

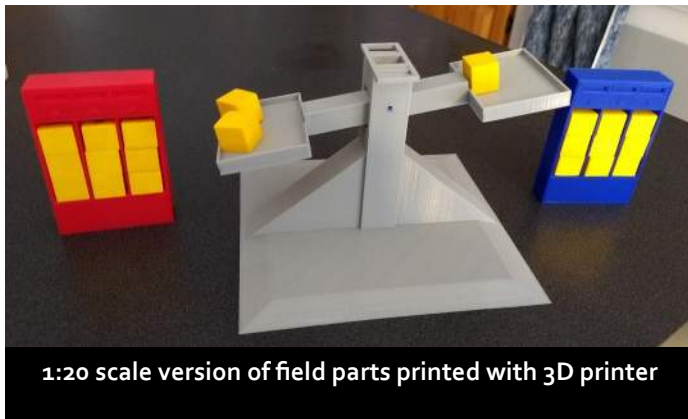
RAGE Robotics

Team 173



Build Season Week 3 Update

It was a busy week for the team—finals in Tolland, midterms in Ellington and some more snow for everyone! Despite the “distractions”, the team has continued to make progress on the robot design and is getting ready to start building! As we have reached the official halfway point of our 6-week build season, we would like to pause and thank our sponsors. Without their support, we could not build robots and spread the spirit of FIRST in the community.

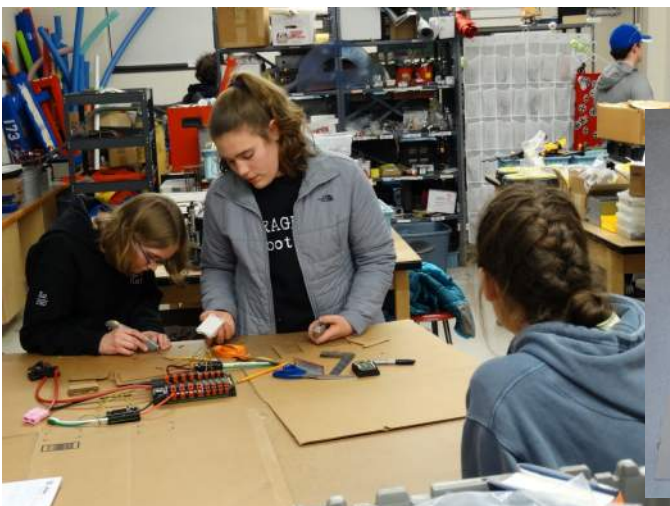


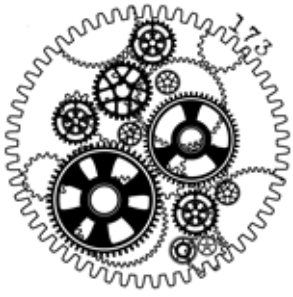
1:20 scale version of field parts printed with 3D printer

Electronics Subgroup:

The electronics group worked with the Build group to see how much “real estate” they would have on the robot base to mount all of the electronic components. Once they had an estimate of the room they would have, they made a mock-up of the robot base along with all of the components and began planning. They also discussed the types of sensors that would be needed and talked about what would be involved in installing those sensors.

FIRST Power Up Summary—The premise behind this year’s challenge is that we are trapped in an arcade game. With our two alliance partners, we will work to defeat the boss and escape. To defeat the boss, we will be collecting power cubes (approximately 13” x 13” x 11” cubes) using them to earn power ups (a temporary advantage during the match) and control 2 field elements—the “switch” and the “scale”. Both elements work similar to a seesaw—if our alliance places more cubes (i.e. weight) on our side of the element, the switch or scale tips in our favor and we “control” that element. We earn points for each second that we control our alliance switch or the scale. We can also prevent our opponents from accumulating points by adding cubes to their switch to prevent them from gaining control. The “end game” for this year’s game is to climb the scale—lifting our robot at least 12” above the scale platform. This can be accomplished by using the 13” wide rung that is secured to the side of the scale or by lifting our alliance partners. In order to have all 3 robots climb at the end of the match, cooperation between alliance partners will be essential since there is not room for all 3 to use the climbing rung provided. A rendering of the field is shown below and the kickoff video can be viewed at <https://www.youtube.com/watch?v=HZbdwYiCY74>.





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CAD Subgroup:

Model, model and model... Our CAD members have very busy the past 3 weeks modeling all components of the robot. This week they presented the base, the lift mechanism and the ramps. By the end of the week, the base design was completed and was ready to be fabricated. The group continues working in conjunction with the other subgroups on the specific design and placement of the other components including the gear boxes, lift, wheels, etc.



Pneumatics Subgroup:

After completing the inventory of our supplies, the pneumatics students met with the Build group to see how pneumatics should be integrated into the cube grabber as well as the ramps.

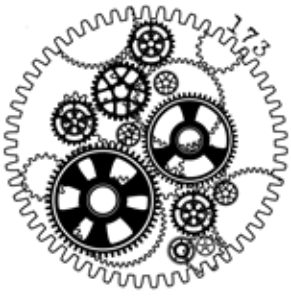
Programming Subgroup:

The programmers have gotten a firm grip on the command based programming and are ready to try it out on this year's bot. They wrote a demo program to test and practice on Roger (our 2016 robot).



Build Subgroup:

The Build group constructed the base of the scale so we can practice driving and setting up our lift platforms when the robot is built. They also inventoried the recent shipment from FIRST Choice which had some additional cubes and robot parts. They continued prototyping cube handlers and began working on the lifts.



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Scouting Subgroup:

The Scouting group discussed plans for the match scouting as well as pit scouting. They developed criteria that they wanted to gather info for and polled different team members



Chairman's Subgroup:

The Chairman's group spent the week finishing up the essays and began coming up with a theme and general outline for the presentation.

The main theme includes what makes RAGE a family—support, community, diversity and outreach.



The team thanks the Deichert family for another delicious breakfast at Saturday's meeting!

Stop Build Day Countdown: 23 days!

For additional updates, please check out our website (www.ragerobotics.com), like us on Facebook (RAGE Robotics), follow us on Instagram ([ragerobotics173](https://www.instagram.com/ragerobotics173)) or Twitter ([@RAGE173](https://twitter.com/RAGE173))