SMART INDIA HACKATHON 2025

ATITHI DEVO BHAVA

- **Problem Statement ID – SIH25002**
- **Problem Statement Title- Smart Tourist Safety Monitoring & Incident Response System using AI, Geo-Fencing, and Blockchain-based Digital ID**
- **Theme- Travel & Tourism**
- **PS Category- Software**
- **Team ID-**
- **Team Name- “VRINDAVAN CODERS”**

"Vrindavan Coders"

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❖ By Detecting safety threats early, locating people in real time, and automating incident response and auditing:

- Detail: It's a smart safety system for tourists that:

- Uses **ai** to detect dangers early (like crowding or suspicious activity).
- Uses **geo-fencing** to mark safe/unsafe areas and send alerts.
- Uses **blockchain IDs** to securely verify tourists and keep tamper-proof records of incidents.
- This idea is being explored in India (e.g., Smart India Hackathon) and connects with projects like **Digital Tourism IDs** and **DigiYatra**.

- Problem: "India's tourist hubs lack a unified system for **real-time safety monitoring**, **rapid incident response**, and **secure tourist identification**, **leading to delayed action and safety risks**."

- Solution-Here's a clearer and simpler version:

- **Real-time safety monitoring:** CCTV, drones, GPS, and sensors track crowds and spot risks like overcrowding or suspicious activity using AI.
- **Geo-fencing alerts:** Virtual safety zones send instant alerts when tourists enter or leave risky areas.
- **Automated incident response:** AI or user reports trigger instant police/medical alerts with location and ID details.
- **Digital tourist ID:** A blockchain-based ID securely verifies tourists and keeps tamper-proof logs of incidents and check-ins.

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TECHNICAL APPROACH

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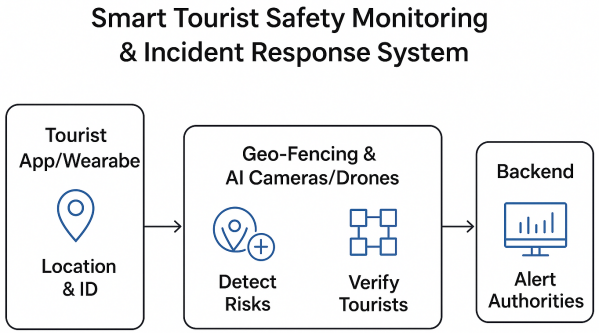
- Component Technologies:
  - Backend & APIs- Python, Node.Js, Java .
  - Frontend- React.Js, Angular .
  - Mobile App- Flutter, React Native .
  - AI & Computer Vision- TensorFlow, PyTorch, OpenCV .
  - Geo-Fencing & Maps- Google Maps API, Map box, PostGIS .
  - Blockchain & Digital ID- Ethereum /Polygon, Hyperledger, Solidity .
  - IoT Devices & Edge- Raspberry Pi, ESP32, LoRa, 5G, MQTT etc.
  - Databases- PostgreSQL + PostGIS, MongoDB etc.
  - Cloud & Infra- AWS, Kubernetes, Docker .
  - Security- OAuth 2.0, TLS 1.3, AES-256 etc.
  - Dashboards- Grafana, Kibana for monitoring .
- Working Prototype:



AI-Powered Safety & Trust for Every Tourist in India

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FEASIBILITY AND VIABILITY

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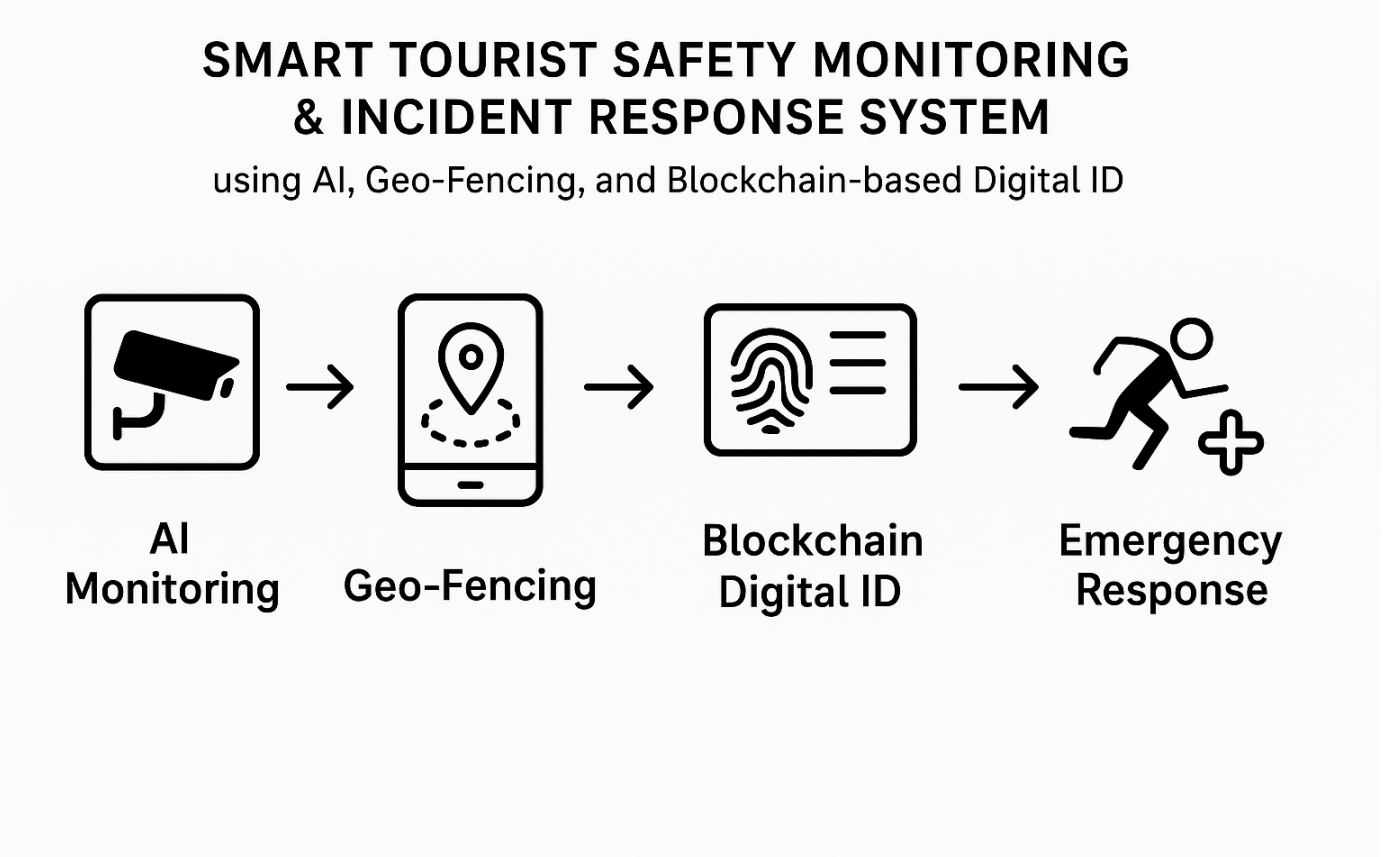
Analysis :

- Technical Feasibility
- ✅ AI Monitoring, ✅ Geo-Fencing, ⚠️ Blockchain ID, ⚠️ Integration
- Economic Feasibility
- 💰 High Setup Cost, 🔄 Ongoing Costs, 📈 Good ROI
- Operational Feasibility
- 📱 Tourists can use mobile apps for alerts.
- 👮 Requires trained monitoring teams and quick response units.
- 🔗 Easy to scale to multiple cities once infrastructure is ready.
- Legal & Ethical FeasibilityOverall Verdict
- 🔒 Must follow privacy laws (GDPR, India DPDP Act).
- 🏛️ Needs govt. and police cooperation.
- ⚠️ Must address public concerns about surveillance.
- Overall Verdict

✅ Technically possible, ✅ Useful & scalable for boosting tourist safety, ⚠️ Challenges



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• Risks & challenges (important)

- **Privacy & civil-liberties concerns:** face recognition, tracking and permanent logs are sensitive; must follow strong consent models, data minimization and legal safeguards.
- **False positives / AI bias:** bad detections can waste resources or harm tourists.
- **Interoperability & infrastructure gaps:** rural/historic sites may lack sensors, reliable networks or local responder readiness.
- **Governance & legal:** who controls the blockchain ledger (govt vs consortium), how long data is retained, and how identities are verified (Aadhaar constraints) must be defined and compliant with India's data protection rules.

• Challenge&Simple Strategy

- Scalability of AI & IoT infrastructure = Use **edge computing** and cloud-based architecture to handle large data volumes; adopt modular, microservices design for easy upgrades.
- Integration of multiple data sources (CCTV, drones, IoT, GPS)= Implement **standardized APIs** and middleware for seamless interoperability.
- Real-time data processing delays= Deploy **low-latency 5G networks**, optimize AI models for speed, and use local data caching..

IMPACT AND BENEFITS

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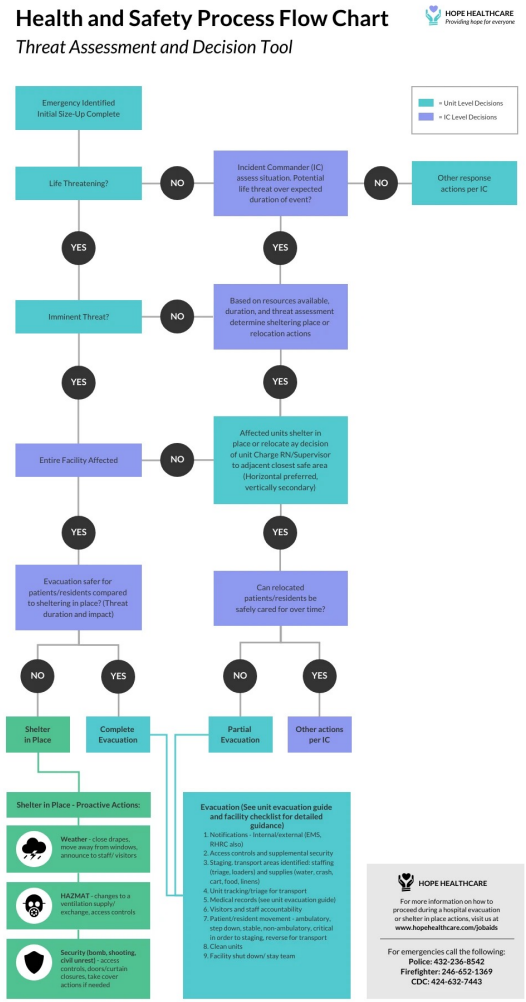
- 🔷 **Impact on People**
  - **Tourists:** Feel safe, get alerts, quick help.
  - **Authorities:** Easier crowd control, faster action.
  - **Tour Guides/Operators:** Easy tracking, safer tours.
  - **Local Businesses:** More tourists, better reputation.
  - **Emergency Teams:** Find people quickly, save time.
  - **Government:** Boost tourism and trust in safety.
- 🔷 **Benefits of the System**
  - **Social:** Safer travel, quick help, happy tourists.
  - **Economic:** More tourism money, jobs, less losses.
  - **Environmental:** Protects nature & heritage sites.
  - **Technology:** Smarter cities, modern solutions.
  - **Government:** Strong safety image, better planning
- **RESEARCH AND REFERENCES:**
  - hxgnpublicsafety.com , thehindu.com , tourism.gov.in , sandwich.com , radar.com , ibm.com , gov.uk , travel.gc.ca ,traveltrendstoday.in , oas.org ,pozyx.io ,mdpi.com ,gitprotect.io ,tsa.gov ,indiaoutbound.info , smartraveller.gov.au etc..



• IMPORTANT INSTRUCTIONS

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- **Please ensure below pointers are met while submitting the Idea PPT:**

1. **Kindly keep the maximum slides limit up to six (6). (Including the title slide)**
2. **Try to avoid paragraphs and post your idea in points /diagrams / Infographics /pictures**
3. **Keep your explanation precise and easy to understand**
4. **Idea should be unique and novel.**
5. **You can only use provided template for making the PPT without changing the idea details pointers (mentioned in previous slides).**
6. **You need to save the file in PDF and upload the same on portal. No PPT, Word Doc or any other format will be supported.**

- **Note - You can delete this slide (Important Pointers) when you upload the details of your idea on SIH portal.**