

## DPRG RBNV Chat Record – 3/22/2022

You

7:50 PM

~7:48pm - Discussion on ROS / ROS1 / ROS2 / different approaches with e.g., ROS Serial - Docker and other practical implementation items

Carl Ott

7:54 PM

~7:52 - discussed also "Open Data Distribution System" / Open DDS, and also timing and overhead involved with ROS / and asynch processes common in robots - ROS 1 using a central master vs ROS 2 decentralized

Harold Pulcher

7:57 PM

my twitch channel: <https://twitch.tv/haroldpulcher>

Carl Ott

8:13 PM

~8:11pm - John G showed his Halloween skull - which tracks a face, steers the eyes, squints the eyes and then opens it's mouth and screams - awesome demo

Gold Star for John G!

John Gauthier

8:23 PM

When someone asked what I used for audio, they may have meant hardware. Here is a kit on Amazon that you can use with an RPi 4:

[https://www.amazon.com/dp/B07CRVRG83?psc=1&ref=ppx\\_yo2\\_dt\\_b\\_product\\_details](https://www.amazon.com/dp/B07CRVRG83?psc=1&ref=ppx_yo2_dt_b_product_details)

Carl Ott

8:24 PM

~8:21pm - Paul B - showed MowBOT progress - working in ROS / Gazebo - after last week's discussion Paul narrowed a heading dead band - and also narrowed the wheels in the simulator ==> fixed some issues he had observed... Also discussed MowBot on a lawn - and spinning in place didn't work - so made a 'drive in arc' program in an attempt to reduce wheel slippage. Doing the work in simulator - no chance yet to try in physical world - on real grass.

Ponder SomeMore

8:29 PM

<https://axotron.se/blog/crosstalk-problems-when-running-i2c-signals-in-a-cable/#:~:text=In%20twisted%20pair%20cables%2C%20the,of%20the%20crosstalk%20very%20much.>

Ponder SomeMore

8:35 PM

[https://www.amazon.com/Repeater-Repeater-Module-Bidirectional-CJMCU-9515-PCA9515A/dp/B08Q7D5WW5/ref=sr\\_1\\_3?crd=31FMAF0AVUYQO&keywords=i2c+repeater&qid=1647999322&srefix=i2c+repeater%2Caps%2C87&sr=8-3](https://www.amazon.com/Repeater-Repeater-Module-Bidirectional-CJMCU-9515-PCA9515A/dp/B08Q7D5WW5/ref=sr_1_3?crd=31FMAF0AVUYQO&keywords=i2c+repeater&qid=1647999322&srefix=i2c+repeater%2Caps%2C87&sr=8-3)

Carl Ott

8:40 PM

~8:35 ish - discussion around using BNO055 sensors and double-integrating accelerations to get positions... very interesting discussion around realistic expectations, compared e.g. to simply dragging a wheel on the ground and counting encoder ticks...

Carl Ott

8:42 PM

~8:51pm - Ray showed his mower sized bot moving based on a BNO055 on a mast...

Carl Ott

8:51 PM

~8:48pm - David Anderson touting benefits of R/C Plane tires (e.g., Sullivan - quarter scale airplane wheels - solid rubber - perfect robot wheels) - which provide a narrow surface on hard floors / good for odometry, but are also wide enough to hold weight in grass. And he compared them to flat/wide tires with significant tread - which can work if rely on gyros and other methods for location...

Carl Ott

8:56 PM

~8:54pm - Harold showed his ROS 2 nodes passing a joystick command to his servo...

Carl Ott

9:01 PM

~9:00pm question around using a wireless joystick - compatible with ROS? how to get joystick data into ROS... Answer - yes - all ROS cares about is does a Joystick device present itself in Linux...

Carl Ott

9:03 PM

Chris showed as example a PS3 gamepad

Carl Ott

9:06 PM

the PS3 example has Bluetooth built-in - compatible with the Raspberry Pi Bluetooth. then to get past Bluetooth range limitations - Chris connects the PS3 to his laptop Bluetooth, then sends joystick commands as ROS commands over Wi-Fi. Harold mentioned his example which is Logitech with a dongle...

Carl Ott

9:09 PM

~9:07pm - Doug P raised the DPRG spring competition topic - need to start setting that up... Also - asked about which contests - reference the master list of contests... <https://www.dprg.org/contest-rules/> hardest one will be "Sample Retrieval" [https://www.dprg.org/wp-content/uploads/2019/01/sample\\_retrieval\\_v20190115.pdf](https://www.dprg.org/wp-content/uploads/2019/01/sample_retrieval_v20190115.pdf)

Carl Ott

9:17 PM

These would be indoor competitions - in person plus virtual... Considering that it's already 22 March and that we'd normally have 3 months of prep ==> hence target June...

Tentative proposal - 2nd week of June/ Saturday / with 4 to 6 contests, with at least 2 participants in each of the contests...

Ross Murphy

9:19 PM

Going to have to run. Great chat. Thanks again.

Alan P Dunn

9:20 PM

Thanks, y'all! Hope to listen again, sometime soon. Good luck in your Robo-Olympics!

Pat Caron

9:21 PM

I am interested in a remote contest. Can-Can or Tabletop type of event. Something that can be done without a competitor as it's lonely in the north!

Carl Ott  
9:22 PM

Pat - Woo Hoo! Perhaps - can you pick a contest that calls to you - that could help rally other contestants  
;-)

Chris N  
9:25 PM

Need to go..... See you all next week!

ed mart  
9:27 PM

Cat6 router ?

Carl Ott  
9:28 PM

~9:27pm- Doug P showed a new and interesting looking Time-of-Flight sensor- the Broadcom AFBR-S50LV85D - appears to work up to 200 KLux (ie. very bright sunlight)

learn more here: <https://farnell.com/datasheets/3204136.pdf>

Carl Ott  
9:30 PM

32 pixels, range up to 30 meters... in the ~\$60 range

Carl Ott  
9:31 PM

<https://interestingengineering.com/company-designs-invisibility-shield>

Carl Ott  
9:34 PM

~9:34pm - Ray talking about progress making brackets...

Carl Ott  
9:38 PM

Ray - also showed - 10-inch brakes on a 1 inch shaft for his mower robot

Carl Ott  
9:40 PM

parts source: "Power Sports"

Carl Ott  
9:41 PM

also playing with 4-wheel drive - powered by wheelchair motors - skid steer since Ackerman Steering not so 'robotic like'. Hence will use the disc brakes plus a differential to lock one wheel and force the other to drive/rotate...

Pat Caron  
9:43 PM

Doug P, in the four corners competition, does the contestant decide where the robot starts or the judges?

Ponder SomeMore  
9:44 PM

you decide - starting point marked with a piece of tape - measure how close you get to that marker

Pat Caron  
9:45 PM

Thanks!

I think I found a contest

Carl Ott  
9:45 PM

Pat - Cool! What's caught your fancy?

Pat Caron

9:45 PM

Four Corners

Carl Ott

9:46 PM

Excellent!

Carl Ott

9:53 PM

Pat - I could see doing Four Corners with you - I don't have much time to make many changes, but I might be able to squeeze in some updates by June to one or two robots...

Carl Ott

9:59 PM

~Circa 9:55pm - lots of discussion around solar panel and then Lithium based battery powered energy system... Several recommendations for Battle Born Batteries: <https://battlebornbatteries.com/>