CONNECTION WITH

स्वच्छ-LENS

TEAM BITS

THE PROBLEM UNDERSTANDING POLLUTION IN INDIA

In India, pollution levels are alarming, affecting public health and the environment. Noise, air, and land pollution pose serious challenges, leading to severe health risks and environmental degradation. Addressing these issues is crucial for sustainable urban development and a healthier future for all citizens. Our project, EnviroSense, aims to tackle this multifaceted problem with a data-driven approach.

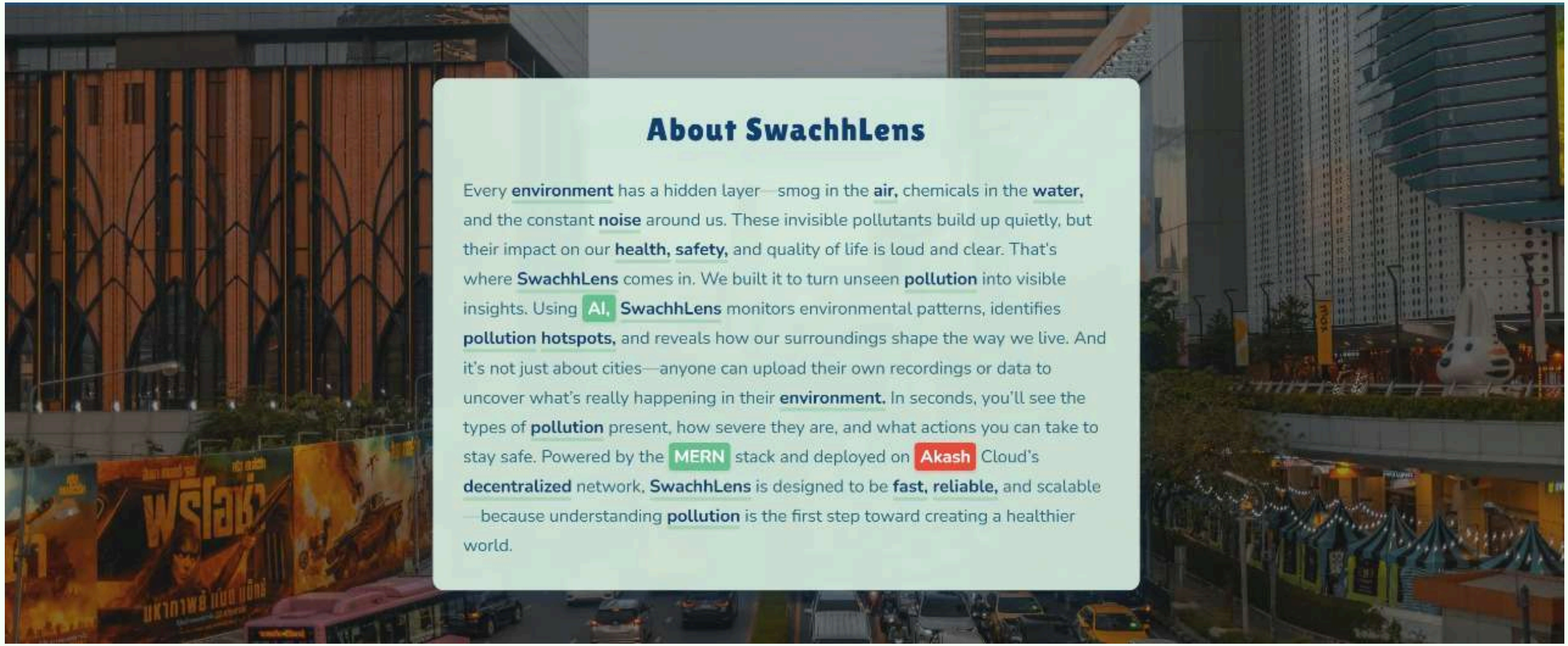
The major problem of pollution management in India is rapid urbanization and industrial growth without adequate environmental regulations. Improper waste disposal, including plastic and e-waste, contributes heavily to air, water, and soil pollution. Limited public awareness and enforcement of pollution control laws make it difficult to implement sustainable solutions effectively. This results in deteriorating air and water quality, posing serious health and ecological risks.

Smart Pollution Monitoring and Analysis System
Our project provides a comprehensive, multi-dimensional platform to monitor and tackle urban pollution using technology. The system focuses on air quality, noise, waste, and land pollution, enabling authorities and citizens to make data-driven decisions.

OUR SOLUTION

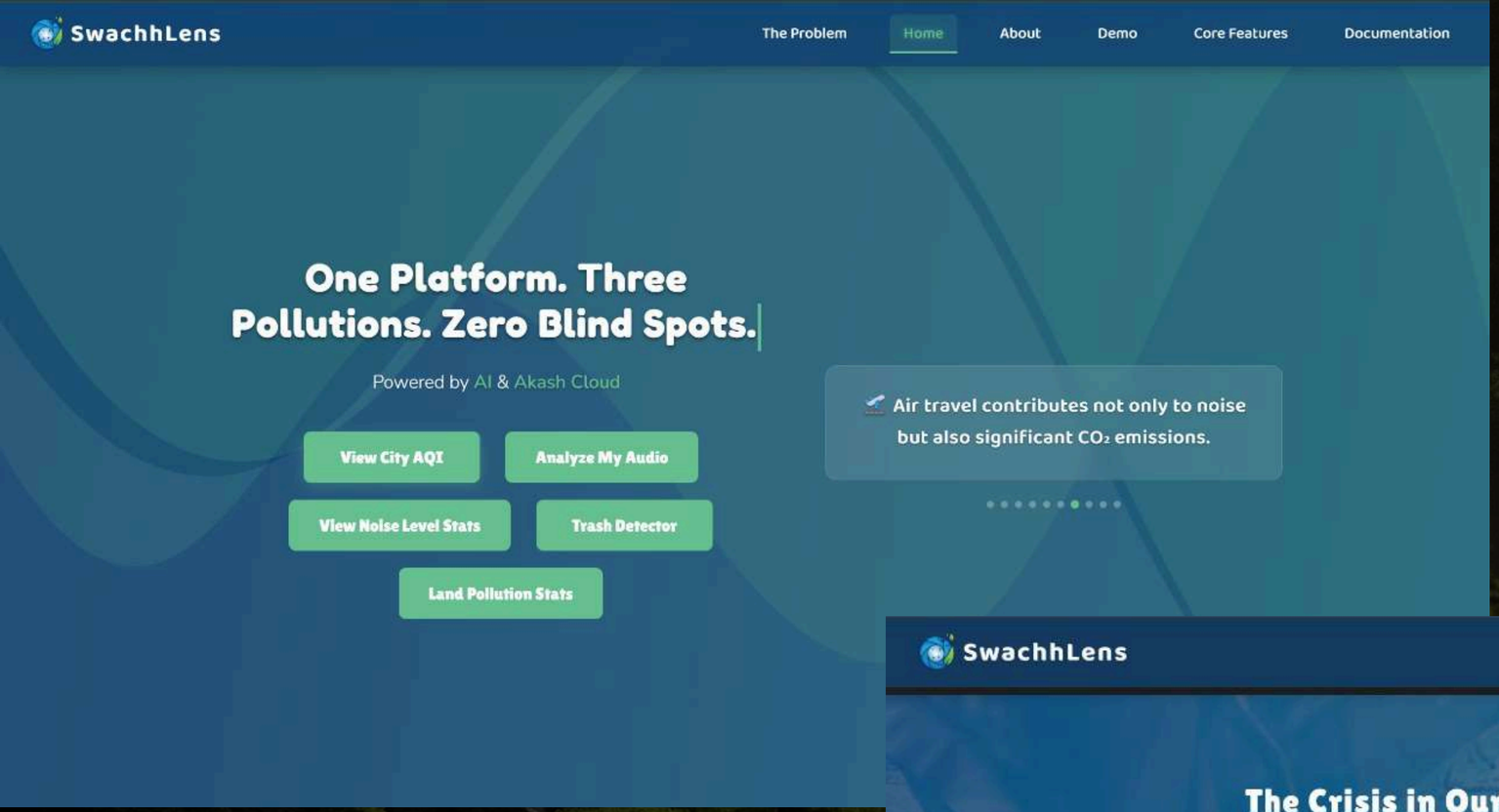
स्वच्छ-LENS

SWACH-LENS
See the World Clearly



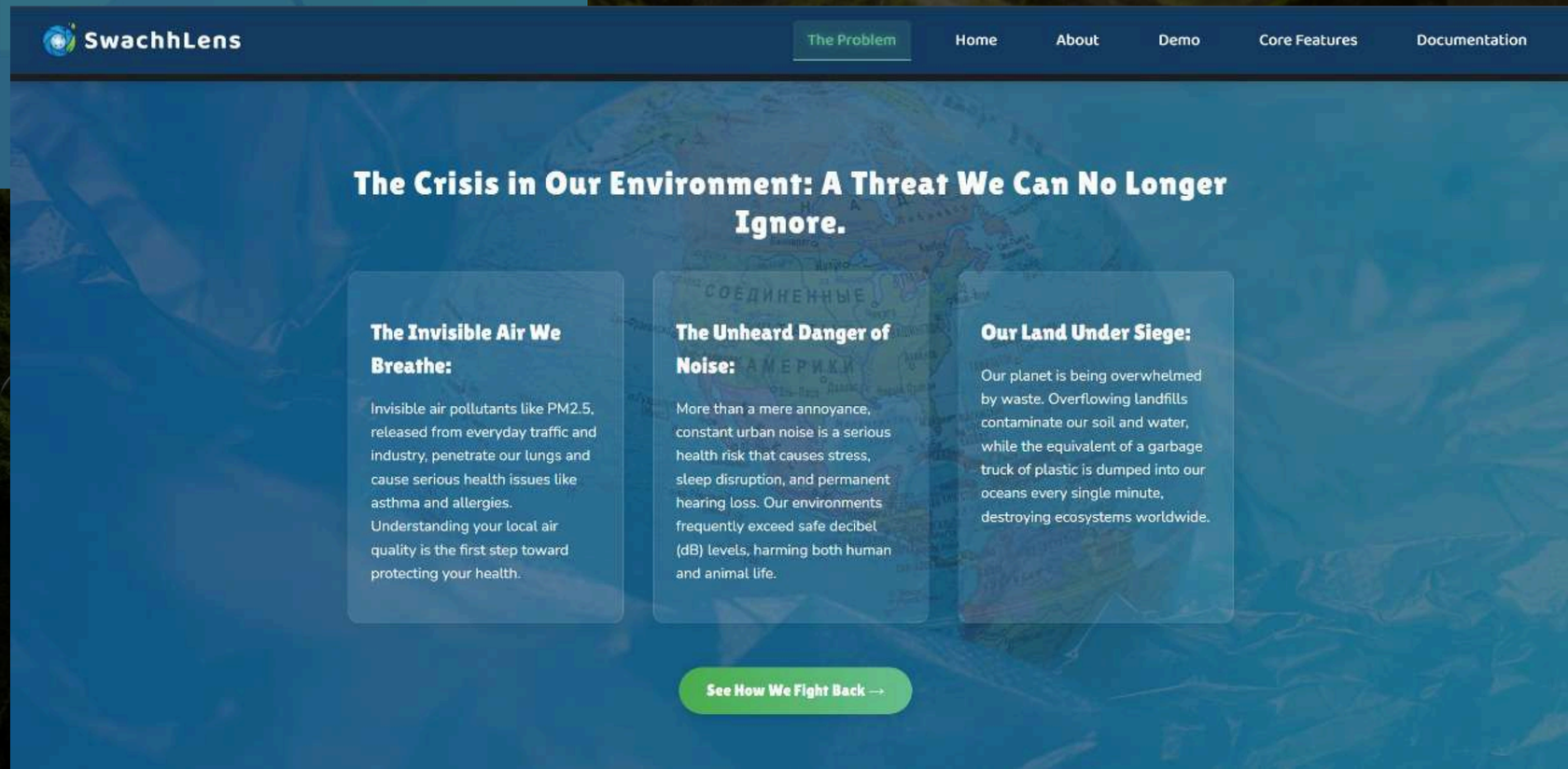
About SwachhLens

Every **environment** has a hidden layer—smog in the **air,** chemicals in the **water,** and the constant **noise** around us. These invisible pollutants build up quietly, but their impact on our **health, safety,** and quality of life is loud and clear. That's where **SwachhLens** comes in. We built it to turn unseen **pollution** into visible insights. Using **AI,** **SwachhLens** monitors environmental patterns, identifies **pollution hotspots,** and reveals how our surroundings shape the way we live. And it's not just about cities—anyone can upload their own recordings or data to uncover what's really happening in their **environment.** In seconds, you'll see the types of **pollution** present, how severe they are, and what actions you can take to stay safe. Powered by the **MERN** stack and deployed on **Akash** Cloud's **decentralized** network, **SwachhLens** is designed to be **fast, reliable,** and scalable—because understanding **pollution** is the first step toward creating a healthier world.


SwachhLens
The Problem
Home
About
Demo
Core Features
Documentation
One Platform. Three Pollutions. Zero Blind Spots.
Powered by AI & Akash Cloud
View City AQI
Analyze My Audio
View Noise Level Stats
Trash Detector
Land Pollution Stats
Air travel contributes not only to noise but also significant CO_2 emissions.


HOME


PLATFORM


SwachhLens
The Problem
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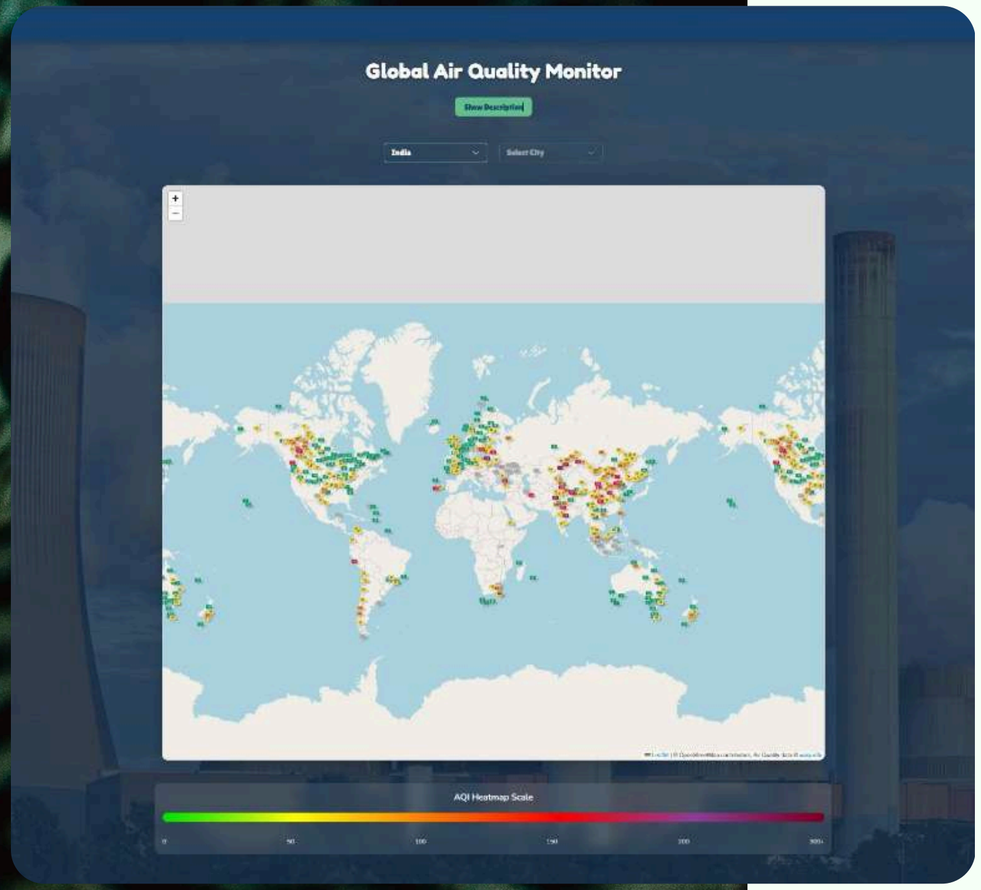
Documentation
The Crisis in Our Environment: A Threat We Can No Longer Ignore.
The Invisible Air We Breathe:
Invisible air pollutants like PM2.5, released from everyday traffic and industry, penetrate our lungs and cause serious health issues like asthma and allergies. Understanding your local air quality is the first step toward protecting your health.
The Unheard Danger of Noise:
More than a mere annoyance, constant urban noise is a serious health risk that causes stress, sleep disruption, and permanent hearing loss. Our environments frequently exceed safe decibel (dB) levels, harming both human and animal life.
Our Land Under Siege:
Our planet is being overwhelmed by waste. Overflowing landfills contaminate our soil and water, while the equivalent of a garbage truck of plastic is dumped into our oceans every single minute, destroying ecosystems worldwide.
See How We Fight Back →

TEAM BITS



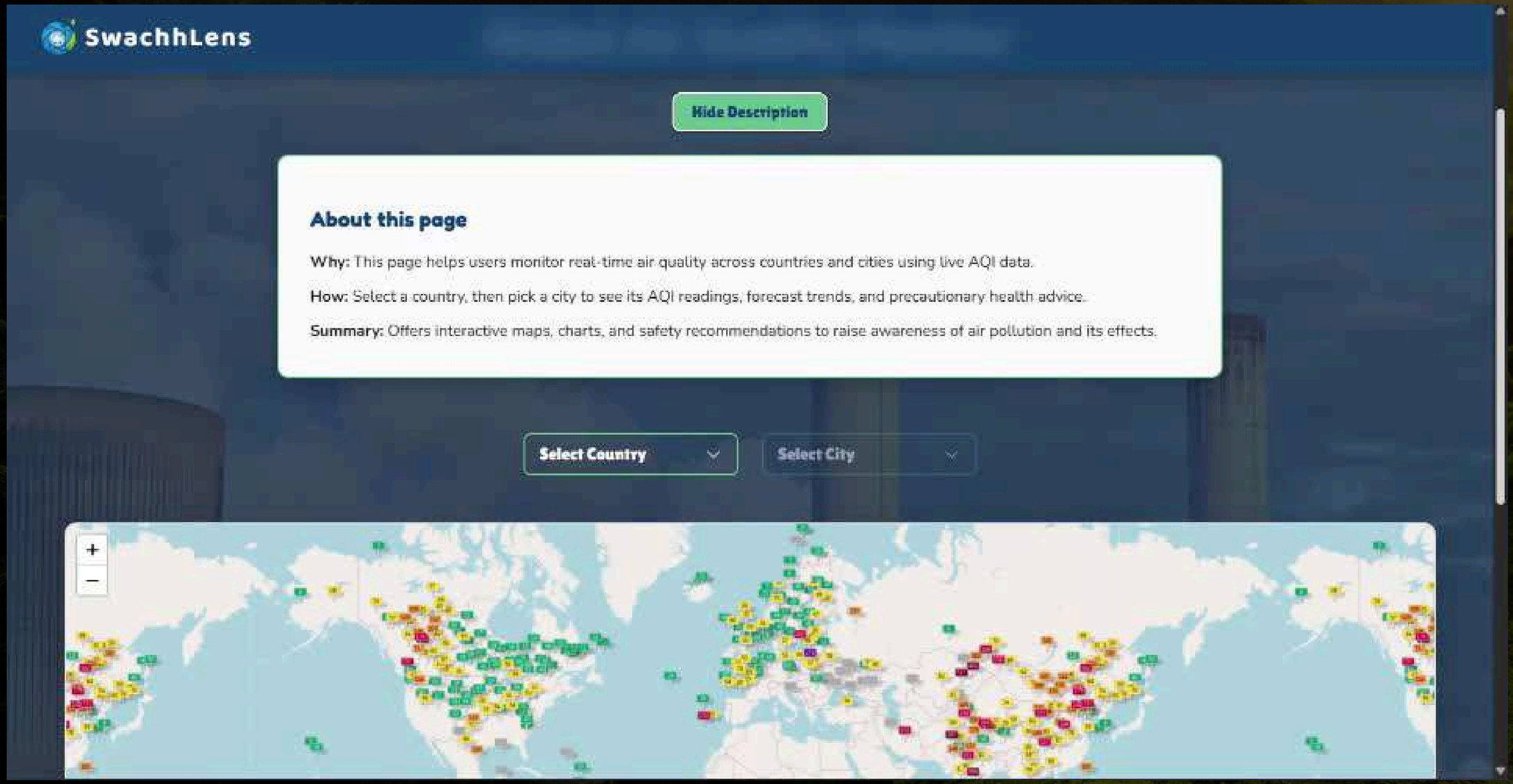
AIR POLLUTION: CLEARING THE AIR

Our platform predicts Air Quality Index (AQI) levels across different regions, helping users stay informed and take preventive measures.

Key Features:

- AQI Prediction: View predicted AQI levels for your city or region on an interactive map.
- Health Tips: Get actionable tips based on the current AQI, such as:
- Wear N95 masks on high AQI days.
- Use public transport to reduce emissions.
- Invest in air-purifying plants for your home.
- Avoid outdoor exercise during peak pollution hours.

AIR QUALITY


SwachhLens
Hide Description
About this page
Why: This page helps users monitor real-time air quality across countries and cities using live AQI data.
How: Select a country, then pick a city to see its AQI readings, forecast trends, and precautionary health advice.
Summary: Offers interactive maps, charts, and safety recommendations to raise awareness of air pollution and its effects.
Select Country
Select City
+
−

TEAM BITS

NOISE POLLUTION: SOUND INTELLIGENCE

NOISE POLLUTION GRAPH

Noise Level Prediction: See forecasted noise pollution levels for residential, commercial, and industrial zones.

Sound Classification: Upload an audio file, and our model will classify the dominant sounds (e.g., traffic, construction, human chatter).

Mitigation Tips:

- **Use sound-absorbing materials in homes.**
- **Promote "No-Honking" zones.**
- **Support the creation of green belts and parks.**

SwachhLens

Audio Analyzer

Analyze sound from your environment

Hide Description

About this page

Why: Analyze environmental noise by uploading or recording audio.

How: Upload a file or record, then click "Analyze" to see decibel levels, safety tips, and detected sounds.

Summary: Helps identify harmful noise exposure and suggests protective actions.

Upload or Record Audio

Choose File | No file chosen

Analyze File

SwachhLens

About:

This page visualizes **noise pollution trends** across Indian cities, highlighting both day and night levels compared against permissible limits. Excessive noise levels are linked to stress, poor sleep, and long-term hearing damage.

How to Use:

- Select a **city** from the dropdown menu.
- Compare **day vs. night noise levels** with legal limits.
- Review the **summary section** for yearly trends and predictions.
- See where **noise exceeds safe limits** in the bar chart.
- Check suggested **precautionary measures** for reducing exposure.

Noise pollution is one of the most harmful yet overlooked forms of environmental pollution. Prolonged exposure to high noise levels can cause stress, sleep disturbances, and long-term hearing problems. The charts below show the historical day and night noise levels across Indian cities compared against permissible limits.

Select City: -- Select a City --

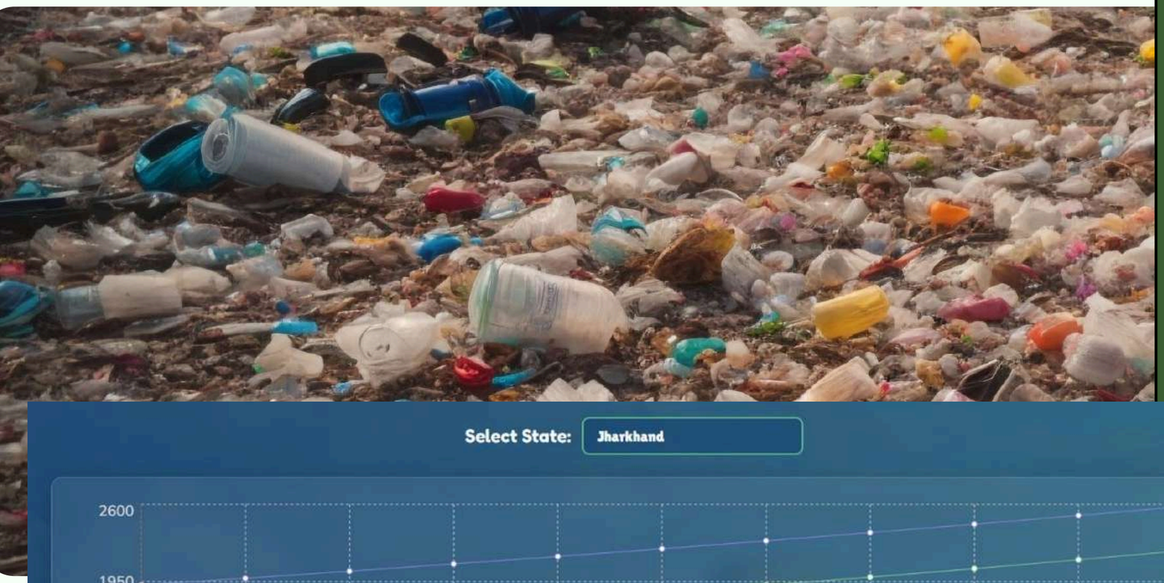
TEAM BITS

LAND POLLUTION: GROUND-UP ANALYSIS

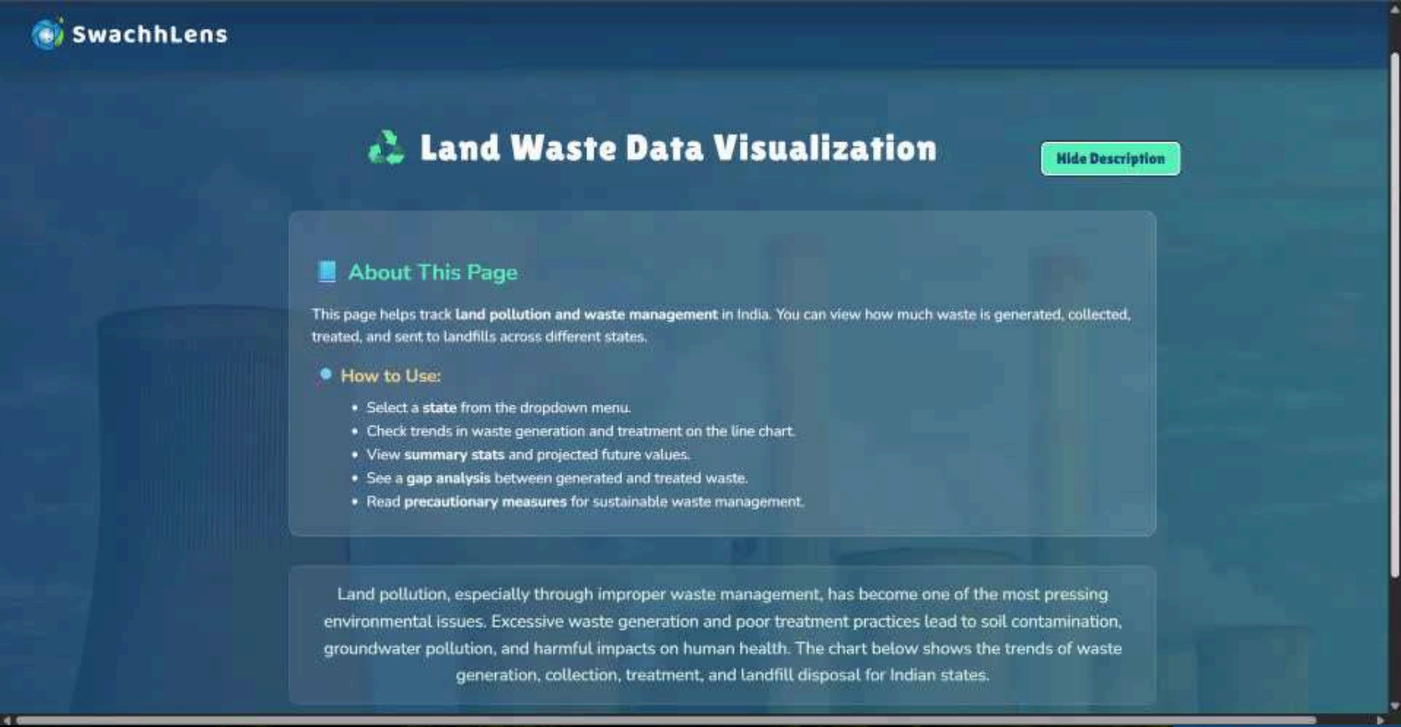
We provide tools to predict land pollution and identify waste materials for better management.

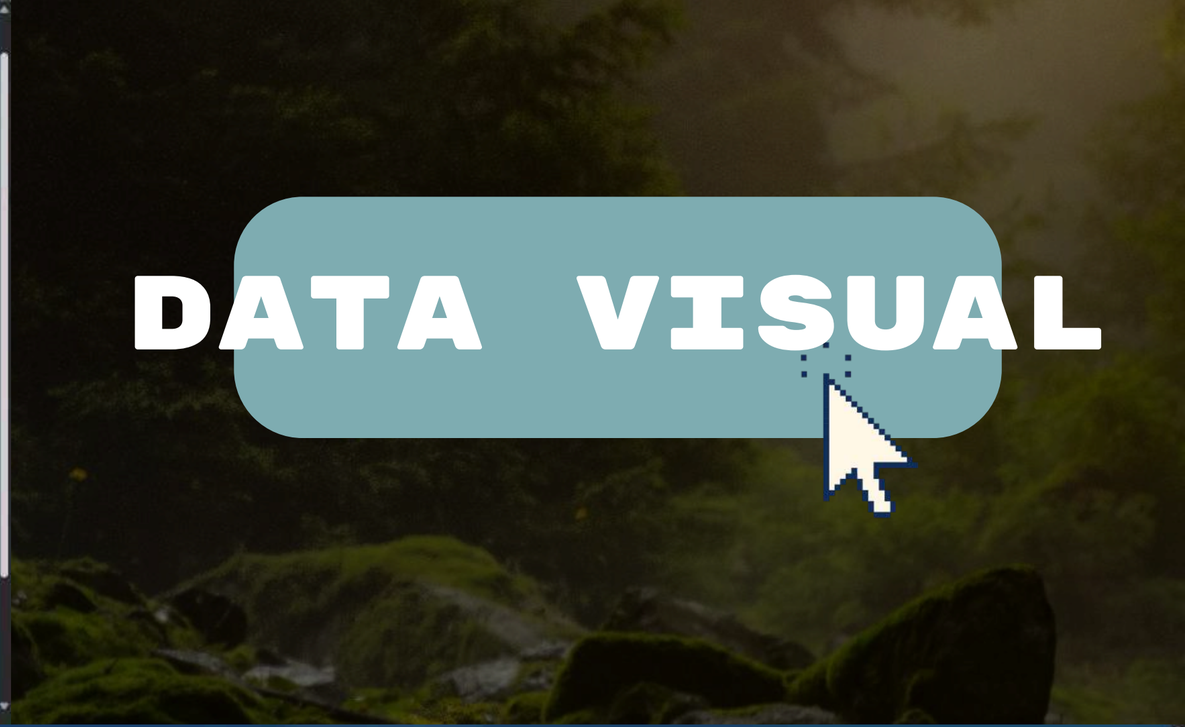
Key Features:

- Pollution Level Prediction: Our model identifies regions prone to high levels of land pollution based on various data points.
- Waste Object Recognition: Upload an image of a waste site, and our AI will detect and classify different objects (e.g., plastic bottles, food waste, electronic waste), facilitating effective segregation and recycling efforts.

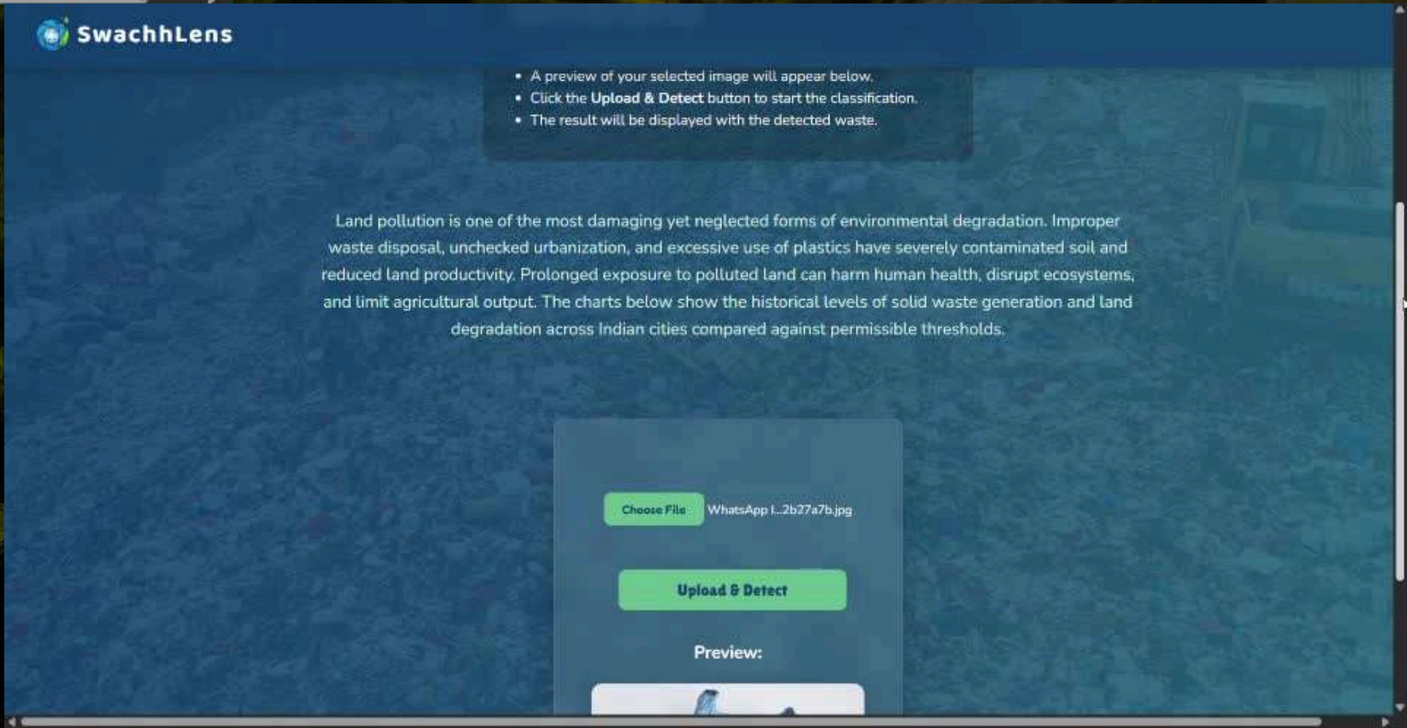


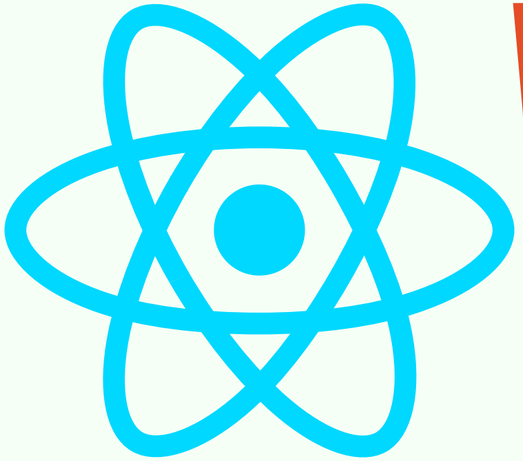
LAND POLLUTION GRAPH

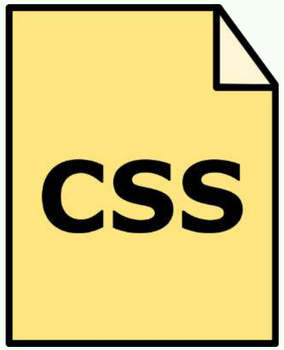

SwachhLens
Land Waste Data Visualization
Hide Description
About This Page
This page helps track land pollution and waste management in India. You can view how much waste is generated, collected, treated, and sent to landfills across different states.
How to Use:
Select a state from the dropdown menu.
Check trends in waste generation and treatment on the line chart.
View summary stats and projected future values.
See a gap analysis between generated and treated waste.
Read precautionary measures for sustainable waste management.
Land pollution, especially through improper waste management, has become one of the most pressing environmental issues. Excessive waste generation and poor treatment practices lead to soil contamination, groundwater pollution, and harmful impacts on human health. The chart below shows the trends of waste generation, collection, treatment, and landfill disposal for Indian states.


DATA VISUAL


WASTE CLASSIFICATION


SwachhLens
A preview of your selected image will appear below.
Click the Upload & Detect button to start the classification.
The result will be displayed with the detected waste.
Land pollution is one of the most damaging yet neglected forms of environmental degradation. Improper waste disposal, unchecked urbanization, and excessive use of plastics have severely contaminated soil and reduced land productivity. Prolonged exposure to polluted land can harm human health, disrupt ecosystems, and limit agricultural output. The charts below show the historical levels of solid waste generation and land degradation across Indian cities compared against permissible thresholds.
Choose File
WhatsApp I...2b27a7b.jpg
Upload & Detect
Preview:





TECHNOLOGY STACK

Machine Learning: TensorFlow & Scikit-learn for predictive modeling.

Data Processing: Python (Pandas, NumPy) for data analysis.

Backend: Flask/Django for API development.

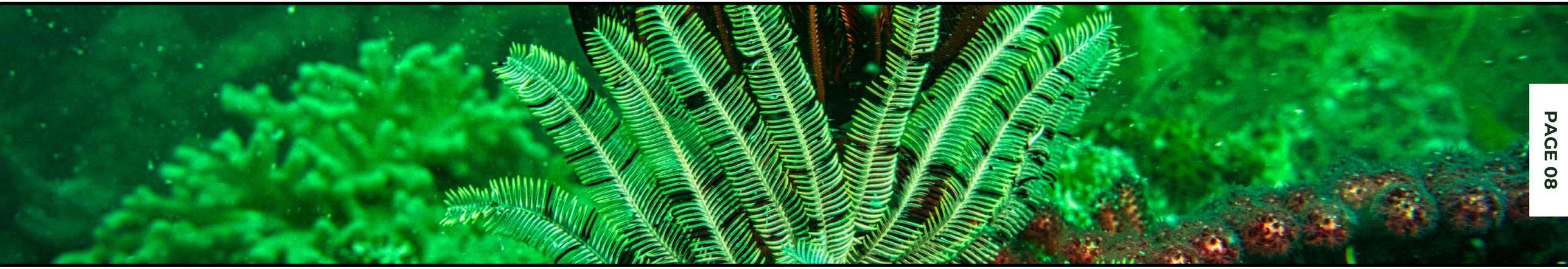
Frontend: React/HTML/CSS for a responsive user interface.

Database: Firestore for real-time data storage.

GIS: Mapping libraries for data visualization.

www.SwatchLens.com

FUTURE SCOPE



Mobile Application: Develop a dedicated mobile app for on-the-go pollution updates.

Water Pollution: Expand the platform to include water quality monitoring and prediction.

Community Reporting: Allow users to report pollution incidents directly through the app.

Government Integration: Partner with municipal corporations and environmental agencies to provide data for policy-making.