How it works:

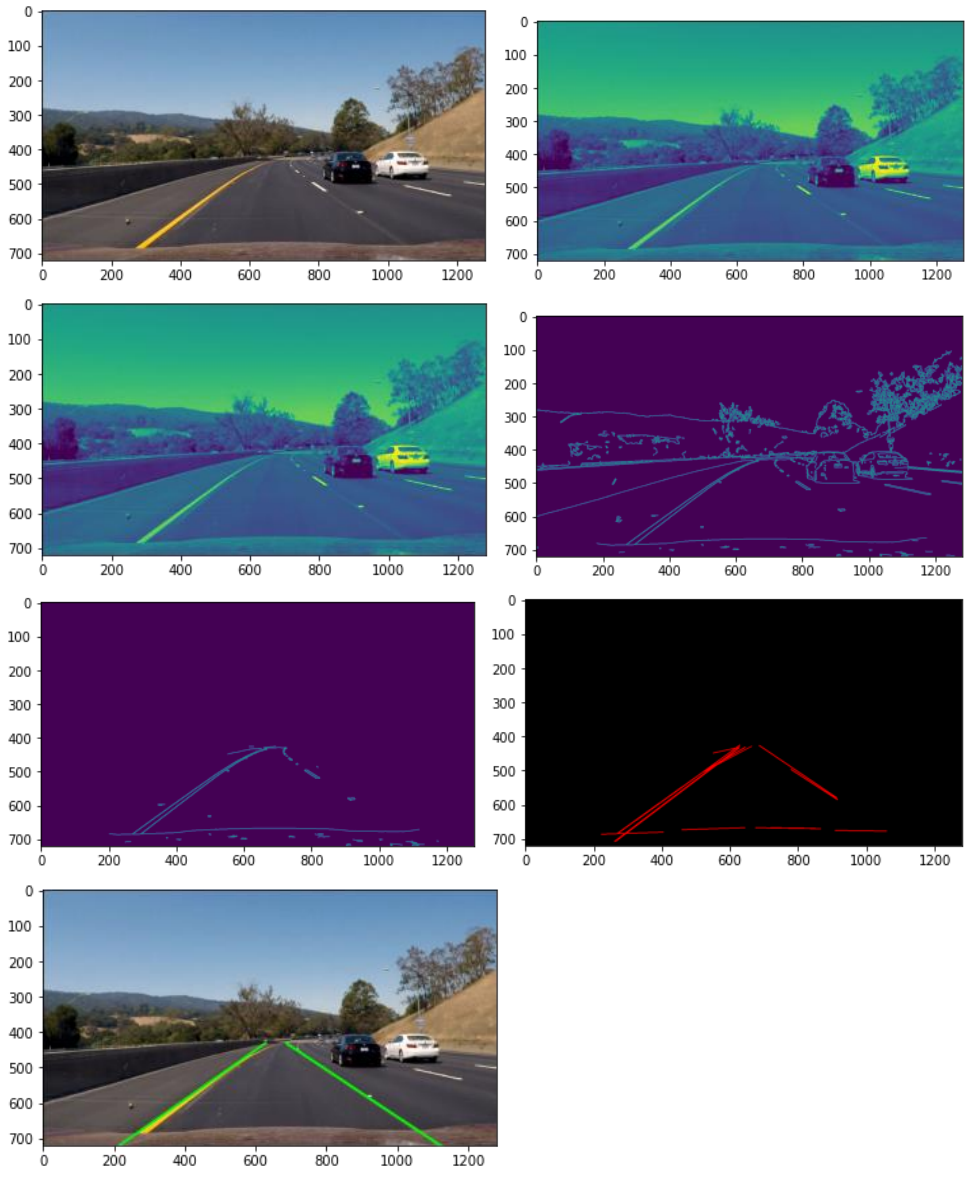
My pipeline consider of 6 steps:

1- Convert to gray scale.
2- Filtering the image.
3- Detecting the edges.
4- Selecting interest zone from the edges.
5- Detecting lines.
6- Filtering and combining detected sub lines.

The step 6 has some configurations:

- min_abs_cof_a # any detected line of slot < then this value will be eliminated.
- max_cof_a_diff # max allowed slot difference to combine lines.
- max_cof_b_diff # max allowed offset difference to combine lines.

The pictures bellow shows the results for the steps:



Potential shortcomings:

What could happen when image is too much noisy for example because of rain?

Possible improvements:

- Only processing image in zone of interest (From beginning copy just the needed zone to process from the image)➔ This make execution faster and decrease needed memory.
- In gay scale street yellow lanes are too much close to street gray color so edge detection fails to detect them. ➔ Detecting them in RGB image and highlighting them in gray scale image so they can be detected by canny detection.
- Step 6 can be improved by collecting lines that had a gap less then x value.
- Step 6 can be improved by only consider to showing 2 lines that are the longest if more than two lines had been produced.