

## **Weekly Report on Road analytics**

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

- Object Tracking

Till now, we have developed a object detector but it is not useful in our case. Because only detecting vehicles is not sufficient we also need their trajectories to do analysis of their behaviour and do anomaly detection.

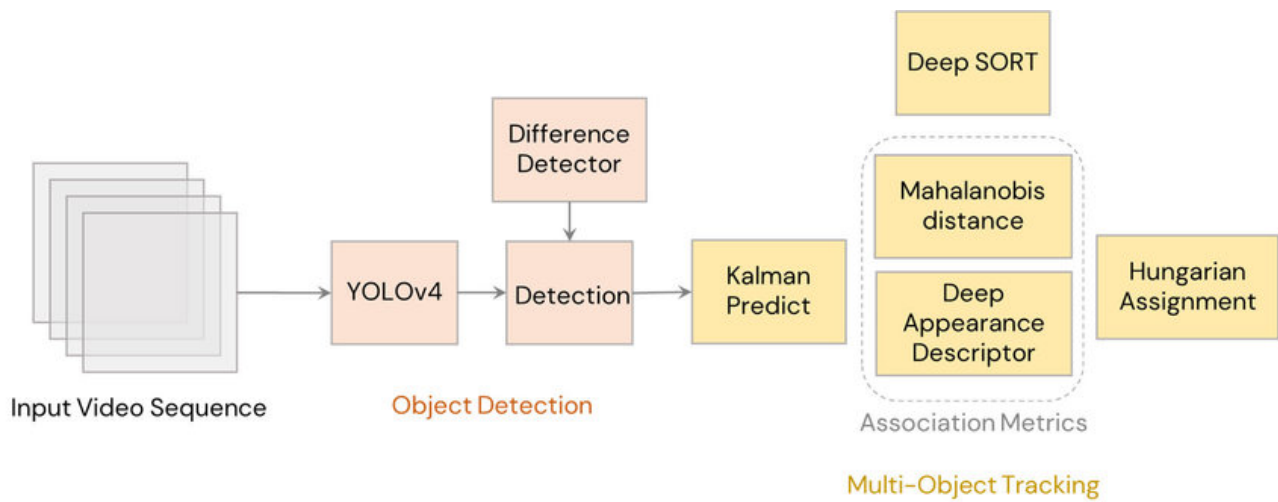
Also, we need multiobject tracker instead of single object tracker. I have listed some of the trackers as belows :

- CentroidTracker
- IOUTracker
- SORT
- DeepSORT
- Byte Tracker

We have explored deepSORT (Simple Online and Realtime Tracking with deep association).

Kalman Filter : tracking based on the position and velocity of an object and predict where it is likely to be.

Deep Apperance Desciptor/Cosine similarity metric learning : Extracts 128 features from each detected object. This is sometimes available as separate model file. Also known as re-identification model.



[\* from google search ]

We are using Veri-776 dataset to train vehicle reidentification model that we will use in deepSORT.



Characteristics of good object tracker :

- Should track complete trajectory of object even in case of occlusion
- less ID switching
- Should perform in real time

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

- Implement Object tracker with Yolov5 as object detector