

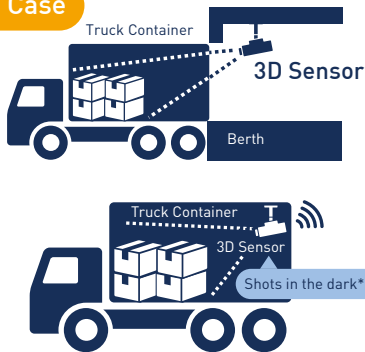
Fixed 3D sensor detects loaded cargo and visualizes loading rates to container volume and empty spaces

- Delivery efficiency is required in response to chronic labor shortages in the logistics industry and the rapid increase in individual deliveries due to demand growth of EC
- Aim to reduce CO₂ emissions by improving loading rates (delivery efficiency) in response to carbon neutrality

- 2 patterns operation, On-board type & Berth type, are available according to customers usage situation
- Customers can select the best 3D sensors from Lidar, ToF and Stereo cameras according to customers usage situation
- It is possible to calculate detailed loading rates for individual operation due to interface with digital tachograph

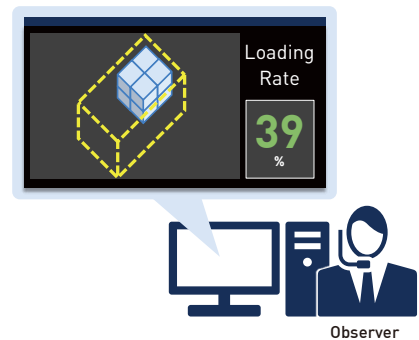
Fixed 3D sensor detects packages loaded in a specific area from captured images and visualizes loading rates to container volume

Target Case

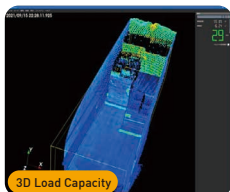


*1. It depends on sensors, please contact us when you select the type.

Detective Case



Setting 3D Sensor in Operating Truck



Processing image of point cloud data & Loading rates



Drive recorder image for verification

Record#	21000300004546
Date	2021/09/15 (水)
Weather	
Route	DC-Imazato-Kawasaki
Driver	00000291 Taro Yazaki
Vehicle	00000361 XXX Hamamatsu 130 AXX
Model	Truck DTG7
Max. load capacity	13,800kg

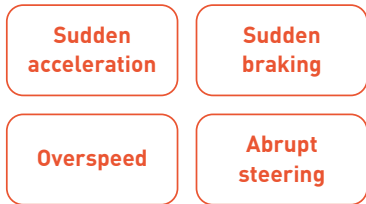
- Management screen for visualizing driving diagnosis and accident risks for individual office / driver

- Driving instruction support

- We would like to instruct reducing accidents with "AI" utilization from the risk factors related to traffic accidents
- We would like to improve boring driving instruction

- Extract especially careful driving behavior by "AI" which learned accident risk factors from huge amounts of data
- "Visualize" potential accident risks and driving diagnosis on a management screen
- Enable driving instruction with pointing out dangerous driving, maps and videos

Current Current Safe Driving Diagnosis

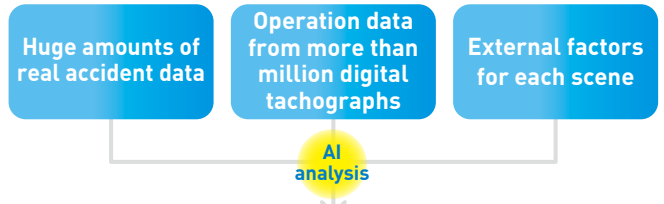


! Issues & Challenges

- Not reduce accident rates even high scores
- Mostly no correlativeness between risk factors and scores
- Strong impression of monitoring and unmotivated

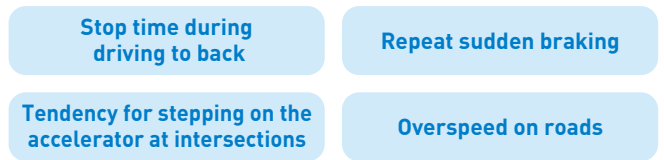


TRUE SAFE AI Judges Accident Risks



Extract risk factors directly leading to accidents and assume driving accident risks!

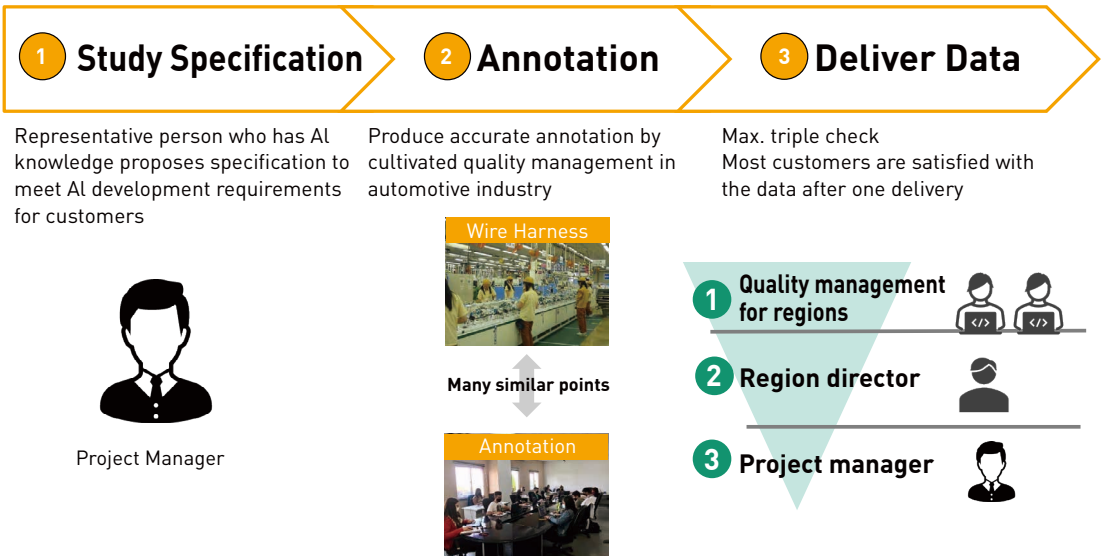
Calculate scores based on following accident risk factors



Creation and proposal of annotation data for AI learning

- Create environment to concentrate AI development for helping customers to improve AI accuracy and to reduce engineering resources by utilizing human resource management skills and AI development knowledge which Yazaki have cultivated in automotive industry

- Create high quality annotation data
- Accept high level of difficult cases from requirement definitions
- Proposals utilized practical AI development knowledge



Industry / Area ■ Support for various industries / areas

Please contact us complicated requirements & difficult annotation work especially area extraction & skeleton estimation

- Factory
- Satellite / Drone
- Mobility
- Medical/Nursing care
- • •

Integrated operation management system supporting logistics and passenger operators

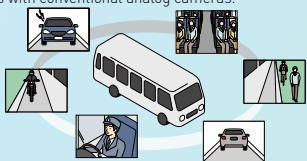
- Industry's highest end model with integrated digital tachograph and drive recorder
- Full cloud type operation management system with enhanced safety, operation, labor, dynamics and roll-call management

- AI-assisted safe driving with image recognition
- Max. 10 cameras can be installed depending on the operation system
- Enhanced functions and excellent design for UI/UX

YDX-8

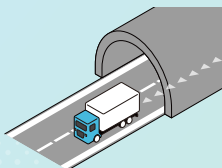
Safety Mgt. Max. 10 Cameras depending on Operation System

Main camera has 2.4-megapixel and Max. 4 digital cameras with 1.2-megapixel can be added. Produce much higher definition records. Extend to max. 10 cameras with conventional analog cameras.



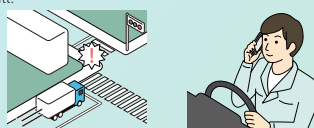
Operation Mgt. Precise Location Management

Improved non-positioning and missing positions in tunnels, under elevated tracks and in downtown with using GPS modules supported dead reckoning. Improve event positions and the accuracy of driving trajectory.



Safety Mgt. Safe Driving Assistance by Image Recognition

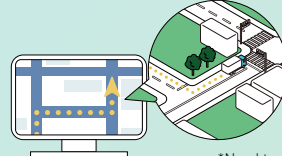
Improve performance of conventional recognition functions for approaching vehicles and road markings. Add recognition functions for detecting red signals and driver's phone call.



*Recognition functions are not available for some conditions.

Operation Mgt. Real-Time Dynamic Communication

Updating frequency of vehicle location can be set to 1 or 5 minutes for required vehicles, in addition to the usual 10 minutes. (Additional paid option) It is possible to catch vehicle location at much real-time.



*Need to connect LTE

Cost Select Operation System

Select analysis system from SD Card / LTE Communication / Wireless LAN, it can be combined depending on customer's operation.



SD



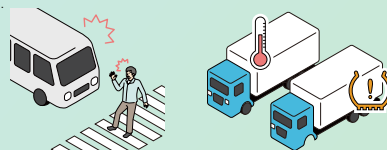
LTE



Wireless LAN
(Planning to roll out support)

External Interface Various Scalability / Link to External Devices

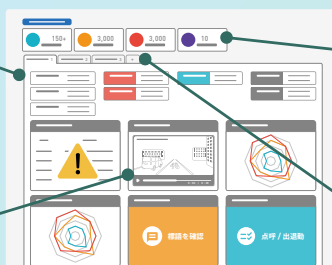
Various devices can be interfaced, such as collision prevention auxiliary device, tire pressure detection devices, and internal temperature control devices.



ESTRA

Improve visibility and usability depending on the dashboard

Frequently used menu can be arranged.



ESTRA-Web2 Screen Image

Alert notification, such as emergency information, is available on the layout

Multiple dashboard is available

Safety Mgt. Enhance Safety Assessment Function

Recommend setting is implemented depending on industries. Users can customize own assessment items as priority management and it can be utilized for safe driving week.



Operation Mgt. Improve Operation Search Functions

It is easy to refine videos by searching available operation data matching to the specific date/place from driving trajectory data.



Roll-call Mgt. Enhance Roll-Call Function

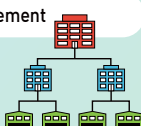
Unique new roll-call system interfaced with ESTRA-Web2 and API is available as an option. Linking to face/NFC recognition, alcohol check, body temperature management device.



*Planning to acquire license as IT roll-call system

Operation Mgt. Enhance Organization Management

Max. 10 organization hierarchies can be supported and data can be checked / edited below the selected hierarchy. Flexible aggregated management by hierarchy, such as head/branch/sales office.



Labor Mgt. Enhance Labor Function

Creating multiple labor setting is available and it is possible to assign settings to each driver, such as extended annual restraint time for specific drivers.



This product is currently under development. The contents are subject to change without notice.