THE BUGGERS

Pollution Detection using GIS + Satellite Imagery

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TARGET

OUR TARGET AREAS (ON DAILY BASIS)

- DAILY SATELLITE SURVEILLANCE: MONITOR TARGET AREAS
- POLLUTANT MAPPING: TRACK PM2.5, NO2, AND WATER CONTAMINANTS
- PREDICTIVE MODELING: FORECAST RISK ZONES IN REAL-TIME
- VISUAL DASHBOARDS: PROVIDE ACTIONABLE DATA TO STAKEHOLDERS

TECHNOLOGIES

TECHNOLOGIES IN USE

- Python: Data Visualization & Machine Learning
- Flask: Lightweight Web Development
- HTML, CSS: The Foundation of the Web
- IoT: Connected Devices & Data Exchange
- OpenGL: High-Performance 3D Graphics

PROPOSED WORKFLOW

- Data Collection:
  Retrieve air pollution indicators (PM2.5, NO2) + GIS spatial layers.
- Preprocessing:
  Clean, extract, and overlay datasets (satellite + GIS).
- Modeling:
  Train ML/Deep Learning model for pollution risk prediction.
  Include external impacts like crop burning & traffic density.
- Output:
  Heatmaps, risk zones, temporal pollution trends.
  Alerts for anomalies and hotspots detection.

IMPACT AND FUTURE SCOPE

- Impact:
  - Provide low-cost, AI-powered, real-time pollution tracking.
  - Assist policy makers in resource allocation & pollution control.
  - Enable early warnings for crop-burning effects & urban hotspots.
- Future Extensions:
  - Integrate with IoT ground sensors for hybrid accuracy.
  - Extend to water pollution monitoring and cross-domain analysis.
  - Deploy as a public dashboard for transparency & awareness