Road And Traffic Safety System

Presented by Team Hackerz

Aim

In order to ensure pedestrian safety and vehicle speed limits in areas with high pedestrian density/residential areas, design a system to detect the traffic density/ school areas/residential areas and accordingly warn the driver about the speed limit for vehicles. The system needs to provide a warning to the driver, if the speed limits are breached.

Implementation

We find have to warn the speeding driver about pedestrians presence.

For this we first look for any pedestrians in the frame, when a person is found a check is made for vehicles present in the frame, which are speeding above the limit in the area.

We find the entities present in frame with cascade classifiers for humans and cars.

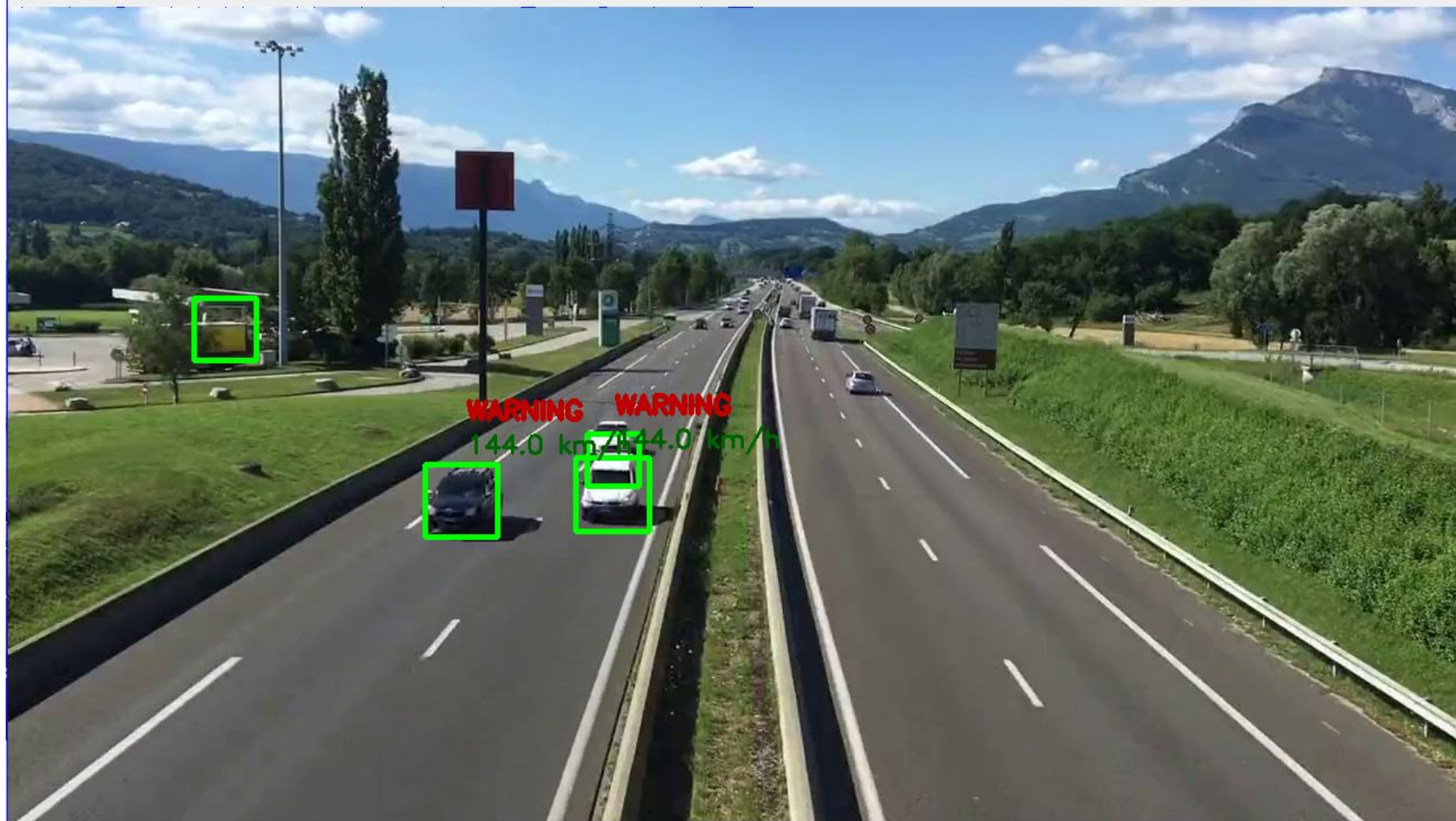Then we make an estimate about vehicle's speed.

Flow Chart of system

SAMPLE IMAGES

27km/h

WARNING WARNING
144.0 km/h 144.0 km/h
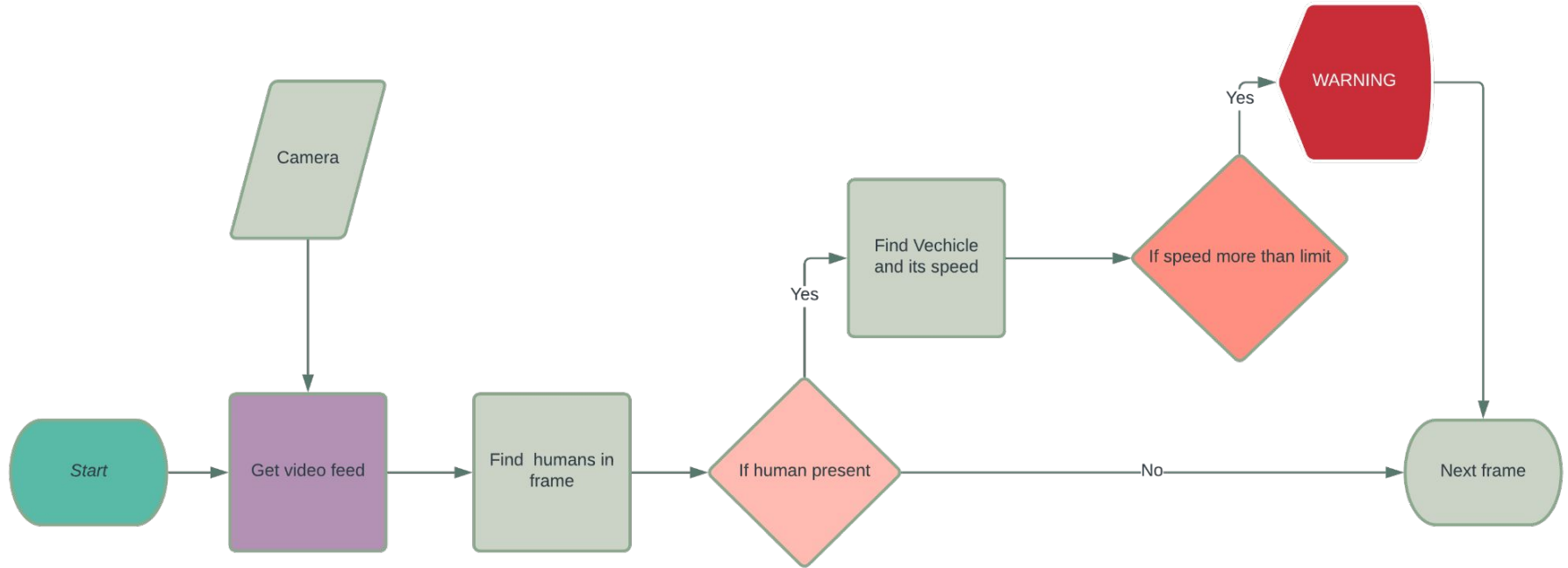
(x=1180, y=620) ~ R:114 G:110 B:91

Effects of system

1. We can detect speed of vehicles and warn the driver who is overspeeding the car
2. We can prevent accident at school areas
3. We can avoid the accident that takes place due to the traffic
4. We can also use this model at public places or locations like at markets by detecting is there a crowd present or not
5. Also it can be used to warn the driver about the status of traffic on roads

Repository Link (GITHUB)

Team Hackerz prototype for Road And Traffic Safety link:

https://github.com/gaurav136/Road-and-Traffic-Safety-System

References

1. Speed Estimation
2. Methods to mask background:
3. Human detection
4. Opencv basics tutorial
5. TODO: Code link

Libraries used

1. opencv : Open Source Computer Vision Library is an open source computer vision and machine learning software library.
2. dlib : Dlib is a modern C++ toolkit containing machine learning algorithms and tools for creating complex software in C++ to solve real world problems.

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