



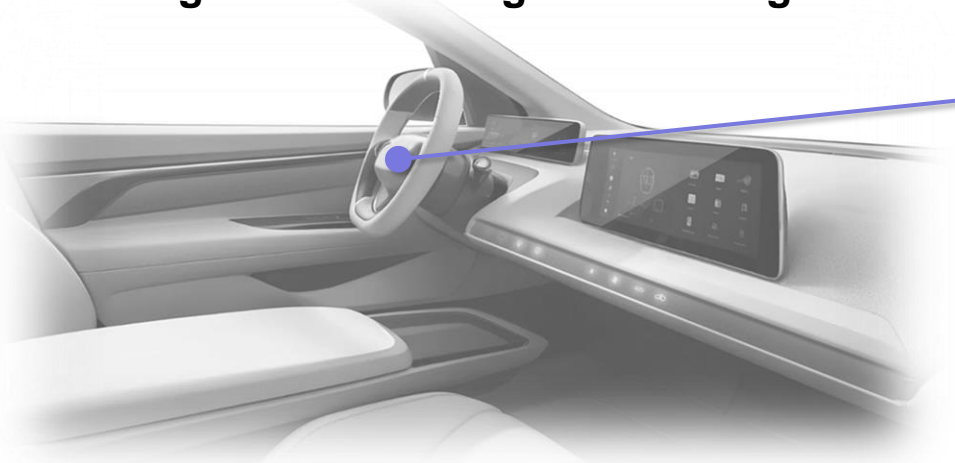
Next-Generation Steering Wheel Module

次世代ステアリングモジュール

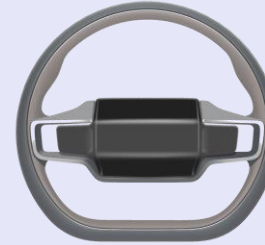
 TOKAI RIKAI

Background and Challenges

- Consolidation of switch functions for drivers to use them safely without releasing the hands from the steering wheel
- A simple steering wheel that matches the interior with a sense of openness
- Challenge 1: Downsizing of a steering wheel



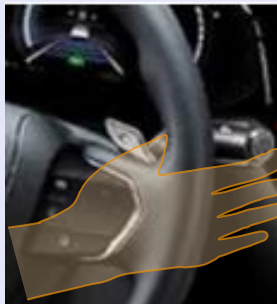
Examples of simple steering wheels with consolidated functions



Installation space is decreasing.

- It is necessary to change the operation methods of a turn signal switch and other switches to install them on odd-shaped steering wheels.
- Both round steering wheels and odd-shaped steering wheels will exist in the market for some time.
- Challenge 2: Even if installation sites and operation methods change between a round steering wheel and an odd-shaped steering wheel, switches need to be operated safely.

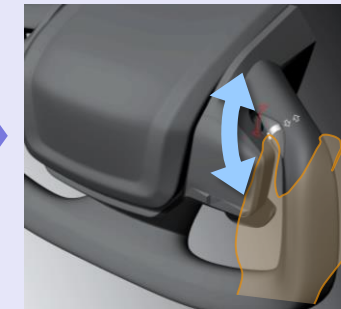
For example, when a driver operates a turn signal switch,



Index finger or middle finger
(vertical operation)

Conventional operation (Lever)

When you switch to a car with a different shape of steering wheel, operational errors can happen.



Thumb
(vertical operation)

New operation
(e.g., Toggle switch)

Purposes

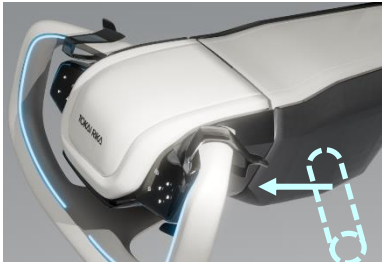
- Downsizing of switches by functional integration
- Adaptability by adopting a similar operation method

Content and Overview

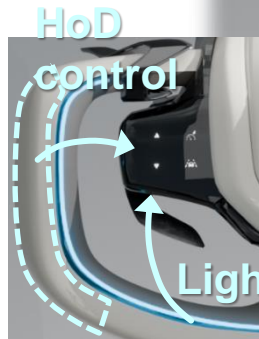
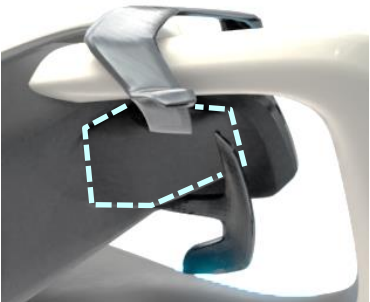
Installation of a switch that meets downsizing (Challenge 1) and adaptability (Challenge 2)

■ Challenge 1: Downsizing

- The column lever switch is moved to a steering wheel (Response to harm)



- Functions are integrated into the steering wheel switches



HoD

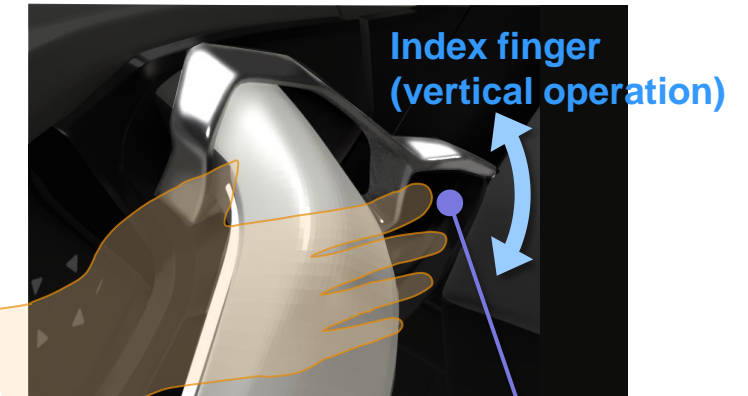
control

Lighting control

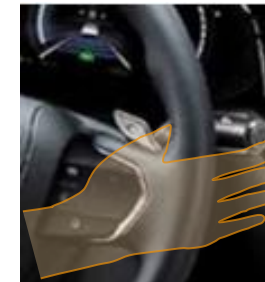
Switch mechanism integration Control integration

■ Challenge 2: Adaptability

Multi-function lever switch available for an odd-shaped steering wheel








Similar to conventional lever operation



Index finger or middle finger (vertical operation)

■ Challenge 2: Comparison of operation methods and installation sites of turn signal switches while steering

	Installed on steering column (current style)	Installed on steering wheel			
		Back of steering wheel	Side of switch	Grip surface	Back of grip
	Lever	Lever	Toggle	Toggle	Toggle
Switch					
Simplicity	◎	○	△	△	○
Accuracy (including use while steering)	◎	◎	○	○	○
Blind operability	◎	△	△	○	◎



Optimum switch based on the evaluation