

Abstract:

In this project, you will:

1. Use the output of semantic segmentation neural networks to implement drivable space estimation in 3D.
2. Use the output of semantic segmentation neural networks to implement lane estimation.
3. Use the output of semantic segmentation to filter errors in the output of 2D object detectors.
4. Use the filtered 2D object detection results to determine how far obstacles are from the self-driving car.

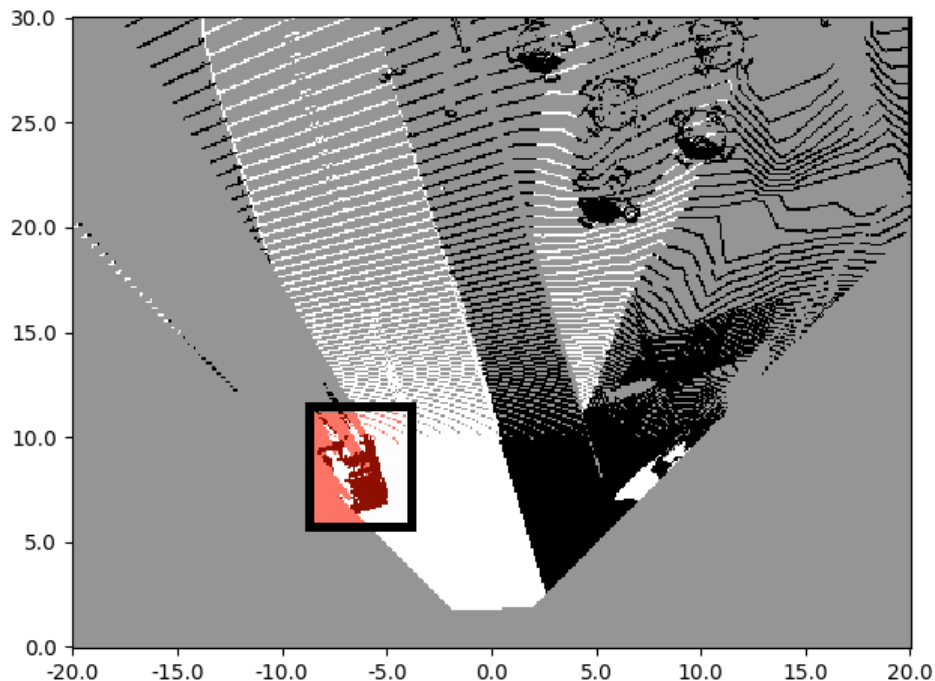
Repository Link:

https://github.com/Padmanabha123/Self_Driving_Using_carla/tree/main/Part%203%20-%20Visual%20perception%20for%20self%20driving%20car

Drivable Space Estimation Using Semantic Segmentation Output:

1. xy_from_depth : Estimating the x, y, and z coordinates of every pixel in the image
2. Ransac_plane_fit : Estimating The Ground Plane Using RANSAC

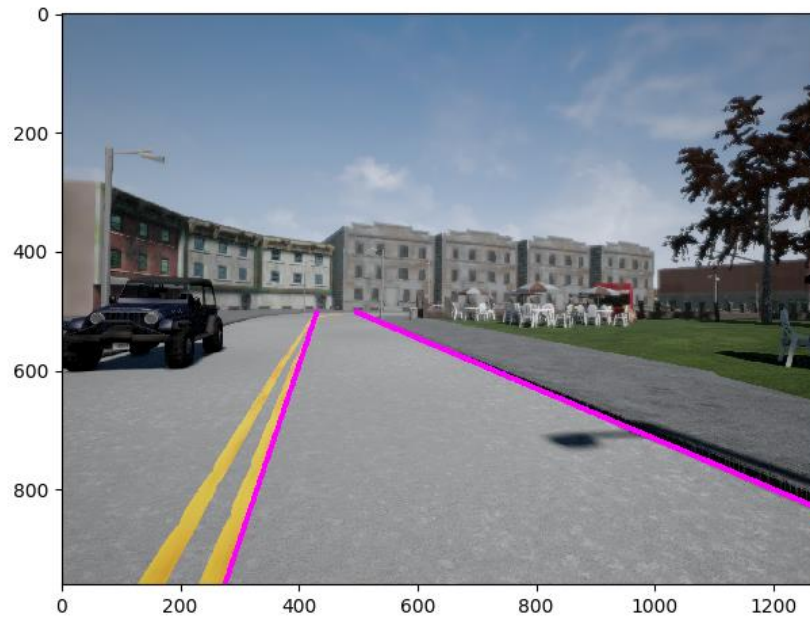
Freespace output:



Lane Estimation Using The Semantic Segmentation Output:

1. Estimate_lane_lines : Estimating Lane Boundary Proposals
2. Merge_lane_lines : Merging and Filtering Lane Lines

Lane detection output:



Computing Minimum Distance To Impact Using The Output of 2D Object Detection:

1. Filter_detections_by_segmentation : Filtering Out Unreliable Detections
2. Find_min_distance_to_detection : Estimating Minimum Distance To Impact

Bounding box and distance output:

