

# Automatic License Number Plate Recognition

License plate detection is identifying the part of the car that is predicted to be the number plate. Recognition is identifying the values that make up the license plate.

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 technology applies in many areas. On roads, it is used to identify the cars that are breaking the traffic rules. In security, it is used to capture the license plates of the vehicles getting into and out of certain premises. In parking lots, it is used to capture the license plates of the cars being parked. The list of its applications goes on and on.

## Project idea:

The objective of this machine learning project is to detect and recognize the license number plate of a vehicle and read the license numbers printed on the plate.

This could be a good application for security scans, traffic monitoring, etc.

## Dataset:

This dataset is a subset of the Open Images Dataset. The annotations are licensed by Google LLC under CC BY 4.0 license. Some annotations have been combined or removed using Roboflow's annotation management tools to better align the

annotations with the purpose of the dataset. The images have a CC BY 2.0 license.

## Code:

```
import cv2
import imutils
import pytesseract
pytesseract.pytesseract.tesseract_cmd = 'C:\Program Files\Tesseract-OCR\tesseract'
image = cv2.imread('test.jpg')
image = imutils.resize(image, width=300)
cv2.imshow("original image", image)
cv2.waitKey(0)
gray_image = cv2.cvtColor(image, cv2.COLOR_BGR2GRAY)
cv2.imshow("greyed image", gray_image)
cv2.waitKey(0)
gray_image = cv2.bilateralFilter(gray_image, 11, 17, 17)
cv2.imshow("smoothened image", gray_image)
cv2.waitKey(0)
edged = cv2.Canny(gray_image, 30, 200)
cv2.imshow("edged image", edged)
cv2.waitKey(0)
cnts,new = cv2.findContours(edged.copy(), cv2.RETR_LIST,
cv2.CHAIN_APPROX_SIMPLE)
image1=image.copy()
cv2.drawContours(image1,cnts,-1,(0,255,0),3)
cv2.imshow("contours",image1)
cv2.waitKey(0)
cnts,new = cv2.findContours(edged.copy(), cv2.RETR_LIST,
cv2.CHAIN_APPROX_SIMPLE)
image1=image.copy()
cv2.drawContours(image1,cnts,-1,(0,255,0),3)
cv2.imshow("contours",image1)
cv2.waitKey(0)
i=7
for c in cnts:
    perimeter = cv2.arcLength(c, True)
    approx = cv2.approxPolyDP(c, 0.018 * perimeter, True)
    if len(approx) == 4:
        screenCnt = approx
        x,y,w,h = cv2.boundingRect(c)
        new_img=image[y:y+h,x:x+w]
        cv2.imwrite('./'+str(i)+'.png',new_img)
        i+=1
    break
```

```
cv2.drawContours(image, [screenCnt], -1, (0, 255, 0), 3)
cv2.imshow("image with detected license plate", image)
cv2.waitKey(0)
Cropped_loc = './7.png'
cv2.imshow("cropped", cv2.imread(Cropped_loc))
plate = pytesseract.image_to_string(Cropped_loc, lang='eng')
print("Number plate is:", plate)
cv2.waitKey(0)
cv2.destroyAllWindows()
```

image:



## Conclusion

You now have all the skills required to create a program that detects and recognizes license plates. Capture more images of vehicles and input them into the program then sit back and watch as the program does its magic.