

P0 Follow line practice

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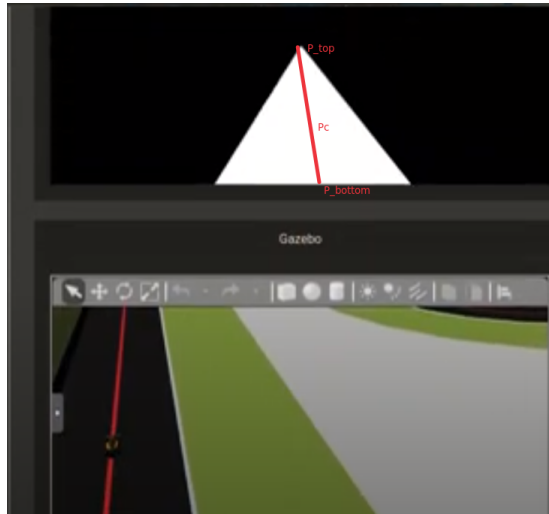
1 Practice goals

The car must complete the race following the red line in the center of the road

2 Algorithm

The algorithm uses the image of the road provided by the API to detect a point of interest P_c . The metric obtained to obtain an error is the ratio between the column index of P_c and the total number of columns. So when P_c is at the center of the image the ratio value would be 0.5 and the value of the error will be 0.

P_c is the point that lies in the pixel result of averaging the top pixel and the bottom one as the next image shows.



The error is passed to a PID controller whose output is passed to the yaw rate API function

The car is set to move at a constant velocity of 2 m/s because the control of the vehicle was nearly impossible at higher velocities due loop action time. A trial of setting a variable velocity, which would be higher in linear segments of the read but again the control parameters reslt near imposible to found for a range in $[2, 7]$ m/s