|  |  |  |  |
| --- | --- | --- | --- |
| **Kp value** | **Kd value** | Weights | Feedback |
| -2.50 | 2.50 | Standard | The change in left and right wheel speed was not fast enough for speeds above 30ish |
| 5 | 2 | Standard | Steadily overshooting, overdamped |
| 2 | 2 | Standard | Better straight line performance/correction, not turning fast enough |
| 2 | 5 | Standard | Better at turning than previous, but still not sharp enough |
| 2 | 6 |  | Turning got worse ☹ |
| 5 | 0 |  | Followed first curved, destabalizrf too much on the second curve and failed |
| 8 |  |  | Overshot the first curve |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |

Tried a different scaling, -4 -2.5 -1.5 -1, Kp was 6.5

|  |  |  |  |
| --- | --- | --- | --- |
| 10 | 1 |  | Made the first turn, oscillated too much on straight lines, missed the second turn |
| 12 | 3 |  |  |
| 10 | 3 | Base speed = 60 | Completed the track! Oscillated way too much tho |
| 8 | 3 | Base speed = 60 |  |
| 7 | 5 | Base speed = 60 |  |

|  |  |  |
| --- | --- | --- |
| Base speed = 100 |  |  |
| 7 | 5 | Fails to make it past the second turn (maybe due to too much oscillation) |
| 7 | 7 | Made it thru all turns except the very last one |
| 8 | 6 | Overshot consistently but corrected on turns, and missed the 3rd one |
| 8 | 7 | **Run this one again** |
|  |  |  |
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|  |  |  |
| --- | --- | --- |
| Used 1.5V batteries for this |  | Spd = 60 |
| 8 | 7 | Too fast, ran off track |
| 5 | 2 | Oscillating too much |
| 6 | 4 | Bounces around too much |
| Different weights this time |  | -1 -2.5 -3.5 -4 |
| 6 | 4 | Doesn’t correct oscillations |
| 4 | 4 | Made 2 runs successfully |

|  |  |  |
| --- | --- | --- |
| Different weights this time | -5 -4.5 -4 -2 2 4 4.5 5 |  |
| 4 | 4 | Ran successfully, uncontrolled oscillations tho |
| 4 | 5 | More controlled |
| 4 | 6 | A lot more controlled |
| Different weights this time | -5, -4.5, -4, -2.5, 2.5, 4, 4.5, 5 |  |
| 4 | 6 | Made a run |
| 4 | 7 | Almost perfect run, corrected oscillations |
| Base speed = 80 |  |  |
| 4 | 7 | Overshot quite a lot |
| 4 | 6 | Overshot still, maybe a little bit better tho |
| 5.333 | 8 | All over the place |
| 6 | 8 | Better but still oscillating a lot |
| Since 80 is 1.33333 times 60, | multiplied scale by 1.3333 | And same with Kd and Kp |
|  | -6.6, -6, -5.33, -3.33 |  |
| 5.33 | 8 | Oscillating too much at the end |
| 5.33 | 9 | Better but still oscillating too much |
| 5.333 | 9.3333 | Pretty much good |
| Base speed = 100 | Weights multiplied by 1.666 |  |
|  | 8.333,7.5,6.666,4.166 |  |
| 6.666 | 22 | Really good run |
| Double speed, spd = 120 | Double weights |  |
| 8 | 29 | Almost good run, need more Kd |
| 8 | 32 | Try this one |