

DAHUA SMART PARKING SOLUTION

Efficient Access, Innovated Guidance, Easy Management



Parking Management Challenges And Solutions

Challenges

Entrance & Exit

Manual control
Stop for verification
Low efficiency



Locating Vehicle

No statistics
Hard to find
Poor driving experience



Parking

No detection
No guidance
Management plight



Car Accident

No surveillance
No evidence
Burden of responsibility



How to address these challenges

How to improve entrance efficiency?

- Replace manual entrance control with ANPR.
- Automatic control enhances efficiency.

How to help drivers locate their car?

- ANPR provides vehicle license plates data.
- Display you car location on the display kiosk.

How to make parking easy?

- Detect available space automatically.
- Display the number of available parking spaces in each area on the screens.
- Guide driver to find available parking space.

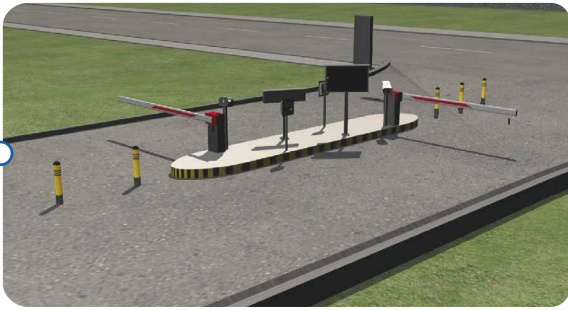
How to keep evidences in case of an accident?

- Provide a comprehensive video surveillance in the parking lot.
- Rich parking logs including data, image and video.



Solution Overview

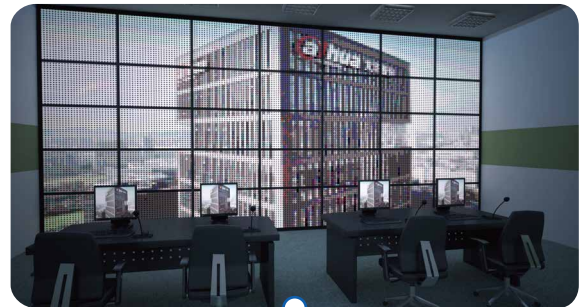
Entrance & Exit



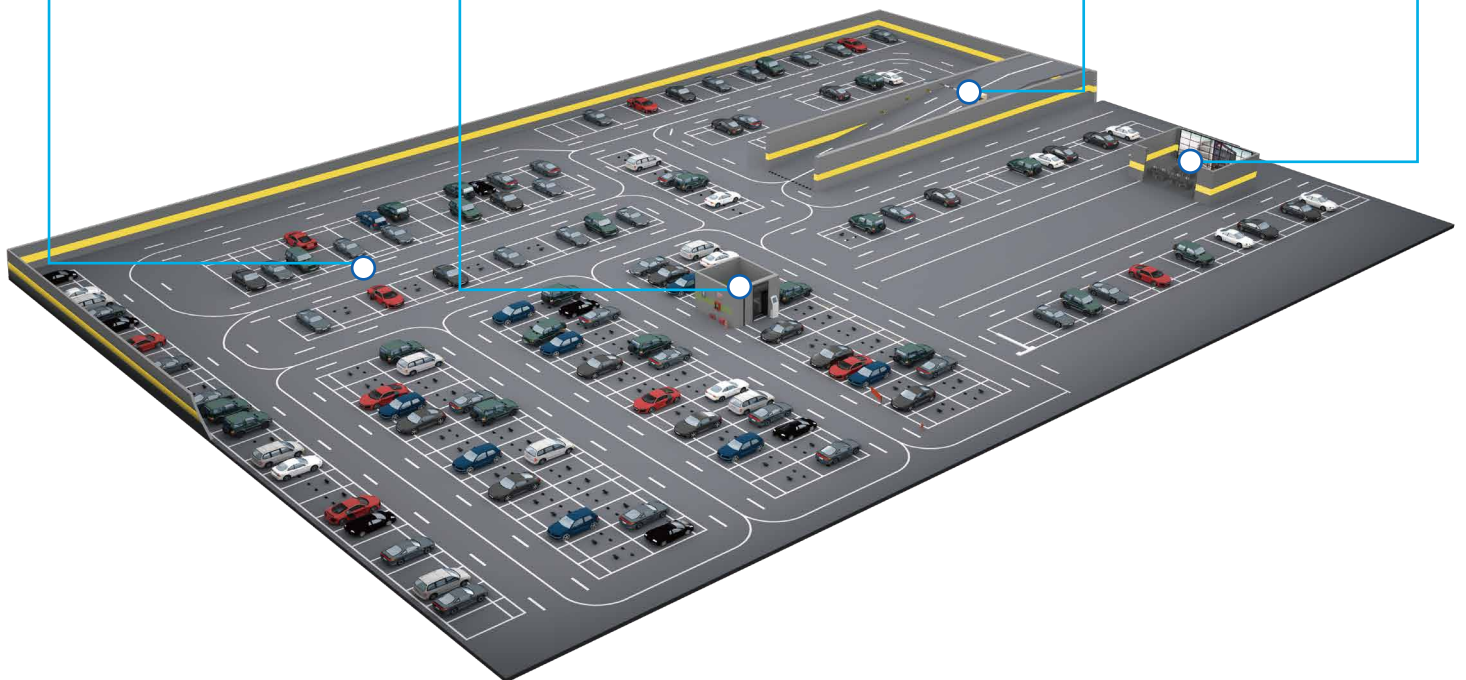
Parking Guidance



Parking Management

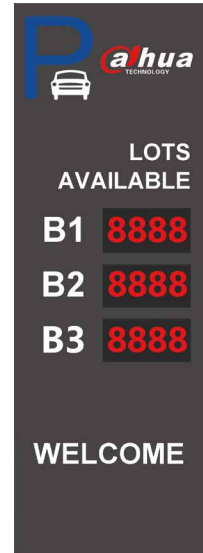


Car Locator



Application Details

Entrance & Exit



- **Know everything in a glance**

The number of available parking spaces is counted by the software and displayed on the outdoor screen. Multi-area display is supported. Before driving inside, drivers can see the number of available spots clearly via an LED screen. The Info Screen displays relevant information for drivers when they enter or exit the parking lot.



- **No ticket and no stop**

Vehicle access is controlled by the ANPR camera, eliminating the need for parking tickets. It improves traffic flow without any delays.

ANPR Camera

- Captures and recognizes the vehicle's license plate
- Supports video/loop detection
- Offers intelligent linkage that can open/close the barrier
- Embedded with LPR algorithm
- Supports barrier control even when the management software is offline
- License Plate Recognition Rate $\geq 95\%$ (depending on the country and based on certain terms)



- **There is always a way in and out**

Call the Control Center via the VTO when an incident occurs or when a visitor comes.

- **Flexible settings for access authorization**

Allows setting of Blocklist or Allowlist using a flexible template with plate number, time, lane, channel, etc.

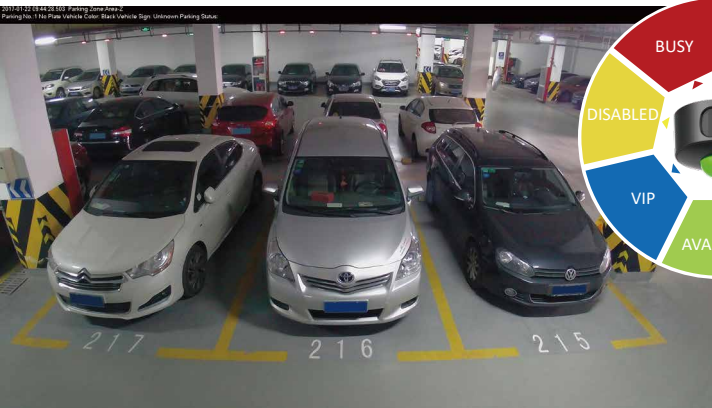


Parking Guidance



• **Parking space guidance**

Indoor LED guide screen shows the number of available parking spaces at designated direction which can help guide the driver to find a parking spot. The parking light that is integrated with the spot camera serves as a visual guidance and indicates the current status of the parking space.



• **No space to be hidden**

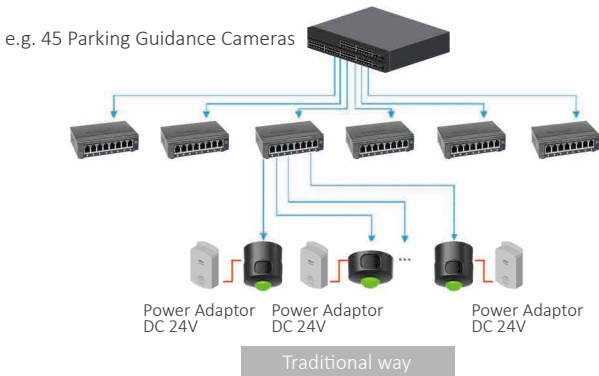
The Parking Guidance Camera can automatically identify the current status of the parking space, and provide car plate information to the Control Center. It also provides real time video stream to the Control Center for security monitoring and evidence collection. In addition, its built-in seven-color indicator light indicates the different status of parking spaces.

Easy Deployment & Reduced Costs

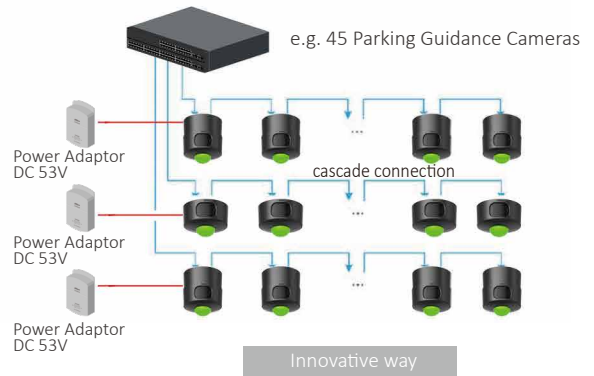
Power via Ethernet (PvE):

Only the first device needs to access the wire and power cord, and the other connected devices can be powered by Ethernet cable.

- Up to 6 dual lens guidance cameras or 10 single lens guidance camera can be connected as daisy-chain.
- Reduces UTP cable deployment and cost (83%).
- Reduces the quantities of switches.
- Reduces the number of needed power cables.
- Reduces the cost of cable tray (63%).

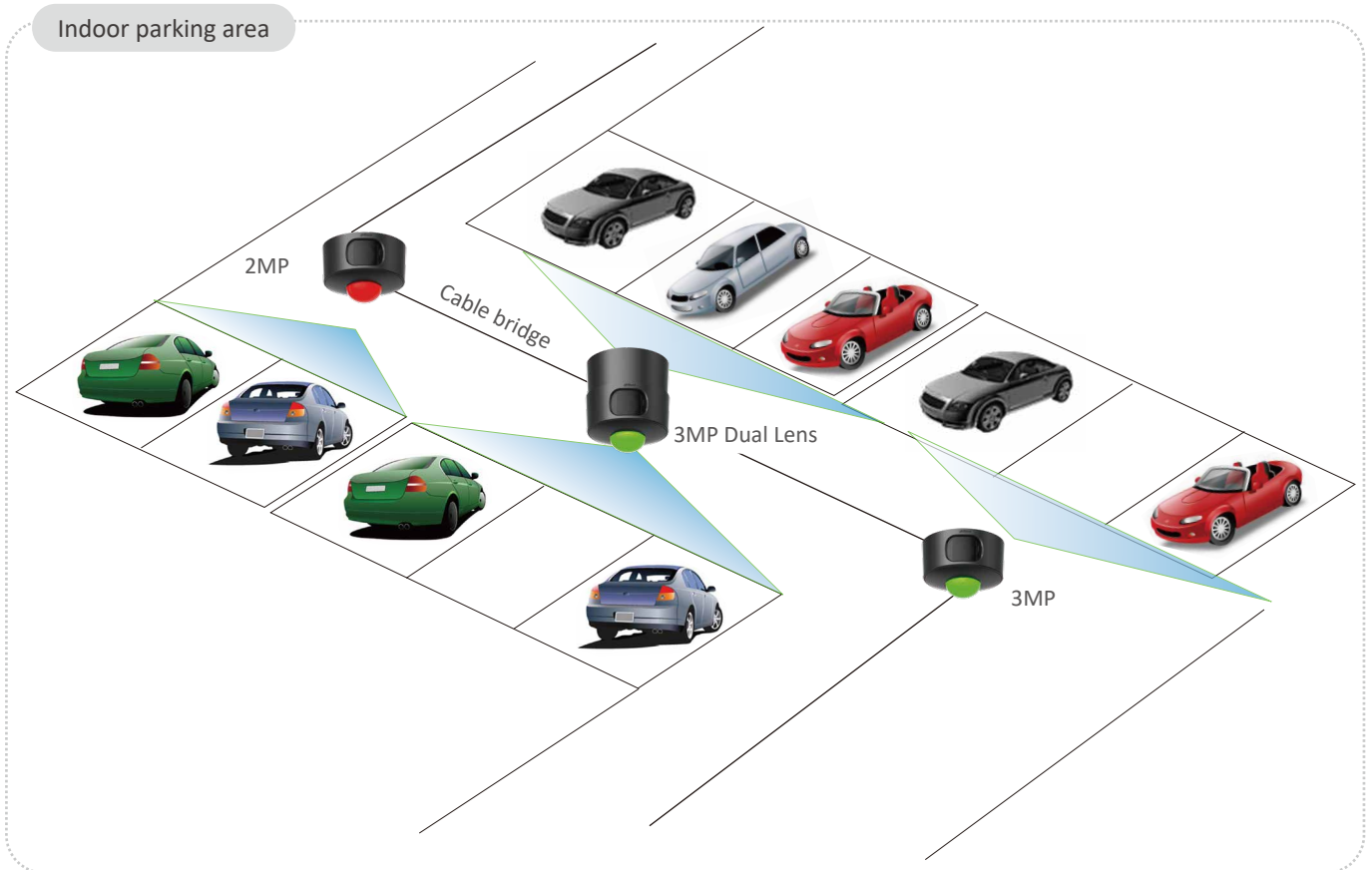


VS



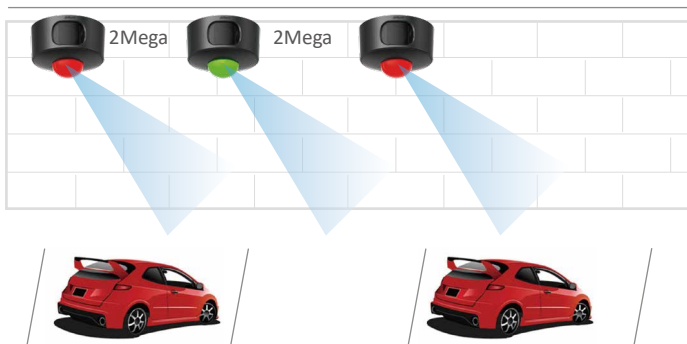
Flexible parking spot detection

- Different cost-effective solutions can be applied to various parking scenes.
- 2MP guidance camera can detect two parking spaces. 3MP guidance camera can detect three parking spaces.
- 3MP dual lens guidance camera can detect six parking spaces that can help save costs (<25%).



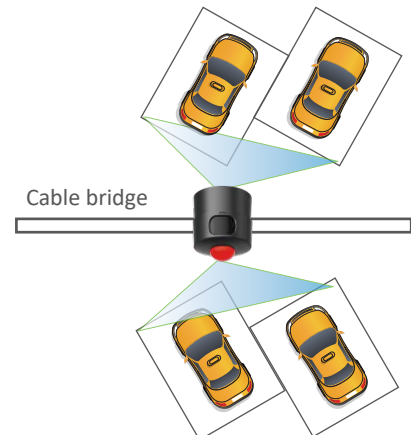
Indoor parallel parking

The 3MP Parking Guidance Camera can be further used to detect parallel parking spaces (as shown in the picture below) if necessary.

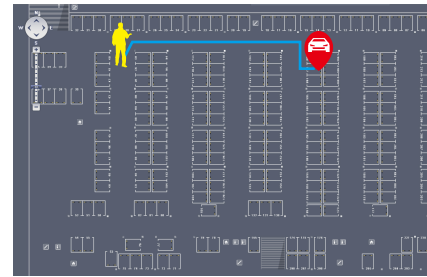


Indoor parking area

With two adjustable axes, the 3MP Parking Guidance Camera supports angled parking space detection of up to 4 parking spaces.



Car Location



Car accident and property theft in a parking lot are troublesome for parking lot managers as lack of sufficient evidence often causes disputes. High definition video preview and recording can be provided by access cameras and space detection cameras. Parking lot managers can help customers find related video evidence in case of an accident or dispute, which can significantly help further investigation and speed up case closure.

Outdoor Parking Detection

Outdoor parking detection camera can cover a massive outdoor parking lot, recognizing available/occupied parking spaces (20-100 spaces per camera depending on installation height and coverage) with friendly guidance to improve the efficiency and performance of the parking lot.



Parking Management

- **Easy-to-use platform**

Specially designed for parking management. Visual interface and operation based on maps.

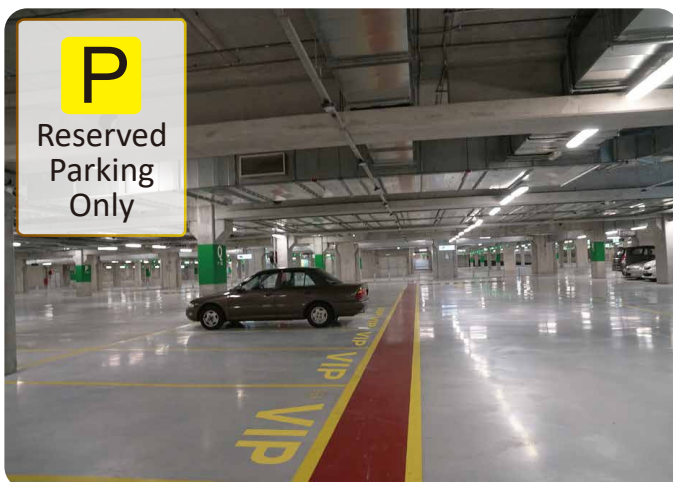
- **Comprehensive surveillance**

Car accident and property theft in parking lot make quite troubles for parking lot Car Car accident and property theft in a parking lot are troublesome for parking lot managers as lack of sufficient evidence often causes disputes. High definition video preview and recording can be provided by access cameras and space detection cameras. Parking lot managers can help customers find related video evidence in case of an accident or dispute, which can significantly help further investigation and speed up case closure.





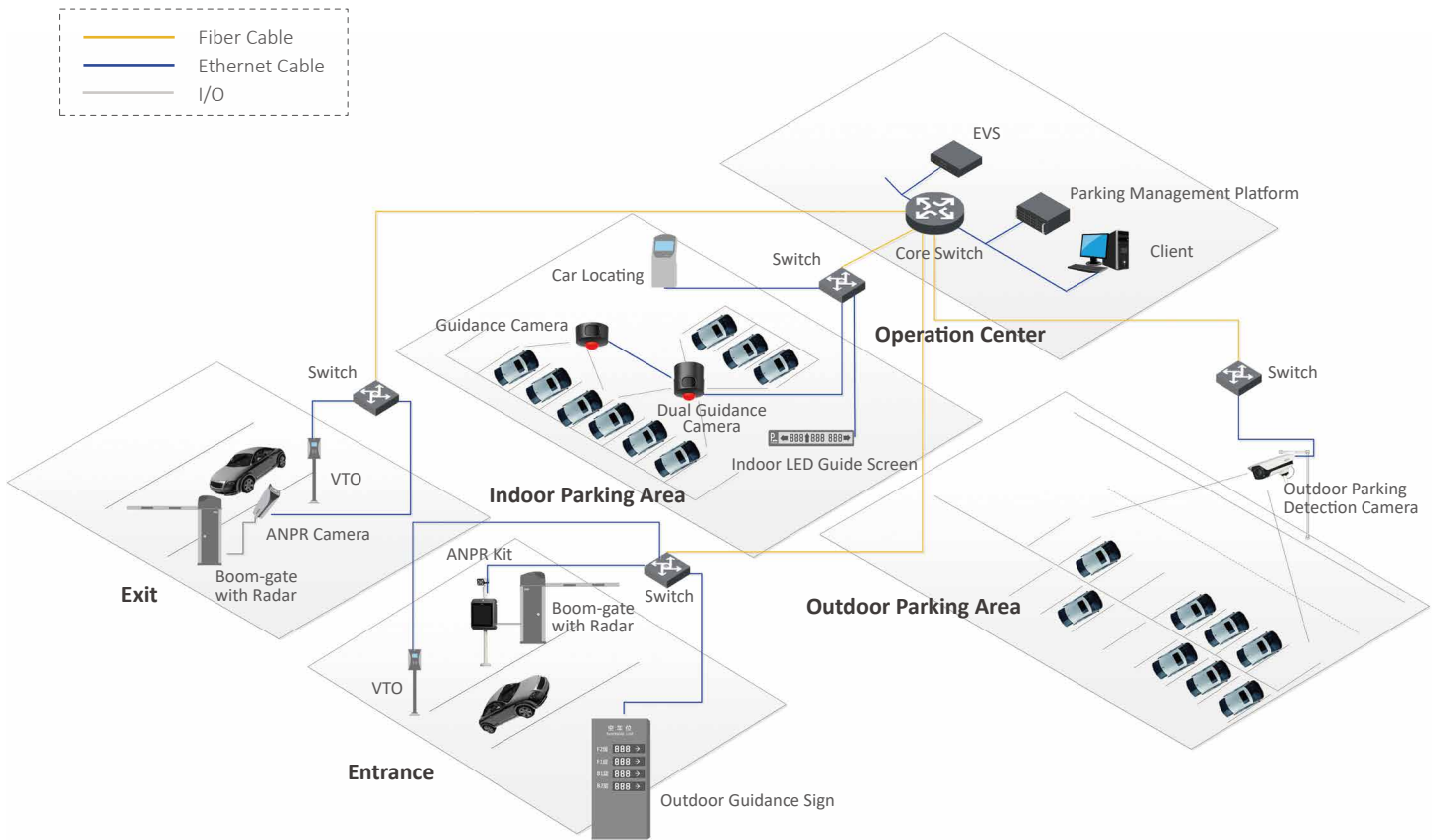
- **Intercom handling**
Respond to visitor or emergency call using the VTO.
- **Remote management**
Allows remote modification of vehicle information and remote barrier gate control.
- **Smart search**
Search videos and images by date, time, and license plate number.
- **Parking logs**
Rich data record of parking and entry/exit history, including vehicle picture, license plate, parking space number, time information, etc.



Reservation & VIP parking services

- **Reservation services:** offers convenient reservation for important customers or guests.
- **VIP parking services:** guards reserved parking spaces, and provides special indicator color for VIP parking spaces.
- **Illegal parking warning:** If a reserved or special parking space is occupied illegally, the administrator will be immediately alerted.

Solution Structure & Topology



Highlights:

Easy come, easy go

- Helps you find available parking space.
- Locates your car, and allows you to pay and leave conveniently.

Offers ANPR and video/loop options

- Offers more economical parking solution.
- Recognition rate: $\geq 95\%$ (depending on the country and based on certain terms)

Comprehensive surveillance

- Provides 24/7 surveillance with access camera and guidance camera.
- Search video recordings and images by date, time, and license plate number.

Networking management

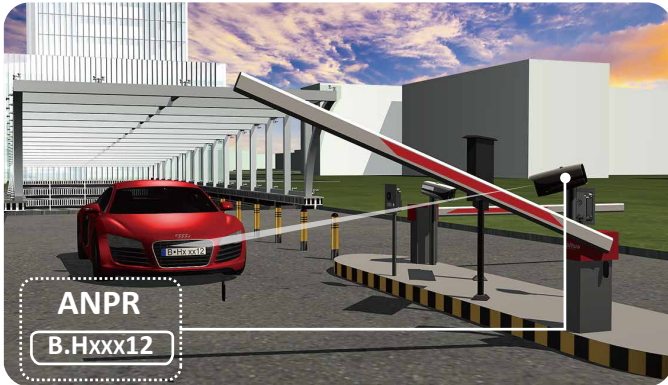
- Supports centralized networking management of multiple parking areas and parking lots.

Open system

- Open system with multiple interfaces for easy integration with third party systems.

Key Technology

Powerful Algorithm



Convenient entrance & exit with camera embedded ANPR

- Efficient ANPR that can complete plate recognition in less than 1 second.
- Video stream or image transfer is not required, saving operation time.
- Individual server for ANPR is not required, reducing total server costs.
- More stable, and will not be affected even if the network is offline.

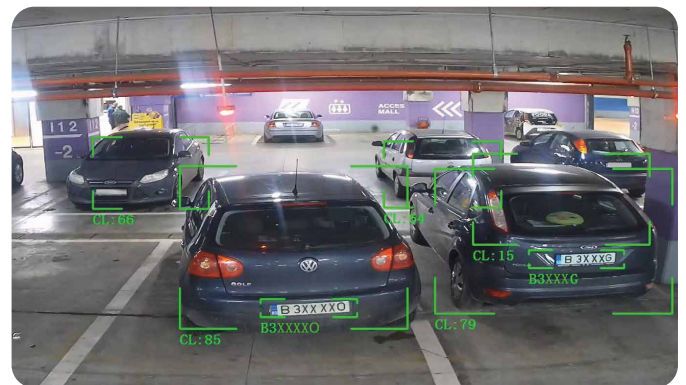
Cost-effective parking space detection

- Efficient ANPR camera offers multi-functional spot camera.
- Multi-space coverage of up to 3 spaces per lens and 6 spaces per camera.
- ANPR provides key information to quickly locate vehicles.

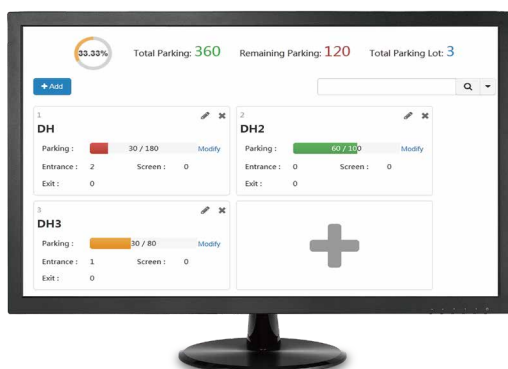


High Accuracy Vehicle Shape Detection Algorithm

- Equipped with the latest deep learning vehicle shape detection algorithm.
- Detection based on vehicle shape, and whether the license plate is visible (not covered by snow, mud, etc.).
- Parking status results are less affected by irrelevant objects/targets (e.g., passerby).
- Vehicle Detection rate of more than 99%.



Professional Management Platform



Specially designed for parking management

- Easy-to-use visual interface based on map.
- Offers professional functions such as reservation and VIP parking.
- Rich parking data for parking management and analysis.
- Improves management efficiency and reduces labor costs.

Parking Product Portfolio



3-6m Parking Entrance & Exit Camera

- LPR algorithm embedded
- Capture Range 3-6m, detect lane width 3-4m
- Vehicle capture rate ≥99%, recognition rate ≥95%
- IP67, DC12V/AC24V/PoE+
- 2MP (1920*1080), 1/2.8" CMOS, 0.002 Lux
- Motorized vari-focal lens 3.2-10.5mm
- 1 built-in TF card port supports up to 128GB



8-30m Parking Entrance & Exit Camera

- LPR algorithm embedded
- Capture Range 8-30m, detect lane width 6-7m
- Vehicle capture rate ≥99%, recognition rate ≥95%
- IP67, DC12V/AC24V/PoE+
- 2MP (1920*1080), 1/1.8" CMOS, 0.002 Lux
- Motorized vari-focal lens 10-50mm
- 1 built-in TF card port supports up to 64GB



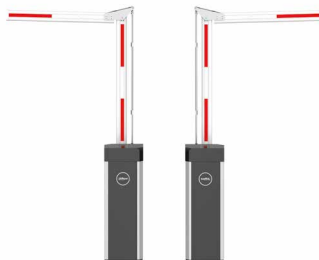
3-6m Parking Entrance & Exit Camera KIT

- Supports display of 4 lines with 8 letters
- LPR algorithm embedded
- Capture Range 3-6m, detection lane width 3-4m
- Vehicle capture rate ≥99%, recognition rate ≥95%
- IP67 (Camera) IP54 (Display), AC 110-230V
- 2MP (1920*1080), 1/2.8" CMOS, 0.002 Lux
- Motorized vari-focal lens 3.2-10.5mm
- 1 built-in TF card port supports up to 128GB



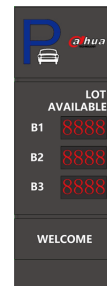
Outdoor Video Intercom

- Voice and Video Communication
- IK07, IP65
- 2MP fisheye camera with 160° view



Arm Barrier

- Opening/Closing time of up to 0.9s
- Arm length 1.5-6m (Straight & Folding)
- Anti-drop realized by connected radar or coil
- IP55



Outdoor LED Screen

- Supports 1-6 floors
- Screen P10 with bicolor display
- IP54

Parking Product Portfolio



Dual Parking Guidance Camera

- Real-time detection of 6 parking spots
- 7 indicator colors (Red/Yellow/Blue/Green/Cyan/White/Pink)
- Interactive design with external spot indicator
- Up to 6 cameras in daisy-chain network cabling for power and transmission
- 2MP, Lens 2.8/3.6mm
- LPR algorithm embedded
- DC 12-48V



Parking Guidance Camera

- Real-time detection of 3 parking spots
- 7 indicator colors (Red/Yellow/Blue/Green/Cyan/White/Pink)
- Interactive design with external spot indicator
- Up to 10 cameras in daisy-chain network cabling for power and transmission
- 2MP, Lens 2.8/3.6mm
- LPR algorithm embedded
- DC 12-48V



Indoor LED Guidance Screen

- Indoor one/two/three directions, each with 3-digit number
- Red/Green bicolor display
- Two RS485 ports and one 100Mbps Ethernet port
- Supports SDK integration with third-party platform



Car Locator

- 21.5 inch 16:9 touch screen
- Supports vehicle location search using plate number
- Supports fuzzy/time/picture search
- Shows the best route on the map



Parking Management System

- Web client and PC client
- Manage all interior and exterior parking spots in one map
- BI report for parking operation
- Add-on module: Backend ANPR Algorithm, Cashier



Enterprise Central Storage

- Max 640Mbps incoming/recording bandwidth
- Supports 16 HDDs (each up to 10TB), Hot-Swap
- Supports RAID 0/1/5/6/10/50/60/JBOD, Hot spare
- Modular & Cableless Design

I Success Cases

The Dahua Smart Parking Solution organically combines roadside parking systems, garage parking systems, urban parking grading guidance systems, urban parking platforms, mobile app systems and other subsystems to provide convenient parking services for car owners, advanced parking operation systems for enterprises, and long-term scientific parking management mechanism for the government.

Solution Value

01

Optimizes Experience: Saves 70% of time looking for a parking space, providing convenience to drivers.

02

Increases Benefit: Reduces labor cost by 80%, and increases operating efficiency by 80%.

03

Improves Efficiency: Controls traffic violations, alleviates traffic congestions, helps to enhance the image of the city and promotes the construction of smart cities.

Key Cases



Residential Apartment Underground Parking Project, Serbia

The Dahua Smart Parking Solution provides the residents of this apartment complex with convenient entry & exit experience by utilizing ANPR technology, and also allows quick location of available parking spaces for visitors. The solution includes more than 100 parking detection cameras and 4 access cameras, enabling effective parking management and CCTV surveillance operation in the area.



Airport Parking Project, Denmark

The Dahua Smart Parking Solution reduces searching time for available parking spaces and provides the management with clear overview of the 1,217 parking spaces in the parking garage. Dahua Technology's easy-to-use parking software, PMS PRO, allows the garage management to monitor occupancy, assess accidents, search through data and export reports. At the same time, the integration of ANPR and video analytics makes it easier for drivers to find available parking spaces and locate their vehicle in the massive parking garage.



Shopping Mall Parking Project, Czech Republic

As one of the most prosperous shopping malls in Prague, the shopping mall has a total of 2,240 parking spaces. Dahua Technology provided its garage with 925 parking spot detection cameras, 5 find-my-car kiosk, 20 guidance screens, etc., which greatly enhance the parking experience of drivers, and help the shopping mall attract more customers.

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 合同会社
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

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DAHUA TECHNOLOGY

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



YouTube



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