



MONKEY BUSINESS

News of the Funky Monkeys, Lynbrook High School Robotics, FIRST® Team 846



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The Droid You’re Looking For

Learn about the different parts of our 2020 robot on page 3!



The Funky Monkeys at the Palmetto regional in Myrtle Beach, SC.

Palmetto Regional

Myrtle Beach Bonanza

Ingrid Lee (jr.)

When we first walked into the Palmetto regional, every team member felt anxious and the tensions ran high. There were so many changes that needed to be finished on the robot, and on top of that, our climber wasn’t even on the robot at all.

Could we win and go to Champs like we did last year?

Knowing there was a lot to be done, the team stayed organized, creating a timetable for everything that needed to be fixed. The scouts in the stands worked hard, taking hourly shifts back-to-back. The pit crew worked feverishly as well, trying to keep up with the rapid schedule.

Other teams in the pits were quick to see [Palmetto](#), page 4

One Step at a Time

The Impact of Robotics

Swasti Jain (soph.)

I walked into high school terrified. I never thought that I’d be good at any particular thing. With the added pressure of grades, college and general school drama, I found myself swept up in a whirlwind of everyday life. Nothing I did felt like it amounted to anything of any significant value to me.

If I’m honest, when I first stepped into room 608, I was ready to step right out. Everyone around me seemed so smart and good at what they did. Thankfully, I stayed. The thing about the team is that everyone is passionate about everything they do. I learned that every individual in the team wasn’t so different from me. Granted many are super-geniuses, but first and foremost, they’re a bunch of teenagers. And it’s extremely inspiring because that meant that I could be perhaps just as great.

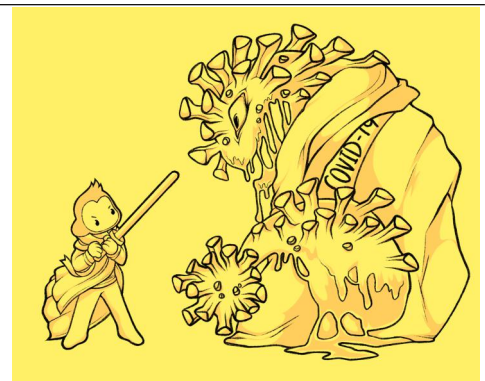
see [One Step at a Time](#), page 2

Coronavirus Conundrum

The Team Staying Busy During Quarantine

Anna Shaposhnik (sr.)

We may have heard first from the official Santa Clara briefing, or seen the FUHSD email as we snuck a peak at our phone in class. But when principal Mrs. Jackson came on to the speaker to confirm the news we all cheered! School would be closed! Back then we rejoiced at a few weeks of closure, but now as the COVID-19 pandemic worsens and schools remain closed for the rest of the year it’s clear this is going to be a challenge to overcome.



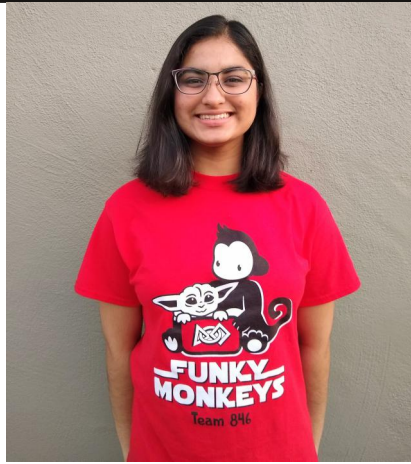
Graphic by Victoria Dai (fr.)

After the announcement, the team rushed to get together supplies and move the robot to our co-president Kunal’s garage so he could work on testing software and see [Coronavirus](#), Page 2

One Step at a Time Continued...

And over the past two years, I've progressed a lot. I made mistakes but bounced right back. I was never good at anything I did, but I was learning how to be good. And I'm extremely grateful for all the lessons I've learned.

This past build season I was given the opportunity to design the drivetrain frame. I will admit that it was a really difficult journey. And I met a lot of obstacles. I was so scared of doing a bad job that I didn't ask for help when I needed it. My only regret was not taking that leap of faith sooner. Thankfully I did ask for help before it was too late and I'm truly grateful to my teammates and mentors who guided me through



Swasti Jain (soph.)

all the hurdles we faced. When we finally assembled the Drivetrain subsystem, I was so proud. I was proud because I made something worthwhile.

“being good at something doesn't equate to feeling good about doing something”

And now, though I wouldn't dare say I excel in my field, I can confidently say that I'm willing to rise up to the challenge. In the end, being good at something doesn't equate to feeling good about doing something. Something real. Something important. And Robotics is my 'something important'.

Coronavirus Continued...

driving. We were also in the middle of painting a mural on a panel of our robot crate, which we promptly took off, slid in the back of a van, and took to my house. With all our competitions canceled, work on the robot admittedly slowed, but now the team remains vigilant in other aspects.

We moved our meetings to Zoom, retaining our weekly Tuesday active member meeting. There, we discovered the joy of virtual backgrounds, featuring our mentor Payton's backyard owls or table spider, Joseph's photo of Conrad, and more. Diverted from our usual robot activities, we now focus on refining our team. In the past, we have seen problems with following through on tasks and not being aware of the full scope of projects. During weekly business meetings, we identified that these challenges

could be solved with better project management. To achieve this, we clearly established the responsibilities of each officer and created new officer positions to distribute the workload such as Machining, Animation, Safety, and Test and Drive Officers. We also decided to implement a detailed project management spreadsheet to better accomplish our team tasks. With these changes, we hope that as a team, we will be more proactive and efficient in completing tasks throughout the season.

But that's not all! With newly freed time at home our website team iterates new designs using WordPress. Robotics media continues to complete our yearly "photo journal" yearbook. And behind the scenes, our Animation team works towards completing their ambitious Pixar-style 3D animation.

Monkey Moonshot

The Mission to Build a Robotics Field

Anna Shaposhnik (sr.)

In our annual SWOT (Strengths, Weaknesses, Opportunities, Threats) analysis Team 846 identified the lack of a practice space as keeping us from achieving our target competitive level. Robotics wastes time setting up and tearing down makeshift barricades in borrowed classrooms, time that could be used learning from failures faster. I decided to take the reins on a mission to construct a district-wide practice field (building) at my school. The project had been brought up before, but this time it was urgent to influence bond money currently allocated to "robotics maker space." For the first time in our teams' histories, the Funky Monkeys brought together all five district schools. I pitched to the representatives, and gaining their support, we met each week at our different schools to see each other's resources and we craft a plan.

With our new-found friends, each milestone was rewarding. We constructed a 9-page proposal featuring pictures and structured arguments, which we showed the deputy superintendent. Facing some pushback as expected, we took it further, presenting in front of the entire district board as a unified collective. After each step, we debriefed to see what other avenues to take, whether meeting separately with interested board members or reaching out to private companies to help sponsor costs.

Leading this project illuminates for me the entrepreneurial process with which innovative change can be accomplished. Currently, we are still on the long path to making the field a reality, but we've already made a strong network between our teams, feeding into invitations to each other's events, or a quick way to reach out for help printing masks for COVID-19.

Build Season Frenzy

A jam-packed six weeks

Catherine Zheng (sr.)

January 4th, 2020. On an early Saturday morning, a few dozen Funky Monkeys gathered in the living room in anticipation of this year's game reveal. They are just a small part of the global FRC community who have trained and prepared for months for the new season. The room falls silent as the game animation starts, and as the game is revealed, the excitement in the room grows. As always, FIRST is able to create new obstacles that challenge both new and veteran teams alike. This year, the game was heavily based on strategy as well as several unique field components.

When the game animation was over, the Funky Monkeys were done celebrating, and they met and discussed their game strategy. Having weighed the pros and cons, the team agreed to build a shorter, more compact robot to better maneuver around the field. This construction poses a problem, however, for multiple subsystems. The small

robot needs to store five seven-inch foam balls, as well as have a light but reliable climbing mechanism for the end game. Despite being only 26 inches, the robot needs to reach up to 79 inches. While there are many ways to reach this height, the struggle came with lifting the robot. Many problems soon arose in the design, and as Week 4 rolled around, it soon became apparent that we had bitten more than they could chew. The design of the robot was heavily behind schedule, and there was still no reliable design for the climber. With only a few weeks left before the first competition, the team had to scramble to finish designing, building, and assembling the robot. Finally, after multiple 12-hour work sessions, the robot was shipped.

During the competition, the team worked tirelessly to wire up and test the robot. Within a few hours, the robot was fully wired and tested. While the robot was being wired, another team assembled the climber. However, the climber did not deploy properly, and the team worked hard to solve this problem, but despite their efforts, they were

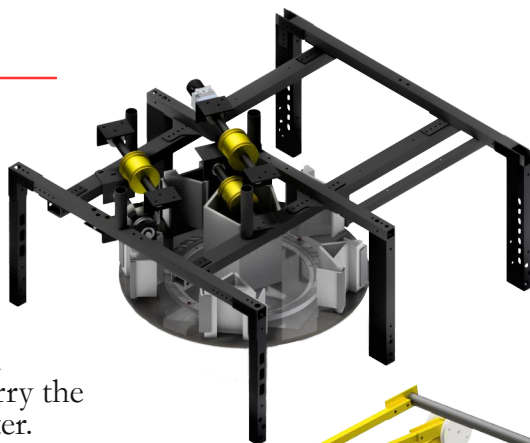
see **Build Season**, page 4

"The Droid You're Looking For"

Storage

Design Lead:
Anna
Shaposhnik (sr.)

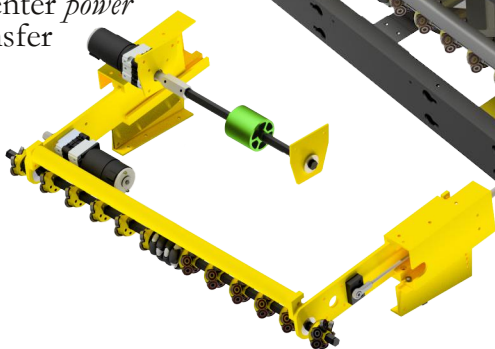
Our storage system holds up to five *power cells* (balls) in a rotating carousel. 3D-printed pulleys with belts carry the balls up to the shooter.



Intake

Design Lead: Jonah
Soong (sr.)

A pneumatic actuated intake that can extend and retract. Uses 12 custom designed 3D-printed mecanum wheels to center *power cells* and transfer them to the carousel.



Control Panel Spinner

Design Lead: Shri Kode (jr.)

A pneumatic triggered compliant wheel that extends 4 in. above the robot height to spin the control panel.

Drivetrain

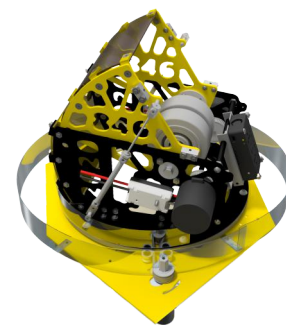
Design Leads:
Vardani Karthik. (soph.),
Swasti Jain. (soph.)

A robot base with eight traction wheels, designed to easily drive over ground-level obstacles with ease as while providing a steady base for accurate shooting.

Climber

Design Lead:
Kunal Patel (sr.)

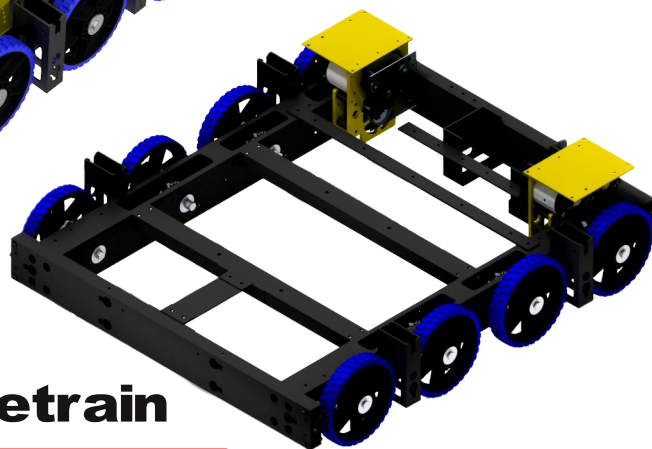
The compactly stored arms extend out to hook onto the *generator switch*. The winch pulls the robot into the air, and the pneumatic brake stops the robot from sliding down after the match has ended.



Shooter

Design Lead:
Sam Pickholtz. (jr.)

A flywheel *power-cell* shooter with two-shot angles mounted on a 360-degree turret.



Palmetto Continued...

share their tools and resources with us. When our team travelled to Myrtle Beach from across the country, the inclusivity and positivity that we felt from these southern teams was unparalleled to any regional that we have attended before. The hospitality we received here definitely made this a standout destination.

Even with the countless meetings throughout the nights, the team still found time to enjoy the city, like playing spike ball on the beach and trying new cuisines, such as a terrific soul food restaurant. The team even received an exciting opportunity to be interviewed by a local news station, where Anna, Kunal, and Isha arrived at 4:30 in the morning for a two-hour long interview to show off this year's robot design and our team attributes.

Though we didn't make it past the preliminary rounds, we were able to win the Kleiner Perkins Caufield and Byers Entrepreneurship award recognizing our entrepreneurial spirit. The Palmetto regional was a great experience for the entire team, and the kindness and good sportsmanship that we were treated with here is something that we will unquestionably pass on to other regionals that we attend for years to come.

The Scouting and Strategy Lead

A new officer position

Kunal Patel (sr.)

Towards the end of the 2019 season, our team created a new officer position: the Scouting and Strategy Lead (SSL).

Why? We felt that there was a need for a dedicated individual to not only lead and coordinate our team's scouting efforts at each of our competitions, but also to develop a competitive strategy— by evaluating our capabilities in relation to other teams, and using this to determine our own game play at competition.

The work done by our scouts is just as critical to our performance at competition as work done by the pit crew and drive team. For every single match at a competition, we assign six team members to scouting. Each scout is 'locked' onto one of the six robots playing at a match, collecting key information such as how many shots they scored, if they climbed, if they played defense, etc. The data collected on each robot must be accurate and reliable and has to be entered quickly, so that it can be available immedi-

ately for analysis.

Data collected by our scouts during any given match is entered directly into a google form, which is then uploaded into the Scouting spreadsheet. This allows the SSL lead to perform a competitive analysis in real-time, by evaluating the performance of all the other robots, and then determining strategy for our own upcoming matches. This leads to another key role that the SSL plays – communicating with other teams, figuring out what their strengths are, marketing our own capabilities, and developing a strategy for the alliance at each match. In the event we make it to the elimination rounds (quarter-finals, semi-finals, finals) and are selected to be alliance captains, our scouting data is invaluable in alliance formation.

In addition to coordinating the scouting function, which occurs primarily at competition, the SSL helps to define our team's strategy for the season – i.e. deciding how we are going to play the game any given year. The SSL works with the team to analyze the game when it is announced at kick-off, and to define offensive and defensive strategies. The SSL should also be researching other teams' robot strategies, especially teams that will be attending the regional qualifiers that we sign up for.

Build Season Continued...

unable to showcase their climber. Only at the end of the day, the robot, while not at its full potential, was up and running.

From the start, the Funky Monkeys had been too ambitious in their design. While

having a short, competitive bot for this competition was not unreasonable for us, our Week 1 competition on the other side of the country made it very hard to have built the robot that we wanted. Our lack of time impacted the robot performance immensely,

and in the end, we may have been better off designing a simpler robot. However, despite our robot's underwhelming performance, we have learned from our failures, and we will build smarter and better next season.

Where can you find the class of 2020?

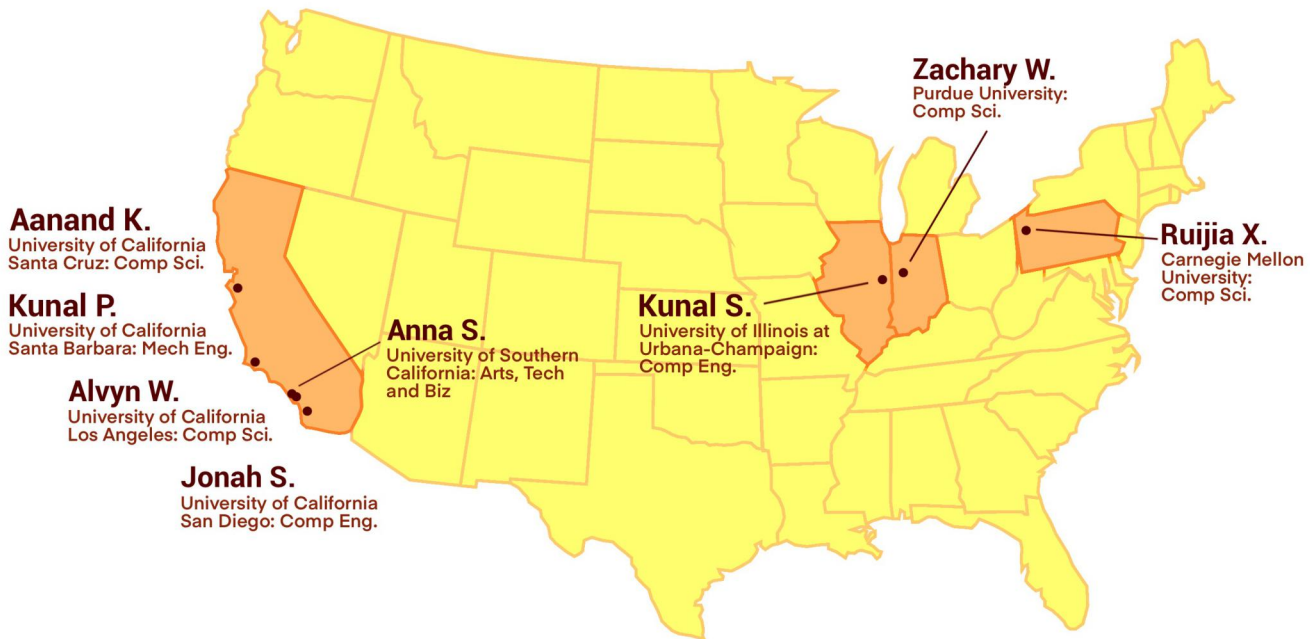


Image by Victoria Dai (fr.)