

## ANPR automatic license number plate recognition vehicle identification LPR system



ANPR parking system is a reliable, accurate and cost effective off-street car park management solution. It is widely used in many places, including supermarkets, retail car park, hotels, hospitals and leisure centers.

### Benefits

- Ticketless parking fee management.
- Increased security
- Parking access automation
- Car theft prevention
- Prevention of "lost ticket" fraud

### How ANPR(also known as LPR) car parking system works?

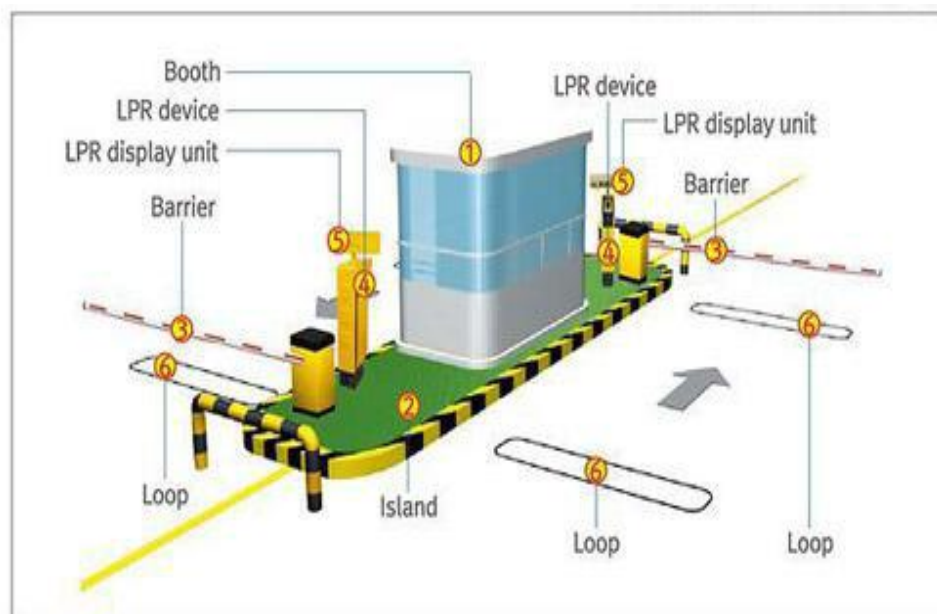
#### 1. Enter procedure

A vehicle stops in front of the entrance, in front of barrier. The sensor detects its presence and a dedicated camera recognizes automatically and records the number plate, date and time of entry. The remote management system captures the data provided by the camera and saves it into the database. If already registered, the subscriber's membership information and reservation data are added. The entrance barrier rises allowing the driver access to the car park. The barrier lowers automatically, once a vehicle passes the safety sensor.

#### 2. Exit procedure

A vehicle stops at the exit, in front of barrier. The sensor detects its presence and the dedicated camera verifies the number plate against payment information, or the listing of the vehicle on the database (e.g. subscribers). The management system validates correct payment, or entitlement to park without payment to enable exit. The exit barrier rises, allowing the driver to leave the car park. The barrier lowers automatically once a vehicle passes the safety sensor.

#### System overview



1 Booth- This structure is the working place for parking attendant . They can manage entering vehicles and collecting parking fee from leaving vehicles here(if pay with automatic payment station,there may be not booth at the exit)

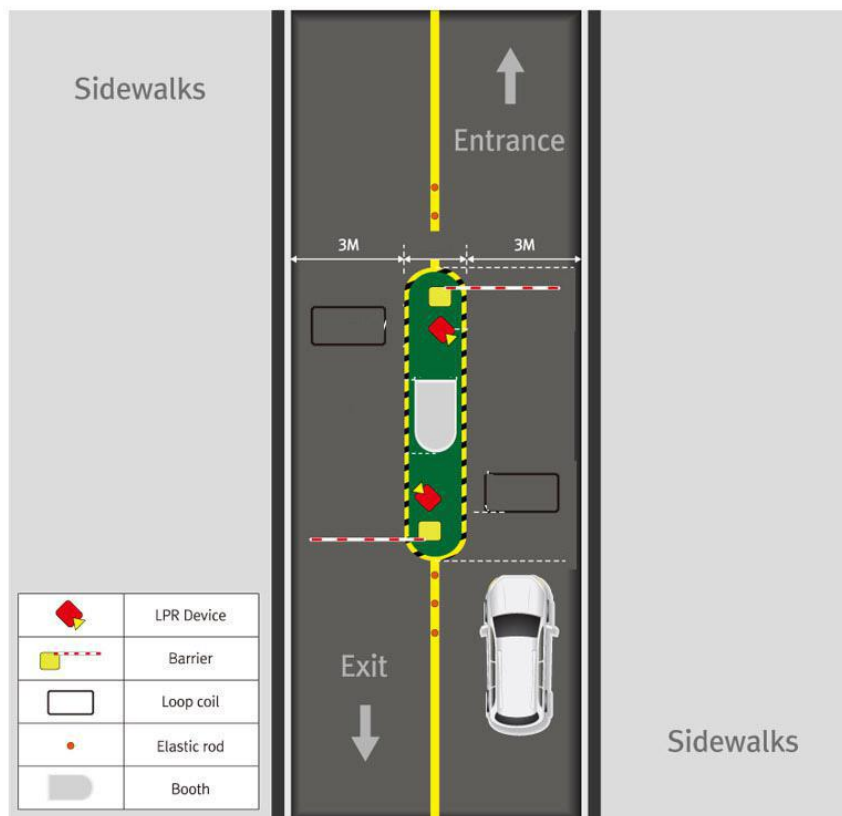
2 Island- Structure for installation booth, barrier and LPR device.

3 Barrier- In order to control entering vehicles efficiently, barrier is installed in heavy traffic area to control vehicle access, at entrance/exit.

4 LPR device- LPR device takes images of entering/leaving vehicles with high-definition mega pixel camera and it recognizes plate number automatically then access control/manage vehicles

5 LPR display unit- Install and link with LPR device, display recognized vehicles' information and note driver information(option)

6 Loop- Loop coil is laid at entry/exit of parking lot.The device receive high frequency signal current from vehicle detector and make a magnetic field near loop coil. Once vehicle pass this field, send impedance changes to detector and convert voltage and amplify them and send detect information signal to camera or barrier gate



Straight lane is the best type to recognize plate number. and ANPR camera can take an image of max.3.5m width. If ANPR device is installed more than 3.5m road width, vehicle guide equipment(ex.Elastic rod.signboard,etc.)should be installed.In case of installation speed bump the size of bump must be road width. If speed bump size is smaller than road width,driver would not approach straight way to avoid speed bump, then ANPR camera cannot capture clear and accurate image for recognition,then will affect the ANPR accuracy.

### Operation Flow

Operation Flow



### Interface of parking management system software

The interface consists of two main parts: a login screen and a main menu.

**Login Screen:** Titled "ACCESS CONTROL OF CAR PARKING SYSTEM" with the COMA logo. It includes fields for "User name", "Password", "Re password", and "Confirm password", along with "Login" and "Re password" buttons.

**Main Menu:** Lists various management functions:

- Owner information
- System user regist
- On duty personnel management
- Card Issue
- RF Card issue
- Equipment information
- residential information
- Building information
- Parking information
- Month card charge standard setting

**User Management Form:** A detailed form for adding or editing users, including fields for Name, Sex, IDNo, Password, Repeat, Status, Type, Update time, and No. It also includes fields for Building No., Plate, Fee type, and Owner park No.

**User List Table:** A table showing a list of users with columns for Name, Tel, Sex, IDNo, Password, Repeat, Status, Type, Update time, and No.

Name	Tel	Sex	IDNo	Password	Repeat	Status	Type	Update time	No.
00017902		Female	01790253		1	0	3	2016-8-12 9:23	00017902
admin	15214148878	Male			1	0	3	2016-3-29 11:57	001
002	43243245331	Female		43245331	1	0	3	2016-3-29 11:58	002
004		Male			1	0	3	2016-3-29 14:42	004
00500		Male			1	0	3	2016-3-27 15:08	005
006		Male			1	0	3	2016-3-23 14:15	006
Tedrick		Male			1	0	3	2016-3-17 17:09	008
吴国文		Male		24602jason	1	0	3	2016-3-23 10:36	123

## Interface of toll software

The screenshot displays the 'Charge management terminal' interface. It features four camera feeds showing vehicles at a toll station. A large green box displays the amount '19.00'. Below the feeds is a table with columns: codeIndex, Fee, FreeFee, FeeCount, cardson, startTime, EndTime, RealUser, WorkArea, and shift. The table contains one row with the following data:

codeIndex	Fee	FreeFee	FeeCount	cardson	startTime	EndTime	RealUser	WorkArea	shift
1801114	51.00	5.00	2	test	2016/01/...		test	PC-20150...	

At the bottom right, there are buttons for 'Exit', 'VIP Free', 'Confirm', and 'Cancel'. A status bar at the very bottom shows 'status: User test log-in time Date:2016/9/9 10:26:16'.



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