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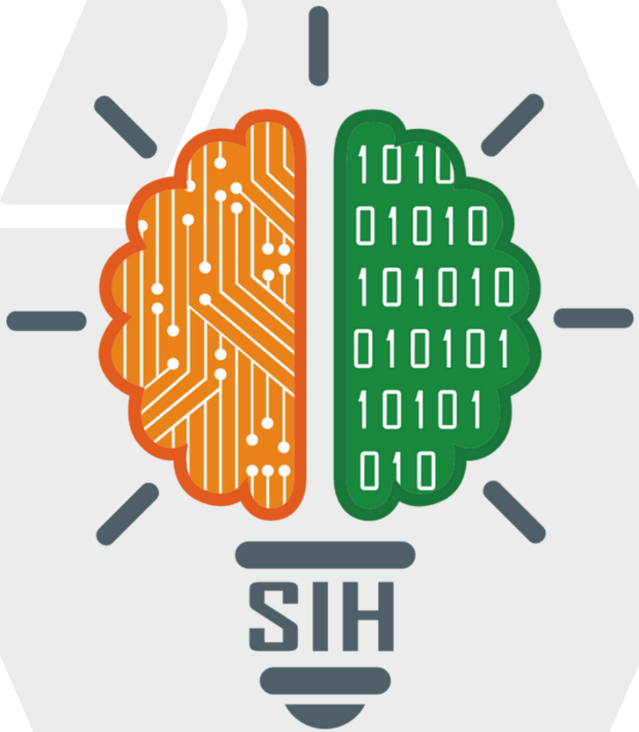
- **Problem Statement ID:** SIH25082
- **Problem Statement Title:**
  Development of a travel related software app that can be installed on mobile phones that could capture trip related information
- **Theme:** Transportation and logistics
- **PS Category:** Software
- **Team ID:** 101933
- **Team Name:** Team Unskilled



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YATRA

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Key Features

01 Tripsy: AI Trip assistant Builds full itineraries + trip chains from user inputs (budget, duration, destinations, companions)

02 Live location updates danger zone updates, emergency/SOS alerts, public transport tracking, Transport ticket/hotel uploads and past trip analytics.

03 Live public transport track chain+Track group trips/ members' location and group chain

04 Easy trip chain data access for the government & user

Uniqueness & Innovation

01 Real-time group collaboration and expense sharing.

02 Dynamic live safety updates and protocols on weather, transport, and local events

03 AI assistant & recommendations for trip. Real-time group live location, collaboration and expense sharing.

04 SOS alerts and live location tracking+public transport chain saving

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.

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TECHNICAL APPROACH

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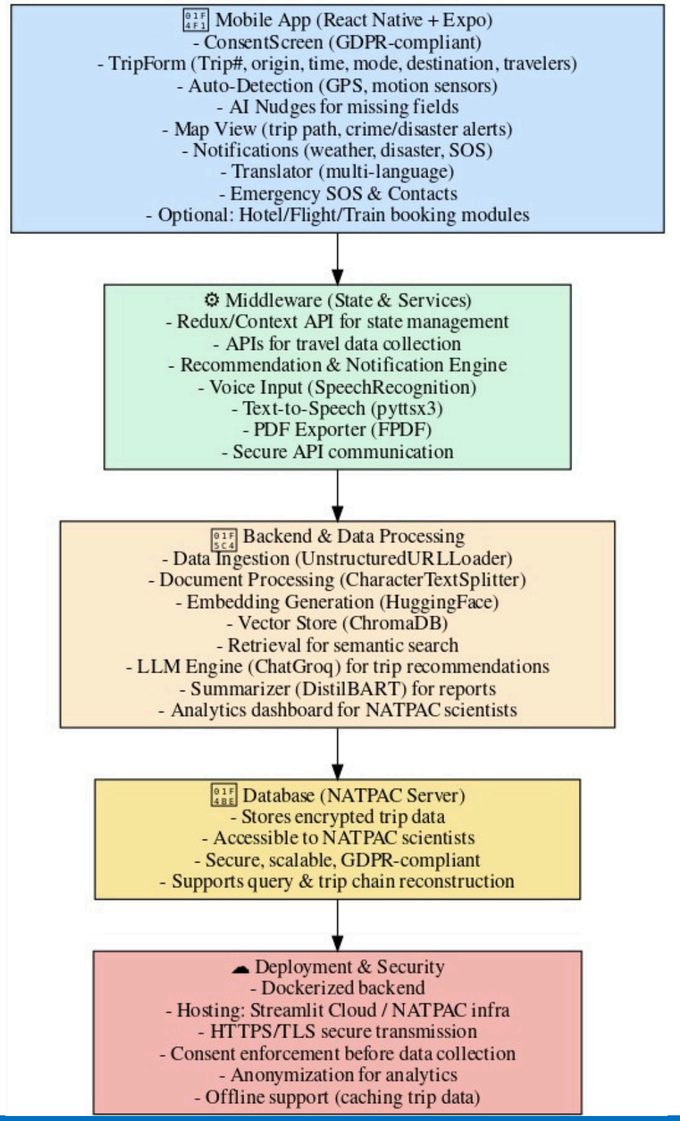
- **Technologies used:** React native, node.js, Generative AI, RAG, Langchain, transformers, fastapis, docker (ffmpeg, espeak), conversationalbuffermemory, chromadb, huggingface for vector embedding, Groq api key, react native, typescript
- **Methodology and process for implementation:**

Database	trip number, origin, time, mode, destination etc		Sentiment Analysis	crime rate to red mark area	Disaster Update
FORM	MAP	Recommendation System	Trip Review/Feedback Voice Recording (NPL)	Notification System • recommendation • live updates (earthquake) • weather prediction	app preview/ pdf - cache file download
Trip Details	AI Help Desk	Locally Defined Emergency Contacts SOS CTA	Translator	Public Transport details/ booking optional (future safe) AI driven bot SOS	



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FEASIBILITY AND VIABILITY

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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

- 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

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IMPACT AND BENEFITS

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Potential impact on Target audience

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

- 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.

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.

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RESEARCH AND REFERENCES

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Live deployment: https://expo.dev/accounts/adaptablecoder/projects/yatra/builds/320fe4c1-94e3-4e08-99f2-9f9418995899

Demo Video: https://youtu.be/z33z-Fp-KsY?si=zrfFCOOZqXcdmtY5

Source Code: https://github.com/adaptableCoder/Team-Unskilled-SIH-Submission

APP QR

Reseach Models

- Embeddings & models: Sentence-BERT / transformer embeddings; BART / DistilBART for summarization (Hugging Face model hub). (huggingface.co)
- Vector DBs & retrieval: ChromaDB, Vector Embeddings
- Pipelines & helpers: LangChain (document loaders, splitters, Semantic Search, Vector Storage),Semantic Search (cosine similarity)
- Speech / TTS: Google Speech-to-Text, Vosk / DeepSpeech for recognition; pyttsx3 / gTTS for TTS through Docker Image.
- Mapping & client: StreetMap
- Deployment / infra: Docker, HTTPS/TLS, NATPAC infra.

Reference

- Lewis, M. et al., BART: Denoising Sequence-to-Sequence Pre-training for NLG, 2019.
- Lewis, P. et al., Retrieval-Augmented Generation (RAG), 2020. Data used: https://share.google/T7e6mXly2wNdpv0rf (India Travel Guide)
- Reimers, N. & Gurevych, I., Sentence-BERT: Sentence Embeddings using Siamese BERT, 2019.
- ChromaDB / Hugging Face / LangChain documentation (tool & model references). (chroma.github.io · huggingface.co · langchain.com)

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)
- Disaster / incident feeds: GDACS, EM-DAT, GDELT for global incident / disaster alerts. (gdacs.org · emdat.be · gdeltproject.org)