

CITY CHAUFFEUR:

Drive in unfamiliarity

Aim

Improve the driving behavior of drivers in unfamiliar environments.

Introduction

By acquiring drivers' daily driving behavior, and combining with environment data, cars can be more predictive and adaptive, so that it could act as the safeguard of drivers.

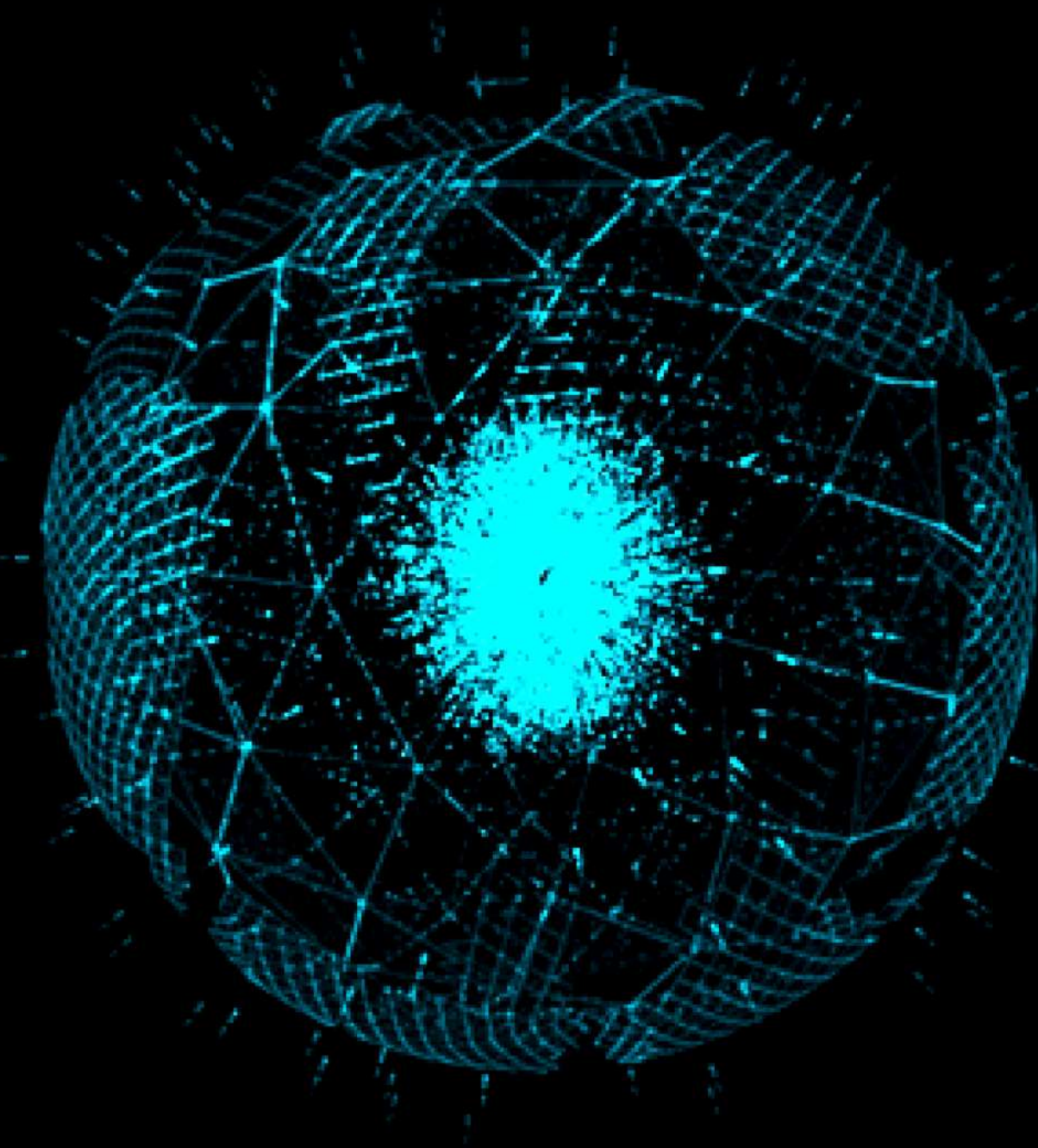
Daily



Experience



Matrix



Calculating route with information from city traffic management system.....

Work Flow

Behavior



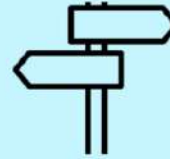
Walk near the car



Choose route and driving mode



Drive cautiously



Step on the throttle



Encounter local driving culture (e.g gesture)



Encounter extreme conditions

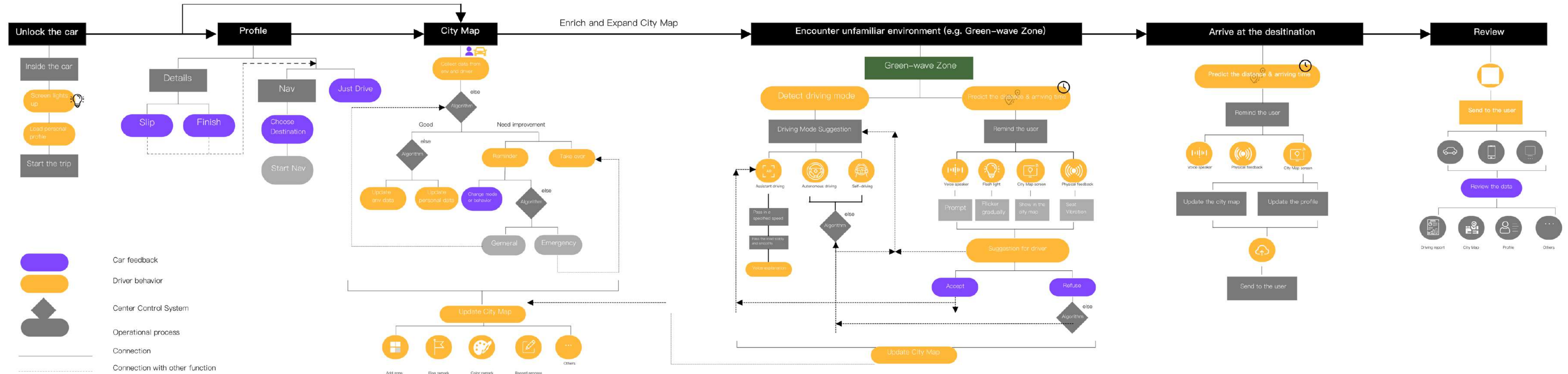


Get off the car and close the door



Service & Evaluation

Information Flow



Required Technology

Face recognition



Recognize the driver everytime the driver approaches the car.

Bluetooth proximity detection



The main approach to open the door is sense bluetooth devices (e.g. smart watch, mobile phone, key, card).

Cloud service



Upload driver's personal data from cloud service after user login.

Voice recognition & Feedback



Input command through voice and get sound effects & voice reminders.

Vibration Feedback



Important reminders will be expressed with sound and vibration on the steering wheel or chair.

Radar & Camera



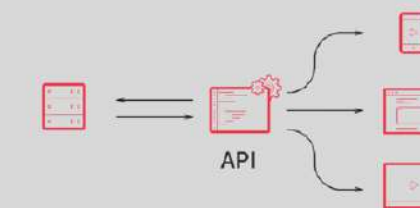
Detect the environment (e.g. road, other vehicles etc.).

Cloud service



On-time data update, recording drivers' behaviors, environment information, accident records, and this data will be displayed on city map.

API from the weather station



Cloud service



Keep updating...

Sound Feedback



Sound effects will be provided to remind successful locking.

Cloud service



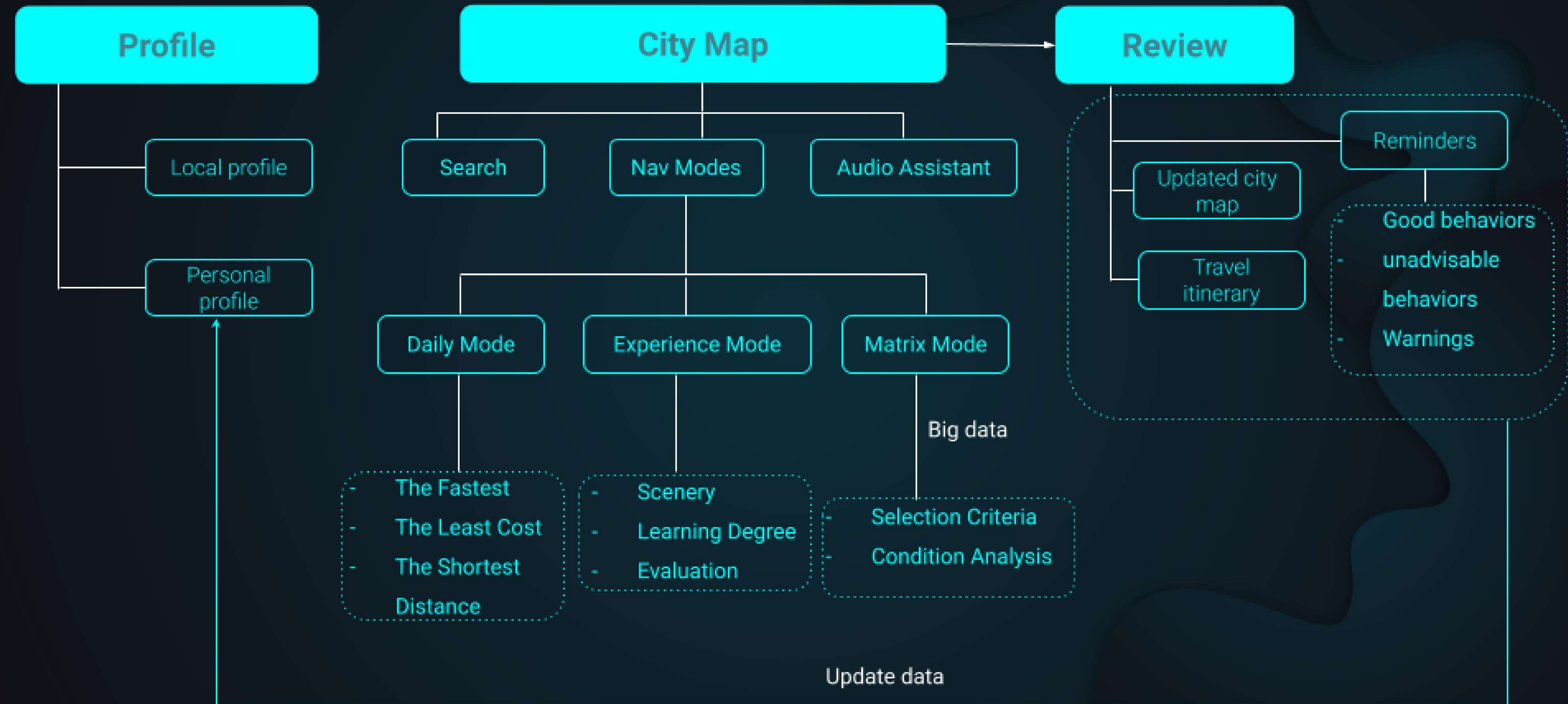
Update the final status of the car and store all the data.

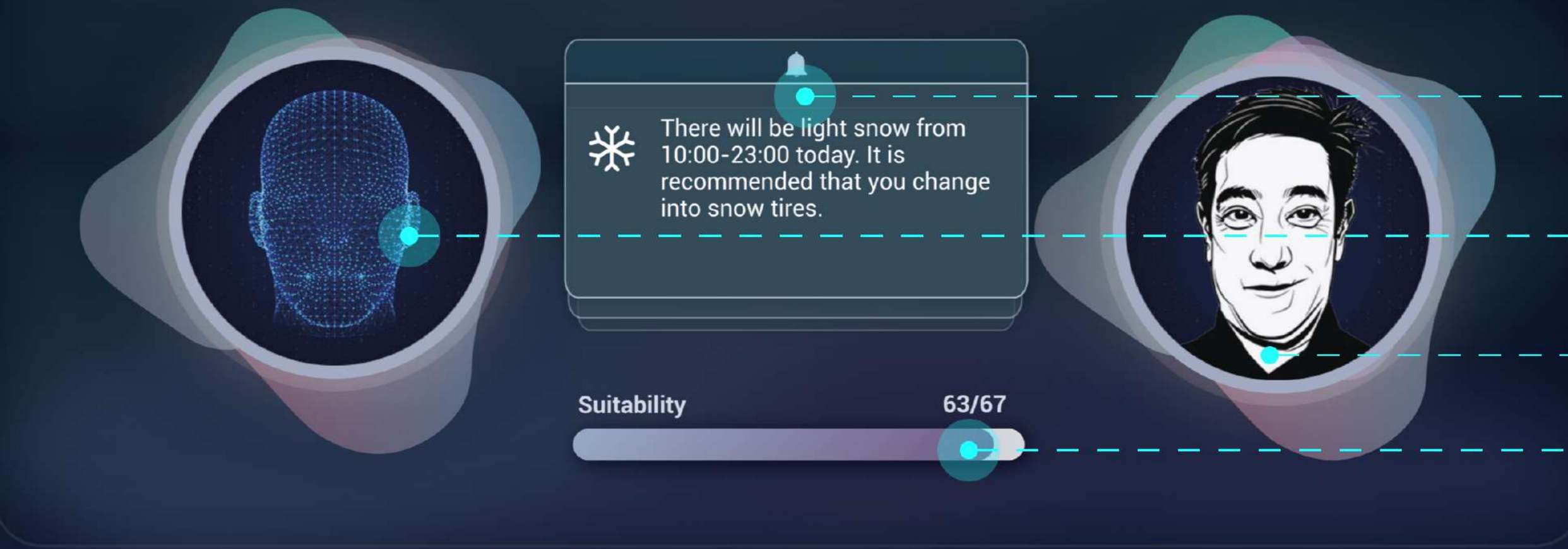
Cloud service



The driver could check personal travel history and all information from the mobile app.

Information Structure





Event reminder

Big data local profile

Specific user profile

Progress display



Low poly models showing the progress of exploration



SMART

78%

78% of CITY.R drivers will give priority to using the smart driving system.

POLITE

69%

69% of CITY.R drivers follow the zipper rules.

CALM

57%

57% of CITY.R drivers keep a distance of more than 5m from the vehicle in front during braking.

PROFILE in CITY. P

Suitability

63/67

CASUAL

75%

The number of times you make calls while driving is higher than 75% of drivers.

IMPULSIVELY

64%

64% of the time you honked the horn when the car started.

FAST

52%

Your speed is higher than 52% of driving users.

PROFILE USE. Peter

Suitability

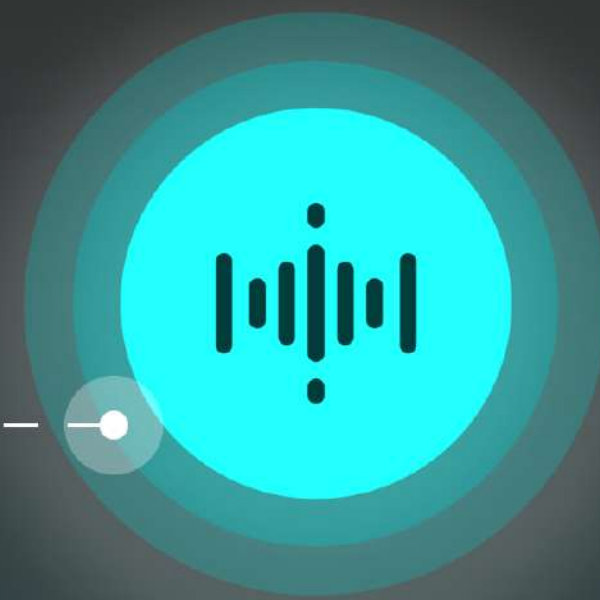
6/67

Design

Navigation Assistant

Voice Assistant

AI based assistant with knowledge of both local driving behaviour and the driver.



Daily



Experience



Matrix



Modes of Navigation

Map

Focus more on preference

Based on the knowledge of the daily routine of the user to suggest the most preferred routes.

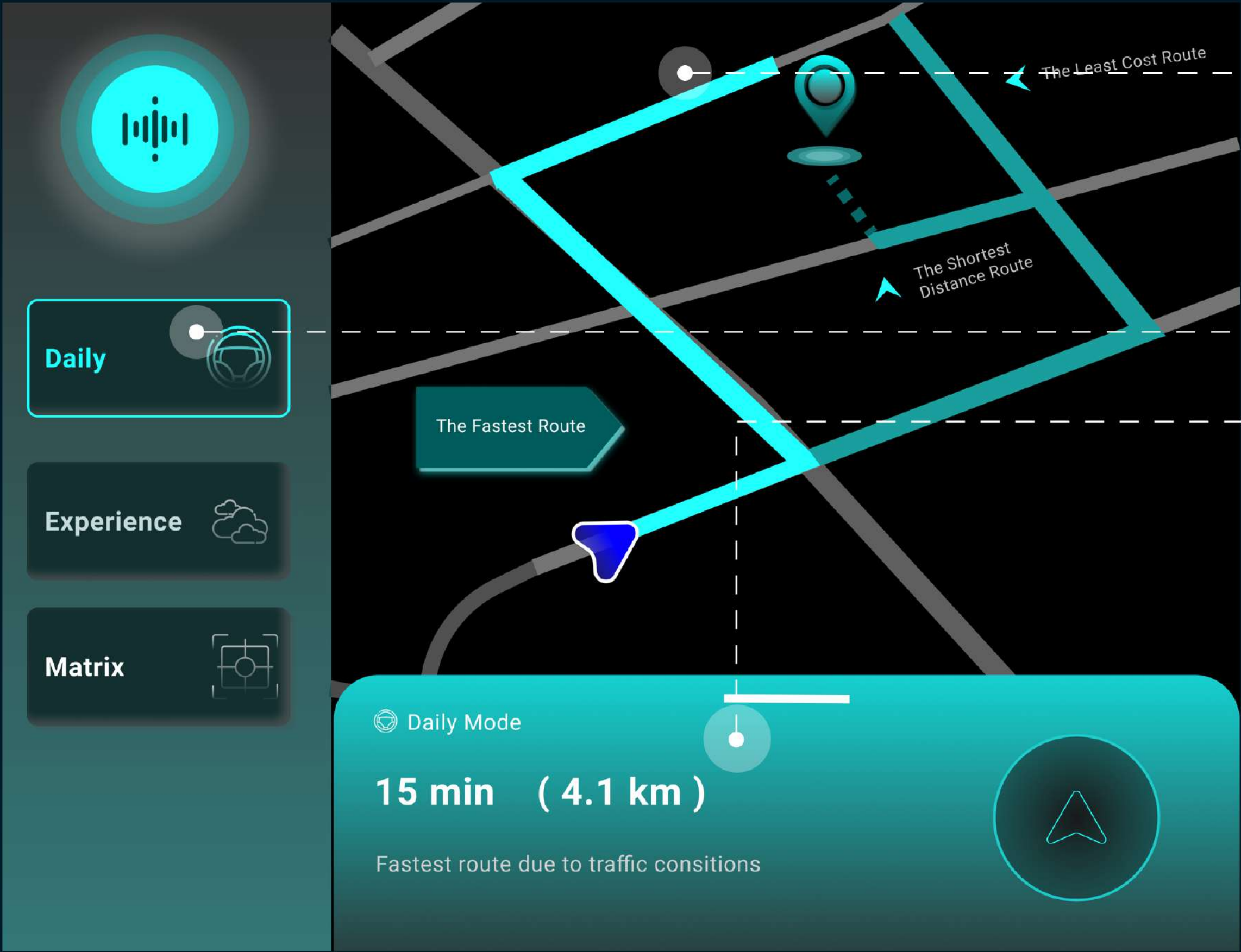


Focus more on the driving process

Users can experience the scenery and traffic infrastructure by choosing this mode, also provide chances to learn about local unspoken rules and culture.

Focus on improving the whole transport Efficiency

Calculate a route that is more efficient for both of the user and the traffic system.



Detailed Map

Chosen Route – Light
Alternative Routes – Dimmed

Daily mode

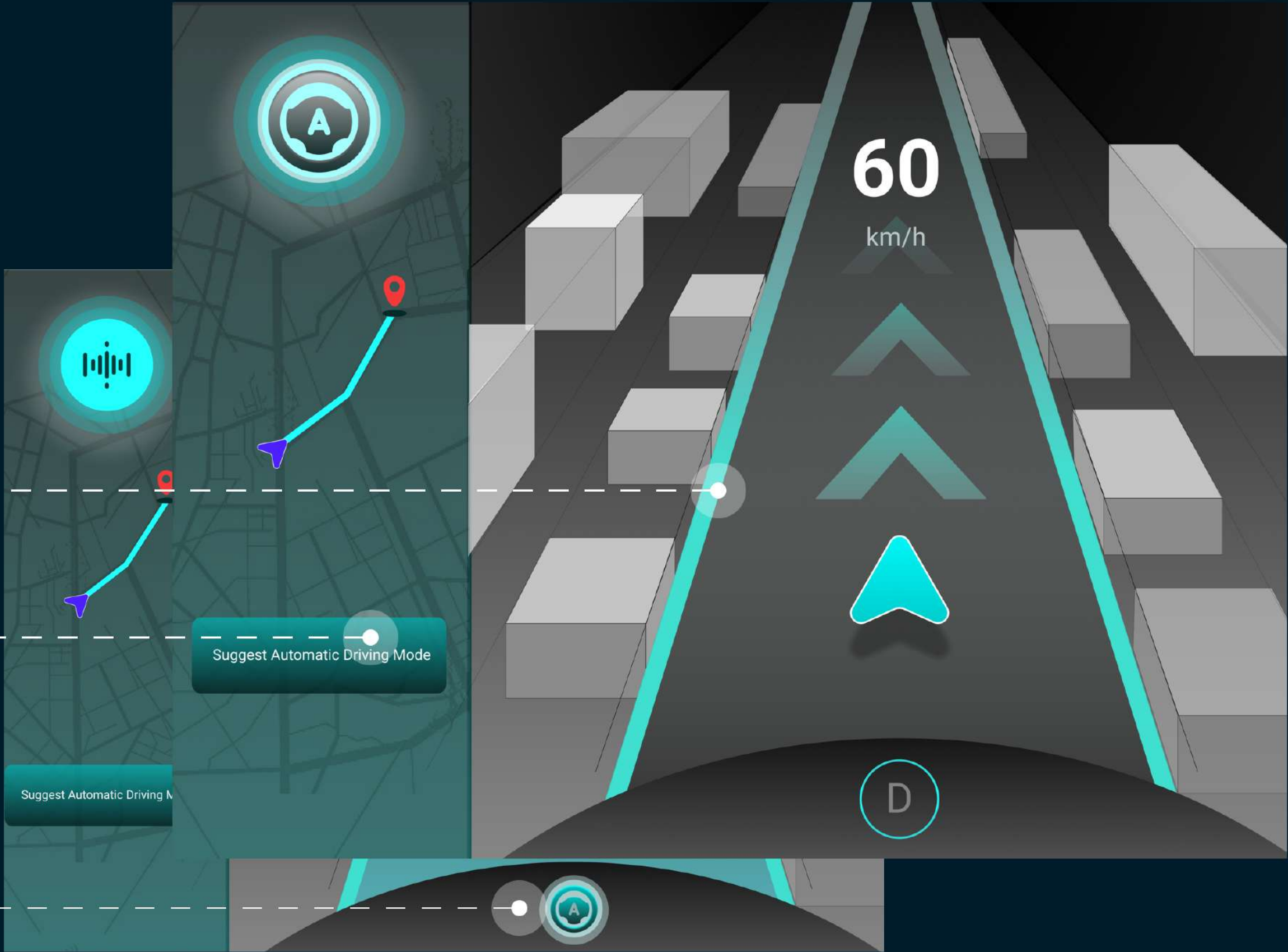
Detailed Route Information

Time
Distance
Introduction

Automatic Driving Highlight

Navigation Assistant Suggestion

Automatic Mode Indicator





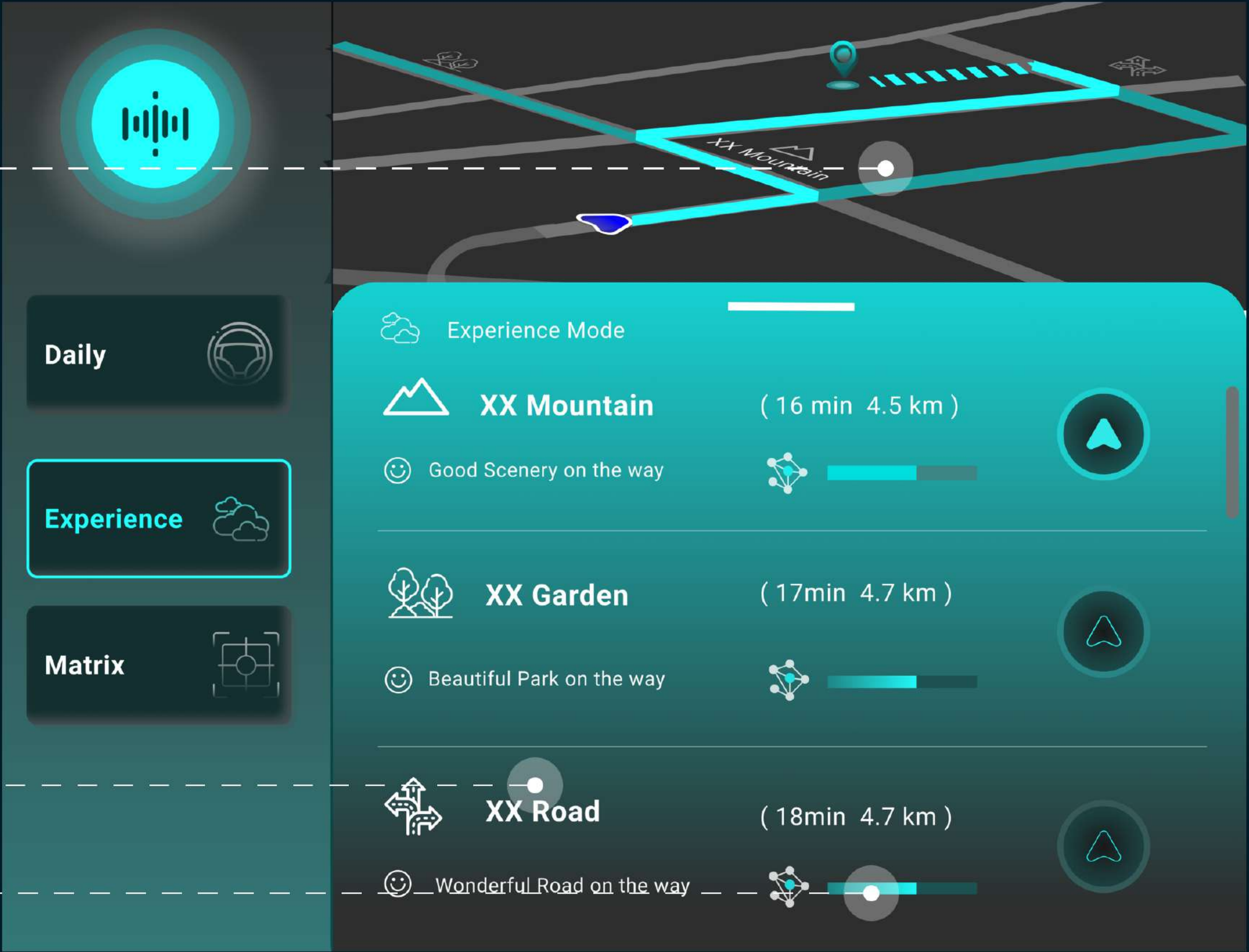
Map Information

Scenery Icon
Routes

Routes

Chosen Route – Light
Alternative Routes – Dimmed

Experience Mode



Map Information

POIs
Routes

Detailed Choices

Amount of possible new experience

Scenery
New knowledges



Daily



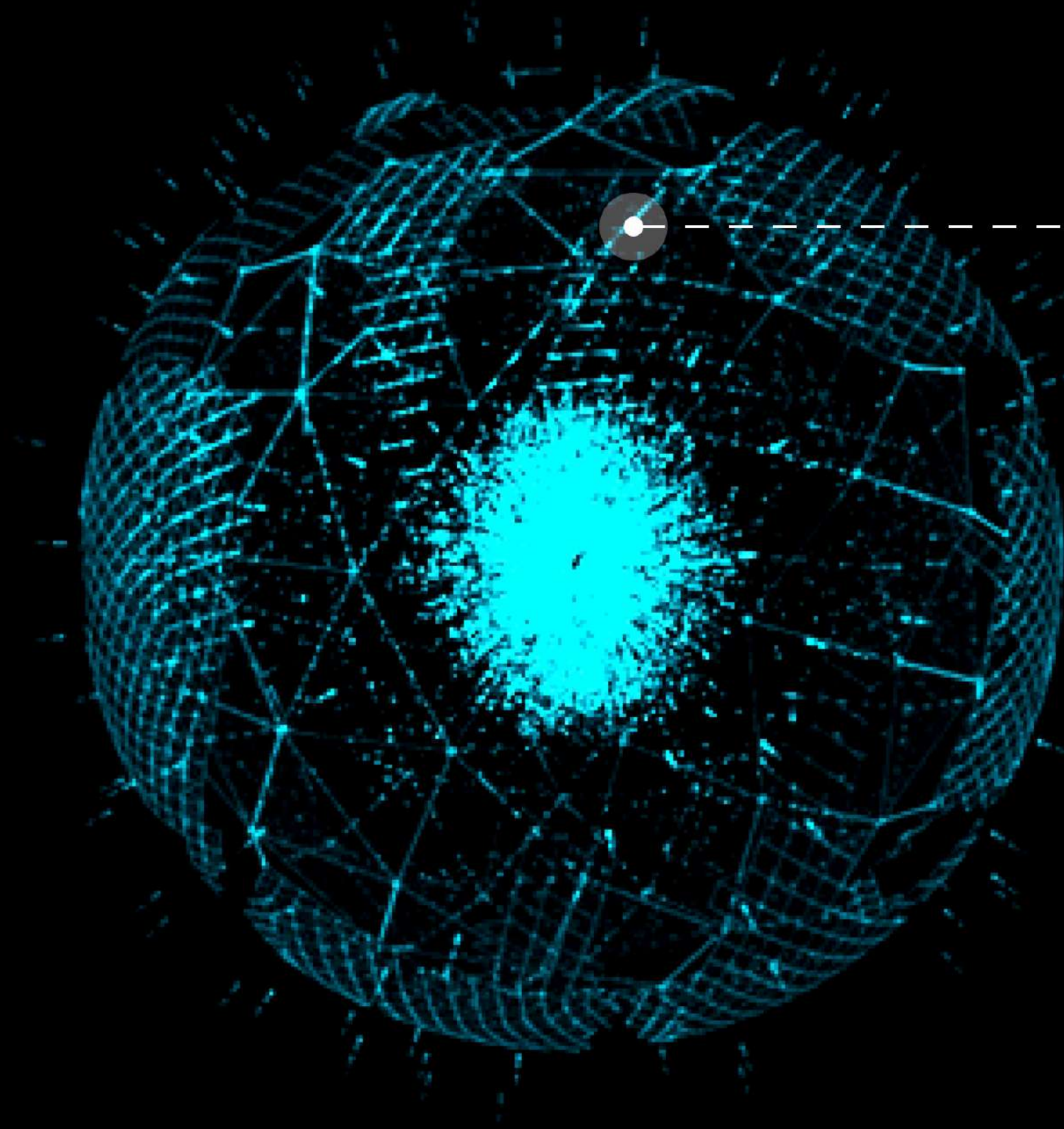
Experience



Matrix



Calculating route with information from city traffic management system.....



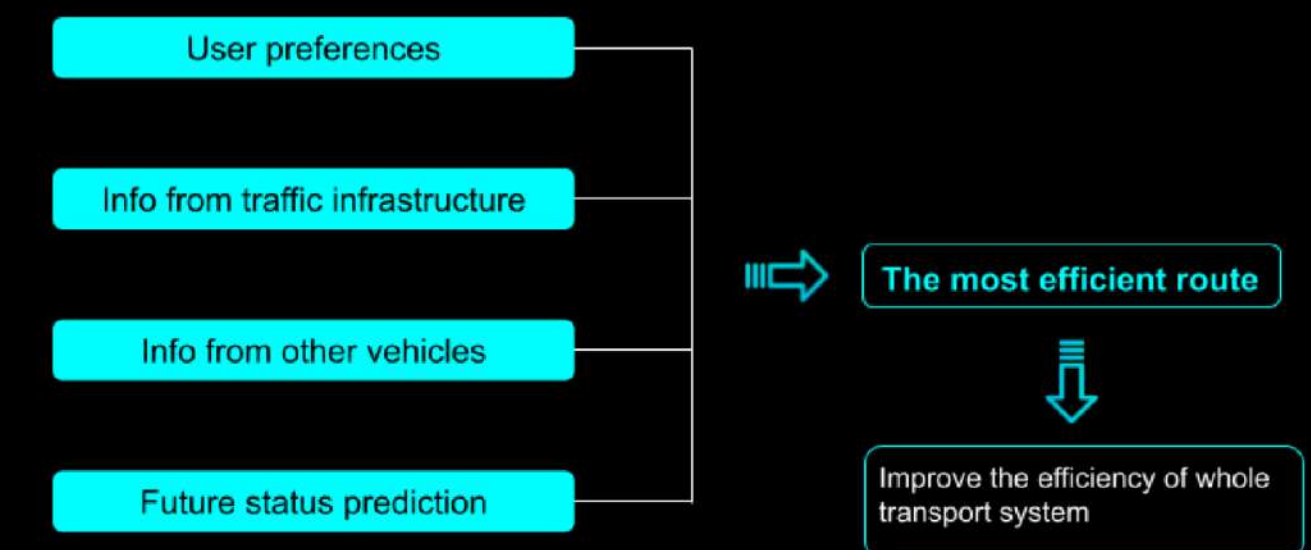
Design Navigation Assistant

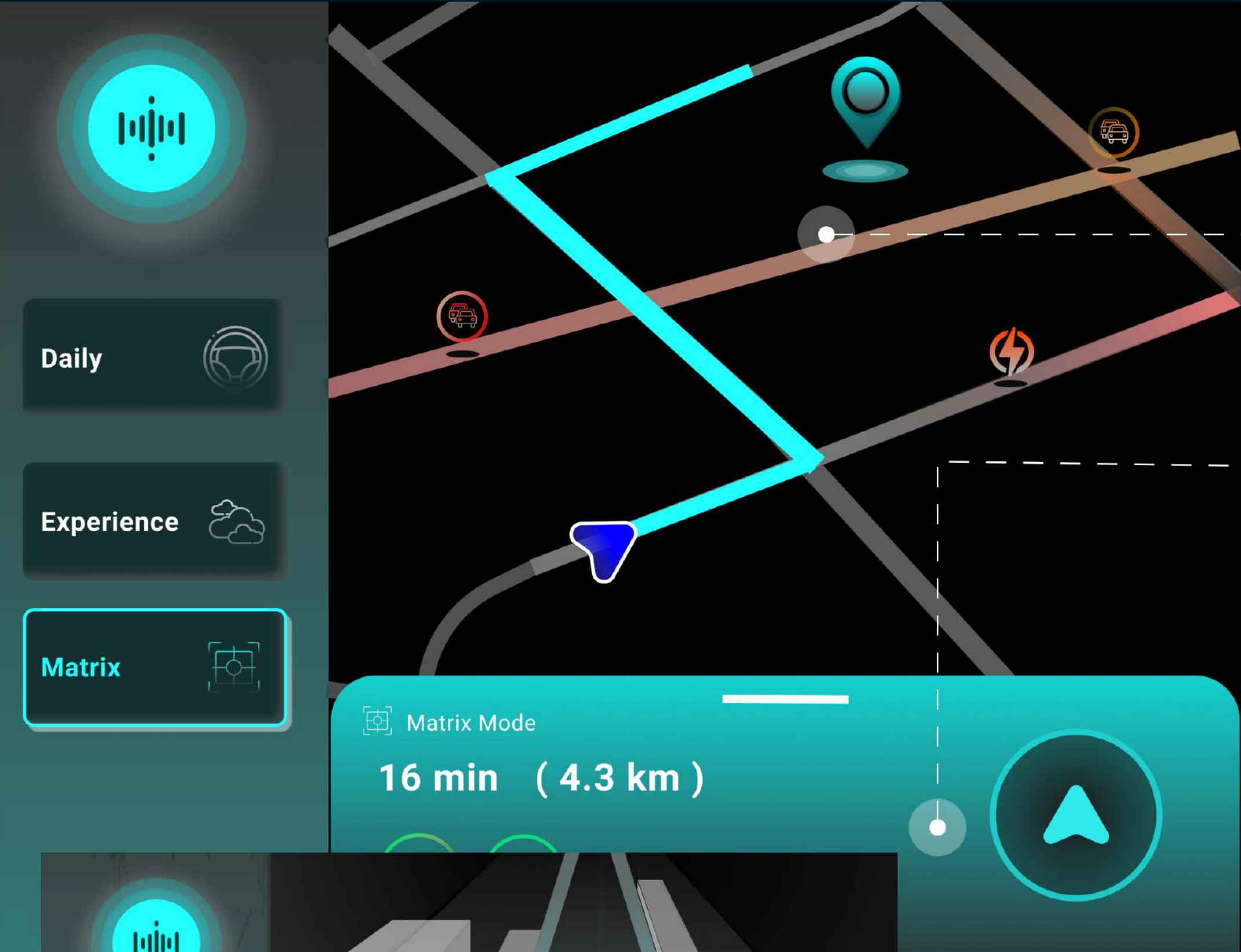
System Algorithm

Calculate a route that is more efficient for both of the user and the traffic system

Consider the efficiency of the users and traffic system as a whole

Work Flow



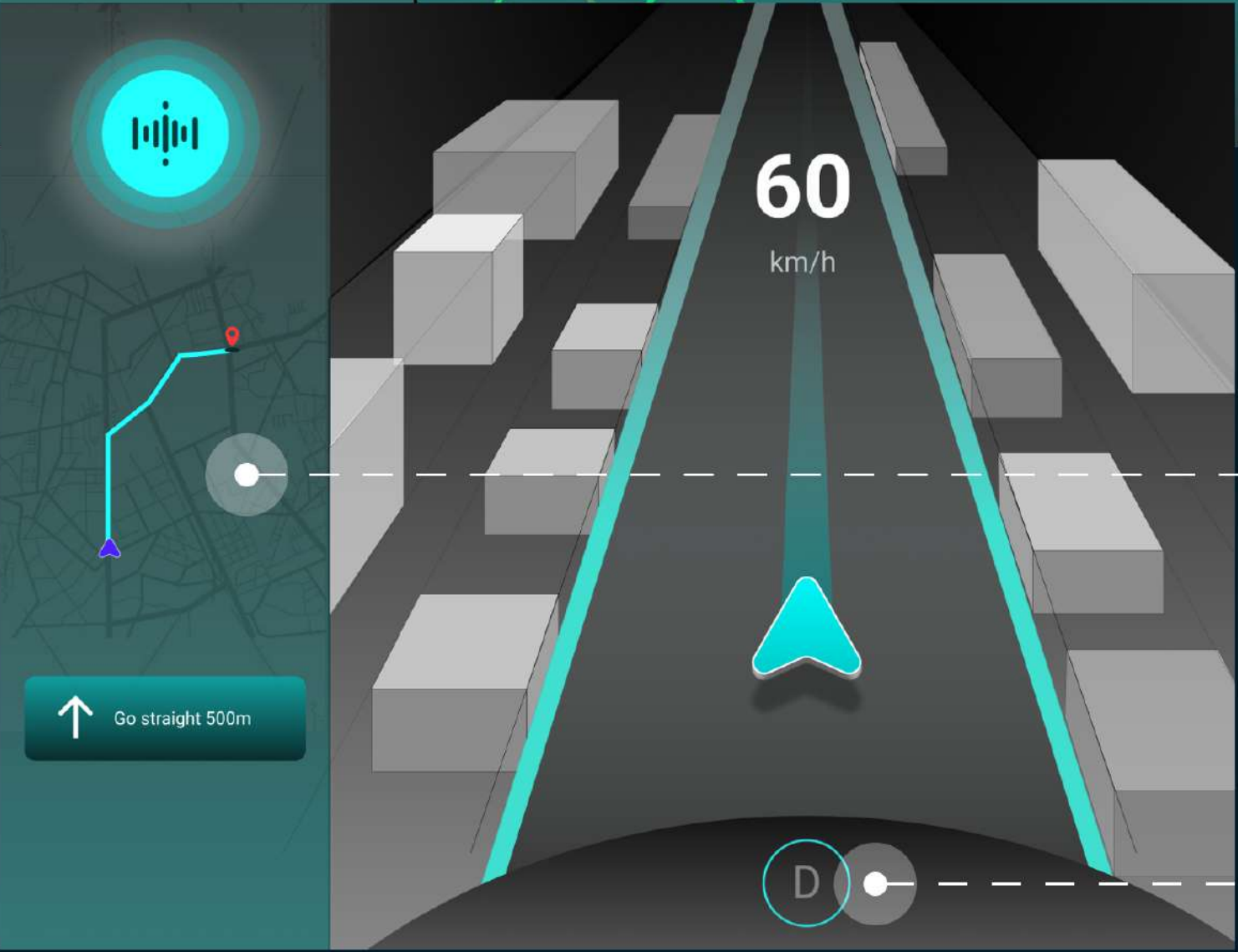


Traffic Conditions

Icons

Routes

Navigate

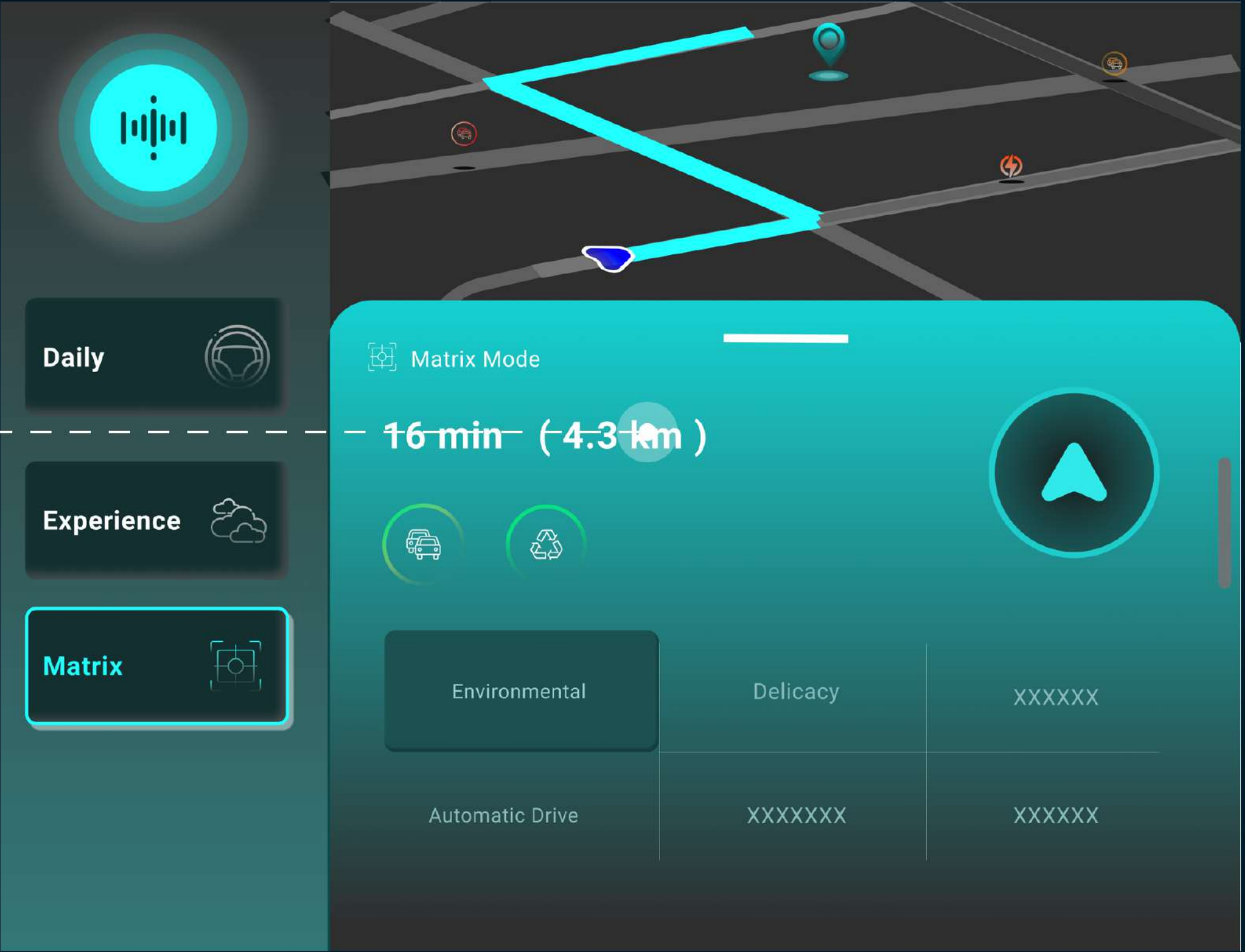


Detailed Information

Traffic Evaluation
Selection criteria

Map

Gears



Design

Clty Map Review

Generate today's city map

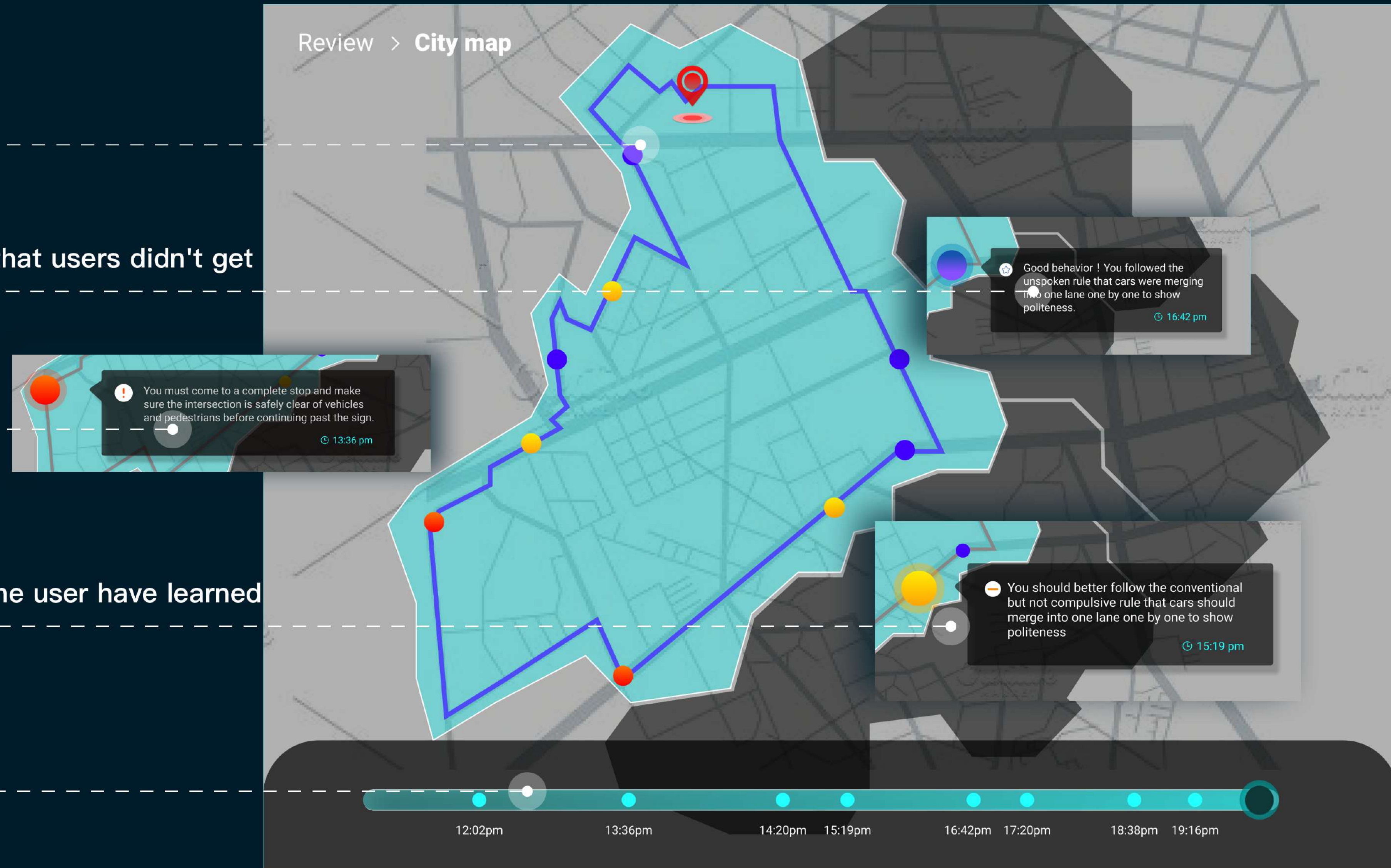
Reminders about unspoken rules that users didn't get

Warnings about breaking traffic rules

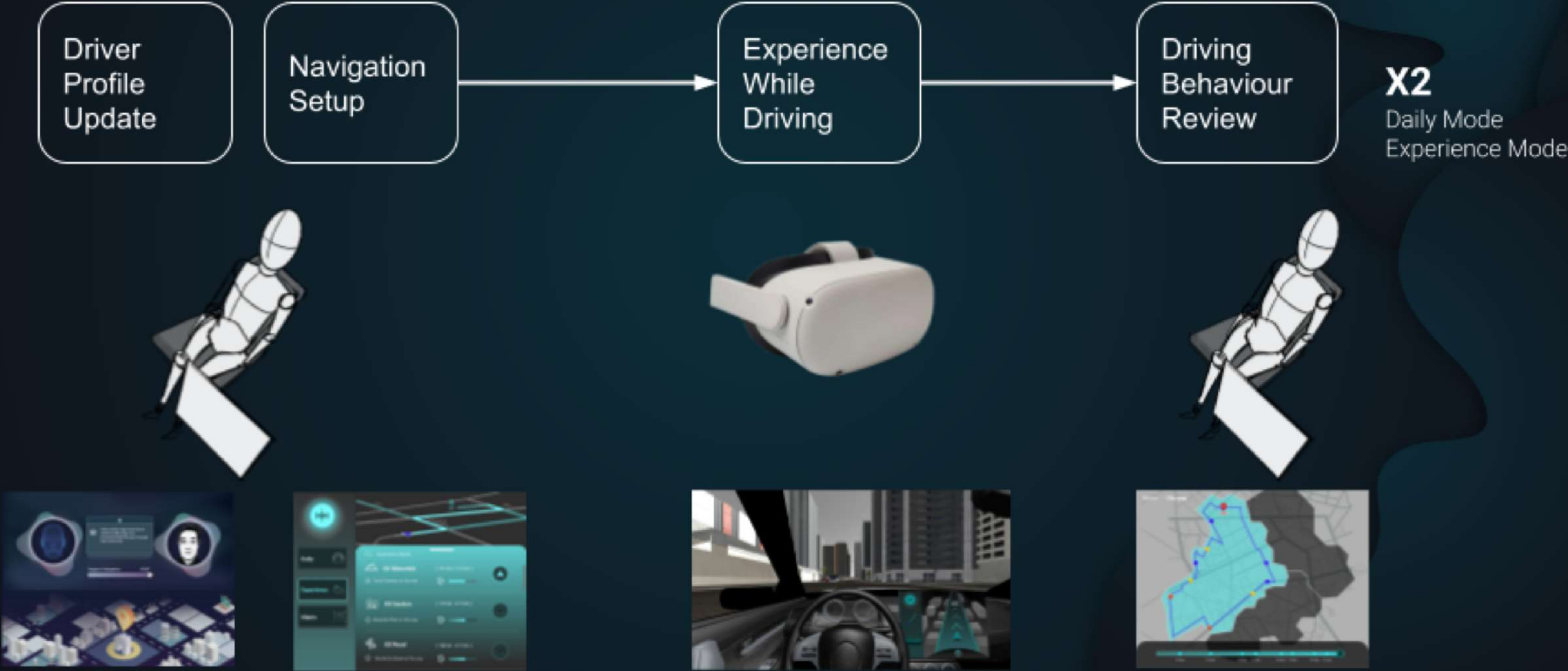
Reminders about what the user have learned

Time bar

Get the information in specific time



Experience Flow



Testing

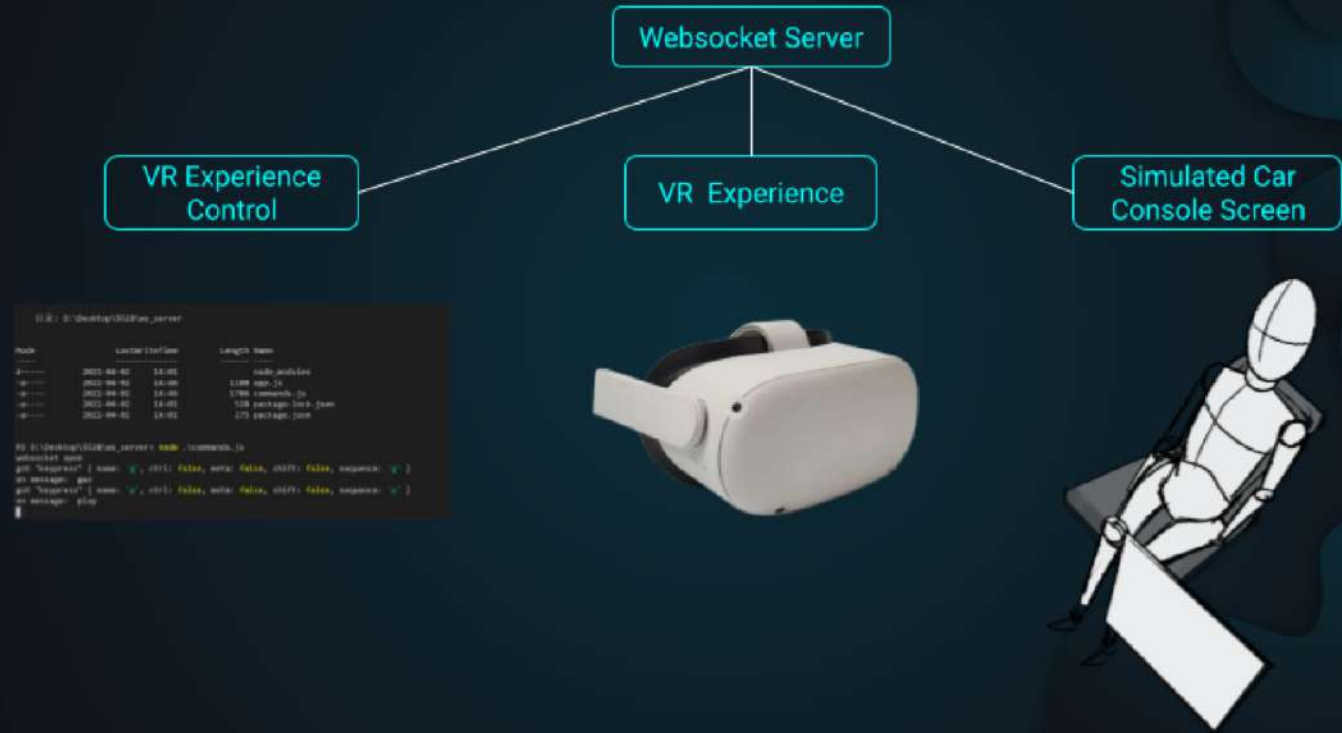
Comments

- Will use this system driving in a new place
- AI will help me learn about anything
- Need more guidance during driving
- UI on console could help me to fit in new environment
- Need better voice assistance
- Learned more about the Green Wave Zone

Limitations

- Physical interactions
- Controller with haptic feedbacks
 - Driving control for manual route
- Interactions inside VR experience
- Audio guidance
 - Audio feedback

Setup



Simulated Car Console Screen

- Driver Profile
- Navigation Setup
- Trip Review

VR Experience

- Route experience (Daily & Experience Mode)

