

DPRG RBNV Chat Record – November 26, 2024

00:03:57.042,00:04:00.042

Paul Bouchier: <https://www.youtube.com/watch?v=qJF84oz93jw>

00:06:23.529,00:06:26.529

Mickey Dean: could you guys add a amplifier for the outside

00:07:15.654,00:07:18.654

Mickey Dean: I must use an amplifier router for my upstairs

00:08:43.676,00:08:46.676

Carl Ott: Mickey - yeah probably a larger venue style outdoor access point would be a great addition for Steve. I've looked at those for my (much smaller) plot - I've seen them for something like \$200 or \$250 plus wiring and installation... feels like a big ask for a once-a-year scenario...

00:09:50.192,00:09:53.192

Carl Ott: I've had great luck with the (rather expensive) UniFi system in my house. If I was going to make an outdoor umbrella - I'd look at their options here <https://ui.com/wifi/outdoor>

00:10:02.284,00:10:05.284

Mickey Dean: Honestly, I am just using another wireless router connected to Wi-Fi, only because I did not want to run the ethernet and it made a difference

00:10:25.107,00:10:28.107

Mickey Dean: it is just relaying the Wi-Fi signal and does make a difference

00:10:51.659,00:10:54.659

Carl Ott: I'll bet it did - depending on where your wired AP is relative to the outdoor space.

00:11:05.929,00:11:08.929

Mickey Dean: I admit if I connected the second router to ethernet it would be even better but it did help my signal in the far back

00:11:14.863,00:11:17.863

Carl Ott: Remember - we were on a something like 2- or 3-acre space...

00:11:22.111,00:11:25.111

Mickey Dean: fair point

00:11:50.256,00:11:53.256

Mickey Dean: it is so much worse outdoors too

00:12:34.386,00:12:37.386

Jim F - CalgaryAB: Carl, would shielded cable 2-4 conductor work for serial communications on your Bot?

00:16:14.792,00:16:17.792

Mickey Dean: lol

00:17:07.919,00:17:10.919

Mickey Dean: Karim, I want to reiterate how awesome that Control Theory link was

00:17:25.832,00:17:28.832

Ponder SomeMore: yeah, amazing stuff

00:17:27.012,00:17:30.012

Carl Ott: Jim - After digging deep into that last week - I'm not so sure anymore. I now have a sense that it's an asynchronous transfer clobbering problem...

00:17:35.570,00:17:38.570

Mickey Dean: I mean I have come across several but that one was just the best I have seen

00:18:31.003,00:18:34.003

Mickey Dean: carl, are you thinking it is too much at one time?

00:19:18.521,00:19:21.521

Mickey Dean: I have yet to get to that aspect of a robot since I am still RC but I might find that useful info

00:21:25.843,00:21:28.843

Mickey Dean: this entire year has been tied up caretaking for my mother and yeah that means things are turning for the worse

00:24:07.788,00:24:10.788

Carl Ott: It's a small packet / 4 bytes -> 2 integers. But from what I've seen, some bits within a packet are simply lost or dropped but adjacent bits remain. The issue happened more often when I used the soft-servo library, and happened less after I changed to a hardware driven PWM library

00:24:21.952,00:24:24.952

Carl Ott: Carl Update

- DTBW- Duct Tape & Bailing Wire
 - o Mechanical platform finally blew out - about 30 years past due
 - o Didn't cross the start line on Saturday
 - o BUT - It worked well at my place
 - o <https://www.youtube.com/watch?v=R7Bk18DNDpE>
 - o Mechanical drive link breaks (not shared on YouTube)

00:35:10.323,00:35:13.323

Carl Ott: • Sensored Brushless Motors

- o I like the idea of well-integrated sensors
- o I like the idea of 2 sensor ports on a motor (minimal wiring)
- o I like the idea of fancy controllers with integrated telemetry (power, etc.)
- o If math is right, looks like I can get hundreds of ticks per wheel revolution / way more than needed
- o <https://chatgpt.com/share/67467890-ca3c-800e-b539-206222a79115>

00:35:36.537,00:35:39.537

Mickey Dean: best option

00:35:41.519,00:35:44.519

Mickey Dean: just expensive

00:36:20.536,00:36:23.536

Mickey Dean: I want to burn out brushed motor system because I am a novice and make silly decisions

00:36:26.189,00:36:29.189

Mickey Dean: but brushless is the goal

00:38:13.335,00:38:16.335

Paul Bouchier: Carl will build a new platform and led a discussion on brushless motors.

Group recommendation: they're great - use them - strong, don't burn out

00:39:59.762,00:40:02.762

Mickey Dean: VESC?

00:40:28.425,00:40:31.425

Mickey Dean: Carl, that is nice

00:40:36.538,00:40:39.538

Mickey Dean: I have not seen two ports

00:41:30.095,00:41:33.095

Mickey Dean: very expensive

00:41:50.205,00:41:53.205

Mickey Dean: torque too?

00:42:01.765,00:42:04.765

Mickey Dean: wow

00:42:51.675,00:42:54.675

Paul Bouchier: Ray: Simple FoC controllers are good.

00:43:07.094,00:43:10.094

Carl Ott: Karim mentioned that some of the fancier brushless motor controllers have built-in odometry, torque and various other measurements as well

00:43:37.463,00:43:40.463

Ponder SomeMore: <https://www.revrobotics.com/rev-11-2158/>

00:44:05.460,00:44:08.460

Mickey Dean: Karim, why are your robotics comps not allowed to use brushless systems?

00:44:52.651,00:44:55.651

Ponder SomeMore: Dunno why

00:44:59.619,00:45:02.619

Mickey Dean: ok

00:45:11.924,00:45:14.924

Mickey Dean: likely trying to keep cost down

00:45:14.706,00:45:17.706

Ponder SomeMore: sometimes they try to keep costs low so that less funded teams aren't as disadvantaged

00:45:22.144,00:45:25.144

Mickey Dean: yup

00:45:25.893,00:45:28.893

Mickey Dean: makes sense

00:45:29.213,00:45:32.213

doug paradis: Basic information on magnetometers:

How to Use Magnetometers on the Arduino - Ultimate Guide to the Arduino

<https://www.youtube.com/watch?v=MJPn77SOBMY>

Excellent!

A good YouTube video with a good library on the QMC5883L.

“QMC5883L 3-Axis Digital Compass and Arduino MCU – The Basics”

https://www.youtube.com/watch?v=xh_KCkds038

Interesting information on BNO055:

Possible solution: to use BNO055 compass.

<https://forums.adafruit.com/viewtopic.php?t=75497>

00:47:15.469,00:47:18.469

Mickey Dean: yup

00:47:24.267,00:47:27.267

Mickey Dean: it is that low range

00:47:50.394,00:47:53.394

Mickey Dean: Carl, it looks good

00:47:59.671,00:48:02.671

Mickey Dean: I look forward to seeing it in the future

00:48:41.834,00:48:44.834

Mickey Dean: Carl, just not sure you will be able to keep the body on it in my experience

00:48:58.295,00:49:01.295

Mickey Dean: the weight of the electronics will bottom out your suspension

00:49:29.411,00:49:32.411

Mickey Dean: Carl, but I hope you CAN

00:50:13.295,00:50:16.295

Carl Ott: Mickey - I share your concerns. There might need to be internal bracing. Plus - this will drive me to choose very light weight electronics and frame parts. So I'll likely stick to an OpenMV H7 or one like that, instead of the heavier/bulkier Oak-D-Lite

00:50:16.640,00:50:19.640

Mickey Dean: I wanted to retain my body on mine, but it just is not possible with the weight

00:50:40.771,00:50:43.771

Mickey Dean: Carl, I hope it works out, the body looks good

00:50:51.969,00:50:54.969

Carl Ott: ask me in 2026

00:51:02.848,00:51:05.848

Mickey Dean: I would prefer my body on mine too so I might be able to get some hints if you are able to brace it internally

00:52:37.960,00:52:40.960

Carl Ott: Thanks everybody for feedback on brushless considerations

00:56:50.821,00:56:53.821

Carl Ott: Mickey - you bet. we'll see - my first preference is to bury as much as possible 'inside' under the body. The body seems to be very flimsy thin plastic. But it also has that relatively sturdy roll bar cage over the truck bed - and the truck bed is apparently sturdy enough to hold a full-size/ full-weight spare tire.

00:56:54.653,00:56:57.653

Paul Bouchier: Michael I. showed Bluetooth speakers he's built as Christmas gifts for kids - they've got the kids' names backlit from inside the 3D-printed case.

00:57:32.856,00:57:35.856

Carl Ott: So, I suspect that mounting points and structure will be very model specific. Hence once I start to assemble it and see how it comes together - that will tell a lot about what structure and volumes and tolerances are available to play with.

01:01:22.132,01:01:25.132

Paul Bouchier: Michael showed TPU-printed cases for the speakers. They were really flexible and looked good.

01:02:12.214,01:02:15.214

Carl Ott: Michaels cases had 2mm walls and printed very well despite having quite tall walls

01:02:14.118,01:02:17.118

Mickey Dean: Carl, yeah, I suspected that it would be model specific, but I am looking for ideas how to add the supports, I would have no idea how to attach the nylon frame, but the skid plates are likely the best place to add supports

01:03:56.670,01:03:59.670

Mickey Dean: cheaper than buying tires

01:04:35.489,01:04:38.489

Mickey Dean: Karim, can you print knobby tires?

01:06:14.049,01:06:17.049

Paul Bouchier: Karim has printed a lot of tires out of TPU (NinjaFlex). Really tough & durable - they're fantastic. He makes some with infill or open frame, but they're not pneumatic.

01:07:12.995,01:07:15.995

Michael Ivison: <https://www.adafruit.com/product/1622>

01:07:34.933,01:07:37.933

Michael Ivison: Backlight

01:08:21.187,01:08:24.187

Mickey Dean: Doug, good thinking

01:10:08.333,01:10:11.333

Mickey Dean: Karim, can you print knobby tires?

01:10:20.374,01:10:23.374

Paul Bouchier: Doug - you're frozen

01:10:57.309,01:11:00.309

Ponder SomeMore: these are smooth fully enclosed tires:

<https://www.youtube.com/watch?v=hbDfvBTRt5o>

01:11:48.183,01:11:51.183

Ponder SomeMore: this is an open tire with tons of compliance:

<https://studio.youtube.com/video/R-2Is7-YfY4/edit>

01:12:42.112,01:12:45.112

Ponder SomeMore: if you pause it you'll notice a kind of gothic arch internal pattern

01:13:03.074,01:13:06.074

Mickey Dean: Karim, can knobby tires be printed, just curious

01:13:15.292,01:13:18.292

Mickey Dean: printed

01:13:24.265,01:13:27.265

Ponder SomeMore: yes - depending on the knobby profile

01:13:32.818,01:13:35.818

Mickey Dean: ty

01:14:06.753,01:14:09.753

Mickey Dean: 1/6

01:14:10.523,01:14:13.523

Mickey Dean: or 1/8

01:14:28.606,01:14:31.606

Ponder SomeMore: oops, this:

<https://www.youtube.com/watch?v=R-2Is7-YfY4>

01:14:30.678,01:14:33.678

Mickey Dean: i want a 1/6

01:14:41.918,01:14:44.918

Mickey Dean: had my eye on the Marksmen 1/6

01:26:27.937,01:26:30.937

Paul Bouchier: Mike W is tech director for the theater projects. It has kept him busy & out of club robot events. He has been working on percussion equipment for the theater.

01:49:04.957,01:49:07.957

Carl Ott: Paul showed RoboRemo - One Android app for ALL your Arduino projects

Bluetooth | BLE | WiFi | USB

In-app GUI Editor

Many supported boards and MCUs

<https://roboremo.app/>

01:52:03.575,01:52:06.575

Ponder SomeMore: Paul, specifically for ROS2, you might want to look at Vizanti. A telemetry and mission planner that runs on mobile:

<https://github.com/MoffKalast/vizanti/tree/ros2>

01:53:35.303,01:53:38.303

Mike Williamson: that looks interesting Karim

01:54:08.735,01:54:11.735

Pat Caron: I must go.

I did have a topic for discussion. Has anyone tried using camera-based landmarks to maintain a heading?

01:55:51.497,01:55:54.497

Mike Williamson: Like using an area LIDAR scan to keep the heading?

01:57:38.683,01:57:41.683

Paul Bouchier: Paul showed RobRemo app builder

01:59:11.653,01:59:14.653

Paul Bouchier: Carl said he's seen node-red with lots of widgets

02:02:17.693,02:02:20.693

Ponder SomeMore: here is a video showing bits of the vizanti interface from a year ago:

https://youtu.be/NZO6q_YMRwl?si=TSbkpM_u_uumANuk&t=493

02:03:30.159,02:03:33.159

ed mart: Gear reduction

02:09:13.810,02:09:16.810

Paul Bouchier: Karim - Vizanti for Ros2 - it has ros2 message interface for cell phone - can build topic displays

02:21:20.572,02:21:23.572

Ponder SomeMore: i got to run guys - goodnight

02:23:07.649,02:23:10.649

Carl Ott: Here's a simple -looking basic intro to Node-RED Dashboard <https://www.influxdata.com/blog/node-red-dashboard-tutorial/>

02:24:42.959,02:24:45.959

Carl Ott: and a link to the node-red-dashboard project <https://flows.nodered.org/node/node-red-dashboard>

02:26:21.523,02:26:24.523

Carl Ott: and also the Node-RED organization link - <https://nodered.org/> scroll down on that page to see links for node-red on Raspberry Pi, Android, BeagleBone Black and interacting with Arduino

02:26:32.809,02:26:35.809

Carl Ott: i.e. Raspberry Pi <https://nodered.org/docs/getting-started/raspberrypi>

02:28:24.663,02:28:27.663

Carl Ott: and Arduino - this lists some items like Blink and Johnny-Five - which have been around a while - and I recall similar capabilities / overlap with RoboREmo <https://nodered.org/docs/faq/interacting-with-arduino>