A Report on RaceCar Agent

Step 1: I have Cloned all the required files on my computer in order to make the project work.Then I tried writing just random numeric values just to see all the values, some basic directions which were shown on my command prompt.

Step 2: After, getting the basic idea about the project, I did try to write the code in RuleAgent.py :

1)The possible actions on the car are:

[('left','accelerate'), ('left', 'coast'), ('left','brake'),

('straight','accelerate'), ('straight', 'coast'), ('straight','brake'),

('right','accelerate'), ('right', 'coast'), ('right','brake')]

2)Now, there are two important things in this project:

a)choosing the correct direction b)Controlling the velocity

3) I have tried using many different values for the sensor but had trouble while making the car run on the track, some of them worked for 3 to 4 tracks and others didn't even bother to work.

So, I used two 10 degree sensors , one is for the left and other is for the right.

Left = Lidar[1]

Right=Lidar[3]

center=Lidar[2]

4) Next, comes Direction:

- I took the average of the left and right Lidar Sensors and compare the side clearance
- If right is close to the wall,go left
- If left is close to the wall ,go right
- Or else go straight

5)Next, comes the Speed management:

First, the car should not stall on the race track, so velocity is zero. To avoid being stuck on the track.While using the 10 sensors, I hit the wall several times on the 1st track itself, due to the speed management and the distance of the car from either side of the tracks . So, I tried many different velocities, then the other two sensors, the left and right ones. Some of them worked for some tracks and I especially got a lot of problems with the tracks 5,6 and 8, never working with the velocity<0.4 and center>0.6 condition . So, I decided to try to reduce the velocity<0.3, worked for all of them, but except for track 8. Next, I made many attempts at resolving but never succeeded. For the coding assignment I got all the tracks except for the

last track, where my highest score was 60+. So, now for the project, I tried many different combinations but I still failed .

I tried by reducing the velocity<0.2 to 0.15 and changed the far left, right sensors respectively. This had finally worked for me, like I may not have gotten the best scores for the project but I had a good score for all the tracks.

6) The biggest task was to get the car to race on the 8th track, and I was like , I got all the 7 track results but the last track score was into the negative values, then my overall performance of the project came down, I did make this work and my project performance is good.

7)Finally, the Car runs based only on current LIDAR and velocity values and all changes were tested in simulation using visual feedback and collision logs.