The implementation of the P, I, D control is done by code

Kp* p_error + Ki * i_error + Kd * d_error

in the line 31 of PID.cpp file.

Kp, the term before P_error, stands for the proportional error. This term will decide the weight of the proportional error (the current car position with respect to the center location) in the steering value, when the car are off the center a lot, this term will dominate.

Ki, the term before I_error, stands for the integration error. When the accumulated error of the current location with respect to the center location becomes large, this term will dominate.

Kd, the term before d_error, stands for the differential error. To avoid the car move periodically around the center line (like a sine wave), we use this term to include the temporal derivative of the crosstrack error. This can make the car move more smoothly.

Those three parameters: Kp, Ki and Kd are selected manually. I tried [-0.5, 0, -0.5], [-0.8,0,-0.2],[-0.72,0,-0.28] etc. And find that [-0.75, 0, -0.25] are the best answer among what I tried.