# DPRG RBNV Chat Record for August 6, 2024

00:05:26.245,00:05:29.245

doug paradis: Mike showed a ROS demo with two nodes

00:06:06.498,00:06:09.498

doug paradis: an LED and an ultrasonic sensor using an Rpi 0 2w.

00:06:31.358,00:06:34.358

doug paradis: He also showed a github repo for the project.

00:11:16.649,00:11:19.649

Mickey Dean: mike did you post the link to your github? I had to refresh as I keep getting a green screen on presentations so I might have to watch the youtube

00:11:50.994,00:11:53.994

Mark R: https://github.com/mikew123/ros2_pizero2w_dprg_ws

00:12:21.928,00:12:24.928

Mickey Dean: ty Mark

00:15:15.116,00:15:18.116

Mark R: NP Mickey.  Here is the ROS2 Iron installation if anyone needs it too

https://docs.ros.org/en/iron/Installation/Alternatives/Ubuntu-Development-Setup.html

00:20:14.083,00:20:17.083

Mickey Dean: Doug P., can I calibrate the Compass outside my platform given my platform has a lot of metal? or does calibration have to occur with the metal platform to be accurate?

00:20:35.147,00:20:38.147

Mickey Dean: thanks, again Mark, that is good info

00:25:43.463,00:25:46.463

Mickey Dean: Scott, ty for bringing this up

00:26:07.563,00:26:10.563

Mickey Dean: there is no way I can use a magnetometer in my current gas engine mower

00:26:45.997,00:26:48.997

Tom C - Hamilton, ON: Maybe on top of a 6-foot pole [grin]

00:27:40.861,00:27:43.861

Mickey Dean: I am considering it but I still worry about the calibration process...if I can calibrate it separately then I am golden, but I suspect I would have to calibrate ion the platform and it is heavy and bulky

00:27:54.200,00:27:57.200

Mickey Dean: it is protype but it gets me into this field

00:28:17.105,00:28:20.105

Paul Bouchier: Francis Grovers

00:28:33.336,00:28:36.336

Mickey Dean: well 6 foot is pretty excessive

00:28:38.056,00:28:41.056

Mickey Dean: i was thinking 3 feet

00:28:59.413,00:29:02.413

Mickey Dean: but I saw the grin

00:30:35.674,00:30:38.674

Mickey Dean: i plan on doing an electric mower next year

00:30:57.720,00:31:00.720

Mickey Dean: just working out the motor system on the heaviest worst case usage

00:43:39.248,00:43:42.248

Mike Williamson: ROS simple DPRG tutorial on GitHub, not fully fleshed out yet.. Only has a LED and SR04 HW and ROS nodes ..
https://github.com/mikew123/ros2_pizero2w_dprg_ws.git

00:44:07.123,00:44:10.123

Pat Caron: Thanks Mike

00:46:16.581,00:46:19.581

Mark R: The Makerspace media guys just sent me the RoboRama promo video! I can show that (hopefully)

00:47:49.786,00:47:52.786

Mickey Dean: John K, can you post that link in chat

00:48:58.240,00:49:01.240

Mickey Dean: you almost have to have a tether underwater, don't you? at least for video transmission

00:49:58.403,00:50:01.403

Mickey Dean: at least a tether to a buoy

00:51:22.997,00:51:25.997

Blue: John K. showed us

00:51:24.886,00:51:27.886

Blue: https://www.instructables.com/Build-Your-Own-Underwater-Robot-V2/

00:51:31.216,00:51:34.216

Mickey Dean: ty Blue

00:52:15.564,00:52:18.564

Mickey Dean: it is one thing in a swimming pool

00:53:31.599,00:53:34.599

Mickey Dean: I want to do fishing with a buoy with snar

00:53:41.834,00:53:44.834

Mickey Dean: sonar

01:00:15.644,01:00:18.644

Mickey Dean: John K can you post that link

01:00:28.181,01:00:31.181

Mickey Dean: I love DIY stuff like that

01:05:11.106,01:05:14.106

Mickey Dean: sure would like to see the link in chat

01:09:33.295,01:09:36.295

Jon Hylands: Talking about weight distribution in a balancing robot:
https://wired.chillibasket.com/2015/10/putting-it-all-together/

01:11:56.714,01:11:59.714

Jon Hylands: "Weight Distribution: Self-balancing robots work on the principle of an inverted pendulum. This means that the system is most stable when all the mass is positioned as high as possible. This seems to go against common sense; usually systems are more stable when they have a low center of gravity. In this case keeping the mass on top increases the inertia of the system, meaning that the robot has more time to respond to changes in balance. "

01:14:16.735,01:14:19.735

Pat Caron: This is just as good as a PID discussion!

01:14:43.453,01:14:46.453

doug paradis: @pat he he he <grin>

01:14:46.310,01:14:49.310

Paul Bouchier: http://www.geology.smu.edu/dpa-www/robo/nbot/index.html


01:19:39.366,01:19:42.366

Mickey Dean: but is the weight distribution on top?


01:24:00.288,01:24:03.288

Pat Caron: Doug, are you ok to stop the recording?

I have an early morning


01:24:43.762,01:24:46.762

Jon Hylands: https://www.youtube.com/watch?v=f9GJqqUpL2w


01:26:10.932,01:26:13.932

Mickey Dean: cartpole


01:27:38.275,01:27:41.275

Mickey Dean: i only see a green screen


01:27:42.522,01:27:45.522

Mickey Dean: can you post the link


01:27:45.424,01:27:48.424

Pat Caron: See you guys' next week

01:28:41.698,01:28:44.698

Mickey Dean: shoot, I can't see any presentation...i will just wait for the YouTube


01:32:41.974,01:32:44.974

Jon Hylands: Mickey - https://www.youtube.com/watch?v=cRs_suxlhTU


01:33:53.189,01:33:56.189

Mark R: Thats awesome Harold, sign me up for one! :D


01:34:07.865,01:34:10.865

Tom C - Hamilton, ON: FWIW, the linked research article (although heavy in analysis), makes the point in section 6.2 regarding where to place the battery...
https://www.researchgate.net/publication/332739123_Design_of_a_Two-Wheel_Self-Balancing_Robot_with_the_Implementation_of_a_Novel_State_Feedback_for_PID_Controller_using_On-Board_State_Estimation_Algorithm


01:39:24.073,01:39:27.073

Kyle: what's the difference between the photon and an Esp32?


01:40:57.457,01:41:00.457

ed mart: Swag day!


01:48:57.510,01:49:00.510

Paul Bouchier: A different view of high vs low CG in a balancing bot: The first article has a good description of the tradeoffs


01:48:58.747,01:49:01.747

Paul Bouchier: https://www.quora.com/What-effect-would-the-structural-height-of-a-2-wheeled-self-balancing-robot-have-on-controlling-it

01:49:43.998,01:49:46.998

Paul Bouchier: In summary, higher CG robots require more power, & have more challenging control issues, and a smaller range of perturbation from which it can recover.

01:52:06.491,01:52:09.491

Paul Bouchier: But… higher CG is more stable at rest

01:52:15.436,01:52:18.436

Jon Hylands: https://jons.page/pics/RPI-Zeros.jpg

01:55:02.806,01:55:05.806

ed mart: Hackster IO was big into Edison

01:58:15.636,01:58:18.636

Jon Hylands: Gotta run, see you all in 2 weeks (next week I'll be offline up in Algonquin Park)

02:02:45.951,02:02:48.951

Ponder SomeMore: will the starting line be oriented such that it will point the robot in the direction of the first cone?

02:03:36.345,02:03:39.345

Ponder SomeMore: rule said robot had to be oriented with the starting line

02:07:20.378,02:07:23.378

Paul Bouchier: @pondersomemore quote please - I read that as optional

02:09:23.312,02:09:26.312

Ponder SomeMore: ok

02:10:38.108,02:10:41.108

Ponder SomeMore: robot-planned (zero-waypoint) – competitors will receive no waypoints and are not

allowed to walk the course before the competition. The cones or start line may need to

be repositioned for this challenge. The robot must "find the cones" on its own, regardless

of arbitrary obstacles. The cones will be placed in the first quadrant of the course with x

and y directions based on the starting line's orientation

02:10:53.877,02:10:56.877

Ponder SomeMore: what does the last line mean?

02:18:02.708,02:18:05.708

Ponder SomeMore: isn't it guaranteed that the challenge cone is invisible from the 1st cone?

02:18:19.987,02:18:22.987

Paul Bouchier: yes

02:19:07.158,02:19:10.158

Ponder SomeMore: but owner can point the robot at the 1st cone?

02:21:00.247,02:21:03.247

Paul Bouchier: Any direction is what Doug said. "At the start of each run, the robot's owner places the robot 'behind' the starting line, which will

be located near the home cone. The robot may be turned to any angle when initially placed. "

02:22:22.769,02:22:25.769

Ponder SomeMore: doesn't seem to be any prohibition against quadcopters

02:23:43.401,02:23:46.401

Paul Bouchier: "The robot must remain in contact with the ground during the complete run. A short loss of

contact with the ground due to bumps, obstacles, or other reasonable situations is allowed."

02:23:57.529,02:24:00.529

Ponder SomeMore: trailing a string

02:24:22.142,02:24:25.142

Paul Bouchier: You're struggling Karim! LOL

02:25:06.577,02:25:09.577

Paul Bouchier: "Judging: One or more judges will referee the contest. They will ensure the rules are followed

and impose scoring penalties or remove a robot from competition if the robot is operating in an

unsafe manner or not complying with the rules. The decisions of the judges are final. "

02:25:27.127,02:25:30.127

Ponder SomeMore: ok, going back to the camera on a balloon

02:26:17.959,02:26:20.959

Paul Bouchier: Yeah, wonder if that would qualify as a beacon, which is prohibited. Judges discretion I'd guess

02:28:03.827,02:28:06.827

Paul Bouchier: Essentially, a camera on a balloon is conceptually similar to GPS, which is permitted.

02:28:40.313,02:28:43.313

Ponder SomeMore: but it's not gps

02:29:01.869,02:29:04.869

Paul Bouchier: Except the balloon with camera could locate the targets. But if you're going for GPS-free, you probably should also be Balloon-locator free

02:29:46.931,02:29:49.931

Ponder SomeMore: balloon is just a camera mount. we banning cameras now?

02:30:04.999,02:30:07.999

Paul Bouchier: I think "judges decision on compliance with rules" covers a multitude of sins. Best course is to discuss with Doug any off-the-wall ideas

02:30:39.089,02:30:42.089

Ponder SomeMore: my goal is to add another page to the rules