**Helmet Detection using Machine Learning and Automatic License**

**Plate Recognition**

**ABSTRACT**

Motorcycle accidents have been rapidly growing through the years in many countries. In India more than 37 million people use two wheelers. Therefore, it is necessary to develop a system for automatic detection of helmet wearing for road safety. Therefore, a custom object detection model is created using a Machine learning based algorithm which can detect Motorcycle riders. On the detection of a Helmetless rider, the License Plate is extracted and the License Plate number is recognized using an Optical Character Recognizer. This Application can be implemented in real-time using a dataset as input.

**EXISTING SYSTEM**

Existing system monitors the traffic violations primarily through CCTV recordings, where the traffic police have to look into the frame where the traffic violation is happening, zoom into the license plate in case rider is not wearing helmet. But this requires lot of manpower and time as the traffic violations frequently and the number of people using motorcycles is increasing day-by-day. What if there is a system, which would automatically look for traffic violation of not wearing helmet while riding motorcycle/moped and if so, would automatically extract the vehicles’ license plate number. The License plate extraction code extracts only from the motor bikes which has a rider who is not wearing helmet and discards the License plate of the motor bikes whose rider has helmet. The OCR model is able to detect and recognize the License plates present in an image with an accuracy up to 85 percent.

**Disadvantages of Existing System:**

1. Accuracy is less

**PROPOSED SYSTEM**

In This Paper, we a system to detect moving objects using a KNN classifier over the motorcyclist’s head to classify helmet. These models were proposed based on statistical information of images and had a limitation to the level of accuracy that could be achieved. With the evolution of neural networks and deep learning models there was further improvement in the accuracy of classification. Introduced a convolutional neural network (CNN) based method for object classification and detection. Use a CNN for classification of helmeted and non-helmeted riders. Although they use CNN, their helmet detection accuracy is poor with limitations to helmet color and multiple riders on a single motorcyclist. For real-time helmet detection, there is a need for accuracy and speed. Hence a DNN based model You Only Look Once (YOLO) was chosen. YOLO is a state-of-the-art, real-time object detection system. YOLOv3 is extremely fast and accurate and is a huge improvement over the previous YOLO versions.

**Advantages of Proposed System:**

1.Accuracy is more

**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