

## **Weekly Report on Road analytics**

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### **Outline of performed task :**

- Object detector

### **Faster RCNN :**

- Learned about Faster RCNN , how it uses feature map for better region proposals.
- Complete model is divided into 3 parts :
  - Convolution network for feature map generation
  - Region proposal network
  - Fully connected layers

### **YoLo family :**

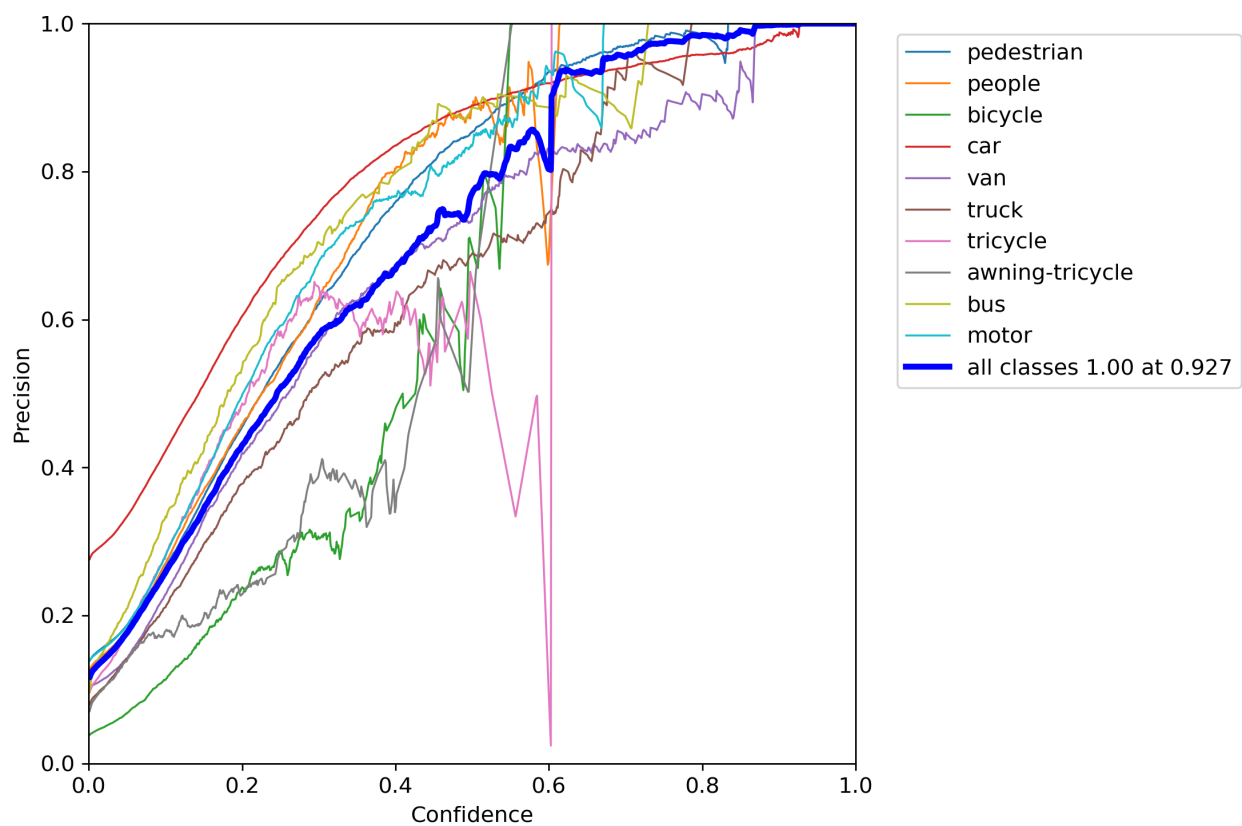
- Uses convolution layers and fully connected layers
- Uses Anchors on every pixel of feature map at various scale for object detection
- Uses NMS to get best bounding box around the object

Currently, we are using YOLOv5 detector. First we setup the yolo directory and then train it for our dataset.

## Training results of YOLOv5

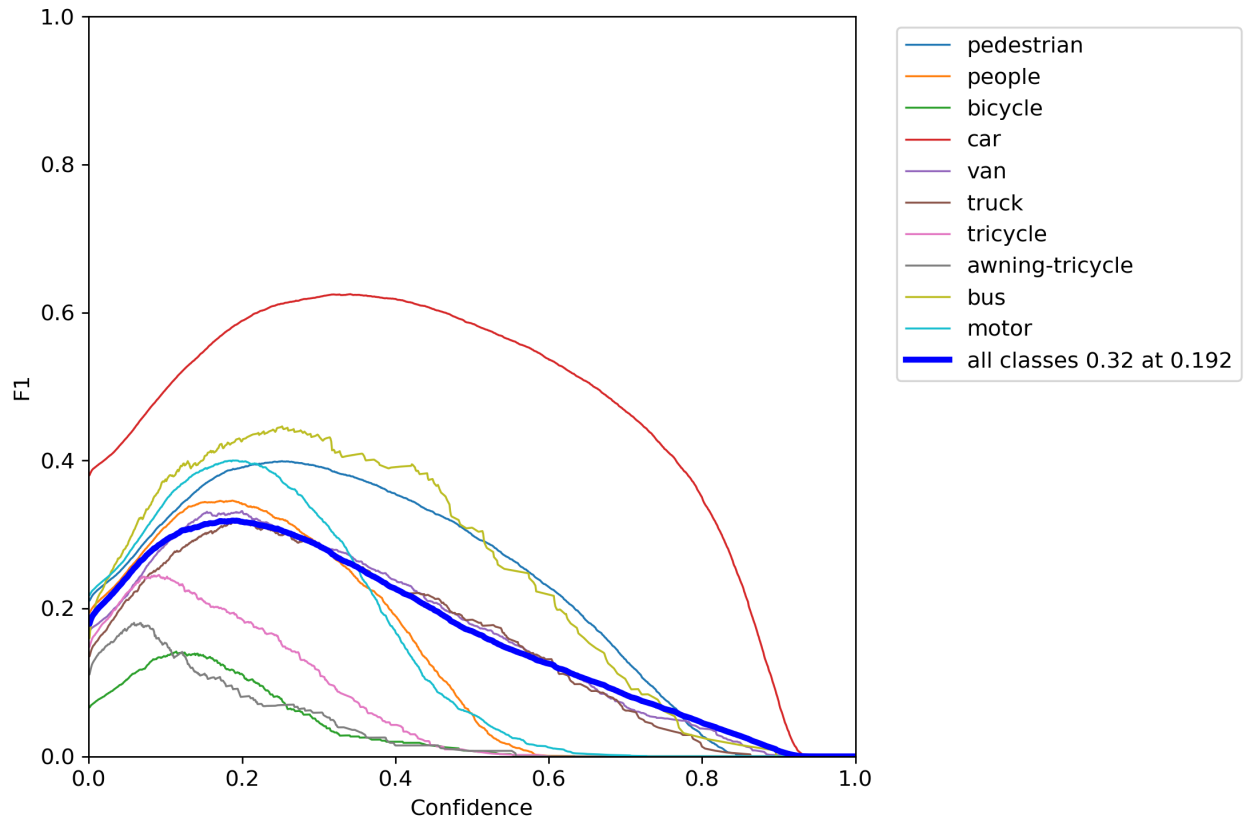
### Precision Curve:

As you can see below, mostly all the classes have achieved good precision over the training.



F1 Score:

As you can see below, Car, pedestrian and bus classes have achieved good accuracy over the training.



We also tested our images (images taken by DJI drone) on this detector and found that it is performing very well on this.



Conclusion :

- Accurate detection in occluded scenes
- Accurate bounding box size

**Tentive list of tasks for next session :**

- Use tracker to establish trajectory of detected vehicles