



2021 Jan 9

# DPRG 2021 KICKOFF

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# ABOUT DPRG

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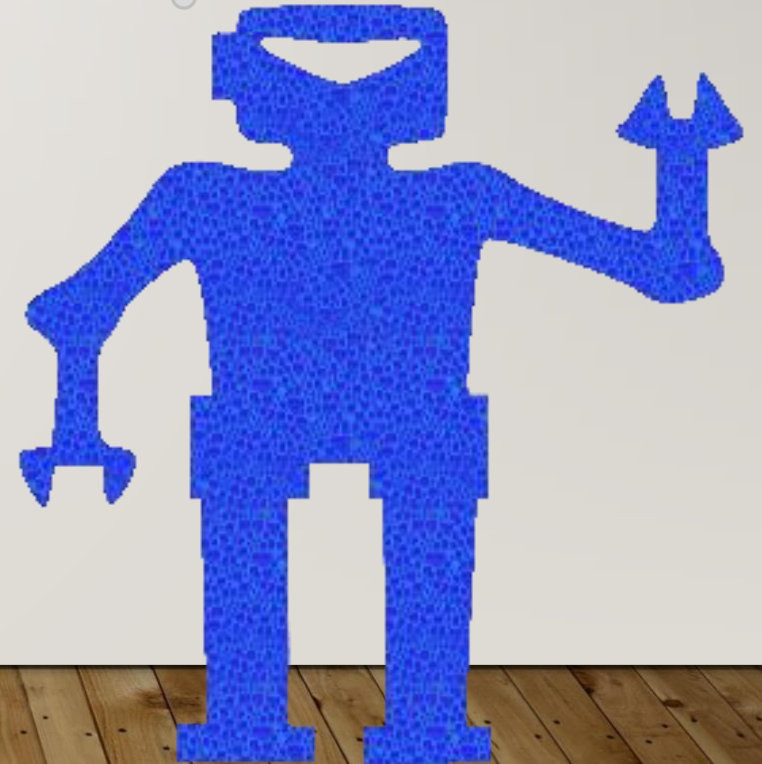
- Founded 1984
- IRS 501c
- Meet Every Tuesday Night & 2<sup>nd</sup> Saturday of each month
- Build / Putz Around / Compete / Learn / Community Outreach

## **Our Quest:**

- STEM for all ages
- Programming, Problem Solving & "Putting it all together"
- Sensors, Motors & Microcontrollers
- Fabrication, Cool Technologies & Building Stuff



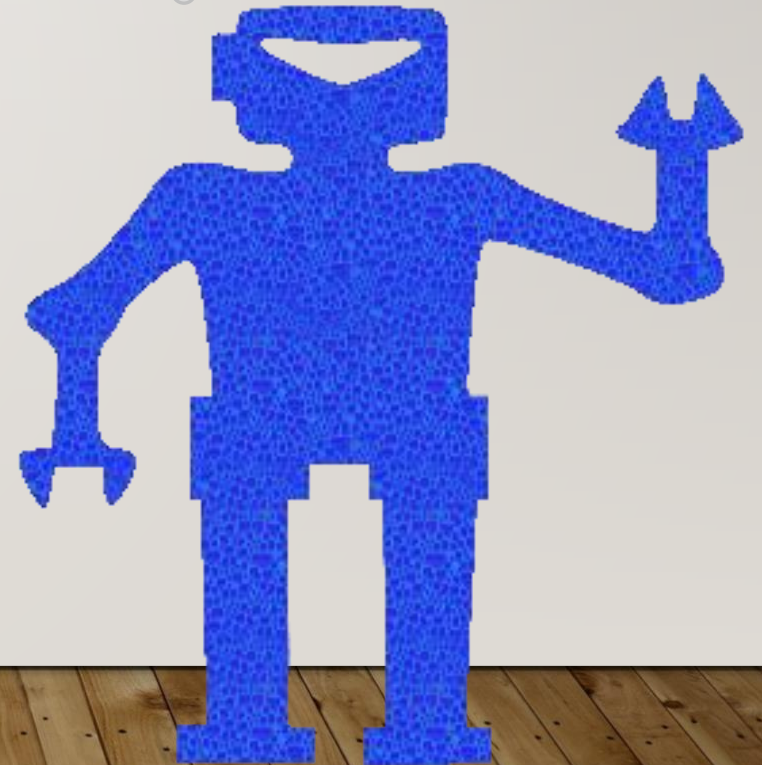
Build  
More  
Robots!





# DPRG SUPPORTERS

Thanks!







# TODAY'S MEETING

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- 2020 Year In Review
- 2021 Officer Candidate Introductions
- Complete 2021 Election /~~Inauguration Ceremony /Parade /~~  
~~Black Tie Gala /After Party~~
- 2021 Annual Planning
- Member Show & Tell



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# 2020 REVIEW

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Karim & Team

SAT, FEB 8, 12:00 PM CST

## Champion High Schoolers 'Iron Reign' Present their Latest Robot

Interactive Classroom - Dallas Makerspace



Save the date! How would you design a mobile pick-and-place robot with 9 degrees of freedom to stack super-sized legos into 6-foot tall skyscraper models? High School team Iron Reign Robotics has a long history of building & competing with remarkably interesting and capable...

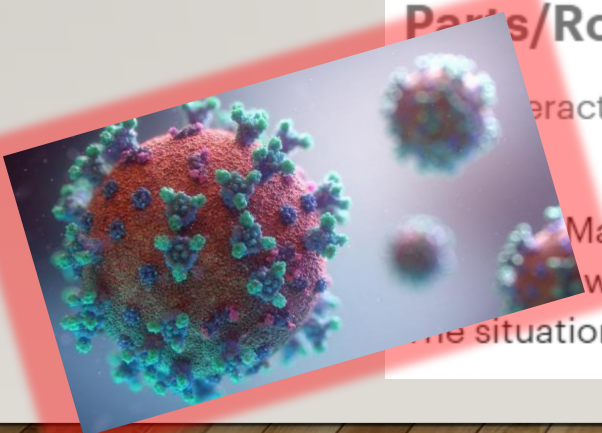
SAT, MAR 14, 12:00 PM CDT

## POSTPONED: Robot Swap Meet- Trade Your Parts/Robots/Gear/Ideas/Inspiration

Interactive Classroom - Dallas Makerspace



March Swap Meet postponed-> #flattenthecurve [13 March 2020] Sorry to announce we will postpone - and will NOT host a swap meet and regular monthly meeting tomorrow. The situation with COVID-19 has been evolving rapidly. Several cases have been identified around...



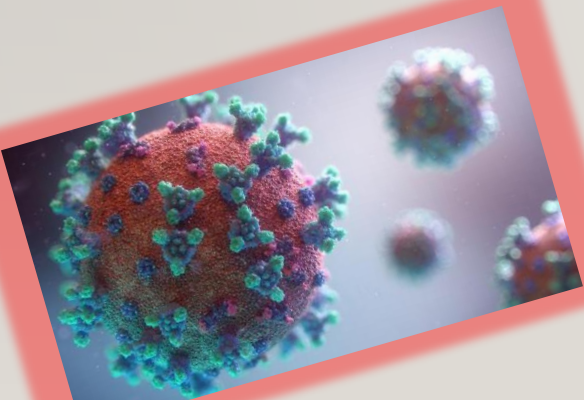


## DPRG Online: Robot Builders Night Virtual (RBNV)

 Online event

When • Every Tuesday Night / 7:30 pm Dallas time • Continuing online until the crisis is over and the Dallas Makerspace opens again for group meetings. At that point, we'll resume in-person meetings and find a way to keep distance attendees engaged. How • [Join Hangouts Meet...](#)

**- RBNV -  
Robot Builders  
Night Virtual**



## DPRG Online: Robot Builders Night Virtual (RBNV)

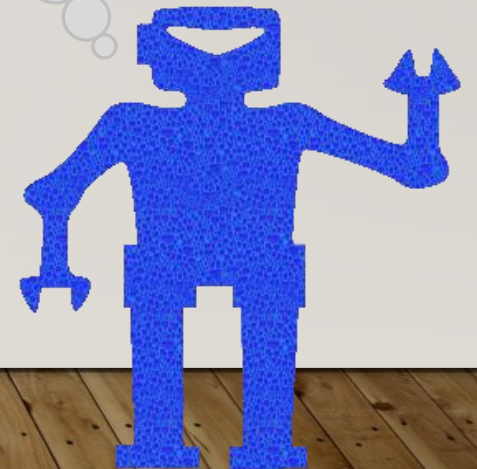
📺 Online event

When • Every Tuesday Night / 7:30 pm Dallas time • Continuing online until the Dallas Makerspace opens again for group meetings. At that point, we will resume in-person meetings and find a way to keep distance attendees engaged. How • Join

- RBNV -  
Robot Builders  
Night Virtual

- ~35 Tuesday Night (Wed Afternoon) Gatherings Online
- > 87.5 Hours
- > 30 GB Recording
- Positive Feedback
- Increasing Regular Participation
- Regular Global Participation

Very  
Cool





Murray

SAT, APR 11, 1:00 PM CDT

## KR01- Robot Build- Live from New Zealand!

 Online event



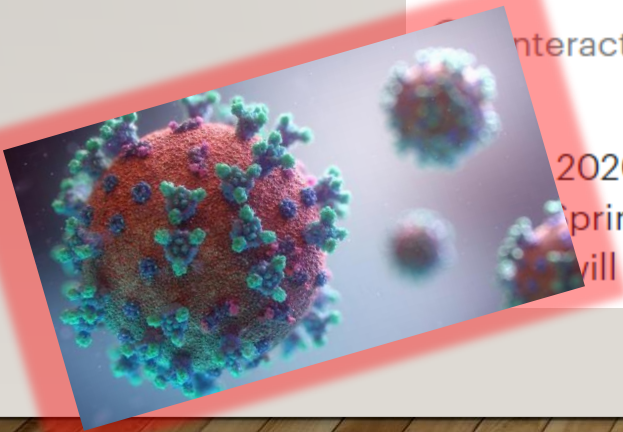
Join us for a special online treat during our world-wide quarantine! This month, DPRG and NZPRG (New Zealand Personal Robotics Group <https://robots.org.nz/>) together bring you this world-wide event in the spirit of global cooperation. Murray Altheim will share a presentation from his home...

SAT, APR 25, 12:00 PM CDT

## DEFERRED by COVID- Roborama 2020 - DPRG's Annual Autonomous Robot Competition

Interactive Classroom - Dallas Makerspace

2020 April 19 -> RoboRama 2020 is DEFERRED / Cancelled For Now... Note that DPRG's Spring RoboRama is now deferred - thanks to COVID-19. We're hoping that some kind of event will be possible in June/ July - but that will be subject to time and pandemic status....



Carl

SAT, MAY 9, 1:00 PM CDT

## Robots vs. Humans! About Internet Search Engines...



 Online event

Join us for another online gathering! • Join Hangouts Meet <https://meet.google.com/hey-jxuo-esf>  
• Join by phone +1 405-586-5598 PIN: 682 931 335 # (if dial by phone and find yourself muted, try \*6 to unmute yourself, or exit, click 'Rejoin', and then follow instructions to 'Join and use a phon...

Ray

SAT, JUN 13, 12:00 PM CDT

## DPRG Monthly Meeting: Robot Mower Telemetry Components Presentation!

 Online event

BONUS: No need to wear a mask if you join by browser from your home:-) Join us for another online gathering! • Join Hangouts Meet <https://meet.google.com/hey-jxuo-esf> • Join by phone +1 405-586-5598 PIN: 682 931 335 # (if dial by phone and find yourself muted, try \*6 to unmute...

SAT, JUL 11, 1:00 PM CDT

## DPRG Monthly Meeting: ROS & Robots At Scale - Microsoft Edge Robotics

Online event



This Month - In Coordination with Hackster DFW! • Join Hangouts Meet <https://meet.google.com/hey-jxuo-esf> • Join by phone +1 405-586-5598 PIN: 682 931 335 # ROS & Robots At Scale - Microsoft Edge Robotics Special guest speaker Lou Amadio is a Principal...

SAT, AUG 8, 1:00 PM CDT

## Robot Simulator in Processing- Facilitating a Physical Build

Online event



Join us for a cool presentation by DPRG members Ron Grant and Will Kuhnle. • Join Hangouts Meet <https://meet.google.com/hey-jxuo-esf> • Join by phone +1 405-586-5598 PIN: 682 931 335 # Ron will talk about a real-time line following robot simulator he authored recently using...

Guest  
Lou  
(Thanks For  
Intro Harold!)

Ron & Will



SAT, SEP 12, 1:00 PM CDT

## **Demos: Robot Simulator- Client/Server Edition & Web Meeting Broadcast Tools**

Online event

Join us for not one but TWO cool presentations - by DPRG members Ron Grant and Carl Ott. • Join Hangouts Meet <https://meet.google.com/hey-jxuo-esf> • Join by phone +1 405-586-5598 PIN: 682 931 335 # Part 1: LFS Client/Server Demo Ron will demo fresh updates to his Line Following...

Ron & Carl

SAT, OCT 10, 1:00 PM CDT

## **Using CoppeliaSim to simulate a physical robot / Plus Bonus: LFS Update**

Online event

Join us for not one but TWO cool presentations - by Chris Netter and Ron Grant. • Join Hangouts Meet <https://meet.google.com/hey-jxuo-esf> • Join by phone +1 405-586-5598 PIN: 682 931 335 # Part 1: Using CoppeliaSim to simulate a physical robot During lockdown and physical distancing...

Chris & Ron



Ron

SAT, NOV 14, 1:00 PM CST

## DPRG- LFS Robot Simulator- 'Time Warp' Update & Contest Prep Workshop

Online event

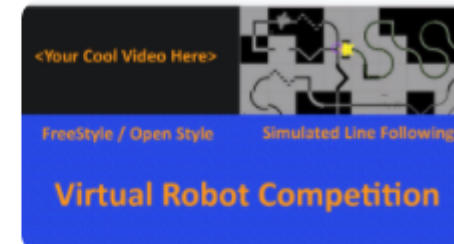


• Join Hangouts Meet <https://meet.google.com/hey-jxuo-esf> • Join by phone +1 405-586-5598  
PIN: 682 931 335 # Join us for this update & prep session. Get ready for DPRG's 12 December  
Virtual Robot Competition! Part 1: Line Following Simulator Update- LFS- Now with 'Time Warp'...

SAT, DEC 12, 1:00 PM CST

## DPRG | 2020 Virtual Robot Contest! Participate Online!

Online event



• Join Hangouts Meet <https://meet.google.com/hey-jxuo-esf> • Join by phone +1 405-586-5598  
PIN: 682 931 335 # Join us for DPRG's 12 December Virtual Robot Competition! In keeping with the  
2020 mantra of 'remote everything' – We're going to compete online this year. You can compet...



10" x 8" Solid Cherry Plaque

DALLAS PERSONAL ROBOTICS GROUP



2020 AWARD FOR EXCELLENCE

Presented To

**RON GRANT**

In Recognition of Long-Term Outstanding  
Contributions to DPRG and In Special Appreciation  
for Creating, Providing & Supporting  
LFS / LINE FOLLOWING SIMULATOR



All Things Considered

2020?

>>> Not Too Shabby <<<





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# 2021 DPRG OFFICER CANDIDATES

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# PROPOSED SLATE

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**President:** Carl Ott

**Vice-President:** Clay Timmons

**Treasurer:** Steve Edwards

**Secretary:** Doug Paradis

**Librarian:** John Kuhlenschmidt

**Any Alternate Nominations?**





# AS ELECTED - 2021 DPRG OFFICERS

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**President:** Carl Ott

**Vice-President:** Clay Timmons

**Treasurer:** Steve Edwards

**Secretary:** Doug Paradis

**Librarian:** John Kuhlenschmidt



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# 2021 PLANNING

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# THEME / GOALS FOR 2021

## \*\*\* PARTICIPATION \*\*\*

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- Resume In-Person Participation
- At Least Maintain Beyond-Dallas / Virtual Participation
- Outdoor Competition Participation
- Improve Monthly Meeting Planning & Volunteering
- “Collaborative Build Series”
  - For Fun
  - as Outreach & Recruitment
  - E.g. LFS Competition -> collaborative + competitive = collabapetative
- Increase Publicity



# PRECONDITIONS TO RESUME IN-PERSON

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## Key Concerns

- COVID Safety
  - Indoor
  - Outdoor
- Beyond-Dallas / Virtual Members & Guests
- Hybrid Meetings?
  - In Person + Telepresence?

# PRECONDITIONS TO RESUME IN-PERSON DISCUSSION NOTES

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Overall Criteria: vaccination / infection / hospitalization rates / group sensibility

## o Outdoor

distance & masks – avoid touching common surfaces / shared food

subject to concern for windy days

estimate June ~ July likely a good target

## o Indoor

monitor situation & group sensibilities

perhaps in 2<sup>nd</sup> half 2021

Target Oct / Nov for first in-person meeting

cautious restart

ensure/ enforce masks/ ask 'do you feel bad' / maybe have temp sensor



# KEY UPCOMING DATES & PLACEHOLDERS

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- 2021 Jan 16 – Seattle Robotics Society (SRS) – Virtual Sumo
  - <https://robothon.org/jan-16-2021-virtual-mini-sumo-contest-event/>
- (TBD) 2021 Aug – Outdoor / In-Person Contest
- (TBD) Oct/Nov – First In-Person Meeting Indoors – maybe Hybrid w/Virtual Contest
- (TBD) early Oct - SRS also likely to do an outdoor RoboMagellen later in the year



# MONTHLY MEETING TOPICS & VOLUNTEERS

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## Some Ideas

- o Volunteers to Recruit External Presenters? (e.g. universities, industry, other clubs etc.)
- o Volunteers to Present?
- o Focus Spring on Outdoor Rovers
  - similar to our Fall 2020 focus on simulator
- o Feb / March
  - Members present on prior outdoor rover builds
  - architecture / components / goals / results / etc...
- o Summer / Fall
  - focus on simulator again
  - but also on items related to indoor builds

# (POTENTIAL) MONTHLY MEETING TOPICS VOLUNTEERS DISCUSSION NOTES & IDEAS

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- o Outdoor Rover Simulator

  - Model IMU / GPS / Camera / other sensors -> maybe based on CoppeliaSIM or Unity

  - Simulator Contest in May

  - Outdoor Contest in July

- o Rover Builder Panel

- o Rover Builder Panel

  - Candidates: David A / Scott G / Karim / Ross / Jesse (Sparkfun)

- o Rover Components

  - o presentations from those who have done telepresence before (e.g. Karim, John S./ serial)

  - o Doug D -> will attempt to build & present <https://www.instructables.com/Telepresence-Robot-2/>

    - > also wants to post on DPRG, or somewhere, easy to share

# HYBRID IN-PERSON / VIRTUAL MEETINGS DISCUSSION NOTES & IDEAS

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- o Option 1: hook up camera & screen / telepresence corner of meeting room
- o Option 2: multiple robots / virtual participants check out a physical robot, drive around
- o Option 3: standard club robot in-person / virtual participants download their code & it runs around



# 2021 CLUB PROJECT(S) ? GENERAL INTEREST CONFIRMED -> AGREED TARGET

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- o DPRG Platform - Telepresence Robot

- o Club Robot Build w/ modules developed by teams from around the world

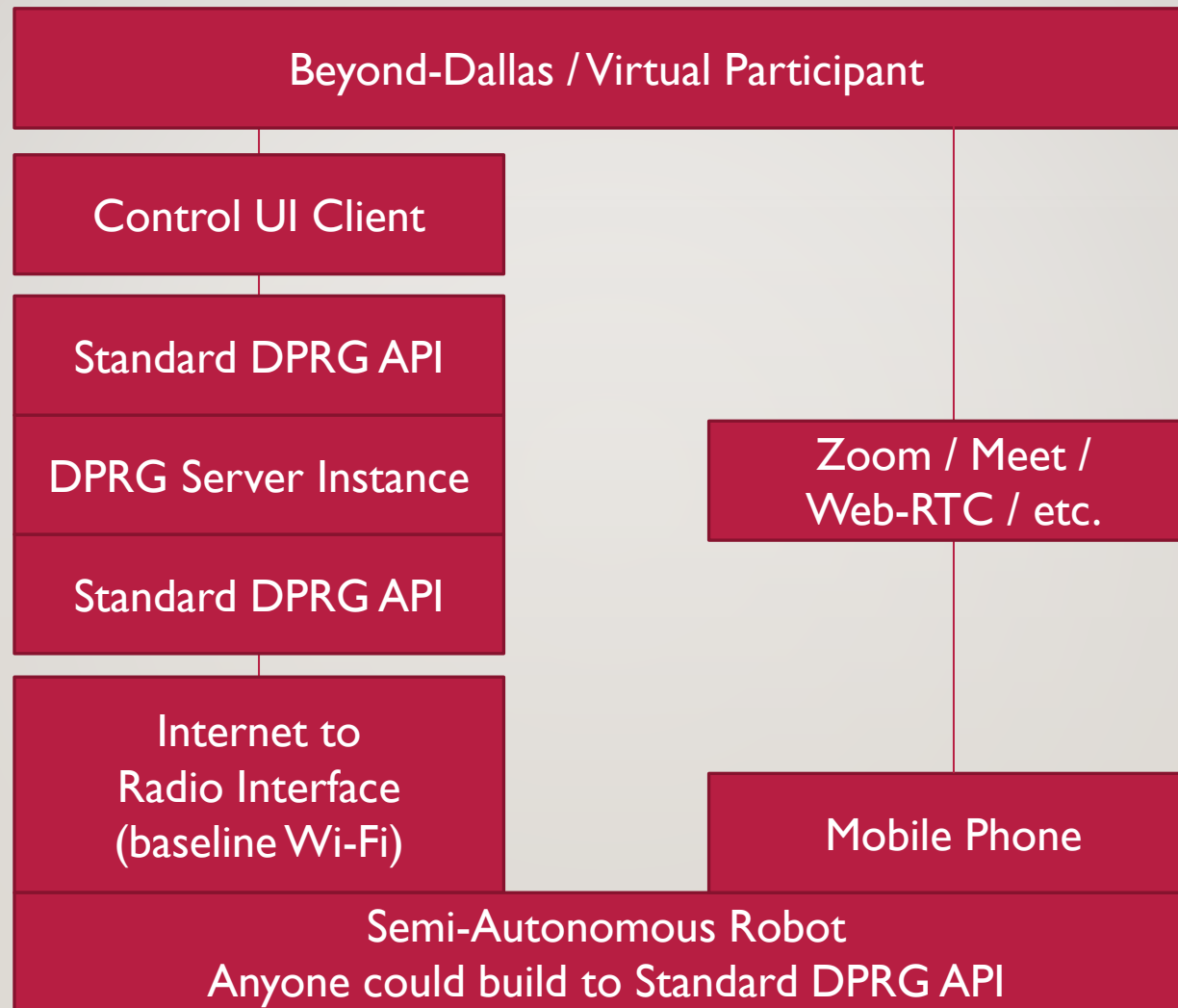
# E.G. - POTENTIAL TELEPRESENCE ROBOT DPRG CLUB PLATFORM CONCEPT

Beyond-Dallas / Virtual Participant

Semi-Autonomous Robot

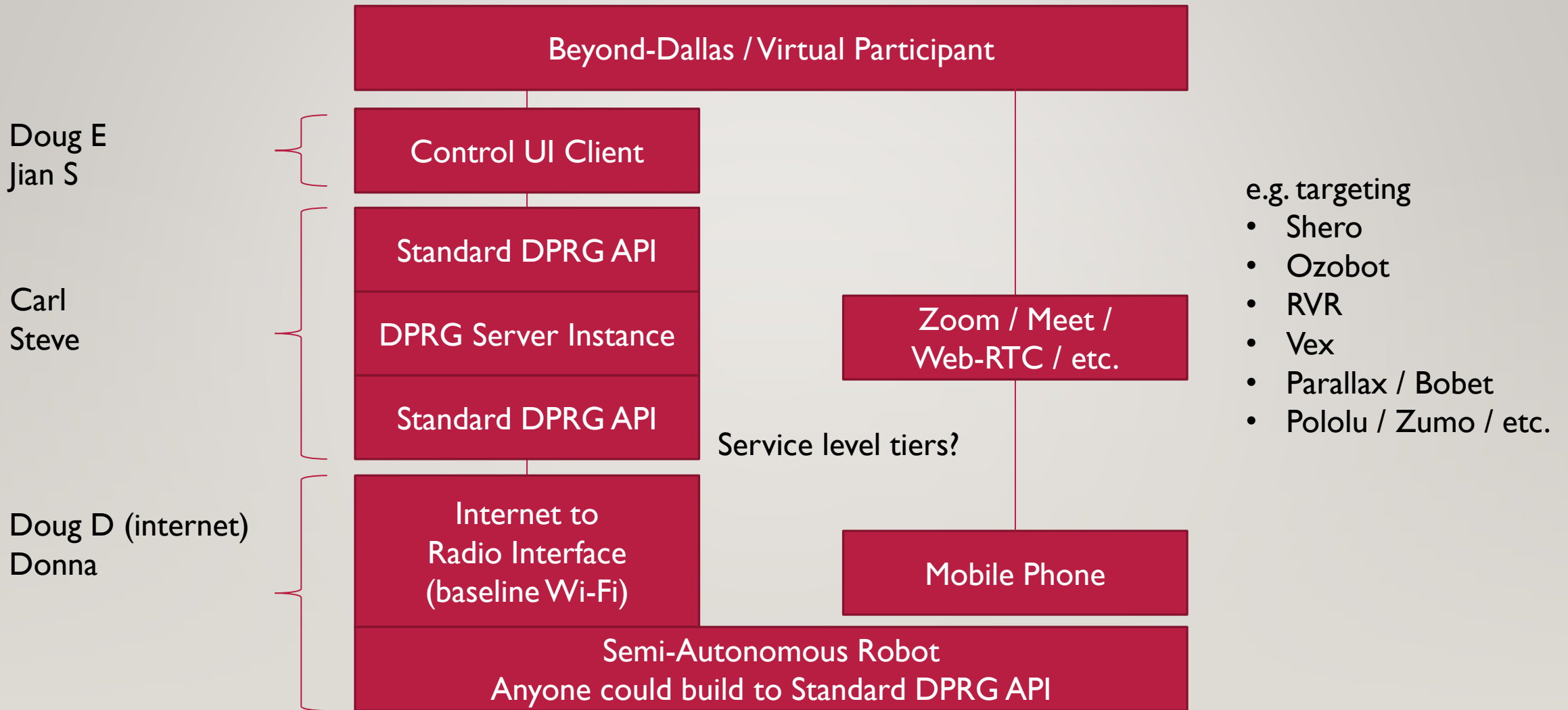


# E.G. - POTENTIAL TELEPRESENCE ROBOT DPRG CLUB PLATFORM CONCEPT





# TELEPRESENCE ROBOT DPRG CLUB PLATFORM CONCEPT



# 2021 CLUB PROJECT(S) ?

## DISCUSSION NOTES

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- o Tiers of performance

  - e.g. what's possible with 9600 baud / 2400 baud & low end microcontroller vs. 1 Mbps connection

  - e.g. what's possible for different motor & sensor concepts

- o Common Hardware Platform

  - as much as off-the shelf as possible

  - scale it down to as small & simple as possible

- o Detach camera from robot – set to side, give 3<sup>rd</sup> person view of robot on course vs. 1<sup>st</sup> person

- o Subject to audio noise in the room





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# MEMBER SHOW & TELL

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# PERSONAL MEMBERSHIP PLANS

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- Pie in the Sky Wish List?
- Specific Build Plans?



# PERSONAL MEMBERSHIP PLANS

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- Pie in the Sky Wish List?
- Specific Build Plans?

Let's Plan Club Activities Around What We Individually Want To Do...



# EXAMPLE – CARL'S ROADMAP – 2020 -> 2021

## BUILDS

-> CLUBCAR DONKEYBOT & SPI LINK BETWEEN PI / ARDUINO

-> HOVERSIM ROBOT

-> 'GENERALIZED PLATFORM CHECKOUT' PLANS

OUT AND BACK

4 SQUARE

CHALLENGE COURSE LINE FOLLOWING

DONKEY CAR

OBJECT RECOGNITION

-> PID TUNING TEST STAND & WORKFLOW

UPDATE 2021 -> REFACTOR & PUBLISH MY INSTANCE OF 2016 CLUB ROBOT CODE HOVERSIM (MECANUM WHEEL PLATFORM)

-> MAYBE AN OUTDOOR ROVER

-> OPTICAL FLOW SENSORS & IMU & TONS OF OTHER STUFF CONNECTED VIA I2C (?)

NEW IN 2021 -> GENERALIZED CLOUD SERVER / CONNECTED ROBOTS & SENSORS

## SKILLS

-> CONQUER THE LINE FOLLOWING CHALLENGE COURSE WITH AT LEAST 1 ROBOT, MAYBE 2

-> NEURAL NETS & OBJECT RECOGNITION

-> PYTHON & JAVASCRIPT & JAVA

# MEMBER PROJECTS

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- Doug D – functional robot
- Jian – robot platform w/ camera to scan kitchen floor
- Doug P – competitive outdoor rover, line follower challenge robot for Nov, revisit the 2016 club robot & offer plans/kit to anybody interested in standard robot we could program here (collaborate also with Pat C, Dave A, Jian S, Doug D est. \$175 cost)
- Donna – more back into robot building. Outdoor (either for DPRG or SRS), More indoor robots e.g. Line Maze/ Wall Following / micro-mouse. More into simulator.
- Doug E – research best shared ‘online collaborative white-board’ for DPRG
- Carl -> see prior slide



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# ANYTHING ELSE?

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Thank You!

