

## Dallas Personal Robotics Group RBNV Chat Record – December 5, 2023

Carl Ott

7:45 PM

~7:38pm Doug P presented thoughts he's gathering for a bang-up cup-winning / perfect score achieving 2024 RoboColumbus Rover. This was a good overview and brainstorming - looking for team feedback...

Carl Ott

7:56 PM

here's another idea for cables - readymade Molex PicoBlade pigtails.

<https://www.adafruit.com/product/4976>

Carl Ott

7:59 PM

Or - Amazon offers kits to build your own JST Molex PicoBlade cables - with readymade pre-crimped wires of different colors... <https://www.amazon.com/1-25mm-Connectors-Pre-Crimped-Pixhawk-Silicone/dp/B07S18D3RN>

Carl Ott

8:08 PM

Or - Gobilda has a nice variety of readymade cables in various connector styles <https://www.gobilda.com/wiring/>

Carl Ott

8:11 PM

Or - Pololu also has a nice selection of cable components <https://www.pololu.com/category/39/cables-and-wire>

Mike Williamson

8:12 PM

I have a show and tell on my new robot.

Carl Ott

8:13 PM

Hi Mike - got you on the list:

Cooper Brad Paul Carl Mike W Roy

Ray

8:23 PM

with a range in open field up to 220 meters ~ 722 feet

Tom C - Hamilton, ON

8:25 PM

NRF24L01+ 2.4G radio data xmission modules: AliExpress.

link: [https://www.aliexpress.com/item/1005005022515627.html?src=google&src=google&albch=shopping&acnt=272-267-0231&slnk=&plac=&mtcp=&albbt=Google\\_7\\_shopping&gclsrc=aw.ds&albagn=888888&ds\\_e\\_adid=&ds\\_e\\_matchtype=&ds\\_e\\_device=c&ds\\_e\\_network=x&ds\\_e\\_product\\_group\\_id=&ds\\_e\\_product\\_id=en1005005022515627&ds\\_e\\_product\\_merchant\\_id=661746429&ds\\_e\\_product\\_country=CA&ds\\_e\\_product\\_language=en&ds\\_e\\_product\\_channel=online&ds\\_e\\_product\\_store\\_id=&ds\\_url\\_v=2](https://www.aliexpress.com/item/1005005022515627.html?src=google&src=google&albch=shopping&acnt=272-267-0231&slnk=&plac=&mtcp=&albbt=Google_7_shopping&gclsrc=aw.ds&albagn=888888&ds_e_adid=&ds_e_matchtype=&ds_e_device=c&ds_e_network=x&ds_e_product_group_id=&ds_e_product_id=en1005005022515627&ds_e_product_merchant_id=661746429&ds_e_product_country=CA&ds_e_product_language=en&ds_e_product_channel=online&ds_e_product_store_id=&ds_url_v=2)

Carl Ott

8:28 PM

~8:24pm - Cooper presented brainstorming for a competition robot - including philosophy & methodology concepts geared to help see a build all the way through and complete a build.

Dan Gates

8:34 PM

Gotta run; I'll drop in from time to time though.

Carl Ott

8:34 PM

Doug Assuming your overall goal is high score – I suggest this approach.

1. Pick a minimal set of items you have the most experience & confidence with
2. Quickly put them together on the hardware base you already have. Quick, Clean but NOT Perfect. If you worry about the future – define a cable standard and module mounting standard – then move on.
3. Get a baseline working. See how many points you can get with baseline.
4. ONLY after you hit a progress wall – ONLY THEN go ahead and try swapping out one module at a time.

Bottom line:

- Go for points

- Force modularity as you need it (i.e., aside from cable and mechanical interfaces, don't spend too much of the year stuck in analysis and architecture.

I just imagine Scott, Ray and Paul shivering in their boots... This'll be fun!

Mickey Dean

8:39 PM

Notion is AWESOME!

Mickey Dean

8:41 PM

I need to learn how to use Git

I have some notion and Obsidian projects that I should put up on it if for anything else is version control

You

8:42 PM

Mickey - how do you use Notion?

Mickey Dean

8:42 PM

mainly as a capture tool

but it organizes all my web clips and notes in database that is very configurable.

it is Evernote on steroids.

Carl Ott

8:44 PM

speaking about Evernote... <https://lifehacker.com/tech/best-evernote-alternatives>

Mickey Dean

8:45 PM

Thomas Frank is a great resource for anyone who wants to learn to use Notion.

Mickey Dean

8:48 PM

Spooki (Cooper), are you intending to send encoder data wirelessly?

Mickey Dean

8:50 PM

it is cool for sure.

Mickey Dean

8:52 PM

but can you really have a kill switch on an XBOX controller?

Mickey Dean

8:54 PM

FSD

Mickey Dean

8:57 PM

and I do not think ROS is that hard.

ROS is a well-documented framework.

Mickey Dean

8:59 PM

and lots of great YouTube tutorials that take you through the basics.

Carl Ott

9:00 PM

~8:56pm~9:00pm - Paul showed an example Requirements document that he used for Engineering Documentation of his MowBot rover. An approach he's also leveraged on the job as a system engineer.

Mickey Dean

9:01 PM

that would make a GREAT Notion template, I am "borrowing" it.

Mickey Dean

9:03 PM

Obsidian is awesome TOO!

Paul's document looks like AGILE documentation.

Carl Ott

9:06 PM

I see Paul's document style more like the "traditional" system engineering approach we used when designing military electronics and subsystems for tanks and airplanes.

Mickey Dean

9:07 PM

Admittedly I am new to this project management stuff, I just know I HAVE to learn it. proper documentation is essential.

Carl Ott

9:07 PM

I see Agile's requirements more in story form - like "As a hobby robot operator, I want a general-purpose controller so that I can send commands to a robot and view telemetry."

Mickey Dean

9:07 PM

ahh, thanks, I honestly have only started looking for templates like what Paul showed.

Carl Ott

9:08 PM

and then, you'd break that larger story down into more granular layers of more detailed stories.

Paul Bouchier

9:08 PM

Agile uses user stories & use cases a lot, and "the system shall do x" a lot less. I think both have benefits and use both.

Mickey Dean

9:08 PM

If you have any search terms for traditional documentation it might be more to my liking since I liked Paul's

Carl Ott

9:08 PM

Many ways to crack an egg - lots of ways to pull these various tools together.

Spooki (Cooper) Looper

9:09 PM

if you right click on his camera, you can pin it like it's a presentation.

Carl Ott

9:10 PM

~9:09pm - Brad is back with DPRG after some hiatus - and gave an update on his robot project.

Paul Bouchier

9:12 PM

Agile doesn't like "The system shall...." type requirements because they imply waterfall projects, and that is anathema to the agile way, which focuses on situations where requirements are not known. Agile is a good technique where requirements are not known, which is often the case in business situations where you don't have the full attention of the managers who are being asked to provide input to a web or inventory or some such design. That is typically not the environment in which hardware is designed, or in which robots run.

Mickey Dean

9:13 PM

good info, and I suppose I just need solid project management templates. so, I can get in the mindset of proper requirement and over all documentation.

Paul Bouchier

9:14 PM

Waterfall has its weaknesses, but its strengths too, which are not typically acknowledged by the Agile community. IMHO they both have their place, depending on the environment in which the design is being done. Agile doesn't do big, DoD projects well though - the only successful approach, "Scaled Agile" takes on elements of waterfall.

Carl Ott

9:17 PM

Having spent plenty of time in large projects using both waterfall and agile and even blended environments - I largely agree with Paul - especially on the existence of pros and cons for both approaches. But I'd suggest that "Agile mindsets" can be applied to projects of all types - including hardware projects. I'll post a link to a good project management book on exactly that topic momentarily...

Mickey Dean

9:17 PM

Last thing I will say on Notion and Obsidian...I love them both, but Notion is far more user friendly out of the box and has really good database features...Obsidian is more extensible, especially if you know JavaScript or CSS, but it requires effort, and they will soon have database support too

Carl Ott

9:17 PM

In my view - Bottom line for documentation for DPRG level projects. I find it helpful to pick a template you feel comfortable with. Pick something lightweight that you find helps you keep your ideas straight in your own brain. And preferably also something that you find makes it easy to communicate with others, and tailor it as you need.

Mickey Dean

9:17 PM

they have a redneck database functionality currently, but they have bigger plans.

Ray

9:18 PM

manta ray shaped.

Paul Bouchier

9:19 PM

Mickey Dean - just do differentiate between requirements engineering and project management: requirements engineering comes before the project - it's creating the definition of the project. Project management comes after, to plan/track schedule, resources, & make sure the project delivers to expectations.

Carl Ott

9:20 PM

agreed - it's easy to mix those concepts. Especially in one-person hobby projects when you don't have experience in larger multi-person / multi-team projects.

or if you're like me and you've been away from larger multi-person / multi-team projects for 8 or 10 years...

Mickey Dean

9:26 PM

nice Paul

I am interested in Docker containers.

Carl Ott

9:26 PM

~9:25pm - Paul - 1) last week demoed ROS running in a docker / to allow upgrading laptop to a newer Ubuntu. ->

Results -> that upgrade worked and the docker still runs using ROS1!

Carl Ott

9:28 PM

2) Paul explored the "cheapest possible ROS robot" - that Doug presented last week. Micro ROS2- as something which can run in a microcontroller environment and publish messages to a larger ROS stack.

Mickey Dean

9:31 PM

Is that Harold?

Mickey Dean

9:32 PM

scalability

Ponder SomeMore

9:33 PM

[https://www.theconstructsim.com/robotigniteacademy\\_learnros/ros-courses-library/ros2-basics-course/](https://www.theconstructsim.com/robotigniteacademy_learnros/ros-courses-library/ros2-basics-course/)

Mickey Dean

9:33 PM

you probably have to understand ROS before MicroROS, since you still have to have ROS to run microROS from what I am hearing.

Mickey Dean

9:34 PM

Karim, you should be proud of your Padawans.

Ponder SomeMore

9:35 PM

proud, I am.

Mickey Dean

9:35 PM

:)

Carl Ott

9:39 PM

Cool Active Ball Joint Mechanism - Spherical Gear Meshing gives 3 Degrees of Freedom

- [https://youtube.com/watch?v=AHUv9Zda\\_48&si=9xx9jqD9M5QIFoDu](https://youtube.com/watch?v=AHUv9Zda_48&si=9xx9jqD9M5QIFoDu)

Mickey Dean

9:41 PM

MAP

Spooki (Cooper) Looper

9:41 PM

Another cool mechanism in the same vein- A spherical parallel Manipulator

<https://www.youtube.com/watch?v=2i5qN2XWZLk>

Carl Ott

9:42 PM

- Solder Seal Butt Terminal Waterproof Insulated Electrical Butt Terminals Wire Splice

- <https://www.amazon.com/dp/B083LZS69N>

Paul Bouchier

9:43 PM

Mickey Dean, I agree with your sum.