SMART INDIA HACKATHON 2025

TITLE PAGE

- **Problem Statement ID -** 25082
- **Problem Statement Title -** Development of a travel related software app that can be installed on mobile phones that could capture trip related information
- **Theme-** Travel and Tourism
- **PS Category-** Software
- **Team ID -**
- **Team Name –** Walk With Us

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IDEA TITLE

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❖ Proposed Solution

A mobile application that automatically captures **trip-related data** like origin, destination, time, travel mode, trip duration, and path using GPS & APIs. The app also allows manual entry of trip details (like number of co-travelers). All trip data is stored in a **central server/database** for later analysis by NATPAC.

Innovation & Uniqueness:

- ❖ Automatic detection of trip start via GPS.
- ❖ Integration of **MapTiler Maps + OpenRouteService API** for route, distance, and path tracking.
- ❖ **Voice-enabled search** for destinations.
- ❖ **Dynamic trip mode selection** (walk, cycle, bike, car, bus, train).
- ❖ Secure consent-based data collection for planning.

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TECHNICAL APPROACH

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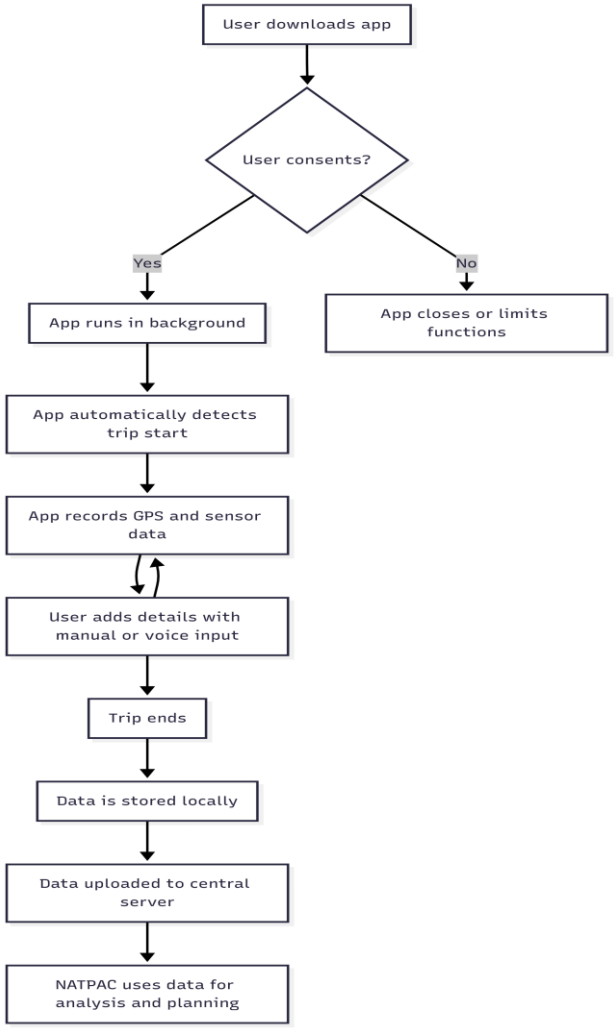
Tech Stack Used:

- **Frontend (Mobile/Web):** HTML, CSS, JavaScript, MapLibre, MapTiler API, Voice Recognition API
- **Backend:** Node.js + Express.js
- **Database:** SQLite (trip info + user info)
- **APIs:** OpenRouteService (routing & distance), MapTiler (maps & geocoding)
- **Mobile Deployment:** Android (via WebView / APK packaging)

Flow:

- User logs in / creates account
- User selects travel mode
- App captures GPS-based location & start time
- Destination entered (manual/voice) → route fetched via ORS
- App records duration, distance, and path
- Data stored securely in backend SQLite DB
- NATPAC scientists access aggregated trip data



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FEASIBILITY AND VIABILITY

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- **Practicality:** Runs on any smartphone, lightweight, no expensive hardware needed.
- **Scalability:** Can handle millions of trip records on cloud.
- **Consent-based:** Respects privacy by asking user approval before tracking.
- **Challenges:** GPS accuracy indoors, user dropout, ensuring battery optimization.
- **Mitigation:** High-accuracy geolocation, nudges for user input, background optimization.

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IMPACT AND BENEFITS

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- Provides **real-time, large-scale, accurate mobility data** to NATPAC.
- Reduces **manual surveys → faster planning, lower costs.**
- Enables **scientists & planners** to analyze trip chains, travel patterns, and mode usage.
- Helps in designing **better transport policies, road networks, and urban mobility plans.**
- Potential extension to **traffic congestion analysis & carbon footprint tracking.**

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RESEARCH AND REFERENCES

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