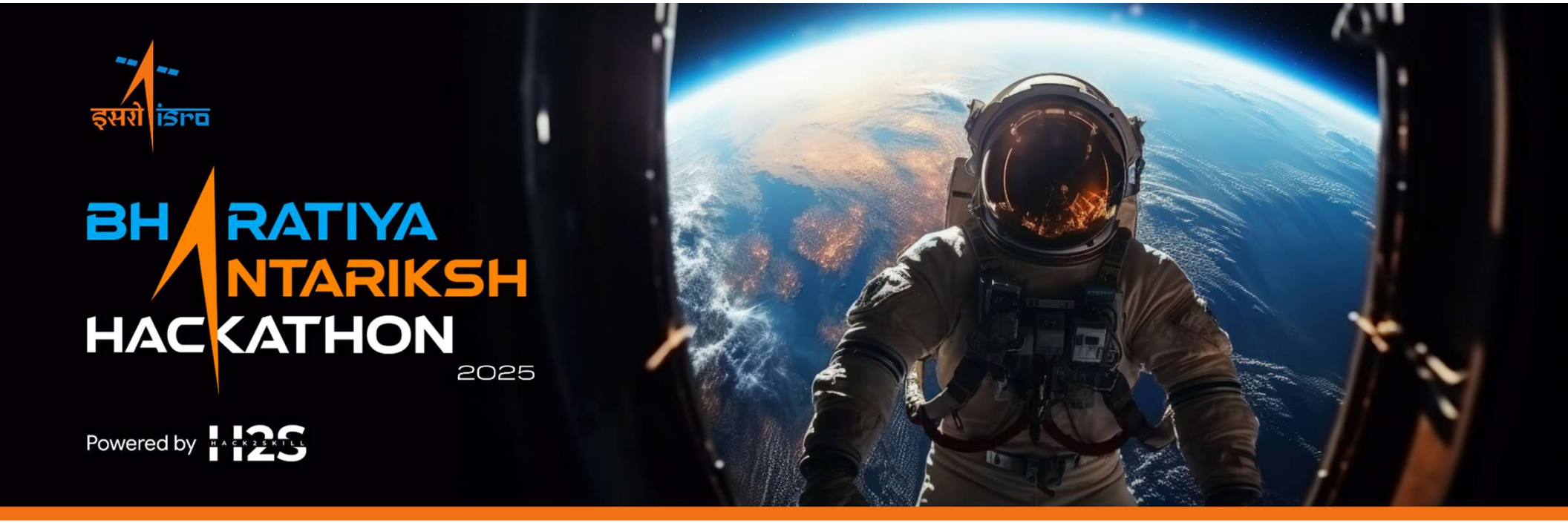


Team Name : **ANTHARIKSH YATRA**

Team Leader Name : **Mukesh Raj**

Problem Statement : Monitoring Air Pollution from Space, by an integrated approach using satellite observations, ground-based measurements, reanalysis data, and AI/ML techniques.

Team Members

Team Leader:

Name: Mukesh Raj
College: GMRIT

Team Member-1:

Name: Dinesh varadhi
College: GMRIT

Team Member-2:

Name: Sai Baba
College: GMRIT

Team Member-3:

Name: SANJAY KRISHNA SADHU
College: GMRIT

Powered by H2S

Breaf about idea:

1. User Entry & Interface

- Select any region/city
- View live AQI
- Explore forecast graphs
- See fire-prone zones
- Chat with an AI bot for insights

2. Multi-Source Data Integration

- Satellite Data
- Ground AQI Data
- Weather Data

3.Pollution Estimation

- XGBoost or CNN models.
- Works even in rural/unmonitored areas

4.AI BOT

- Give health advice.
- Give reasons.
- Language Change.

5. Interactive Web Dashboard

- Real-time AQI maps.
- Historical trends .
- Export reports (PDF/PNG)
- City/region search.

Adimin:

Upload data.
Trigger retraining.
Monitor logs.

How different is it from other existing ideas:

Most existing air quality platforms rely only on ground-based sensors in urban areas. These systems have limited spatial coverage, cannot scale to remote/rural areas, and do not provide explanations or forecasts.

Our system goes beyond by:

1) Integrating satellite data, ground measurements, and weather reanalysis.
2) Using ML/AI to predict pollution in sensor-less or low-coverage regions
3) Enabling explanations using LLMs in local languages

How will it solve the problem:

1) Estimate AQI even where sensors don't exist, using satellite and ML.
2) Forecast pollution based on trends .
3)Visualize data with a user-friendly web dashboard and maps.
4)Explain results & give advice using LLM (e.g: "Why is AQI high today?")
5)Generate reports, export data, and share public alerts.

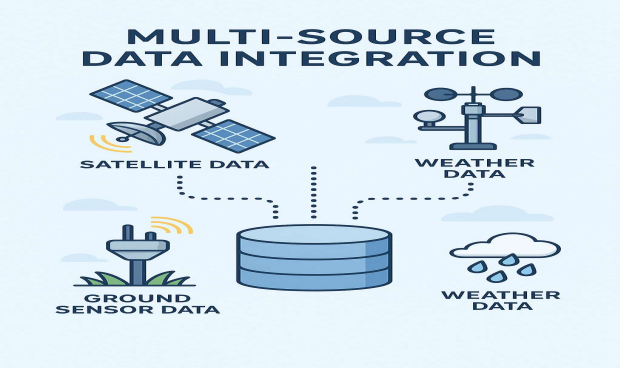
Unique Selling Proposition:

1)AI/ML-powered predictions for anywhere in India.
2)LLM-based explanation engine for health, cause, and translation.
3)Web-based, mobile-responsive, and admin-ready system.
4)Easy to scale, modular, and impactful for citizens, planners, and researchers.

Powered by

List of features offered by the solution:

1) Multi-Source Data Integration.



2) Visualize forecast graphs over time per location.

3) Interactive Pollution Map.

4) LLM-Powered Explanations chatbot.

5) Search or select regions and responsive design..

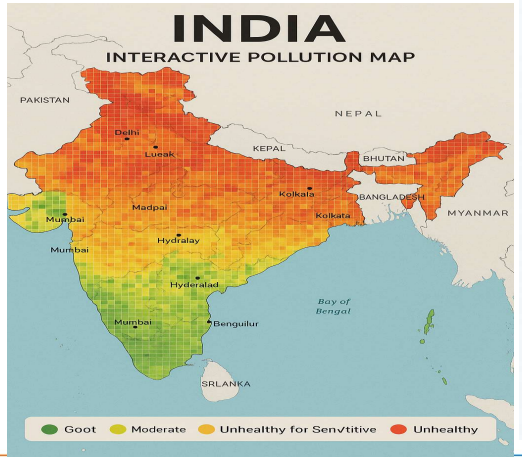
6) User Dashboard.

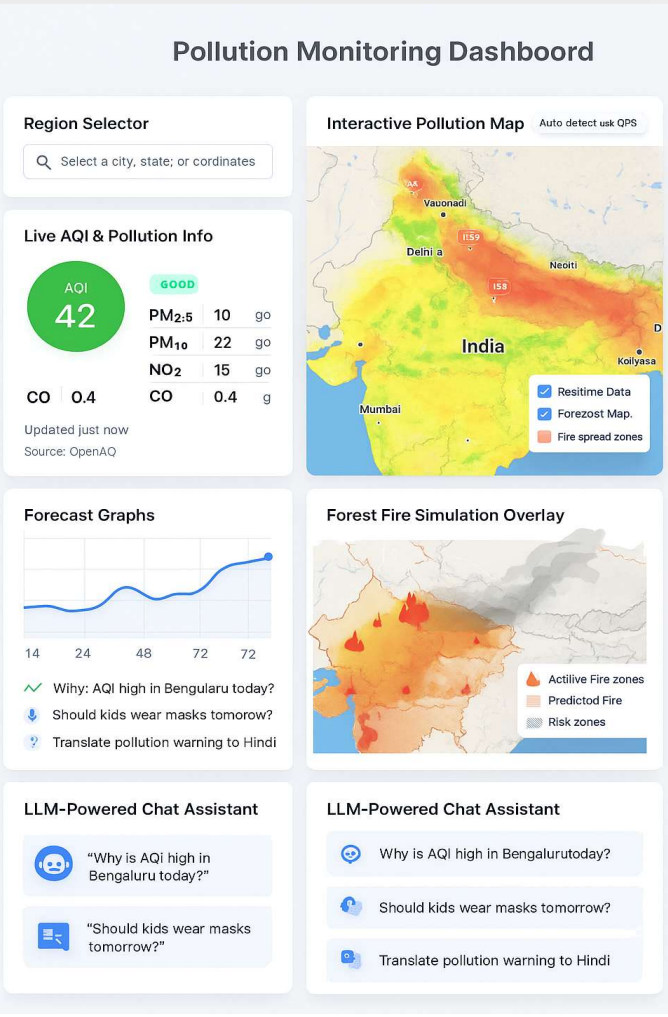
7) See live AQI and Pollution maps.

8) View charts of historical and forecast data.

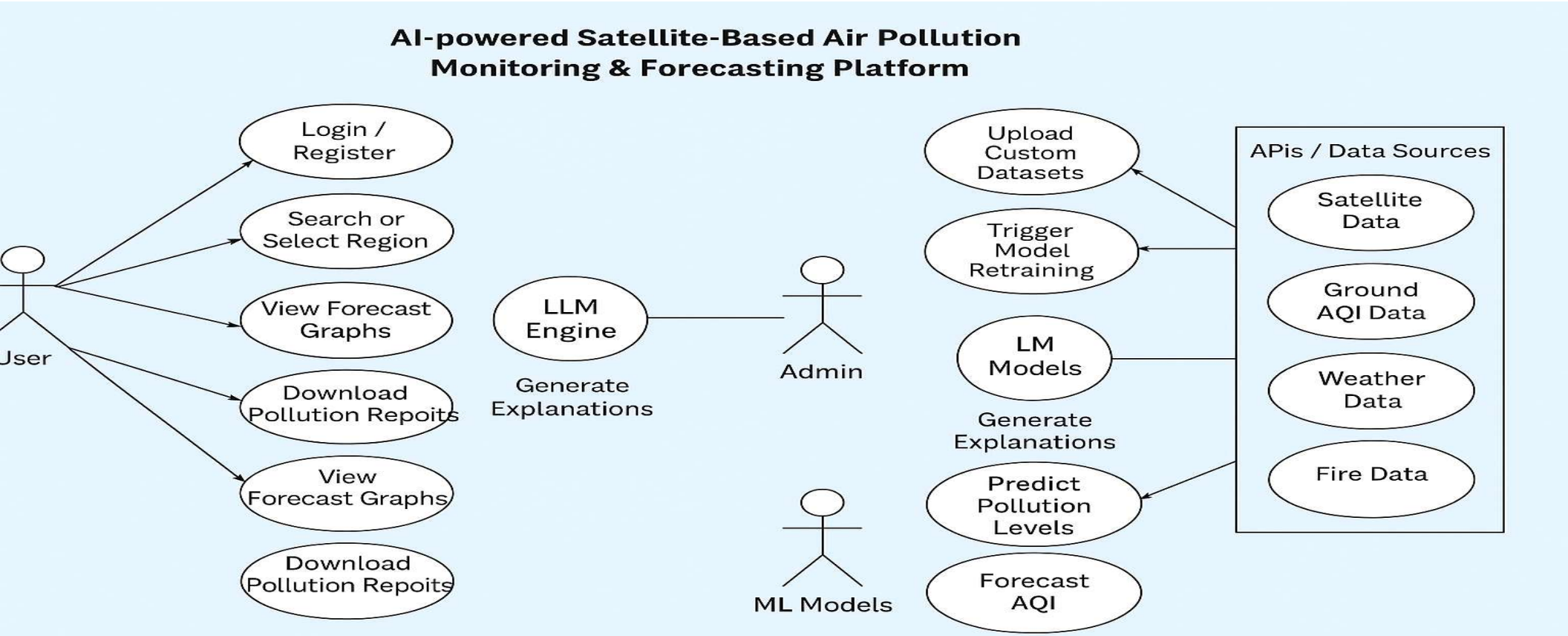
9) Export reports in PDF or PNG format.

10) Alert Messages to users based on pollution.



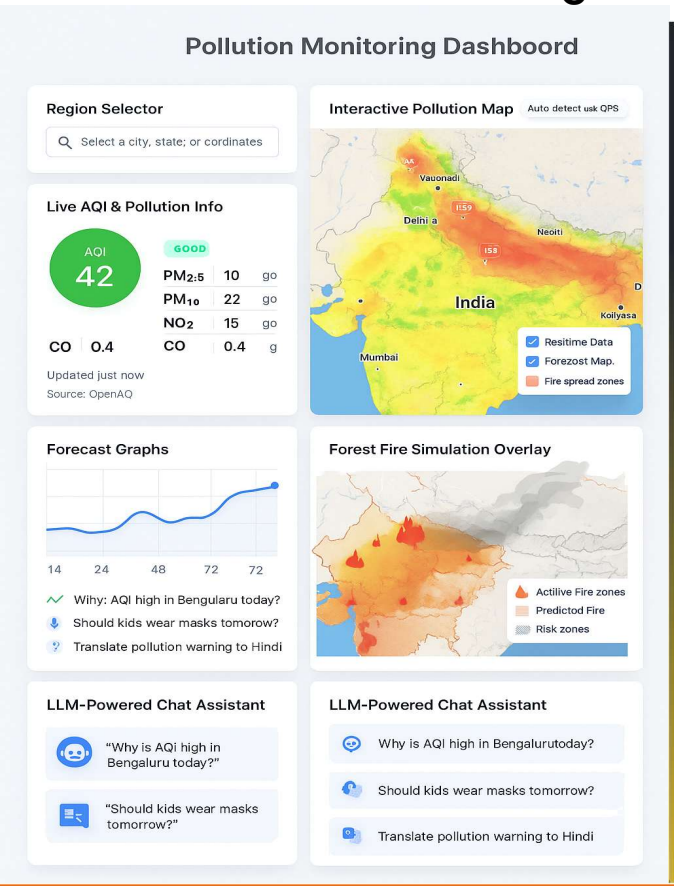


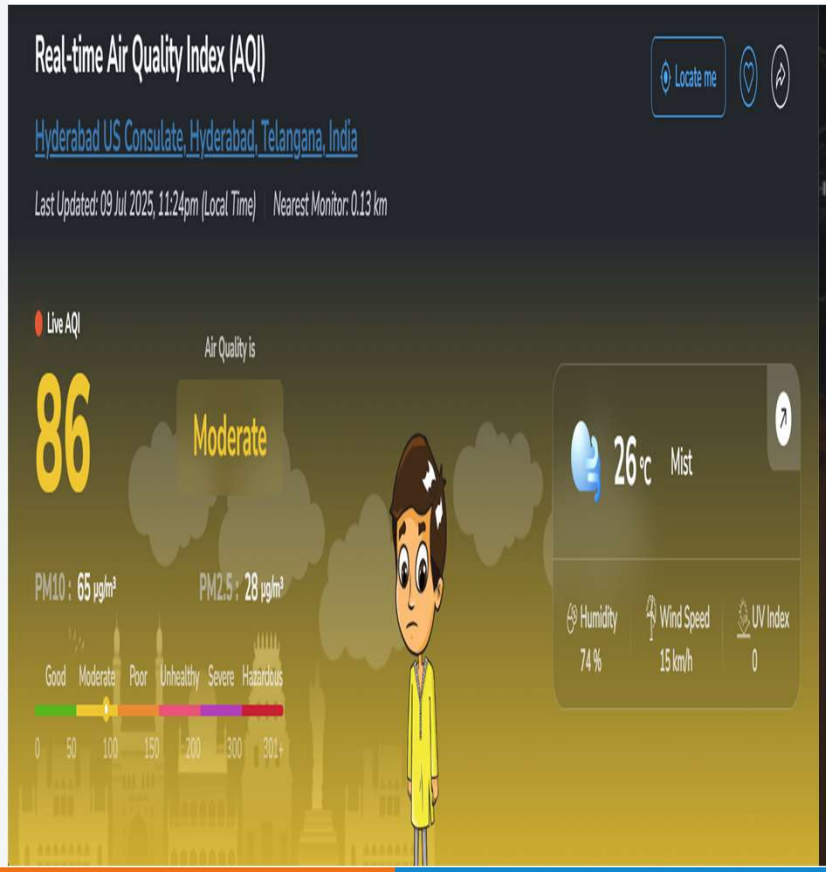
Process flow diagram or Use-case diagram:

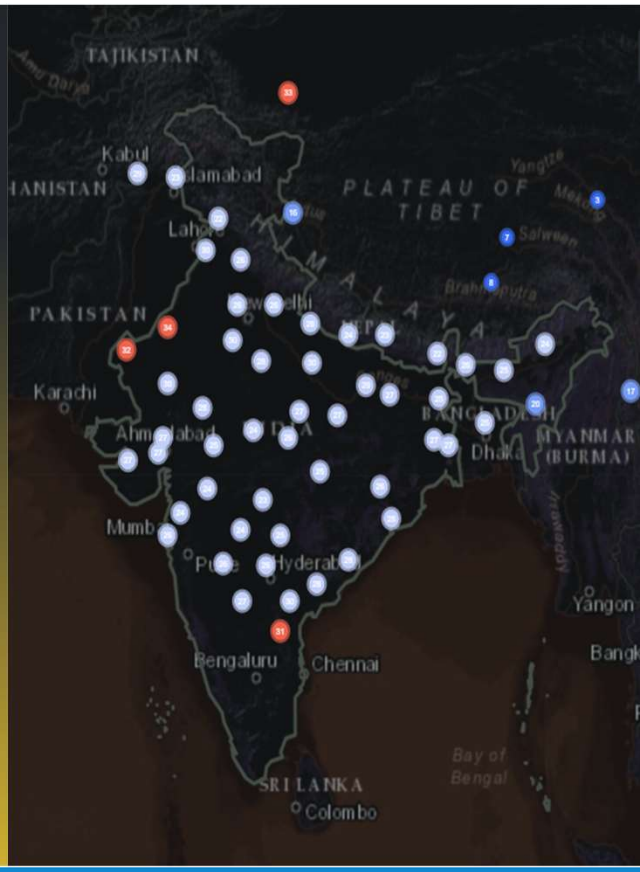


Powered by

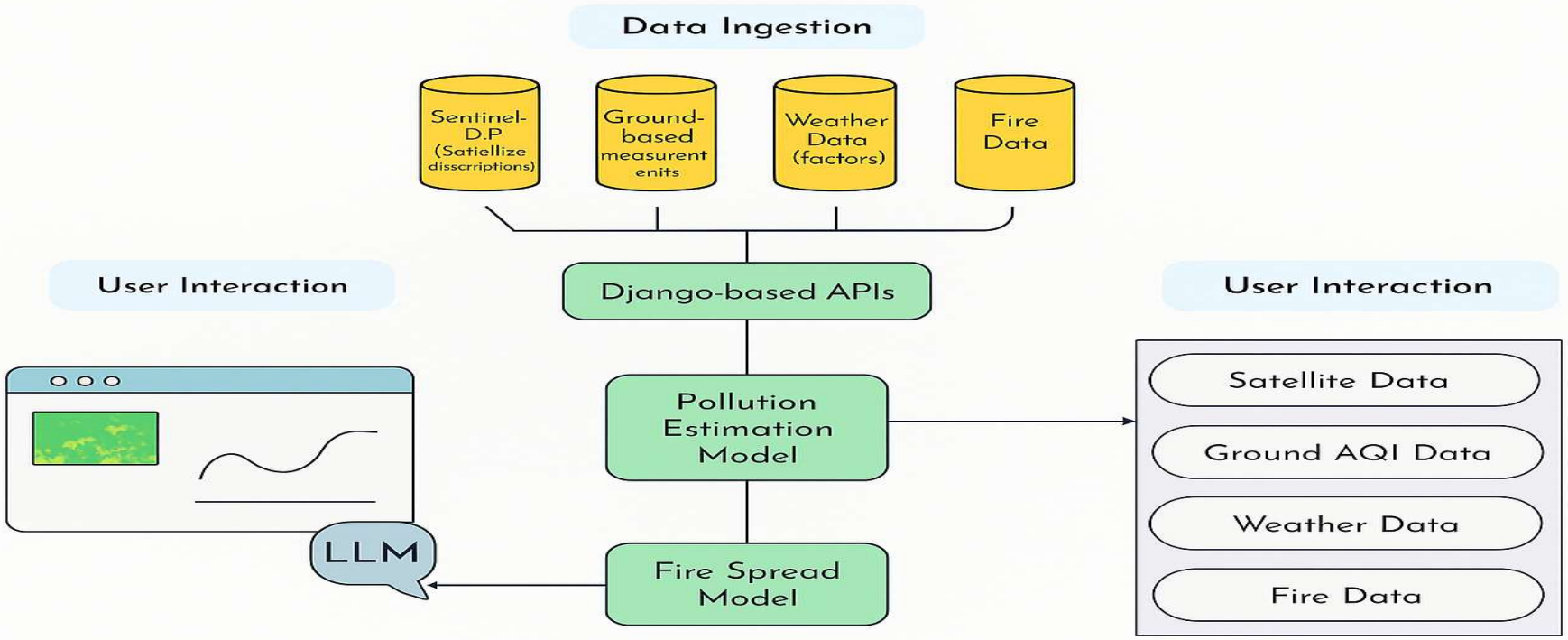
Wireframes/Mock diagrams of the proposed solution:







Architecture diagram of the proposed solution:



Technologies to be used in the solution:

Frontend: React.js + Leaflet.js or Mapbox

Backend: Django + Django REST Framework

ML/AI: Python, XGBoost,CNN, LSTM

Deployment: Docker,Render,Git.

Visualization: Chart.js, Leaflet, Heatmaps

इसरो isro

Powered by H2S HACK2SKILL

BHARATIYA ANTARIKSH HACKATHON 2025

THANK YOU