**SOURCE CODE FOR LICENSE PLATE RECOGNITION**

import cv2

import numpy as np

import pytesseract

pytesseract.pytesseract.tesseract\_cmd = r'C:\Program Files\Tesseract-OCR\tesseract.exe'

img=cv2.imread(r"C:\Users\Nature\.spyder-py3\imgs31.png",1)

kernel=np.ones((5,5),np.uint8)

#converting image to gray image

grayImage = cv2.cvtColor(img, cv2.COLOR\_BGR2GRAY)

cv2.imshow("gray",grayImage)

#Localizing the license plate by passing the haar cascade(machine learning algorithm)

cascade=cv2.CascadeClassifier(r"C:\Users\Nature\.spyder-py3\licenseplate\_cascadefile.xml")

plates=cascade.detectMultiScale(img,1.25,5)

for (x,y,w,h) in plates:

cv2.rectangle(img,(x,y),(x+w,y+h),(0,255,0),2)

break

cv2.imshow("box",img)

#converting cropped image to gray image and creating binary images using threshold function

crop\_img = img[y:y+h, x:x+w]

grImage=cv2.cvtColor(crop\_img, cv2.COLOR\_BGR2GRAY)

(thresh, bwImage) = cv2.threshold(grImage, 130, 250, cv2.THRESH\_BINARY)

text = pytesseract.image\_to\_string(bwImage,config='--psm 11 -c tessedit\_char\_whitelist=ABCDEFGHIJKLMNOPQRSTUVWXYZ0123456789')

char\_box=pytesseract.image\_to\_boxes(bwImage)

#creating a function for insertion of license plate characters

def Convert(string):

listdata=[]

listdata[:0]=string

return listdata

letters=Convert(text)

#detecting characters and its features

pre,cnt=0,0

for b in char\_box.splitlines():

hImg,wImg=grImage.shape

b=b.split(' ')

print(b)

if(b[0]==letters[cnt]):

(x,y,w,h)=(int(b[1]),int(b[2]),int(b[3]),int(b[4]))

cv2.rectangle(crop\_img, (x,hImg-y), (w,hImg-h), (255,0,0),2)

print(b[0],":- Height:",(hImg-y)-(hImg-h)," Width:",(w-x)," Space:",(x-pre))

pre=w

cnt+=1

else:

continue

print("License plate dimensions:",hImg,"x",wImg)

cv2.imshow("window",crop\_img)

cv2.waitKey(0)

cv2.destroyAllWindows()