CODEWAVE'S

OIL SPILL DETECTOR

Automated workflows
integrating SAR Imaging and AI

PROBLEM STATEMENT

Detecting oil spills in the marine environment using Automatic Identification System (AIS)

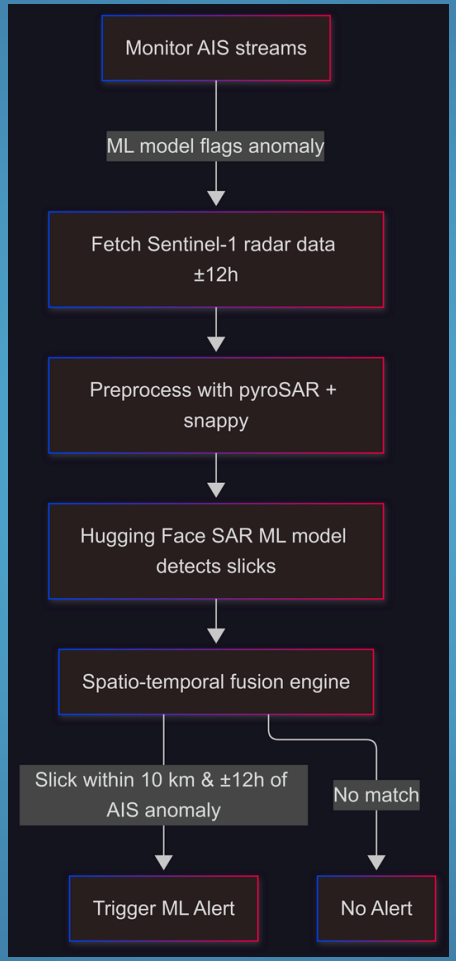
Problem :

- Pollution discharged from ships is the main cause of marine pollution.
- Due to weather conditions and distance limitations, visible or infrared remote sensing is unable to observe oil spills at night or in cloudy weather.
- The time interval of the remote sensing images is too long, and most of the oil spills captured in the photos are not connected to the ship

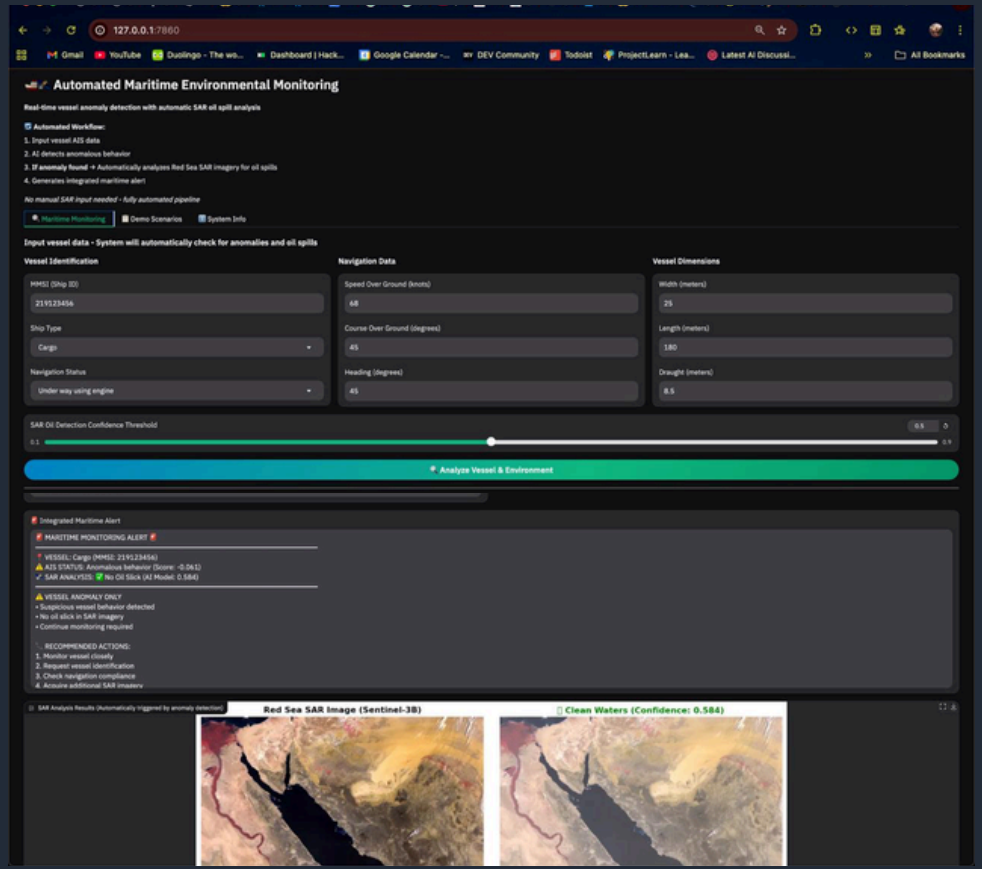
SOLUTION

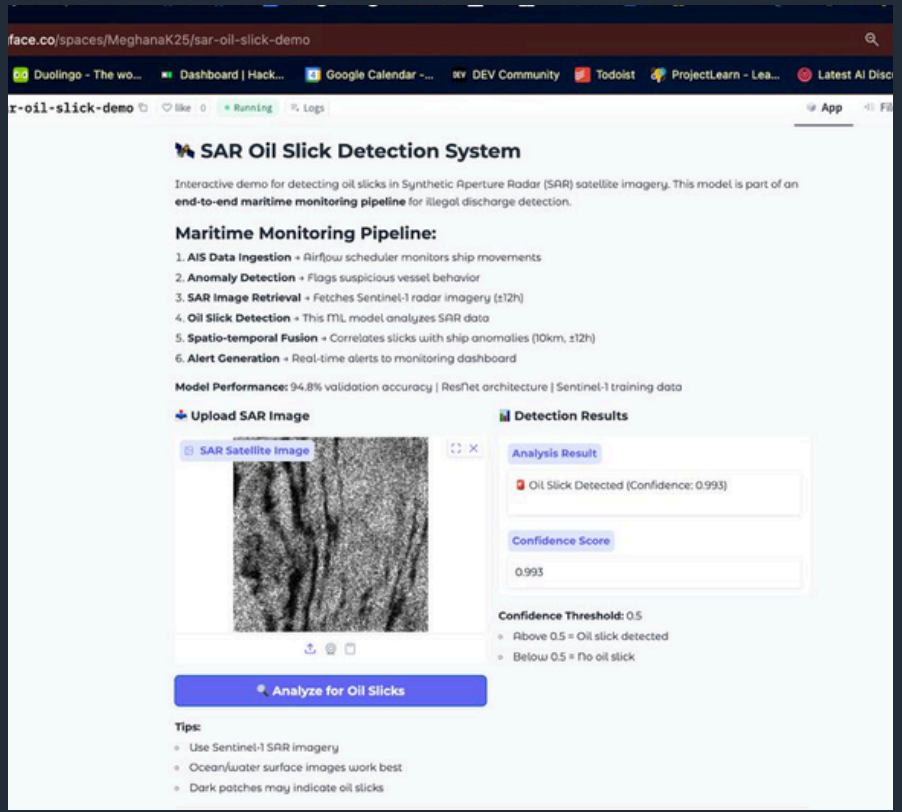
1. Monitor ship movements for unusual activity.
2. Collect relevant satellite data when needed.
3. Process images automatically.
4. Detect slicks using machine learning.
5. Combine results and send alerts if a match is found.

ARCHITECTURE



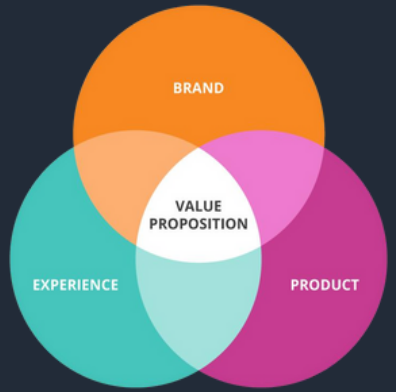
OUR DASHBOARD





- Fully Automated Pipeline – No human intervention.
- Spatio-Temporal Fusion – Cross-checks AIS behaviour with radar-detected slicks for high confidence scoring
- Scalable & Accessible

Top 3 Features (UVP)



TARGET MARKET

Revenue Source : **API access, data services**

Market Type:
B2B SaaS in the maritime & environmental intelligence market.

Market Segment:
Maritime safety, Environmental compliance, Research

MARKET SIZE

$ 35+
Billion
Worldwide Available Market

$ 76.8+
Billion
Worldwide Data-as-a-Service Market

$ 2+
Billion
Service Obtainable Market

BUSINESS MODEL

$ 100+

Million

SOM

5% of Available Market

$ 0.5

Average fee

500k+ API Calls

$ 50k

REVENUE

Projected by

2026

Future Roadmap

Connect with real-time AIS feeds

Scalable Data Pipeline

Model Improvements

Long-Term Future
Global Monitoring System,
Predictive Analytics,
Policy & Research Contribution

THE TEAM

MEMBERS	DESIGNATION	DELIVERABLE
Harini Kannathal	ML Developer	Training Models and hosting backend
Meghana Kotharu	ML Developer	Training Models and hosting backend
Samanwaya M	Backend developer	Training Models and hosting backend
Swetha M	UI/UX and frontend	Dashboard and Logo design

REFERENCES

- Q. Zhu, Y. Zhang, Z. Li, X. Yan, Q. Guan, Y. Zhong, L. Zhang, and D. Li, “Oil Spill Contextual and Boundary-Supervised Detection Network Based on Marine SAR Images,” IEEE Transactions on Geoscience and Remote Sensing, 2021.DOI: 10.1109/TGRS.2021.3115492
- https://www.kaggle.com/datasets/eminserkanerdonmez/ais-dataset - AIS Data Set
- https://huggingface.co/ - deployed AI models and demo for model testing using gradio
- Tools used : Chatgpt , Claude , Google colab, Gradio

THANK YOU