

## DPRG RBNV Chat Record – January 2, 2024

Carl Ott  
7:40 PM  
~7:37pm - John H gave an update on his projects.

Mickey Dean  
7:44 PM  
Jon, very impressive work, hope to see more.

Carl Ott  
7:45 PM  
A Bipedal robot and quad walker, with LiDAR and Oak-D-Lite...

Jim F - CalgaryAB  
7:45 PM  
Totally Agree @ Mickey Dean (4 Gold Stars from me) ;-)

Carl Ott  
7:46 PM  
MicroPython- RP2040... Lots of cool components.

Carl Ott  
7:48 PM  
Side Note - the recording will have an echo until about a minute ago - sorry...

Jon Hylands  
7:51 PM  
[jhylands@gmail.com](mailto:jhylands@gmail.com)

Jim F - CalgaryAB  
7:52 PM  
G'Day Eh! from YYC / Calgary Alberta Canada

Carl Ott  
7:52 PM  
Gold Star for John!

Jim F - CalgaryAB  
7:53 PM  
@ Carl Ott Totally Agree & @ Mickey Dean (4 Gold Stars from me) ;-)  
Oh, I guess Only 1 Gold Star per Vote. My Bad! ;-)

Mickey Dean  
7:57 PM  
Jon, very cool info!

Iron Reign  
7:59 PM  
What's the cost of those servos?

Jim F - CalgaryAB  
7:59 PM  
@ Carl Ott Mouser #:584-LTC4412IS6#TRPBF

Jon Hylands  
8:01 PM  
bioloid ax-12  
robotis

Carl Ott  
8:01 PM  
<https://emanual.robotis.com/docs/en/dxl/ax/ax-12a/>  
<https://www.trossenrobotics.com/p/ax-12a-18a-gear-set.aspx>

Carl Ott  
8:05 PM  
Interesting - these servos allow receiving and acting on position commands in a synchronous way - especially important e.g. for a robot like John's with 16 separate servos in the legs. They can also be queried - for position, temperature, voltage.... Lots of cool sounding features. Listed in RobotShop and AdaFruit and  
Mouser : v  
<https://www.mouser.com/ProductDetail/ROBOTIS/902-0003-001>

Ray

8:10 PM

Chris - was that your Dr. Evil (Mike Meyers) impression?

Carl Ott

8:10 PM

~8:09pm - Anuhya shared an update from Iron Reign - a highly competitive FIRST team -  
learn more <https://ironreignrobotics.org/about/>

Carl Ott

8:15 PM

there should be points for names - "Purple Pixel Eater"

Carl Ott

8:21 PM

we really need stars for names - I'd vote for a "Scoopagon" and a "SkyHook" all day long...

Mickey Dean

8:25 PM

nice work Iron Reign! good demo

Iron Reign

8:25 PM

The intake is called their pixinator.

Carl Ott

8:26 PM

pixinator | scoopagon | skyhook | purple pixel eater -> might need to give the judges seatbelts before presentation....

Mickey Dean

8:30 PM

I'm impressed

Carl Ott

8:39 PM

~8:38pm - If you've ever wondered how a SkyHook works - check this out...

Brad Garton

8:40 PM

contact sets.

Carl Ott

8:40 PM

handy feature for Fusion 360 <https://help.autodesk.com/view/fusion360/ENU/?guid=ASM-CONTACT-SETS#:~:text=Contact%20sets%20can%20be%20applied.computation%20than%20a%20motion%20joint.>

Carl Ott

8:42 PM

also joint limits - handy for Fusion 360 <https://help.autodesk.com/view/fusion360/ENU/?guid=GUID-543C82D9-F1E8-42B3-9C34-31BB108AFAA3>

Mickey Dean

8:44 PM

Using a soldering iron fuses plastic welds? Good to keep in mind, at least for older tips.

Iron Reign

8:45 PM

most 3d printer filaments can be heat welded.

Mickey Dean

8:45 PM

good to know, I hope to get to that point in a few years.

Carl Ott

8:46 PM

As it turns out - I broke a Nylon (?) part of a body trim panel in my truck over the holidays ... ChatGPT 4 said that it was possible to use a soldering iron to weld nylon - and recommended 260 to 300 C - so I tried a soldering iron - and yup - seems to hold...

Paul Bouchier

8:49 PM

If it can be melted, it seems you could use one of those plastic welders where you heat a U-shaped staple in an electric gun and push it into the plastic and twist it.

Mickey Dean

8:49 PM

is plastic any more difficult to clean off tips than solder?

Iron Reign

8:50 PM

usually easier to clean, it can charr.

Mickey Dean

8:50 PM

gtk, tx

Mickey Dean

8:54 PM

I am wondering about Blender,  
not sure it can do enough though.

Iron Reign

8:55 PM

Blender is a better fit for artistic purposes. For engineering a parametric modelling program is worth learning

Mickey Dean

8:55 PM

I kinda need cheap though.  
limited resources and all

Jon Hylands

8:55 PM

for personal use, OnShape is hard to beat.  
You don't need a high-performance PC to run it.

Mickey Dean

8:56 PM

gtk

Carl Ott

8:56 PM

As somebody who did little more than a few Blender courses at the Dallas Makerspace - I have the impression that Blender is better for modelling 3D gaming or videos - that it has lots of cool plugins even for things like physics - but that it's not tailored / focused on mechanical CAD like Fusion 360 or SolidWorks.

Iron Reign

8:56 PM

OnShape is good.

Brad Garton

8:56 PM

Design and Program postmortems help.

Mickey Dean

8:56 PM

Jon, I hope you attend more meetings, enjoy your robots and look forward to more.  
might even have questions.

Jon Hylands

8:57 PM

I've been using OnShape pretty much exclusively for 8-9 years.  
I use Linux as my main OS, so Fusion 360 isn't an option for me.

Mickey Dean

8:57 PM

well, I will move it to top of the list because I am at the point of needing to 3D model.

Jon Hylands

8:57 PM

There are a ton of tutorials on YouTube.

Jon Hylands

8:59 PM

<https://jons.page/pics/Roz-CAD-Model.png>

<https://jons.page/pics/Roz-Standing.jpg>

Mickey Dean

9:00 PM

That is impressive Jon.

Here I am just trying to 3D model a vibration isolation box for a mower and you are designing THAT!

Mickey Dean

9:02 PM

Karim, is being modest.

Jon Hylands

9:04 PM

I've been doing CAD for 25 years.

self-taught

Carl Ott

9:05 PM

Jon - following your passion - really cool where that's led.

Carl Ott.

9:06 PM

~9:04pm - Cooper shared an update on his generic controller concept.

Carl Ott

9:16 PM

Cooper raised an issue with using ESP32, since some of its pins interact in poor ways - e.g. the on-board ADC doesn't play well with Wi-Fi / and as Ray noted the on-board ADC has linearity issues near range extremes.

Jim F - CalgaryAB

9:23 PM

What about using the ESP32-S3 Devkit?

Carl Ott

9:24 PM

<https://docs.espressif.com/projects/esp-idf/en/latest/esp32s3/hw-reference/esp32s3/user-guide-devkitc-1.html>

<https://www.amazon.com/Espressif-ESP32-S3-DevKitC-1-N8R2-Development-Board/dp/B09D3S7T3M?th=1>

Jim F - CalgaryAB

9:25 PM

[https://www.espressif.com/sites/default/files/documentation/esp32-s3\\_datasheet\\_en.pdf](https://www.espressif.com/sites/default/files/documentation/esp32-s3_datasheet_en.pdf)

Jon Hylands

9:36 PM

<https://www.amazon.ca/dp/B08F9QQQQD>

Jim F - CalgaryAB

9:36 PM

Signing off now, G'Night Y'All. Happy New Year!

Carl Ott

9:38 PM

nice connectors - available with pre-crimped wires <https://www.hirose.com/product/series/DF13>

Hirose - DF13 Series -> small, keyed and positive lock (handle vibration well). Highly recommended by John H

Carl Ott

9:39 PM

available via DigiKey

Carl Ott

10:00 PM

~9:58 pm - Paul showed off his RoboColumbus mug - an awesome design for 2024~ Well worth the effort to compete...

~10:00pm - Paul gave an update with his Ubuntu / Docker / ROS1 exercise...

Doug Paradis

10:00 PM

\*2023

Carl Ott

10:10 PM

Paul showed ROS running on an RPi4 - and giving all the ROS GUI goodness. Then by ~10:08pm - Paul showed ROS2 running on RPi 0 - that combination is doable but not great in terms of performance. RPi4 could build his MowBot code in 3.5 minutes - whereas the RPi0 took 101 minutes with load between 4 and 7 (including tons of swapping)

Carl Ott

10:23 PM

~ 10:20 - Paul floated an idea for a workshop on ROS & Docker - geared for common DPRG interests.

Carl Ott

10:24 PM

~ 10:22pm - Paul showed a very interesting use case - to visualize data - with example data from his award winning (extra cool mug) RoboColumbus run from Nov 2023 - e.g. PlotJuggler.

Iron Reign

10:26 PM

what i learned today: wait for the day when your robot can consist of a network of independent sensors that each have their own dedicated 64-bit processor with 64gig of RAM running ROS3 in a docker where the sensor network infrastructure is entirely wifi8+ and all power connections have a infinite number of capacitors. and make sure your team is interested in both positive and "constructive" feedback.

Carl Ott

10:27 PM

With this example, Paul was able to capture very granular data from MowBot - then, using Plot Juggler - view various sets of data at various time scales - big picture / and very detailed...

Carl Ott

10:29 PM

a quick poll showed that lots of members would be interested in such a workshop(s)

Iron Reign

10:31 PM

thanks for a great meeting today y'all. I gotta bail.

Paul Bouchier

10:31 PM

[https://github.com/PaulBouchier/ROS\\_dockers](https://github.com/PaulBouchier/ROS_dockers)

Paul Bouchier

10:33 PM

<https://sites.google.com/site/paulbouchier/home/mowbot>

Cooper Clem

10:45 PM

Have to head out-- Thank Y'all!

Carl Ott

10:46 PM

Paul Likes these RViz PlotJuggler Where this one foxglove is like those on steroids... <https://foxglove.dev/>

<https://foxglove.dev/pricing>

ed mart

10:49 PM

Night