Smart cam

An artificial intelligence powered camera for traffic dedication

What is Smart cam?

An Ai powered camera for traffic rule violation and emergency vehicle detection

Traffic rule violation

Violation of traffic rules has become a major issue in today's developing world. The rise in the number of vehicles every day has eventually led to a gradual increase in the sum of traffic rule violations. Automation in daily life has gained a lot of importance in the recent years. The main reason for the increase in number of violations is because of the violating rules such as breaking traffic signals, over-speeding, not wearing helmet etc. In order to prevent these traffic violations, the police department should be present on the road and must continuously monitor the vehicles violating traffic rules According to the traffic rules, wearing helmet is mandatory and violating this rule results in huge fines. Despite implementing this rule, many motorcyclists are ignorant. To prevent we came with an idea of Smart cam

HELMET DETECTION

We use traffic cameras in the desired location for detecting the motorcycle. System creates bounding boxes using (YOLOV5) over the two wheelers around it and crops the frames then supplied it to a Convolutional neural network model has been applied for classifying whether the rider is with helmet or not. If helmet has been detected then system will consider there is no violation else it stores the picture of accused and number plate of accused bike then sends it to the control room. System has been trained with various samples of helmets and bikes.

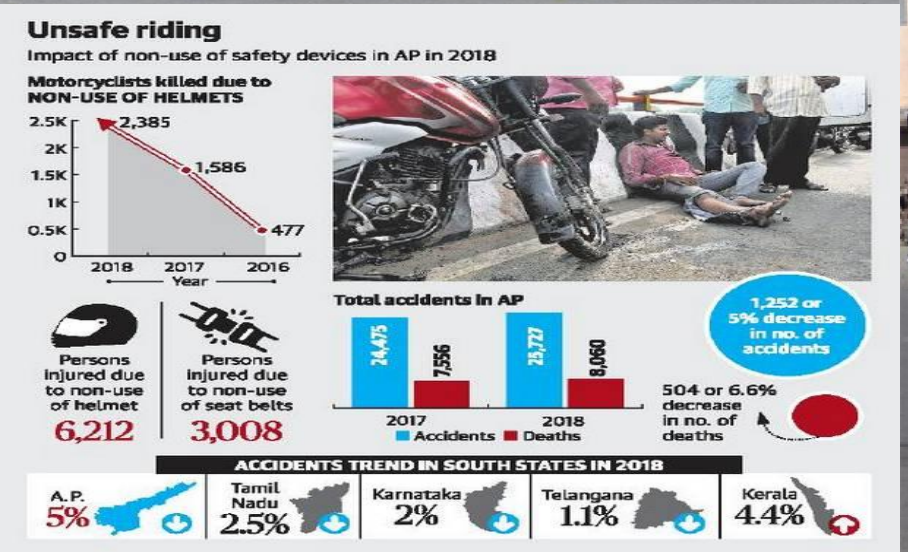
How does it work?

Takes the data and sends it to Raspberry pi

process the data and sends the accused picture to controle room

Helmets and trauma injury

We do **not** take safety seriously.” **Not wearing helmets** resulted in **deaths** of 44,666 (30,148 drivers and 14,518 pillions) or 29.82% of **total** road accident **fatalities** during 2019, according to the ministry data.



Month	2-wheeler deaths	Deaths due to non-wearing of helmets
January	368	174
February	318	161
March	292	173
Total	978	508

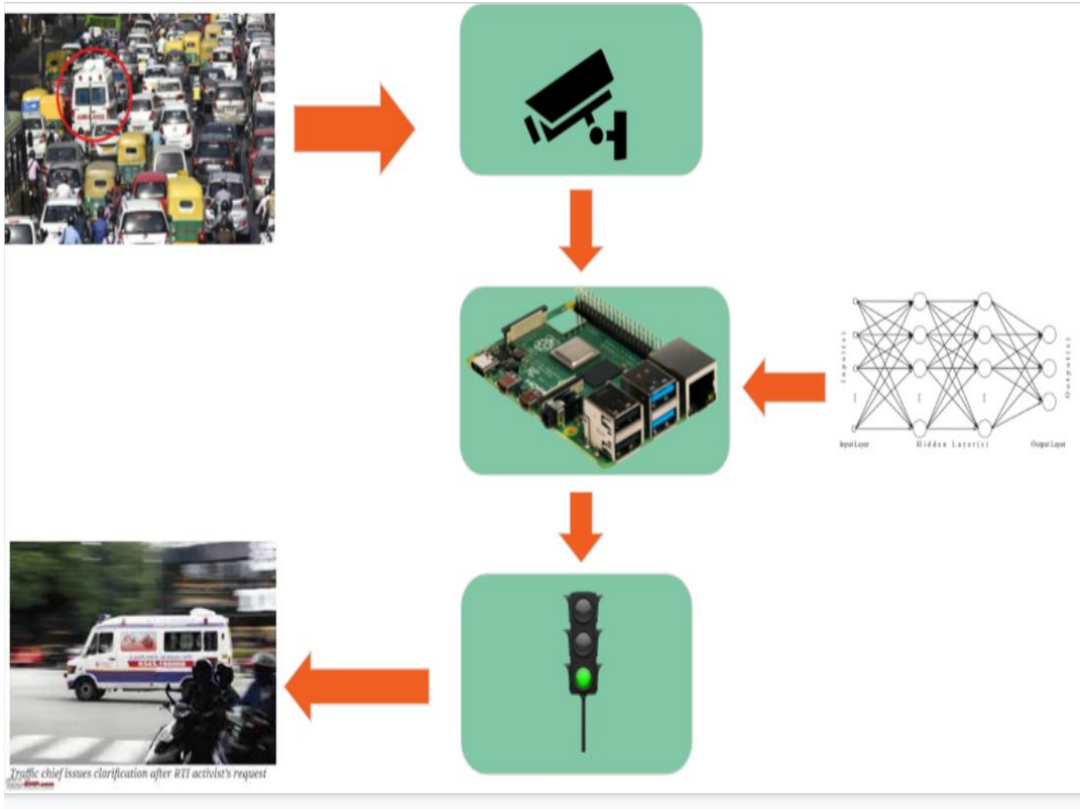
What statics says

According to the report titled "Road Accident Analysis in Telangana March 2019", out of the 978 persons killed in the accidents involving two-wheelers, 508 riders and pillion riders did not wear a helmet. "About 52 per cent of the death in two-wheelers were occurred due to non-wearing of helmets,"

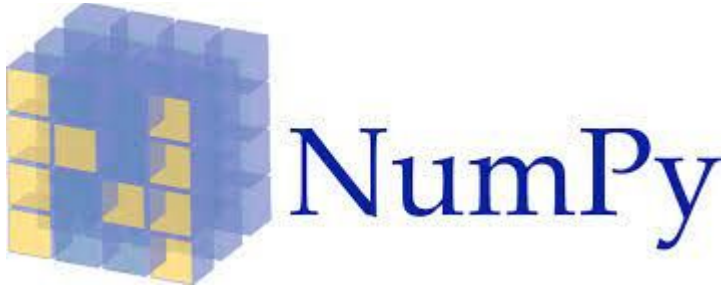
Emergency vehicle detection

A highly populated country like India faces too much traffic jam. Sometimes emergency vehicles like ambulance, fire-Engine get stuck in the traffic causing threat to life in many cases. It is important to give priority to these vehicles and help to clear its path. But it is difficult or sometimes impossible for traffic police to handle this. For this reason, we need an automated system that will be able to detect an emergency Vehicle in heavy traffic road, let the controller know or automatically navigate other cars to clear its path. In this work, we have proposed an automated system to detect emergency vehicles from CCTV footage using the deep convolutional neural network. Our method has shown good result in detecting and classifying emergency Vehicles.

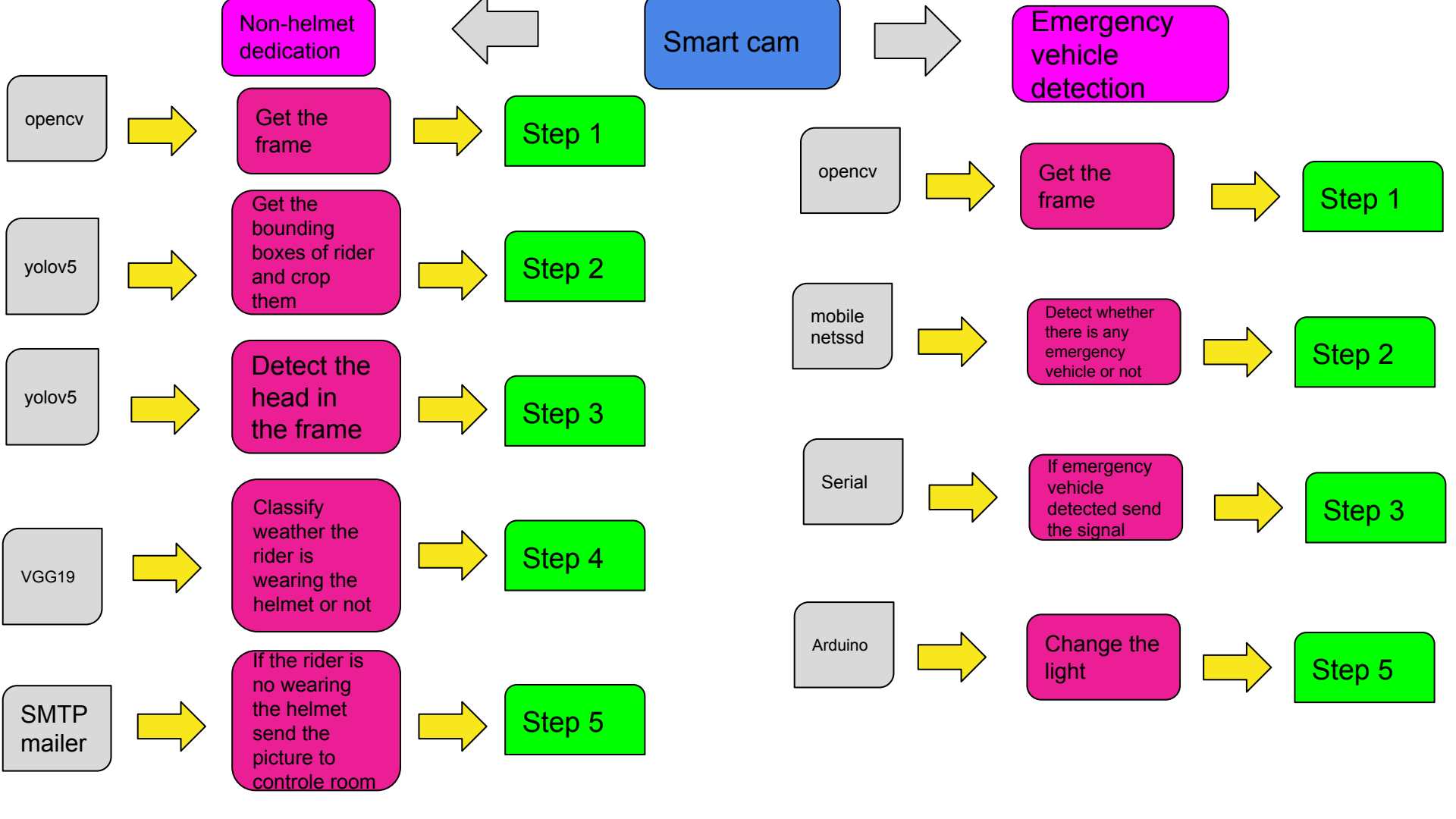
How does it work ?



Library's used ?



Lets see model architecture


Non-helmet dedication
Smart cam
Emergency vehicle detection
opencv
Get the frame
Step 1
yolov5
Get the bounding boxes of rider and crop them
Step 2
yolov5
Detect the head in the frame
Step 3
VGG19
Classify weather the rider is wearing the helmet or not
Step 4
SMTP mailer
If the rider is no wearing the helmet send the picture to controle room
Step 5
opencv
Get the frame
Step 1
mobile netssd
Detect whether there is any emergency vehicle or not
Step 2
Serial
If emergency vehicle detected send the signal
Step 3
Arduino
Change the light
Step 5

Lets see how it works

Can save many people's from accident

Fastly route the fire-engine which stuck in traffic

Fastly route the Ambulance which stuck in traffic

Result


THANK
YOU