VISHWAKARMA INSTITUTE OF INFORMATION TECHNOLOGY, PUNE

COMPUTER ENGINEERING DEPARTMENT

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SYNOPSIS

Group number: 06

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TITLE

Traffic Violation Detection using existing cameras

OBJECTIVE

Developing an autonomous system which would detect road traffic violations (not wearing helmet, vehicles standing on zebra crossings) as well as tracking vehicles in real-time through existing CCTV cameras.

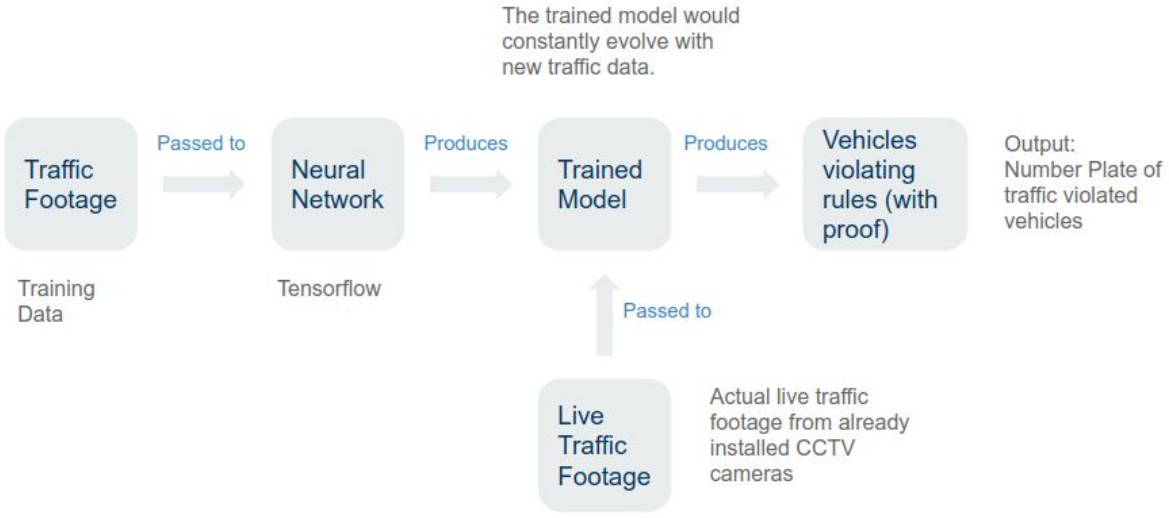
ABSTRACT

The Traffic Violation Detection using Machine Learning system would detect road traffic violators automatically without any sort of human intervention by using CCTV footage and machine learning. It would also track and monitor vehicles, by using the above mentioned techniques. The system would help in increasing road safety for the citizens as well as decrease vehicular thefts / criminal activities as it would be constantly tracking all the vehicles at every location at every time.

BACKGROUND

Currently, all traffic violations are detected by policemen manually which happens to be very inefficient and misses majority of violation cases. Violations viz. Not wearing helmets may seem insignificant but is very much essential for the road safety of vehicle riders. Vehicle monitoring of certain people(eg. Anti-social elements) is very difficult in current scenario of cameras and requires lot of man-hours to track such vehicles (going through hours of CCTV footage takes tremendous amount of time). Current camera system is not used to its full potential to solve cases such as vehicle theft. Existing detection systems based on traditional Computer Vision are not sufficient enough to handle heavy traffic experienced in the city and require something robust system based on Machine Learning(Neural Network) which would train itself to detect the same.

WORKING



APPLICATIONS

- Detect two-wheeler rider without helmet.
- Detect vehicle standing on zebra crossing.
- Recognize their license plate.

SCOPE

- Detect more violations like:
  - Fancy Font on number plate
  - Tint shade of car detection
  - Detecting illegally parked vehicles
- Implement Camera based Toll System.
- Detect speeds of vehicles exceeding speed limit.
- Detect accidents and report to authorities.

CONCLUSION

The successful implementation of this system would benefit the citizens, Traffic Department and the Municipal Corporations (State Govt. and/or Central Govt. of India) tremendously. It would help in increasing the safety of vehicle riders and make the monitoring of vehicles by authorities highly efficient.