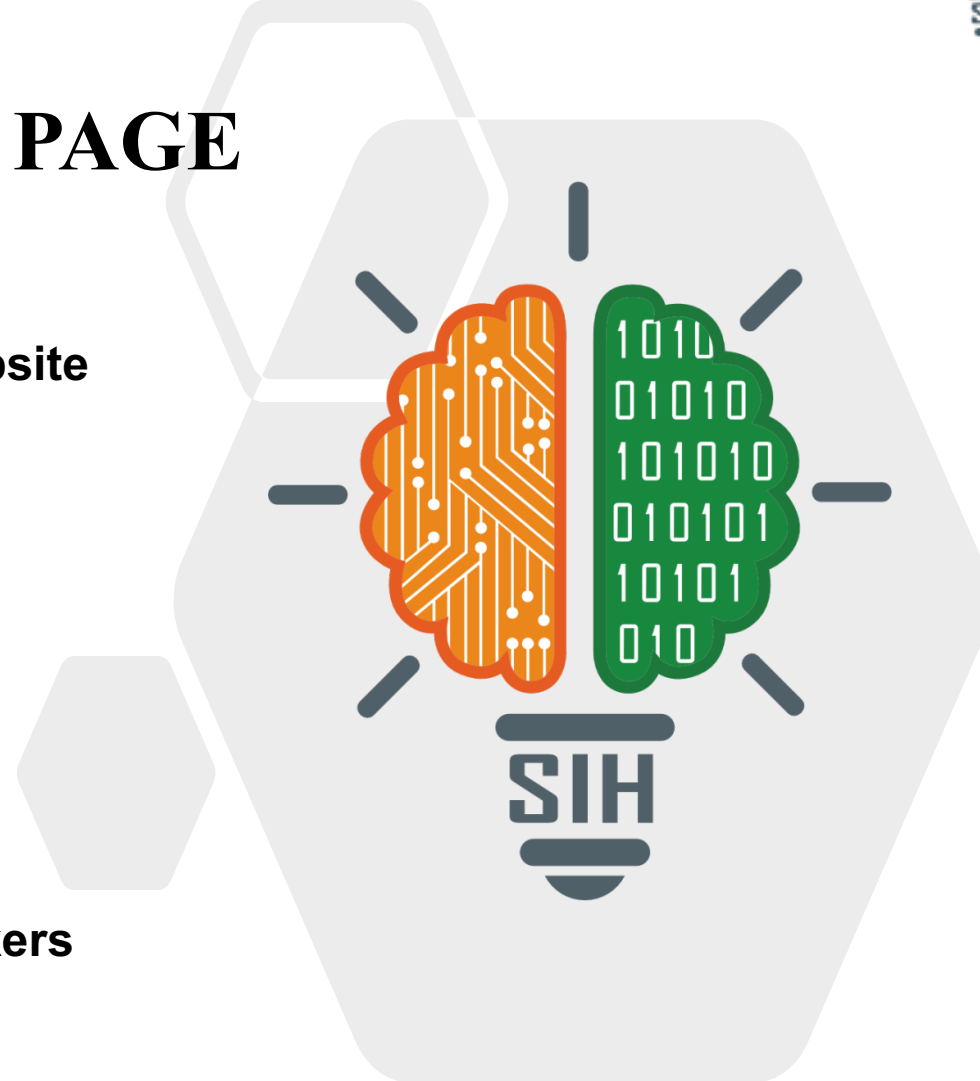SMART INDIA HACKATHON 2025

TITLE PAGE

- **Problem Statement ID – SIH25082**

- **Problem Statement Title- Mobile Travel Website for Capturing Trip Information**

- **Theme- Travel and tourism**

- **PS Category- Software**

- **Team ID-**

- **Team Name (Registered on portal)- Byte Breakers**

Mobile Travel App for Capturing Trip Information

Byte Breakers

❖ Problem Addressed :

Manual household surveys are slow, costly, and cover a limited population —
leading to inadequate data for transportation planning.

❖ Proposed solution:

A Web Application that captures trip-related data (origin, destination, time, mode, companions)
to build accurate travel activity chains.

❖ Innovation & Uniqueness:

Combines automatic detection (GPS, sensors) with user nudges for consent and missing info.
Enables real-time, scalable data collection for NATPAC scientists.

TECHNICAL APPROACH

❖ **Technologies to be used :**

- **Frontend:** React Native
- **Backend:** Node.js, Express.js
- **Database:** MongoDB (real-time sync, scalable)
- **APIs:** Location, motion sensors, user authentication

❖ **Methodology and process for implementation :**

- Agile development with iterative sprints
- User flowchart: Trip detection → User prompt → Consent → Data sync
- Modular architecture for easy updates and feature expansion

FEASIBILITY AND VIABILITY

❖ **Analysis of the feasibility :**

- Proven tech stack (React Native + MongoDB) ensures scalability and cross-device compatibility
- Real-time data sync supports large-scale deployment

❖ **Potential challenges and risks :**

• Ensuring secure data transmission
•Balancing auto-detection with user privacy

❖ **Strategies for overcoming these challenges :**

•End-to-end encryption for sensitive data
•Modular APIs for flexible data capture and consent management.

# IMPACT AND BENEFITS

❖ <u>**Potential impact on the target audience :**</u>

- **NATPAC Scientists:** Access to richer, real-time travel data
- **Citizens:** Less intrusive surveys, better transport planning
- **Policy Makers:** Data-driven infrastructure decisions

❖ <u>**Benefits of the solution :**</u>

- **Social:** Inclusive data from diverse demographics
- **Economic:** Reduced survey costs, efficient resource allocation
- **Environmental:** Supports sustainable transport planning via accurate modal data

PROJECT FLOW CHART

RESEARCH AND REFERENCES
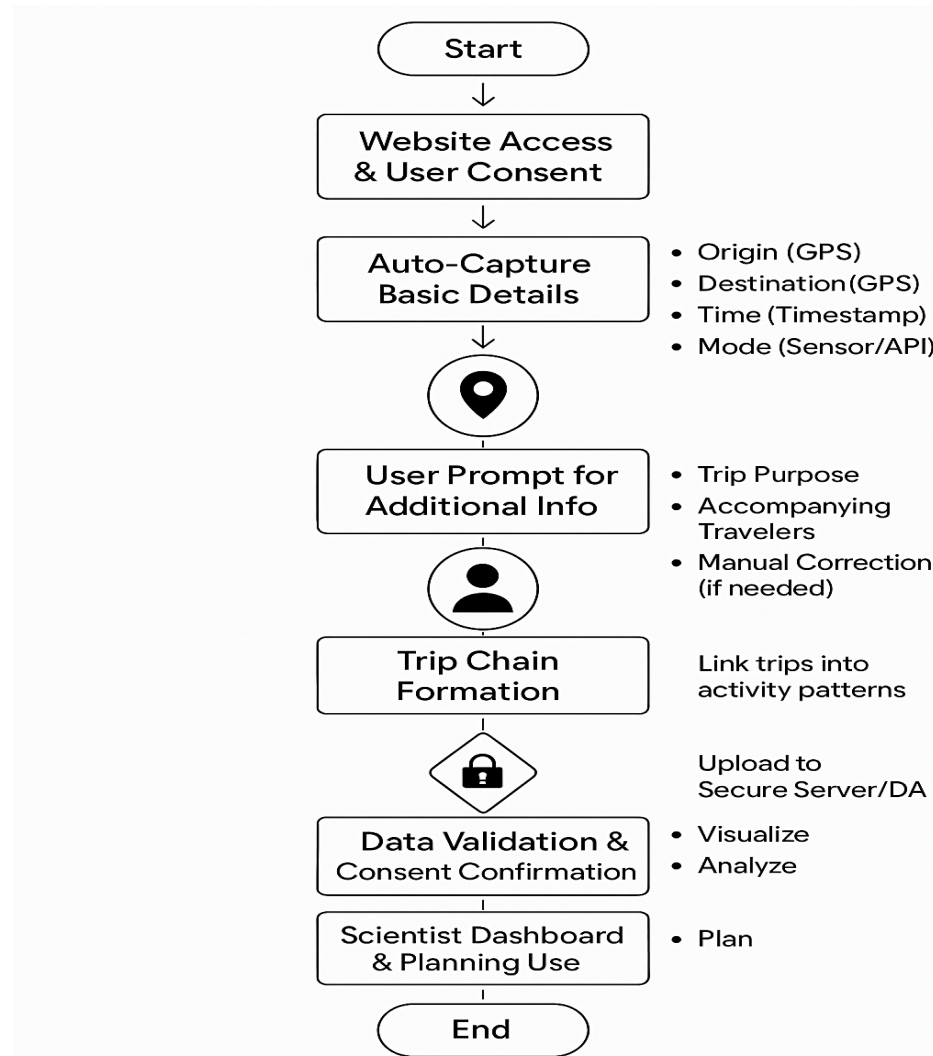
Details / Links of the Reference and Research Work :

❖ **Benchmark Apps:**
  - Google Mobility Reports - Aggregated mobility trends during COVID-19
  - MIT Senseable City Lab - Urban sensing and mobility research
  - Moves App (archived): https://en.wikipedia.org/wiki/Moves_(app) (still relevant for historical context)

❖ **UI/UX Studies:**
  - Nielsen Norman Group (Mobile Usability): https://www.nngroup.com/articles/mobile-usability/
  - Material Design Guidelines: https://m3.material.io/

❖ **APIs & Tech Docs:**
  Browser Geolocation API: https://developer.mozilla.org/en-US/docs/Web/API/GeolocationAPI
  Firebase Realtime Database: https://firebase.google.com/docs/database