DPRG RBNV Chat Record – Oct 19,2021

Carl Ott
7:47 PM

~7:44pm Ray showing update on one of his mower platforms. was testing steering with a compass - to see how well it could follow a path even with rebar in the floor to upset the compass

Carl Ott
7:58 PM

~7:52pm Kumar showing cool products - Wireling Basic Kit and RobotZero
- https://tinycircuits.com/collections/wireling-kits/products/wireling-basic-kit

Carl Ott
7:59 PM

https://tinycircuits.com/collections/wireling-processors/products/robotzero

those products by Tiny Circuits

Carl Ott
8:02 PM

Kumar chose those products as they are quite small, well connectorized - and have a decent ecosystem of components like sensors and a small OLED display

Carl Ott
8:06 PM

Paul - this magazine often has interesting content related to geospatial measurements - it's possible somehow to get a free subscription - perhaps some surveying people in that world could explain how to identify those markers such as the one in your yard... https://www.xyht.com/

Thalanayar Muthukumar
8:07 PM

Karim - differential GPS could be cheaper than Adafruit device @275$. If anyone can point to differential GPS, would be helpful

Carl Ott
8:13 PM

~8:13pm - Ray showed a 915 MHz serial telemetry radio kit from Sparkfun - ordered some time back but still waiting delivery
"WRL-15007" https://www.sparkfun.com/products/15007

Ted Meyers
8:16 PM

Xbee radios are another option, the pins are really small and close together though. The Pro version has much better range.

Carl Ott
8:21 PM

~8:20pm - David Anderson- inspired by Doug P and Chris- using LiDAR to square up odometry and related item such as navigation

Carl Ott
8:24 PM

look up Nathaniel Bowditch ... https://en.wikipedia.org/wiki/Nathaniel_Bowditch

Carl Ott
8:29 PM

in the 1700's - Nathaniel used a compass for heading, then dropped a log into the ocean with a rope on it - he'd time how long it took for the log to traverse the length of the boat in the water - and from that he'd estimate the boat velocity. So he'd start with a 'good fix' ie. a known position, then estimate heading and velocity - go for a while then repeat the process. Using this he was able to get his boat into port without waiting like other boats
- which would wait out storms at sea until traditional navigation was again possible

Ray Casler
8:30 PM

arrrgh mattie

Thalanayar Muthukumar
8:33 PM

Need to drop. Great discussion

Ted Meyers
8:34 PM

Every time someone says "ballistic" we have a 40 minute discussion....

Carl Ott
8:34 PM

yesssssss

Carl Ott
8:39 PM

~8:34pm David showed a video of an experiment to replicate navigating to a waypoint when there are obstacles in the way

Carl Ott
8:44 PM

@8:42 - we lost David / dropped - John K showed some more cute concpets - a mudskipper robot https://www.thingiverse.com/thing:5014114

Carl Ott
8:45 PM

also an inchworm robot https://www.instructables.com/Inchworm-Robot-Modular-Move-Allsides-With-BT-App/

Carl Ott
8:46 PM

~8:46pm - Chris showed an update - more progress setting up ROS on his Romi platform

Carl Ott
9:00 PM

Showed a navigation stack maneuvering his Romi platform across his office to a waypoint, even though it had to find a route around some clutter which was blocking the 'obvious - more direct' path

Carl Ott
9:06 PM

Explained that this was possible just by stitching readymade ROS elements together and tweaking configuration files - e.g. per diagram shown ~ 9:05pm

Ponder SomeMore
9:09 PM

what Chris was talking about:

https://wiki.ros.org/move_base

Carl Ott
9:11 PM

~9:11pm - david Anderson- restarted some of his videos
Carl Ott
9:14 PM
~9:14 driving to waypoint with 3 boxes in the way
is basically measuring the size of the box in real time - and driving only the distance needed to clear the
box
Carl Ott
9:23 PM
~9:17 - series of waypoints to get past a doorway
~9:23- when robot just had one waypoint - the final waypoint, and no intermediate waypoints -it has to
figure out everything by itself along the way
uses both sonar and IR fo rthis last run
Carl Ott
9:25 PM
navigating reactively - not by planning
Carl Ott
9:30 PM
~9:28- Paul B related Chris and David A demonstrations to the self-driving trucks he worked on. Those
examples were with relatively sparse waypoints in 'deserts'. Versus real world vehicles - had to follow very
closely spaced waypoints - like 1 meter apart - using an algorithm called "close pursuit" - which is an
algorithm well suited to staying on a road
Ray Casler
9:31 PM
the number of way points is proportional to the cost of the equipment..
Carl Ott
9:32 PM
maybe is two different: 1) get to a predefined point somehow - versus 2) follow a specific path to a target
point
Carl Ott
9:34 PM
two different problems
Ponder SomeMore
9:34 PM
https://www.youtube.com/watch?v=DUaA3fbXoF8
https://www.youtube.com/watch?v=dUj93wLMa0s
Carl Ott
9:41 PM
~9:38 Carl showed a very simple exercise – 'directly wiring' IR sensors to wheel direction and velocity
Carl Ott
9:49 PM
~9:41- Doug P gave an update - wrt bumpers... showed several designs... Discussion ensued about
bumper designs...
Carl Ott
9:51 PM
~9:50 - Doug showed progress about making his way through a very good course on OpenCV
at https://www.computervision.zone/courses/

Doug Paradis
9:52 PM

cone finding haar cascade - https://www.youtube.com/watch?v=EwEOtzkv_yM&t=15s

Doug Paradis
9:53 PM

CVzone openCV course - https://www.computervision.zone/courses/learn-opencv-in-3-hours/