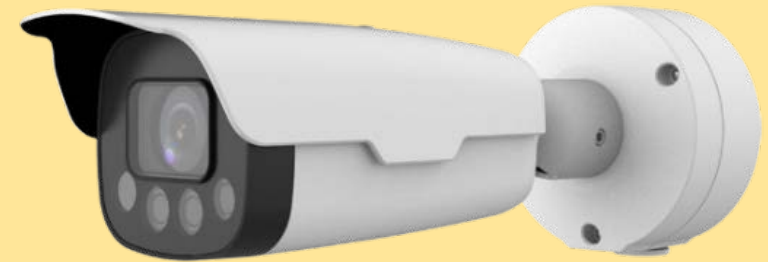


**ZUUM**



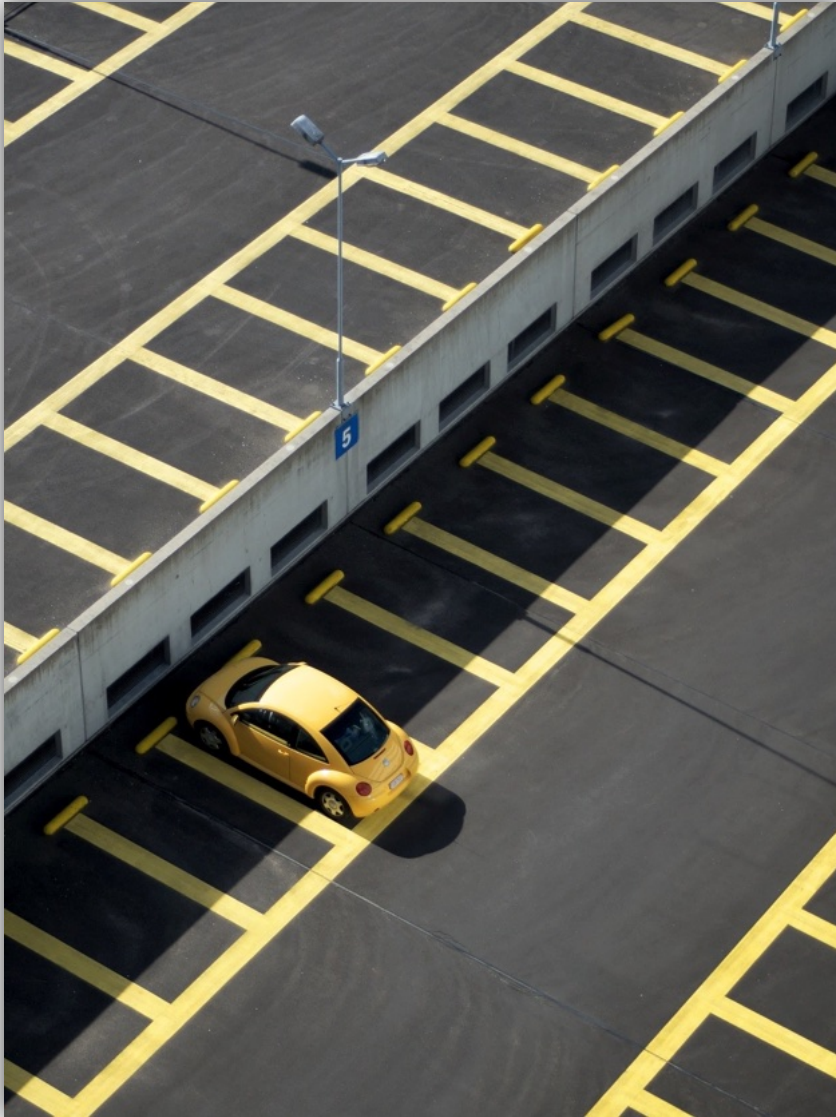
## LPR Solution Introduction

- Accurate Comparison
- Quick Response
- Convenient Management





# Content



**1** Background

**2** Solution Features

**3** Applications

# Challenges



**Lack of management**

- Unauthorized cars occupy parking spots
- Unordered vehicle parking makes traffic jam.



**Lack of record**

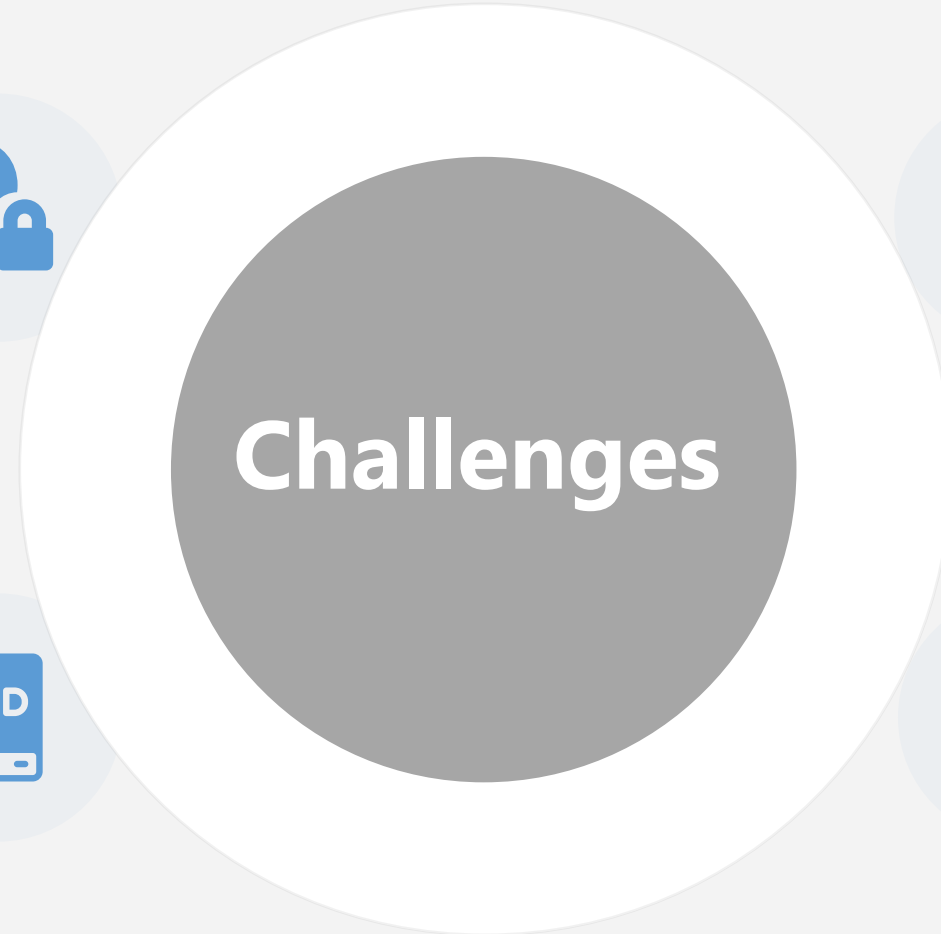
- Accident happens when vehicles enter or exit.
- There was no record when accidents happened.



**Lack of efficiency**

- Swiping card is very inefficient especially during rush hour.
- Opening window and swiping card becomes inconvenient especially in the raining or snowing weather.

# How to Meet Challenges



## Authority management

Only authorized vehicle can enter the parking lot



## Record storage

Record entry and exit process of vehicles



## Accurate retrieval

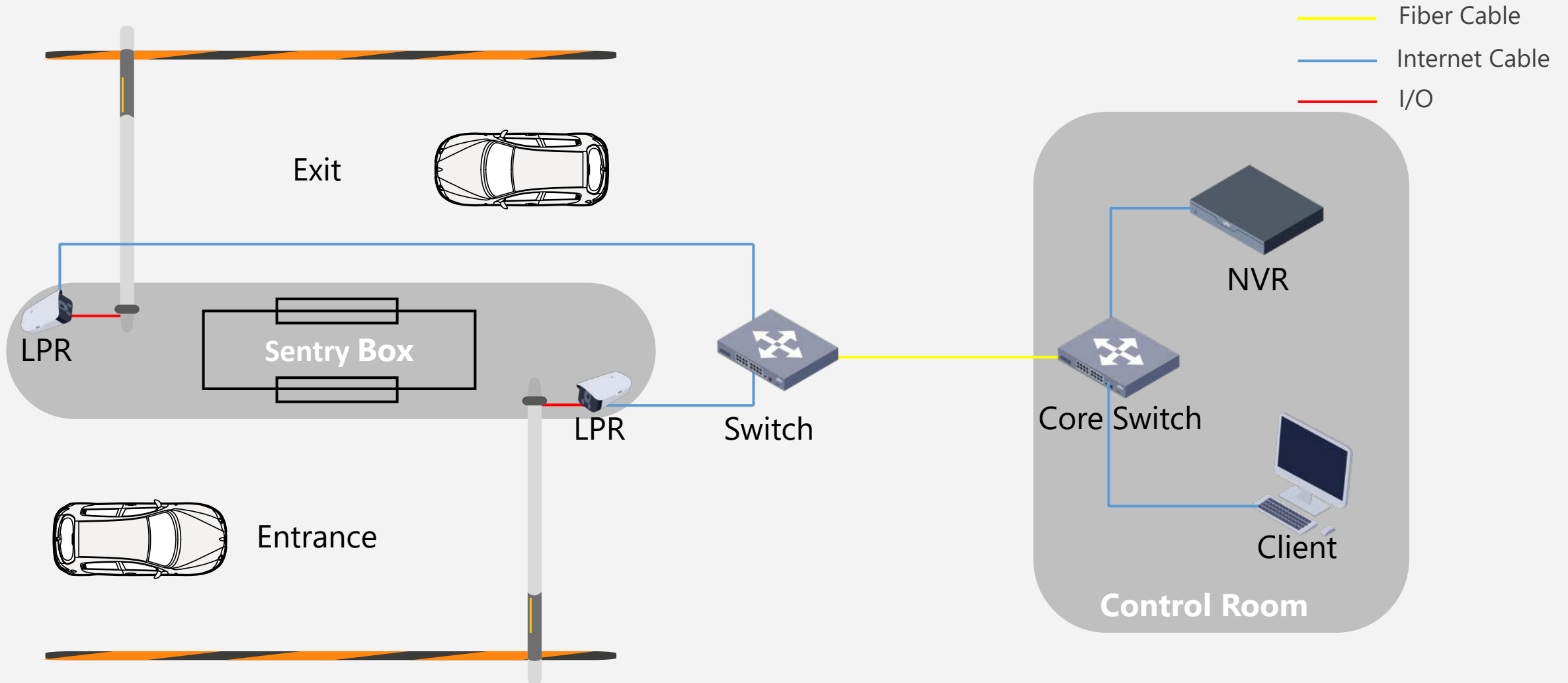
Search records through license plate



## Quick response

Open barrier directly and quickly after recognition

# Solution Overview



**Accurate Comparison**

**Quick Response**

**Convenient Management**

# Content



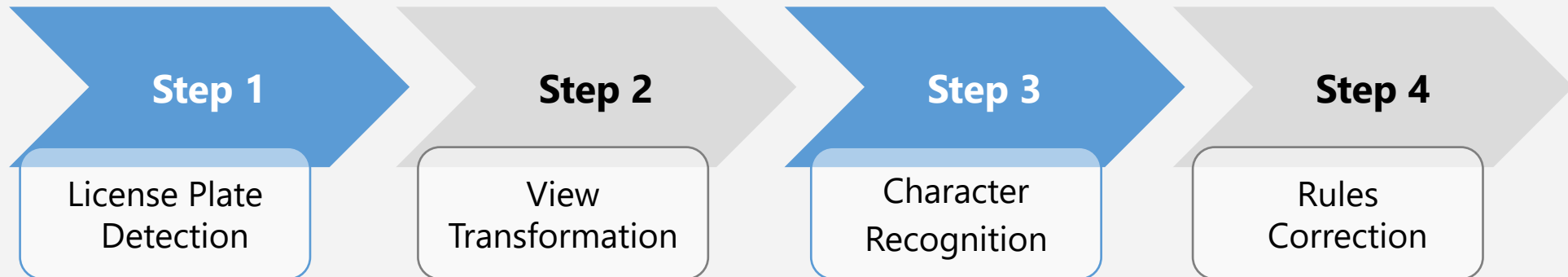
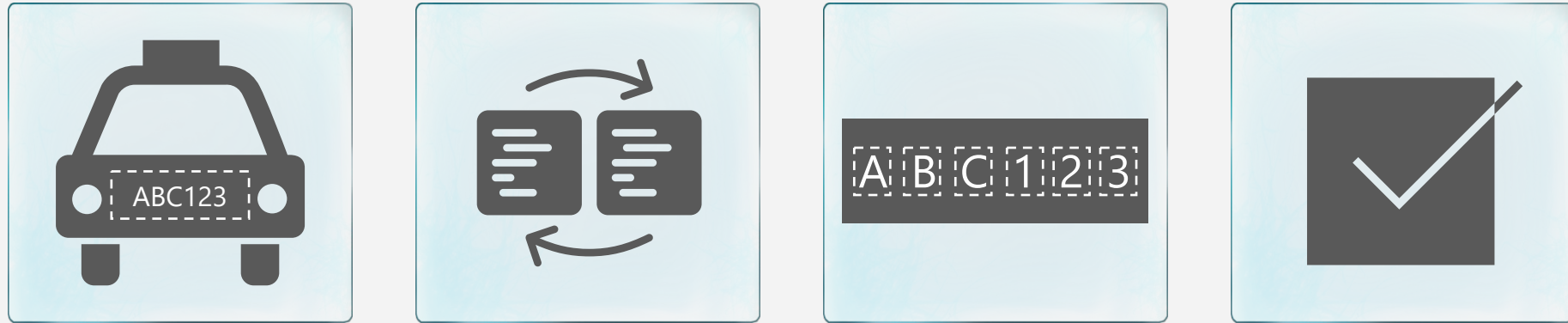
**1** Background

**2** Solution Features

**3** Applications

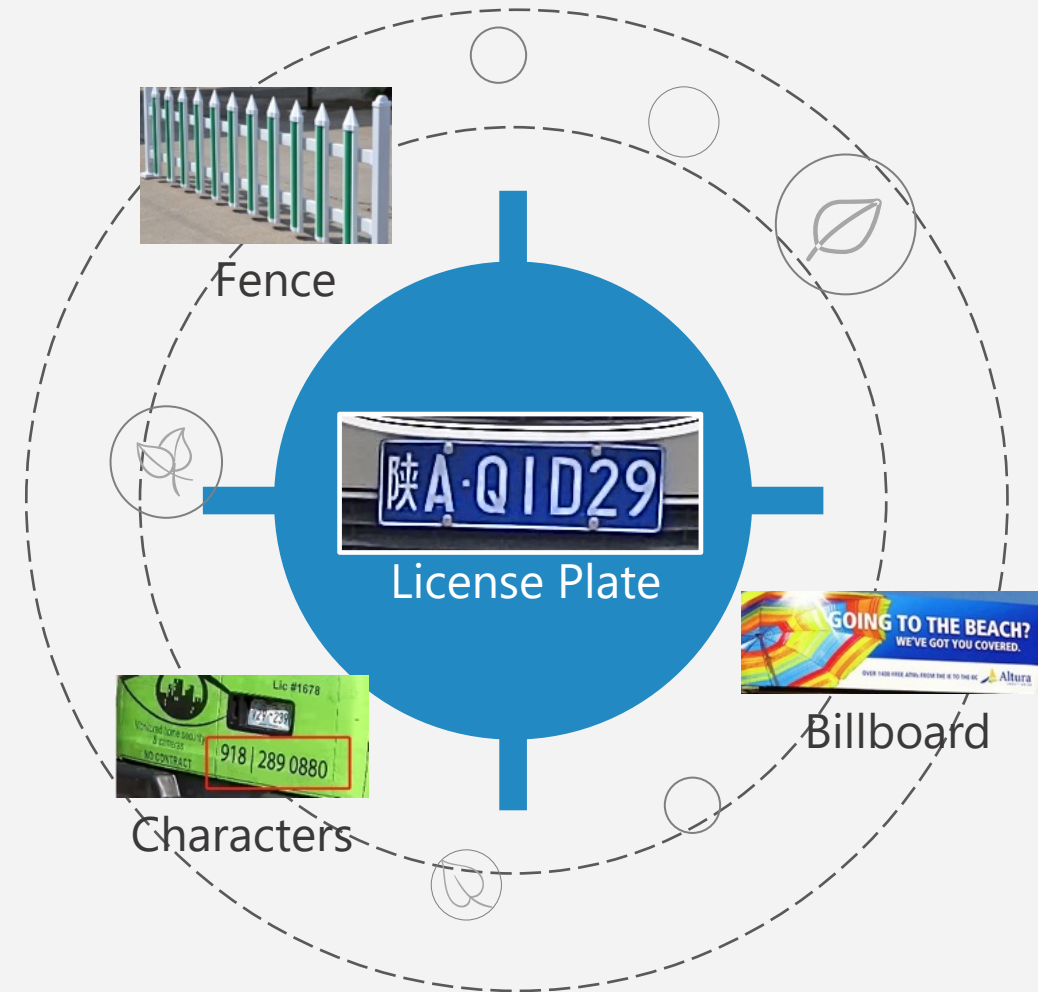


# Recognition Process



Built-in AI chip of **1Tops**, ANPR can recognize license plate accurately via advanced process.

# Setp1: License Plate Detection



Adapt in powerful algorithm, ANPR locates license plate by the four point of the plate. Therefore, it can filter wayside fence, billboard and characters to reduce false detection.



# Setp2: View Transformation



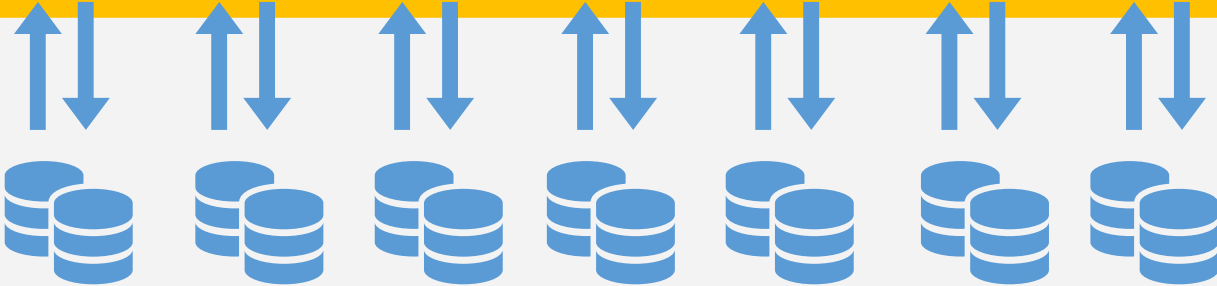
In order to recognize license plate accurately, AI algorithm will transform the angle of captured image according to the four location point of the plate.

# Step 3: Character Recognition

Transformed image



Character segmentation



Character comparison

## Benefits:

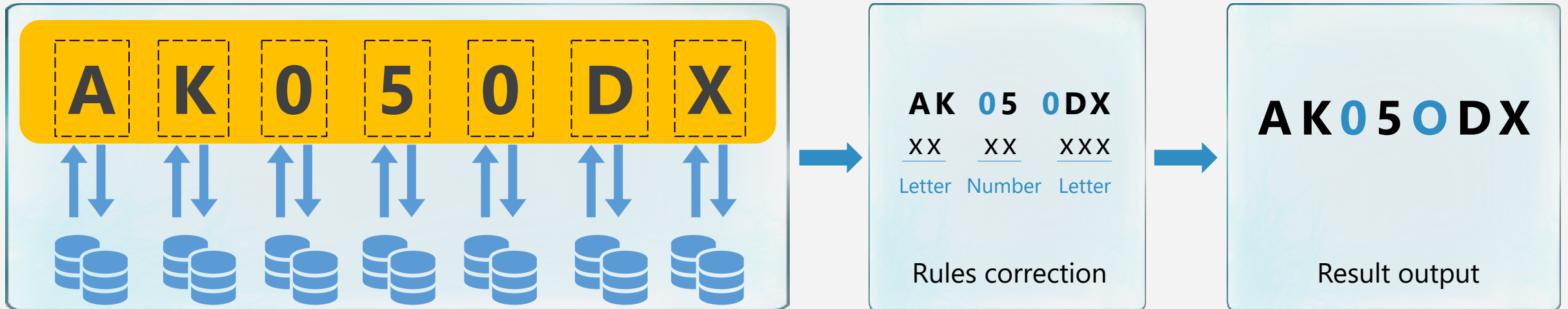
With deep-learning algorithm, ANPR can recognize every character on the license plate accurately.

ANPR can effectively reduce the interference of special symbols on the license plate.



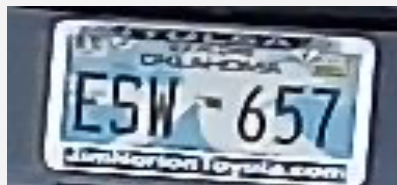
ANPR isn't limited by the length of the license plate and license plates of any length can be recognized.

# Setp4: Rules Correction



✘ **N G L 5 0 2**

✔ **N G L 5 0 2**



✘ **E 5 W 6 5 7**

✔ **E S W 6 5 7**



✘ **KA6341B1**

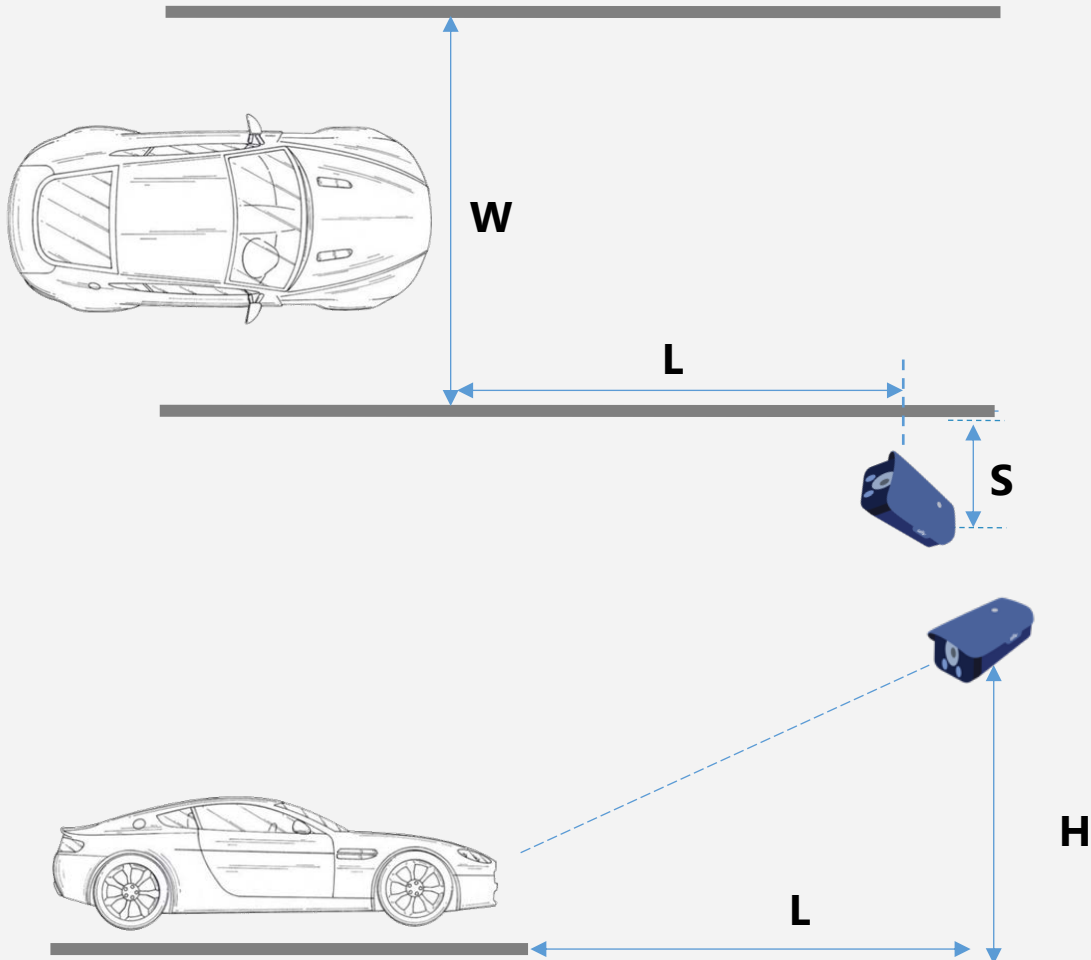
✔ **KA6341BI**

According to different plate rules of different region, ANPR can correct character which is easily confused.



# Installation Guide

## Entrance & Exit



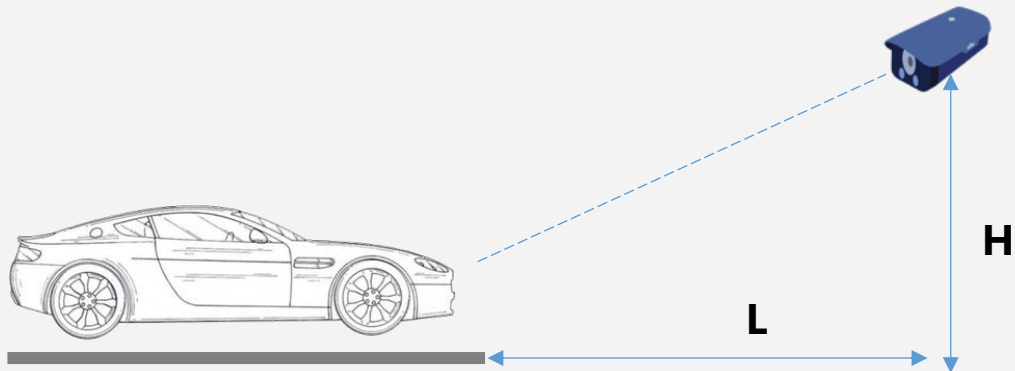
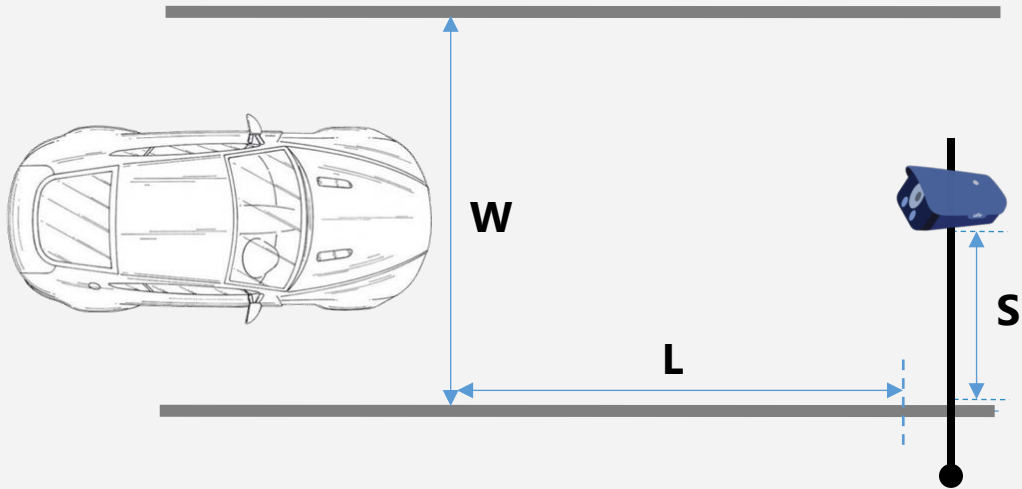
W	L	H	S
$W \leq 4$	4~7	1.5~2	0.3
$4 < W \leq 5$	5~8	2~2.5	
$5 < W \leq 6$	6~12	2.5~3	

Unit: m

- W: Road width
- L: Capture distance
- H: Installation height
- S: Width of the camera from the roadside
- **Vehicle speed should be less than 90km/h**

# Installation Guide

## Road

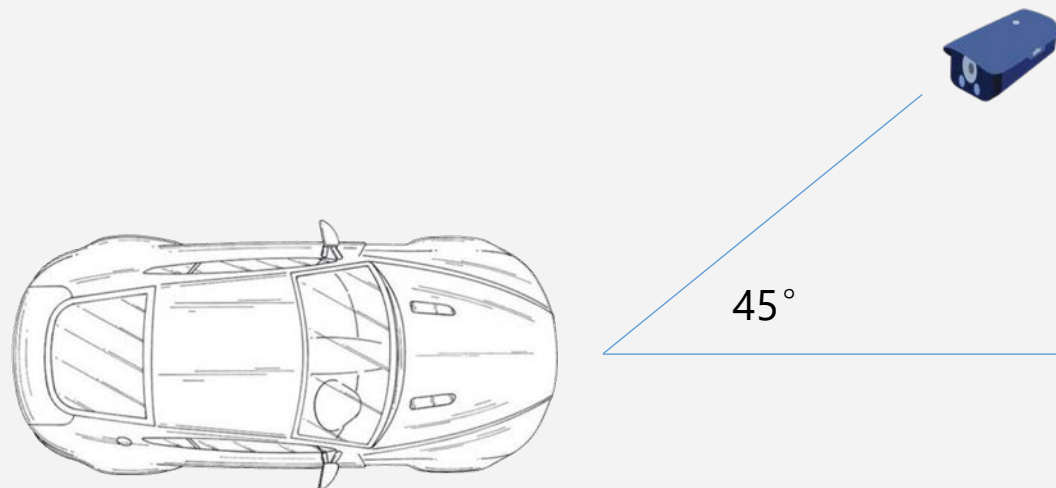


W	L	H	S
$6 \leq W \leq 7$	12~26	3~6	0~7

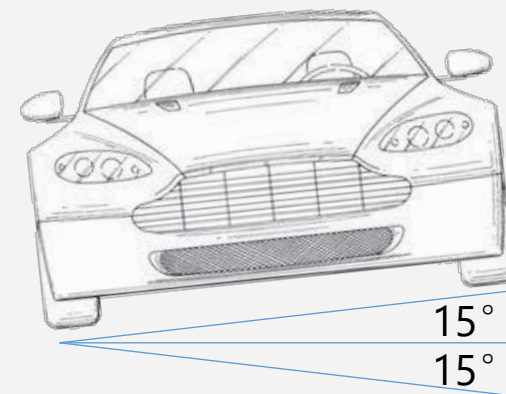
Unit: m

- W: Road width
- L: Capture distance
- H: Installation height
- S: Width of the camera from the roadside
- **Vehicle speed should be less than 90km/h**

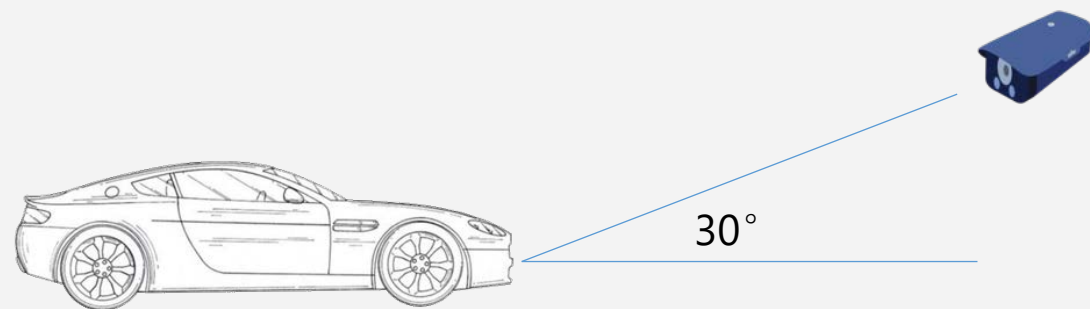
# Installation Guide



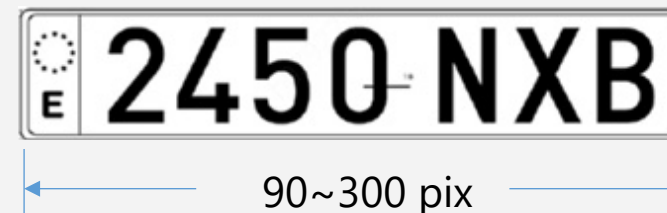
The horizontal angle should be less than  $45^\circ$



The horizontal inclination angle should be less than  $\pm 15^\circ$



The vertical angle should be less than  $30^\circ$



The pixel size of license plate should be between 90 to 300 pix

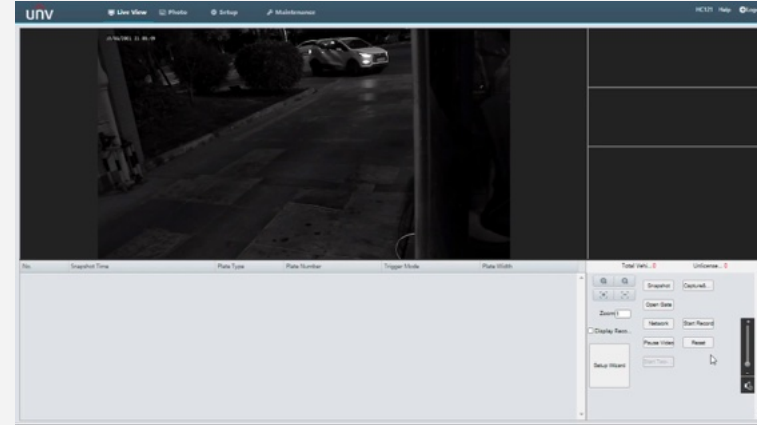


# Excellent Performance

ANPR camera series can performed very well whatever in day or night. With LED lights, it supplies a colorful image at night. Also, it can provide a clear image with IR lights.



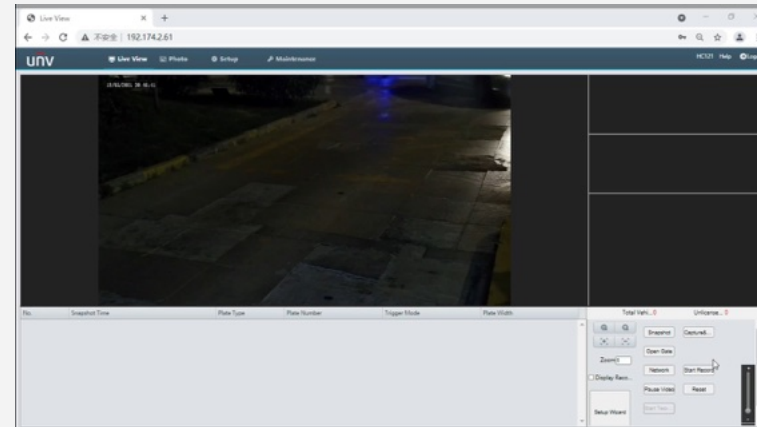
IR model only



IR model only



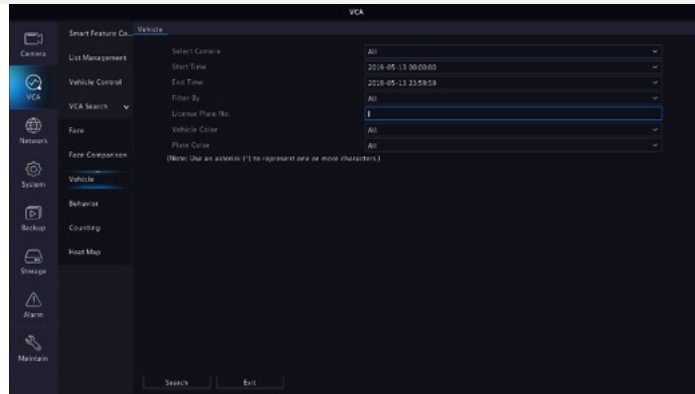
LED model only



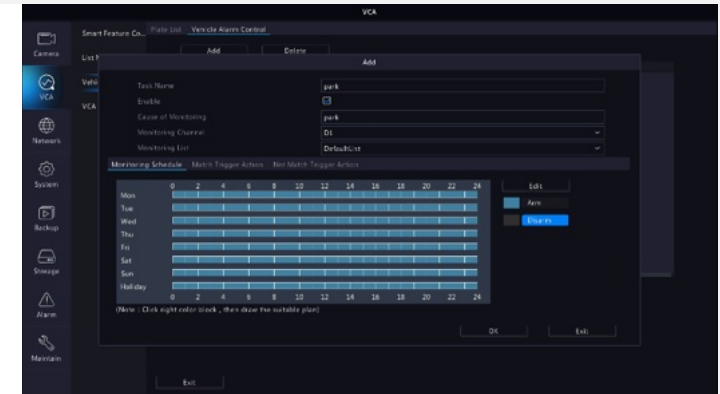
LED model only

# Solution Functions

**Search**  
Fuzzy &  
accurate search  
by license plate



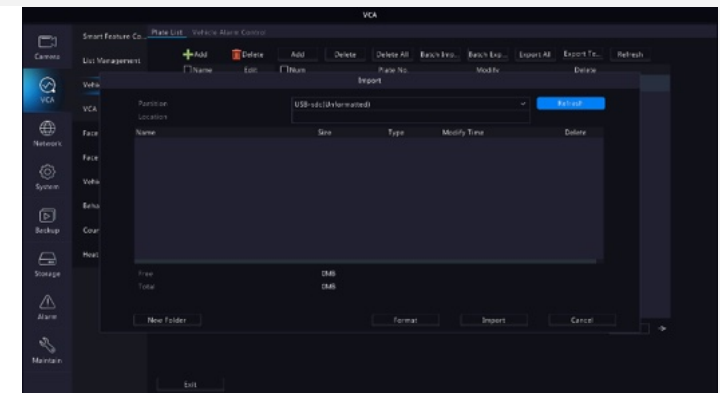
**Storage**  
License plate  
images and  
video storage



**Watch**  
Watch the live  
on the NVR



**Manage**  
Add white &  
black list



# Solution Value



## Safe

- White & blacklist management
- Blacklist alarm
- Only authorized vehicle can enter the parking lot



## Quick response

- Fast recognition process and passage
- Open barrier via alarm I/O interface quickly after recognition



## Low labor cost

- Recognition and opening barrier automatically
- No need a guard in site



## Reliable

- Comprehensive record
- Make sure there's a track record after accident



# Content



**1** Background

**2** Solution Features

**3** Applications

# Application



Gas station



Parking lot



Industrial park



Garage



Hotel



Toll station

# IPC Device Features

GV-B2MP-IP-4.7-47-IR50LPR



- 1/2.8" progressive scan CMOS
- 2MP (1920\*1080) @ 60 fps
- Optical zoom (4.7~47mm)
- **Built-in 4 LED lights**
- Alarm 2/1, audio1/1, RS485
- Micro SD memory
- POE(802.3 at)
- IP67,IK10





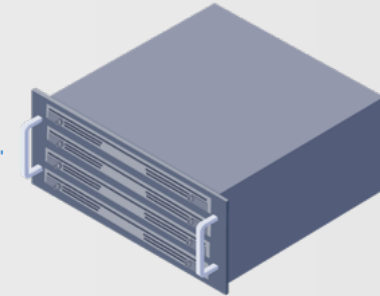
# Integrate with 3<sup>rd</sup> party



LPR



SDK/LAPI



Third-Party Platform

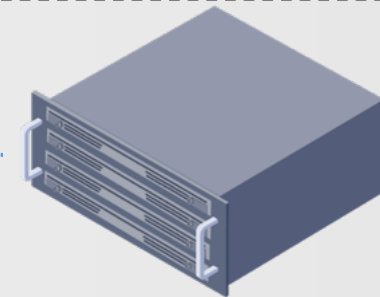
- Plate number, image, capture time, white & black list event and so on.



LPR



Onvif protocol



Third-Party Platform

- Onvif version 21.06, Profile M
- Plate number