

Achieving a safe, secure, and enriching mobility experience

User-friendly mobility

~From driver-focused to occupant-focused~

Occupants' positions, postures, and movements are detected.
Control from anywhere in the cabin

Physiological states are detected.
Stress relief and accident prevention simply by riding in the vehicle

Bamboo-fiber composite material



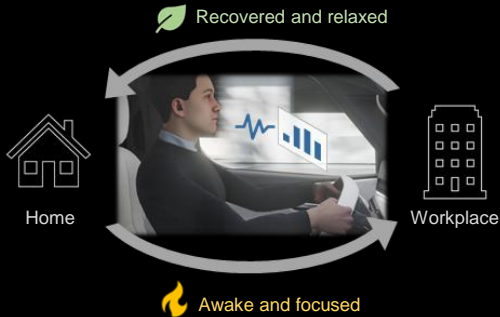
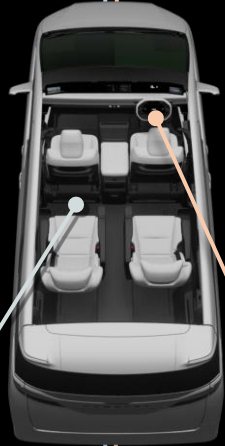
Bamboo+ is an injection-molding material containing up to 55% Japanese bamboo fiber, extracted using our proprietary technology, which reduces the consumption of petroleum-based materials.



Mid-air operation

Motion sensing
Five-sense feedback

Flow of experience
Hands-free entry→Easy operation→Mid-air operation
(Finger pointing + voice)



Vital signs sensing
Five-sense feedback

Flow of experience
Automatic safety settings→Arousal induction→Proposed Features

Contributing to the creation of a sustainable society

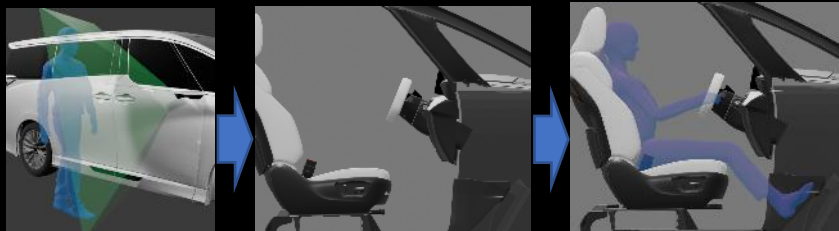
Camera monitoring and skeleton detection

~Car exterior sensing for entry assistance~

Outline

The camera monitoring system and skeleton detection technology support safe vehicle entry across various situations.

Automatic safety settings adjust to body size.

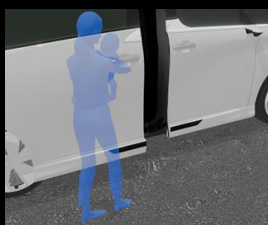


Body size detected before entry.

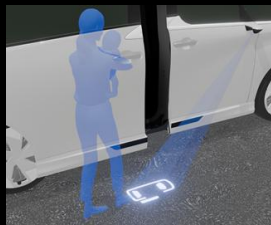
Seat moves to easy-entry position.

Seat auto-adjusts when driver sits.

Hands-free entry triggers when intent is detected.



The door opens with a natural motion even when the occupant's hand are full.



Lighting is provided at night to assist entry. (*1)

Features

- Tokai Rika's proven mass-production performance has enabled the low-cost system.
- Architecture-based systems can be offered.



A mass-produced product with proven results



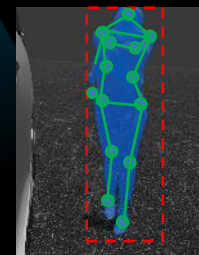
Outer rearview camera system



Approach light



Technologies under development



Skeleton detection



Digital key area detection

Development completion

• 2027

(*1) Under collaboration with Stanley Electric

Patent pending

Motion+ (motion recognition technology) ~Next-generation HMI experience: Natural, effortless control in any posture~

Outline

While cabin space is becoming more spacious and comfortable, there are situations where functions cannot be operated in a relaxed posture.



Switch operation

Touch operation

Problems: Difficult posture change

A flexible future seat layout demands HMI devices that can be operated by occupants from any position.



A seat layout image for autonomous cars

Features



- Remote control (switch)
⇒ Operation of switches that cannot be reached, improved comfort



- Remote control (display)
⇒ Occupants in a relaxed posture can comfortably operate



- Finger pointing + voice (A short word such as "Open")
⇒ Operation of switches that cannot be reached, simple and intuitive operation



- Mid-air operation
⇒ Simple and intuitive operation
(The position of a floating interface is adjusted to the occupant's body dimensions and position.)

Easy operation

* Please experience the HMI in the mock-up car.

Mid-air operation

* Please experience the HMI in the mock-up car.

Applications

- Human-centered variable cabin and safety control
- Use for gaming, education, or entertainment

Development completion

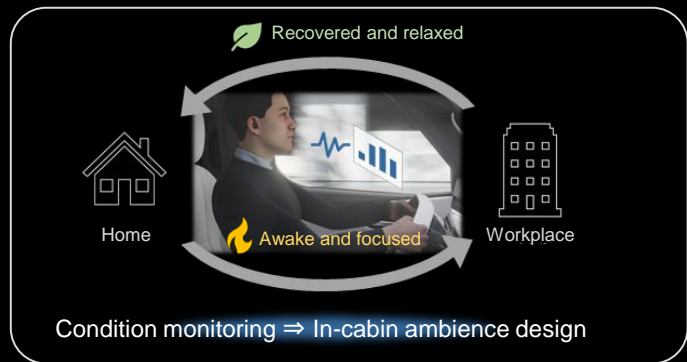
- 2027
- 2029 (Mid-air operation)

Vital signs sensing




~Detecting unnoticed changes to prevent accidents and driver discomfort~

Outline

Mobility that turns everyday driving into a **health-enhancing experience for all occupants**.



Challenges

- The importance of healthspan is increasing, but few people engage in health-conscious behaviors. 
- Detecting facial expressions and behaviors may reveal internal changes only after it is too late to act. 
- Accurate sensing may be difficult in the noisy environments characteristic of vehicles. 

Features

All occupants

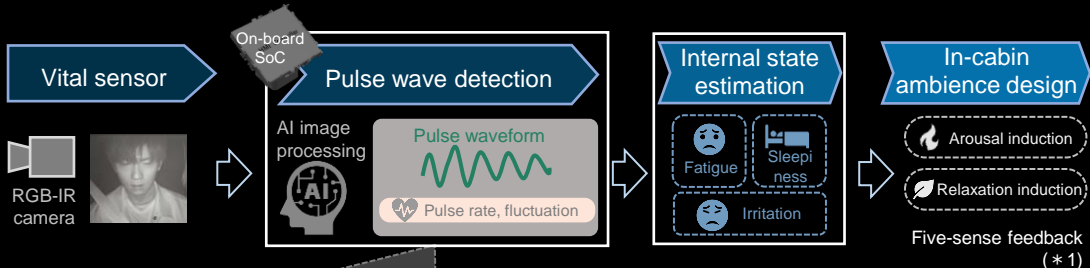
Unobtrusive, contactless continuous monitoring

Early

Using pulse waves to detect internal physiological changes

Accurate

Stable sensing under vibration and ambient light



Applications

- Breathing guide for conditioning
- The service can apply to all occupants.

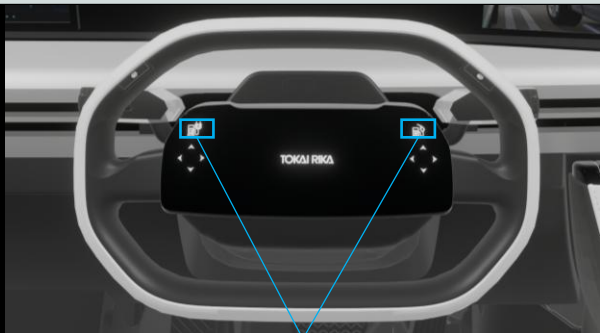
Development completion

- 2027

Recommendation-enable steering wheel

~Recommends optimal functions to the driver~

Outline



[Image of function recommendation](#)



Conventional problems

The increase in vehicle functionality has led to the following problems:

- The addition of new functions makes the interface more difficult and complicated to use.
- Hierarchically arranged function increase the likelihood of driver distraction.

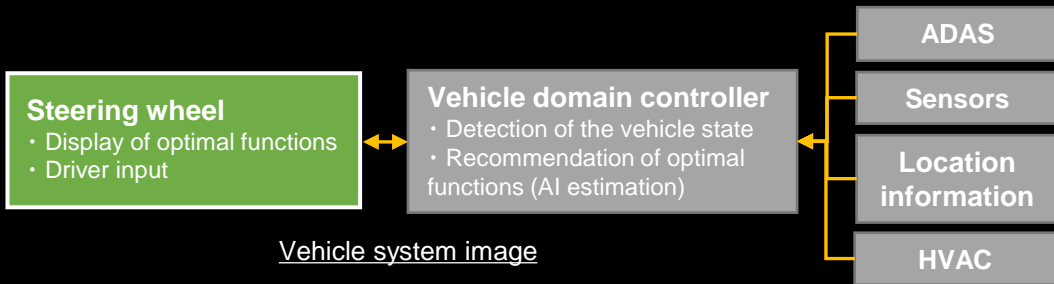
➔ Recommendation-enable steering wheel

The steering wheel recommends optimal functions to reduce driver distraction.

Features

Vehicle safety and recommendation of useful functions

The steering wheel suggests optimal function to the driver based on driving situations and driver data, including past decisions and preferences. (Functions can be added or customized.)



[Vehicle system image](#)

Drivers do not need to remove their hands from the steering wheel.

The switches are positioned within easy reach on the steering wheel to reduce driver distraction.

Applications

- Adding functions through customization
- Suggesting breaks or destinations based on driver state estimation

Development completion

- 2027

Tokai Rika's exterior technology ~Five part groups contributing to users and environment~

Aerodynamic components

1. Slim power-folding CMS

- Uses a super-slim power-folding actuator.



2. WFO®

- Easier to detach for quick design changes



3. Active rear spoiler

- A minimal mechanical structure using a power-folding mirror actuator can fit various vehicle models.



Improved aerodynamic performance enhances safety and peace of mind

4. Exterior illumination



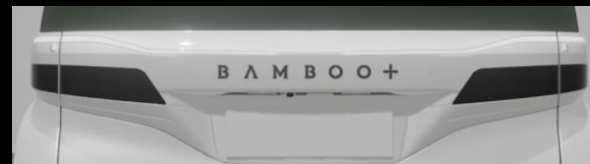
- Slim illuminated emblem



- High-brightness logo lamp

5. BAMBOO+® emblem

- A unique textured surface
- Even in exterior applications



The nighttime illumination provides safety, personalization, and a sense of affinity.

Creating new value for a sustainable society