

Welcome to Today's Tech Talk

S.Pratheepa

The Automated Number Plate Recognition System (ANPR)



Overview

- ❖ What is the Automated Number Plate Recognition System (ANPR)?
- ❖ Why is the Automated Number Plate Recognition System important today?
- ❖ who uses the Automated Number Plate Recognition System?
- ❖ What are the advantages of the Automated Number Plate Recognition System?
- ❖ What are the disadvantages of the Automated Number Plate Recognition System?
- ❖ Automatic Number Plate Recognition Process
- ❖ How did they program on this ANPR camera?

Automated Number Plate Recognition System

Did anyone know what
is the Automated
Number Plate
Recognition System
(ANPR)?



Automated Number Plate Recognition System



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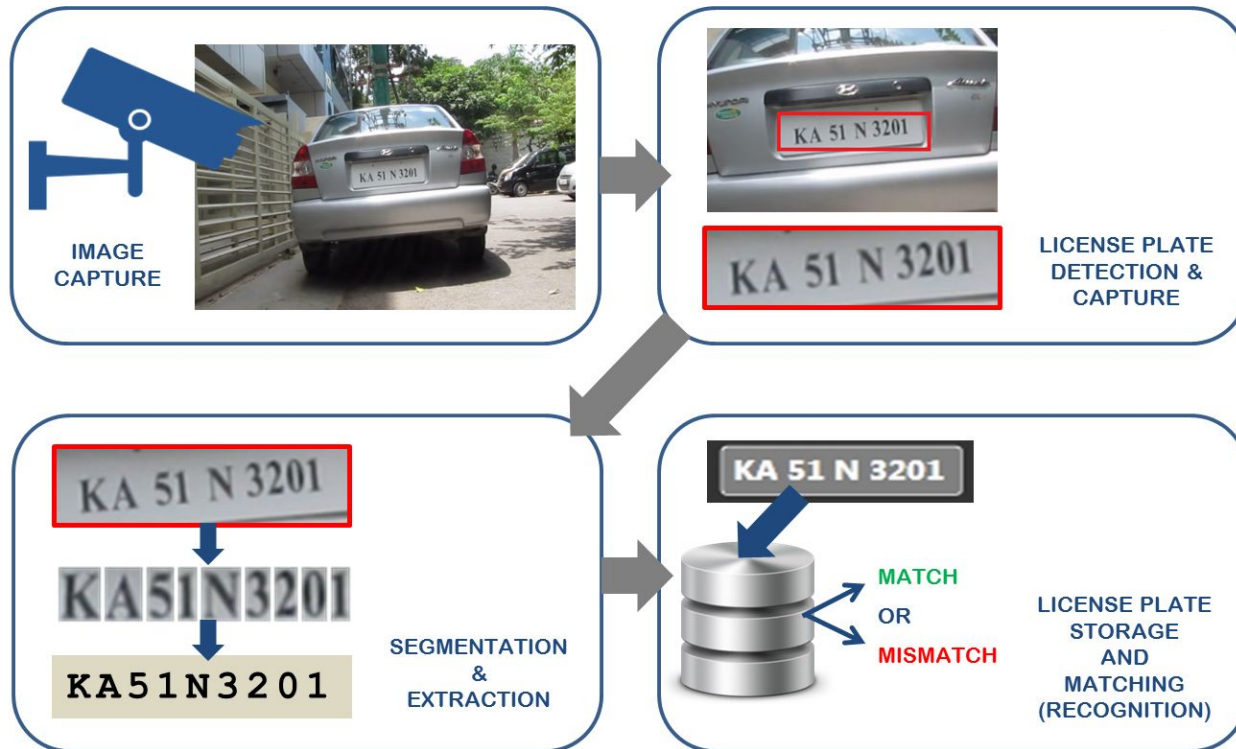
Automated Number Plate Recognition System

What is the Automated Number Plate Recognition System (ANPR)?

Automatic Number Plate Recognition (ANPR) is a highly accurate system capable of reading vehicle number plates without human intervention through the use of high-speed image capture with supporting illumination, detection of characters within the images provided, verification of the character sequences as being those from a vehicle license plate, character recognition to convert image to text so ending up with a set of metadata that identifies an image containing a vehicle license plate and the associated decoded text of that plate.

Automated Number Plate Recognition System

What is the Automated Number Plate Recognition System (ANPR)?



Automated Number Plate Recognition System

What is the Automated Number Plate Recognition System (ANPR)?



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Automated Number Plate Recognition System

Why is the Automated Number Plate Recognition System important today?

The Automatic recognition of the car license plate became very important in our daily life because of the unlimited increase of cars and transportation systems which make it impossible to be fully managed and monitored by humans.

Automated Number Plate Recognition System

Unable to Control Traffic and Offenders

HEAVY TRAFFIC VEHICLE



HARD TO MANAGE HEAVY TRAFFIC



Automated Number Plate Recognition System

Easily and comfortably managing traffics and offenders



Automated Number Plate Recognition System

who uses the Automated Number Plate Recognition System?

- Car Park Management
- Police and army
- Traffic Management
- Retail Park Security
- Weighbridges
- Tolling
- Bus Lane Enforcement
- Intelligent Transport Systems
- Criminal investigator
- Border crossings
- ETC.

Automated Number Plate Recognition System

What are the advantages of the Automated Number Plate Recognition System?

- Easy Monitoring and Surveillance 24/7
- Improved Security - safer and accurate
- Less Manned Surveillance
- protecting Privacy Concerns
- Identifying criminals and terrorists.
- Identifying easily unregistered or expired license vehicle
- Highway electronic toll collection
- Identification of stolen cars
- Red light violation
- speed violation

Automated Number Plate Recognition System

continues.....

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- Easy to handle and enforce by using a device
- Border and customs checkpoints wait time reduced
- Easy to find cars in terrorist attacks/illegal activities
- Cheaper, smoother, faster
- Smart access control or entry systems.
- easy to manage tenant and retail parking
- Reliable and secure system
- many other advantages.

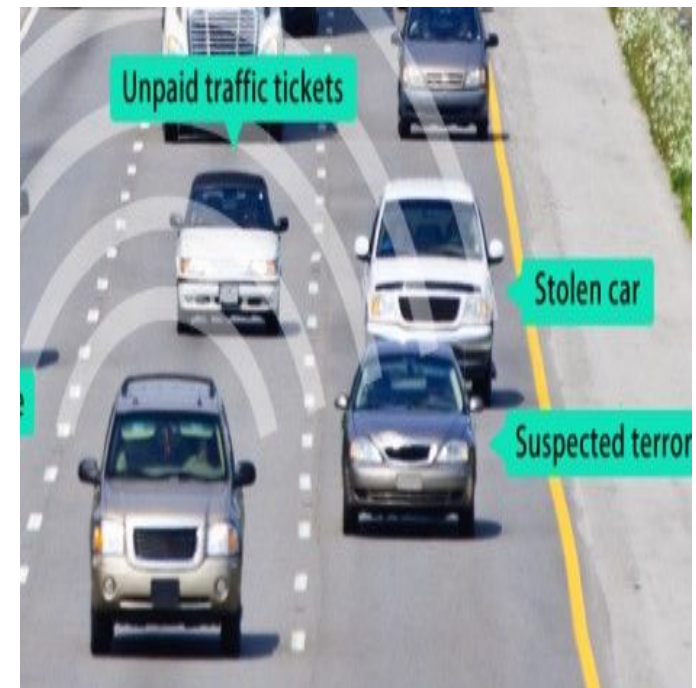
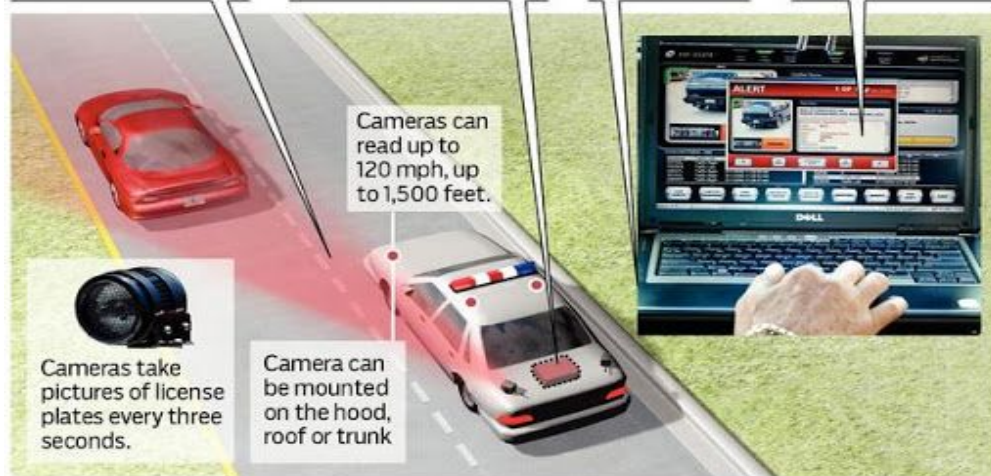
Automated Number Plate Recognition System

What are the advantages of the Automated Number Plate Recognition System?

How the system works

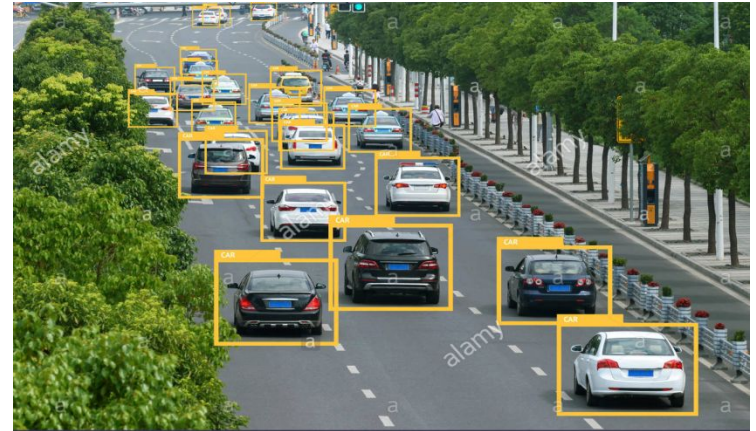
Car-mounted cameras will help locate stolen cars, criminals and Amber or Silver Alert vehicles.

- 1 The camera uses infrared light to read and photograph license plates as the police car travels down the road.
- 2 A computer compares the license plate to a national database. The computer can process 2,000 license plates a day.
- 3 When a plate matches, an alarm sounds on a laptop in the cruiser.
- 4 Laptop identifies vehicle owner and nature of the incident, so officers are prepared.

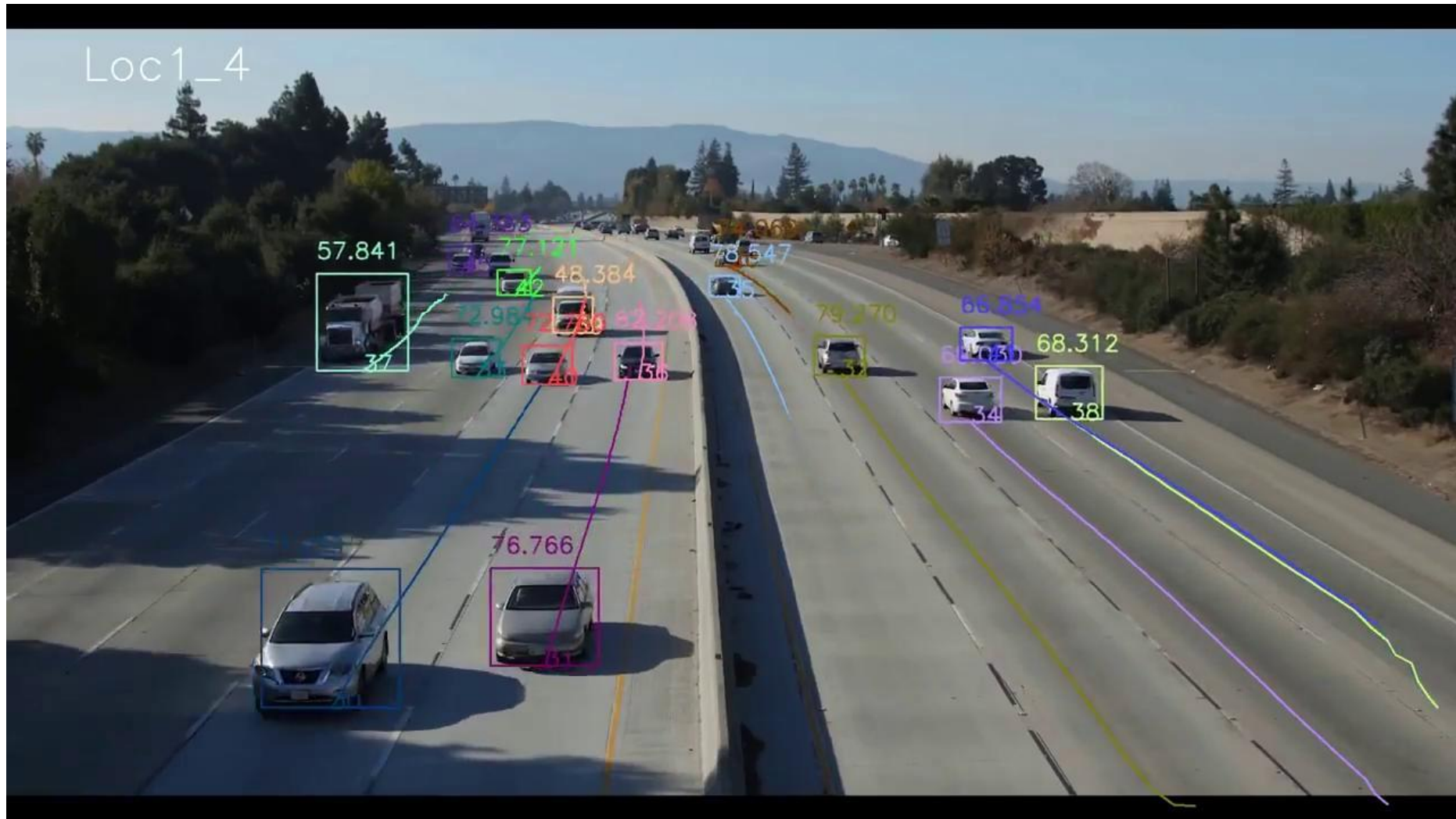


Automated Number Plate Recognition System

What are the advantages of the Automated Number Plate Recognition System?



Automated Number Plate Recognition System



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Automated Number Plate Recognition System

What are the disadvantages of the Automated Number Plate Recognition System?

- Extreme Weather Conditions
- Privacy Concerns
- Challenges That LPR Software Faces



Automated Number Plate Recognition System

Automatic Number Plate Recognition Process

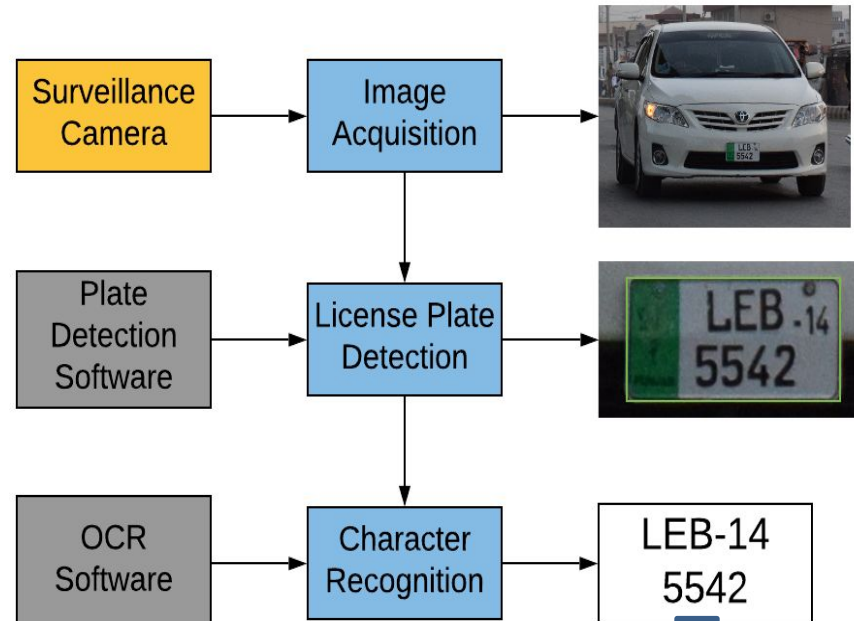
The steps involved in automatic number plate recognition systems include plate localization which involves the recognition and isolation of the license plates in a vehicle image captured by the cameras.

The image is then tweaked to adjust for the skew angle and the size of the plate image in a step called plate orientation and sizing.

After correcting the size and shape of the image, the contrast and brightness are then adjusted in a process called normalization. After that, the individual characters in the plate are separated and identified through character segmentation and optical character recognition. The resulting data is then used to compare with the records on a database so as to come up with specific information like the vehicle's owner, place of registration, address, etc...

Automated Number Plate Recognition System

using text format number plate with database



checking on data.....match then details
no match save records

| Class | | Launc h year | Make | Model | Platform / generation | Sold in Europe | Years produced | Body | | | Dimensions | | | | | Weight | Cargo | Engine range | | | |
|-------|--------------|--------------|------------|-------------------|-----------------------|----------------|----------------|------|--------|--------|-----------------|-------------|------------|-------------|------------------|------------------|--------------------|---------------------|------------|------------------|---|
| | | | | | | | | Body | Door s | Seat s | Wheel base (mm) | Length (mm) | Width (mm) | Height (mm) | Wheel track (mm) | Curb weight (kg) | Cargo space (lres) | Displace ment (cm³) | Power (PS) | Top speed (kmph) | |
| 8 | Small cars | 1994 | Volkswagen | | | | | | | | 100 | 3715 | 1655 | 1420 | 8.73 | 923-1036 | 245-975 | 1000-1900 | 45-125 | 145-205 | |
| 9 | Small cars | 1996 | Volkswagen | | | | | | | | 107 | 3743 | 1632 | 1410 | 8.662 | 923-1034 | 245-975 | 1000-1900 | 45-125 | 145-205 | |
| 11 | Small cars | 1996 | Volkswagen | | | | | | | | 141 | 4137 | 1640 | 1414 | 9.594 | 1020-1220 | 450-762 | 1400-1900 | 60-110 | 158-188 | R |
| 12 | | | Volkswagen | | | | | | | | 144 | 4137 | 1640 | 1433 | 9.722 | 1105-1220 | 390-1250 | 1400-1900 | 60-110 | 155-192 | R |
| 13 | Small cars | 2001 | Volkswagen | | | | | | | | 160 | 3897 | 1650 | 1465 | 9.420 | 1072-1195 | 270-1030 | 1200-1900 | 55-130 | 152-206 | |
| 14 | | | Volkswagen | | | | | | | | 165 | 3908 | 1650 | 1467 | 9.460 | 1072-1265 | 270-1030 | 1200-1900 | 60-100 | 152-225 | |
| 15 | | | Volkswagen | Polo Sedan | IV | Europe | 2003-2005 | S | 4 | 5 | 2460 | 4164 | 1640 | | | | | 1200-1900 | 64-100 | 160-188 | |
| 16 | | | Volkswagen | Polo Fun | IV | | | | | | | | | 1527 | 9.846 | 1078-1197 | 268-1048 | 1200-1900 | 55-100 | 147-163 | |
| 17 | | | Volkswagen | CrossPolo | IV | | | | | | | | | 1499 | 9.831 | 1157-1265 | 270-1030 | 1200-1900 | 64-105 | 157-187 | |
| 18 | Small cars | 2009 | Volkswagen | Polo | V | | | | | | | | | 1462 | 9.763 | 1057-1324 | 280-952 | 1200-2000 | 60-220 | 157-243 | |
| 19 | | | Volkswagen | CrossPolo | V | | | | | | | | | 1488 | 10.074 | 1052-1229 | 261-952 | 1200-1600 | 70-105 | 161-188 | |
| 20 | | | Volkswagen | Polo Sedan / Vent | V | | | | | | | | | 1465 | 10.912 | 1130-1220 | 460 | 1600 | 105 | 190 | S |
| 21 | Compact cars | 1974 | Volkswagen | Golf | I | | | | | | 1410 | 8.411 | 750-810 | | | | | 1100-1600 | 50-110 | 140-180 | |
| 22 | | | Volkswagen | Golf (facelift) | I | | | | | | 1410 | 8.660 | 750-865 | | | | | 1100-1800 | 50-112 | 138-162 | |
| 23 | | | Volkswagen | Jetta | I | Europe | 1978-1984 | S | 2/4 | 5 | 2400 | 4192 | 1600 | 1410 | 9.457 | 805-890 | | 1100-1600 | 50-110 | 141-178 | |
| 24 | | | Volkswagen | Golf Cabriolet | I | Europe | 1979-1993 | Ca | 2 | 5 | 2400 | 3815 | 1610 | 1412 | 8.673 | 930-1015 | 220 | 1500-1800 | 70-112 | ? | |
| 25 | Compact cars | 1983 | Volkswagen | Golf | II | Europe | 1983-1991 | H | 3/5 | 5 | 2475 | 3985 | 1665 | 1415 | 9.389 | 845-1105 | 345 | 1300-1800 | 54-160 | 148-216 | |

Database

Automated Number Plate Recognition System

Device Manager(LPR): 192.168.0.42

Select Device

Disconnected

Connect

Recent LP

EG16

AK52

DU59

YR18

Clear List

Operation

Show Video

Parameter Set

Region Settings

EU-Ver1.2.001

Camera: 192.168.0.42

Can00

2018-04-25 07:39:19 Wed

2306kbits 254ps

License Plate Recognition

File Edit View Favorites Tools Help

Preview BBC iPlayer iCloud HD Network Camera Acer Download Planet Rock BBC - Radio 6 Music Laur... somafm Groove Salad A n... Netflix Suggested Sites Google

Page Safety Tools

Current: admin Logout

Real-Time Monitoring

Can00

2018-04-25 07:39:19 Wed

2306kbits 254ps

Region Options

☒ Show Recognition Area

☐ Show Min/Max Plate Size

Area 1

Area 2

Save

Real-Time Monitoring Parameters

☒ Show Real-Time Result

| Car-ID | Plate Num | Country | Photo | Direction | Date/Time |
|--------|-----------|---------|-------|-----------|-------------------------|
| 4366 | DX66URA | GBR | | OUT | 2018/04/25 07:39:20:259 |
| 4365 | DU61BGV | GBR | | OUT | 2018/04/25 07:39:18:123 |
| 4364 | DP66TBX | GBR | | OUT | 2018/04/25 07:39:14:744 |
| 4363 | BJ09HHF | GBR | | OUT | 2018/04/25 07:39:13:384 |
| 4362 | KX65YBA | GBR | | OUT | 2018/04/25 07:39:11:892 |
| 4361 | DY04EFA | GBR | | UNDEFINED | 2018/04/25 07:39:11:108 |
| 4360 | YR08HSD | GBR | | OUT | 2018/04/25 07:39:06:320 |

lays a list. Use with Internet Explorer and its own software – Use with Alnet Softwa

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Automated Number Plate Recognition System



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How did they program on this ANPR camera?

Let me show you on c# program

Do you have any questions?

Thank you