

DPRG RBNV Chat Record – Apr 18, 2023

Carl Ott

7:46 PM

~7:44pm - Michael working on 6-Can. Getting inconsistent angles. Disabled PID and tried open loop - PWM - discovered that his motor voltage is so low that it's having trouble to turn - motors stalling. I thinking to try a higher gear ratio.

Carl Ott

7:47 PM

Doug recommended also trying a higher PWM frequency.

Ray Casler

7:49 PM

you have to go faster than geologic time...

Doug P.

8:08 PM

Arduino PID Library Functions:

Functions PID(), Compute(), SetMode(), SetOutputLimits(), SetTunings(), SetSampleTime(), SetControllerDirection()

Display Functions

Doug P.

8:10 PM

<https://playground.arduino.cc/Code/PIDLibrarySetOutputLimits/>

Carl Ott

8:11 PM

Here's the source library for the Brett Beauregard PID library

Carl Ott

8:15 PM

How I do it:

```
motorLF->setSpeedByVelocitySetpoint((int)(scaleCommandsBy * (+ headingPIDcontroller.getLoopOutTurnRate()
```

How HoverSIM takes double output from a PID loop, scales it then casts to an int by (int)

Carl Ott

8:22 PM

Michael - be sure to take control of the code - use this PID library function SetOutputLimits() to keep the PID loop in range (that will also help if and when you use the "I" gain. And then once you ensure that the PID loop outputs values from 0 ... 255 in the PWM range - then you can explicitly cast from double to (int) to ensure that you're not gambling on the libraries or compiler doing the right thing automatically.

Carl Ott

8:32 PM

~8:31pm - Ted showed a sample C program that demonstrates implicit casting.

Carl Ott

8:34 PM

Next in Queue

Ted Doug Pat

Carl Ott

8:37 PM

~8:36pm - Ted showed progress with his outside robot - going up and down stairs.

GOLD STAR for Ted!

Carl Ott

8:46 PM

~8:45 pm - Doug showed - a Grove connector that he crimped himself. Showed an awesome crimp tool that handles several styles of pins.

Doug P.

8:46 PM

good crimper: https://www.amazon.com/dp/B0BX3Z9S1V?ref=ppx_yo2ov_dt_b_product_details&th=1
model 013BR

Carl Ott

8:49 PM

~8:46pm - Pat C - working on 6-can robot / having issues with steering issues.

Carl Ott

9:03 PM

Good discussion on control loop design

Carl Ott

9:07 PM

~9:06pm - Ray showed a standard engineering problem solving flowchart that starts with "does the d*&%!" thing work?

Carl Ott

9:12 PM

~9:10pm - Pat showed his gripper using a Time-of-Flight detector once the can gets within the grippers.

Carl Ott

9:14 PM

9:14pm - Ray showed his "zip tie" based distance sensor for the can sensor.