**vehicle detection and speed detection using opencv and python**

**Abstract:**

An intelligent traffic management and surveillance is the basic need for the smart city development in India. This includes the detection of moving vehicles, estimation of their speed and detection of the speed limit violation and its registration number. This paper proposes an efficient and novel approach for the detection of moving vehicles as well as estimation of their speeds by using a single camera in daylight or properly illuminated environment. The proposed approach detects and tracks the vehicle passing through the surveillance area and keeps the record of vehicles position. In this paper vehicles tracking is based on the relative positions of the vehicles in consecutive frames. This information may be used in the Automatic Number Plate Recognition (ANPR) System for selection of those key frames where speed limit violation occurs. The average detection accuracy achieved by proposed approach is about 87.7%. The proposed approach uses cropping operation to minimize the scope of any false positive detection on both sides of road.

**SYSTEM ANALYSIS**

**Existing System:**

In recent times, there has been a drastic change in people’s lifestyles and with an increase in incomes and lower cost of automobiles there is a huge increment in the number of cars on the roads which has led to traffic and commotion. The manual efforts to keep people from breaking traffic rules such as the speed limit are not enough. There is not enough police and man force available to track the traffic and vehicles on roads and check them for speed control. Hence, we require technologically advanced speed calculators installed that effectively detect cars on the road and calculate their speeds.

**Disadvantage:**

1. Less Accuracy.

**Proposed System:**

we can use OpenCV software which uses the Haar cascade to train our machine To implement the above idea two basic requirements, need to be met which are the effective detection of the cars on roads and their velocity measurement. For this purpose to detect the object, in this case the car. we have developed a Haar cascade to detect cars on the roads, whose velocities are then measured using a python script. The real-time application of this project proves to be much useful as it is easy to implement, fast to process and efficient with low cost development. Also, the tool might be useful to apply in simulation tools to measure velocities of cars. This can be further developed to identify all kinds of vehicles as well as to check anyone who breaks a traffic light.

**Advantage:**

1. More Accuracy.

**SYSTEM REQUIREMENTS**

**HARDWARE REQUIREMENTS:**

# Processor - Pentium –IV

* Speed - 1.1 Ghz
* RAM - 256 MB(min)
* Hard Disk - 20 GB
* Key Board - Standard Windows Keyboard
* Mouse - Two or Three Button Mouse
* Monitor - SVGA

**SOFTWARE REQUIREMENTS:**

* Operating System - Windows7/8
* Programming Language - Python (python 3.6.3)