Traffic Rule Violation Detection Computer Vision (Winter 2022)

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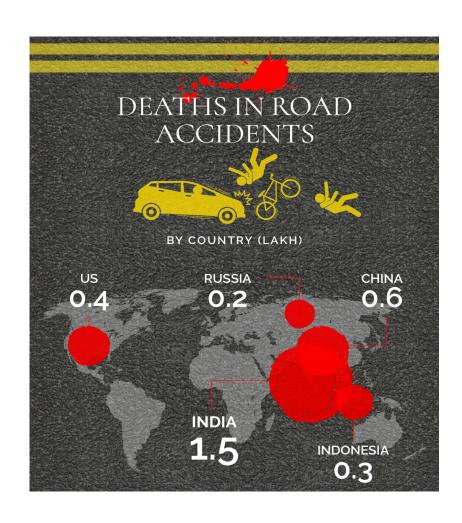


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Problem Statement





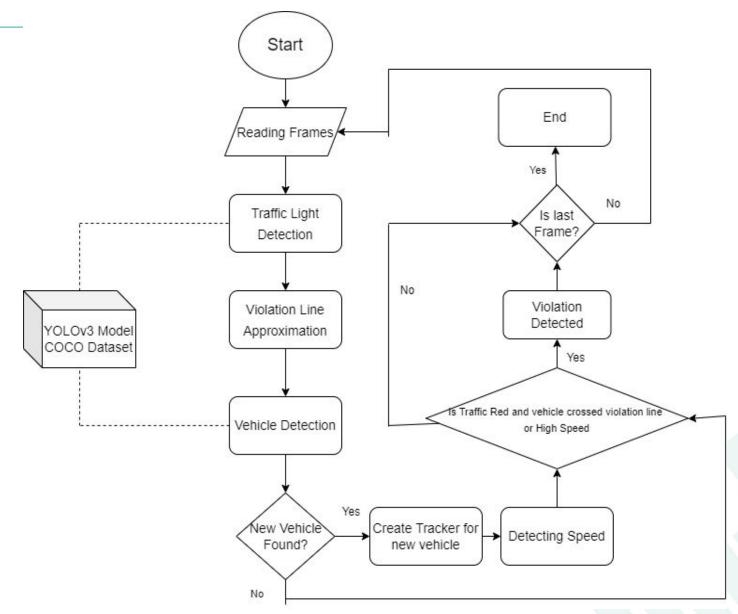




Methodology



• Traffic Signal Violation



Methodology



OverSpeeding Detection

- 1. Non Deep Learning Approach
 - a. Vehicle Detection using Background Subtraction
 - b. No. of pixels vehicle moved
 - c. Object detection works well for 1 object in 1 frame

Open Video

Apply 5*5 Box Filter on every frame

Find Background by taking median of all frames and remove it

Detect Object using thresholding in current frame, find coordinates

Compare with corrdinates in previours frame to Find speed

Methodology



OverSpeeding Detection

1. Cascade Classifier

- a. this model detects the vehicles
- b. It assigns ID to all the object we detected

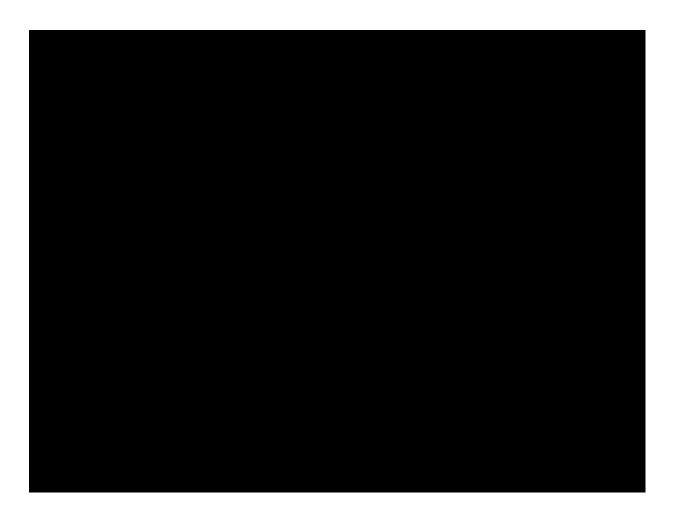
2. Yolo Classifier

- a. this also detects the objects in the video
- b. this gives us certain information about the object such as x, y, width, height, confidence value

Demo



• Traffic Signal Violation detection with speed :



Demo



• OverSpeeding:



Experimental Results



- Problems faced in Non-DL Method
- Using YOLO Classifier we are able to get better results as compared to cascade classifier.

Before Violation



Before Violation



After Violation



After Violation



THANK YOU