

## DPRG RBNV Chat Record – April 9, 2024

Mickey Dean

7:34 PM

nice car!

Jim F - CalgaryAB

7:38 PM

Hello from YYC / Calgary Alberta Canada ca

Paul B.

7:38 PM

Hi Jim

Jim F - CalgaryAB

7:39 PM

26% Eclipse. Perfect weather. I did not see it.

Jack

7:40 PM

I might have something to show.

Paul B.

7:41 PM

The Queue

Doug P

Doug D

Jon

Tom

Mike W

Jack

Ray

Mickey Dean

7:54 PM

I for one am happy you offer BOTH, I like Discord but I would like to also see things from others like Mr. Anderson, I hope to see him soon.

valid point doug

Mickey Dean

8:02 PM

I tried to register three times over the last 2 years but only get the weekly meeting messages. but I will wait for the new version.

Mickey Dean

8:06 PM

asking things in a good direction

Jim F - CalgaryAB

8:06 PM

Agreed with Harold. Congrats 🎉 to Paul.

Mickey Dean

8:06 PM

I have been a fan all all you guys for 2 years now.

npt sure what happened in an earlier post, but I think Paul is taking things in a good direction

Mickey Dean

8:08 PM

I just want a robot mower channel.

I have tons of links of various robot mower options.

Mickey Dean

8:12 PM

Good job Jon.

Mickey Dean

8:13 PM

right, they abandoned podcasts recently.

that made a few folks angry.

Mickey Dean

8:15 PM

paul, can we get a robot mower section or is that too much to ask.  
hopefully update the website too

Jon Hylands

8:16 PM

Mickey, that is exactly what the discord server is all about  
Or is that what you're talking about?

Mickey Dean

8:17 PM

Google Workspaces might add some REAL advantages.

Jon Hylands

8:17 PM

Ah, okay.

I have my own site for longer-lasting stuff I want to put out there.

Mickey Dean

8:18 PM

jon, and I for one appreciate your content.

Jon, I only hope I can document as well.

I still am trying to figure out Github along with a million other things since deciding to build a robot with zero experience.

Mickey Dean

8:21 PM

What is the MP? I can't read it.

but no stereo

stereovision

Paul B.

8:22 PM

Doug P showed the new ArduCam PiNSight AI camera. Does AI heavy lifting.

Mickey Dean

8:22 PM

and therefore, no depth perception

Mickey Dean

8:24 PM

Anyone see the MP on the Arducam?

I just can't read it

Mickey Dean

8:25 PM

sigh

Paul B.

8:27 PM

Micky Dean - Mower channel is an interesting idea. Why don't we start with a mower thread in the discord? No objections to adding new channels where appropriate but have to be careful about channel proliferation beyond what makes sense. I'd certainly contribute to a mower channel. Karim has suggested threads until we see a need for a full-blown channel.

Doug P did demo of the Arducam using AI to recognize a cone and report its xy position.

Mickey Dean

8:28 PM

sure Paul, just pick a channel for the thread,

Ted Meyers

8:29 PM

Mickey D - 4K camera....

<https://www.arducam.com/arducam-pinsight/>

Mickey Dean

8:29 PM

Ted, tyvm

I honestly can't figure out how to make the presentations bigger  
still need to know if it is just 16MP though.

Ted Meyers  
8:30 PM  
yeah, a bigger screen is about all you can do...

Jim F - CalgaryAB  
8:30 PM  
What's the new cone Color Doug P? 🤔

Mickey Dean  
8:30 PM  
I am still new to what 4K might mean I tend to know more about 16MP vs 50MP.

Ted Meyers  
8:31 PM  
12MP Sony Sensor Camera Module

Mickey Dean  
8:31 PM  
ty Ted

Ted Meyers  
8:31 PM  
From PiNSight web page

Mickey Dean  
8:32 PM  
I am still not sure if 12 MP and 16MP are better for CV than a 50MP.  
I have heard more resolution means more compute.

50MP

Ted Meyers  
8:33 PM  
Yeah, I would think that you want as little resolution as is "good enough."

Mickey Dean  
8:33 PM  
I have a 64MP in a spare smartphone and am thinking of using it for my ML and CV since I can leverage the GPUs but not sure I would want to use the 64MP.

Ted Meyers  
8:34 PM  
But if you want to see small cones very far away... you want a lot of pixels

Mickey Dean  
8:34 PM  
might be better off using one of the 2 12 MP (one being wide angle)

Ted, good info, I am more thinking for a mower, but I get the comps are primary for you guys, and I WANT to run a comp in the future.  
I WILL run a comp in the future.

Mickey Dean  
8:35 PM  
but the mower is what is making me learn.

Ted Meyers  
8:36 PM  
That's cool! I can't every come up with good projects, so I use the competitions as motivation.

Mickey Dean  
8:36 PM  
I want an Oak D-Lite and the smartphone.

Ted Meyers  
8:36 PM  
I think I meant "ever" or "even."

Mickey Dean  
8:38 PM  
then you have the biases

Paul B.  
8:38 PM  
Doug P described using Roboflow to import all different pictures of cones in different lighting conditions, positions etc. Roboflow runs a model & trains the model. Then you export the weights to your machine. The exported data

includes the architecture of the neural net as well as the weights for each element. You can import this into a variety of AI vision processing engines.

Mickey Dean

8:38 PM

ML has been a fascinating research area; I am still a novice.

but I look forward to the ML.

I WANT video.

Jon Hylands

8:39 PM

compute required scales with the square of MP.

Paul B.

8:41 PM

Doug D showed pictures of him and his robodog at a conference, both in steampunk-ish gear

Mickey Dean

8:42 PM

ty Jon

Paul B.

8:43 PM

Doug showed Robodog running at the conference at Galveston Steampunk Festival.

Mickey Dean

8:46 PM

doug, glad you got to go and had a successful demo... just a shame robots are not conducive to all terrains, but you have NOTHING to be ashamed of given how much effort you put in, in such a short time. mine has taken 2 years and still another 2 away.

I LOVE the idea of steampunk robots.

Paul B.

8:47 PM

GOLD STAR for Doug D - showed his robodog running.

Mickey Dean

8:48 PM

seriously!

a 1:18

Harold Pulcher

8:48 PM

<https://www.zerotier.com/>

Mickey Dean

8:48 PM

but it is not automated, right Jon?

Jon Hylands

8:48 PM

It is not

Mickey Dean

8:49 PM

1:18, seem hard to make automated.

Jon, I am a fan of RC Rock Crawlers.

but I have abandoned any thought of automating a 1:18

Paul B.

8:50 PM

Jon showed a picture of a 15cm wheelbase RC rock-crawler.

Jon Hylands

8:50 PM

I'm automating my 1/10 scale rock crawler.

Mickey Dean

8:52 PM

Harold, what is the lag on a setup like that though?

Paul B.

8:54 PM

Harold brought up zeroTier as a way to create a SW defined network across the internet. Possible way to have your robot on a cellular network and my laptop on my home network and have them talk as if they're on the same network. Up to 25 units is free.

Mickey Dean

8:55 PM

Jon, that would be AWESOME.

Jon, I like your project.

I just wish I had a 3D printer.

Mickey Dean

8:57 PM

Jon, I for one am glad you have joined the DPRG group group

Ashely, I want to welcome you to the group.

Paul B.

8:58 PM

Jon talked about his Universal Robot Configurer and offered to do a presentation this Saturday afternoon (EDT), from 10am - 6pm. Will give a presentation.

Discord invitation <https://discord.gg/Pz35GUR5>

Mickey Dean

9:00 PM

Discord allows Desktop share too.

Paul B.

9:00 PM

Interested ppl will discuss how to program the Universal Robot Configurer in the #meeting channel.

Mickey Dean

9:00 PM

right, we can give it a go.

OBS can be used.

Paul B.

9:01 PM

Paul will advertise his talk to the list.

Mickey Dean

9:01 PM

OBS Studio can be used on Discord.

agreed, very generous.

Mickey Dean

9:02 PM

that would be awesome.

Ray send us a link

Mickey Dean

9:04 PM

Jon, can you post the link

Jon Hylands

9:05 PM

<https://www.lilygo.cc/en-ca/products/t-sim7080-s3>

Mickey Dean

9:05 PM

ty sir.

Paul B.

9:05 PM

Ray showed a cellular module T-SIM-7080=S3 that talks data over a cell network. Mobile service costs \$5/mo for \$300 MB of data. Has GSM unit. Random Nerd tutorial has a tutorial on it.

To the ESP32 it looks like it's connected to a TCP/IP stack

Mickey Dean

9:09 PM

Good info Tom

Paul B.

9:09 PM

Tom C showed a stripped-down Roomba and a small board that carries a RPi Pico and has other robot peripherals. He found differences between which pins are mapped to which IOs. Various Ali Express variants differ from the standard RPi pinout.

Mickey Dean

9:12 PM

I prefer python overall myself, but I am a novice.

Paul B.

9:12 PM

Tom is still learning how to run micropython on an RPi Pico. Jon knows where to find libraries for Picos and offered to help Tom.

Paul B.

9:14 PM

Ray showed a micro-vacuum cleaner robot - what happened when he put a Roomba through the wash, and it shrank :-  
)

Paul B.

9:17 PM

Mike W is using OpenMV with the new OpenMV camera. When he powers up, the camera won't talk to ROS until he replugs the camera and restarts ROS. Puzzled. Brainstorming possible issues.

Mickey Dean

9:20 PM

THEY HAVE A Discord

WELL, ROS DOES

NOT SURE IF OpenMV DOES OR NOT

BUT ROS HAS A Discord

IT does SOUND LIKE A ROS ISSUE

Paul B.

9:21 PM

ROS complains it can't open the serial port after an RPi power cycle until the camera is replugged.

Mickey Dean

9:21 PM

it sounds more like an ROS issue.

and they have Discord.

Mickey Dean

9:24 PM

the byId might be the issue.

Jon Hylands

9:25 PM

```
jon@jon-desktop:~$ ls -l /dev/serial/by-id
```

```
total 0
```

```
lrwxrwxrwx 1 root root 13 Apr  9 22:23 usb-OpenMV_OpenMV_Virtual_Comm_Port_in_FS_Mode_366231603333-if00 -> ../../ttyACM0
```

Pat C

9:27 PM

```
# udevadm info --name=/dev/ttyUSB0 --attribute-walk
```

```
#ACTION=="add", SUBSYSTEMS=="usb", KERNELS=="1-1.1.3:1.0", SYMLINK+="USB-disk", TAG+="uaccess"
```

Paul B.

9:29 PM

Mike published battery monitor data to a ROS topic. He has installed plot juggler.

Mickey Dean

9:29 PM

Jon, I appreciate as much as Mike, likely does the troubleshooting advice, I still have no idea what camera system I will use but from what you guys seems to be saying even Oak D-lite uses OpenMV correct me if wrong

Mickey Dean

9:32 PM

or use plot juggler on a separate machine

Mickey Dean

9:37 PM

Coll Jack

I like app work

Ponder SomeMore

9:37 PM

not sure what you mean Mickey. OpenMV and Oak are different.

Paul B.

9:38 PM

Jack showed his phone GUI for his coffee robot.

Mickey Dean

9:39 PM

Jack, I like your project!

great progress

Jon Hylands

9:39 PM

Oak-D Lite is something completely different from OpenMV

Mickey Dean

9:39 PM

Flutter

Jon Hylands

9:40 PM

OpenMV is a standalone camera that does a lot of OpenCV like stuff onboard, and sends data over a serial port to whatever it's plugged in to

Carl Ott

9:40 PM

Flutter -> is a UI framework by Google.

Nice job Jack! Looking good...

Mickey Dean

9:41 PM

Jack, even the Fold

just curious

Jon Hylands

9:41 PM

Oak-D Lite is a stereo depth camera that also plugs in via USB, but it runs ML models and also does stereo depth mapping onboard.

Comparing the two is like comparing an Arduino to a Raspberry pi in terms of horsepower.

Carl Ott

9:42 PM

Flutter can also render nicely to regular old web browsers - so - a single source, but app can relatively easily target different platforms, e.g. iOS / Android / Browser... Flutter makes it relatively easy to give a consistent interface across disparate platforms.

Mickey Dean

9:43 PM

Great question Paul!

Paul B.

9:43 PM

Jack is using Flutter to develop a Pixel app. Flutter is a cross-platform (IOS & Android) GUI platform. Jack also showed a Todo list manager he's written. Unsure at present how the app will connect to an RPi that will operate the robot.

Carl Ott

9:45 PM

~ 9:43pm - Paul briefly summarized his cross-world architecture to use MQTT and Amazon services to connect physical hardware to a web app.

Carl Ott

9:48 PM

<https://mqtt.org/>

Mickey Dean

9:48 PM

Dart is a language.

correct

?

Paul B.

9:48 PM

Carl: his company uses Flutter as a write-once run-everywhere, and you can implement MQTT in Flutter. Dart is a language you use when programming apps in Flutter.

Mickey Dean

9:48 PM

Paul yes we are  
dart is a huge addition  
along with MQTT

Carl Ott

9:50 PM

more about Flutter <https://flutter.dev/>  
about the Dart programming language <https://dart.dev/>

Mickey Dean

9:52 PM

a Home assistance option for coffee maker would be IDEAL.  
so it is WORTH looking into Jack, though I am sure you are already convinced

Paul B.

9:53 PM

Harold & Pat talked about Home Assistant which has a huge ecosystem based on MQTT.

Mickey Dean

9:54 PM

if Paul B. introduce an auto-coffee make you HAVE to entertain Home Assistance

Jack, have you joined Discord yet.

Jack, I would love to see more of you on Discord.

Mickey Dean

9:55 PM

I love the idea of home Assistant integration  
and I love coffee.

Jack

9:57 PM

Yes, I have joined the discord server, but I am not on it as much as I'd like to. I'll definitely look into the home assistant that sounds interesting.

Mickey Dean

9:57 PM

i am also so glad you guys bring up your chassis decisions.  
great info



I am still stuck on lawn mower chassis and RC chassis; I love how you explain your chassis.

Paul B.

9:58 PM

Ray showed his ESP32-based simplified motor controller implementation based on SimpleFoc controller. Using AS5600 for encoder feedback

Mickey Dean

10:00 PM

great info Jon

Mickey Dean

10:02 PM

darn good info

Mickey Dean

10:03 PM

GREATR info Ray and Jon

someone ask Jack to join Discord

Mickey Dean

10:04 PM

I would love to follow up with him on his app dev

but I do not think he is on discord; he might prefer not to be.

and that is fine.

but I for one would welcome the update on his Flutter dev

Mickey Dean

10:06 PM

Jack, I just saw you said you joined.

no biggie on the participation, as I do not either

I hope to SOON.

Harold Pulcher

10:09 PM

<https://www.vcfsw.org/>

Jon Hylands

10:10 PM

I have to run - very late here

Jack

10:12 PM

By the way my discord name is Cicero, but you probably haven't seen it there.

Jim F - CalgaryAB

10:12 PM

Bye Jon.

Mickey Dean

10:12 PM

I have an olde Apple 2E

i wonder if they would want it.

that is the oldest antique I have.

Carl Ott

10:14 PM

Mickey is your Apple 2E running? Those can fetch a nice price, can't they?

Mickey Dean

10:14 PM

still hoping the apple 2E will have value one day.

Paul B.

10:15 PM

Harold talked about Vintage Computer Festival Southwest. At UTD June 14th - 16. vcfsw.org

Pat C

10:16 PM

Getting very late here. See you next week.

Carl Ott

10:16 PM

Paul - Reminder to copy / paste the chat for web site notes...  
only somebody who's been online the whole time can grab those