



# **PARKING VIDEO GUIDANCE SYSTEM**

# COMMON CHALLENGES FOR ENTRANCE/EXIT

**Entrance & Exit**  
 Manual control  
 Congested  
 Low efficiency



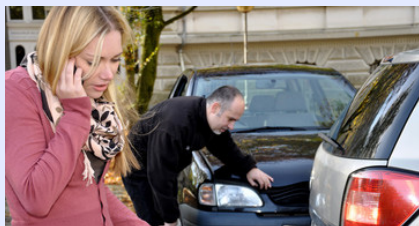
**Parking**  
 No detection  
 No guidance  
 Management frustration



**Vehicle locator**  
 No statistics  
 Hard to find  
 Poor driver experience



**Post event investigation**  
 No record of images/  
 video of security events



# WHAT HIKVISION CAN PROVIDE

**Efficient/ Exit**

- ANPR-based Vehicle Management Solution
- Automated and efficient vehicle passing flow monitoring
- Non-stop solution

**Parking**

- Detects available space automatically
- Displays available numbers in each area on the screens
- Guides driver to find available parking spaces

**Vehicle locator**

- ANPR technique provides car license plate data
- Display visitor's car position at locating kiosk

**Event investigation**

- Provides comprehensive video surveillance in parking lot
- Rich parking log includes data, image and video

# PARKING GUIDANCE SOLUTION APPLICATIONS



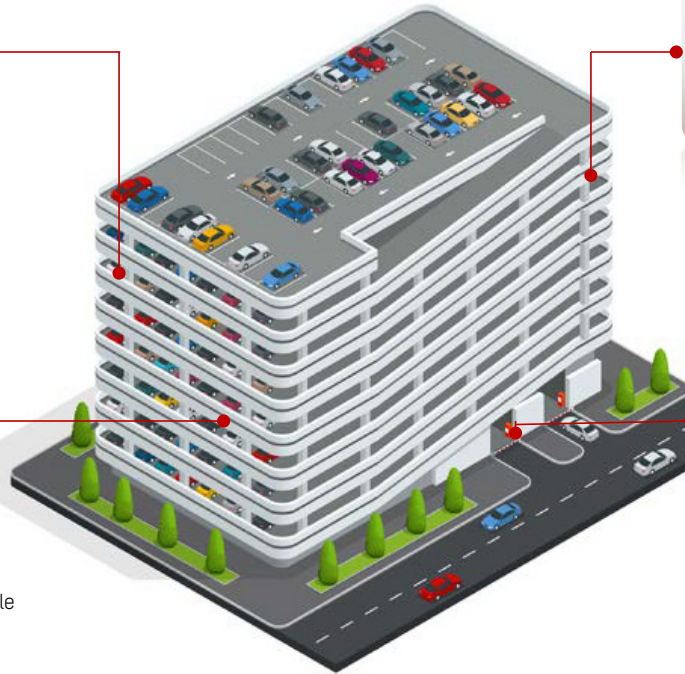
### Parking guidance

- Detects available parking spaces automatically
- Available spaces indicated by arrow and colour



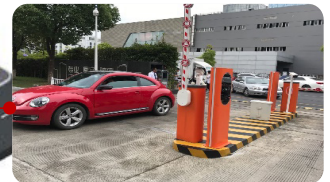
### Video surveillance

- Provides images and video for vehicle-related security events
- Robust parking log includes vehicle data and alarm information



### Parking management

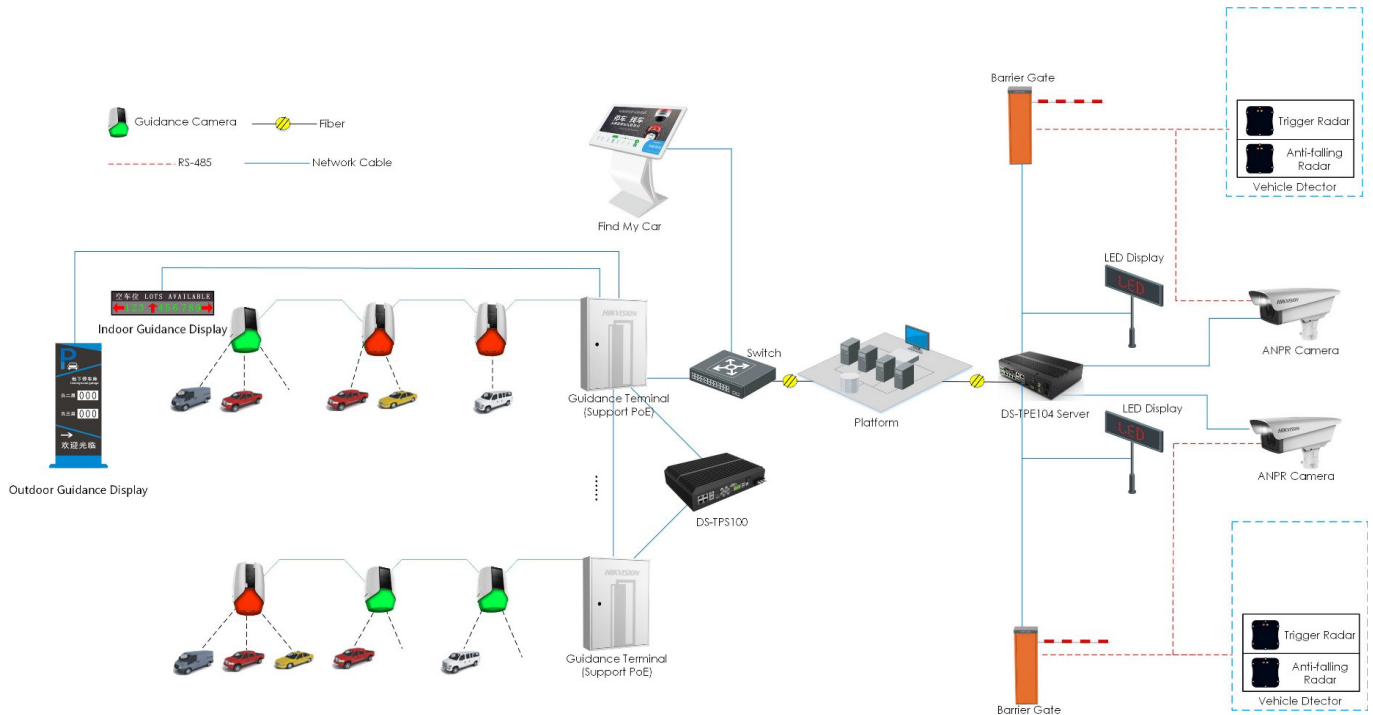
- Improves parking lot management efficiency



### Entrance/Exit control

- Clear visibility in strong sunlight condition
- VIP customer vehicle auto release

# PARKING GUIDANCE SOLUTION ARCHITECTURE





# PARKING AREA SOLUTION APPLICATIONS

## Entrance/Exit- High efficiency



### ANPR camera

- Automatic number plate recognition
- Upload vehicle plate information and vehicle picture to back-end device
- Black/white list management and barrier control, even when device is offline

### Display panel

- By integrating an LED display panel at the entrance, all available parking resources and information can guide the visitor and make searching for a space easier.

### Sensing radar

- Easier installation and maintenance
- Extra safety – vehicles and pedestrians benefit from protection
- Robust design – Free from environmental influences including light, dust, rain and snow
- Safety sensor ensures the barrier remains open when passageway is not clear

# PARKING GARAGE SYSTEM – SCENARIO OVERVIEW



# PARKING GUIDANCE SOLUTION APPLICATIONS

## 1 Showing the way

Parking Guidance Displays are installed in critical junctions within the car park, displaying the number and location of available parking spaces. This reduces the time taken for drivers to find an available space.



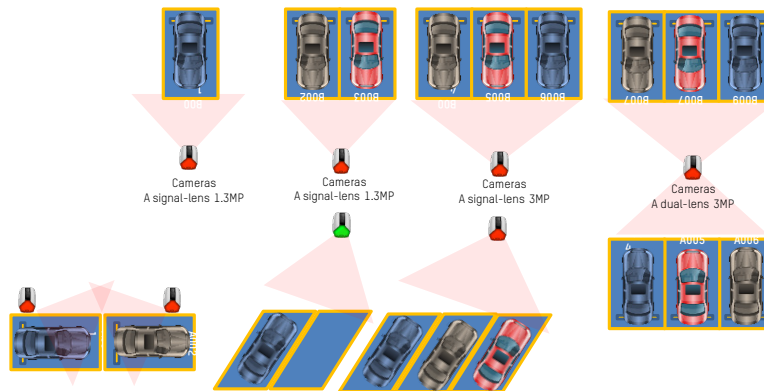
## 2 Every bay is under control

High-definition and real-time video is provided by the Parking Guidance Cameras for surveillance and incident evidence preservation. What's more, parking space status detection and number plate recognition are also processed at the front-end, based on surveillance video.



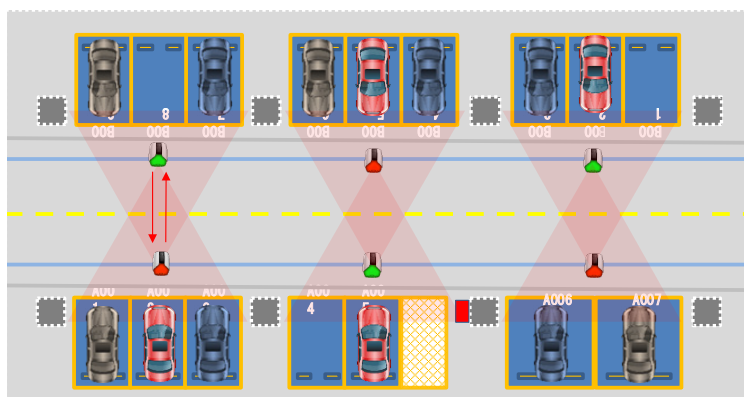
## 3 There is always a suitable camera

1.3 MP Parking Cameras detect and monitor one or two spaces while the 3 MP camera covers three. A dual-lens 3 MP camera detects and monitors six bays with a single camera.



## 4 Professional design of Guidance Light Control

If the installation position of the Parking Camera is not in the area where the parking space is located, a cross-control indicator light can provide extra support.



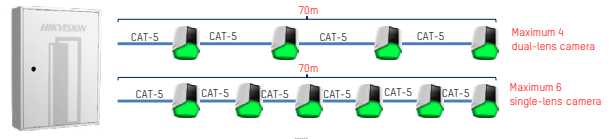
## 5 Let the colour do the talking

The indicator light inside the Parking Guidance Camera has seven configurable colours, allowing for dynamic indication of the purpose of the parking bay – for example disabled users, VIP, or other reservations. It can also show instant indication of parking bay availability, unique parking status (such as reserved, unlicensed use or parking over the line) can also be indicated.



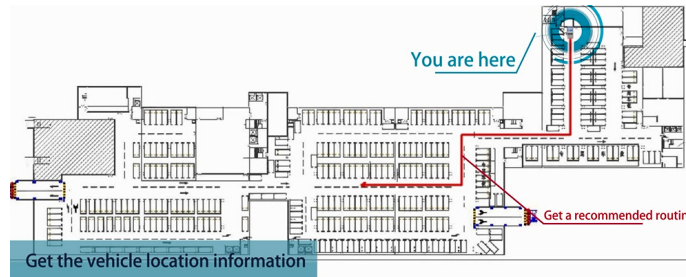
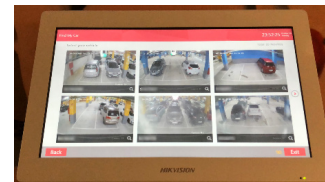
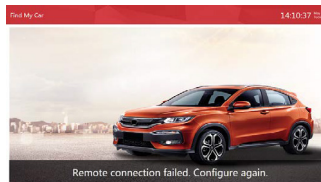
## 6 Smart networking

The Parking Guidance Terminal provides not only power and network access for up to 32 nearby cameras, but also edge storage for video and images. What's more, the terminal backs up critical data locally and runs parking guidance offline to ensure optimal system reliability. At the same time, the model can reduce the quantity of switches and reduce the cost of cabling (63%).



## 7 Show me the way

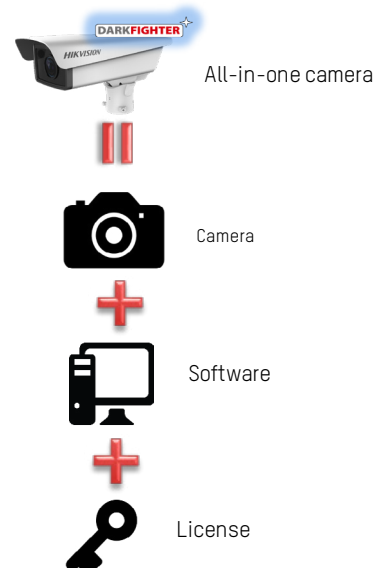
If the installation position of the Parking Camera is not in the area where the parking space is located, a cross-control indicator light can provide extra support.



# KEY TECHNOLOGY

## 1 Embedded ANPR

- LPR algorithm, developed uniquely for more than 70 countries
- High recognition accuracy  $\geq 98.5\%$ , and capture accuracy  $\geq 99.5\%$
- Recognition in less than 150 milliseconds
- Algorithm is built into the camera, instead of at the server
- Offline mode ensures continuous operation under network failure



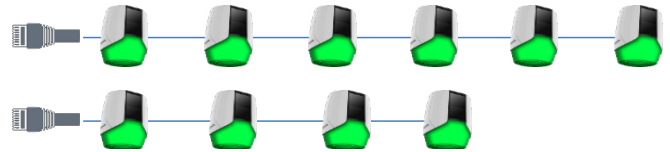
## 2 Deep Learning technology

- Optional Deep Learning server for supplementary analytics
- Parking status detection accuracy increases with vehicle
- characteristic recognition



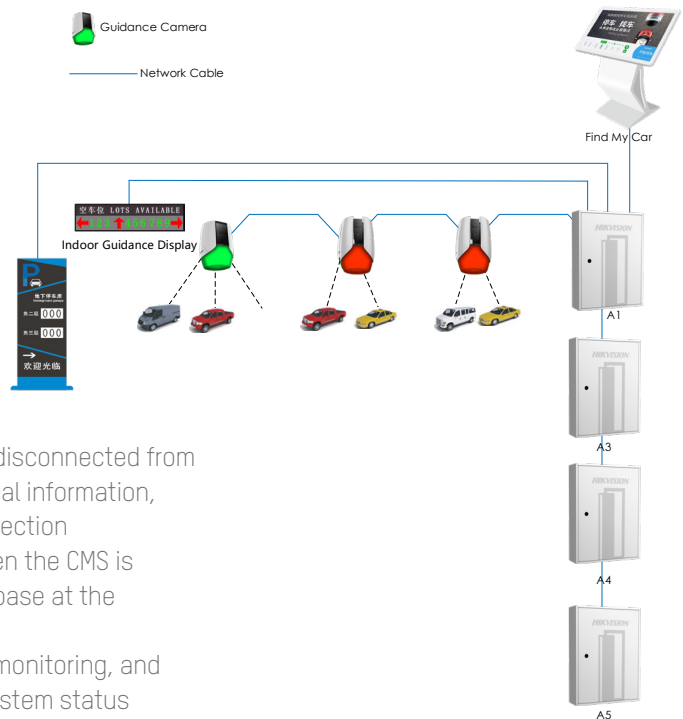
## 3 Simplified cabling

- Up to 6 cameras cascaded connection for both power and network
- Both power supply and data transmission transmitted over a single cable
- Guidance Terminal cascades with built-in Gigabit Ethernet port
- Flexible Guidance Display and Enquiry Device connect to any terminal.



## 4 Highly integrated Guidance Terminal

- 8 built-in PoE ports, 8 non-PoE ports, and 4 Gigabit ports
- Power supply and network connection for camera loops
- Free from power boxes, equipment cabinets, access switches
- Up to 24 TB edge storage for video and images from 32 single-lens parking guidance cameras or 16 dual-lens Parking Guidance Cameras.



## 5 System reliability

- Video, images and data can be stored locally offline if disconnected from central management software, preventing loss of critical information, then automatically forwarded to the CMS upon re-connection
- Parking Guidance continues proper operation even when the CMS is offline due to a distributed backup of the parking database at the guidance terminal
- Health status of all system devices is under real-time monitoring, and alerts can be sent automatically and instantly when system status registers as abnormal.

## 6 Indoor navigation based on iBeacon

- Optional iBeacon module in Parking Guidance Cameras
- Apple Inc. technology standard for location awareness and interactivity
- API for mobile app (iOS and Android) creates 'Find My Car' and indoor real-time navigation

## 7 Open protocol for integration

- Provide abundant data through protocol of different product combinations





# MANAGEMENT CENTRE

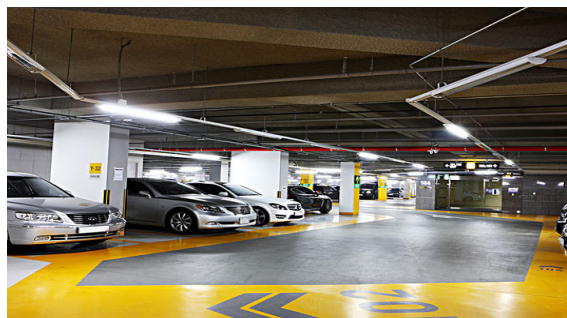
## 1 Central management

- Central management for monitoring and configuring all system devices
- Support for remote operations including intercom, barrier control and manual correction of license plates



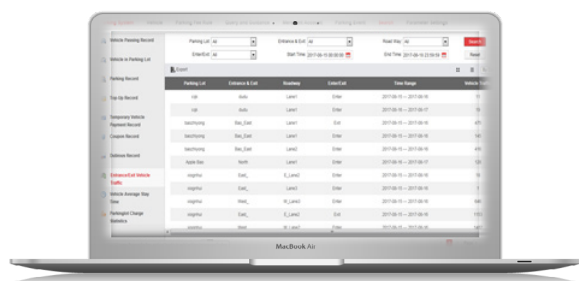
## 2 Accurate Vehicle Parking Management

- Various alarms are supported for unauthorised parking, over-time parking, illegal access and abnormal status



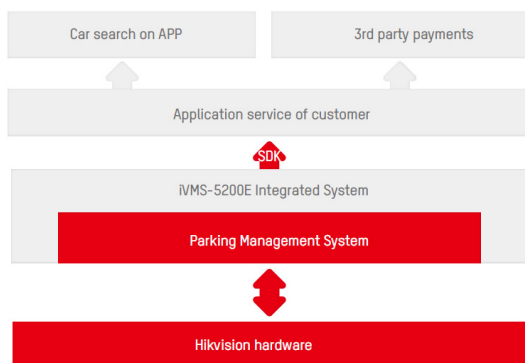
## 3 Parking statistics

Statistics report generated for parking status history, parking bay usage rate, parking vehicle flow and more



## 4 System integration

Highly modularised platform software with options for Video Surveillance, Parking, Access Control, Alarm, Under Vehicle Screening, Visitor Management and more



# PRODUCT INTRODUCTION



**DS-TCG227**  
ANPR Unit

- 2 MP, CMOS, 1920 x 1080, built-in LPR algorithm
- Integrated camera, housing, lens, power adaptor, supplement Lights
- Motorised lens
- Software one-key focus, easy debugging
- Built in whitelist, LPR identification support, barrier / gate control , audio output.



**DS-TVL224-4-5Y**  
E&E Outdoor LED Display

- Four lines of text, LED outdoor Display
- Integrates with speaker
- LED Brightness: 1,200 cd
- Colours: Red, yellow, green
- Pixel Resolution: 64 x 64
- Dot Pitch: P4.75
- Dimensions: 364 x 484 x 60mm





**DS-TPE104(2T)**  
Control Terminal

- 4 Channels of lane access
- 4 x 10/100 Mbps Ethernet ports, 2 x 1000 Mbps Ethernet ports, dual NICs
- 2 x RS485 ports, 3 x RS232 ports
- 4 x Relay ports support barrier / gate control
- 1 x audio output
- 2TB HDD included



**DS-TME401/402-TL-S**  
Entrance / Exit  
Controller

- Entrance, HDD not included
- Supports chat, no card output, support LED audio remind,
- Supports charging and accepting car when system offline



**TMG40X-XX**  
Barrier Gate

- Barrier type: high speed
- Lift-up speed: 1.6-2s
- Arm form: 3m, straight-arm
- Colour: red
- Arm moving direction: rightward
- Input power supply: 220V 50Hz
- Anti-failing.



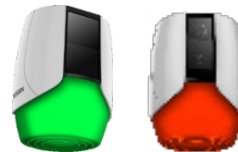
**DS-TMG033**  
Capture Trigger

- 2.4GHZ MMIC
- maximum trigger distance : 6m
- Beam width : Vertical 34°, Horizontal 12°
- Adjustable Detection Range
- Distinguish the vehicle from pedestrian and only capture vehicle.



**DS-TMG033**  
Anti-fall

- 2.4GHZ MMIC
- maximum trigger distance : 6m
- Beam width : Vertical 12°, Horizontal 34°
- Adjustable Detection Range
- Avoid fall accidents of both vehicles and pedestrians



**DS-TCP145**  
**DS-TCP345**  
Guidance Camera

- HD 1.3 MP and 3 MP camera, single/dual lens options
- Integrated with indicator light, up to 7 colours can be configured
- Covers 1 – 6 parking bays
- Built-in iBeacon module (optional)
- Three external lights can be extended
- Hikvision POE cabling



**DS-TPM400-P**  
**(3T/6T/12T/18T)**  
Guidance Terminal

- Accesses up to 32 Guidance Cameras
- Integrates power supply, cabinet, indoor screen, kiosk and switch
- Wall-mounted design provides flexible camera access
- Video and image storage for up to 32 guidance cameras, 6 HDD bays



**DS-TPS100**  
Deep Learning Terminal

- Accesses up to 500 parking bays
- Linux operating system
- Based on deep learning algorithm, two-step recognition of license plates and parking bays
- 1 TB HDD
- Recognition of Brand and Colour



**US-TPT322-L2**  
Searching Car

- 22-inch LCD, Capacitive touch screen
- "Find my car" function
- Displays parking space info, quickest route to vehicle, and a parking space images
- Advertisement display when on Standby



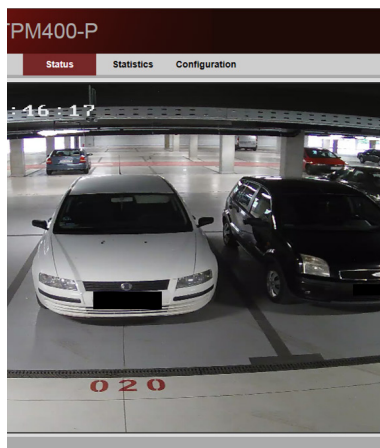
**DS-TVL121-3-6D**  
**DS-TVL121-6-6D**  
**DS-TVL121-9-6D**  
Indoor Guidance Display

- Indoor one, two, or three-direction indicator
- Single-colour display
- Supports RS-485 and Network Transmission

## SUCCESS STORIES

### The Parking Guidance Solution, Zabrze, Poland

There are 450 parking spaces in the commercial parking lot. HIKVISION's indoor parking guidance system provide accurate real-time information on the location and availability of parking and can have a very positive effect on congestion, pollution and overall quality of life.



**DS-TPM400-P**

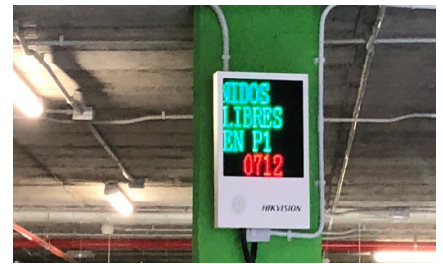
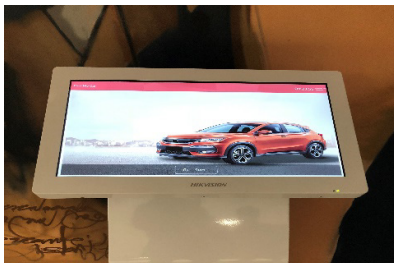
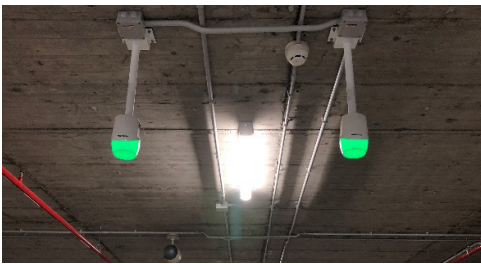
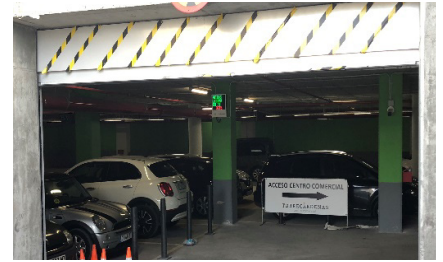
admin Logout Help

Live View	Playback	Log	Search	Status	Statistics	Configuration
Camera: 1	Algorithm St...	No.1 Parking Space	No.2 Parking Space	No.3 Parking Space	Vehicle Information	
1	Normal	<b>169</b> Parking Space Status: Available License Plate: Indicator:Flicker-free	<b>170</b> Parking Space Status: Available License Plate: Indicator:Flicker-free	<b>171</b> Parking Space Status: Available License Plate: Indicator:Flicker-free	License Plate: STA22514 Parking Space No.: 020 License Plate Color: BLUE Camera: 3 Capture Time: 2018-06-02 14:27:49.953 Parking Status: NORMAL Logical Parking Space No.: 1	
2	Normal	<b>166</b> Parking Space Status: Available License Plate: Indicator:Flicker-free	<b>167</b> Parking Space Status: Available License Plate: Indicator:Flicker-free	<b>168</b> Parking Space Status: Available License Plate: Indicator:Flicker-free	Picture	
3	Normal	<b>019</b> Parking Space Status: Available License Plate: Indicator:Flicker-free	<b>020</b> Parking Space Status: Occupied License Plate: 1 Indicator:Flicker-free	<b>021</b> Parking Space Status: Occupied License Plate: 4 Indicator:Flicker-free		
4	Normal	<b>075</b> Parking Space Status: Available License Plate: Indicator:Flicker-free	<b>076</b> Parking Space Status: Occupied License Plate: 3 Indicator:Flicker-free	<b>077</b> Parking Space Status: Available License Plate: Indicator:Flicker-free		
5	Normal	<b>037</b> Parking Space Status: Available License Plate: Indicator:Flicker-free	<b>038</b> Parking Space Status: Occupied License Plate: 3 Indicator:Flicker-free	<b>039</b> Parking Space Status: Occupied License Plate: Indicator:Flicker-free		
6	Normal	<b>034</b> Parking Space Status: Occupied License Plate: 3 Indicator:Flicker-free	<b>035</b> Parking Space Status: Occupied License Plate: 0 Indicator:Flicker-free	<b>036</b> Parking Space Status: Available License Plate: Indicator:Flicker-free		



## The Parking Video Guidance System, Almeria

The project is located in the largest shopping mall in Almeria, Spain. There are 2500+ parking spaces in the commercial car park. Hikvision's Indoor Parking Guidance System provides accurate real-time information on the location and availability of spaces and can have a very positive effect on congestion, pollution and overall quality of life.



DS-TPM400-P

Live View Playback Log Search Status Statistics Configuration admin Logout Help

Camera	Algorithm St...	No.1 Parking Space	No.2 Parking Space	No.3 Parking Space
1	Normal	1C04-4 Parking Space Status: Occupied License Plate: [REDACTED] Indicator: Flicker-free	1C04-5 Parking Space Status: Available Indicator: Flicker-free	1C04-6 Parking Space Status: Occupied License Plate: [REDACTED] Indicator: Flicker-free
2	Normal	1C14-5 Parking Space Status: Available License Plate: [REDACTED] Indicator: Flicker-free	1C10-5 Parking Space Status: Occupied License Plate: [REDACTED] Indicator: Flicker-free	1C10-7 Parking Space Status: Occupied License Plate: B734DNY Indicator: Flicker-free
3	Normal	1D06-1 Parking Space Status: Available License Plate: [REDACTED] Indicator: Flicker-free	1D06-2 Parking Space Status: Occupied License Plate: 4892H4Z Indicator: Flicker-free	1D06-3 Parking Space Status: Available License Plate: [REDACTED] Indicator: Flicker-free
4	Normal	1C01-4 Parking Space Status: Available License Plate: [REDACTED] Indicator: Flicker-free	1C01-5 Parking Space Status: Available License Plate: [REDACTED] Indicator: Flicker-free	1C01-6 Parking Space Status: Available License Plate: [REDACTED] Indicator: Flicker-free
5	Normal	1D03-1 Parking Space Status: Available License Plate: [REDACTED] Indicator: Flicker-free	1D03-2 Parking Space Status: Available License Plate: [REDACTED] Indicator: Flicker-free	1D03-3 Parking Space Status: Available License Plate: [REDACTED] Indicator: Flicker-free
6	Normal	1D13-4 Parking Space Status: Occupied License Plate: 8622DMG Indicator: Flicker-free	1D13-5 Parking Space Status: Occupied License Plate: 6076HVM Indicator: Flicker-free	1D13-6 Parking Space Status: Occupied License Plate: 6186JCY Indicator: Flicker-free
7	Normal	1C07-2 Parking Space Status: Available License Plate: [REDACTED] Indicator: Flicker-free	1C07-5 Parking Space Status: Occupied License Plate: 7024BGW Indicator: Flicker-free	
8	Normal	1C13-1 Parking Space Status: Occupied	1C13-2 Parking Space Status: Occupied	1C13-3 Parking Space Status: Occupied

Vehicle Information

License Plate: 5709HYP

Parking Space No.: 1C04-4

License Plate Color: BLUE

Camera: 1

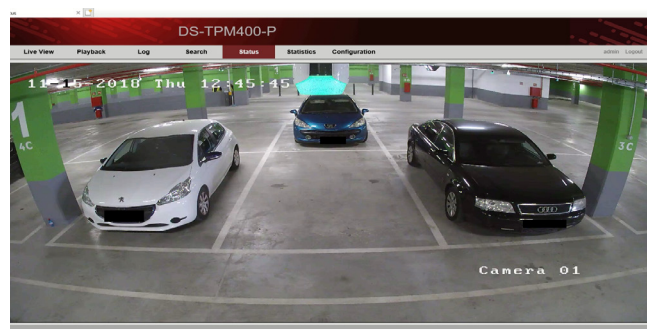
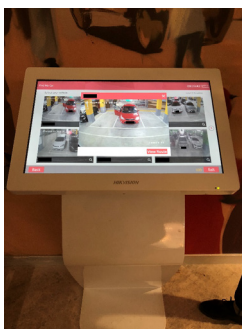
Capture Time: 2018-11-15 12:45:45.552

Parking Status: NORMAL

Logical Parking Space No.: 0

Picture

Camera 01



# PARKING VIDEO GUIDANCE SYSTEM



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