MAITRI

Bridging humans and the wild

MEET OUR TEAM

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PROBLEM STATEMENT

Wildlife–human conflicts are a growing problem, causing loss of crops, livestock, and even lives, while animals are injured or killed in the process. The lack of a centralized, user-friendly system makes it hard for people to know safe routes and for authorities to track animal movements in real time. This gap wastes resources, delays response, and puts both humans and wildlife at risk.

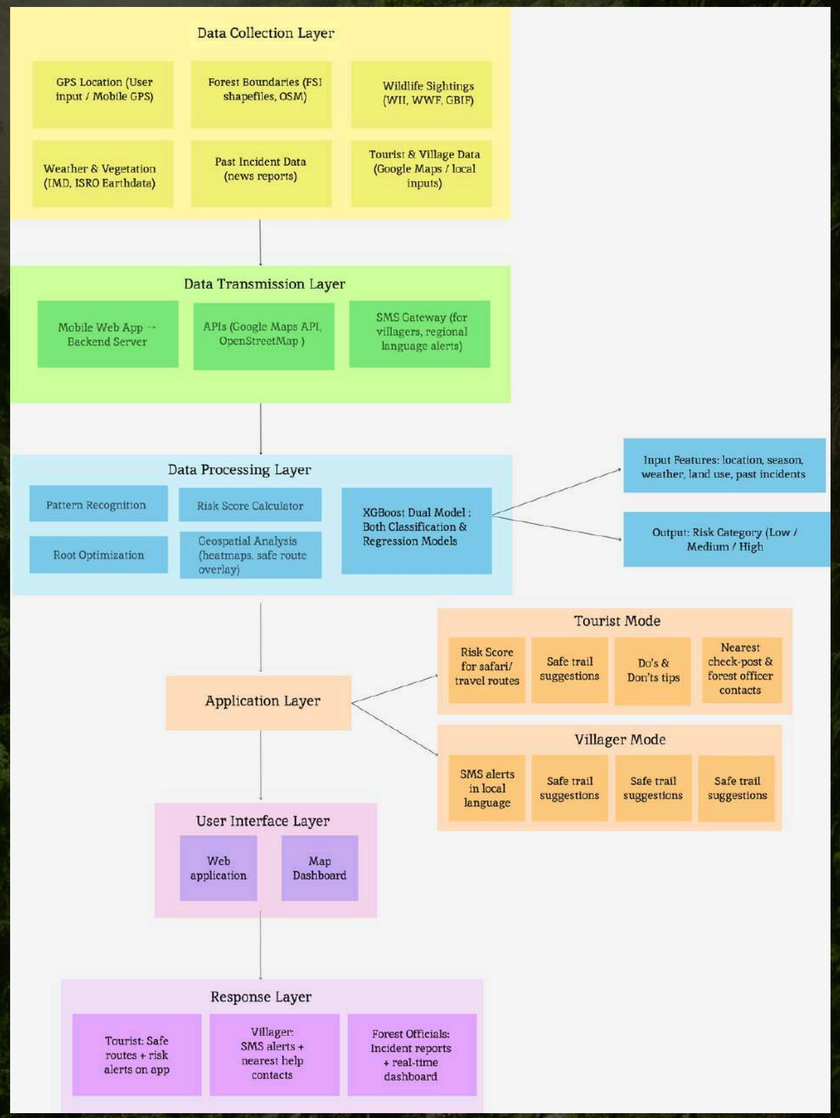
SOLUTION

A smart platform that maps wildlife in real time, sends instant alerts, and uses data-driven risk maps to protect people, guide animals safely, and prevent conflicts before they happen.

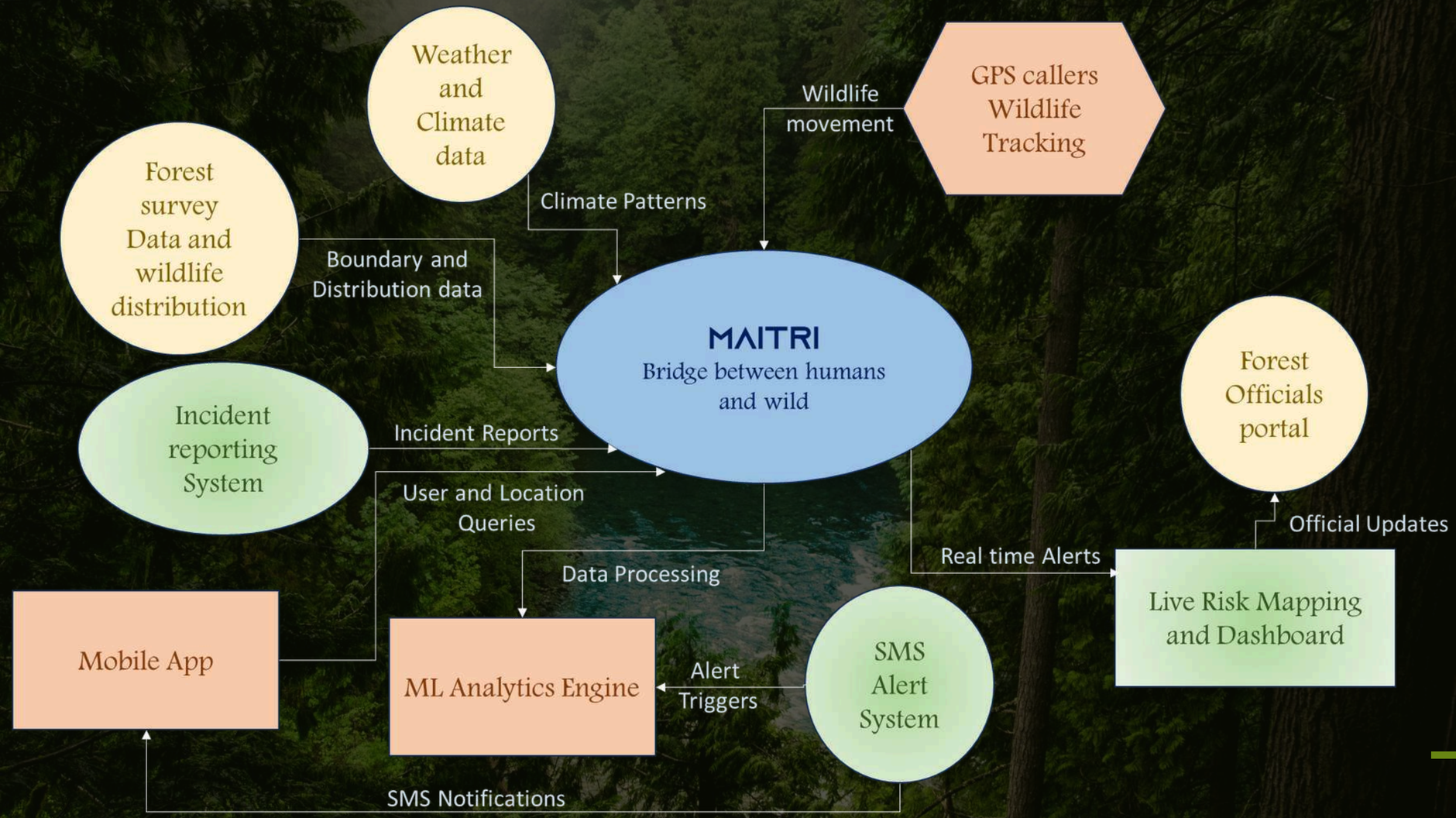
UNIQUE VALUE PROPOSITION

Real-time alerts and predictive maps that protect people, preserve wildlife, and prevent conflicts.

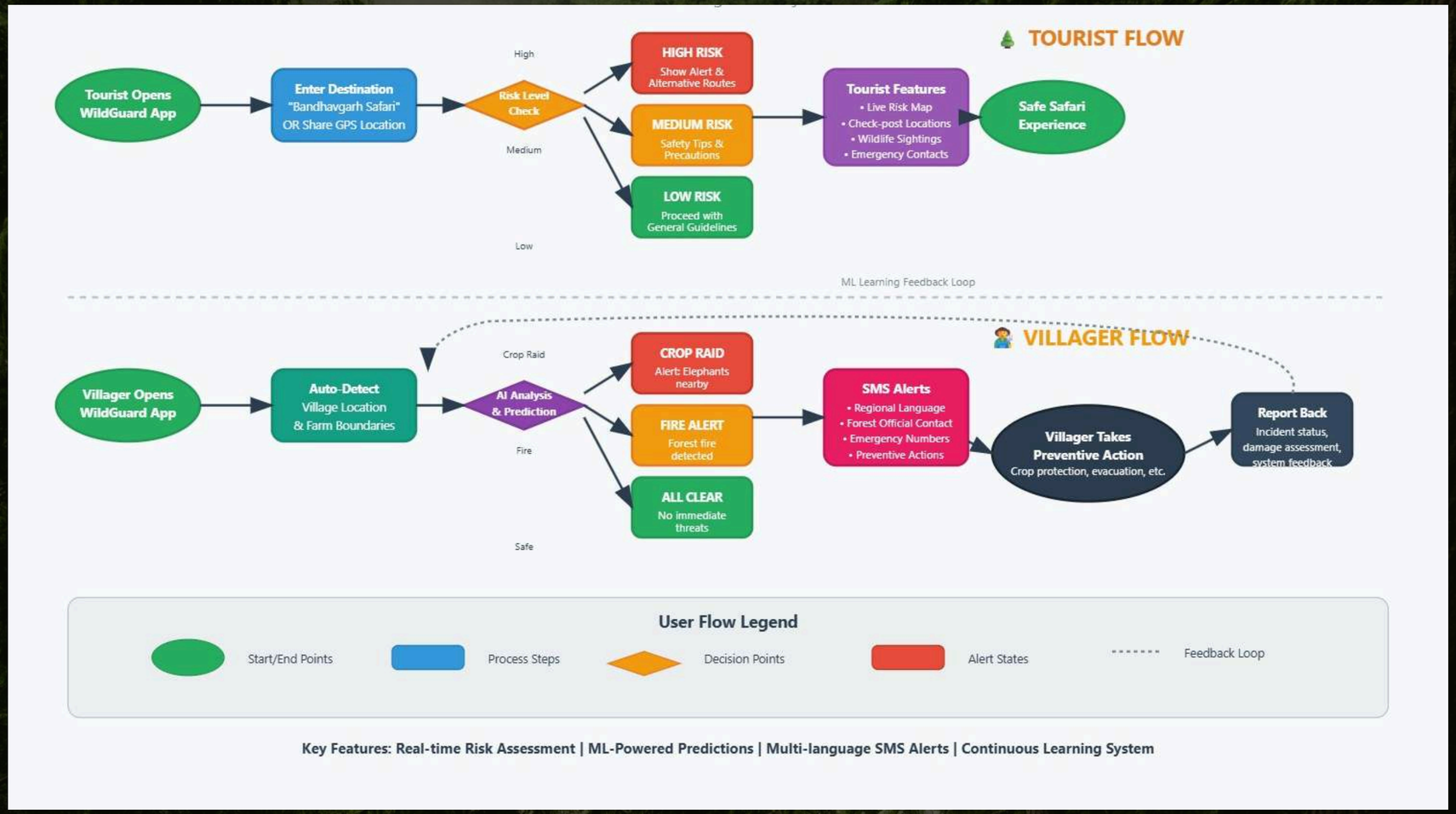
ARCHITECTURE FLOW DIAGRAM



DATA FLOW DIAGRAM



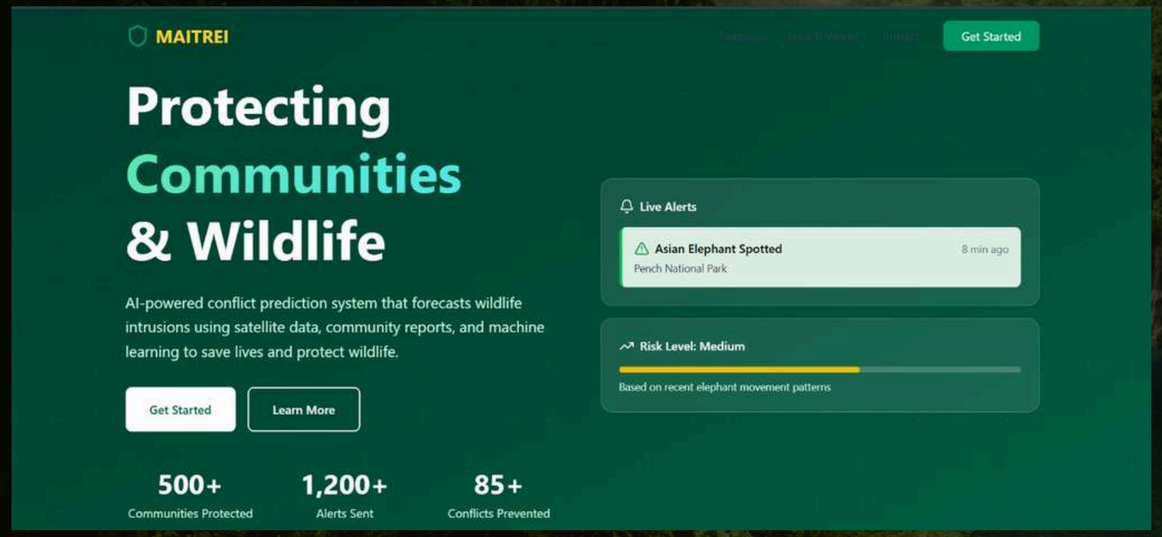
USER FLOW DIAGRAM



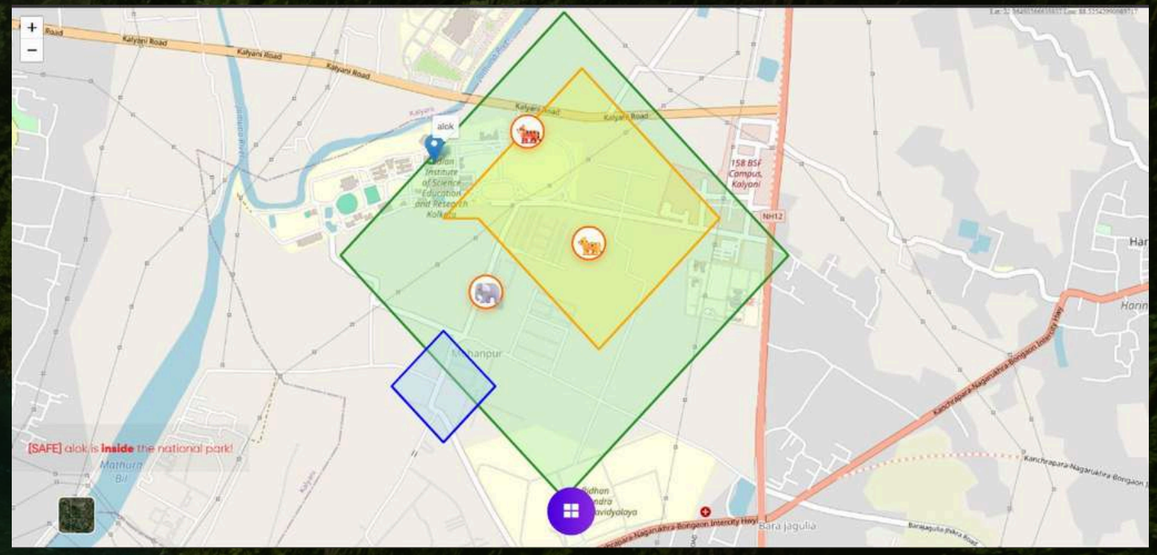
TECHNOLOGIES USED

- Data Sources : ISRO satellite data, government records of conflict, and weather APIs.
- Backend & Prediction Models : Python with Pandas, NumPy, and Scikit-learn. For time-series and sequential predictions, LSTM models (TensorFlow/PyTorch) can be used.
- Frontend App : Flutter or React Native for a mobile-first design (usable in rural areas).
- GIS & Mapping : Leaflet.js or Google Maps API for hotspot visualization.
- Alert System : Twilio/Msg91 for SMS/voice/WhatsApp integration.

DEMONSTRATION



FIRST PAGE



SIMULATION

SOCIAL IMPACTS

01 Human Safety First – Prevents tragic encounters, safeguarding farmers, families, and their livelihoods.

02 Wildlife Preservation – Protects endangered species from harm, fostering true coexistence with nature.

03 Stronger Communities – Empowers rural communities with real-time knowledge, reducing fear and building resilience.

COST ESTIMATION

Data & APIs

ISRO Bhuvan (forest maps, land use) → Free.
OpenWeather API (Free tier: 60 calls/min, 1M calls/month).
Govt datasets (wildlife incidents, crop raids) → Publicly available / sample datasets.

Mapping

Leaflet.js + OpenStreetMap tiles → ₹0.
Google Maps (optional): covered by $200 monthly free credit.

Alerts

SMS/WhatsApp via Twilio/MSG91 → Hackathon credits (typically $20–$50 free).
Enough to simulate hundreds of alerts during demo.

Cloud Compute

AWS/GCP/Azure hackathon credits (usually $100+).
Small VM (~$15/month if billed normally).

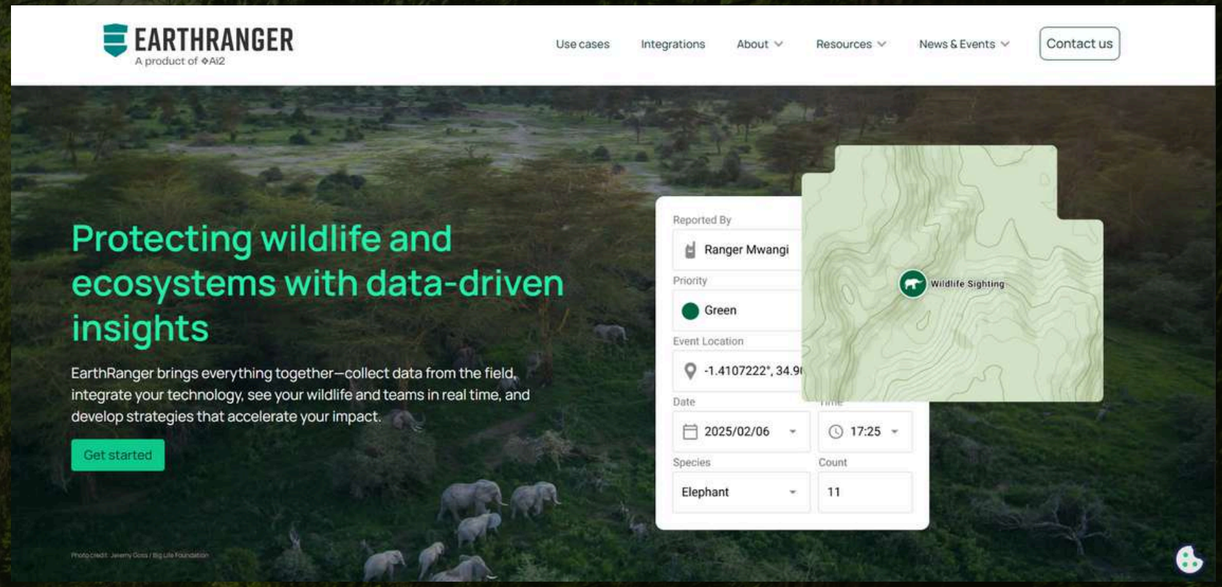
Storage & ML Tools

Free tiers: 5 GB storage + open-source ML libraries (Scikit-learn, TensorFlow).

Prototype Budget Range

Total Estimated Cost: ~ ₹0 – ₹5,000.

COMPETITIVE ANALYSIS



EarthRanger → Ranger dashboards, telemetry tracking.
Strength: widely used in Africa/Asia for wildlife ops.
Gap: Not designed for villagers/tourists.

SMART Tool (WCS/WWF) → Patrol-based monitoring.
Strength: open-source, widely adopted.
Gap: No real-time alerts or mobile citizen interface.

Wild Seve (NCF, India) → Helpline + crop raid compensation.
Strength: Proven community adoption.
Gap: Not predictive, reactive only.

WWF India, WTI, Wildlife SOS → Focused on awareness, rescue & mitigation.

Our Edge / Differentiator

Citizen-first : Villagers & tourists get live alerts & risk scores.
Localized : Uses ISRO + IMD data, supports vernacular languages.
Hackathon-ready : Lightweight, low-cost, runs on free/open APIs.
Complementary: Can integrate outputs into EarthRanger/SMART, not compete.

FUTURE SCOPE

Technology Roadmap

Model Evolution → From Logistic Regression/Random Forest → LSTM → Transformers (temporal + geospatial).
Offline Support → TensorFlow Lite models running directly on mobile devices.
IoT Integration → Acoustic sensors (elephant alarms), camera traps, drones feeding into platform.

Scaling Path

Phase 1 (Hackathon / Pilot): Small demo with mock datasets & SMS alerts.
Phase 2 (District/State): Live data + official datasets, forest dept. partnerships.
Phase 3 (National): Integration across states; NGO collabs (Wild Seve, WWF India).
Phase 4 (Global): Adaptable to African HWC zones (Kenya, Tanzania).

Vision

A centralized early-warning system for human–wildlife conflict.
Benefits locals, tourists, forest officials, and NGOs alike.
Long-term contribution to SDG 15: Life on Land & community safety.


THANK YOU