Project Writeup

Anirudh AV (anirudh.av93@gmail.com)

---

1. Effects of P, I and D components on steering angle

1.1. P component

The P component seems to have the greatest influence on our steering angle. However, as we observed in the class too, the **CTE** does not go down all the way to 0. Thus my observation is that when there is a sudden large **CTE** the car cannot handle it very smoothly, example, the car goes off track when it encounters sharp turns.

1.2. D component

The D component had the least effect individually. The car goes in random orientations each run. Although when added to the PID controller, I observe some sort of a smoothing. Although I had a **Kd** value of 0.0 for my final parameter set.

1.3. I Component

I can very clearly observe the effect of the I component as the car is further along the run. This make sense as we expect the I component to act more as we accumulate more error. So, the car initially goes off track but it follows the curvature of the track.

1.4. Parameter selection

The parameters were all selected by manual tuning over multiple runs. The final parameters were used in the code to my best judgment of performance.

1.5. conclusion

Having observed the effects, it is very easy to see that the right combination of the three components will give us better performance than any of the 3 components individually.