Weekly Report on Road analytics

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Outline of peformed task :

- Installation of required tools(python and anconda framework) on (Intel Xeon(R) Silver 410B CPU, 64 GB RAM and 64-bit Ubuntu 20.04.3 LTS).
- Looked for available dataset related to area of interest.
- Analysed VAID, AUAIR and VisDrone dataset.

System Setup :

- Platform :
  - 16 core Intel processor
  - 64 GB RAM
  - 64 bit Ubuntu OS
- IDE :
  - Juypter notebook under anaconda framework

Drone datasets :

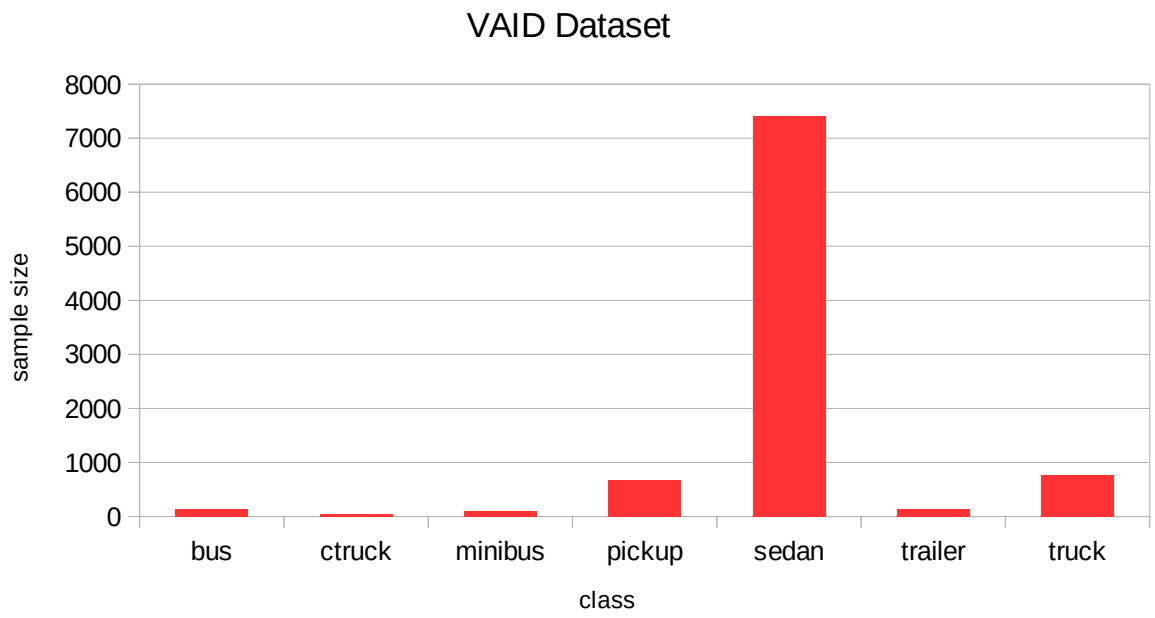
Initially I thought of using openDD-2020 dataset and our own DJI dataset. Unforunetally, openDD dataset has only trajectories of road users and our dataset is not ready yet. So, I looked for other datasets and find below datasets,

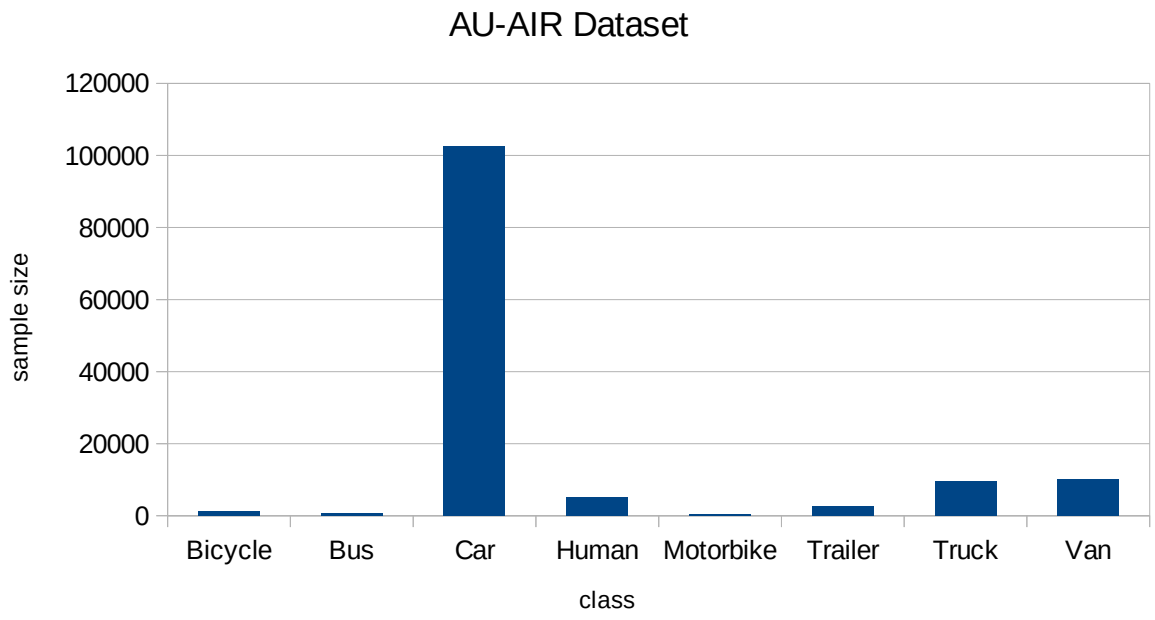
- **VAID Dataset**
  - Total 9000 road users images of 7 different classes (bus, cement truck, minibus, pickup, sedan, trailer and truck).
  - ground truth is given as XML files.

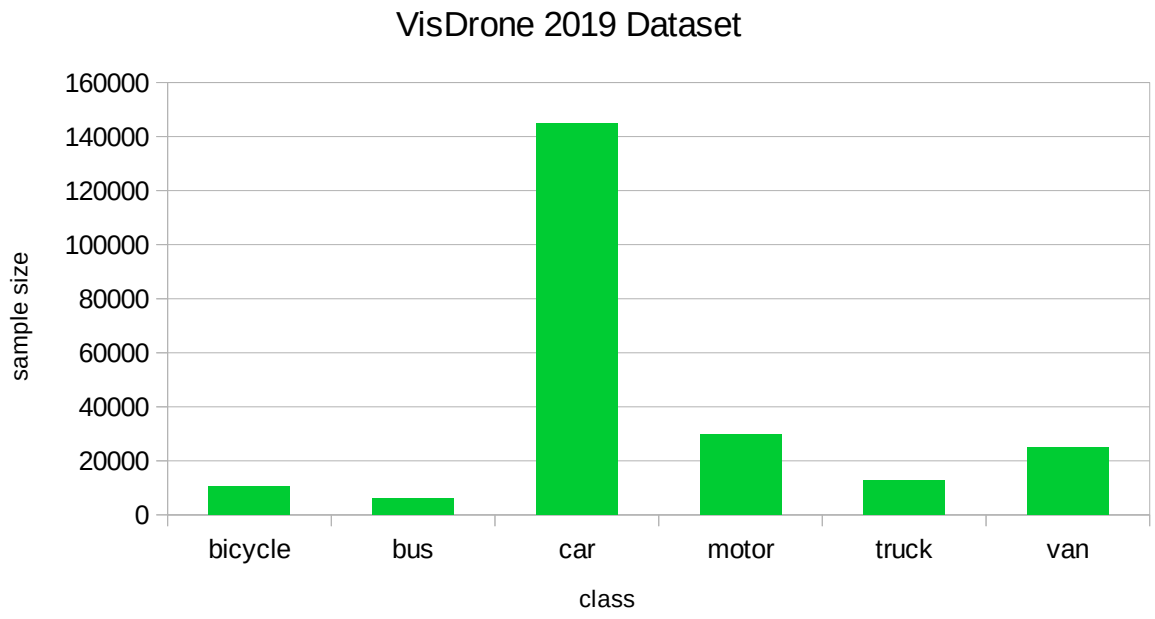
- **AU-AIR Dataset**
    - Total 1,31,000 road users images of 8 different classed (Bicycle, Bus, Car, Human, Motorbike, Trailer, Truck, Van).
    - Ground truth is given JSON file.
- **VisDrone Dataset**
    - Total 2,28,700 road users images of 6 different classed (bicycle, bus, car, motor, truck, van).
    - Ground truth is given text files.

Dataset Statistics :

I have extracted road users images from image frame and created dataset that is directly use for traing a model. You can see below chart for distribution of samples of different road users under different dataset.




AU-AIR Dataset
120000
100000
80000
60000
40000
20000
0
sample size
Bicycle
Bus
Car
Human
Motorbike
Trailer
Truck
Van
class


VisDrone 2019 Dataset
160000
140000
120000
100000
80000
60000
40000
20000
0
sample size
bicycle
bus
car
motor
truck
van
class

Outcomes :

- Understand the VAID, AUAIR, and VisDrone 2019 datasets.

Tentive list of tasks for next session :

- Pre-processing of Dataset
- ML model selection for object detection and classification