Mars is the only known planet inhabited solely by robots.

Please paste links you would like to share with everyone below. This will make it easier to distribute them to everyone and capture them for the meeting notes to be posted on the SRS website later this week. Thank you!

Soliciting ideas for the new website design to engage students in robotics, especially more advanced robots.
Keep in mind the ease of updating it.
Send ideas to SRS email address.

Future Virtual Robotics competition event ideas:
Robot weigh-ins and size checks should be done ahead of the competition to save time perhaps.
Perhaps a Robot snow blower design competition.

[10:32 AM] Colin Leuthold (Guest)
Ecotricity is in UK, and they are making videos all the time about electric cars and reviewing them, as well as other electrical topics.

Interest expressed for an Electric Vehicle discussion or presentation.
Interest expressed for Virtual/Augmented Reality presentation.

https://www.youtube.com/user/fullychargedshow

Round the Room sharing:
    1.   Teensy View - Shield / HAT from SparkFun, shared by Dick Curtiss

Pong simulation on it.,

https://www.sparkfun.com/products/14048

May want to use a Fresnel lens with it to blow it up a bit.

Two parts being shown, a microcontroller shield underneath the video display.

Teensy microcontroller is very powerful/flexible and works with Arduino IDE and more library commands

Has 3 HW serial ports, none of these are for the USB

Two simultaneous A/D converters for stereo or audio direction finding

Teensy 5.0 is faster and has more features as well.

Teensy is really advancing.

Can use ROS serial with Teensy micro's.

ROS 2 doesn't work with them.

Micro ROS works with the Teensy (remember questions for our speaker next month on ROS)

[10:58 AM] Robert Higgins (Guest)

The ROS Seattle meetup is back in operation for those interested, and they had the first meeting last week which was interesting.

Heater pad for face masks perhaps:

https://www.sparkfun.com/products/11289

Need to filter / average the temperature data.

    2.   Steve K - Mekamon robot, has three of them but only two seem to work.

Uses an augmented reality app from your cell phone.

https://www.mekamon.com   (ReachEdu.com also)

https://www.funkykit.com/news/gadgets-toys/mekamon-battle-bot-will-cost-300-available-ios-android/attachment/olympus-digital-camera-22/

Mekamon V2 review

https://www.youtube.com/watch?v=DSOCOKn_BHo

https://www.youtube.com/watch?v=GToxlEXSXbo

https://www.youtube.com/watch?v=DSOCOKn_BHo (V2)

https://www.walmart.com/ip/Mekamon-Berserker-V2-Gaming-Robot-US-Gray/311067816

https://github.com/zredlined/control-my-mekamon (API)

V1 appears to be White

V2 appears to be Gray

Steve K - I may have one of each.

[11:03 AM] Charles (Guest)
Is it open source? Can you mod its firmware?
SK - Not sure about that yet. I haven't seen any evidence. It is a discontinued product so that would depend on the folks who are really into these things figuring this out.

Uses Bluetooth for communications. The Apps have block-based programming capabilities in them. Stuff can be uploaded to the cloud and shared.

LED's under the blue head/hat on top. It can display any color you want (except true white). The plastic is tinted blue,

Reach.edu is the app name - YES. You can find it in the Google Playstore and Apple App Store
  ● https://play.google.com/store/apps/details?id=com.reachrobotics.reachedu&hl=en_US&gl=US
  ● https://apps.apple.com/us/app/reach-edu/id1447850290

If you want to build your own:
Multi-pedal "spider" robots often have 3+ servo motors per leg, but there are other locomotion methods

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[10:42 AM] Pete (Guest)
you might consider Nadya Peek from UW https://www.hcde.washington.edu/peek
Nadya Peek, PhD
Assistant Professor, Human Centered Design & Engineering University of Washington
nadya@uw.edu Sieg Building, room 418   Biography Nadya Peek is an assistant professor in the
department of Human C...

https://www.hcde.washington.edu/peek

Nadya Peek from UW has some interesting robotics and personal manufacturing topics
https://www.hcde.washington.edu/peek She is a product of the MIT Bits to Atoms program.

Nadya has a student Joshua Vasqez that started a project to create a 3D printer with exchangeable tool heads called Jubliee. He has given talks at other user groups.
https://hackaday.com/2019/11/14/jubilee-a-toolchanging-homage-to-3d-printer-hackers-everywhere/

GNSS/RTK based lawn mower. Just for fun;-) First attempts https://www.youtube.com/watch?v=aDJ-oYfIqgM

Presentation notes

FairFly: Fairness and Safety in the Control of Autonomous Fleets by Houssam Abbas, Assistant Professor, EECS at Oregon State University

https://f1tenth.org/

A bit cheaper (and currently severely Corona-impacted:-() https://www.donkeycar.com/

Signal Temporal Logic = Boolean Logic + Temporal operators

Centralized motion planner

Find control actions

Fairness

Robustness rating 0.0 to 1.0

Robust Solution = radius of corridor boxes

NASA's Perseverance Mars Rover

https://www.youtube.com/c/NASA/videos
  Watch NASA's Perseverance Rover Land on Mars! https://www.youtube.com/watch?v=gm0b_ijaYMQ
  Perseverance Mars Rover Mission Engineering & Science Briefing
https://www.youtube.com/watch?v=kG-J9hRVGLQ

https://www.youtube.com/c/NASAJPL/videos

Engineering & Tech Overview – NASA Perseverance Mars Rover
https://www.youtube.com/watch?v=P-M1Jb7FlSg

https://www.youtube.com/c/RealEngineering/videos
  The Insane Engineering of the Perseverance Rover https://www.youtube.com/watch?v=yqqaW8DCc-I

Useful Resources to add to website:

Opportunities for kids and mentoring opportunities for adults

FIRST robotics
FRC FIRST Robotics Competition (for high school)
https://www.firstinspires.org/robotics/frc
        FTC FIRST Tech Challenge (middle school and High School)
for elementary and middle school
        FIRST Lego League
VEX robotics competition
https://www.vexrobotics.com/ VEX Pro parts are used by FRC teams

(In normal years, I'm a ref for FLL,FTC,FRC ;-) - Marco)

Robot simulators
http://gazebosim.org/
https://synthesis.autodesk.com/ https://github.com/Autodesk/synthesis

ROS (Robot Operating System)
https://www.ros.org/
Linux and Windows distributions with platform of cooperating programs; uses concept of publish and subscribe - sensors publish sensor data and programs can subscribe to sensor sources
There are a lot of books, Youtube videos, professional conferences about ROS

Papers
Non-pay-walled academic papers (robotics and A LOT of other topics):
https://arxiv.org/

Free online classes:

AI for Robotics taught by Sebastian Thrun (author of Probalistic Robotics)
https://www.udacity.com/course/artificial-intelligence-for-robotics--cs373
This class is excellent for learning about useful algorithms for pathfinding (e.g. A*), particle filters, Kalman Filters (trading off between erroneous sensor data and estimators), SLAM (Simultaneous Localization and Mapping). The format is excellent lectures on the theory, mini quizzes, and then programming exercises of sufficient complexity implemented in Python.

UPDATED on 2/20/21 - Good sources for parts:

http://www.seattlerobotics.org/useful_links.php

Any of the items below missing from the above list have been added to the "Useful Links" page.

Adafruit
AliExpress
Amazon
Digikey
Ebay
Fastenal
Harbor Freight
McMaster Carr
Polulu
Robot Shop
Sparkfun
Tacoma Screw
Vetco Electronics in Bellevue