

Vehicle Owner Recognition using Number Plate

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Abstract— The number plate recognition framework utilized for various applications, for example, unattended parking garages, security control of limited regions, traffic law implementation and programmed toll gathering. In such framework it catches the picture of vehicle number plate and distinguishes the numbers from the number plate consequently. By utilizing that it can recognizes the proprietor of that vehicle. This uses image processing techniques. The developed algorithm is based on two basic processing stages; locating the license plate and identifying the individual digits and characters in the license plate.

Key words: Image Processing, Segmentation, Erosion, Convolution, Character Recognition

I. INTRODUCTION

Number plate recognition could be a sort of automatic vehicle identification. A number plate is that the unique identification of vehicle. It's an image processing technique used to identify vehicles by its own number plates. Real time number plate recognition plays a very important role in maintaining enforcement and maintaining traffic rules. It's wide applications areas like toll plaza, lot, extremely security areas, boarder's areas etc. number plate recognition is nothing but to identify the number plate.

Number plate recognition has three major parts:

- Vehicle number plate extraction
- Character segmentation
- Optical Character Recognition (OCR).

It captures the image of number plate. The captured number plate is pre-processed to remove the noise then the result's passed to the segmentation part to segment the separately characters from the extracted number plate. The segmented characters area unit normalized associated passed to an OCR algorithm. Eventually the optical character info is converted into encoded text. The characters area unit recognized using template matching. The ultimate output should be within the sort of string of characters. Optical Character Recognition (OCR) is wide used technology that converts scanned images of written text, written text characters into machine encoded text information like ASCII. It may be recognized written characters and written characters however the performance is directly dependent from the standard of input documents. The OCR performed offline[1].

II. PROPOSED SYSTEM

In existing system it found that there are some factors that have an effect on the effectiveness of template matching supported OCR technique i.e. font type, noise in image, tilting etc. as a result of higher than factors the captured image isn't clear, therefore once extracting characters & numbers from number plate the output contains immaterial information that does not match with information present in info.

The first step is capturing the image approximately one meter from the number plate with camera. The aim is to get a transparent image while not distortion. The second step is cropping the number from captured image. The cropped image is that the input for the character recognition. The last step is character recognition. The OCR technique is employed to recognize the character.

III. METHODOLOGY

In this system it capturing clear picture of number plate. From number plate picture it extract characters and numbers by using number plate extraction techniques in which the captured image will be in RGB format that will be converted into grayscale image and into binary image. After the number plate extraction next step is character segmentation. In character segmentation the numbers which are present in the image are extracted individually i.e. crop out the number plate characters separately.

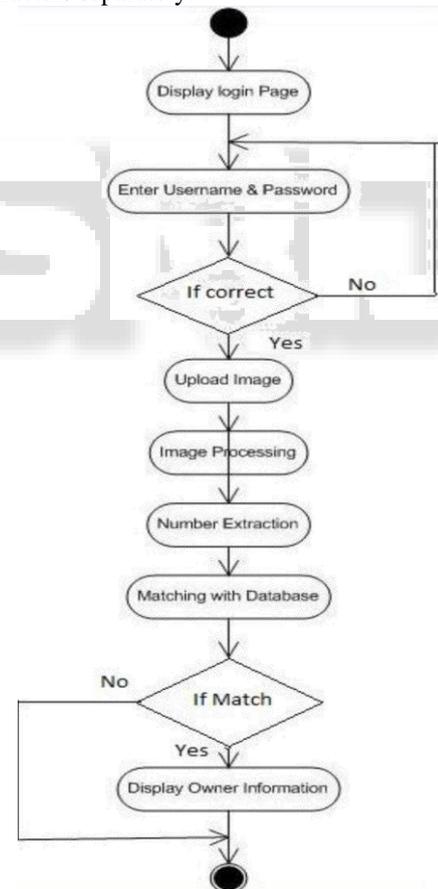


Fig. 1: Flow diagram of vehicle owner recognition system.

Character recognition final step in vehicle license plate detection and recognition is checking of single characters and numbers. This step is very important for example at the entrance to car-park or for the police to search stolen cars. Single elements on license plate must be segmented and analyzed. The analysis is called as Optical Character Recognition (OCR).

In character recognition the segmented characters of License plate is converted into text file. The text file characters are searched in the database till highest matching found. If the number is present in the database then all information of owner will be display on the screen which contains owner name, address, blood group, date of birth, contact number etc. flow of this process shown in Figure 1.

A. Number Plate Extraction

The captured image is in capital RGB format & converted into grayscale image and binary image.



Fig. 2(a): Extracted license plate region



Fig. 2(b): Binarized image

B. Character Segmentation

The character segmentation part any segments the character one by one from the extracted number plate. From input image the primary method are going to be to crop out the number plate characters from getting down to the ending purpose leaving all the additional wide areas from top to below and from right to left because it is. Characters are equally slot in the plate region. for straightforward comparison of the input character with the character within the database the result's normalized into the set as the size of the images in the database [2].



Fig. 3: Segmented numbers and characters

C. Optical Character Recognition

The optical character recognition is a recognition technique during which the input is an image and also the output is string of character. OCR is a method that separates the various characters from one another taken from an image. Template matching is one among the approaches of OCR. The cropped image is compared with the template information keep in database. OCR automatically identifies and acknowledges the characters with none indirect input. The characters on the plate have uniform fonts then the OCR for number plate recognition is a smaller amount complicated as compared to alternative ways.

D. Template Matching

Template matching affects the accuracy of Automatic number plate recognition. If template matching is done accurately then this application provides owner information such as owner name, date of birth, age, permanent address, contact number, vehicle type, blood group, Aadhar card number etc. Thus using all this information we can find the owner of vehicle.

IV. CONCLUSION

This paper presents an image processing technique, designed for the extraction of number from number plate. And also this paper provides the information about OCR technique & template matching as well as character segmentation.

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