Gesture entry system for electric swing door

電動スイングドア向けジェスチャーエントリーシステム

Aim

AI image processing technology that enables an electric swing door to be opened by intuitive motions

Outline

・ The AI estimates the location of human joint points based on an RGB camera or video files.
・ Human gestures are recognized from the time-series motions of their joint points.
・ Workable on edge devices

※The electric swing door system is a joint development with Mitsui Kinzoku Act.
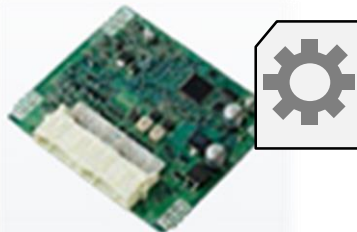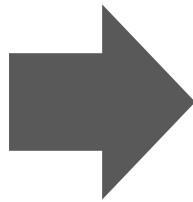
Obtain image ▷ **Skeleton detection** ▷ **Detect motions** ▷ **Application program**
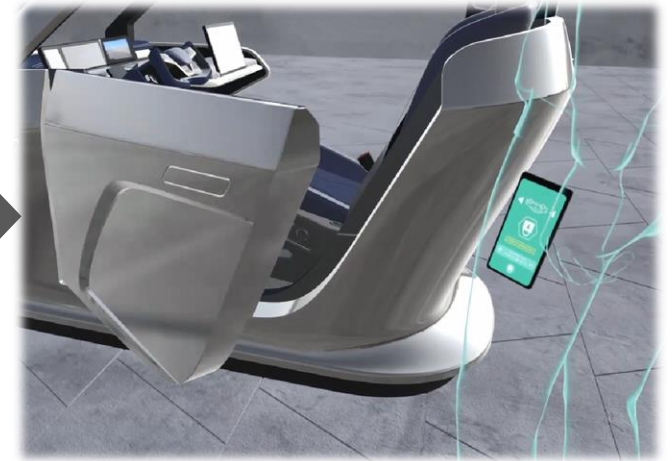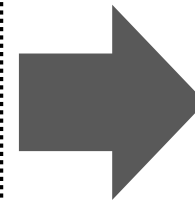
Camera

Assumed size 200×200×50mm

Software program

Control device

Example of service provision   Camera + control device + software program
※ We can provide a control device alone or a software program alone.

- The deep learning system detects humans and their skeletons (estimates the position of joint points)
- The rule based system and machine learning recognize human gestures from the motions of joint points.

Pose estimation processing

The coordinates of joint points in the human region are estimated
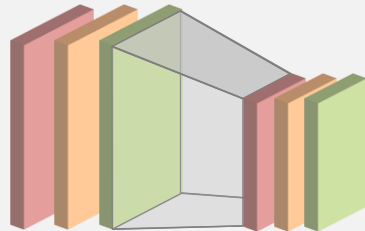
Deep learning
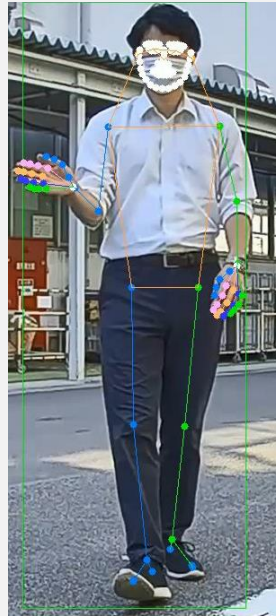
Gestures and motions detection processing

The coordinates of joint points in the human region are estimated

Feature amount is designed from the coordinates of wrist joint points

Rule based/Machine learning algorithm

Gestures Judgment Result

Swipe

Skeleton detection technology can be applied to other fields

Others
 ・ Elevators
 ・ Home entrance doors
 ・ Curtains/Blinds
 ・ Human presence sensing shutters
 ・ Opening and closing windows on high places

etc.

Detection of driver's or passengers' unusual postures or motions"

Detection of the postures or motions of people working in factories aiming for DX