Parking Space Counter

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Introduction

Almost every family has a car. And every driver had problems with parking: on the street, in the mall, at the airport

Registered cars:

- In Germany 47 million (data for 2020)
- In total, analysts counted 1.2 billion cars in the world

And every year these numbers increase. It becomes more difficult for people to find a place to park

What problems we want to solve?

- **Time problem**

  People will spend less time looking for a place

- **Equipment price problem**

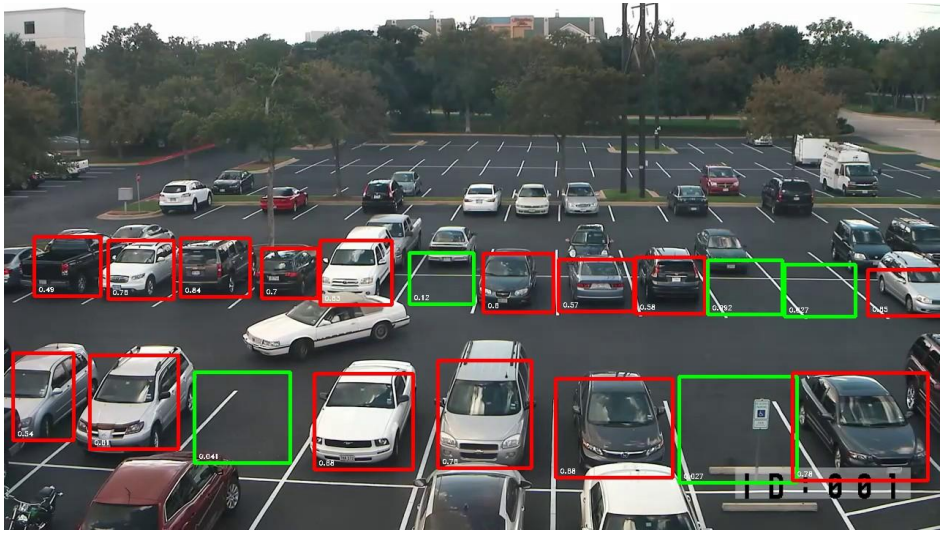
  When using computer vision, there is no need to use special sensors for each parking space

- **Road safety issue**

  Drivers will not look for a parking space for a long time, maneuvering among the cars. This may reduce the likelihood of an accident.

Parking space availability

- Determine if there is a car in a parking lot
- Count the number of the cars
- Count how long a car was in the parking lot
- Count the number of empty space



Parking space availability - Tools

- OpenCV
- Some other machine learning models if it’s necessary e.g. YOLOv5
- Open source parking lot datasets

Number Plate recognition

Technologies towards smart vehicles, smart cities, and intelligent transportation systems continue to make human life easier.

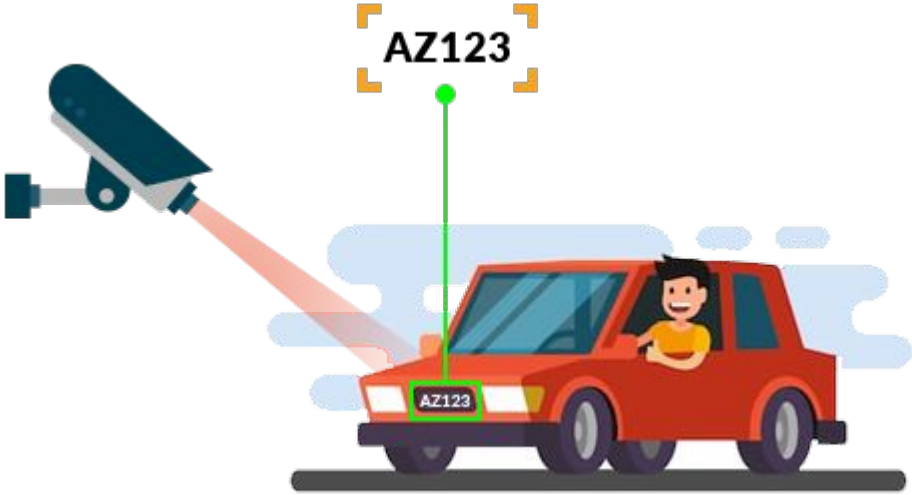
As a consequence, technologies such as automatic number plate recognition (ANPR) have become part of our everyday activities.

Intelligent
ANPR Solution
TEXAS
LINO 777
The Lone Star State

What Is ANPR?

Automatic number plate recognition is a computer vision practice that allows devices to read license number plates on vehicles quickly and automatically, without any human interaction.

Hence, ANPR is used to capture and identify any number plate accurately through the use of video or photo footage from cameras.

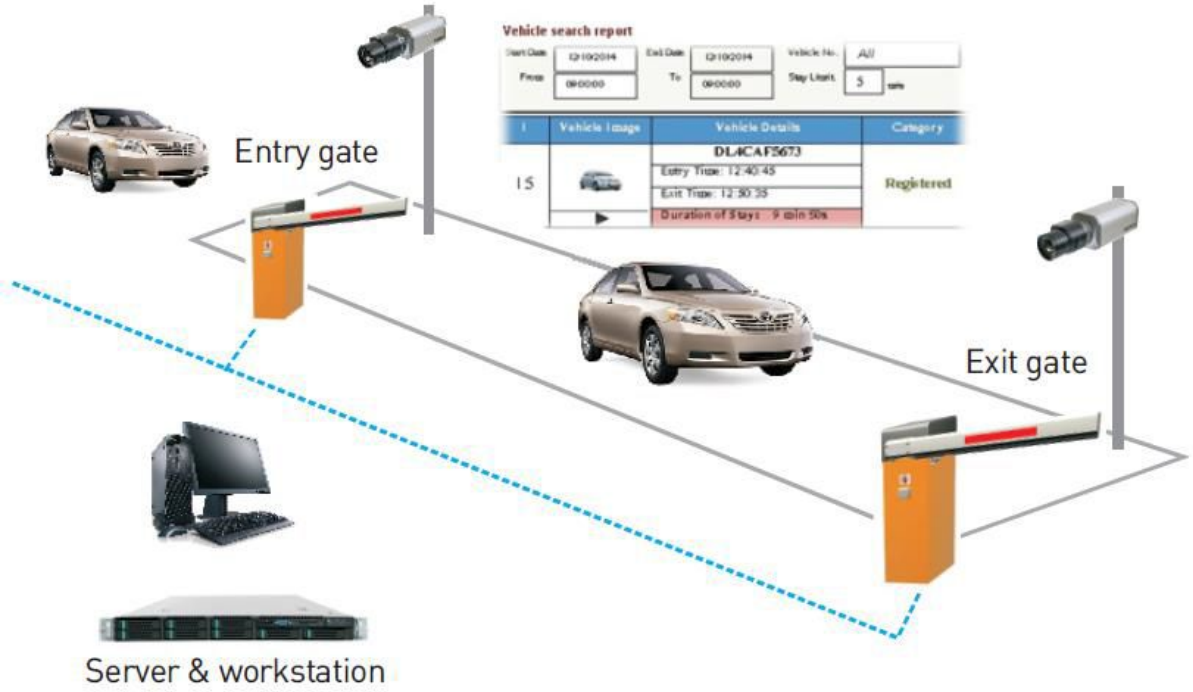


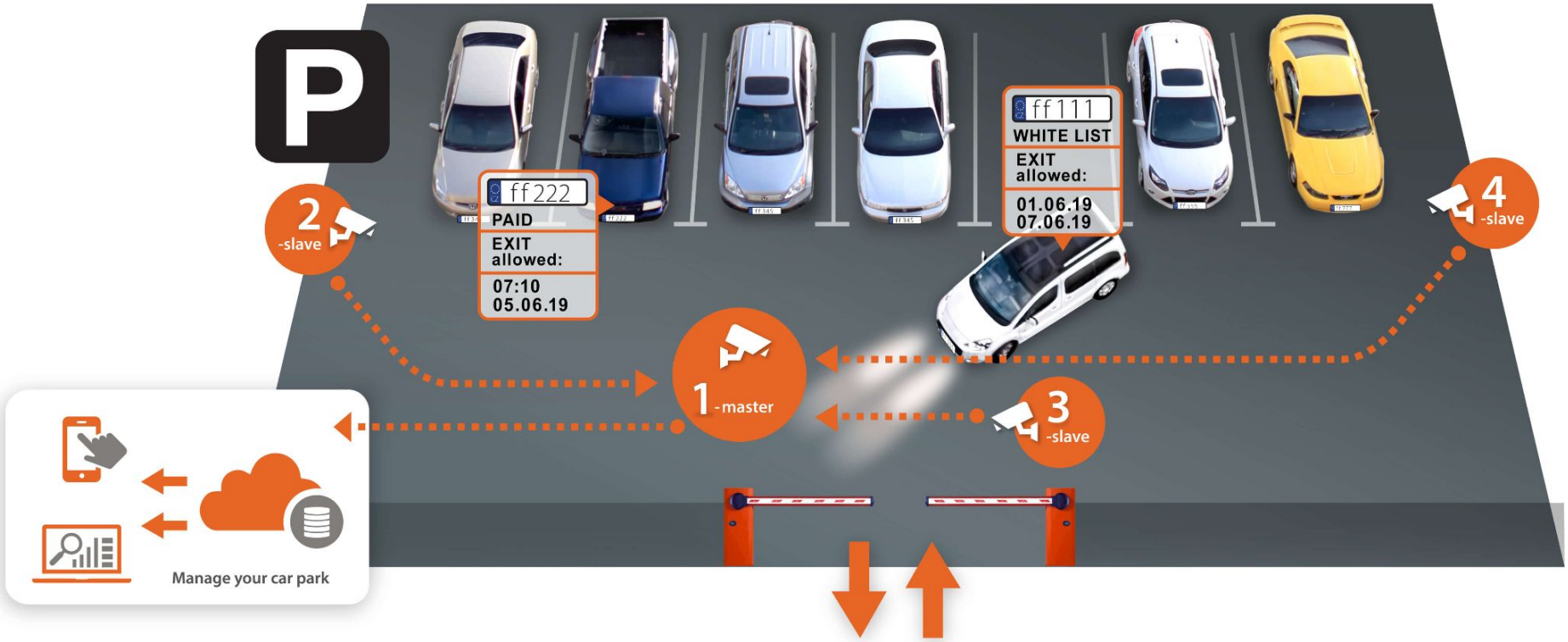
1. Firstly, the ANPR camera captures images that contain a license plate (video stream or photo).

2. Then, the plate is detected using machine learning and computer vision processes

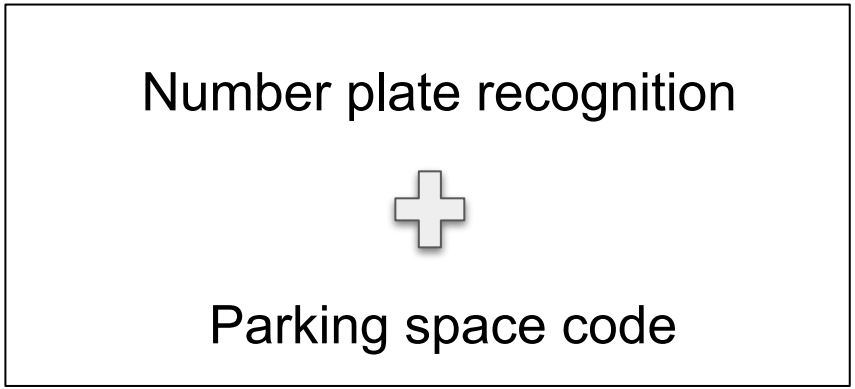
Optical Character Reader

OCR software (Optical Character Recognition or Optical Character Reader) is applied to the detected plate area to return the license plate number in text format. The converted number is usually stored in a database for integration with other IT systems.




P
ff222
PAID
EXIT allowed:
07:10 05.06.19
ff111
WHITE LIST
EXIT allowed:
01.06.19 07.06.19
2 -slave
4 -slave
1 -master
3 -slave
Manage your car park

Our goal



1. When a car enters, the camera in the entrance recognizes the number and sends the data to the server
2. The camera above the parking lot tracks the car and if the car parks in a specific area, the system assigns the space code to the car and save it in the system
3. Later, the owner can enter their car number and locate where the car is parked

Conclusion

- Focus on the Parking Space Counter
- Work on Number plate recognition

Thank you for your attention!