

# Review Paper on Vehicle Detection and Tracking System

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**Abstract:** Nowadays eventually road accidents are rapidly increasing due to the irresponsibility of citizens regarding traffic rules like over speed, not wearing helmet, rash driving, overloading of transport vehicles and also not having proper indicators lights or indicator cloth especially for the sugarcane loaded trucks or tractors etc... This problem needs to be reduced by proper monitoring on vehicle motion for 24X7 hours. The project aim proposes an accurate and effective moving vehicle detection method which can be used in complex traffic environment. Vehicle detection process on road is used for vehicle tracking, counts the vehicle, average speed of each individual vehicle, traffic analysis, vehicle categorizing objectives, detects the highlighter cloth of vehicles like tractor, truck etc. It also detects the indicator of the vehicles.

**Keywords** — highlighter cloth, vehicle detection, CCTV.

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## I. INTRODUCTION

As increase in road accidents in the urban areas which cause huge loss of lives as well as even physically disabled. For this problem continuous monitoring on vehicles is needed. For this vehicle detection and maintain its data record in the system needed to be happened. In this system vehicle detection will play and major role and an initial step of the system.

In vehicle detection the video of the vehicle will be captured by the CCTV camera which will also act as a smart traffic survey. From this video the vehicle clear images are captured and further process on the image is processed on it. Here we are using the image processing technology to overcome this problem.

## II. BACKGROUND

problem statement, we all recognised the basic

As further we maintained our study regarding this implementation and already existing system. The already existing system have some limitations like overload detecting, indicators identifying etc do not exist in present system. For implementation these things we need to further continue our study regarding the problem statement.

## III. LITERATURE SURVEY

**Advanced Research Journal in Science, Engineering and Technology.** Introduced The difficulty of obtaining the initial background there is the inaccuracy of real-time background update and the difficulty of controlling the update speed in moving vehicle detection of traffic video. The project aim proposes an accurate and effective moving vehicle detection method which cans be used

in complex traffic environment. Vehicle detection and tracking system plays an important role for civilian and military applications such as in highway traffic surveillance control, management and urban traffic planning. Vehicle detection process on road is used for vehicle tracking, counts the vehicle, average speed of each individual vehicle, traffic analysis and vehicle categorizing objectives and may be implemented under different environments changes. In this review, we present a concise overview of image processing methods and analysis tools which used in building these previous mentioned applications that involved developing traffic surveillance systems. More precisely and in contrast with other reviews, we classified the processing methods under three categories for more clarification to explain the traffic system.

**Bhargava R, Sanchit Kumar Dikshit, Pranshu Pratyush and Shubham Yadav, et al** provides the vehicle number plate recognition system plays a crucial role in traffic control and helps to avoid traffic incidents/crimes. In this system, vehicle numbers are identified and later they are used to retrieve vehicle owner details for verification purposes. This system is used for capturing the vehicle number and obtaining the owner's information from a pre-registered database. Thus, the image processing technique is used to recognize the number plate and the recognition process helps display the owner's detail. Here the visual contents are used to recognize alphabets and numeral characters of the vehicle license number. This system is implemented using a mobile application. The main objective of the project is to find the owner details digitally without doing it manually.

**M.N Tondra and Ebrahim Karami, et al** introduced

Object detection is a computer technology related to computer vision and image processing that deals with detecting instances of semantic objects of a certain class in digital images and videos. Machine learning can be used to detect and classify objects in images and videos. Vehicle detection, also known as computer vision object recognition, is basically the scientific methods and ways of how machines see rather than human eyes. Vehicle detection is one of

the widely used features by companies and

organizations these days. We can use computer vision to detect different types of vehicles in a video or real-time via a camera. Vehicle detection and tracking finds its applications in traffic control, car tracking, creating parking sensors and many more

**Prem Kumar Bhaskar and Suet-Peng Yong, et al** this paper presents Vehicle detection and tracking plays an effective and significant role in the area of traffic surveillance system where efficient traffic management and safety is the main concern. In this paper, we discuss and address the issue of detecting vehicle / traffic data from video frames. Although various researches have been done in this area and many methods have been implemented, still this area has room for improvements. With a view to do improvements, it is proposed to develop a unique algorithm for vehicle data recognition and tracking using Gaussian mixture model and blob detection methods. First, we differentiate the foreground from background in frames by learning the background. Here, foreground detector detects the object and a binary computation is done to define rectangular regions around every detected object. To detect the moving object correctly and to remove the noise some morphological operations have been applied. Then the final counting is done by tracking the detected objects and their regions.

#### IV. EXISTING SYSTEM

The existing system or traditional system contains the basic detection of vehicles like count of vehicles, identifying vehicles parking in no parking zone, violating any basic traffic rule etc. In this system the detection of vehicle is even not clear due to light intensity, weather conditions or any obstacles.

#### V. PROPOSED METHODOLOGY

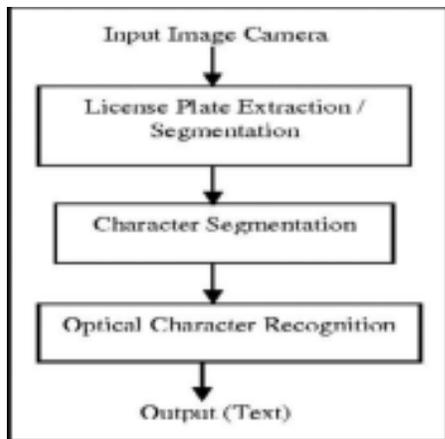
The "Vehicle Detection and Tracking System" consists of the standard six main modules in an LPR system, viz. Estimation of vehicle speed, Image acquisition, License plate extraction, License plate segmentation, and License plate recognition.

**Step 1:** The first task acquires the image. **Step 2:**

The second task extracts the region that contains the license plate.

**Step 3:** The third task isolates the characters, letters, and numerals (total of 10 digits), as in the case of Indian License Plates.

**Step 4:** The last task identifies or recognizes the segmented characters.



**Fig: Block Diagram**

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**VII. CONCLUSION**

This paper provides summarized study of the techniques that are used in vehicle detection and tracking system. The vehicle detection system detects the vehicle characteristics like colour, company, model and the proposed system will also track the speed of the vehicles. and many much more facility regarding the vehicle detection and tracking system. We have used different algorithms to obtain good result. As a future work, this can be extended to detect the overload in sugarcane trucks and tractors.

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