UNIVERSITÀ DEGLI STUDI DI PADOVA

DIPARTIMENTO DI INGEGNERIA DELL'INFORMAZIONE

Computer Vision, A.Y. 2017/2018
Master Degree in ICT for internet and multimedia

Homework 2 – LAB #4
Deadline: May 18, 2018

Kalakonda	Srikanth Reddy	1178232

LAB #4 REPORT

Lab session #4 is about the hough transformation and edge detection, main goal of this lab is to segment the street lanes, find the street boards and fill that segment with a solid red and green colors respectively .

Let us first divide the complete concept into 2 parts,

1.**Segmenting the street lanes :** In this part we try to load an input image provided, we first initialize the parameters required, we now convert the given image to a gray scale image so that the edges are clearly visible that helps us in accurately finding the edges required to segment the street,so we use canny edge detector where this converted gray scale image is in turn produces a edges image,for this we use a trackbar to control its threshold value.Now the detected edges should be used to draw lines for segmenting the street markers/lane markers.for this the edges image which we derived is given as input to the Hough lines method which uses 4 values which we dynamically change using trackbars,namely for Rho,Theta,Accumulation of lanes and canny threshold.

We know the each of its importance we try set the parameters till we get the strongest two lines we desired and additionally this returns two points with each x and y coordinates, once the lines and points are detected we use a method “intersection” to find the points where these lines are intersected.now we create a vector to hold all these points and create the segment.

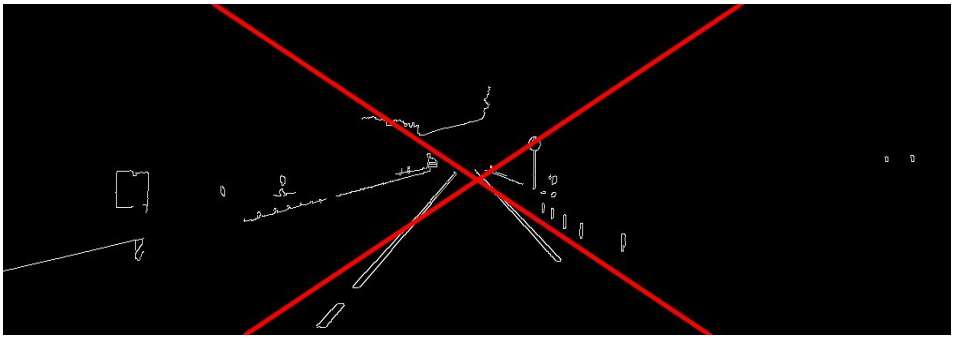

Fig I :showing street lanes as controlled by the rho and theta.

2.**Segment the street sign boards. :** Now we return to the part #2 where we need to find the street sign boards , here in the image we have circles and so as suggested we use houghcircles to determine the circles, but before that we convert the image to gray scale and then use Gaussian blur to remove any noise so that edges are clearly grasped from them, now we use this image that is grayscale and with reduced noise and give it as a input to houghcircles method which in return gives us Circles by taking the dynamic values of the canny threshold and accumulator for circles these are again controlled by the track bars indeed,we now determine the respective values and find the required circle , here to fill the circle we just find the center point of it and outline of the circle ,we iteratively spread the color till the center reaches outline (instead we use static values).

Fig 2: Determining the circles and filling it.

We saved this image and we use the points we saved in part 1 and draw the segment that differentiates the road lines using FillConvexPolygon function and also by now we have circles drawn.

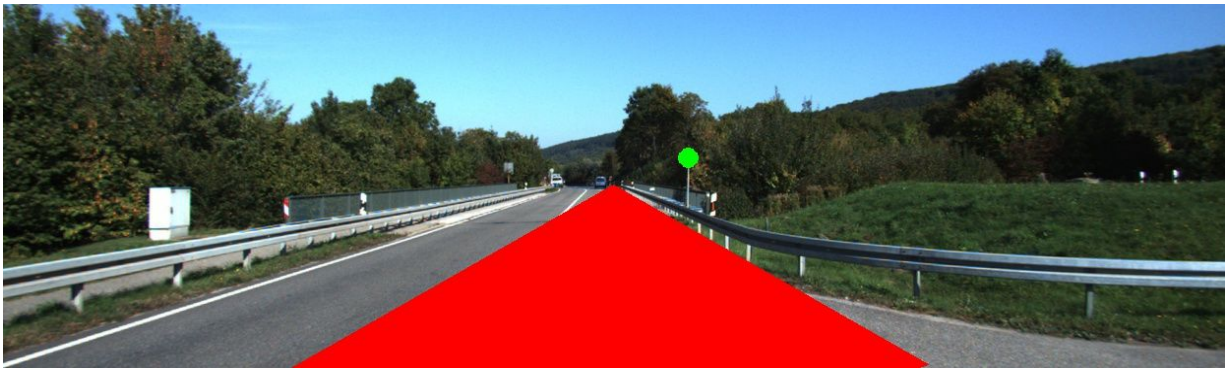

Fig 3: The final output that is required.