

Obstacle detection sensor for electric swing door that is invisible from outside

電動スイングドア向け 外観から見えない 障害物検知センサ

Aim

Keep the quality of a stylish appearance by embedding an obstacle detection sensor in a door.

Outline

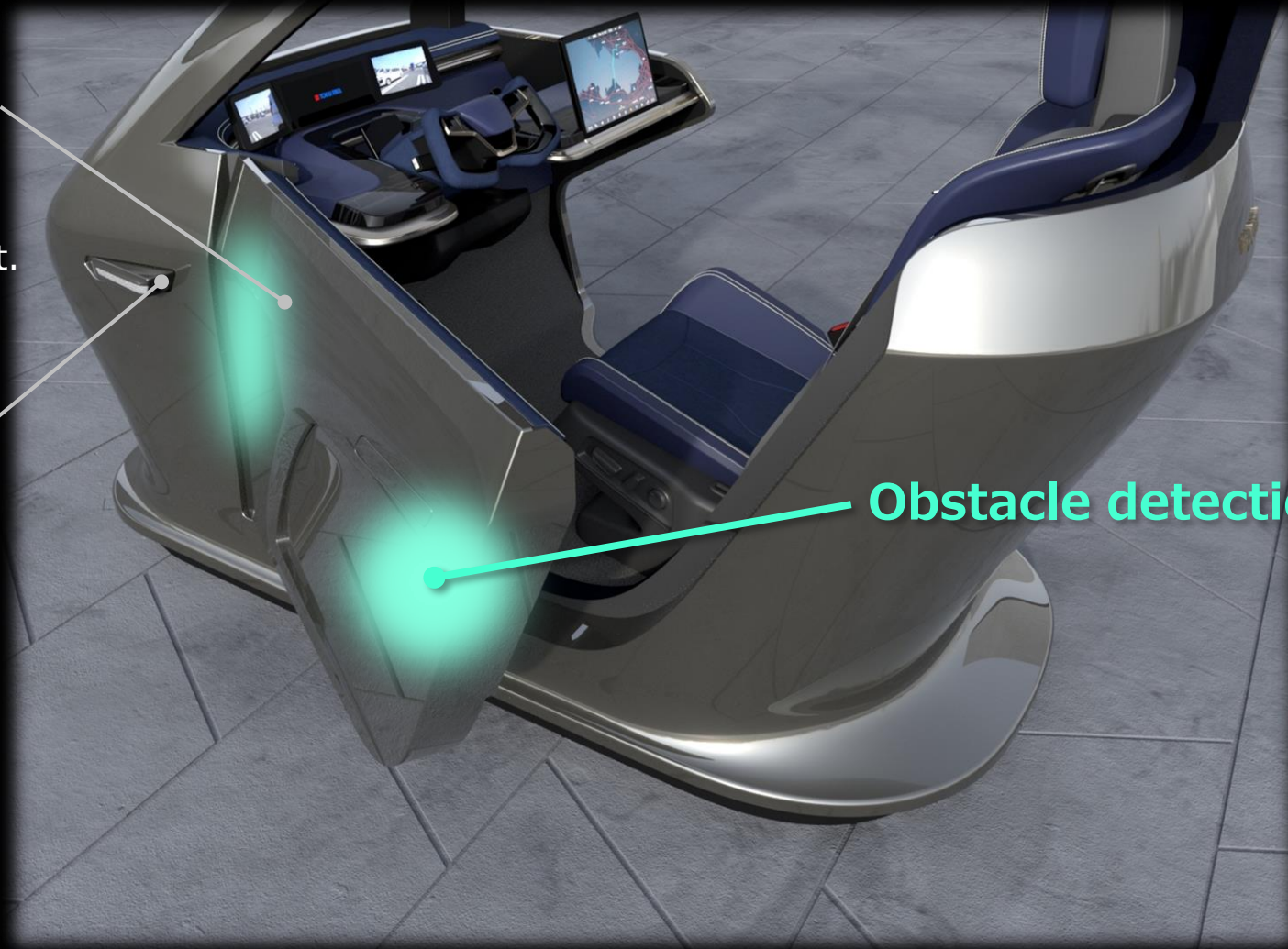
An obstacle detection sensor is installed in a door panel.

The embedded sensor sends and receives ultrasonic waves through the door panel (aluminum) to detect surrounding obstacles.

Actuator
The actuator is
a joint development
with Mitsui Kinzoku Act.

Camera

Obstacle detection sensor



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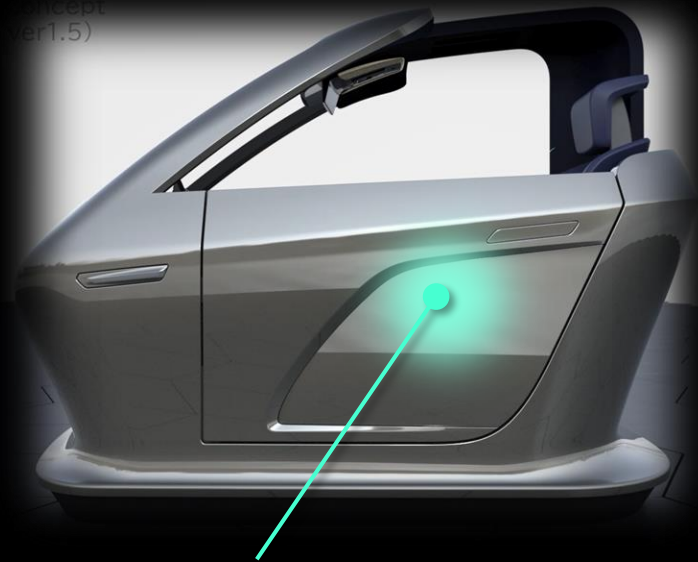
Technology

An obstacle detection sensor embedded in a door panel(※) generates ultrasonic signals and sends them out of the door panel.

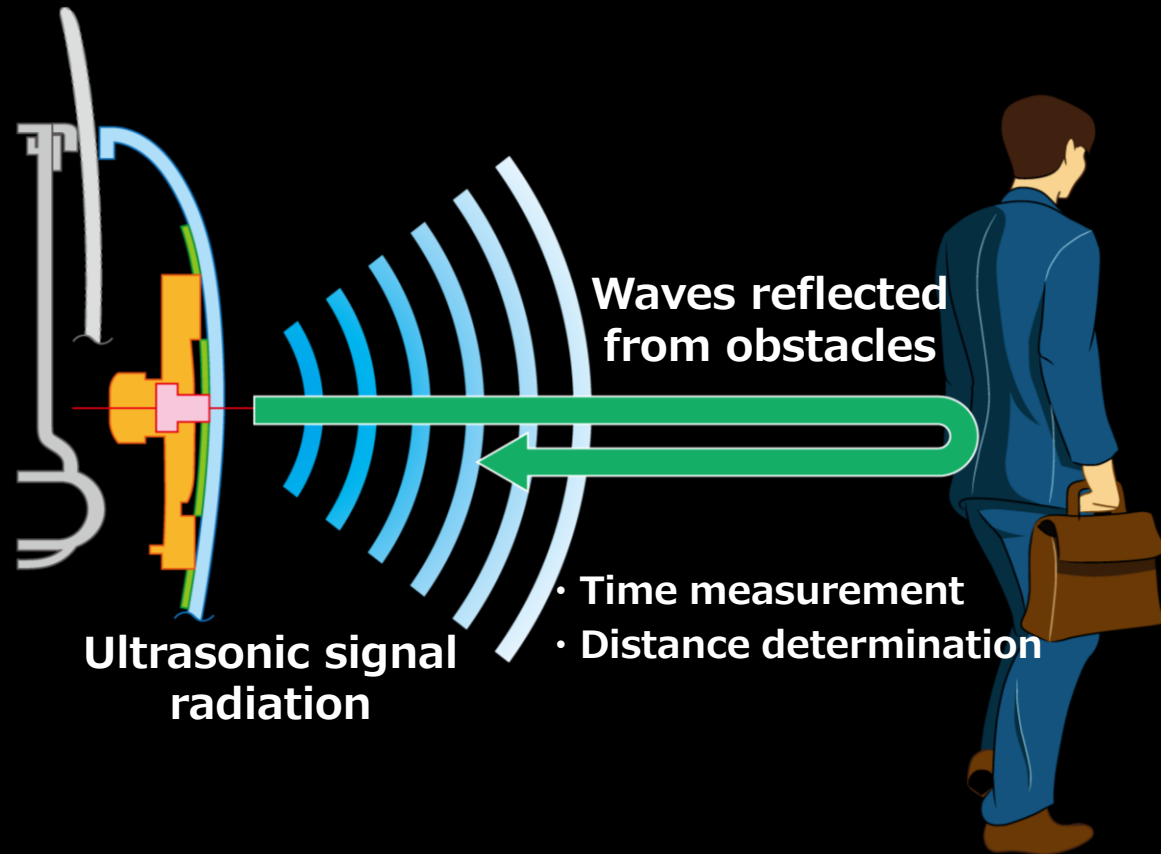
The sensor detects the distance to a surrounding obstacle by measuring the time for a reflected wave from the obstacle to return.

※aluminum

concept
ver1.5)



Obstacle detection sensor

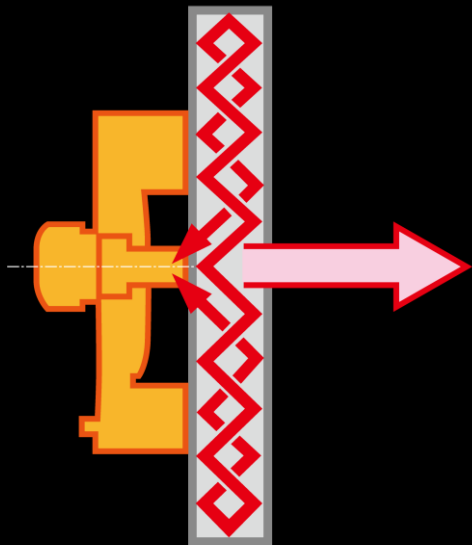


Technology

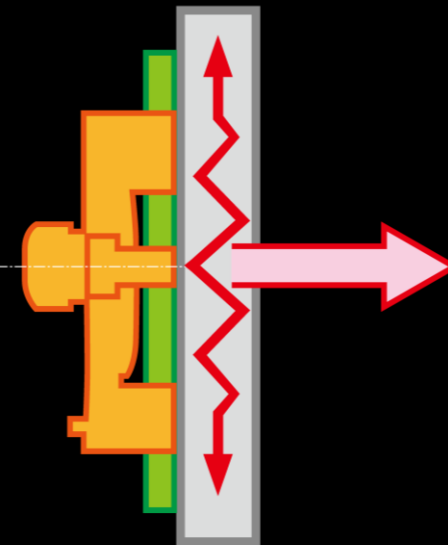
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※aluminum



Undetected because of ultrasonic echoes from the door edge

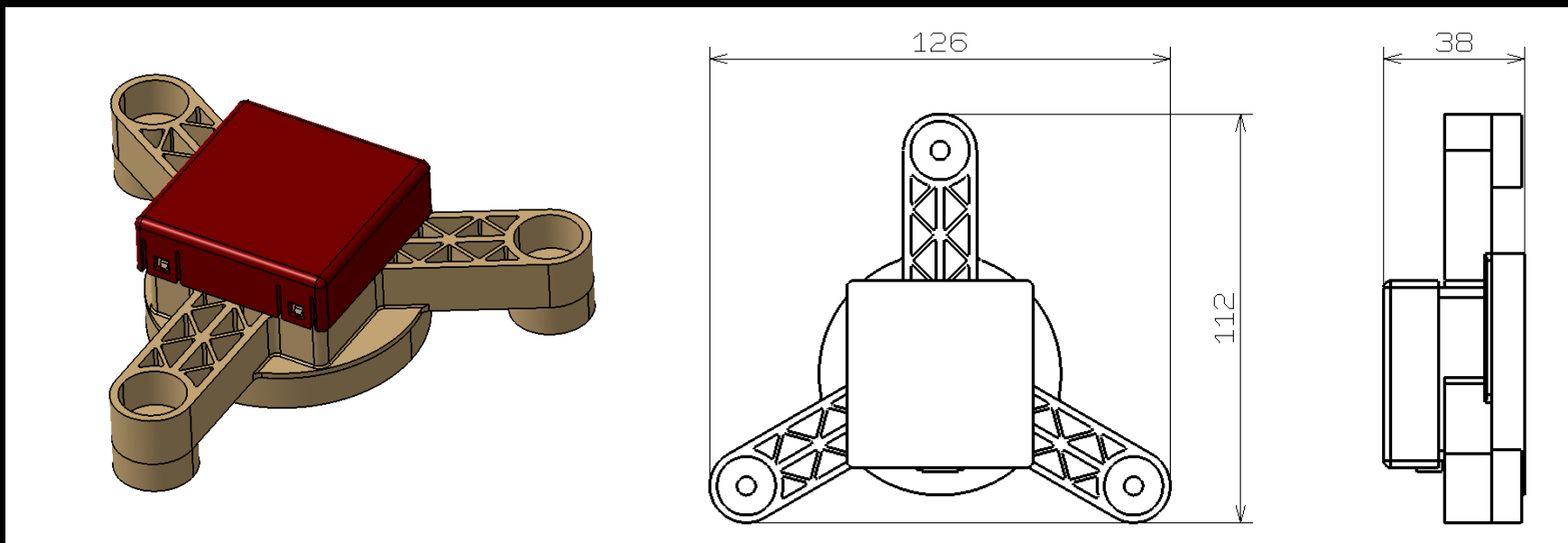


Detected because a butyl rubber sheet absorbs and controls ultrasonic echoes from the door edge

-  Ultrasonic sensor/Case
-  Butyl rubber sheet
-  Aluminum
-  Ultrasonic echoes
-  Ultrasonic

Product configuration

Target value



Dimensions (H×W×D)	112×126×38mm
Detection distance	1m
Detection angle	70°
Frequency	58kHz
Thickness aluminum plate	1.2mm

Future Applications



Collision prevention for touch-open refrigerators



Office Door Collision Prevention