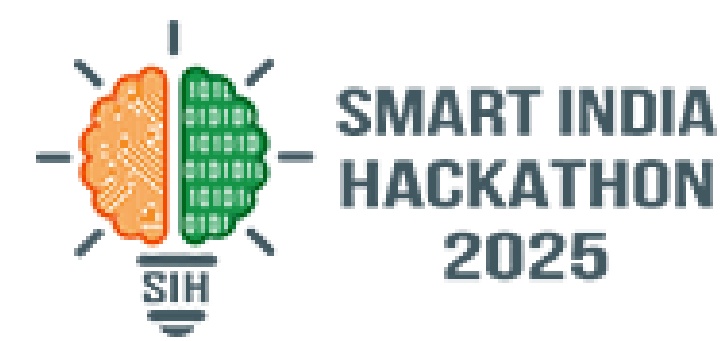


SMART INDIA HACKATHON 2025



- **Problem Statement ID:** 25082
- **Problem Statement Title:** (PS 81)
Development of a travel related software app that can be installed on mobile phones that could capture trip related information
- **Theme:** Travel & Tourism
- **PS Category:** Software
- **Team Name:** Team Unskilled



Idea Explanation

- An app to track trip chain data and share with government, including an AI bot that also takes voice input uses RAG (LangChain + ChromaDB etc.) to pull live travel, weather & govt-data.
- Builds full itineraries + trip chains from user inputs (budget, duration, destinations, companions), stores data, exports PDF.
- Features live location updates danger zone updates, emergency/SOS alerts, public transport tracking, Transport ticket/hotel uploads and past trip analytics.

How It Addresses the Problem

- Replaces costly, low-coverage manual surveys with high-volume automated + minimal user input data.
- Captures richer, more accurate trip chain & transport mode details.
- Enables NATPAC / govt to access real-time + historic mobility patterns for better planning & response.

Innovation & Uniqueness

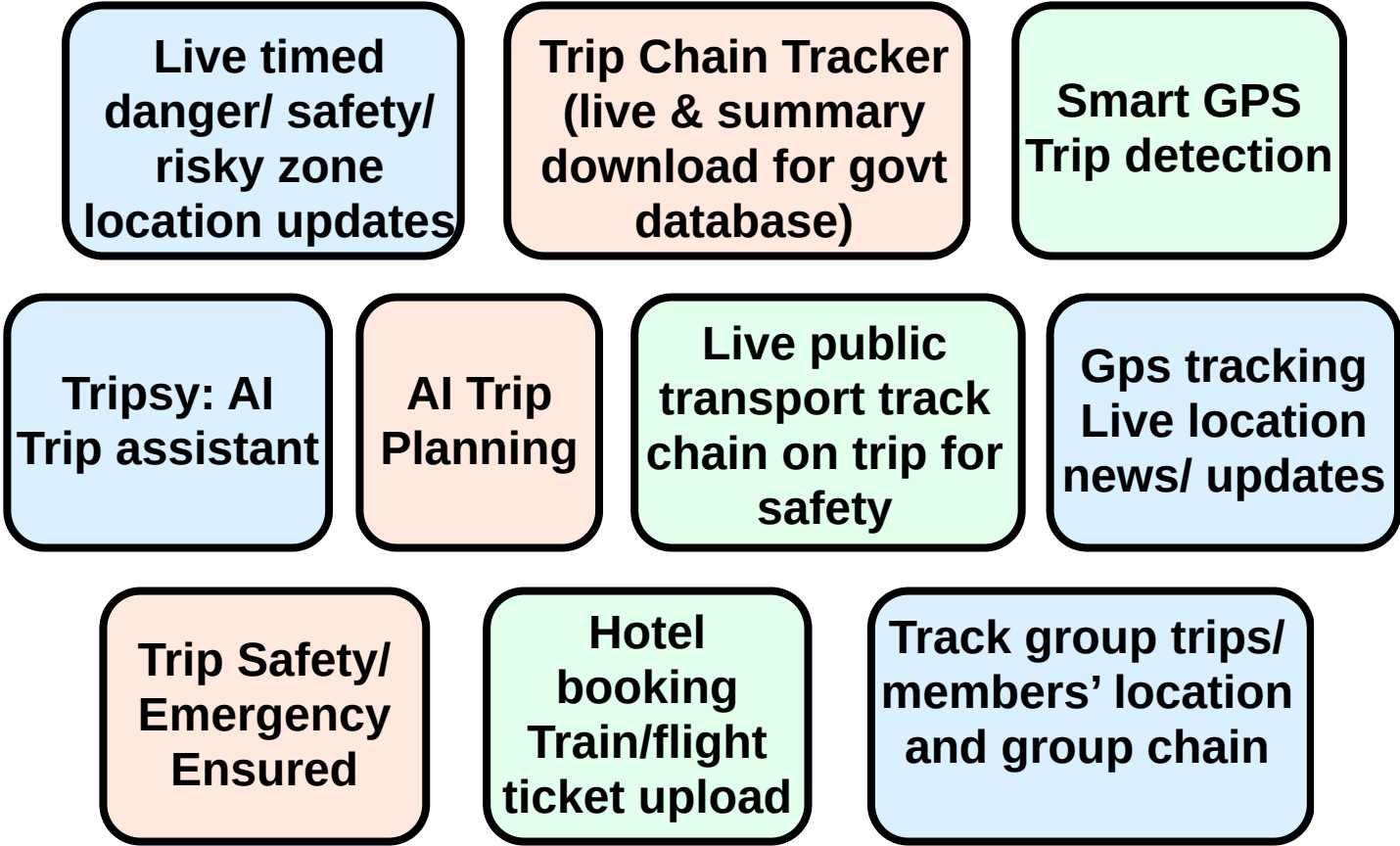
- AI recommendations for destinations, activities, and restaurants. Real-time group collaboration and expense sharing.
- Safety features: SOS alerts and live location tracking. Centralized document management for tickets and bookings. Dynamic updates on weather, transport, and local events..

APP LINK: <https://expo.dev/accounts/prajalgoel/projects/yatra/builds/e4536ac9-51a9-448a-ae57-4042e0744c53>

APP FEATURES

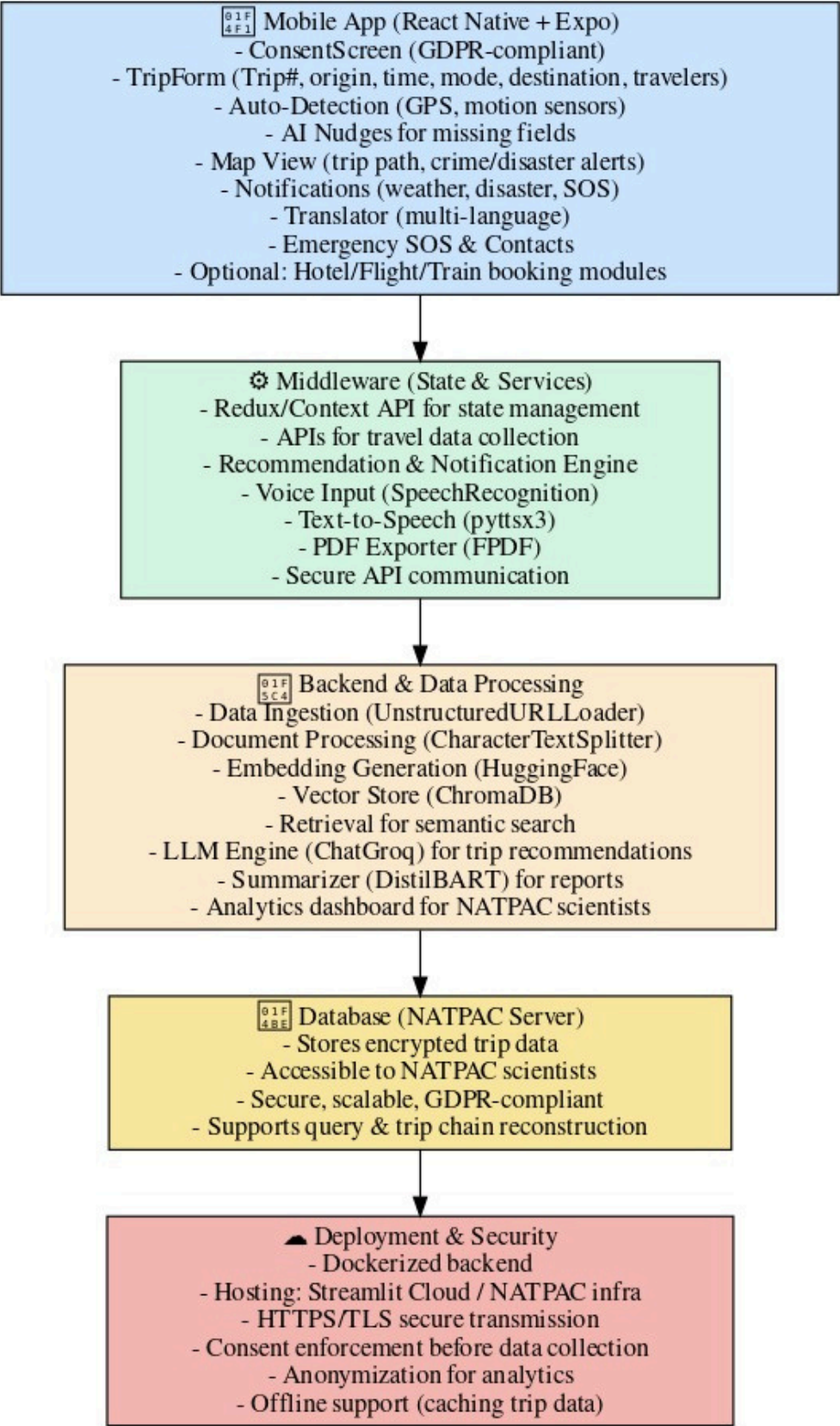
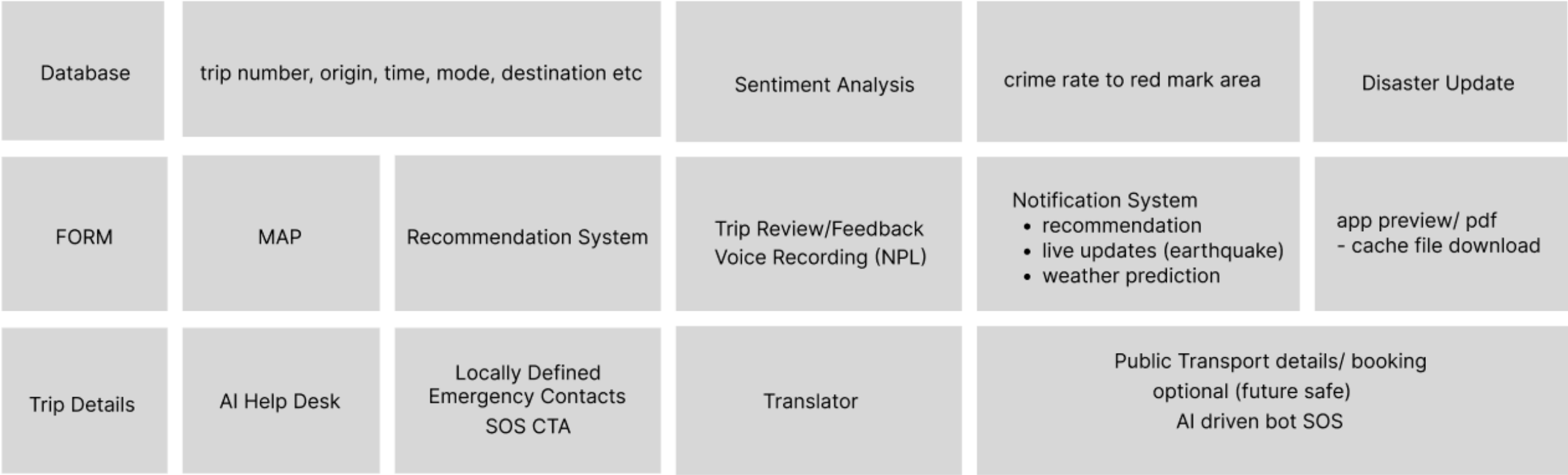
All in one Trip/ Travel assistant





- Easy trip chain data access for the government & user
- User safety ensured and recorded at every step
- AI trip planning & recommendations
- Live location updates/ news/ weather/ safety updates/ transport tracking
- Group trip chain, addition hotel booking & trip/flight ticket saved in database

- Technologies used:** React native, node.js, Generative AI, RAG, Langchain, transformers, fastapis, docker (ffmpeg, espeak), conversationalbuffermemory, chromadb, huggingface for vector embedding, Groq api key, react native, typescript
- Methodology and process for implementation:**



Feasibility

- Technologies like RAG, vector DBs + APIs are proven; mobile OS allow background tracking.
- DigiPIN gives a 10-character code per 4×4 m grid, works offline, precise geo-addressing
- India's DPDP Act mandates consent, data minimization, right to withdraw → supports legal viability.

Challenges & Risks

- Battery drain and location inaccuracy (e.g. indoors, remote).
- Cost/scalability of real-time APIs, DBs, servers.
- Ensuring privacy, managing consent, legal compliance.

Strategies to Overcome challenges

Use consent-first design; allow opt-out; minimal data collection.

- Use DigiPIN + reduced GPS usage; cache data; enable offline support.
- Scale infrastructure gradually; lean open-source tools; efficient DB indexing.
- Use a centralized Consent Manager registered under the DPDP Act, which serves as the single point of contact to collect, manage, review, and withdraw user consent in an auditable and transparent manner

Potential Impact on Target Audience

- Citizens get better travel planning: faster, cheaper, safer trips via real-time updates & SOS features.
- Increased trust: transparency over travel data, control over consent, improved safety in emergencies.
- Enhanced mobility choices: public transport, routes, and options that adapt to user needs (companions, budget, destination).
- Better preparedness: Live alerts and evacuation planning for disasters/emergency situations while travelling.
- Enhances group travel experience by enabling real-time collaborative itineraries, live schedule updates, safety alerts, and centralized document coordination, keeping everyone informed, connected, and secure

Benefits of the Solution

- Helps transportation planners (like NATPAC) make data-driven decisions: route design, infrastructure investment, demand forecasting.
- Reduces congestion and lowers travel time & costs across the system.
- Helps Government agency manage crowd and record data more efficiently
- Economic benefit: boosts tourism, local businesses; reduces cost of operating transport and emergency services.
- Social benefit: safer travel, inclusion of vulnerable users, more equitable access to transit and mobility services.

Datasets

App trip logs (collected): anonymized GPS traces, timestamps, trip events (start/stop), user-provided trip metadata (origin, destination, purpose).
OpenStreetMap (OSM): base maps, POIs, routing & administrative boundaries. (openstreetmap.org)
GTFS feeds: public transit schedules for route matching and trip reconstruction
Disaster / incident feeds: GDACS, EM-DAT, GDELT for global incident / disaster alerts. (gdacs.org · emdat.be · gdeltproject.org)
Crime / local incident datasets: state/city open-data portals (e.g., local police data / data.gov) or Kaggle crime datasets for alert training. (kaggle.com)
Ground-truth / evaluation data: human-labeled alert relevance, user feedback logs, curated trip reports for summarization eval.

Research Models

Embeddings & models: Sentence-BERT / transformer embeddings; BART / DistilBART for summarization (Hugging Face model hub). (huggingface.co)
Vector DBs & retrieval: ChromaDB, FAISS, Milvus for semantic search.
Pipelines & helpers: LangChain / Haystack (document loaders, splitters, RAG patterns).
Speech / TTS: Google Speech-to-Text, Vosk / DeepSpeech for recognition; pyttsx3 / gTTS for TTS.
Mapping & client: Mapbox / Leaflet / MapLibre; React Native + Expo for mobile.
Deployment / infra: Docker, Streamlit (analytics), HTTPS/TLS, NATPAC infra.

Reference

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