FOR YOUR SAFE, EFFICIENT AND INTELLIGENT TRAVEL

Dahua Smart Bus Solution

Background

With the development of AI technology, mobile surveillance industry is turning into a new era. As safety is always a top priority, transportation department are looking for innovative ways to reduce accidents and improve customer satisfaction.

With the advent of AI transformation in the mobile industry, Dahua Technology, a world leading video-centric smart IoT solution and service provider, launched its Smart Bus Solution. This solution aims to solve the challenges related to security, efficiency and value. For example, AI technologies like ADAS and DSM are applied to reduce accidents and protect both passengers and drivers. Our solution is based on customer requirements and project experience, and covers the whole process from the moment the driver gets on the bus until the bus returns to the bus station.

BUS STOP

073

23-56 RT

Challenges

Safety Problems

- Illegal driving (fatigue driving)
- High accident rate
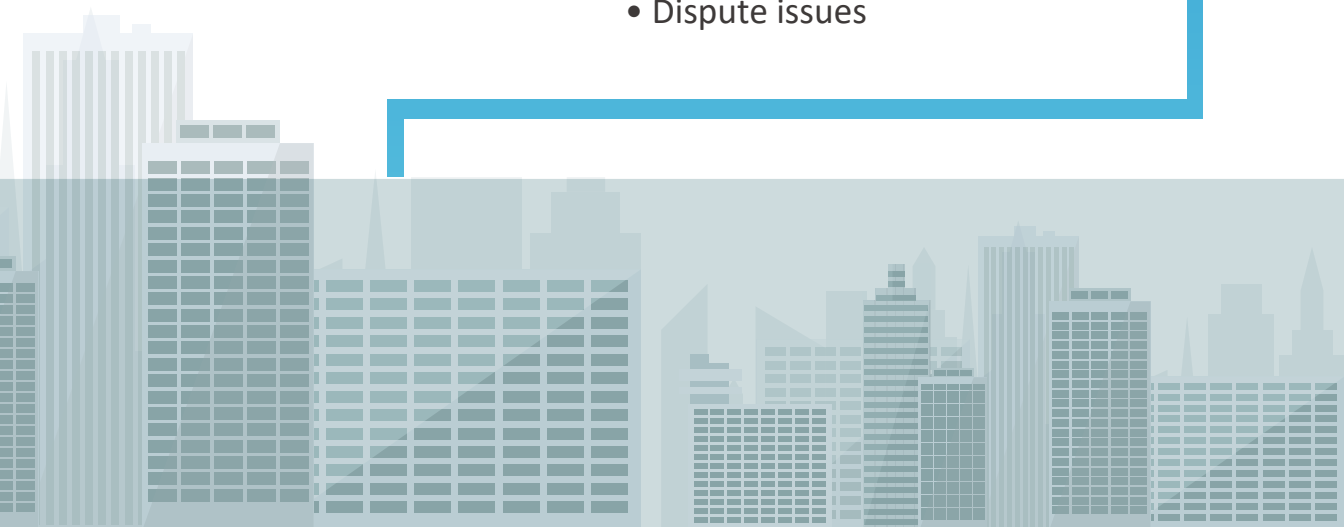- Hard to find evidence

Low Efficiency

- Low efficiency of driver attendance
- Manual scheduling of bus trips
- Complicated parking lot management

Lack of Value

- Lack of parking guidance
- Lack of extra revenue
- Dispute issues

Solution Overview
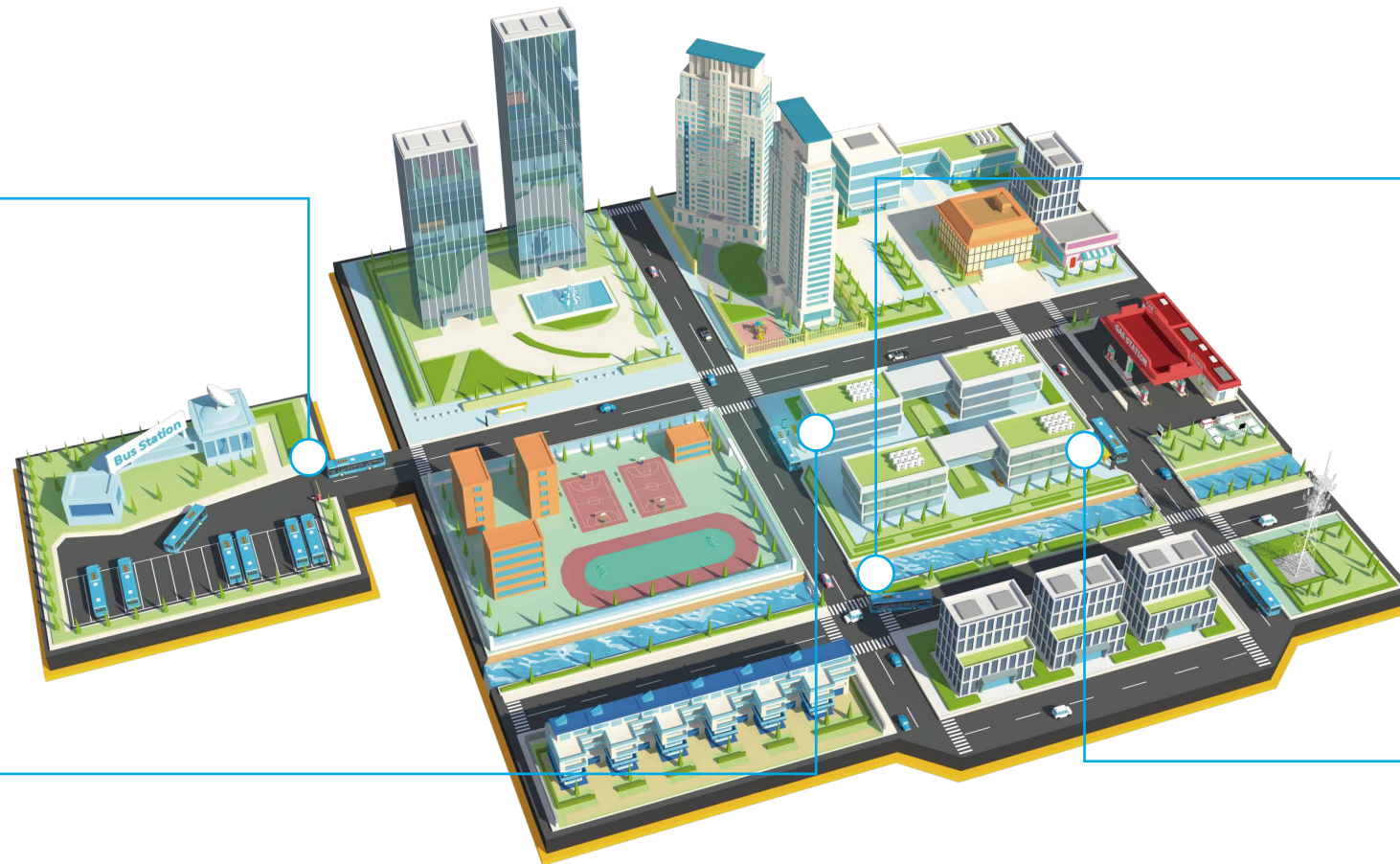
Improve Safety

Improve Efficiency

Improve Value

Start from the bust station
- Automatic Attendance
- Entrance & Exit Management

Passenger get on the bus
- Schedule Optimization
- Suspect Detection

On the road
- Active Prevention:
- DSM (Driver Status Monitor)
- ADAS (Advanced Driver Assistance System)
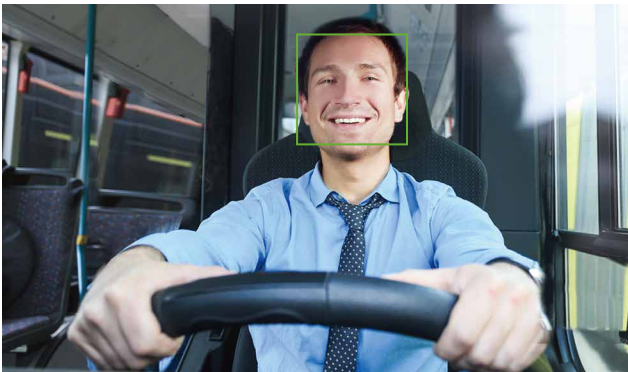- BSD (Blind Spot Detection)

Arrive at the bus stop
- Passenger Guidance
- Advertisement

Start from the bus station

Automatic Attendance

Driver Recognition System
· DSM cameras can detect the driver's face, enabling the face recognition function to realize automatic attendance.
· The platform provides report and data for driver attendance management.

Entrance & Exit Management

ANPR System
· Entrance and exit cameras can recognize plate numbers to open the barrier automatically.
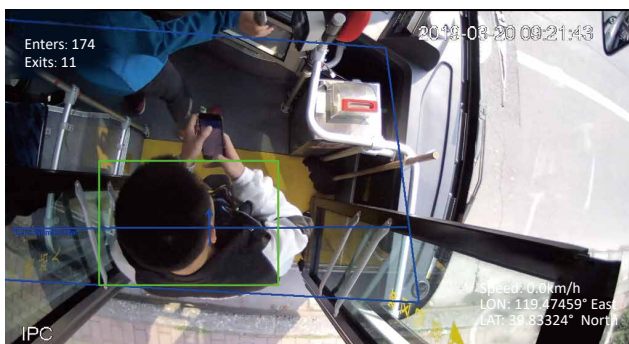· Saves labor costs and time.

Passengers get on the bus

Schedule Optimization

People Counting System
· People counting cameras calculate the number of passengers getting on/off the bus in every stop, providing useful data for scheduling optimization.

Suspect Detection

Passenger Recognition System
· AI MNVR supports face recognition and compares captured images with the blocklist to identify any suspect.

On the road

Active Prevention

DSM (Driver Status Monitor): Detects illegal driver behaviors using DSM cameras, including looking around, yawning, closing eyes, smoking and making phone calls.

ADAS (Advanced Driver Assistance System): Assists in detecting lane departure, avoiding collision and keep safe distance using ADAS cameras.
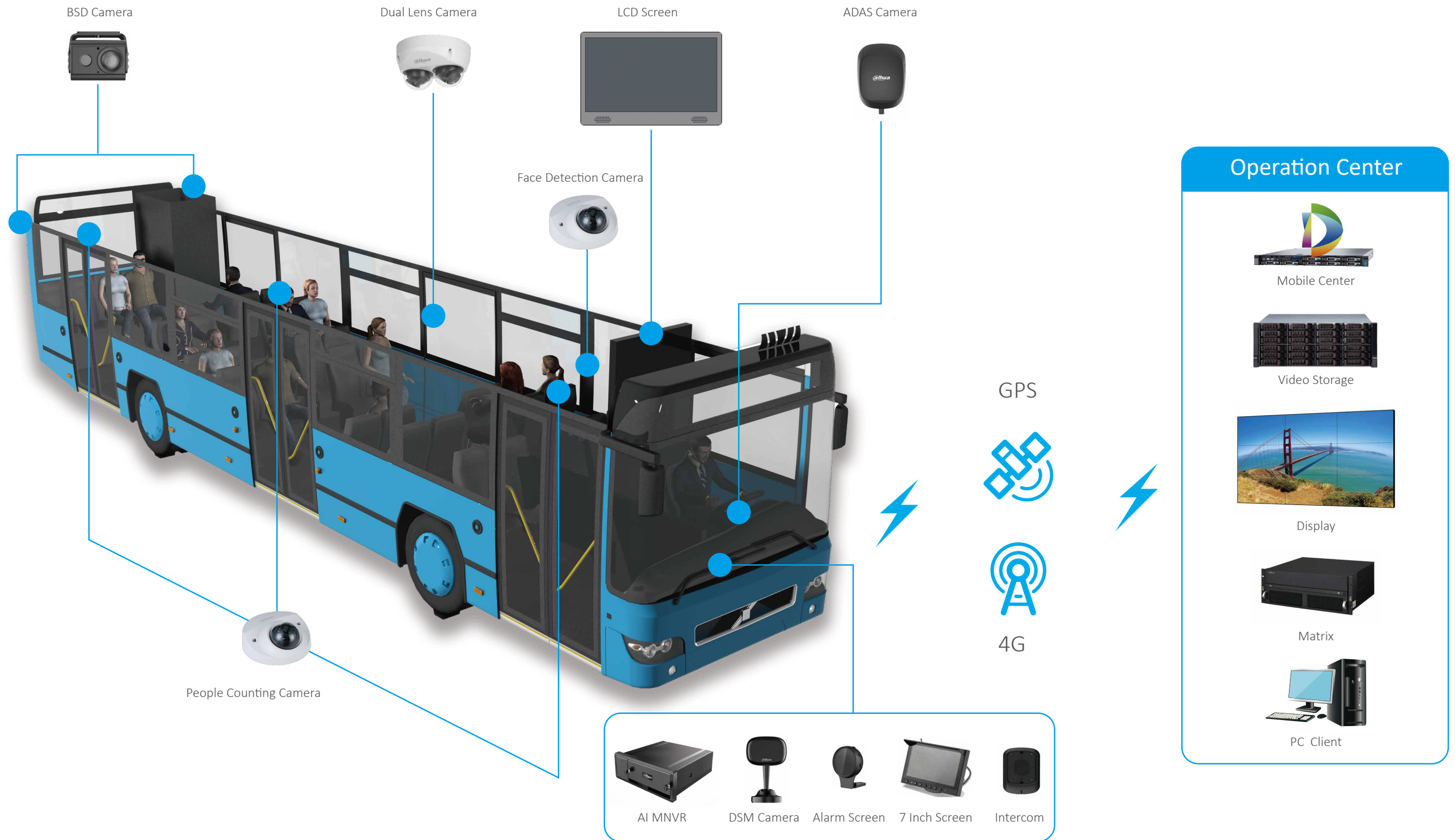

BSD (Blind Spot Detection): Detect the pedestrians and vehicles approaching the bus and reminder the driver to avoid blind spot accident.

Arrive At The Bus Stop

Passenger Guidance And Advertisement

· The LCD screen both inside the bus and on the bus stop can display the bus line information and advertisement at the same time.

· The inside screen will change to display the name of the next bus stop to remind the passengers when bus approaching the stop.

BSD Camera

Dual Lens Camera

LCD Screen

ADAS Camera

Face Detection Camera

People Counting Camera

GPS

4G

Operation Center

Mobile Center

Video Storage

Display

Matrix

PC Client

AI MNVR   DSM Camera   Alarm Screen   7 Inch Screen   Intercom

Key Technology

· DSM (Driver Status Monitor)

The DSM camera adopts global exposure CMOS, with capturing speed of up to 60 frames per second. Its optimized exposure mode effectively prevent deformation on the face image.

The DSM camera uses 940nm infrared fill light combined with an infrared lens, which can avoid interference of ordinary visible light to the driver's image and can effectively improve the brightness in a dark environment.


Yawning

Making phone calls

· ADAS (Advanced Driver Assistance System)

The camera is equipped with true wide dynamic technology, digital wide dynamic technology, and high light suppression image pre-processing algorithm, which effectively suppress strong light from headlights at night while improving overall brightness and transparency.

Forward Collision Warning

Lane Departure Warning

· BSD (Blind Spot Detection)

Equipped with cameras powered by deep learning algorithm, our system can detect human, motor vehicle and non-motor vehicle at a certain distance that can be set by the user.
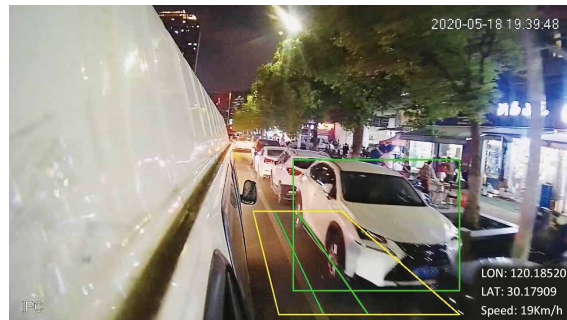
MNVR

Anti-vibration

When the vehicle is running on the road, the shock and vibration on board are the main causes of HDD damage and video footage loss.Dahua mobile devices comply with **ISO 16750-3** and **E-mark** to protect the system from electrical surge and vibration.
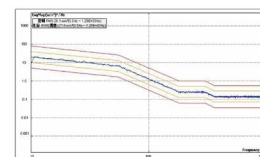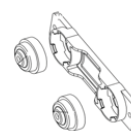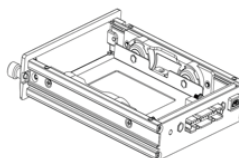
Power-off Protection

- A super capacitor is applied to achieve smooth powering off in case of a sudden system power failure, avoiding data loss and extending the hard disk lifespan.
- It will keep working for about **5 seconds after powering off.**
- Dahua devices have already passed **ISO7637-2 standards.**
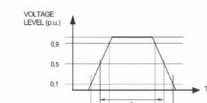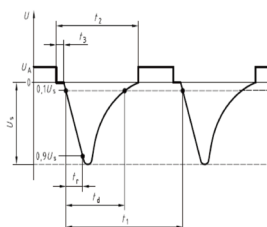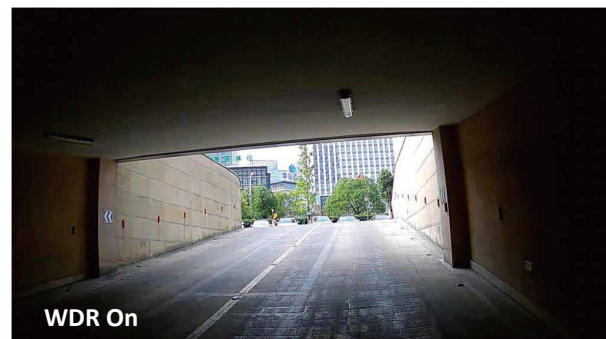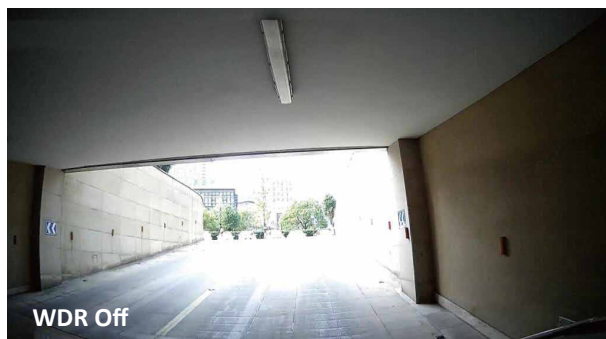- Wide voltage input of **DC 6-36V.**

Camera

Low Illumination

Dahua new image sensor greatly improves signal-to-noise ratio and color reproduction.
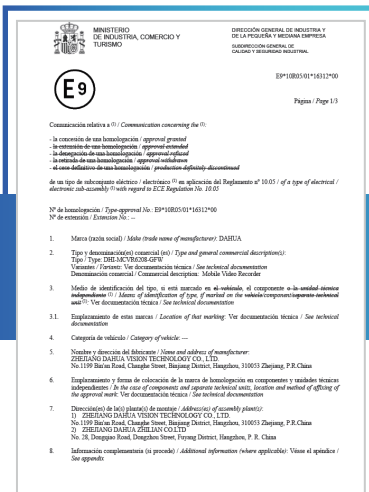

Original

Now

WDR

- Up to 120dB Wide Dynamic Range to capture an optimized image quality even in high contrast environment.

WDR Off

WDR On

Certification

E-mark/EN50155/ISO16750/ISO7637-2/CE/FCC/EN45545-2
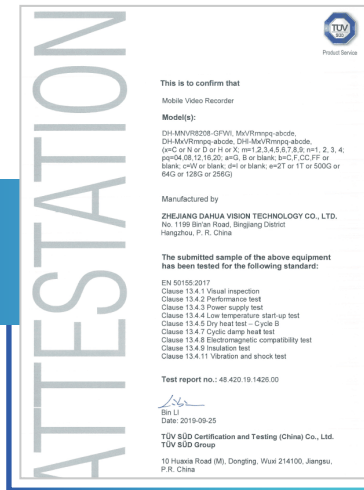
| E-mark | EN50155 | ISO16750 |

Cyber Security

Nowadays, video surveillance has become ubiquitous, including buses, taxis, subways and other public places of travel. Passenger's personal information is collected anytime and anywhere. The European Data Protection Commission issued General Data Protection Regulations to regulate public transport operators to protect passengers' safety and privacy at the same time. More and more attention has been paid to personal privacy protection and cyber security.

First in the global video surveillance industry, the Dahua IP video products are certified by TUV Rheinland as GDPR (General Data Protection Regulation) compliant.

Software

· Mobile Center

Introduction

Mobile Center is a professional platform for managing mobile vehicles. It meets the requirements of large and medium-sized projects through distributed extension. It supports live view, playback, GPS, E-fence and two-way talk. In addition, it also supports advanced functions such as passenger counting module and active safety module (DSM and ADAS alarm report).

Performance

· Supports Max. 2,000 channels (supports max. 1,000 MXVR/MNVR)
· Supports 600M transfer capability
· Supports 600M local storage capability
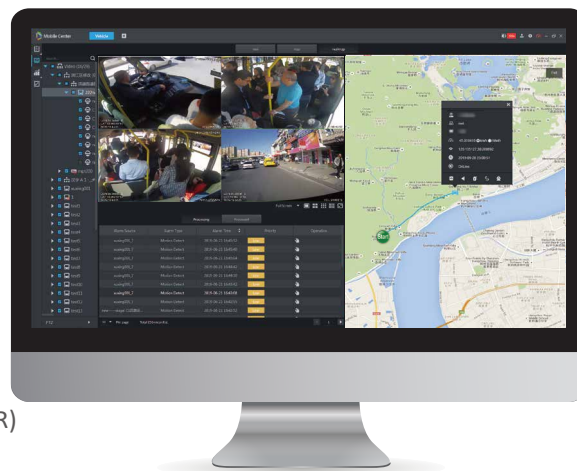
· DAE-VIMS

App VIMS is a mobile phone client of the Mobile Center. Users need to deploy the Mobile Center before using this App. VIMS supports functions such as live view, playback, real-time GPS, GPS history and alarm prompts from the buses.
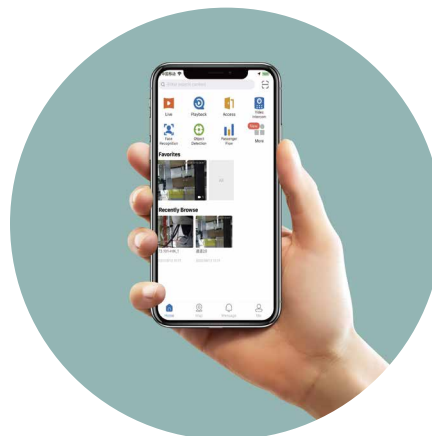
· Disk Manager

This software is used to watch playback or download the recordings from the hard disk by connecting the hard disk box to a computer.

It supports checking of the bus' track history on google map, while playing the recording at the same time.
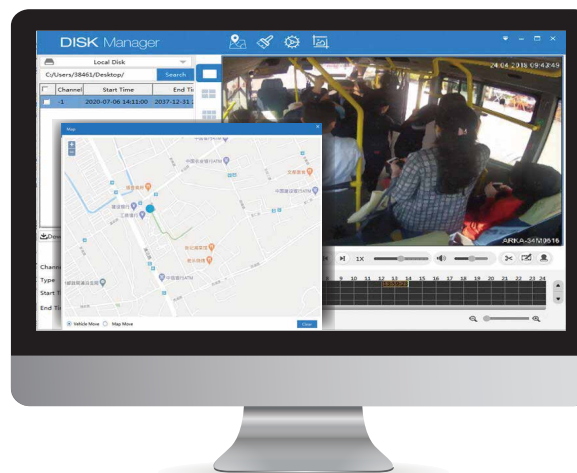
Product Selection

MNVR8208-I

8-Channel PoE H.265 2 HDDs Intelligent Mobile Video Recorder
- Supports 8 channels of PoE IP cameras input and 2 channels of HDCVI input
- Supports H.265 / Smart H.265 video compression
- Supports 4MP real time recording
- Supports face detection, license plate recognition, driving behavior detection of smoking, calling, yawning, and collision warning

MNVR4208-I

8-Channel PoE H.265 2 HDDs Mobile Video Recorder
- Supports 8 channels of PoE IP cameras input
- Supports H.265 / Smart H.265 video compression
- Supports 8 channels of 4MP real-time recording
- Supports 2 HDDs and 1 SD card
- Supports face recognition and number plate recognition

MXVR4104-I

4-Channel H.265 1 HDD Mobile Video Recorder
- Supports penta-brid (HDCVI/AHD/TVI/CVBS/IP) video input
- Supports H.265/smart H.265 video compression
- Supports 4-channel 1080P real-time recording
- Supports 1 HDD and 1 SD card
- Supports DSM/ADAS/BSD

IPC-HDBW5241F-M-SA

2MP Mobile Fixed-focal Dome Network Camera
- 1/2.8" 2Megapixel progressive scan STARVIS™ CMOS
- H.265 & H.264 triple-stream encoding
- WDR (120 dB), Day/Night (ICR), 3D DNR, AWB, AGC, BLC
- Max. IR LEDs Distance: 30 m
- Supports passenger counting (2.1mm recommended)
- Supports number plate recognition (needs customize firmware)

DHI-DAE-CDM5110

Driver Monitoring Camera (DSM Camera)
- 1/4" CMOS image sensor, excellent low luminance performance and HD images
- Outputs 50Hz (1280×720) @25fps / 60Hz (1280×720) @30fps
- 3D NR, BLC
- 9V-16V DC; facilitates installation
- IP54 rating

DHI-DAE-CFM5210

Front-view Monitoring Camera (ADAS Camera)
- 1/2.8" CMOS image sensor, excellent low luminance performance and HD images
- Outputs 50Hz (1280×720) @25fps / 60Hz (1280×720) @30fps
- WDR, 3D NR, BLC
- 9V-16V DC; facilitates installation
- IP54 rating

ENABLING A SAFER SOCIETY AND SMARTER LIVING

Dahua CEE & Nordic
Tel: +48 223957400
Email: dh.cen@dahuatech.com

Dahua Technology Poland SP.ZO.O
Tel: +48 223957400
Email: biuro.pl@dahuatech.com

Dahua Technology SRB D.O.O
Tel: +38 1 (11) 4429999
Email: dh.srb@dahuatech.com

Dahua Technology Denmark Aps
Email: Nordic.ne@dahuatech.com

Dahua Technology Hungary LTD
Tel: +36 17899852
Email: sales.hu@dahuatech.com

Dahua Technology Bulgaria EOOD
Tel: +35929950013
Support: support.bg@dahuatech.com

Dahua Technology SRL
Email: marketing.ro@dahuatech.com

Dahua Technology Czech.s.r.o.
Tel: +420 225 986 001
Email: admin.cz@dahuatech.com

Dahua Guvenlik Teknolojileri Sanayi ve Ticaret A.S.
Email: sales.tr@dahuatech.com

Dahua Technology Middle East FZE
Email: info.me@dahuatech.com

Dahua Technology Mexico S.A. DE C.V.
Tel: +52 55 67231936
Email: sales.mx@dahuatech.com
Support: support.mx@dahuatech.com

Dahua Technology Colombia S.A.S.
Tel: +57 6013106176
Email: marketing.co@dahuatech.com
Support: support.co@dahuatech.com

Dahua Technology Perú S.A.C
Tel: +511 500-8555
Email: sales.pe@dahuatech.com
Support: support.pe@dahuatech.com

Dahua Technology Chile SpA
Tel: +56 232705421
Email: sales.cl@dahuatech.com
Support: support.chile@dahuatech.com

Dahua Technology Argentina S.A.
Email: project.ar@dahuatech.com

Dahua Technology Panama S.A.
Email: sales.pa@dahuatech.com
Support: support.pa@dahuatech.com

Dahua Brazil
Tel: +55 11 32511871
Suporte Técnico: suporte.br@dahuatech.com
Vendas: comercial.br@dahuatech.com

Dahua Technology USA Inc.
Tel: +1 (949) 679-7777
Email: sales.usa@dahuatech.com
Support: support.usa@dahuatech.com

Dahua Technology Canada
Tel: +1 877-606-1590
Email: sales.usa@dahuatech.com
Support: support.usa@dahuatech.com

Dahua Europe BV
Tel: +31 (0) 85-0715700
Email: sales.benelux@dahuatech.com
Support: support.benelux@dahuatech.com

Dahua Iberia, S.L.
Tel: +34 917649862
Email: sales.iberia@dahuatech.com
Support: support.iberia@dahuatech.com

Dahua Technology Italy s.r.l.
Tel: +39 02 99912900
Email: info.italy@dahuatech.com
Support: support.italy@dahuatech.com

Dahua Technology GmbH
Tel: +49 211 2054 4120
Email: sales.de@dahuatech.com
Support: support.de@dahuatech.com

Dahua Technology France
Tel: +33 (0) 1 48 53 70 53
Email: sales.france@dahuatech.com
Support: support.france@dahuatech.com

Dahua Singapore
Tel: +65 65380952
Email: sales.sg@dahuatech.com

Dahua Malaysia
Tel: +60376620732
Email: sales.my@dahuatech.com

Dahua Indonesia
Tel: +6227893330
Email: sales.id@dahuatech.com
Support: support.id@dahuatech.com

Dahua Australia
Tel: +61 290306000
Email: sales.oc@dahuatech.com

Dahua New Zealand
Tel: +64 09 2823467
Technical Hotline: 0800 854 857
Email: Dahua_NZ@dahuatech.com

Dahua Philippines
Email: Dahua_Philippines@dahuatech.com

Dahua Russia (Dahua Technology Rus LLC.)
Tel: 8 (800) 707-67-66
Email: info.ru@dahuatech.com

Dahua Kazakhstan (Dahua Technology Kazakhstan LLP)
Tel: +7 727 3110838
Email: sales.kz@dahuatech.com

Dahua Uzbekistan (OOO "Dahua Vision")
Tel: +998 781488666

Dahua Technology Ukraine Office
Tel: +380674011526
Email: dahua.ukraine@dahuatech.com

Dahua Technology UK Limited
Tel: +44 (0) 1628 613 500
Email: sales.uk@dahuatech.com
Support: support.uk@dahuatech.com

Dahua Technology South Africa (Pty) Ltd | Head Office
Office Line: +27 10 593 3242
WhatsApp Business Help-Line: +27 84 072 9260
Toll-Free Help-Line: 080 099 0064
Email: sales.za@dahuatech.com
Support: support.za@dahuatech.com

Dahua Technology Nigeria Representative Ltd.
Email: Westafrica@dahuatech.com

Dahua Thailand
Tel: +66 2541 5188
Email: info.th@dahuatech.com

Dahua Republic of Korea
Tel: +82-2-6486-8889
Email: sales.kr@dahuatech.com

Dahua Vietnam
Tel: +84 24 3202 6616
Email: DH_VIET@dahuatech.com

Dahua Technology Japan
Tel: +81-3-6661-6818
Fax: +81-3-6661-6857
Email: Dahua_Japan@dahuatech.com

Dahua Technology India Private Limited
Tel: +91 124 4569100
Email: sales.india@dahuatech.com

*Design and specifications are subject to change without notice.

Ver. 3, Apr. 2022

DAHUA TECHNOLOGY

Add: No.1199 Bin'an Road, Binjiang District, Hangzhou, China. 310053
Email: overseas@dahuatech.com
Website: www.dahuasecurity.com

YouTube   *LinkedIn*   *Partner App*   *Website*