

LICENSE NUMBER PLATE RECOGNITION

OBJECTIVE:

This project aims to recognize license number plates. In order to detect license number plates, we will use OpenCV to identify number plates and python pytesseract to extract characters and digits from the number plates.

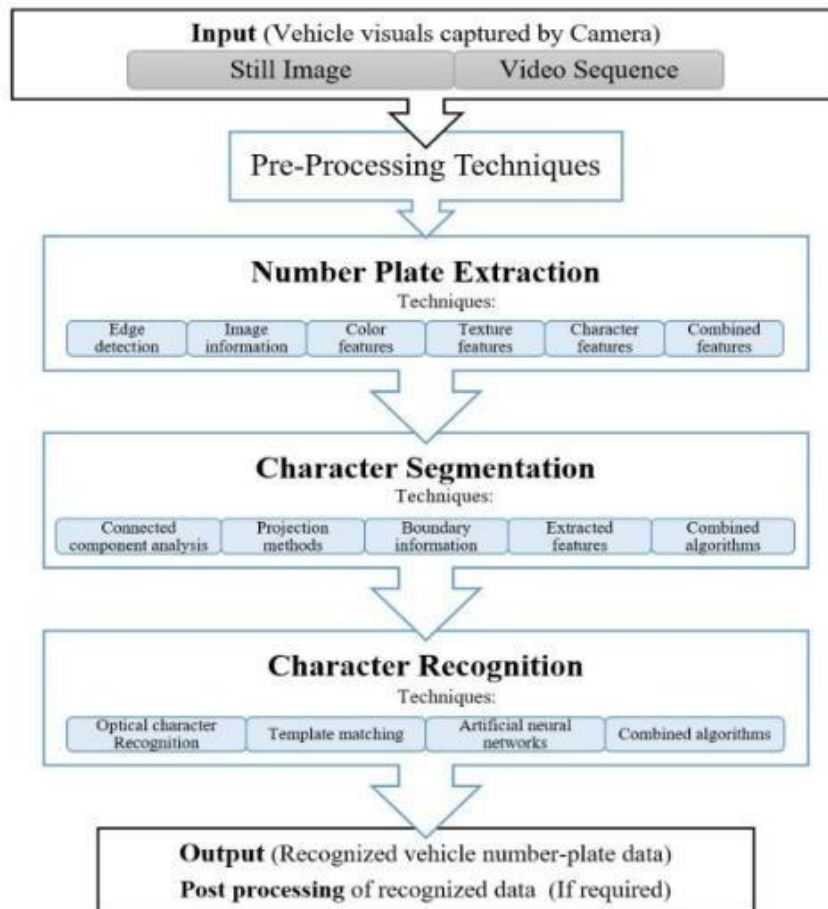
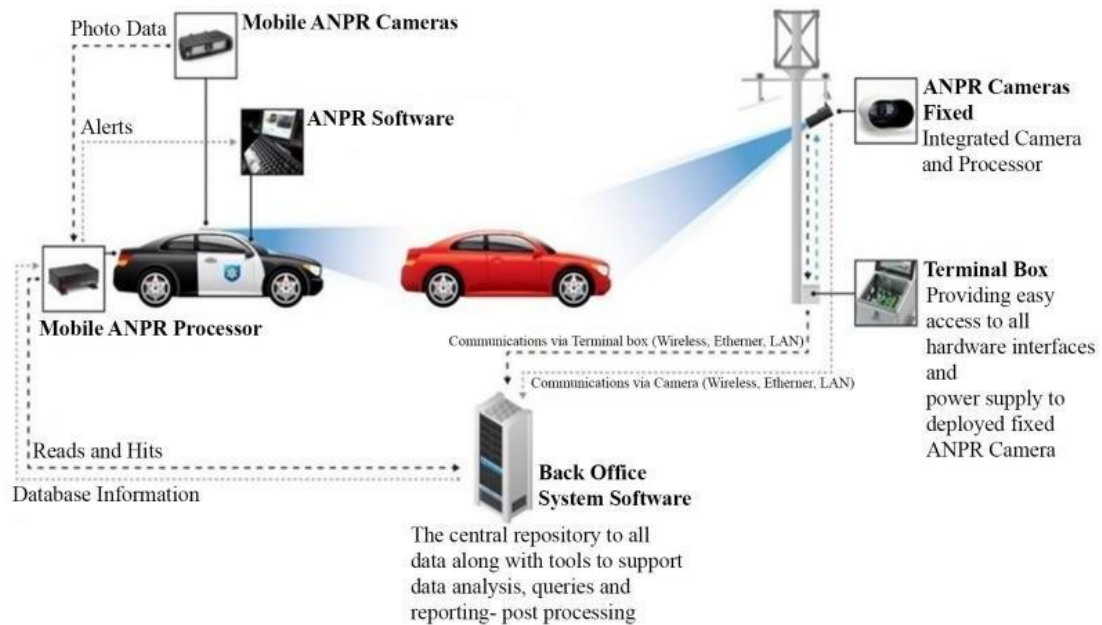
PROBLEM STATEMENT:

We considered the vehicle number plate as input image ,system should extract that number from the image and should search the database for that recognized number plate. It should recognize the number plate even in the low light or shadow like conditions.

SOFTWARE REQUIREMENT:

- **OPEN CV**
- **PYTESSERACT**

ARCHITECTURE DIAGRAM:



TESTING CODE:

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```
import numpy as np
import cv2
import imutils
import sys
import pytesseract
import pandas as pd
import time

while True:
    num_data = input("Enter : ")
    image = cv2.imread(num_data+'.jpg')
    image = imutils.resize(image, None)
    cv2.imshow("Original Image", image)
    gray = cv2.cvtColor(image, cv2.COLOR_BGR2GRAY)
    gray = cv2.bilateralFilter(gray, 11, 17, 17)
    edged = cv2.Canny(gray, 170, 200)
    cnts, _ = cv2.findContours(edged.copy(), cv2.RETR_LIST, cv2.CHAIN_APPROX_SIMPLE)
    cnts=sorted(cnts, key = cv2.contourArea, reverse = True)[:30]
    NumberPlateCnt = None
    count = 0
    for c in cnts:
        peri = cv2.arcLength(c, True)
        approx = cv2.approxPolyDP(c, 0.02 * peri, True)
        if len(approx) == 4:
            NumberPlateCnt = approx
            break
    mask = np.zeros(gray.shape,np.uint8)
    new_image = cv2.drawContours(mask,[NumberPlateCnt],0,255,-1)
    new_image = cv2.bitwise_and(image,image,mask=mask)
    cv2.namedWindow("Final_image",cv2.WINDOW_NORMAL)
    cv2.imshow("Final_image",new_image)
    config = ('-l eng --oem 1 --psm 3')
    pytesseract.pytesseract.tesseract_cmd = r"C:\Program Files\Tesseract-OCR\tesseract.exe"
    text = pytesseract.image_to_string(new_image, config=config)
    raw_data = {'date': [time.asctime( time.localtime(time.time()) )],
                'v_number': [text]}
    df = pd.DataFrame(raw_data, columns = ['date', 'v_number'])
    df.to_csv('data.csv')
    print(text)
    cv2.destroyAllWindows()
```

OUTPUT:

```
Python 3.9.5 (tags/v3.9.5:0a7dcdb, May 3 2021, 17:27:52) [MSC v.1928 64 bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
= RESTART: C:\Users\ajays\Downloads\car\Vehicle-Number-Plate-Reading-master\test
.py
KL 21S 8086 ]
□
```

INPUT IMAGE:



FINAL IMAGE:



APPLICATION:

Access control systems use it for a license plate- based entry/exit control. Modern highways use this for automated toll control .Traffic management systems use license plate recognition for identifying wanted vehicles ,detecting speeders and violators .It is used for congestion charging ,journey time measurement(JTMS),and more in smart cities.