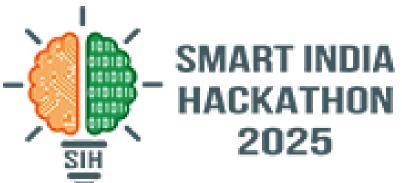
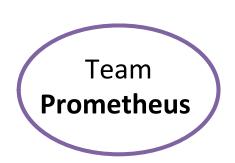
SMART INDIA HACKATHON 2025



- Problem Statement ID- SIH25002
- Problem Statement Title- Smart Tourist Safety Monitoring & Incident Response System using Al, Geo-Fencing, and Blockchain-based Digital ID
- Theme- Travel & Tourism
- PS Category- Software
- Team ID-
- Team Name-Team Prometheus







Backend & Al

Real-time APIs, anomaly detection

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GEO-FENCING FOR PREVENTION

IMMEDIATE PANIC & ANOMALY **ALERTS PUSH**

HOW IT ADDRESSES THE

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PROBLEM

Hybrid trust model

Fast centralized DB for real-time data + blockchain hashes for immutable proof (best of both worlds)

Multilingual voice SOS, elderlyfriendly user interface, opt-in family tracking for privacy.

WORKS IN HEATMAP GUIDE **RESOURCE** REMOTE **ALLOCATION AREA**

Hackathonready MVP

Core safety loop (Register → Track → Alert → Respond) demonstrable in 1 month, blockchain as a showcase add-on 器 م٩٥

Inclusive features

Police Dashboard

Real-time map, alert feed

Security & Privacy

End-to-end encryption,

data minimization

Tourist Safety

Concerns

Tourists face safety

risks

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TOURIST USING MOBILE, AI, GEO-**FENCING & TAMPER-PROOF ID**



REAL-TIME, PRIVACY-

FIRST SAFETY

ECOSYSTEM FOR

Digital Tourist ID

Issue temporary digital identification

Enhanced Tourist Safety

Tourist Mobile

Live GPS, panic button,

App

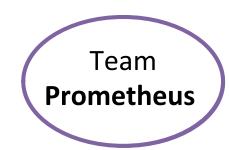
alerts

Tourists are safer and protected

THE SOLUTION

INNOVATION AND

UNIQUENESS OF



TECHNICAL APPROACH



Mobile App Frontend

Cross-platform

development



Registration

Tourist gets a Digital ID(DB+blockchain hash)



Tourist App Installation

Tourist installs mobile app→ Receives alerts, safety score, panic button, geo-fencing



Real-Time Monitoring

Al anomaly detection + geo-fencing → Alerts triggered



Incident Response

Alerts push to Police/Tourism Dashboard (heatmap + feed) → Police acknowledges, resolves, evidence logged



Feedback Loop

Tourism dept. analyses data, improves safety planning

Tourism Dashboard

React.js and Vite Analytics and heatmaps using Recharts

Map Integration

Mapbox integration for interactive maps.

using React Native. Omapbox SOS Vite TensorFlow

TECHNOLOGIES USED

Notifications

Firebase Push Notifications for sending alerts Multilingual support using i18n libraries

AI/ML Integration

Anomaly detection and geofencing using scikitlearn & TensorFlow Lite.

Backend and APIs

FastAPI and PostgreSQL for storing tourist and alert records

METHODOLOGY AND PROCESS FOR IMPLEMENTATION

Team **Prometheus**

STRATEGIES FOR OVERCOMING THE CHALLENGES



Hybrid AI + Rules

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Opt-in live tracking, encryption, tourist control over data

Lean Blockchain Use

Combine rules (geo-fence breach, inactivity) with ML to reduce false alarms



risk-prone regions

Offline Fallback

Store only hash of IDs, not sensitive data



tourist safety, high adoption likelihood in (Northeast, forest treks, religious yatras).

Mobile app+dashboard

developed with tools (React

Native, React, FAST API).

Al anomaly detection with

lightweight rule-based+ML

models. Blockchain demo

Addresses real need in

Technical Feasibility

Operational

Feasibility

Police. Tourism departments use digital systems-dashboard can plug into existing infra. Tourists only need a smartphone

source libraries)

on testnet.

with GPS. Minimal cost using free-tier cloud, open-

SMS-based SOS & offline QR ID for lownetwork zones

> FEASIBILITY AND ABILITY

> > Anomaly detection may trigger unnecessary alerts.

internet/GPS coverage.

Infrastructure Gaps

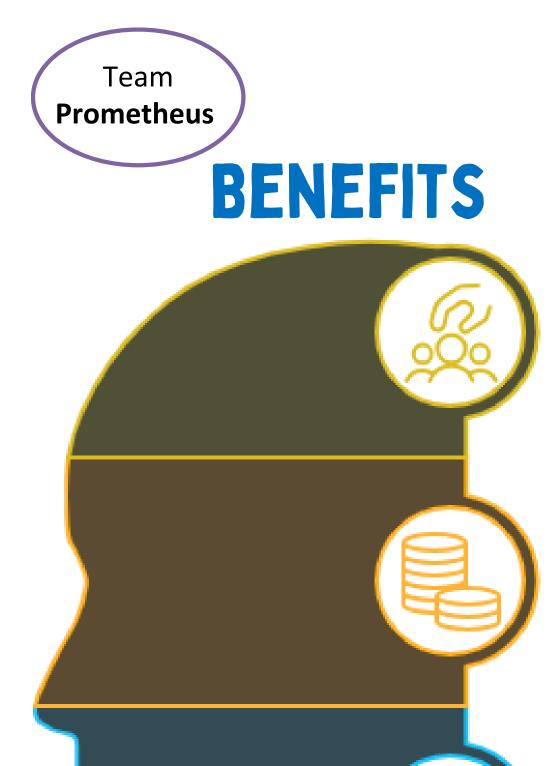
Tourists may resist real-time tracking

Data Privacy Concerns



HALLENGE & **RISKS** False Positives in Al Remote regions may have weak

Economic **Feasibility**



IMPACT AND BENEFITS



Social Benefits

Inclusive design → multilingual + accessible features for elderly & differently-abled.

Improved safety & security for domestic and international tourists.

Stronger trust between tourists and authorities.

Economic Benefits

Increased tourist inflow = higher local business revenue.

Lower policing cost per incident due to smart monitoring.

Environmental Benefits

Geo-fencing prevents tourists from entering ecologically fragile or restricted zones

Reduced rescue operations in risky areas = lower environmental disruption.

Societal POTENTIAL IMPACT ON THE TARGET AUDIENCE

Government

Safer gravel, quick emergency help, peace of mind for families.

Law Enforcement

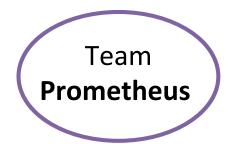
Faster response, better allocation of resources, data-driven policing

Tourists

Enhances India's image as a safe tourist destination, encourages foriegn visits, supports "Digital India" and "Smart Policing" initiatives.







Tourist Safety & Technology

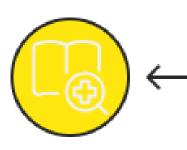
- Ministry of Tourism, Govt. of India **Tourism Statistics 2023**
- <u>UNWTO Tourism and Safety Reports</u>
- National Crime Records Bureau (NCRB) — Crime Against Tourists Data

Blockchain for Identity

- WEF Report Blockchain for Travel & **Identity Management**
- Hyperledger Fabric Documentation
- Polygon (Ethereum) Identity & KYC Use Cases

Tourism Case Studies

- Meghalaya Tourism Department
- Assam Police Smart Policing Initiatives
- SpringerLink Smart Tourism and Safety Research Articles







RESEARCH

AND

REFERENCES



MRIDUL





HARDEEK



SCAN FOR

WEBSITE

SWAJAL

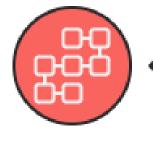




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Al & Anomaly Detection

- <u>IEEE Xplore</u> Anomaly **Detection in Human Mobility** Data
- TensorFlow Lite **Documentation**
- Scikit-learn Outlier & **Anomaly Detection**













- Mapbox Documentation
- Google Maps Platform **Geo-fencing APIs**