

Multiple Vehicle Automatic Number Plate Recognition

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Abstract - This is a highly accurate system for automatic multiple number plate recognition that can be used as a basis for many real-world ITS applications. The system is designed to deal with unclear vehicle plates, variations in weather and lighting conditions, different traffic situations, and high-speed vehicles or different vehicles. This paper addresses various issues by presenting proper hardware platforms along with real-time, robust, and innovative algorithms.

Key Words: ANPR, Multiple Number Plate Detection, Vehicle Number plate recognition, Tesseract OCR, Vehicle Security System, Vehicle Tracking System

1. INTRODUCTION

Vehicle plate detection and recognition appear in vast variety of applications, including travel time estimation, car counting on highways, traffic violations detection, and surveillance applications. Traffic monitoring cameras are mounted four to seven meters above the street level. Plate recognition range, where the cameras are able to capture the vehicles plates with sufficient resolution, starts from 20 to more than 50 meters away from the camera location. This range depends on the camera resolution and the lens mounted on the camera. At these heights and distances, vehicles plates are not as clearly visible as in other applications such as parking fee payment systems.

High camera installation point causes some difficulties against the correct detection of vehicles plates. Vehicles with dirty plates make the situation even more complicated. On the other hand, number plate is the only trustworthy identity of a vehicle in Intelligent Transportation Systems (ITS) and correct vehicle identification depends highly on the accuracy of automatic number plate recognition (ANPR) systems.

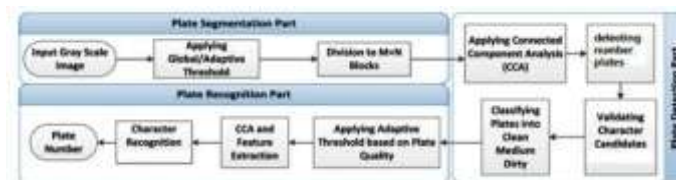
2. PROBLEM STATEMENT

In existing system unclear vehicle plates, recognizing multiple vehicle plates, variations in weather and lighting conditions, different traffic situations, and high-speed vehicles are identified issues and this paper addresses those various issues by presenting proper hardware platforms along with real-time, robust, and innovative algorithms.

3. PROPOSED SYSTEM

A video is uploaded on a webpage to find number plates in the video. The detection program is run on celery execution cycle using Redis server to see asynchronous results of how frames are generated and the detection of number plates. The video uploaded is taken as input to the program. The video is converted to frames. Then each frames are used to find edges of a number plates.

The detected number plate is painted black to avoid detecting the same plate again and then the modified frame is checked for another number plate that might exist in the same frame. If no other number plates are detected then the number plates already detected are sent for further processing. The number plate is processed by Tesseract OCR to find the alphanumerical characters



4. CONCLUSIONS

The proposed system will successfully solve the problem of accurately detecting and recognizing multiple vehicle number plates automatically in multiple difficult conditions. The recognized number plate data can further be

used to keep track of vehicles, creating security for parking lots, and other busy places where multiple vehicles move together in a large areas.

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