



gearheads gazette

FRC TEAM 1189

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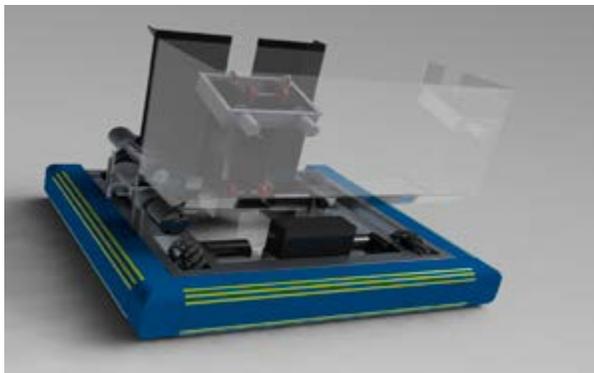


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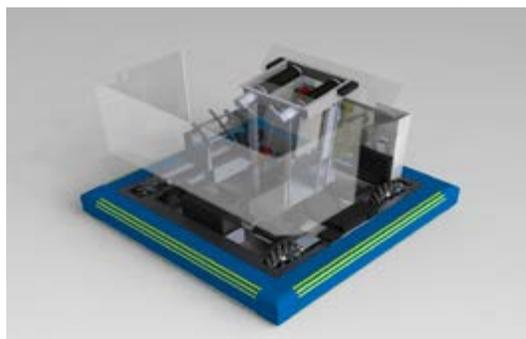


by Clarissa Kam

From its humble beginnings as a bare rectangular chassis, our robot has matured over the past weeks into a lean mean STEAMWORKS prototype machine. Initially conceived as a swerve drive, it was revised to employ mecanum (a drive that took us to Worlds with Spock, in Recycle Rush). It took a long time to convert the chassis design from a Swerve configuration to the Mecanum.

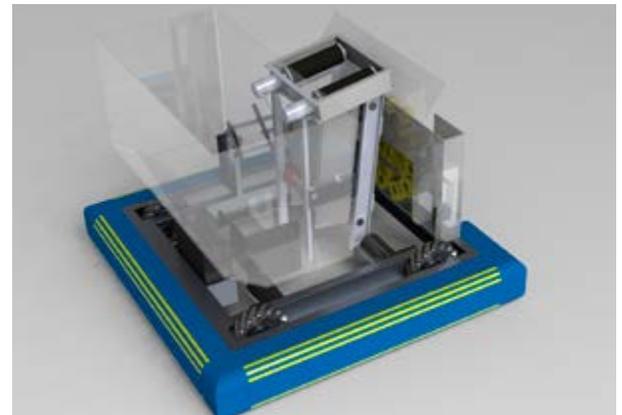


Onto the chassis was we next started adding the Game Play elements. We started with going after the gears. We designed a holder that can slide the gears into a safe carry position, then hook them to the davit so that the airship personnel can pull them up. One of the early challenges to overcome with the gear holder was the problem that the gear might not allow enough clearance for the hook. One of the team members suggested the addition of a peg to the



gear holder, so that the gear would always have clear space to be lifted.

Once the designs were roughed in, we went to prototyping for the shooter, fuel holder, and lifting mechanism. The shooter went through almost a dozen iterations. Finally coming up with a delivery mechanism that successfully feeds fuel to the shooter. A hopper that can carry a sufficient amount of fuel for the game and a climber are still ahead of us. The hopper has already seen several changes; too big, too small, in the way. There is still more to discover as we continue designing and prototyping.



With all that started, next comes control elements like mounting the camera so that the drive team can see where the robot is going. The new camera required a case and way to be fastened to the frame. We designed and 3D printed a case for the camera, based on measurements taken from the camera.

The climbing device was originally designed to use a slim high tensile strength rope, capable of holding masses greater than our 'bot. But we still need to do alot of testing to see if the robot itself will resist bending when suspended. We continue to update and revise the designs, tweaking it to make the best robot possible.

ASK A ROBOT

An advice column providing questionable advice provided by the Gearheads recent robots. Unfortunately the 'bots really only understand C++ and the current season game manual.

Dear Mayhem,

My friend is interested in spending more time with a specific friend, as in maybe more than friends. How can they tell if they are actually well suited for each other?

Signed,
STEAMy in Robotics

```
1 {
2 //STEAMy in Robotics
3 2 FIRST @ STEAMWORKSSM Overview
4 Alliances are seeded in the
5 Qualification tournament using
6 ranking points which are awarded
7 based on a combination of their
8 Win-Loss-Tie record (2 points
9 for a win, 1 point for a tie),
10 the number of times they reach
11 a 40 kiloPascal (kPa) pressure
12 threshold (1 point), and the
13 number of times they start all
14 rotors (1 point).
15 [Mayhem]
16 }
```

Dear Spock,
Lately things have been a little dull between me and my S.O. Thinking that we need to mix things up a little. Where do you think would be a romantic place to visit to rekindle that something special?

Signed,
Seeking Someplace to take that Someone Special,



```
1 {
2 //SStttSS
3 3 ARENA
4 The ARENA includes all elements
5 and areas of the game infra-
6 structure that are required to
7 play FIRST STEAMWORKSSM: the
8 FIELD, AIRSHIPS, carpet, scoring
9 elements, and all equipment and
10 areas needed for FIELD control,
11 ROBOT control, and scorekeeping.
12 [Spock]
13 }
```

Dear Oddjob

It's embarrassing being 18 and still getting picked up and dropped of by my 'rents, especially on a dates and Prom. What do you think would be an appropriate FIRST ride for me to get?

Signed,
Driven Miss Daisy

```
1 {
2 //Miss Daisy
3 3.4 AIRSHIP
4 The AIRSHIP is a structure that
5 features an elevated hexago-
6 nal deck, slanted walls, rails
7 with AXLES to mount GEARS, four
8 (4) ROTORS, three (3) LIFTS, a
9 STEAM TANK, and three (3) ROPES
10 attached to DAVITS. There is
11 one AIRSHIP at the edge of each
12 LAUNCHPAD. The AIRSHIP is posi-
13 tioned such that the three (3)
14 LIFTS face the ALLIANCE WALL.
15 [ Spock ]
16 }
```

Dear Howie,

I've been with my a S.O. for while now. But, now that she left for college last year, I wonder, if we are missing out somehow. How long can such a long distance match last?

Signed, Going the Distance?

```
1 {
2 [Going the Distance]
3 4.2 MATCH Setup
4 Each MATCH consists of two (2)
5 minutes and thirty (30) seconds
6 of game play, as well as pre-
7 and post-MATCH time for setup
8 and reset of the ARENA. During
9 ARENA Reset, the ARENA is
10 cleared of ROBOTS and OPERATOR
11 CONSOLES from the MATCH that
12 just ended. The ROBOTS and OPER-
13 ATOR CONSOLES for the following
14 MATCH must be placed in position
15 and ready to operate before the
16 start of the next MATCH. FIELD
17 STAFF reset the ARENA elements
18 during this time.
19 [ Howie ]
20 }
```

MEET A MENTOR - MATT RIGOTTI



By Hannah O'Grady

Our team is extremely lucky to have gotten Mr. Rigotti as a new mentor this year. Mr. Matt Rigotti is a Product Manager for Hella, a technology company specializing in lighting and electronic equipment for the automotive industry. Mr. Rigotti is using the skills he has gained as a product manager to help our team develop and stick to timelines and plans especially in build where he also helps with the building and assembly of the robot.

Mr. Rigotti joined our team at the behest of his son, build team captain Josh Rigotti. Mr. Rigotti is a very family oriented person, spending his time playing ping pong, catch and other games with his children, in addition to having coached his daughter's sports teams and becoming a scout leader for his son's troop. In his free time Mr. Rigotti enjoys skiing and snowboarding with his family. We are so happy to have such a dedicated, and insightful person helping our team and we cannot wait to see how he continues to assist and improve our team.

What do Gearheads think?

What do you think this years Robot's name will be?

"Big metal thing"
because it's big and

metal



Chloe Skiles
South Class of '19
Media team - most responsible
person and standard seamstress

Claudia Dancy
North Class of '17
Drive Team, all around the shop
The hero we need...



It will be named
when it's meant
(Robots earn their
names)



FedEx

by Grace Cupolo

Since 2015, not only does Kickoff Day give us the game, it's also the release day of the first of this season's FedEx Innovation Challenges. The FedEx Innovation Challenges are social media based challenges that connect science and math problems to creativity and arts based media.

These challenges are offered to all FIRST FRC and FTC teams nationally, the winner or the January challenge gets a \$5,000 grant for their team, a RoboRIO controller, and Labview software!



The first challenge of the season was a “Kick-Off Celebration!”. The FRC teams had to take a picture of their team reacting to opening the kit of parts for the first time, while the FTC teams had to show FedEx one of their most celebratory moments.

The second challenge was “Steampunk'd”, when the teams were asked to redesign their team logo to fit the new steampunk theme. FTC teams also had the option to create their own steampunk logo that fit their challenge, “Velocity Vortex”.

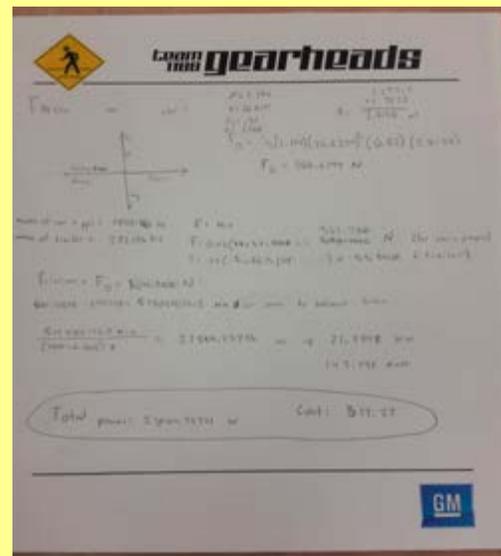
The third challenge this season was “The FIRST



Family”, which was specifically a challenge to honor the alumni and mentors of their teams, to highlight how being a part of FIRST has impacted their life since they've joined, and what they have done since high school through a 30-second max video.



The final challenge this year was “Motor City”, a physics based challenge. Which asks how much power (in watts) would it take to get to the championships and back, driving in a 2017 Chevy Bolt EV, and how much it would cost in the end (assuming an electricity cost of 12 cents per kWh). With some other information given by FedEx, the FRC and FTC teams had to solve this problem.



The FedEx challenges hold a special place in the team's hearts since the Gearheads won February's FedEx Challenge back in 2015! The team had the opportunity to travel to FIRST Headquarters, pitch a game, toured DEKA Headquarters, and went to a party at Dean Kamen's house.



What is the difference between these two casual shop goers on this fine day?

When buffing material in the shop, it's always safe to wear a mask at all times. If you don't, it may cause you to get very sick in the long run, so be sure to wear it when necessary!



HOW CAN YOU HELP US GET GEARED UP?

The Gearheads couldn't get where we have without the support of our Community, Friends, Family, and Sponsors. There are plenty of ways to pitch in.

If you shop at Kroger, you can help just by registering your Kroger rewards with our team. Head over to www.Kroger.com/communityrewards. Sign up or log in to support the Grosse Pointe Robotics Club (Organization #84873). Don't worry, the fuel rewards and savings are all yours, Kroger merely knows that the Gearheads are an organization that they would donate local funds toward.

Another way to help is to buy or lease your next car from Matt Frame at Ray Laethem, the Dealership will donate \$100 to the Gearheads for every new vehicle purchased or leased. Just contact [Matt Frame](#) and mention the Gearheads when making the purchase or lease.

Or visit the Grosse Pointe Foundation for Public Education and [donate](#) directly to the team via PayPal.

