Weekly Report on Road analytics

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Outline of peformed task :

- Implemented object tracker

Tracker is mainly performing two tasks :

- Re identify object in next frame
- With help of distance metric (like cosine similarity) associate it with previous ones

Here, we have two different models for vehicle re-identification based on Veri-776 dataset.

1. Pre-trained Yolov5 detector + resnet50 reID

- We have trained yolov5 on our dataset
- Then without any distance metric, we have trained deep network (resnet50) on Veri-776 dataset
- In deepSORT we are using both the above model to track the objects

2. Pre-trained Yolov4 detector + deep metric model reID

- Here, we are using readymade yolov4 model trained for road vehicles
- We trained deep network with cosine similarity metric on Veri-776 dataset
- In deepSORT we are using above models

Conclusion :

- Model-1 is not trained for any metric so, it has very poor accuracy. We also observe good numbers of ID switching.
- Model-2 is trained with cosine metric so it has better performance than first one and we can improvise it further by training yolov4 model on our dataset.
- In both the cases we got 13-15 FPS and this number also depends on number of objects in frame.