PID Controller Project

Compilation

Your code should compile.	Compiles

Implementation

The PID procedure follows what was taught in the lessons.	Implemented same way thought in the lesson.

Reflection

Describe the effect each of the P, I, D components had in your implementation.	I have started with a slow speed and tried to manually tune the parameters. The P component moves the vehicle to the center line depending on the distance to the center vehicle makes harder left or right. Normally a quick reach to centerline is better but this causes hard oscilations without the other parameters. The D component makes car approach to the center line smooth and removes oscilations. The Integral component was used to tune CTE at the curves. Normally without it car goes OK in the straights. After I found parameters 1, 0,0001 and 4 for the low speeds around 25,35 mph I tried the increase the max speed. High speeds caused car to move out of the track at the sharp turns. To avoid this I tried to tune throttle I simply try to apply break depending on the steering. I reach to better speeds. To further increase the speed I have tuned PID parameters.
Describe how the final hyperparameters were chosen.	As explained above I have tuned the parameters manually. Basic knowledge to how to follow a race line helps a lot ☺ Normally a race driver never makes half break or throttle. But this cannot be tuned without knowing exact apex of the curve. Normally I could tune the parameters with twiddle. But I think that I have reached

an acceptable performance. Please see video carndpid.mov at the deployment.

Simulation

CRITERIA	MEETS SPECIFICATIONS
The vehicle must successfully drive a lap around the track.	Please see video carndpid.mov