Coastal Threat Alert System

Protecting Communities Through Intelligent Monitoring

Team WaveSentinel | Global Climate Hackathon 2023

The Problem

Coastal communities face increasing threats from:
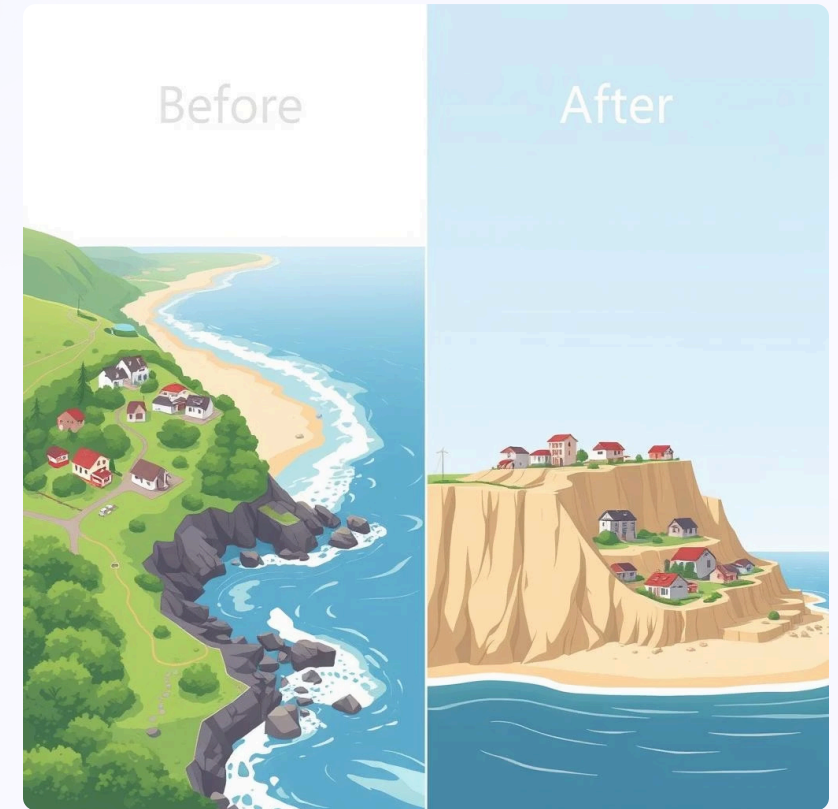
Storm Surges

Sudden, destructive flooding that devastates infrastructure and endangers lives

Pollution

Chemical runoff and waste contaminating marine ecosystems and water supplies

Erosion

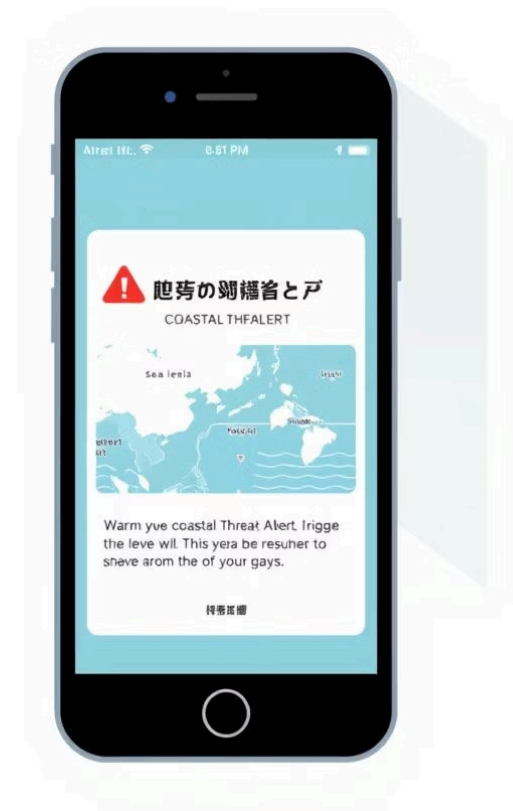Gradual destruction of coastlines, threatening homes and natural habitats

Before After

Communities lack adequate warning systems, leaving them vulnerable to these increasing threats

Made with GAMMA

The Solution

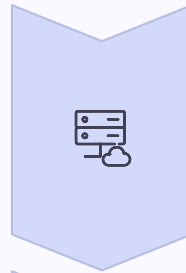## AI-Powered Coastal Threat Alert System

Our solution is an intelligent monitoring system that:

- Continuously monitors coastal conditions using multiple data sources

- Detects early warning signs of threats before they become disasters

- Delivers timely, actionable alerts to communities and authorities

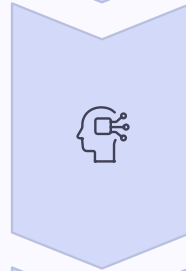- Provides customized response recommendations based on threat type

Putting life-saving information directly into the hands of those who need it most

How It Works (Data & Tech)

Data Collection
Satellite imagery, ocean sensors, weather APIs, and historical data

AI Processing
Machine learning models analyze patterns and detect anomalies

Alert Generation
Real-time dashboard and notifications to stakeholders

The AI Advantage

Pattern Recognition

Detects subtle changes in coastal conditions that humans might miss

Predictive Capabilities

Forecasts threats hours or days before traditional methods

Continuous Learning

Improves accuracy over time by learning from each event

Multi-factor Analysis

Considers numerous variables simultaneously for comprehensive threat assessment

Demo & Results

Our Proof-of-Concept in Action

87%

Accuracy Rate

In detecting potential threats

4.5h

Earlier Warning

Than traditional systems

3min

Response Time

From detection to alert

Our system successfully identified an anomalous wave pattern that preceded a minor storm surge, providing authorities with critical extra time to respond.

The User & Impact

Who Benefits?

Government Agencies

Emergency response coordination and resource allocation

Fisherfolk

Safety warnings and optimal fishing conditions

Coastal Residents

Timely evacuation notices and property protection

Key Benefits

Saves Lives

Early warnings reduce casualties during extreme events

Protects Ecosystems

Faster pollution detection prevents environmental damage

Preserves Livelihoods

Helps communities prepare and adapt to changing conditions

Scalability & Future Scope

Multi-Region Monitoring
Expand to coastal areas worldwide

Additional Alert Types
Pollution, biodiversity threats, and more

Mobile Applications
Direct-to-user alerts and reporting

New Data Sources
Integrate with citizen science and IoT devices

Made with GAMMA

Business Model & Next Steps

Monetization Strategy

Government Contracts
Subscription services for coastal municipalities and agencies

Premium Features
Advanced analytics and customized alerts for commercial users

Data Partnerships
Licensing anonymized insights to research institutions

Immediate Next Steps

1 Pilot Program
Launch in three vulnerable coastal communities

2 Refine AI Model
Incorporate feedback and improve accuracy

3 Secure Partnerships
Collaborate with environmental agencies and tech providers

Made with GAMMA

Thank You!

Protecting Coastal Communities Through Intelligent Monitoring

Team WaveSentinel

contact@wavesentinel.com | www.wavesentinel.com

Follow our journey: @WaveSentinel

Made with GAMMA