



# ENTRANCE & EXIT CONTROL FOR VEHICLES

- Security
- Efficiency
- End-to-End



#### Vehicle Safety

- ANPR record
- Dual video stream
- Intercom for emergency



#### High Efficiency

- ANPR to open barrier
- Flexible white list
- Show available parking lots



## ENTRANCE & EXIT CHALLENGES AND SOLUTIONS

### Common Challenges in Entrance & Exit



Low efficiency, have to stop car and open barrier manually



Unsafe, accident happened in parking, no record for vehicle



Labor cost waste, need a guard on site once emergency occurs



### How to address challenges



#### ANPR to open barrier

- Embedded ANPR technology
- White list to control entrance



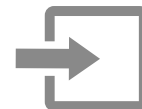
#### Video door phone for visitor

- Press button to ask for help



#### Available parking lots

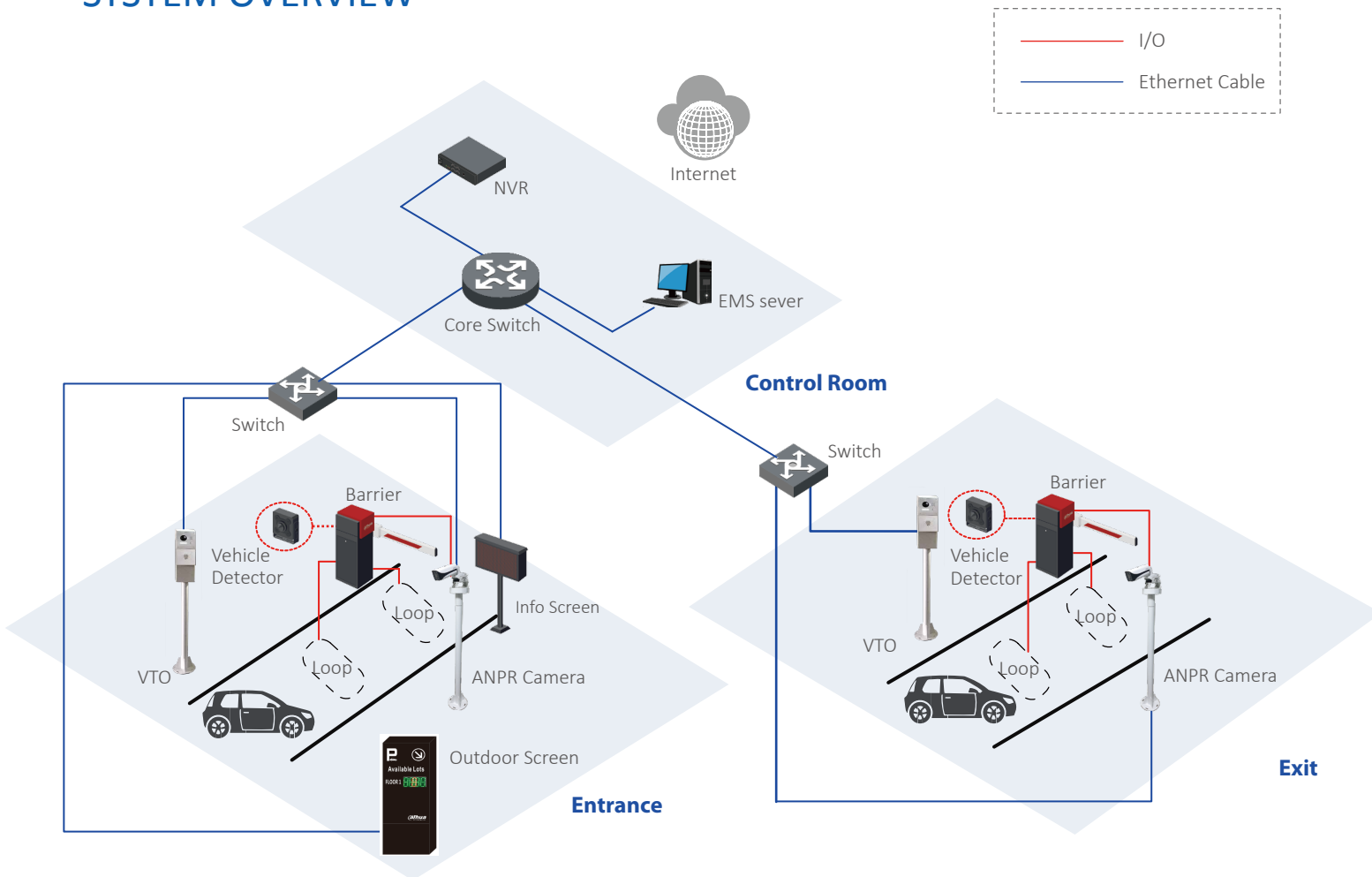
- Vehicle counting by software



#### Entrance Management Software

- Search history list of car info

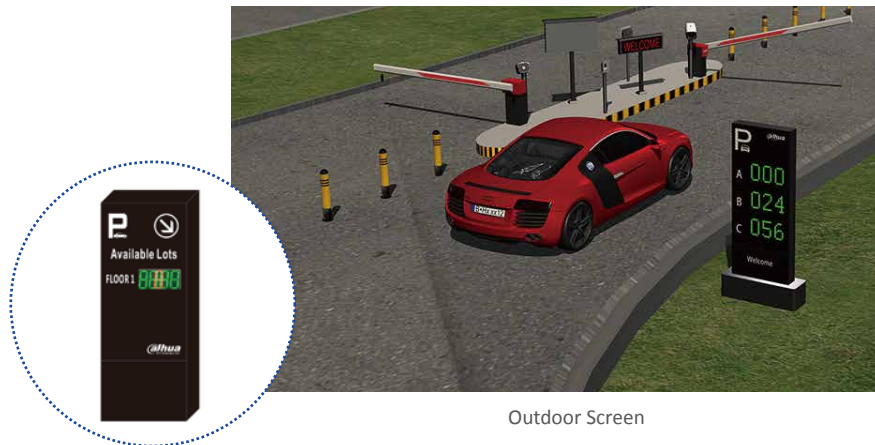
## SYSTEM OVERVIEW



## APPLICATION DETAILS

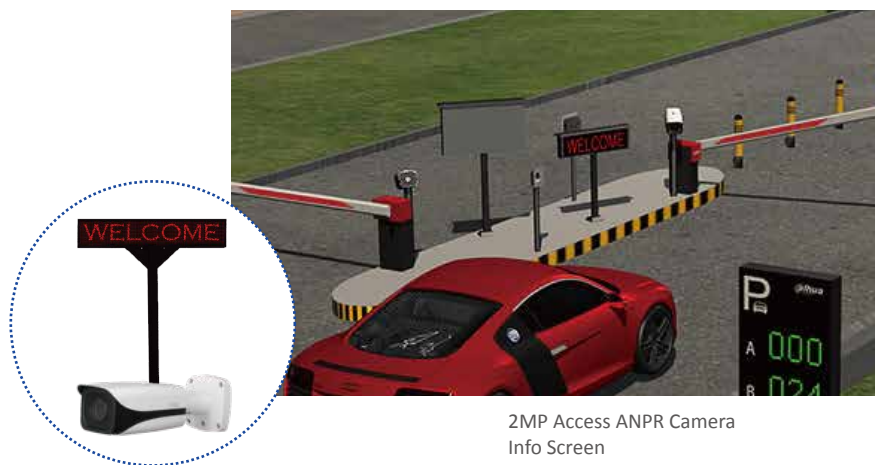
### Entrance & Exit – High Efficiency

- **Outdoor Screen:** Clearly shows the available number of parking lots and help driver to know if the parking is occupied or empty.
- **Info Screen:** Clearly show the car plate info for driver, to indicate driver related information when barrier doesn't open and help driver to acknowledge the vehicle plate.
- **ANPR Camera:** Capture and recognize the vehicle plate with video & loop detection, relay out to enable the opening of the barrier and improve the entrance efficiency and safety.
- **VTO:** Inter-communication with security center when ANPR function fails to reduce the necessity of guard on-site.
- **Barrier:** Automatic open with remote authorization and close with loop detector.



Outdoor Screen

Clear indication of available parking lots to guide the visitor and to reduce the efforts of parking lot search.



2MP Access ANPR Camera  
Info Screen

For a 3-4 meter-width entrance, ANPR camera can detect the moving car in 3-8 meters distance with the assistance of video & loop. Snapshot will then help to recognize the plate number. The plate data, plate cut out, and overview image and video from camera will be stored in the platform for late search. The barrier will be automatically opened in less than 1 second via alarm out if the plate number is already registered in whitelist.

Once the number plate is recognized successfully, the info screen will indicate the plate number, helping driver to acknowledge. ANPR with over 95% recognition rate and remote authorization via control center can greatly reduce the human intervene and increase the operation efficiency.



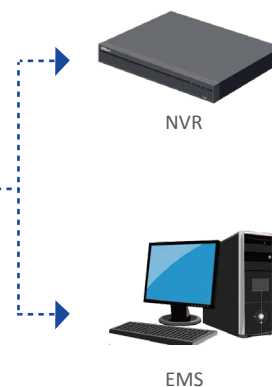
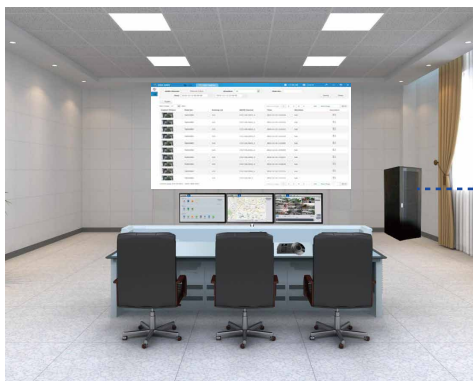
- Embedded ANPR, complete plate recognition in less than 1 second
- Video recognition, reduce construction cost greatly
- Present plate cutout, vehicle overview image and live video
- Video & Loop detection, improve recognition rate to more than 95%

Once the ANPR function fails, the info screen will indicate “Please press the emergency button” via text and speaker, the driver could press VTO button to call security center.

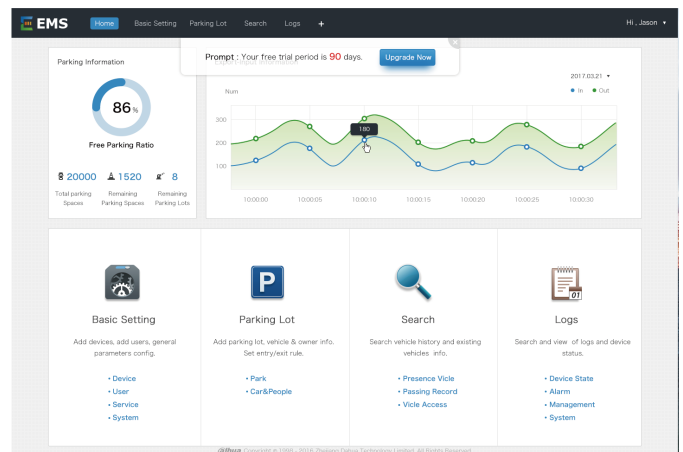


## Security Center - Improving efficiency with high security

- **Record and search** the history list of car approaching and departure.
- **Simplify the registration process** of coming visitor without human intervene.
- **Emergency handling** when vehicle authorization of entrance and exit fails.



- **Comprehensive Surveillance:** Real-time preview and playback for video, modify the plate info if it's incorrect, help the guard to quickly response once an accident or an event happens.
- **Smart Search:** Search the video and image by date/time/license plate number from the server to locate the key evidence efficiently.
- **Intercom Handling:** Response to visitor or emergency call from VTO, keep the safety even without on-site watch house. Define various parameters for white list: Time, Gate channel, Plate, Quantity.
- **Multiple Linkage:** The administrator can set different linkage rules following ANPR such as open the barrier or e-mail once plate number is recognized.
- **Flexible Visitor Management:** Flexible policy for manage barrier: Automatic operation by whitelist or manual control by software remotely.

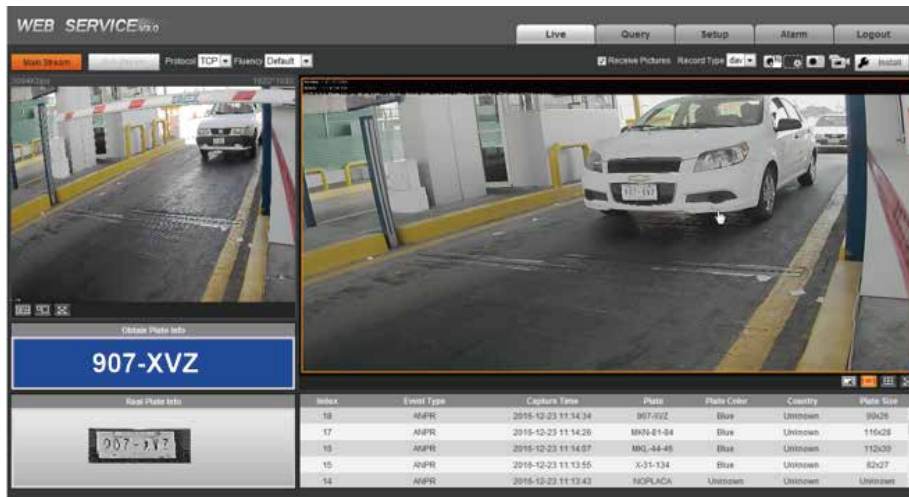


# KEY TECHNOLOGY

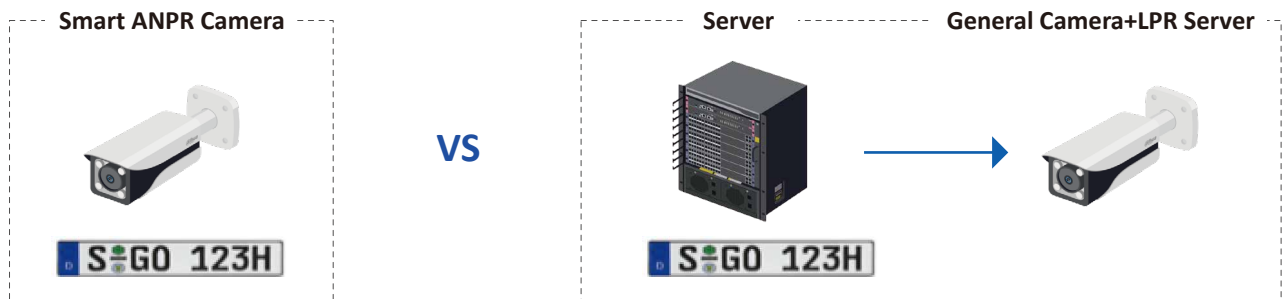
## Embedded ANPR

High ANPR accuracy, Plate capture rate by video  $\geq 98\%$ ; Recognition rate  $\geq 95\%$

With built-in intelligent video analytics, the camera is able to detect and recognize moving vehicle's plate number in low speed less than 40km/h. No matter for approaching or departing ring vehicle, the access ANPR will take a snapshot for plate cutout, vehicle overview picture and also record the surveillance video.



Our embedded ANPR's advantage

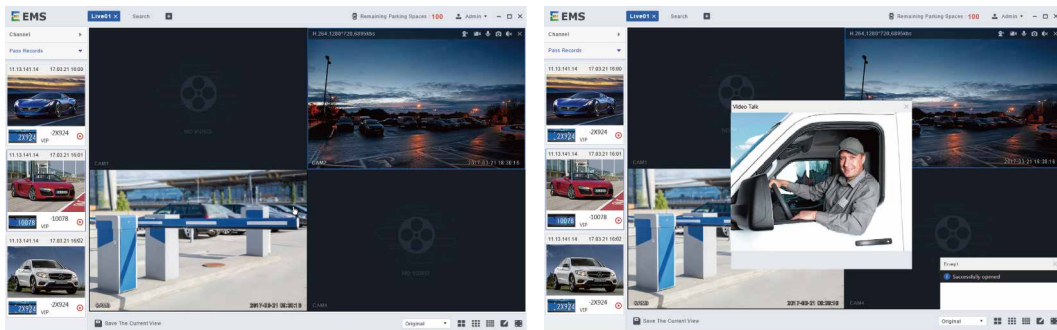


	Smart ANPR Camera	General Camera + LPR Server
<b>Bandwidth</b>	Less (Transfer image and plate)	Much more (Transfer the video)
<b>Cost</b>	Cost Saving (Only camera cost)	Expensive (Separate LPR server cost)
<b>Reliability</b>	Network independent (Work when network is offline)	Network dependent (Can't work if network is offline)

## Unmanned Management of Entrance

No need for a guard onsite to manage the barrier, the ANPR system can easily judge if the approaching vehicle's plate is in the white list, open the barrier once the plate has already been registered. In case of accidents, such as visitor or ANPR failed, the intercom will be linked to the monitor center for alarming a guard to control the barrier remotely.

All the system function above can be easily configured and operated in management platform EMS, which is software based on windows available. C/S architecture design enables flexible function extension.



## Open API for Integrator

Provide abundant data through API of different product combinations.



ITC237



CGI



Third-Party Platform

### ITC+3<sup>rd</sup> party software

- Data: Plate, image (overview and plate cutout), time, white & black list event
- Command: Snapshot manually
- Support API customization for special business



ITC237



NVR



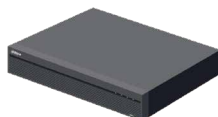
Third-Party Platform

### ITC+NVR+3<sup>rd</sup> party software

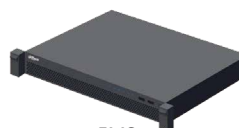
- Data: Plate, image(overview and plate cutout), video, time, white & black list event
- Command: Snapshot manually
- Support API customization for special business



ITC237



NVR



EMS



Third-Party Platform

### ITC+NVR+EMS+3<sup>rd</sup> party software

- Data: Plate, image (overview and plate cutout), video, time (entrance, exit and parking), available No. , white & black list event
- Support API customization for special business



## PRODUCT SELECTION

### DHI-EMS4004



- Embedded Windows System, C/S Architecture
- Up to 10 channels for ANPR inputs
- Support Live preview and View snapshots
- Support B/W List control, fuzzy search with plate, time etc
- Support open barrier from the platform manually
- Support one key to call management center via VTO while abnormal situation occurs
- Support auto-calculation & display the remaining number of parking lots
- Support fast departure mode for vehicles on site

### DHI-ITC237-PW1B-IRZ



- 1/2.8" 2 MP progressive scan STARVIS™ CMOS
- H.265-50/60fps(WDR OFF)@1080(1920×1080)
- Intelligence: Video & loop detection and recognize the license plate
- WDR (140dB), 3D-DNR- 2/1 Alarm in/out
- License plate detection Range 3-8m

### DHI-VTO2000A



- 1/4" 1MP CMOS, 2.8mm
- Audio Compression: G.711
- Audio Input: Omni directional Mic
- Audio Output : Built-in Speaker
- Keypad: Single Mechanical Button
- Ethernet: 10M/100Mbps Self-adaptive
- Ingress Protection : IP54, IK07
- Power: DC 12V

### DHI-IPMECD-2012AL/R



- Speed: 3 seconds
- Manual button: "up", "down", "stop"
- Unlock automatically and raise the arm manually as power off
- Optional digital vehicle detector with "automatic falling"
- Support "anti-hit" and "automatic raise once hit the vehicle" functions.

### DHI-IPMECP-218AA



- LED type: DIP 1R1G
- Pixel resolution: 64\*16
- Color: Red, yellow, green
- Display dimension: 640\*160mm
- Brightness: ≥3000 Nits

### DHI-NVR5208-8P-4KS2



- H.265/ H.264/MJPEG/MPEG4 codec decoding
- Max 320Mbps incoming bandwidth
- Max 4 ANPR camera picture channel and 4 video channel input
- 2 SATA III Ports, up to 6TB capacity for each HDD, HDMI/VGA video output
- 8 POE ports

## SUCCESS CASES



### East Coach Center of Xi'an

Stereo & Intelligent parking building, higher passenger throughput, including different system such as: Parking guidance and Reverse lookup; Card Payment & Parking fee management; Higher accuracy of license recognition

- 2200 Parking lots, 580 Spot Detection Camera
- 10 Guidance Screen, 5 Kiosks



### Macalline Plaza in Guiyang

The first "Double MALL" urban commercial project in Guiyang, promote the efficiency of access or exit including different system such as: Video recognition making non-stopping for entry & exit; Visualization of parking guidance and reverse lookup

- 3000 Parking lots/1020 Detection cameras/ 5 Kiosks
- 6 ANPR cameras,80 Guidance screens
- 350 CCTV camera



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

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