**Object Detection and dimension estimation**

->Using the YOLOv5 model detect and estimate the dimensions of the car

->Run the YOLO.ipynb notebook for which the input is download(5) and download(6) images the unannotated images of the side and front view of the vehicle

->The output of the notebook gives the dimensions of the vehicle along with the annotated images, given certain approximated constants ,such as the focal length of the camera along with it’s distance from the vehicle etc.

**Distance between parked cars**

We then find the distance between already parked cars ,again using yolo. In this case perpendicular parking is taken as an example. The model detects the parked cars and finds the distance between them. Run the “Distance\_Between.ipynb” notebook to see the output for images front\_parking.jpg and front\_parking1.jpg.

**Parking Algorithm**

Now given the dimensions of the car along with available spots, the most apt parking space is allotted to car in order to utilize efficiently the area allotted for parking and minimize wastage of space. The algorithm also takes into consideration if the space given is for parallel or perpendicular parking, because of which the width and length of the car will also be taken into consideration. Run the Parking\_Algo.ipynb to see the working of the algorithm.