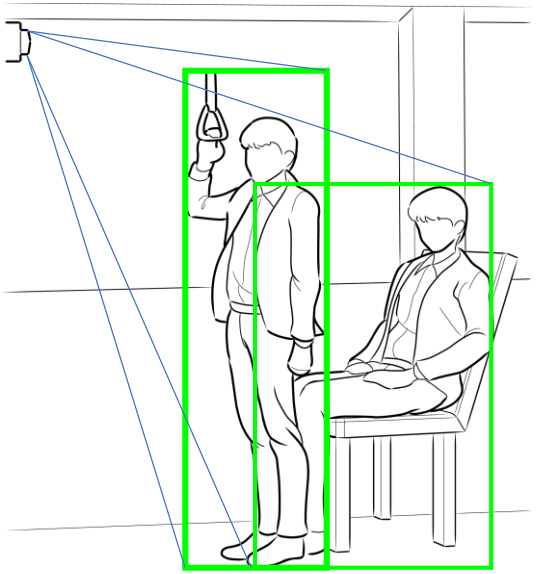
Interior Monitoring System

Intention

A remote autonomous driving system is required for supervisors in a control room to check the safety of passengers for a secure and safe operation.
Our monitoring system is designed to reduce the burden on a supervisor in a remote control room. The system detects passengers' unsafe behaviors from on-board camera images and shows an alert on the display in a control room. A supervisor can determine the need for sending a reminder to the passengers or for an emergency response just by looking at the alarming interior image, not by staring at the screen all the time.

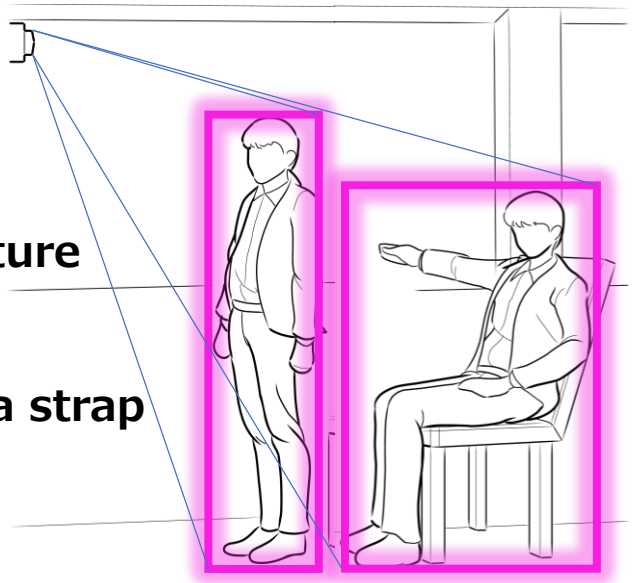
Overview



Safe Riding Posture

Recognized

Unsafe Riding Posture



- **Sitting**
- **Standing (Holding a strap)**

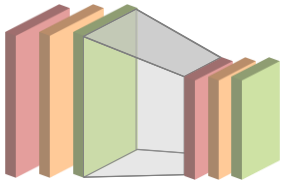
- **Standing without a strap**
- **Putting the hand out of the window**

Interior Monitoring System

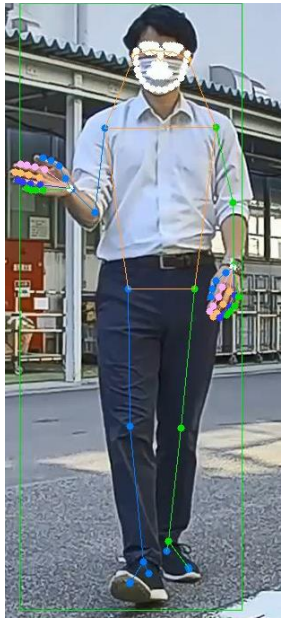
Technology Introduction

Skeleton Detect

Estimate joint points



Deep Learning



Posture / Motion Detection

Posture / Motion are estimated from the time-series information of joint points.

Suitable feature quantity is designed from the body joint point coordinate.

Judgment Algorithm
Rule Base / Machine Learning

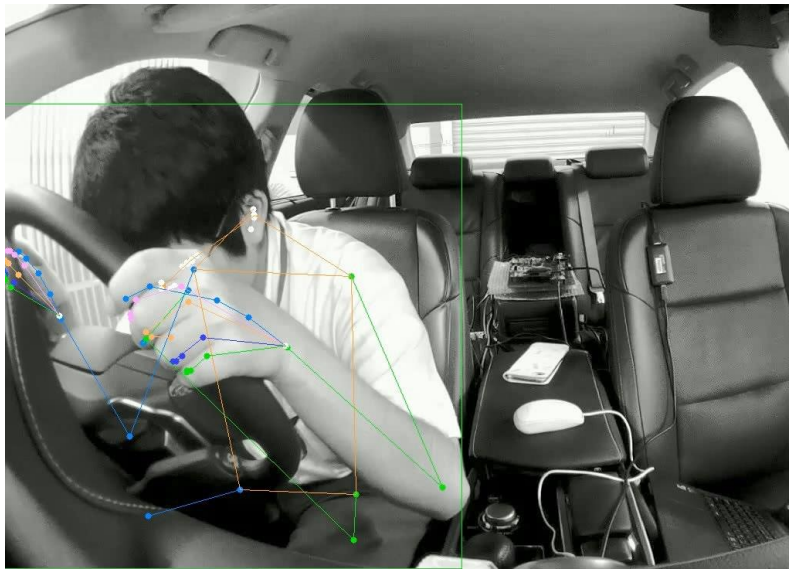
Posture / Motion Judgment Result

Unsafe Riding Posture

Interior Monitoring System

Application Examples

Skeleton detection technology is versatile.



Driver’s and passenger’s
unusual postures and motions can be detected.

Detected postures and motions of people working
in factories can be used for digital transformation (DX).

Others

- Elevators
- House entrance doors
- Blinds
- Motion detect shutters
- Opening and closing of windows in high places
- Gesture recognition entry

…etc