Introduction of
Car-Sharing System for Personal Mobility (EV)

Toyota Tsusho Corporation
Green Mobility
Business Development Department
Concepts of Personal Mobility Sharing

Use Personal Mobility for Short Distance Travels

EV sharing @ Community

Share EVs! Use for a short drive!

EV sharing @ Condominium

To friends' house

To shopping

To city office

EV sharing @ Office

~ECO friendly company car~

To clinic

To the bank

To see clients!

EV sharing @ Tourist Spots

~ECO Tourism Fun to Drive!~

Top speed
Capable of 60 km (37.5 mph) in the flow of traffic.

Driving distance per full charge
Approximately 50 km (31 miles) city.

Required charge time
Fully charges in approximately 6 hours.

Charging cost
A full charge is approximately 120 yen. (approx. 2.4 yen per km)
Outline of Personal Mobility Sharing System

Operation System
- Cloud system
- Remote Control
- Authentication
- Return Confirmation
- Station Information
- Reservation

Reservation
- User (Smart phone/RFID)
- Reservation via smart phone
- Authentication
- Occupancy Status
- Station Information
- Reservation

Return
- Return process by smart phone
- Authentication
- Reservation Information
- Authorization

Rent
- Charging Station
- Authentication by smart phone
- Reservation Information

Specially designed for Electric Vehicle
- Feature①/Remaining battery estimation
- Feature②/Cruising range display
- Feature③/Battery monitoring via CAN-bus

Well established operating system
- 24/7 monitoring and call center service
- Car-sharing operating system has widely used for ICE car sharing system

[Sharing system]
- Operation system (Reservation/Authentication)
- 3G antenna
- Card reader
- Key box
- DCM

Remote Control
Details of Personal Mobility Sharing System

Remaining Battery Level & Cruising Range Estimation ⇒ Make EVs easier to use !!!

Display battery level & cruising range

Select “Station” ⇒ “Departure time” ⇒ “Vehicle”

Display battery level and possible travel mileage

* State-of-charge (SOC) is calculated by information from COMS and accumulated charging data.
* Cruising range is calculated by remaining battery level.

Driving route search

Plot your “destination”

Route Search ⇒ Battery consumption calculation

Possible to reach destination

Unable to reach destination

Display “Estimated time of travel” and “Distance”

Display “NG”

* Calculated by accumulated driving data and slope/grade information on map and driver’s past driving characteristic.

SOC projection after drive & estimated battery charging time display

SOC projection after drive

Calculate battery charging time & recharge level

* Estimated SOC at the time of car return is calculated by accumulated driving data and actual current battery level.
Usage Cases

- **EV sharing @ Condominium**
  - Nagoya

- **EV sharing @Community**
  - Tokyo

- **EV Sharing @ Overseas**
  - Singapore Univ. campus
    - COMS sharing test-bed
  - Singapore