UDACITY: P1 CarND-LaneLines-P1

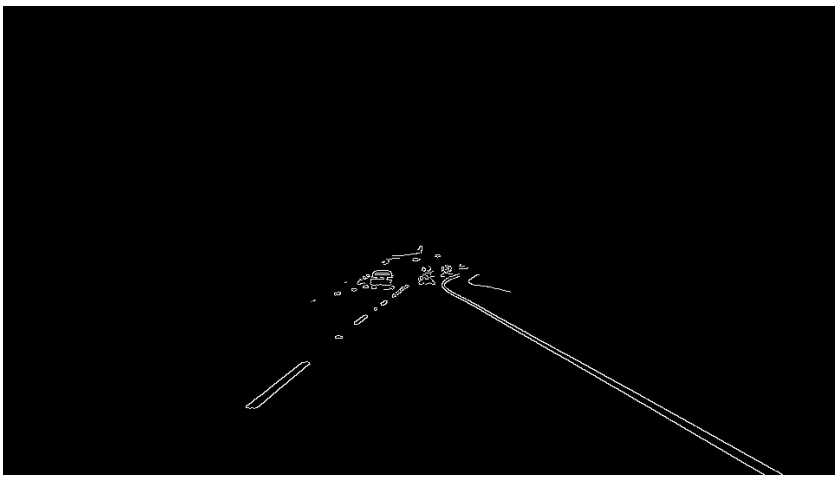
Finding Lane Lines on the Road

Writeup Template

The goals / steps of this project are the following:

- Make a pipeline that finds lane lines on the road
- Reflect on your work in a written report

Gray Scale and Canny edge Scale Detection:



Reflection:

Pipeline:

In this project, I used Python and OpenCV to find lane lines in the road images.

The following techniques are used:

- Color Selection
- Canny Edge Detection
- Region of Interest Selection
- Hough Transform Line Detection

First, I cropped the image to a region of Interest, then I converted image to gray scale and canny edge detection

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After than I applied Hough transforms to detect lines and printed lines which gave two end points of the detected line segments [x1, y1, x2, Y2], then rendered detected lines as an overlay. Which gave me Partial solid lines of left and complete solid line on the right.

I modified the draw_lines() function by grouping the lines into left and right groups and created a single linear representation of each line group

Step by images of my pipeline:

Image 1: Cropped image

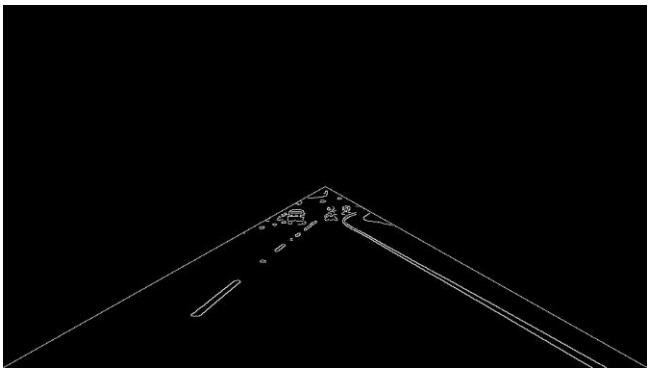

Image 2: Grayscale image with edge detection including unwanted cropped line edge

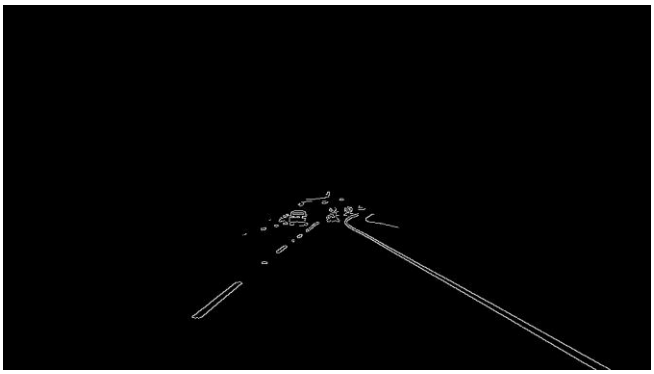

Image 3: Grayscale image with edge detection removing unwanted cropped line edge

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Image 4: Final output image with solid lines

Identify potential shortcomings with your current pipeline:

One potential shortcoming would be only detect straight lane lines, it would be hard to handle curved lines

Another shortcoming could be that it won't work for uphill or downhill roads because the region of interest mask is assumed from the center of the image.

Suggest possible improvements to your pipeline

A possible improvement would be to use perspective transformation and poly as well for incorporating different road condition