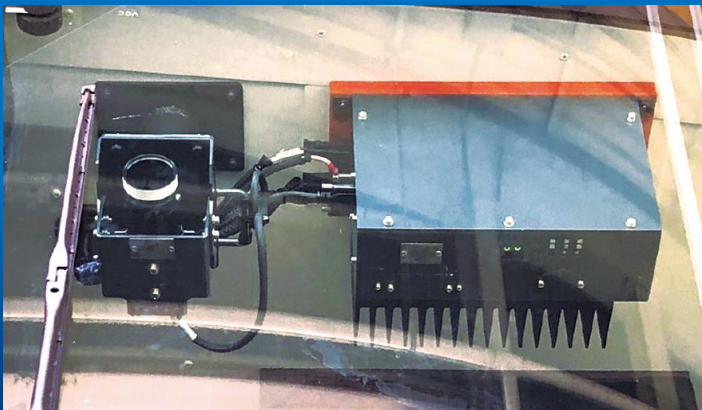


# Forward Monitoring System



# Forward Monitoring System

Contributes to accident prevention by reducing human errors, supporting safe operations amid aging drivers and workloads

Obstruction  
Warning Indicator

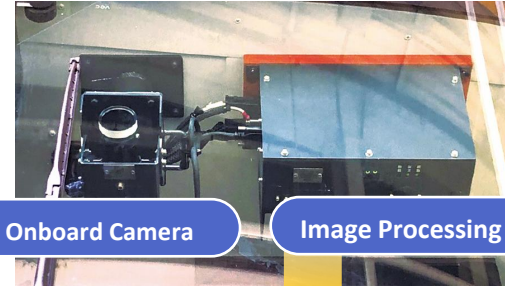


Departure Signal



Prevention  
of Oversight

Onboard devices



Onboard Camera

Image Processing Unit



Speaker

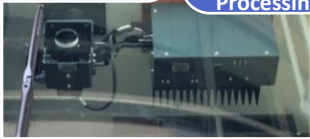
Attention  
Ahead

# Forward Monitoring System

Detects flashing obstacle warning indicator from a distance and trigger audio alerts to assist drivers.

Onboard Camera

Image Processing Unit



Crew Cabin

Onboard Image Processing Unit

Equipment 4K Camera

Speaker

Speaker

2

Captures and analyzes images over 600m ahead to detect flashing indicator.

1

flashing indicator

Detection Distance  
Over 600 m

Running

3 Alert

Attention ahead!

Under Evaluation



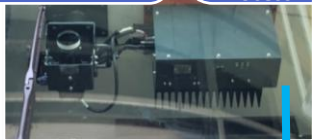
Rotating-type obstruction indicator can also be used by modifying the lights so that they all flash simultaneously.

# Forward Monitoring System

Prevent false departures caused by oversight departure signals and ensure safety.

Onboard Camera

Image Processing Unit



Crew Cabin

Onboard Equipment Image Processing Unit

4K Camera

Speaker



2

Capture Front View and Analyze image

Decode Blinking Pattern to ID + Signal Aspect Information

1

Flashing the LED light at high speed

Encoded ID + Signal Aspect Information to Blinking Pattern

Visible Light Communication



Detection Distance

Over 200 m

Departure Signal

Stopped at the Station

speaker



3 Alert

Transmit signal aspect information as Digital Data  
⇒ Ensure Accurate Detection of signal aspect