- Collect and store air quality data securely.
- Display pollutant levels in a clean, user-friendly dashboard.
- Provide visual indicators of air quality (good, moderate, hazardous).
- Enable easy expansion for future prediction models.

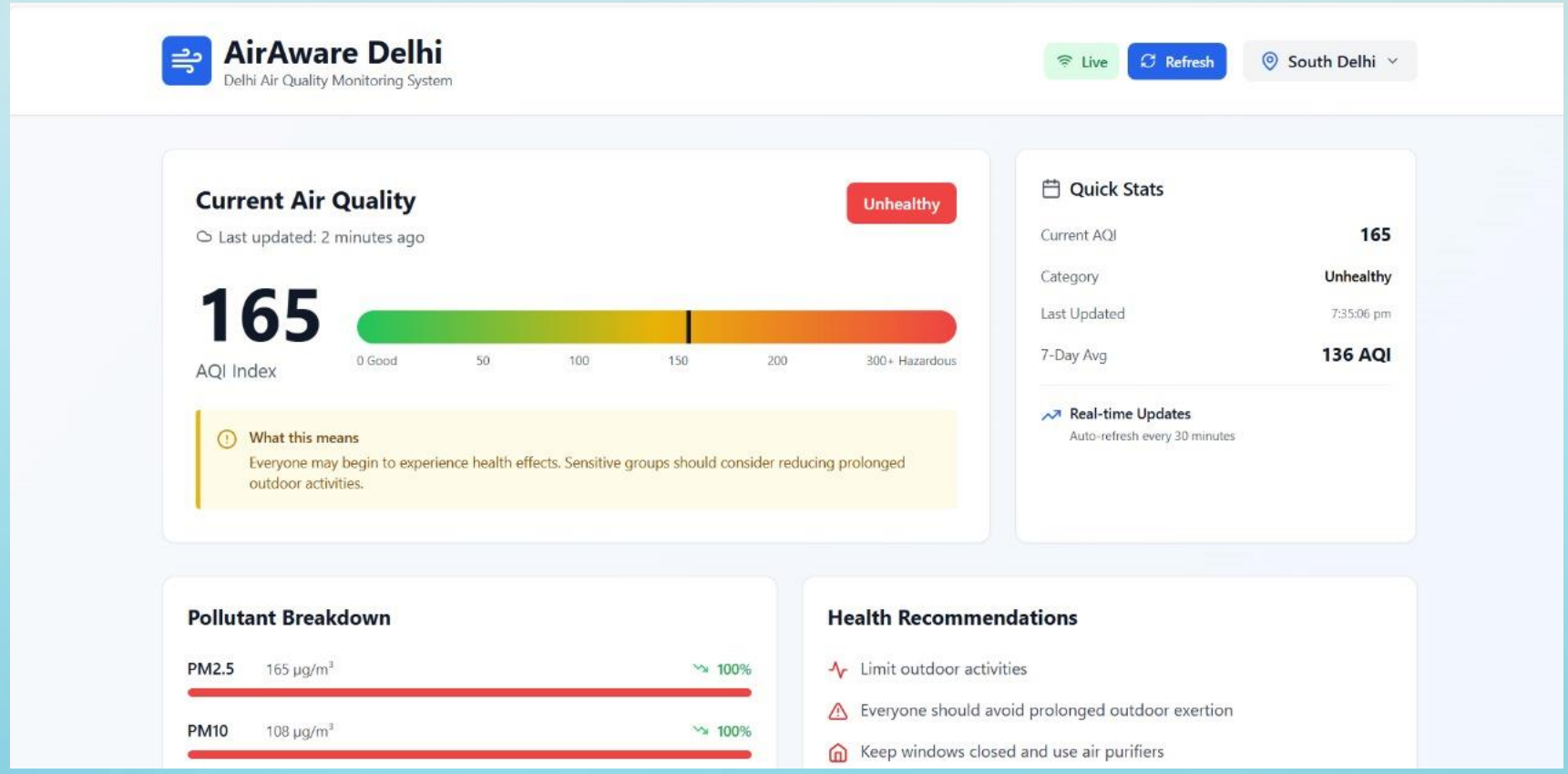
Technologies Used

1. React.js: Used to build the user interface with reusable components for dynamic pages.
2. TypeScript: Adds type safety and makes the frontend code more reliable and structured.
3. HTML & CSS: Used to structure the pages and style the overall layout and design.
4. Tailwind CSS: Provides utility classes to quickly create responsive and consistent UI styling.
5. React Hooks: Used to manage component state and lifecycle logic within the UI.

Dashboard Features

- **Real-time Air Quality Display** – Shows the current AQI value clearly on the main dashboard.
- **Pollutant Breakdown** – Displays individual pollutant levels like PM2.5, PM10, CO, etc.
- **Color-Coded Status Indicator** – Uses colors like green/yellow/red to indicate air quality levels.
- **Clean and Responsive UI** – Automatically adapts to different screen sizes and devices.
- **Interactive Cards/Sections** – Shows different data blocks in well-structured, clickable UI components.
- **User-Friendly Layout** – Simple and intuitive design for easy navigation and quick understanding.

Output screens



Everyone may begin to experience health effects. Sensitive groups should consider reducing prolonged outdoor activities.

Pollutant Breakdown

PM2.5	165 µg/m³	↘ 100%
PM10	108 µg/m³	↗ 100%
O3	5.5 ppb	↗ 7.857142857142857%
NO2	12.8 ppb	— 25.6%
SO2	1.1 ppb	— 3.1428571428571432%
CO	11.8 ppm	↘ 100%

Legend: PM = Particulate Matter, O3 = Ozone, NO2 = Nitrogen Dioxide, SO2 = Sulfur Dioxide, CO = Carbon Monoxide

Health Recommendations

- Limit outdoor activities
- Everyone should avoid prolonged outdoor exertion
- Keep windows closed and use air purifiers

Sensitive Groups Include:

Children · Elderly · Asthma patients · Heart disease · Active outdoors

South Delhi

Mostly residential with upscale neighborhoods and lower pollution zones.

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Mostly residential with upscale neighborhoods and lower pollution zones.

Key Characteristics:

- Residential areas
- Green spaces
- Lower traffic congestion
- Commercial zones

7-Day Forecast

Predicted air quality trends

AI Predictions

Good (0-50) Moderate (51-100) Unhealthy (101-150)

Updated hourly

THANK YOU!