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Encouraging Car-Lite and Promoting Walk-Cycle-Ride (WCR) Transport Modes Through a Digital Journey Planner Prototype

- Industry Partner: Nippon Koei Business Partners Co., Ltd.
- LTA User: Transport Planning Data & Technology Division (P&P)

LTA explored solutions to encourage drivers to embrace more car-lite modes, through the Jurong Lake District (JLD) Innovation Challenge hosted on IMDA's Open Innovation Platform.

Leveraging Behaviour Nudge Theory to Influence Transport Choices

Together with Nippon Koei (NK), an innovative "journey planner" prototype was developed to encourage sustainable transport adoption, by providing real-time behavioural nudges to drivers to encourage switching from private car usage to Walk-Cycle-Ride (WCR).

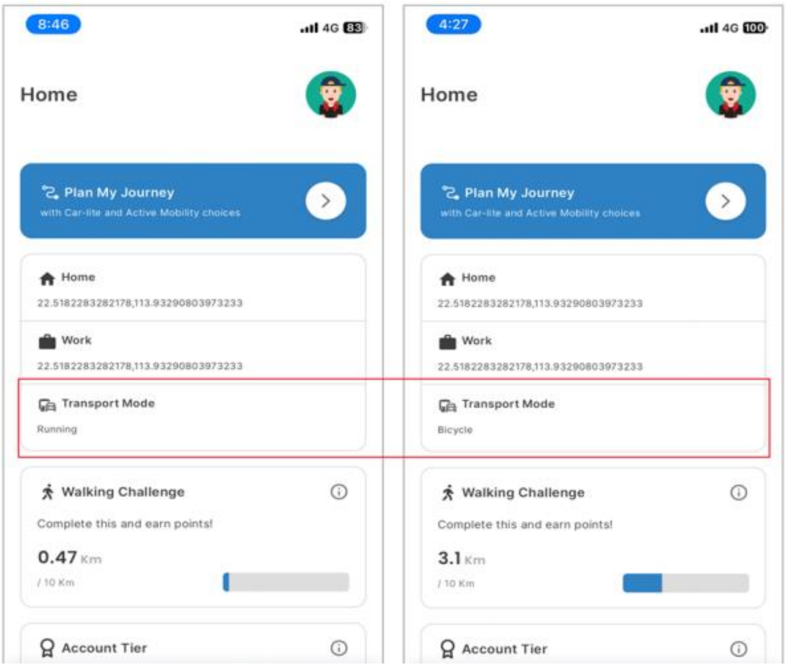
This is enabled through the 3 key features developed and tested:

1. Real-time Mobility Classification and Location Inference

Through a software development kit (SDK), the "journey planner" was able to integrate seamlessly with third-party applications. This enables the collection of mobility and lifestyle data of users through:

- Real-time classification of Walk-Cycle-Ride transport modes using mobile sensors including gyroscope, accelerometer, Global Navigation Satellite System (GNSS);
- Inference of significant locations such as home and work; and
- Detection of user lifestyle preferences based on frequently visited points of interest (POIs).

The collection of these data allows the "journey planner" to understand users' travel patterns and lifestyle behaviours, providing appropriate nudges to influence their travel choices.



Backend feature in the SDK classifying the transport mode using mobile sensors in real-time

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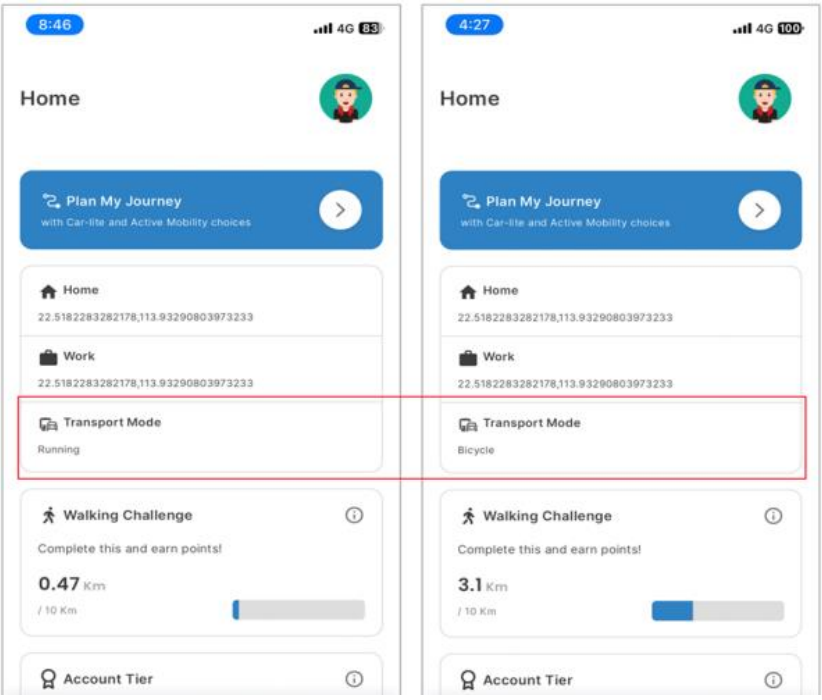
2. AI-Driven Persona Generation

The persona engine harnesses machine learning algorithms and generative AI to analyse anonymised mobility data patterns gathered via SDK. Through this analysis, the engine segments users into four distinct behavioural profiles:

- Cost-conscious
- Eco-conscious
- Time-conscious
- Health-conscious

Based on these behavioural personas, nudges are delivered as interactive cards that align with each user's primary motivations. These challenge cards are displayed prominently above other features, ensuring users encounter activities that resonate with their wellness priorities first.



A "Walking Challenge" card prioritised for a user identified as "health-conscious" to encourage walking

3. Data Analytics for Transport Planning

A user-friendly web dashboard that offers visibility into mobility trends through its analytics capabilities such as:

- Aggregated data on weekday versus weekend car usage, trip types, and transport modes
- User profiles, such as home or work location heatmaps and inferred lifestyle preferences

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Dashboard visualising mobility patterns and trends

Nudging Sustainability Forward

The prototype successfully demonstrated the feasibility of using digital features for persona segmentation and behavioural nudging, showing its potential in supporting Singapore's transition towards sustainable transportation. Its SDK allows for the prototype to integrate into most third-party applications used by drivers, making it versatile enough to support diverse use cases across different platforms.