



# Visual, Traceable, Flexible

Intelligent railway on-board solution



Visual



Traceable



Flexible

## Challenges

- **Lack of Driving Management:**
  - > Drivers cannot monitor closing train doors due to lack of display.
  - > Driver's behavior such as fatigue driving cannot be managed.
- **Passenger Security Concerns:**
  - > Key areas inside the train cannot be covered due to lack of surveillance.
  - > Police officers cannot locate suspects.
- **Operators' Profit:**
  - > Operators cannot analyze and predict their profit based on traffic flow.

## Overview

Dahua Railway On-board Solution is an integration of surveillance cameras, face detection cameras, storages and DSS server that is applicable on various scenarios.

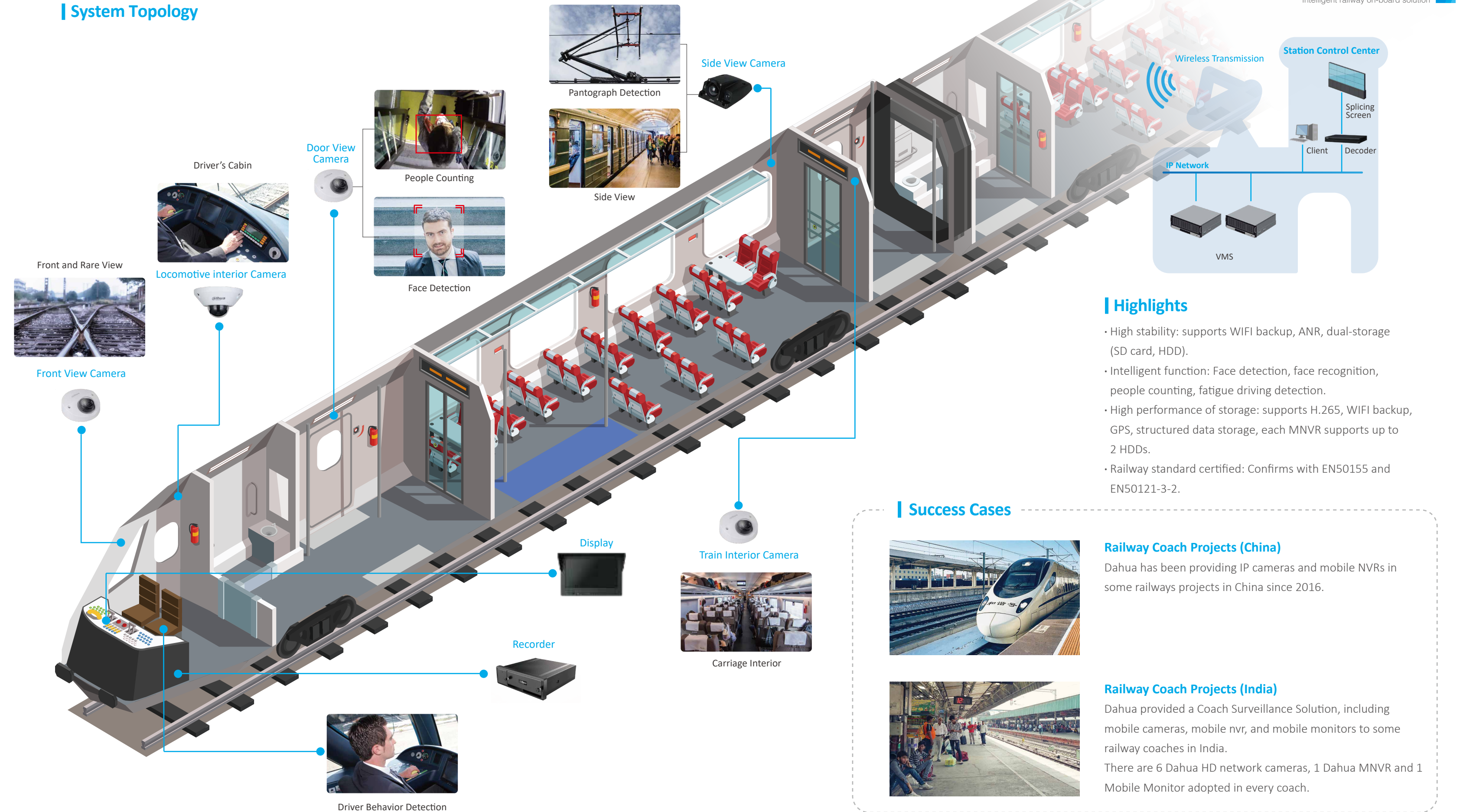
Based on our video analysis techniques, our solution provides video surveillance, people counting, face detection, driver behavior detection and other intelligent functions to help drivers and operators manage the railway better.



## Details

- **Driver Only Operation:**
  - > Monitors front view, rare view, side view, door views of the railway vehicle.
  - > Detects driver behavior in real-time.
- **Passenger Security:**
  - > Provides full HD monitoring for passenger carriage.
  - > Embedded face detection technology.
  - > Recognizes and compares passengers' face image with the database.
- **Operators' Profit:**
  - > Counts passenger number based on AI technology.

## System Topology



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## Highlights

- High stability: supports WIFI backup, ANR, dual-storage (SD card, HDD).
- Intelligent function: Face detection, face recognition, people counting, fatigue driving detection.
- High performance of storage: supports H.265, WIFI backup, GPS, structured data storage, each MNVR supports up to 2 HDDs.
- Railway standard certified: Confirms with EN50155 and EN50121-3-2.

## Success Cases



### Railway Coach Projects (China)

Dahua has been providing IP cameras and mobile NVRs in some railways projects in China since 2016.



### Railway Coach Projects (India)

Dahua provided a Coach Surveillance Solution, including mobile cameras, mobile nvr, and mobile monitors to some railway coaches in India.

There are 6 Dahua HD network cameras, 1 Dahua MNVR and 1 Mobile Monitor adopted in every coach.



## Recommended Models



### IPC-HDBW4431F-M12-CER

- 1/3" 4MP progressive scan CMOS
- EN50155, EN50121-3-2, EN45545-2 certified
- 25/30fps@4M (2688×1520)
- WDR, 3DNR, AWB, AGC, BLC
- Max. IR LEDs Distance 20m
- Micro SD memory, IP67, IK10, PoE



### IPC-HDBW5241F-M12-SA-CER

- 1/2.8" 2MP progressive scan STARVIS™ CMOS
- EN50155, EN50121-3-2, EN50455-2 certified
- 25/30 fps @ 1080P (1920×1080)
- SMART H.264+/H.265+ triple-stream encoding
- WDR, Day/Night (ICR), 3D DNR, AWB, AGC, BLC
- Max. IR LEDs Distance: 30 m
- Supports face detection, people counting
- Micro SD memory, IP67, IK10, PoE



### IPC-EB5541-M12-SA-CER

- Fisheye with 360° panoramic view
- 1/2.7" 5MP CMOS image sensor
- EN50155, EN50121-3-2, EN50455-2 certified
- Outputs max. 5MP (2592×944) @25/30 fps
- ROI, SMART H.264+/H.265+, flexible coding
- WDR, 3D DNR, HLC, BLC, AGC
- Supports people counting, heat map
- Micro SD memory, IP67, IK10, PoE



### IPC-EBW81242

- Fisheye with 360° panoramic view
- 1/1.7" 12MP CMOS image sensor
- EN50155, EN50121-3-2 ready
- Max output 12MP (4000×3000)@30fps
- SMART H.264/H.265
- 3D DNR, AWB, HLC, BLC, ROI, SVC
- Supports people counting, queuing, heat map
- Micro SD memory, IP67, IK10, PoE



### IPC-MBW4431-M12

- 1/3" 4MP progressive scan CMOS
- IEC61373 ready
- 25/30fps@4M (2688×1520)
- WDR, 3DNR, AWB, AGC, BLC
- Max. IR LEDs Distance 30m
- Micro SD memory, IP67, IK10, IP6K9K, PoE



### MNVR8208-GFWI

- Up to 8 channels
- Built-in PoE Switch
- Supports H.265/Smart H.265
- Supports 2 SATA HDD, 2 USB3.0, 1 USB2.0
- Aviation connectors adopted
- Adopts AI technologies
- Military rank vibration resistance

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\* Design and specifications are subject to change without notice.

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