

# AUTOMATIC RUSSIAN NUMBER PLATE RECOGNITION SYSTEM



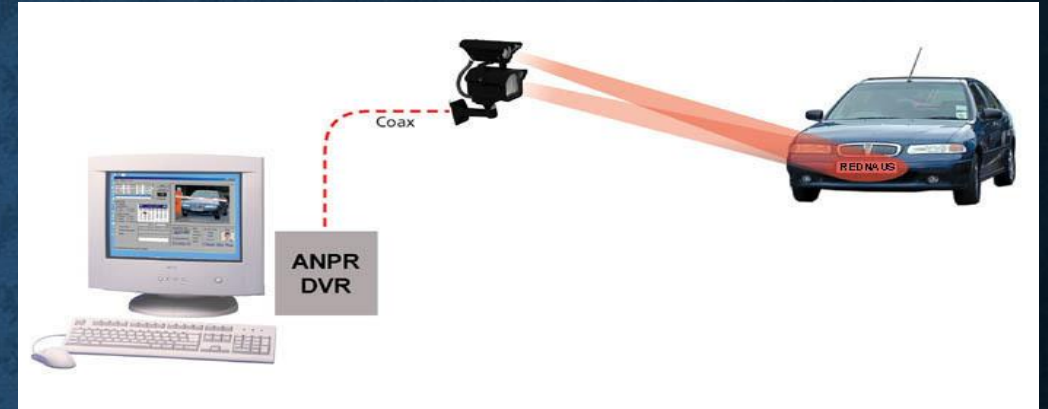
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# INTRODUCTION

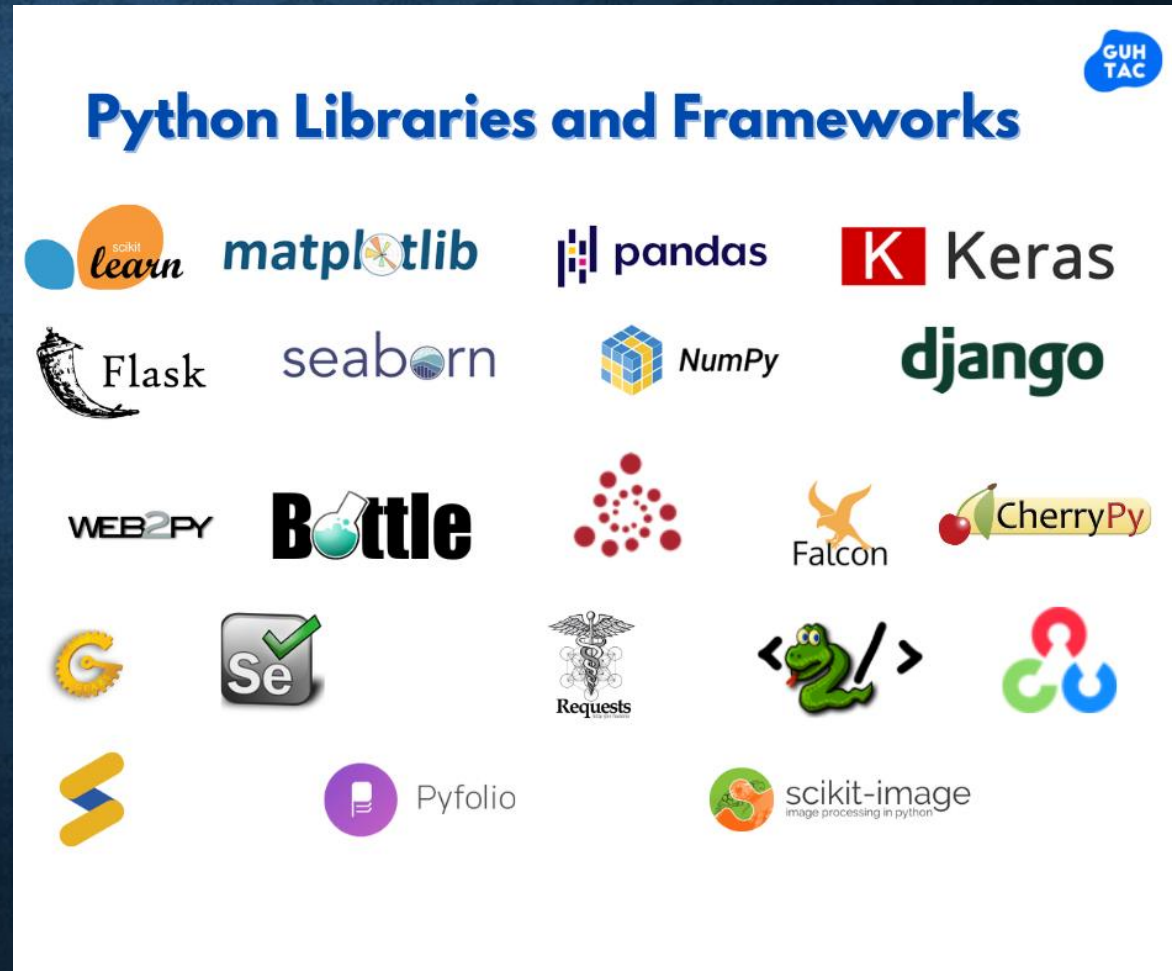


- License plate detection and recognition is the technology that uses computer vision to detect and recognize a license plate from an input image of a car.
- This approach is simplified to identify the rectangular number plate using the frame capturing approach. After the detection of the plate, the program displays a box around the number plate. The main focus is to locate the number plate correctly on the moving vehicle.
- In general, video surveillance systems are utilized for monitoring and security purposes. However, one difficult aspect of video surveillance is the detection of moving objects.
- As a result, automated systems have been created to perform a variety of detection duties, but the work of identifying unlawfully parked vehicles has generally been delegated to surveillance system operators.



# TECHNOLOGY USED

- ✓ Python
- ✓ Pycharm
- ✓ Libraries Used:
  - ✓ Tkinter
  - ✓ OpenCV
  - ✓ Haar Cascade XML File
  - ✓ Numpy
  - ✓ Flask
- GUI



# WORKING

This process is divided into three steps -

- **Detection of vehicle:**

The vehicle approaches and the process starts when the vehicle comes into the sight of camera. It senses the car's number plate and its presence is recorded.

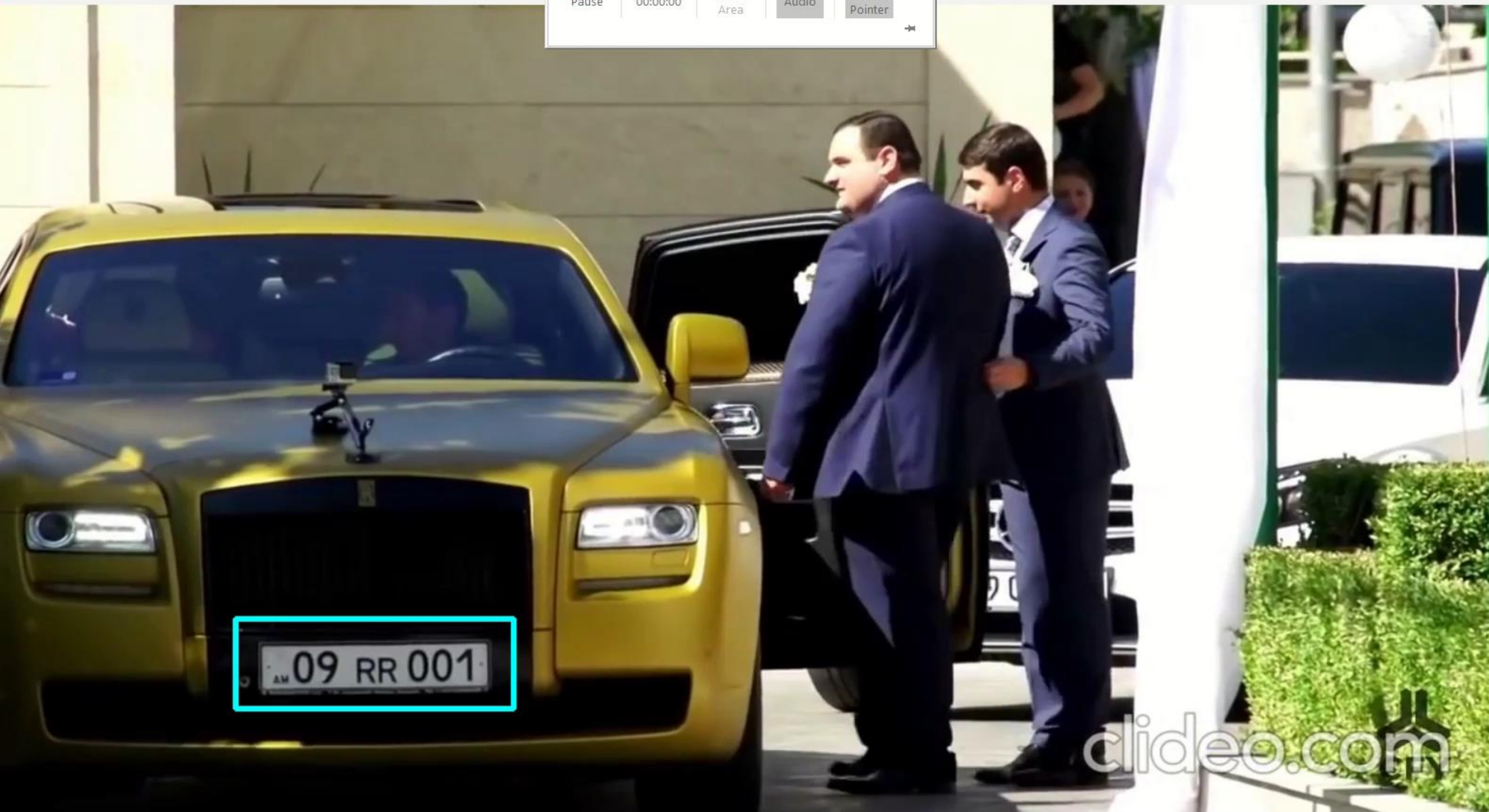
- **Capture of Images:**

The ANPR unit activates the illumination and takes pictures of the front and rear plates using ANPR camera. The images of the vehicle is read by the ANPR unit's image processing hardware or the frame grabber.

- **Process of recognition:**

The ANPR unit analyzes the image with image processing software. Processing software marks the frame of the license number plate frame by frame.





# **APPLICATIONS OF ANPR**

- Parking
- Access Control
- Motorway Road Tolling
- Border Control
- Journey Time Measurement
- Law Enforcement (Stolen cars)



# **ADVANTAGES**

- ANPR systems make use of registration plates that all cars already have, so there is no need to add transmitters or special signs to vehicles which results in saving towards the implementation of the system.
- The photograph of the car and the driver can be stored and retrieved if there is a need for evidence in disputes or crime situations
- Improves road safety
- Gives officers better information to work with
- Deterring terrorism

# DISADVANTAGES

- Firstly, the image of the number plate or of any object which is taken by the Optical Character Reader Technology may get blurred mainly due to the reason of motion blurring for which the picture seems to be hazy when uploaded in the database.
- Secondly, the technology often uses low-resolution images for which the images are not actually visible properly in every case.



# FUTURE SCOPE

- The number plate recognition system can be enhanced to record all types of number plates whatever their size and font type may be.
- The working of this model can be made faster as the technique which are implemented at this time are slow they usually take around 2 second to provide complete result.
- Could detect the fake Number plate and take the image of the driver and store it in the Database.
- Could detect the vehicle which run fast if they are breaking the traffic rules than we could put fine on the vehicle driver.

# CONCLUSION

- There is an immediate need of such kind of Automatic Number Plate Recognition system as there are problems of traffic, stealing cars etc.
- Using this technology, sharing and storage of vehicle data becomes very easy and fast. It will shorten the vehicle exit and entry time, thereby hastening the process of parking.
- Government should take some interest in developing this system as this system is very economical and eco-friendly, if applied effectively. This change will help in the progress of the nation.



# REFERENCES

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