

KSHITI

A Mobile App for Monitoring Coastal
Tourism Safety

**PROBLEM STATEMENT TITLE - DEVELOPMENT OF A MOBILE
APPLICATION TO PROVIDE RECREATIONAL SUITABILITY
INFORMATION OF BEACH LOCATIONS ACROSS INDIA.**



**SMART INDIA
HACKATHON
2024**

Problem Statement ID – 1656

Theme- Travel & Tourism

PS Category- Software

Team ID - 31180

Team Name - BENZENE 2.0

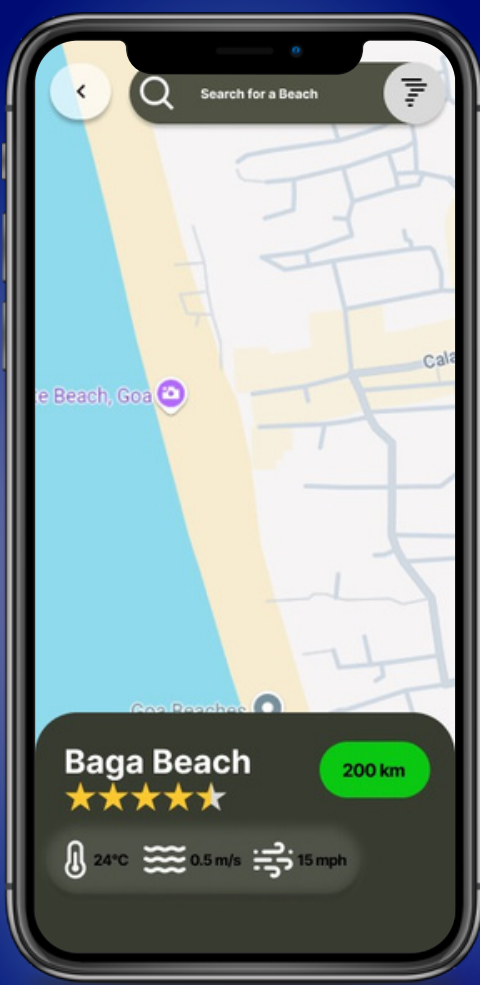


SOLUTION

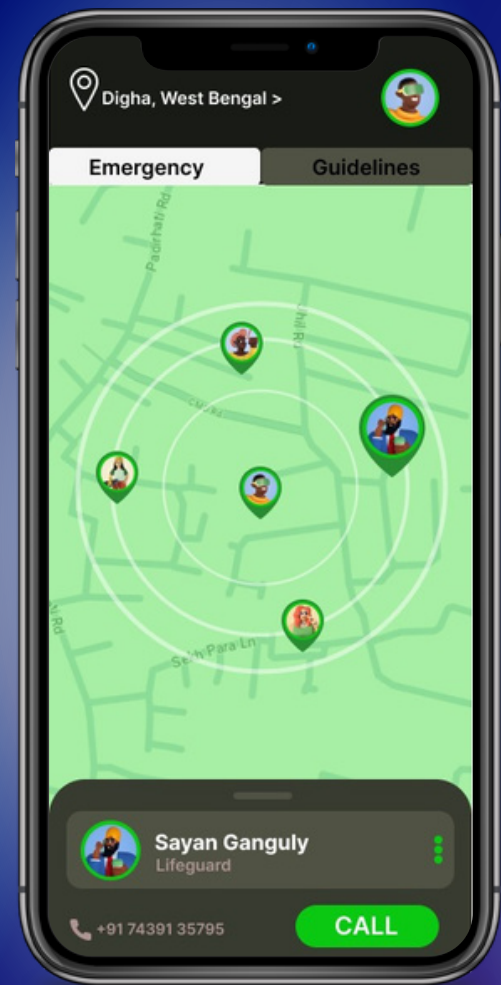
Presenting Kshitij, a one-stop platform to guarantee safety and best experiences for all beach tourists across the country by the dint of APIs, Machine Learning and Geospatial visualization of target locations.



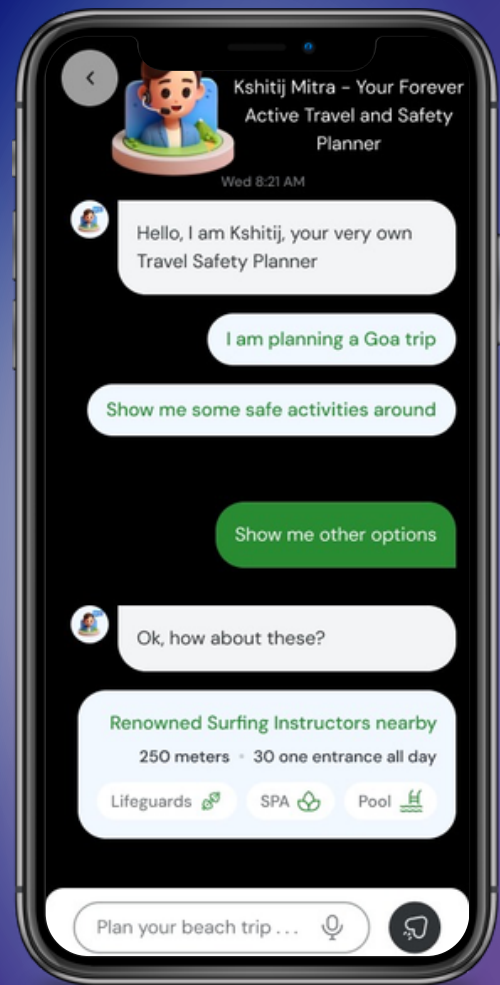
Beach Landing Page



Beach Suitability Map



Instant Helpline



Chatbot - Travel Planner

Available Solutions in the market	Realtime weather & Tide Information	Geo spatial Map Visualization	Realtime Alert Notification	Live Suitability Status	Live Location Sharing & Safe zone	AI Powered ChatBot & Travel Planner	Community Feature & user Generated Alerts
Kshitij (our app)	✓	✓	✓	✓	✓	✓	✓
My Coast	✓	✓	✗	✗	✗	✗	✗
Beach Safe India	✓	✓	✗	✓	✗	✓	✗
Lifeguard Connect	✓	✗	✓	✗	✓	✗	✓
Beach Flags	✗	✓	✗	✗	✗	✗	✗

How Kshitij streamlines your beach venture?

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1. Safety Profiling

Kshitij leverages the abilities of machine learning to classify locations and activities into categories of safe, unsafe or moderate, so users can make quick decisions.
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2. Geospatial Visualization

Fully furnished Geospatial maps are integrated into the very system of the app to make the visibility of safe and troubled zones easier.
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3. Prompt Alerts

With a single click, users are empowered to share their live locations with their SOS contacts, aiding both families and NDRF in cases of emergencies.
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4. Crowd Reporting

Allowing users to generate their own reports based on their experiences on a beach, properly moderated by community notes, empowering users to act like on-ground reporters.
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5. Real-Time Info

Our solution seamlessly integrates requests to up-to-date relevant APIs like INCOIS, WeatherBit etc to let the user be be wary of any environment /weather turmoil.
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6. Furnished with AI

Our very own travel planner chat bot leverages latest fine-tuned Gen AI models to provide one-of-a-kind interactive experience to users planning their future beach trips.
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7. Community

A holistic and inclusive community, which is properly moderated to ensure tourists can make acquaintances close to their places of visit..
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8. Multi-Lingual Support

As we are dedicated to building an inclusive solution for the diverse space of our nation, we intend to provide a multi-lingual support for users across the country.



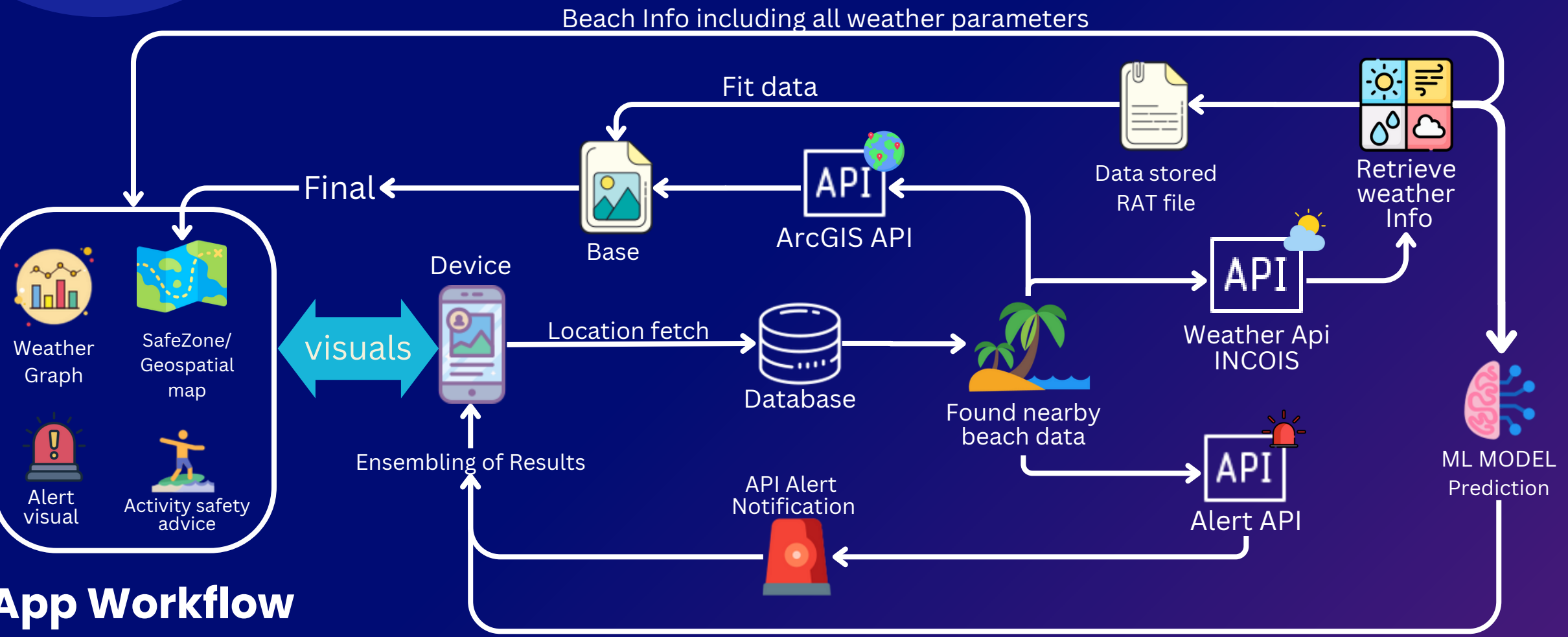
Hi! I am Kshitij-Mitra.
Your personal AI Travel Planner

[Prototype Link ->](#)

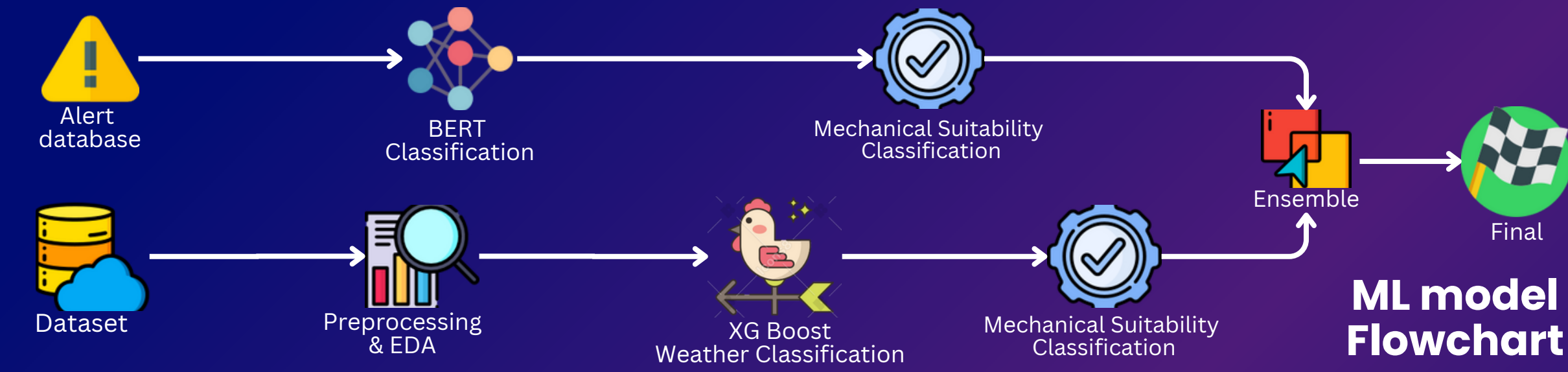
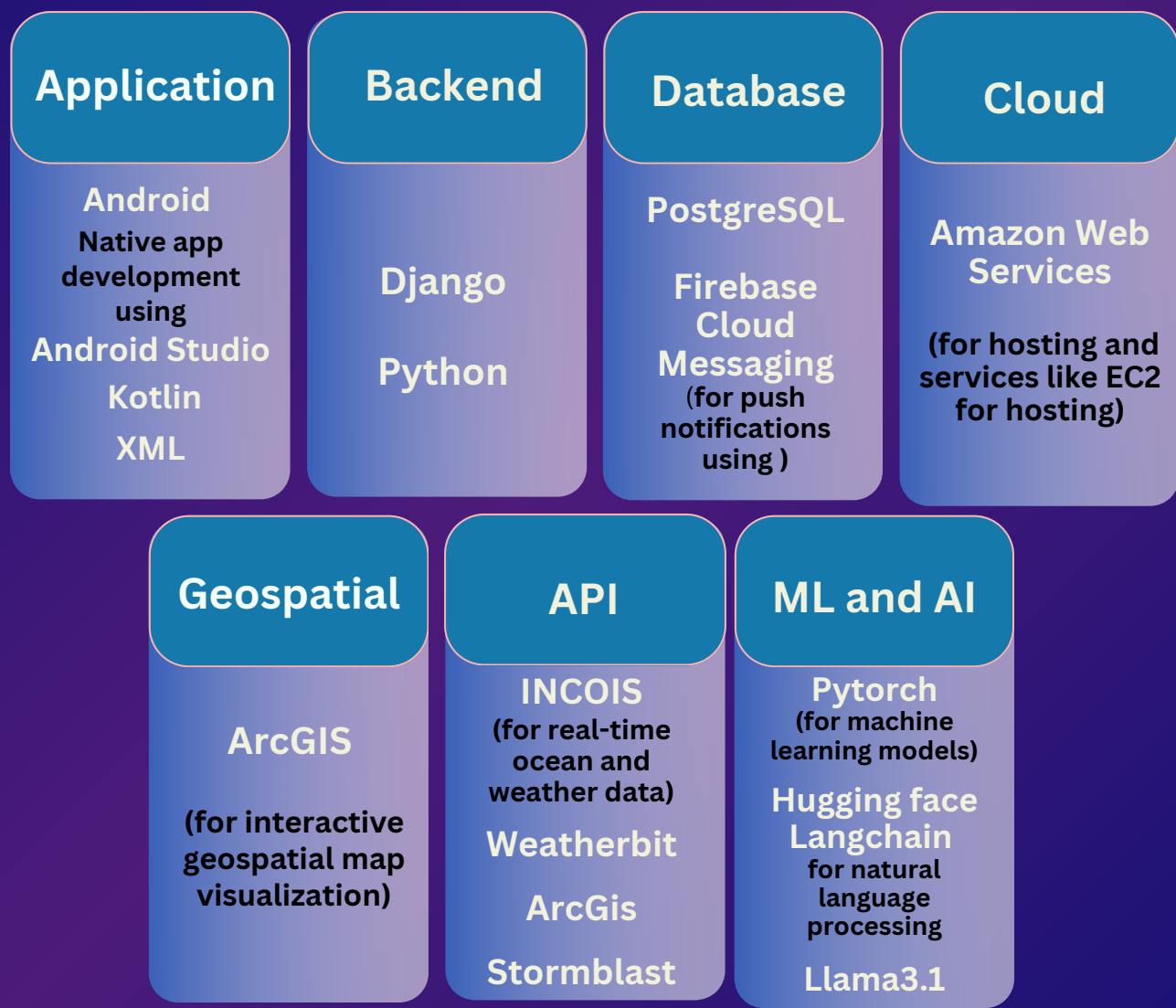
[ML Models ->](#)

[Demo Video->](#)

FLOWCHART & TECHNOLOGY STACK



App Workflow



ML model Flowchart



FEASIBILITY & VIABILITY

Technical Feasibility

- Ensures **real-time data** retrieval with minimal delays.
- Critical for **timely** and **accurate safety alerts**.
- **High accuracy models** for predicting beach suitability.
- Efficient algorithms optimized for mobile platforms.



Legal Feasibility

- Compliance with **data protection regulations** to safeguard tourist privacy.



Potential Challenges and Risks

- Risk of users not receiving **timely warnings** due to unexpected events that might **not get traced yet**.

Solutions to Overcome Challenges

- Providing a separate **Report section** for individual tourists wherein they can **update any unexpected weather anomalies** nearby.

Business Feasibility

- Partner with **local businesses** (e.g., hotels, restaurants) and **travel agencies**

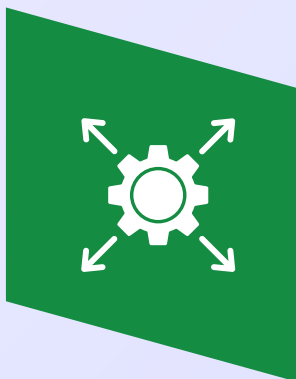


Market Demand

- **High demand** for safety information among tourists, ensuring **widespread adoption**.

Resolution

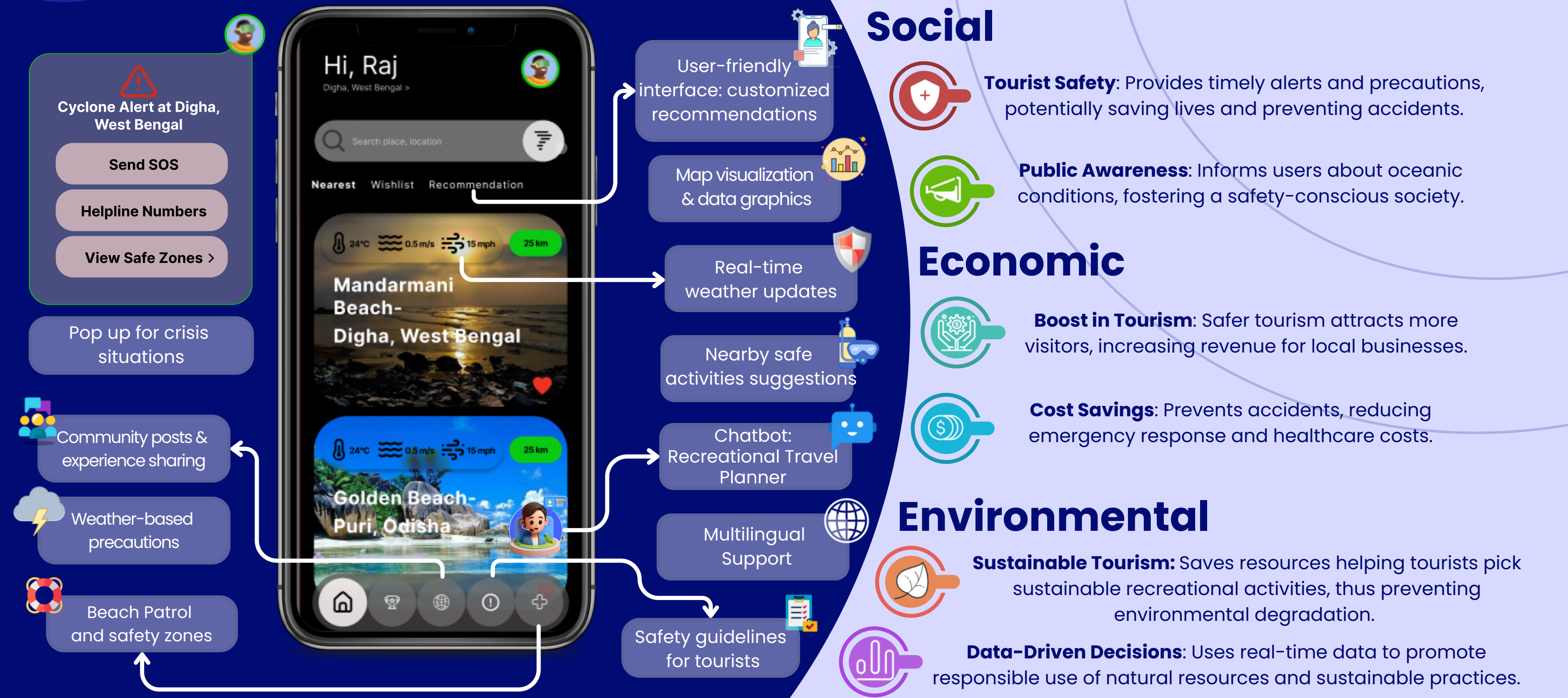
- Unique integration of **real-time data** with user-friendly **geospatial mapping**, setting the app apart from existing solutions.



Scale

- To scale for future load we propose **Horizontal scaling** techniques which works effectively with multiple instances. To achieve this we deploy using **EC2** amazon webservice which provides the **benefit of elasticity**.

IMPACTS & BENEFITS



RESEARCH AND REFERENCES

Referred Research Papers

[A deep-learning model for rapid spatiotemporal prediction of coastal water levels](#) (🔗)

[Deep Learning-Based Weather Prediction: A Survey](#) (🔗)

App References

[My Coast](#) (🔗)



[BeachSafe](#) (🔗)



[Lifeguard
Connect](#) (🔗)



[Beach Flags](#) (🔗)



Our Approach

[Prototype](#) (🔗)

Figma Prototype UI Design.

[ML Models](#) (🔗)

Weather Prediction and Alert Based
Classification Model

[Demo Video](#) (🔗)

Youtube Demo Video Link