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MOVING VEHICLE REGISTRATION PLATE DETECTION

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Abstract: -Video surveillance device is used for safety motive in addition to tracking structures. But Detection of shifting items is a hard part of video surveillance. Nowadays because of lowering expenses of excessive first-rate video surveillance structures, human hobby detection and monitoring has turned out to be an increasing number of impractical. Accordingly, automatic structures were designed for severa detection tasks, however the mission of detecting illegally parked automobiles has been left in large part to the human operators of surveillance structures. We can extract the license plate from an image using some computer vision techniques and then we can use Optical Character Recognition to recognize the license number. Detected Number Plate is saved withinside the database. .

Key-Words:- License plate recognition,OpenCV, python.

I. INTRODUCTION

Registration plate Recognition is a combination of number plate detection, character segmentation and recognition technologies used to identify vehicles by their registration plates. Since only the registration plate information is used for identification, this technology requires no additional hardware to be installed on vehicles. The registration plate recognition systems have two main points: the quality of registration plate recognition software with recognition algorithms used and the quality of imaging technology, including camera and lighting. Elements to be considered: maximum recognition accuracy, faster processing speed, handling many types of plates, managing the broadest range of image qualities & achieving maximum distortion tolerance of input data..

II. PROPOSED SYSTEM

The main objective of Moving vehicle number plate detection is to detect the license Plate from the video and extract the characters from the detected License Plate.

The method of implementation is divided into 3 parts: number plate detection, character segmentation and character recognition.

License Plate detection:A video is provided as an input to the system , the video is converted into frames and each frame is sent into the model to detect the license plated from it.

Character Segmentation: The detected license plate coordinates are given to the character segmentation method along with the frame. Now the frame is preprocessed and each character of the license plate are segmented using opencv.

Character Recognition: A neural network model is trained which is capable of converting input images to digital letters and store them into the database.

III. LITERATURE REVIEW

Computer vision and deep learning algorithms for license plate recognition play an important role in video analysis of the number plate detection. Therefore they form the core modules in any moving vehicle registration late detection system. The system for license plate recognition includes a camera, a frame grabber, a computer, and custom designed software for image processing, analysis and recognition. Vehicle identification has been an active research for over the last few years. A number of researches have been carried out to identify the type of vehicle such as a car, truck, scooter or motorcycle.

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IV. METHODOLOGY

In this paper we have proposed a system which will extract the license plate from an image using some computer vision techniques and then we can use Optical Character Recognition to recognize the license number.Approach of extracting and detecting the license plate system is as follows:-

- Find all the contours in the image.
- Find the bounding rectangle of every contour.
- Compare and validate the sides ratio and area of every bounding rectangle with an average license plate.
- Apply image segmentation in the image inside the validated contour to find characters in it.
- Recognize characters using an OCR.

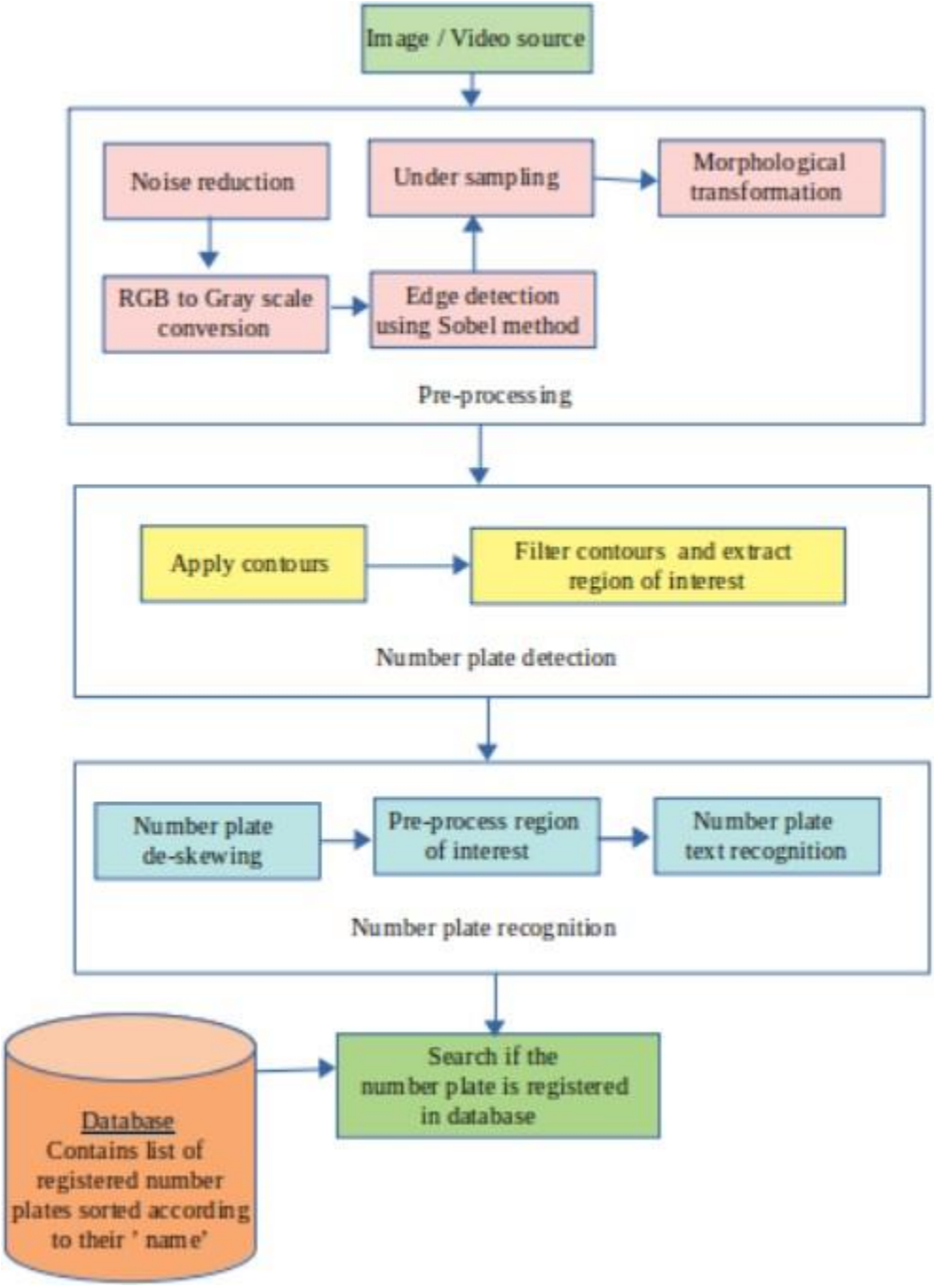

Figure 1. FLOWCHART

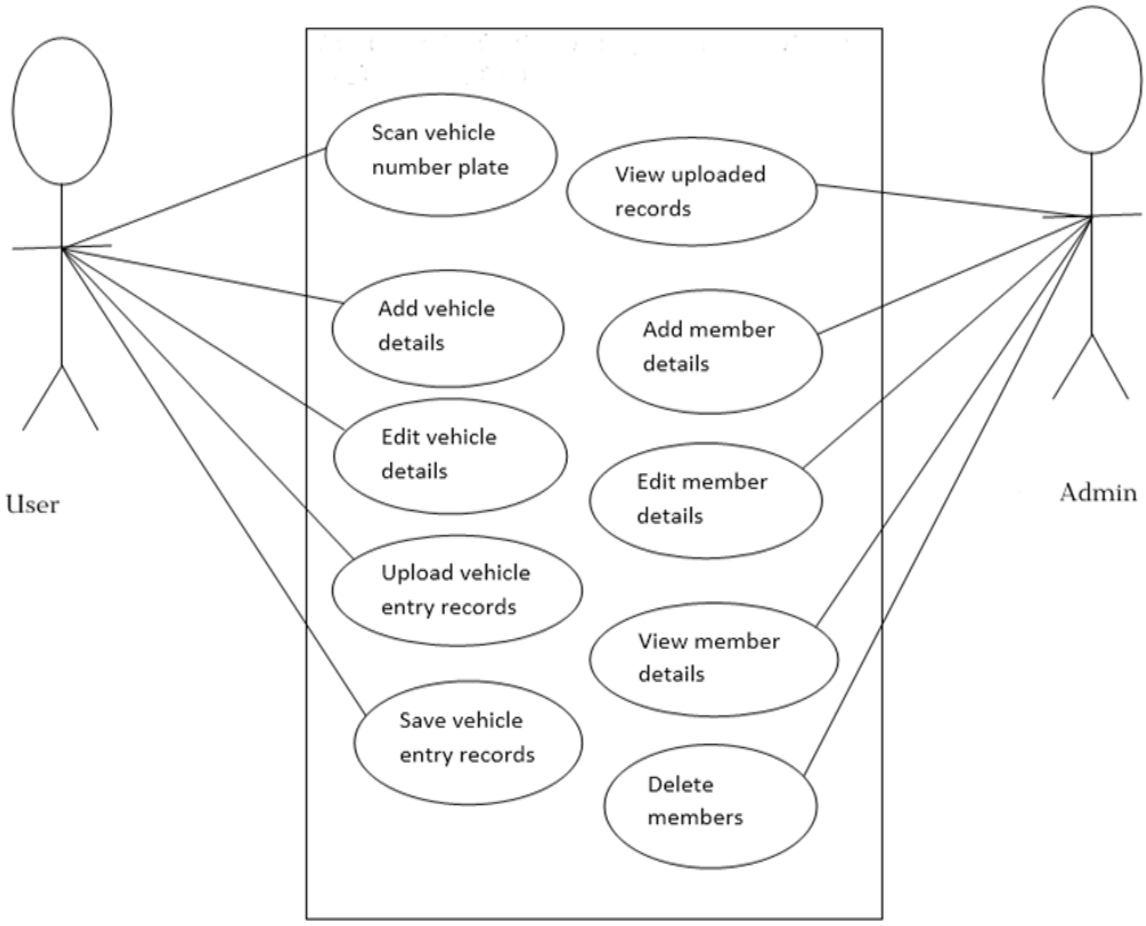

Figure 2. UML

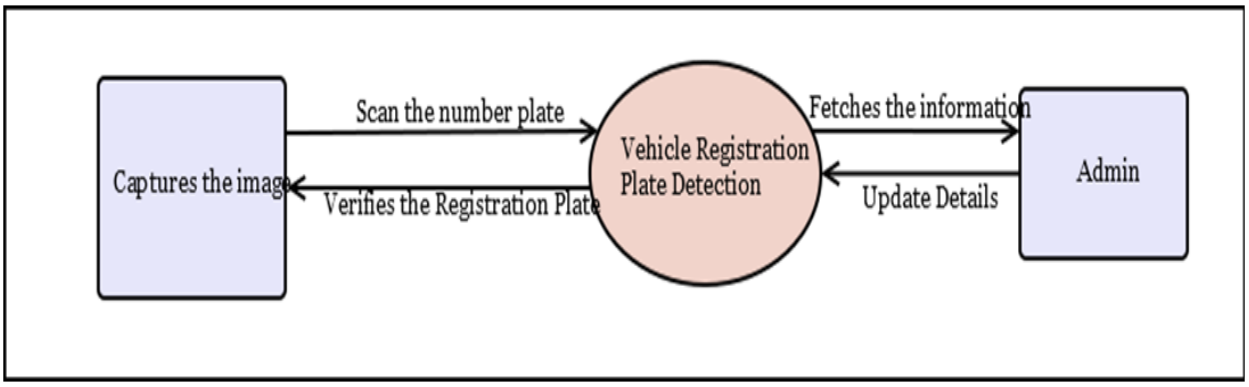

Figure 3.1. Level 0 Data Flow Diagram

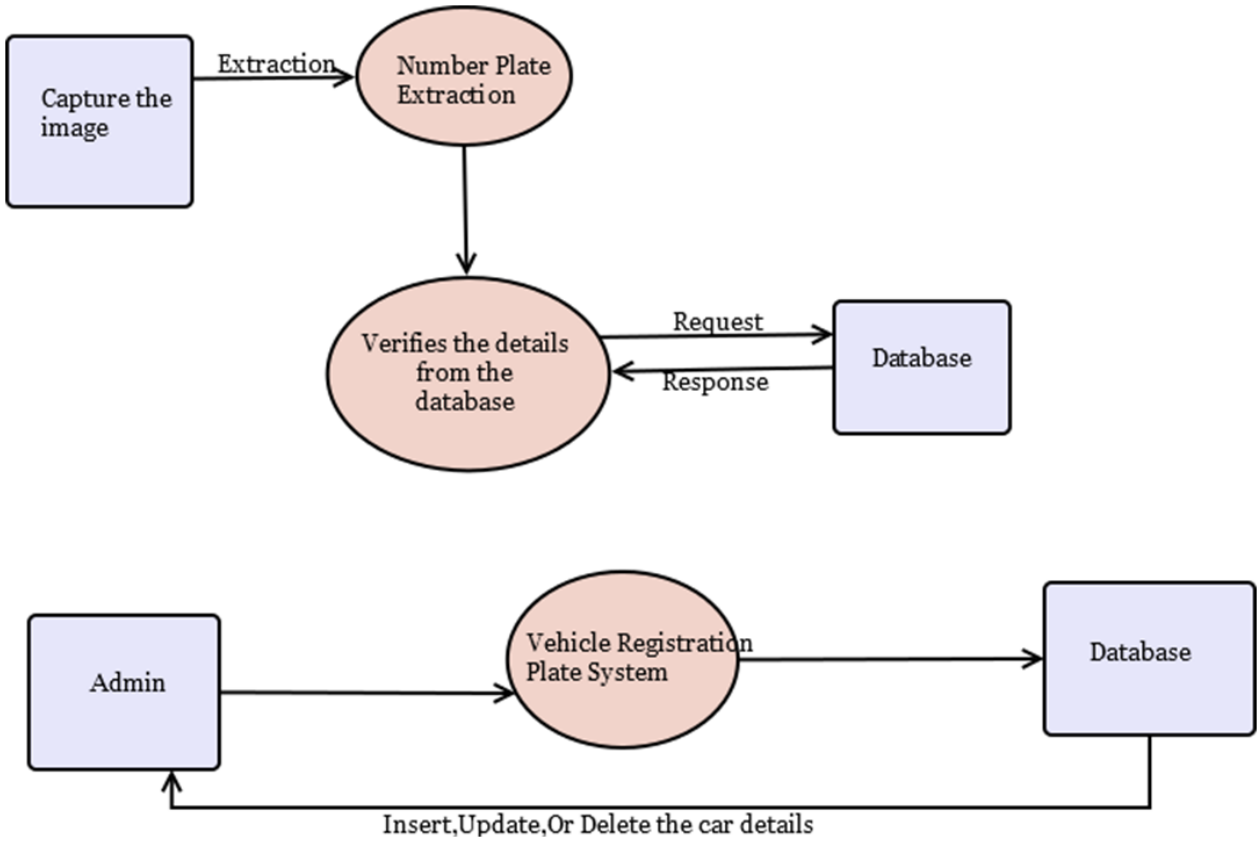

Figure 3.2. Level 1 Data Flow Diagram

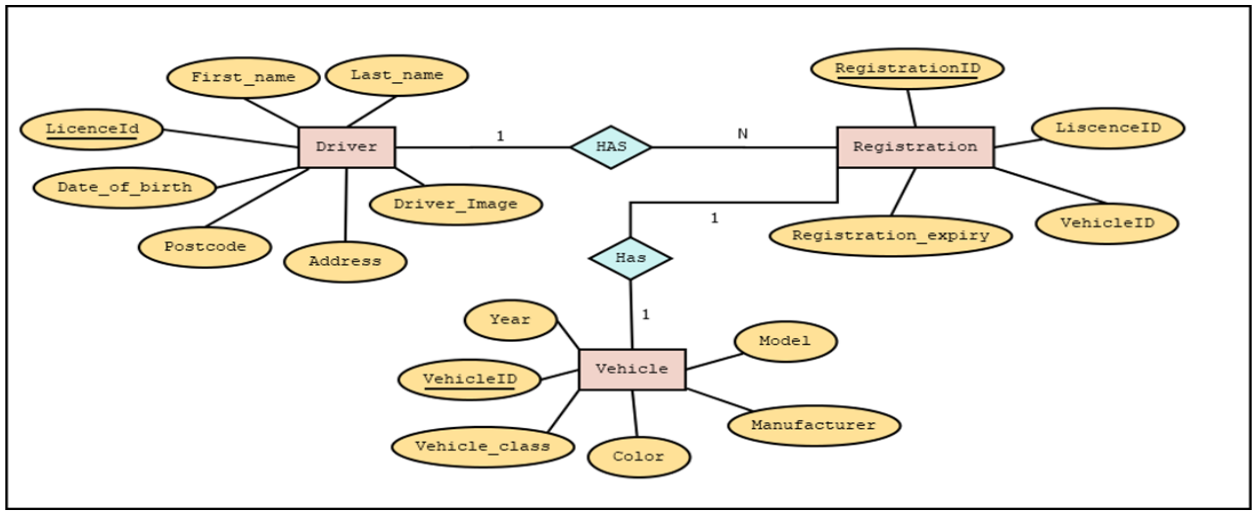

Figure 4 ER diagram

The method of implementation is divided into three parts:number plate detection,character segmentation and character recognition. Initially the pre-trained model is loaded into the system and a video is provided as an input to the system , the video is converted into frames and each frame is sent into the model to detect the license plated from it. After detecting the license plates, the license plate coordinates are given to

the character segmentation method along with the frame. Now the frame is preprocessed and each character of the license plate is segmented using OpenCV. And then a neural network model is trained which is capable of converting input images to digital letters and storing them into the database.

V. RESULT DISCUSSION

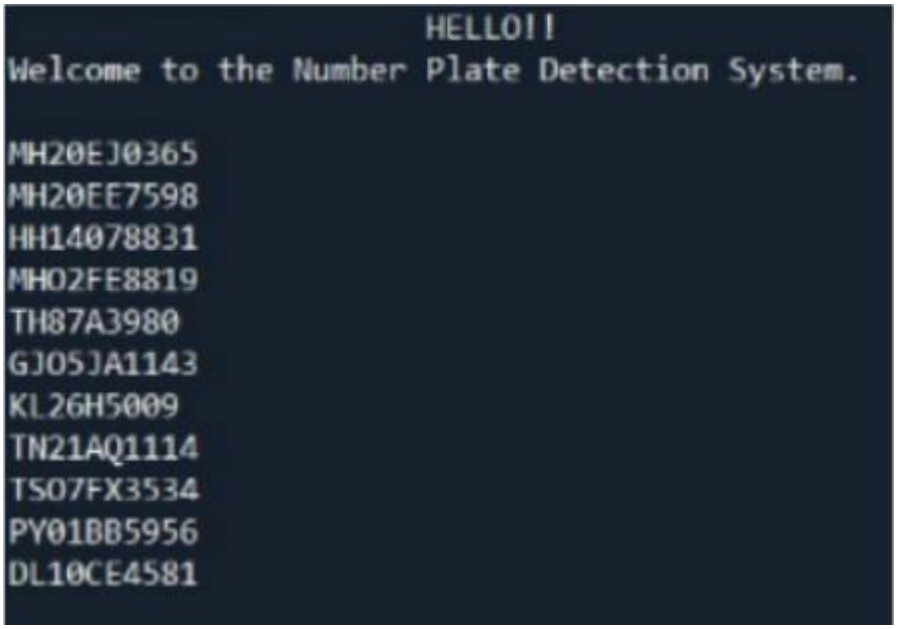

Figure 5. a.Detected Number Plate

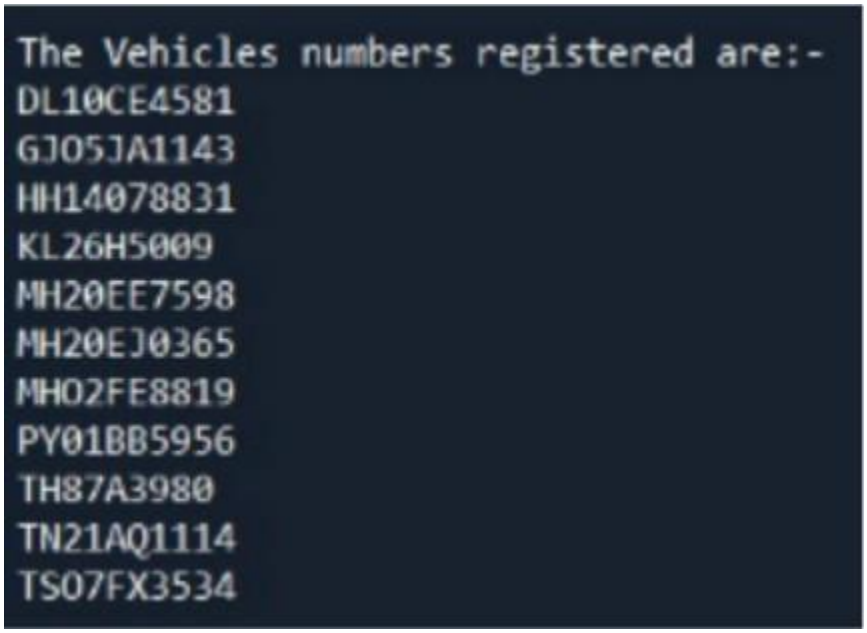

Figure 5. c.Success

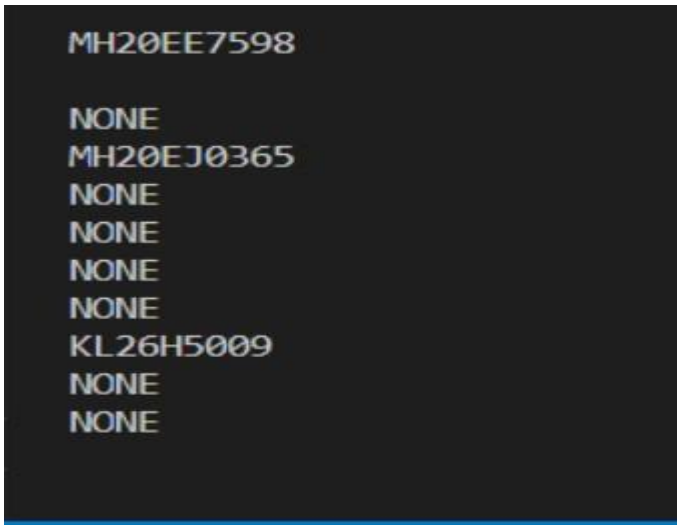

Figure 5. d.Scanning

Figure 5. e.Failure

VI. CONCLUSION

Due to the increasing number of vehicles nowadays, the modern city needs to establish the effective and efficient automatic traffic system for the management of the traffic law enforcement. Number plate recognition plays a significant role in this condition. Number plate recognition is an image processing technique to extract the image of a license plate on a vehicle taken by a digital camera or a grayscale digital camera.

The Number Plate Recognition system recognizes characters on license plate through the combination of various techniques and algorithms, including image pre-processing, object detection, character segmentation and recognition. It consists of a camera to detect the number plate object and processing unit to process and extract the characters and interpret the pixels into numerically readable characters

Our work mainly focuses on the detection of the license plate of a moving vehicle which uses computer vision techniques to detect the license Plate and various models to extract characters with more accuracy and we can view the information of the vehicle anytime with the help of a database.

VII. ACKNOWLEDGMENT

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