ENTRANCE/EXIT SYSTEM
COMMON CHALLENGES FOR ENTRANCE/EXIT

- **Low efficiency**
  Drivers have to stop car and open barrier manually

- **Labour cost waste**
  A guard needs to be on site once emergency occurs

- **Numerous components**
  Complex systems and difficult deployment

- **Lack of charge management**

WHAT HIKVISION PROVIDES

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

- **Lightweight**
  - Simpler system composition
  - Easier deployment that saves training and labour costs
  - Cost-effective solution for car park

- **All-in-one**
  - The Control Terminal integrates workstation, PMS software, multiple interfaces and switch
  - The ANPR Camera integrates camera, light, ANPR algorithm and license capture algorithm

- **Professional**
  - Detailed entry and exit records and report management
  - Rigorous charge management
  - Effective and configurable authorisation management
ENTRANCE/EXIT SYSTEM OVERVIEW

SYSTEM ARCHITECTURE OVERVIEW

Management Centre

Client

Platform Server

Controller/Decoder

TV Wall

Parking Entrance/Exit #1

ANPR Camera

DS-TPE104

Barrier

INTERNET

Parking area & Perimeter monitoring

Unite Camera

Bullet Camera

NVR

Parking Entrance/Exit #N

ANPR Camera

DS-TPE104

Barrier
PARKING AREA SOLUTION APPLICATIONS

Entrance/Exit - High efficiency

- ANPR Cameras: with a Deep Learning algorithm, the camera detects moving cars with the assistance of video & radar. Cameras can also recognise VIP vehicles and automatically verify entry. The data (plate data, plate cut out, overview image and video) will be stored in the server for search later. The barrier will be automatically opened via alarm out if the plate number is already registered in whitelist. The panel will indicate the plate number, helping driver to acknowledge.
- Trigger Radar: this detects an approaching vehicle and triggers the ANPR and barrier equipment. No pavement removal is required for a sensing coil.
- LED display panel integration: By integrating an LED display panel at the entrance, all available parking resources and information to guide the visitor can be seen, reducing the effort to find a space.

Trigger Radar & Anti-Fall Radar
- Easier installation and maintenance – No pavement removal required for a sensing coil
- Extra safety – Both vehicles and pedestrians benefit from protection
- Robust design – Unaffected by environmental influences including light, dust, rain and snow
- Trigger Radar detects approaching vehicle and triggers ANPR and barrier
- Safety sensor ensures the barrier remains open when passageway is not clear.
MANAGEMENT CENTRE

Efficiency with high security

• Barrier control
  The vehicle can be allowed to enter the car park automatically via a white list, and this leads to quick entry and exit with ANPR systems.

• Count of parking spaces available

• Multiple parking fee rules
  Designed for temporary vehicles, such as payment by total parking length, pay-per-parking, payment by day and night, etc.

• Data analysis
  Including vehicle traffic flow report, average parking time report etc.

• Data record & smart search
  Supports license number plate & vehicle picture storage, and storage of clips showing the vehicle passing through. Supports search and view of the passing vehicle information.

• Visitor management
  Supports Black/white list management, alarm notification (up to 5000 plate numbers). Supports special parking alarm, including overstay and list expiration check.

KEY TECHNOLOGY

Efficiency with high security

Front-end match

- ANPR
  - Whitelist (blacklist) match
  - Open gate

VS

Back-end match

- ANPR
  - Upload
  - Whitelist (blacklist) match
  - Instruction issue
  - Open gate

time-consuming
Anti-Glare
High night image quality in spite of high beam lights

Open Protocol for integrated
Provide abundant data through different protocol of various product combinations

ANPR-Based solution - Exception handling

For vehicles without matching entry record (unlicensed or falsely recognised), the operator at the exit can manually modify the false license and match the entry & exit records using a fuzzy matching function. If the entry record still cannot be found, the vehicle can pay, according to the circumstances.
Manual Charge Management - Flexible and configurable payment rules

- For temporary parking at tollbooth:

<table>
<thead>
<tr>
<th>Parking Rates</th>
<th>Parking Rates</th>
<th>Parking Rates</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parking Time</td>
<td>Rate</td>
<td>Vehicle Type</td>
</tr>
<tr>
<td>0.5 to 2 hours</td>
<td>5</td>
<td>Small-sized vehicle</td>
</tr>
<tr>
<td>2 to 4 hours</td>
<td>10</td>
<td>Large-sized vehicle</td>
</tr>
<tr>
<td>4 to 8 hours</td>
<td>15</td>
<td></td>
</tr>
<tr>
<td>Over 8 hours</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td>Maximum per day</td>
<td>50</td>
<td></td>
</tr>
</tbody>
</table>

- Charge by parking time periods
- Charge by parking time
- Charge by parking sessions

- For parking pass:
Customers can pay for a annual pass, 6 monthly pass, 3 monthly pass, monthly pass or other custom periods.

- Personalised payment rule:
More payment rules can be personalised as the customers need.

- The system also supports discount management, card cost management, etc.

Parking Operation – Various logs & reports

Various system records and reports can be provided, like passing record, passing vehicle payment record, duty shift record, operation record, discount record for real-time status trace or the operation analysis. The terminal supports storage of more than 800,000 passing records.

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- Top-up and Renewal Payment Report
- Payment Graph
- Traffic Flow Graph
- Passing Vehicle Payment Report
Parking operation – Fine and Configurable Authorisation Management

Supports different role authorities - one for high-efficiency management and internal fraud prevention and another, typical authorisation setting, for administrators and tollbooth operators, as below:

![Administrator and Tollbooth Operator roles](image)

**SOLUTION VALUE**

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

**Lightweight**
- Simpler system composition
- Easier deployment that saves training and labour costs
- Cost-effective solution for car park

**Flexible**
- Flexible Entrance/Exit control method, including ANPR, Card/Ticket, and Bluetooth.

**All-in-one**
- The Control Terminal integrates workstation, PMS software, multiple interfaces and switch
- The ANPR Camera integrates camera, light, ANPR algorithm and license capture algorithm

**Professional**
- Detailed entry and exit records and report management
- Rigorous charge management
- Fine and configurable authorisation management

**Safe**
- Black list alarm
- Radar can protect the vehicle and personal from barrier falling
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-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.

**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-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 34°, Horizontal 12°
- Adjustable Detection Range
- Avoid fall accidents of both vehicles and pedestrians.

**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.

**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.
SUCCESS STORIES

The Parking Guidance Solution, Zabrze, Poland

HIKVISION's access control system provides the efficiency of access using video recognition to provide non-stop entrance & exit, replace manual entrance control with ANPR technique, automatic control enhances the efficiency.
Accurate LPR under a side entrance

Accurate LPR in dark conditions