

2019-2020



STUYPULSE



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Words of Acknowledgement



To all of our supporters,

Words cannot express how grateful we are for each and every one of you. With your support, we have been able to accomplish so much, both as a team and as a family. We have extended a helping hand to FLL teams in Puerto Rico, reached great heights in competitions, and are able to share our passion for STEM with our community because of you. We are grateful for your continued aid, helping us grow into a team that does much more than just building robots.

To all of our sponsors, thank you. Your donations are what make our visions a reality. With your help, we can build what we dream of and win competitions.

To all of our mentors, thank you. With your guidance and knowledge, we have been able to put our ideas into action. We're grateful to you for taking time to help us become the best we could be.

To all of our parents, thank you. Your support and belief in us as a family and a team drive us to strive for bigger goals.

We appreciate the help of all of our sponsors, mentors, and families. Without your help, we could not have been able to become the team that we are today.

Sincerely,
StuyPulse



Thank you to our sponsors!

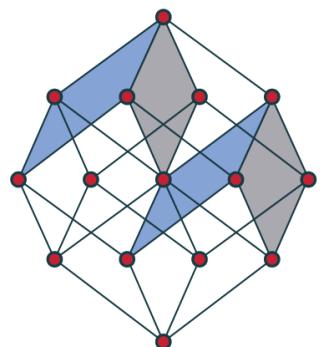


SHS Parents' Association

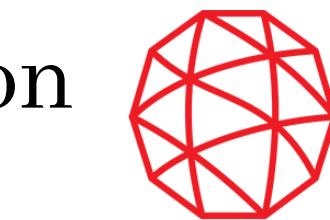
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Senior Spotlight



Meet the seniors of StuyPulse!

Their last season competing as students had been cut short but their dedication for the past 4 years has not gone unnoticed.



Eric is a StuyPulse engineer and led the team as our President of Engineering this past season. He brings his passion for engineering into the lab, and always creates and encourages innovative ideas that we would otherwise hesitate to try, which have shaped our robots over the years. He has also contributed to many mechanisms in his time on the team, such as the lift on last year's robot, Alfred, and the drivetrain of this year's robot, Edwin! Alongside Eric's contributions to the team, he has made an impact on every Pulsite with his leadership and friendship, and will be missed!

Pratham is a StuyPulse software engineer and led the team as our President of Software Engineering this past season. He is always enthusiastic when he is teaching our younger members and preparing them for the build season with the newbie curriculum that he worked on this year. Pratham was also responsible for coding our auton routines for the past two seasons! His dedication, along with his love for Chipotle sour cream, will never cease to amaze us.



Areyan is a StuyPulse marketer and led the team as the President of Marketing this past season. He could always be found taking photos and creating social media content to promote our team. Our T-shirt designs from the 2019 and 2018 seasons were also designed by him! Areyan was also always willing to lend a hand by volunteering at both FRC and FTC competitions and cheering on our teams.

Senior Spotlight



Coby has been dedicated to StuyPulse for the past four years and has been dedicated to both engineering and marketing on StuyPulse. In his earlier StuyPulse years, Coby helped to create a suction cup climber, which was an integral part of our robot, Wildcard. Later, Coby was

the President of Marketing and helped to organize many sub-teams. He has also been StuyPulse's operator, travelled to China with the team, and organized many outreach initiatives, like our coat drive with Bloomberg and the NYC FIRST picnic! Because of his constant innovation and outside-the-box thinking, Coby has helped to shape our team over the years.

Dechen is a StuyPulse marketer and was previously our Vice President of Marketing during the 2019 season. For the past two years, she was also one of our co-leaders of Chairman's and a presenter for the Chairman's Award. She also led the planning of our Team Dinner last year and was always volunteering at our competitions! Dechen always made everyone feel welcome and would always be willing to answer any questions that we had.



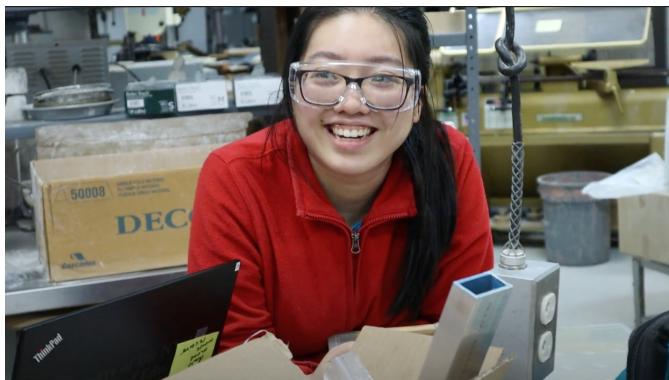
Junhee is a StuyPulse engineer and was our Operator this past season. He has contributed to numerous projects over the year, such as the mechanism that picked up hatch panels off the floor on Alfred and the climber on this year's robot, Edwin. He was also our Engineering newbie ed leader this year and spearheaded the task of creating our new prototyping competition meant to prepare the newbies for the build season. Junhee was always willing to answer any of our questions and never failed to put a smile on our faces!

Senior Spotlight



Seonga Oh is a StuyPulse engineer and was our Director of Electronics this past season. She led the electronics subdepartment and led students in designing and building the chute mechanism for our robot this year, Edwin! She was also one of our co-leaders for Chairman's and a presenter for the past two seasons. Seonga always put her best foot forward and her overflowing energy helped to keep our spirits high!

Joseph is a StuyPulse engineer and was our Director of Media this past season! He has made numerous contributions in leading mechanism groups, including our suction cup climber last year, and teams for newbie education. As Director of Media, he took charge of planning, filming, and editing video projects as well as training and recruiting new members of the team. Joseph is always spreading positivity around the lab and is there to answer any of the younger members' questions!



Anna is a StuyPulse engineer and was our Director of Strategy this past season! As our Director of Strategy, she has picklisted late into the night and planned hectic match strategies during competition. Not only has she contributed countless ideas to the team, she is always there to provide guidance and support. She has wired the robot, travelled to China with the team for the past two years, and has led our outreach at PS 51.

Senior Spotlight



Qiong is a StuyPulse engineer and was our Director of Design for the past two seasons! He has led students in prototyping shooter mechanisms to maximize accuracy while teaching them key engineering skills. He was also devoted to drafting a Solidworks curriculum for the team and contributed greatly to the robot CAD during CAD marathon. Qiong can always be found breaking things but he never cuts corners and always makes the best of what he's got!

Isabella is a StuyPulse marketer and has been our Director of Finance for the past two seasons. She started out as an engineer and during her sophomore year, she was our Co-Director of Lab Operations and Safety and co-led a rung extension climb mechanism. She later joined Marketing, writing grants for the team and maintaining our sponsorships. She also was in charge of putting together our Business Plan for the past two seasons and helped us win the Entrepreneurship Award at the Tech Valley Regional last year!



Endar is a StuyPulse engineer and has been our Director of Lab Operations and Safety for the last two seasons. She has led and contributed to many important prototypes and mechanisms over the years, like the funnel on this year's robot! More than anything, Endar is always there to teach people how to use machines and to find and use any tool, to help them CAD mechanisms, and to be a great friend.

Senior Spotlight



Bryant is a StuyPulse engineer and our Director of Pneumatics for the past two seasons! He was also our driver for the past two seasons. Bryant has contributed to the funnel prototyping and helped with the design of this year's intake roller mechanism. He has also travelled to China with the team to help mentor Chinese rookie teams and even gave a presentation on pneumatics!

Alyson is a StuyPulse engineer and was previously our Director of Lab Operations and Safety. She is a creative engineer who has contributed to many projects, such as the lift on both Edwin and Alfred, and helped to design the floop on Alfred! Alyson has also travelled to China for the past two seasons to help mentor Chinese rookie and pre-rookie teams. We could always count on her to thoroughly check the robot before we headed to a match!



Kevin is a StuyPulse software engineer and has been our Director of Research and Development for the past two seasons. He has worked endlessly to perfect our limelight and computer vision for the past two years and . He has also been dedicated to researching motion profiling to improve our autons in the future. Our Software Engineering newbies have learned so much from him since they joined and always felt welcome, thanks to Kevin.

Emily is a StuyPulse software engineer and was always willing to help her department in any way she could. She was always eager to teach our newbies this year, explaining the basics of Java and robot code, and worked alongside them to code the intake mechanism of this year's robot and our auton routines. Even at competitions, she would always lend a hand to those in need as a Mobility Missionary, helping other teams with code problems and ensuring that they would have mobility during a match.



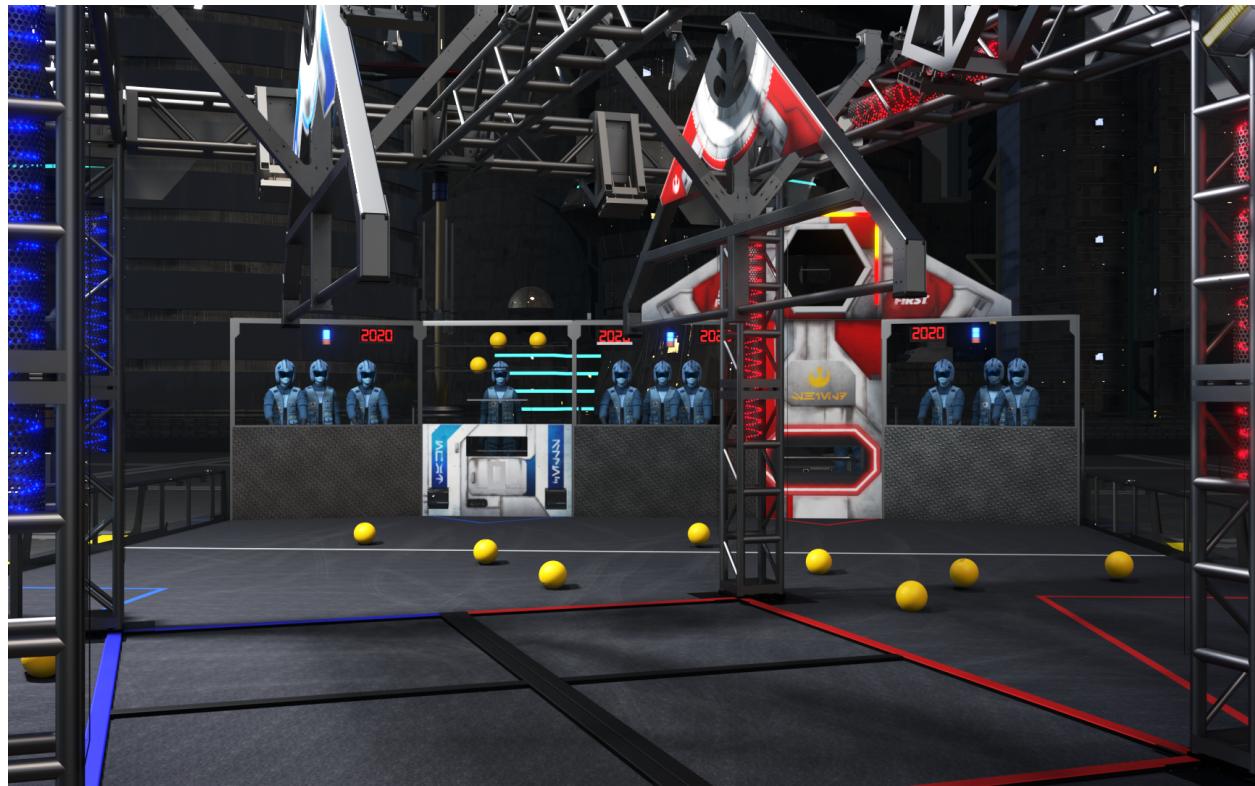
INFINITE RECHARGE Overview



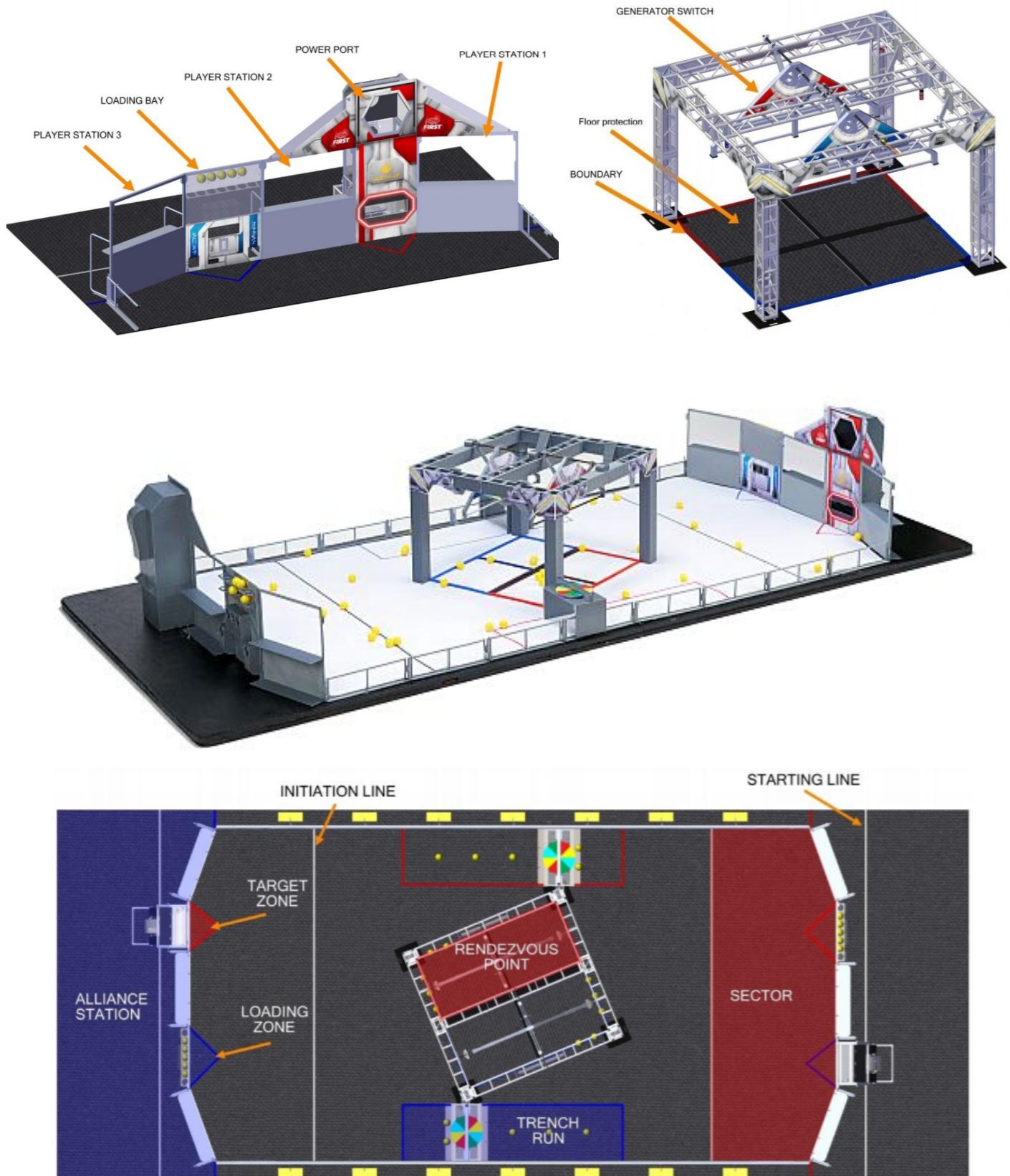
This year's game, INFINITE RECHARGE, is based on a futuristic city theme, where "two alliances work to protect FIRST City from approaching asteroids caused by a distant space skirmish". Two alliances of three teams compete for the highest score, by scoring Power Cells into the Shield Generator, manipulating the Control Panel after scoring a certain number of Power cells, hanging from the Generator Switch and levelling it out.



INFINITE RECHARGESM



INFINITE RECHARGE



Build Season Recap



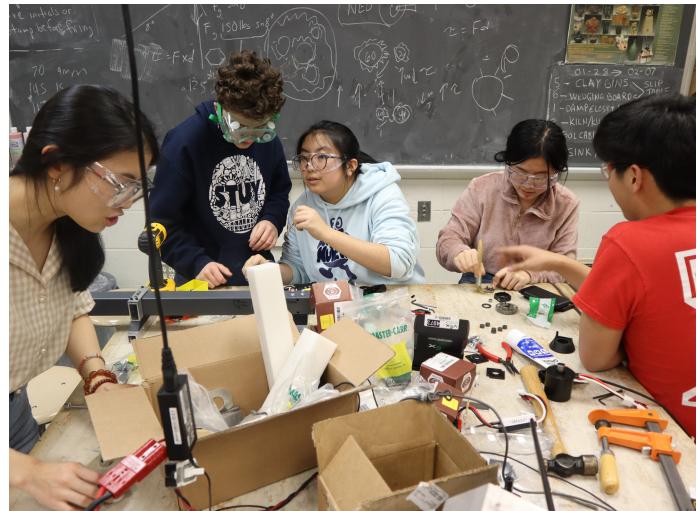
Engineering

This season provided the engineering department with an interesting set of challenges.. Due to the fact that we were unable to work out of our normal lab (and rather in an advisor's ceramics lab with limited machinery), manufacturing capabilities were limited. Regardless, the team came together to produce an incredibly capable and high-performing robot, if perhaps a bit unconventional.



In pre-season, we test-drove a new “prototyping competition” as our newbie education, where students competed to build full-scale robots out of wood and other scrap materials. This gave them a much more holistic and realistic view of FRC in comparison to the previous mini-robot competition. We also implemented a formal CAD education, where we introduced students to SOLIDWORKS and how to navigate its expansive functions. In addition to this, we ran a program of research & development based on the overarching projects that veteran members wanted to work on .

Build Season Recap



During build season, the engineering department was, as always, a hive of commotion. After receiving the prompt for the game, we broke up into many prototyping groups, trying to cover as many viable ideas as we could manage. Following this two week period of intensive prototyping, we conducted our CAD marathon, which is an event where we hold our design discussion to finalize the mechanisms we want to pursue for our final robot. Then, the entire team, equipped with laptops, sits down and CADs for an entire day. This was followed by several more CAD-oriented meetings. A particular design constraint we faced this year was, as mentioned before, our limited machining capabilities. As such, many members designed pieces that could be made simply by hand or by methods other than machining (to lighten the load on our hardworking machinists and also speeding up the process). Throughout the rest of the season, we faced setbacks as a result of human error, but the eventual outcome was extremely positive and we were very excited for our first competition.

Build Season Recap



Software Engineering



This year, SE made a lot of progress in our newbie education and research. For example, we completely changed up our newbie education. Instead of lecture-style lessons focused more on Java, we switched to teaching through small groups, where members were able to gain more hands-on experience writing robot code from the start. Adding on, a lot of research and development was done this year, especially with computer vision and automatic PID tuning, which helped us find our PID values much more quickly. These two improvements also made our autonomous routines easier to test , with our robot lining itself up with the goal using CV and reaching distances and speeds more efficiently with PID. Instead of spending days tuning each auton, we were able to finish many of our autons in just a meeting or two.

Build Season Recap



This year, we also introduced StuyLib to our code, a library made by our members with many important classes for our controllers, limelight, filters, and much more that can also be used in future years. We also worked to create reusable classes for motor stalling and brownout prevention, both important to making sure our robot did not break or draw too much power. We have made many improvements to our code this year and we strive to do even better in future years.



Build Season Recap



Marketing

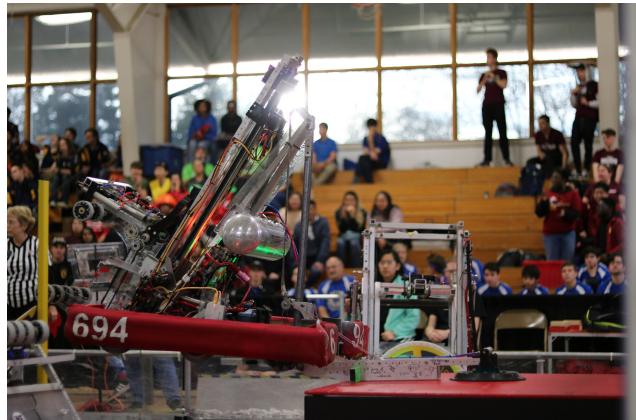


This season, the marketing department worked on our team awards and events. We worked on the Chairman's Award, Dean's List, and Woodie Flowers Award, each focusing on a different aspect of the team for recognition by FIRST. The Chairman's Award focuses on the team's work and its impact as a whole on our community. The Dean's List highlights specific students for their hard work and dedication to the team. Similarly, the Woodie Flowers Award highlights mentors for their work on the team as well. We also organized events for our team and community. In December, we hosted a newbie bonding day, an event in which newbies and old members were broken off into groups to play games and compete. This fostered new friendships among newbies themselves and with older members. We held bake sales and our annual coat drive for the school. We hosted our annual Stuy Splash as well, an event in which various FRC teams give lectures to newer teams to learn the basics about robotics. Later in March, we held a demo at Battery Park City Authority and had a fun robotics drawing project for elementary school students.

Off-Season Events

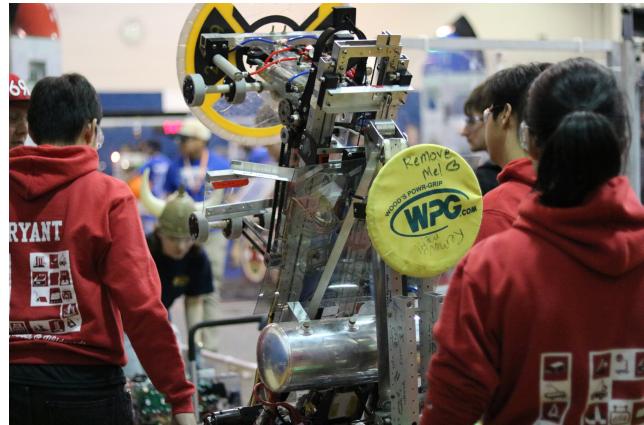


Duel on the Delaware



In October, we went to the Duel on the Delaware off-season event in Carney's Point, NJ. We were the captains of Alliance 2 and along with our alliance partners Team 271, Mechanical Marauders and Team 3314, Mechanical Mustangs, we went undefeated and took first place.

Brunswick Eruption



In November, we attended Brunswick Eruption, an off-season event in North Brunswick, NJ. Team 747, FlightCrew were captains of Alliance 2 and we were their first pick. Together with our captain team 747 Flight Crew and partner 5895 Peddie School Robotics, we ended the event and our 2019 season as finalists.

Palmetto Regional



The Palmetto Regional, held in South Carolina, was a fever dream of positive outcomes. We went undefeated and went on to win the regional as well as the Innovation in Control award. The robot was, to our surprise, not that finicky (relative to robots we've designed in the past), and only broke significantly a handful of times (electrical malfunctions, knots coming loose, crashing into field elements... the usual culprits). Our strategy team pieced together an extremely effective alliance with team Cyber Tribe 4020 and team Technomancers 1758, and we won by significant margins in all of our playoff matches. We went undefeated throughout the whole event and won.

Palmetto Regional



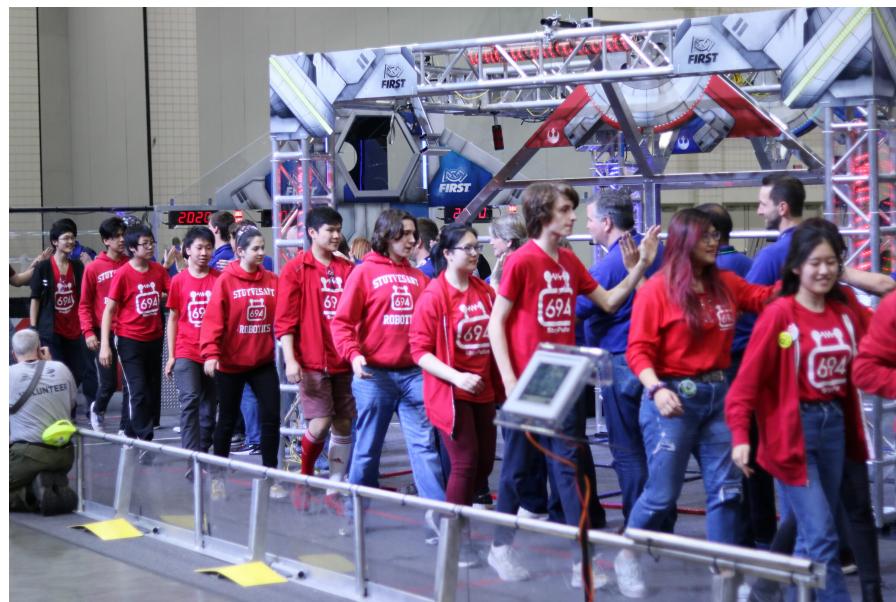
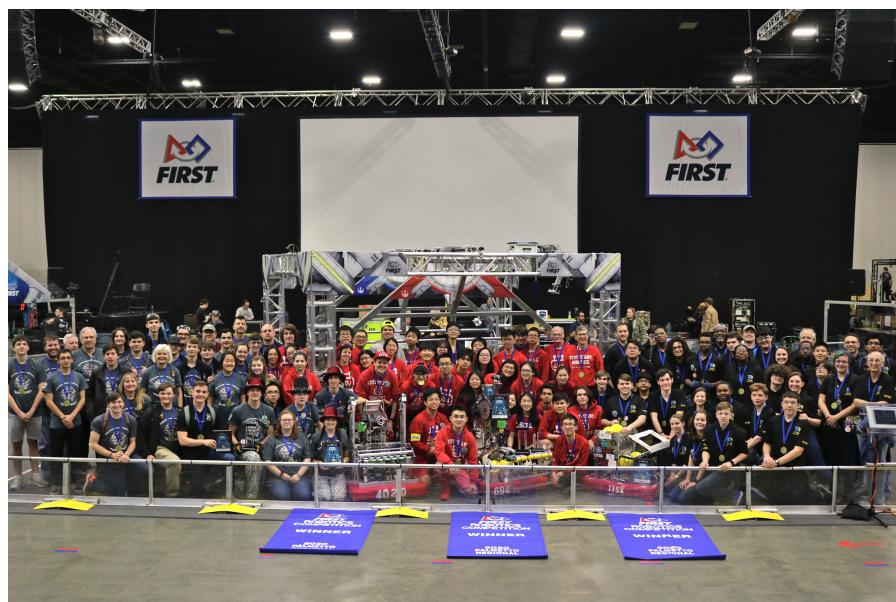
This year, we introduced StuyLib to our code, a library made by our members with many important classes for our controllers, limelight, filters, and much more that can also be used in future years. The filters from this library even gave us our Innovation in Control Award at the Palmetto Regional.



Palmetto Regional

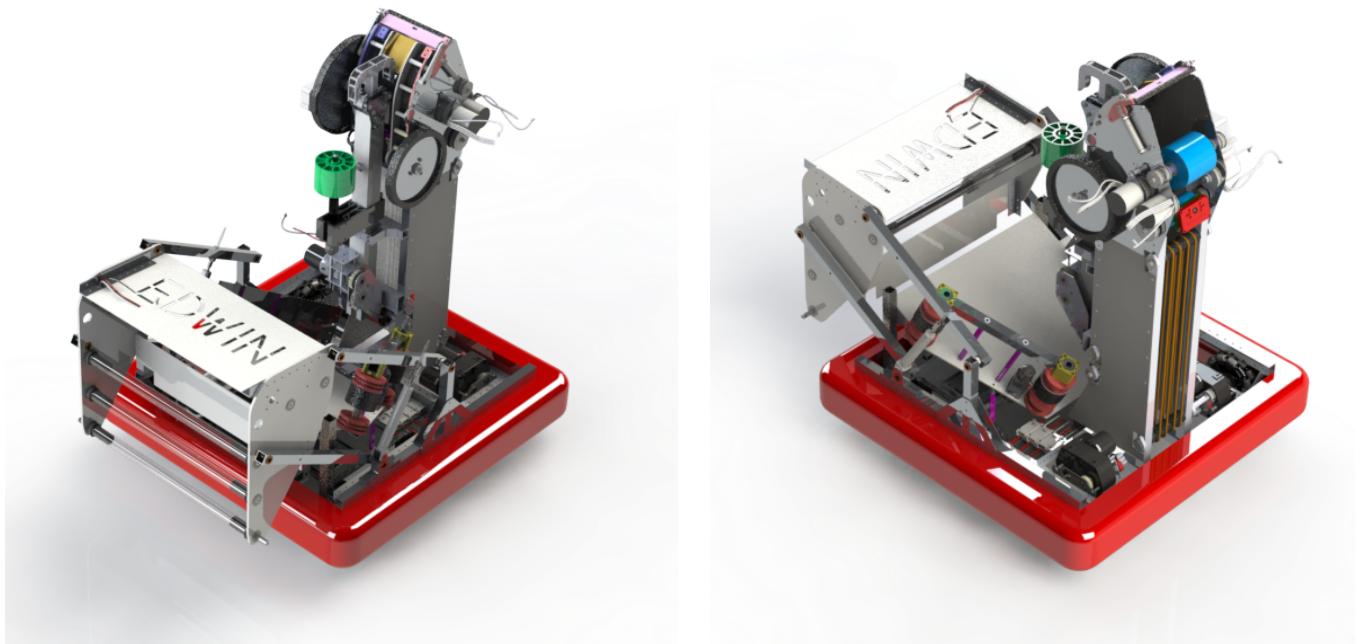


In going undefeated, our advisor, Mr. Joseph Blay, had promised to dye his hair red (and followed through). In addition, one student and one alum promised to shave their heads bald if we went undefeated for the entire season, which, considering COVID-19 cancelled the remainder of the season, came true. We are still waiting on the alum to shave his head, but the student joined our team video calls amidst grand cheers congratulating his newly-shaved head.

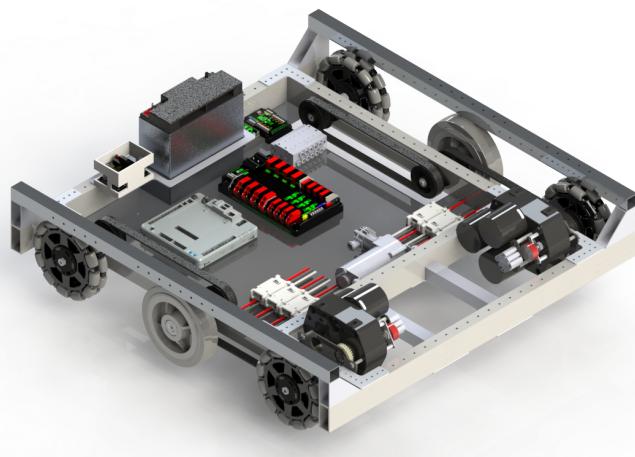


EDWIN

BROKEN DOWN



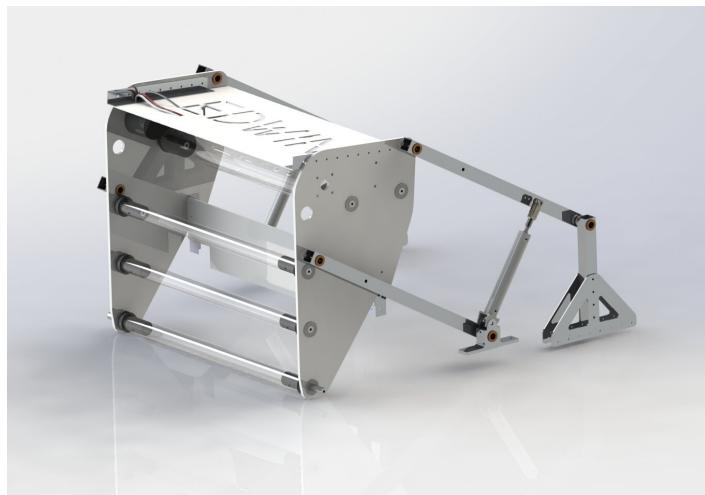
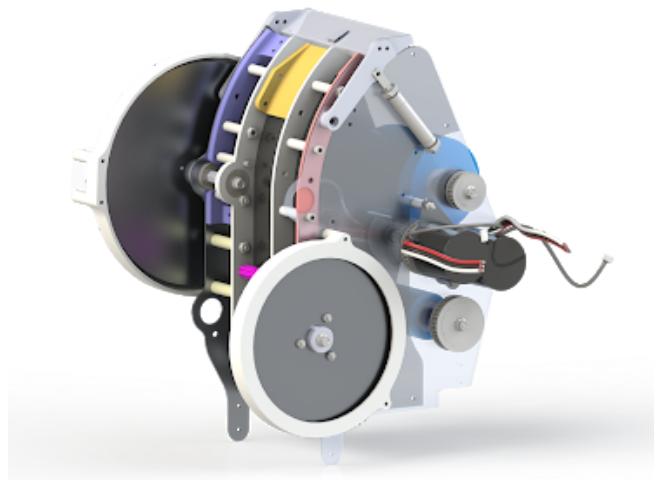
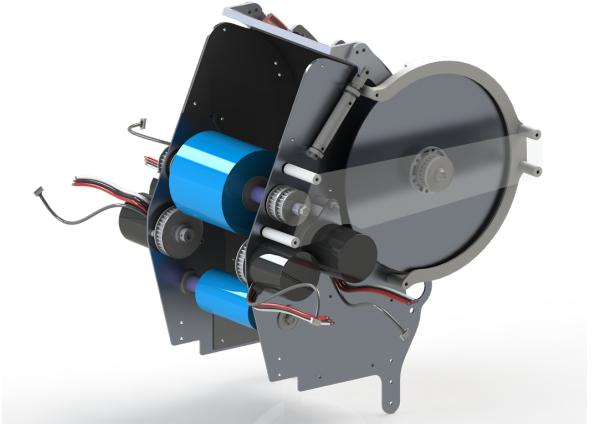
Drivetrain



The 30" by 29" chassis consists of six wheels, the four at the front and rear being 6" omni-wheels and the central wheels being 6" colson wheels. Both sides of the drivetrain were driven by a VEX 3 CIM Ball Shifter equipped with 3 NEO motors, allowing us to reach linear velocities of 16.14 ft/s at high gear and 7.46 ft/s at low gear. This drivetrain is mechanically familiar to our drive team and reliable for our SE department to code.

Shooter

Our shooter consists of a piston-actuated hood that allowed us to switch between the two shooting angles at two positions that we determined to be strategically ideal. In order to bring power cells up to a consistent speed, there are two sets of rollers, both equipped with two urethane wheels and a flywheel. Three NEOs drive the shooter wheel and one NEO drives the feeder wheel. Overall, this mechanism was incredibly accurate and consistent at the starting line and trench line.

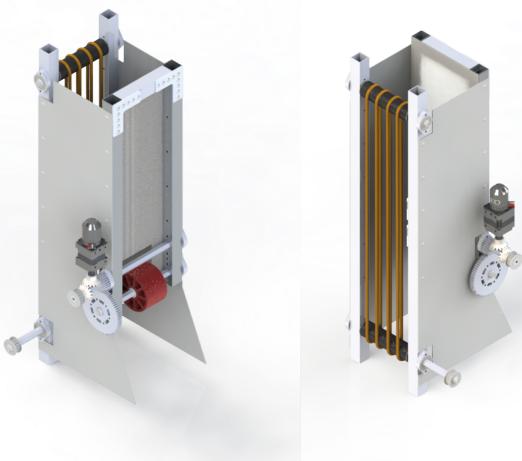
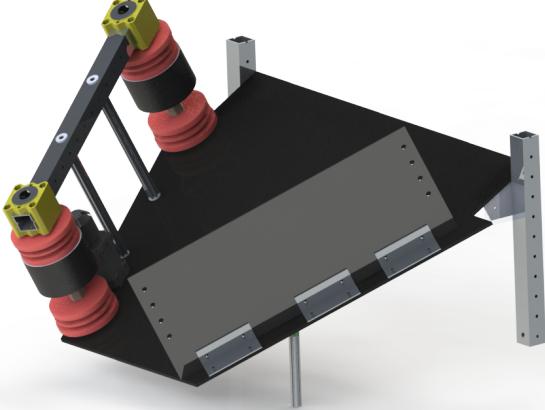


Intake

Our intake consists of a series of rollers that compress power cells against a series of polycarbonate plates in order to move balls up from the ground into the indexer. It is deployed using a four-bar linkage actuated by a pneumatic cylinder that brings the mechanism from inside the frame perimeter to just outside of the robot's bumpers. Driven by just one NEO and a lot of gear ratio reductions, the rollers run at approx. 16 ft/sec. There is roughly 1.2in of compression throughout the intake, allowing for quick touch-it-own-it pickup of balls on the field.

Feeder

The funnel and the chute are feeding mechanisms that guide the power cells from the intake to the shooter. The funnel, driven by a NEO 550 motor with a 36:1 reduction, intakes a maximum of 5 power cells on a flat area with a wide opening that narrows down to the width of the opening into the chute. The funnel uses two parallel pulleys made of poly cord to index the balls down towards the chute. After passing through the narrow opening, the compliant wheel at the bottom of the chute drives the incoming power cells into the mechanism. Finally, the ball is pulled upward by two parallel walls of poly cord where it is transferred to the shooter. To prevent jamming, polyethylene plates were placed where the balls would often slip into.



Control Panel

Our Control Panel mechanism, nicknamed Woof, was designed to spin the control panel at around 60 rpm (the maximum allowed angular velocity). It consists of a vertically-mounted 2-Stage VersaPlanetary Gearbox (25:1) running a shaft with three 4" compliant wheels.

We attempted to create a mechanism that was light, but also able to meet its functionality goal. Considering the low rank of the control panel on our priority list, the initial iteration

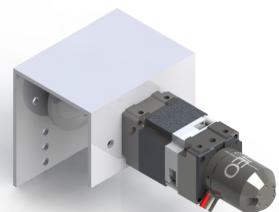


was rather heavy. Changing to a simpler and lighter design gave more room for mechanisms with greater importance. A lesson learned was that the mechanism did not need to be so sophisticated. This manifested in our experience with the Woof at Palmetto Regional, where the mechanism was fairly quick and consistent.



Climber

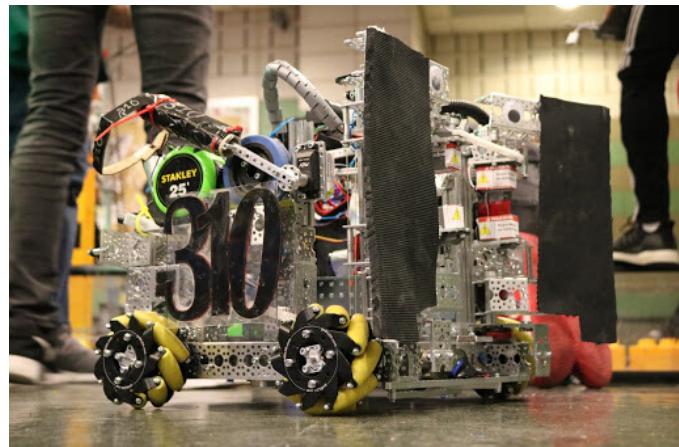
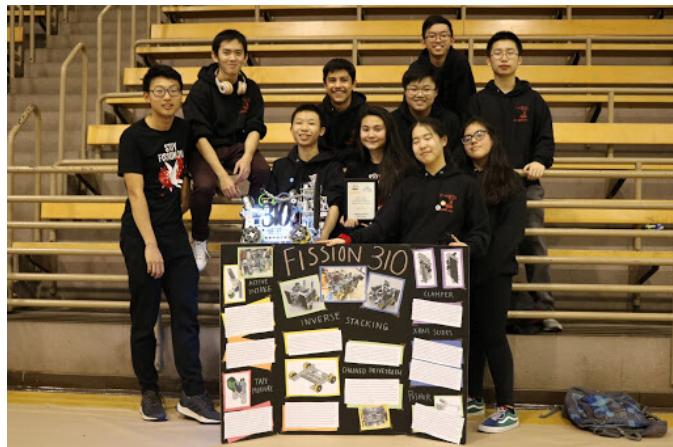
The climber was designed to be a lightweight mechanism that would enable our 2020 robot to climb onto the generator switch during endgame. It consists of a 3-stage telescoping PVC lift with multiple constant force springs driving the middle and top stages and a U-shaped metal hook attached to the top. The entire mechanism proved rather robust, driven by a 20:1 Versaplanetary gearbox equipped with a NEO and having a Versaplanetary ratchet gear as a brake. Initial development also included the Yo-Yo, a mechanism designed to shift Edwin along the generator switch with a rotating concave wheel. However, it was never tested at competition due to merging issues with the shooter's retractable hood, a higher priority mechanism.



FTC 310 Recap



Stuy Fission has had a tough but rewarding season this year. Coming into this year we lost a fourth of our team to graduating seniors, and more than half of our team were newbies last year. Our plan for this year was to rebuild and take the time to learn and become a more sustainable team.



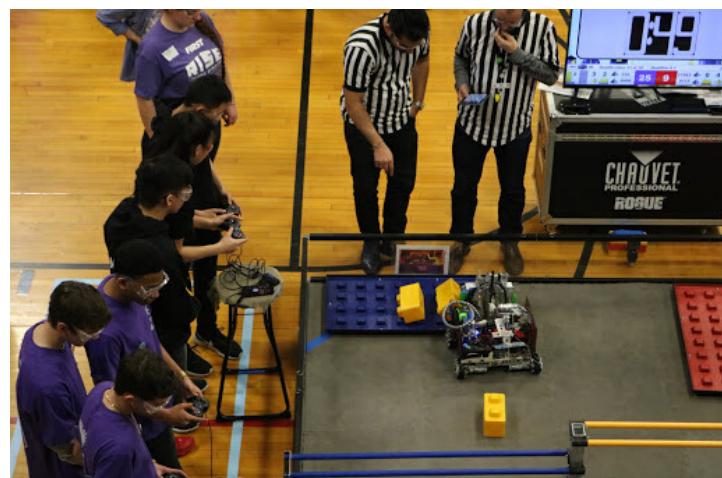
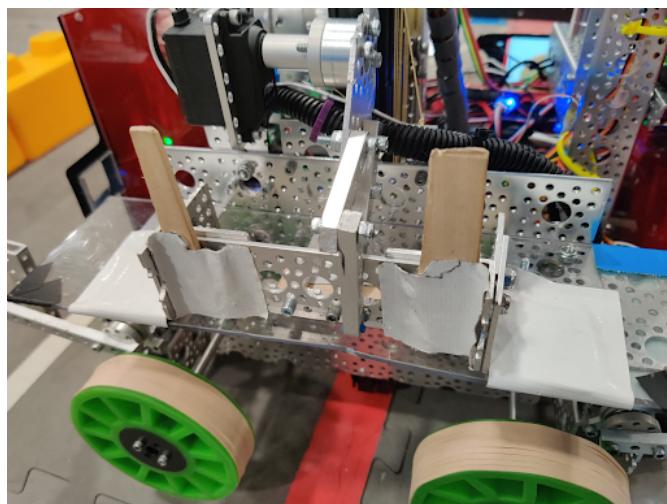
For this year's FTC challenge, one of the main objectives was to stack LEGO-like blocks in order to receive points. During the first month of our season, we made a lot of mistakes. We started ordering parts we had never worked with before, and while waiting for these parts to arrive, we created an incompatible design that was too advanced for us to build without experience. About two weeks before our first competition, we realized the path we were on was not going to result in a moving robot at our first qualifier. We decided to change directions and stick with a drive base we were already very comfortable with. We also started making a vertical acquirer, since this would allow us to acquire and score with one mechanism. Although we ran into some problems initially, we finally settled on a design that was truly innovative, one that was original and inspired other teams.

FTC 310 Recap



The first qualifier was going to be our first test as a team. During that competition, we ended up being the Winning Alliance's 1st pick, winning the Innovate Award, and winning 2nd place for the Inspire Award. Being the only team to triple qualify at a single event was definitely a highlight, but our biggest achievement that day was how well we meshed as a team. We had clear communication between all members and were able to come out ahead in the robot matches and judge's deliberation alike.

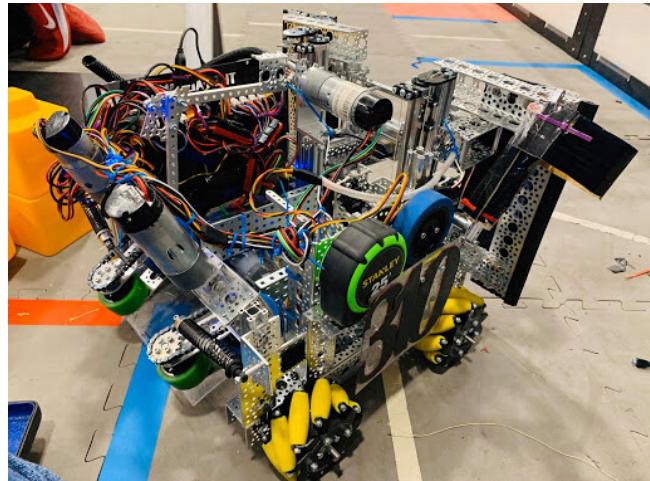
Before the Super Qualifiers, we refined our robot and created new mechanisms to prepare for the difficult road ahead. We prepared with lots of driver practice and endless testing of our autonomous routines. We faced many hardships during this competition but at the end of the day, we won the Control Award for our autonomous routines, qualifying us for City Champs.



FTC 310 Recap



Qualifying for Worlds and proving we are a top team in NYC became our only goal in the short 3 weeks to City Champs. In order to achieve this, we had to change our previous strategy, which also involved redesigning our entire robot. We knew that a whole robot redesign would be hard to pull off in the short time between Super Qualifiers and City Champs, but we decided that if we did not make these changes, there was no way to advance past City Champs. We decided that if we committed early on and utilized our Mid-Winter break, this seemingly rash decision would pay off and we would have enough time to create a polished robot.



On competition day, we were still not used to the new robot and new strategy, but we still had our moments. Working with the teams that we have been interacting with and competing against all year allowed us to strengthen bonds with these teams. Many of the wins we had were largely due to the teamwork with teams we were at the same competitions with or teams we invited to Stuy. At the end of the day, we won the 3rd place Inspire Award, buying our ticket to the World Championship.

FTC 310 Recap



We have also taken a more active role this year in connecting with our larger community. During the summer, we held regular video calls with a FIRST Global Challenge team in Kenya, sharing advice in preparing them for their upcoming competition in Dubai. After kickoff, our members gave lectures on key topics in FTC such as writing the engineering notebook and scouting in events such as FTC Splash and Stuy Splash, in which teams from all over the city and Canada attend. It was exciting to see all these different teams coming together to share their knowledge and grow together as a community. We really enjoyed this experience of connecting with other teams, and this inspired us to hold a series of lab-sharing sessions, where we invited other teams to work in our lab. We have also connected with the non-FIRST community through robot demonstrations to spread STEM. When the Russell Sage J.H.S. math team visited Stuyvesant, we gave them a tour of our Innovation Lab, giving them a feel of what FTC is like and letting them drive our robot. Similarly, we have also taken steps to further our own selves in the STEM field through STEM lectures. Over the course of the season, we held a lecture series given by professionals in various STEM fields. This gave our members, especially our graduating seniors, an insight on what they may want to pursue in the future.

FTC 310 Recap



Although our season has been cut short due to the COVID-19 pandemic, we have had more time to reflect and have been focusing our resources on improving ourselves for next season. This year was a big triumph for us because we were able to overcome problems plaguing us in the past. With better communication, software, and engineering, came the opportunity to compete and dominate in the robot matches as well as the awards portion of competitions. We will keep improving and bettering ourselves, hoping to create a sustainable future for our team.



FTC 479 Recap



Despite encountering a myriad of difficulties, 2019-2020 Skystone was one of 479's best seasons in the team's history. A vast majority of the team members were second-year veterans, which made the transition from graduating seniors to the remaining members difficult. Members had to adapt to working in a new workspace and atmosphere while also managing over 80+ member applications. However, our team was able to overcome these hurdles and successfully build a well-engineered robot.



We started off the season strong at the John Dewey Qualifier. After setting a record of 5-4, we continued on to become the Finalist Alliance First Pick and win the Think Award. Though our robot encountered some technical difficulties, our well-planned strategies and superb scouting reports played a major role in securing our qualification for the Super Qualifiers.

After the John Dewey Qualifier, we decided to completely rebuild the robot for the Super Qualifiers. The new robot included a variety of mechanisms capable of accomplishing nearly all game objectives, with the exception of capping stones.

During this process, the biggest challenge we faced was re-designing the drivetrain, where we replaced aluminum side plates with laser-cut delrin and added more mounting options for new mechanisms. Using the popular method of "Design Thinking," we fleshed out a lot of ideas for mechanisms to score and grab stones, as well as other game objectives. However, we didn't have enough time to practice and improve our autonomous routines, which proved to be a recurring problem throughout the season.

FTC 479 Recap



The NYC Dalton Super Qualifier took an unexpected turn—although we were seeded high with a record of 4-1 and were Finalist Alliance first pick, we lost in the finals. However, we still advanced to the NYC Championship thanks to our well-executed strategy known as feeding. Instead of attempting to multitask between collecting and scoring stones, we specialized in delivering stones to our alliance partner to divide up the work. Our robot's relatively quick speed and ability to easily maneuver around the field allowed it to quickly intake stones and play defense against the opposing alliance. This competition was also a first for new members and was a great opportunity for them to learn about scouting, game strategies, and the overall environment of FIRST competitions.

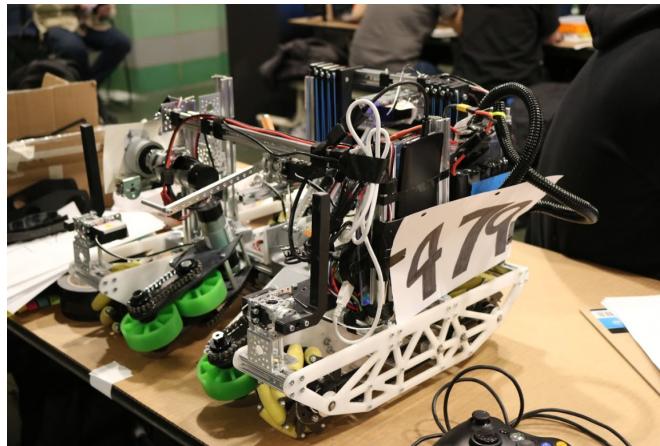


For the NYC Championships, we focused heavily on refining our autonomous routines and other programming-related issues. We added more mechanisms, inspired by other FTC teams, such as a skystone grabber and tape measurer to help us park at the end of autonomous. Our linear slide elevator also encountered issues, so we spent much of our time restringing and properly tensioning the system. After re-tweaking the robot, we were able to retrieve a skystone, reorient the foundation, and park, all during the autonomous period. Additionally, we were capable of feeding about ten to twelve stones to our alliance partner and stacking about eight stones during the tele-op period. Going into the NYC Championship, we had high hopes in qualifying for the

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World Championship. After the first few matches, we were ranked first going 4-0, but after losing our last two matches, our ranking dropped to seventh place. At that point, we expected our chances of qualifying for World Championship to be over, however, we thankfully got picked by Team 4780 Robolution to be on the fourth alliance pick for semi-finals. Unfortunately, in our first match, one of our drivetrain shaft couplers broke and our robot was not able to drive properly in the semi-finals.



Moving forward, we had many plans for the remainder of the school year. Some of these plans include refining our robot and potentially building another one for outreach demonstrations. Due to COVID-19, our season, along with all other FIRST teams, is officially over.

To strengthen our skills, we decided to participate in online CAD challenges made by the FTC community such as the Onshape Robots to the Rescue Challenge and the Containment Design Challenge. This season was quite impactful to us as a team. Not only did it challenge our individual design skills and execution of our ideas, but also how the team worked together as a whole, especially in terms of communication. Starting out with only a few core members, we tried our best to integrate new members and instill our learnings to them. Our competition records have been improving each year, and we hope that we will make an appearance in the World Championship next year!

Reflections



StuyPulse has maintained a tradition for members to write reflections at the end of every year about their thoughts, experiences, and relationships they built through the team. Reflections allow members of StuyPulse to address the impact the team has had on them and how it has shaped them, as well as all of their concerns and thoughts. These pieces of writing are meaningful not just for each individual, but also for the record, and as a rich learning experience for future generations. Here are a few excerpts from our reflections:

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"Well, these three years have been a wild ride. I never thought I'd get here, but through all the highs and lows of my time on this train wreck of a team, I think I did what awkward little freshman me set out to do: go from loser to leader. I came into room 450 knowing nobody and nothing. Literally. I was so unbelievably cringy back then, as one of the pictures below probably demonstrates, and I hid behind a massive, impenetrable fortress of sarcasm and fake personalities. But as the years went by, those previously-impenetrable walls began to crumble. I started learning more about robots, and my contributions became more than just bad jokes and worse ideas. For the first time in my life, I started to really take charge too. Even though I never had a title, I started to lead. And, well, good things came of it. I've done a lot of great things, some robot-related, some not, that freshman or even



Reflections



sophomore me thought I'd never be capable of. I've met so many great people, I've grown to really love this team, this competition, and engineering as a whole. And, after so many years of hiding and suppressing it, I think I've peeled back all the layers of the proverbial onion to reveal the real me." - Jeremy Zang

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"The people on this team should be team players, people who harbor an inclusive culture for all and who win and lose with their team. Next year, I know many of you will evolve and grow as people, and it's up to you to work even harder as leaders and promote inclusivity in each of your respective

departments—with your efforts, I have hope for the end of these political games, the return of student leadership, and for the overall future of this family." - Isabella Rocha



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"After I went to CNY, though, I felt like I kind of understood why there were so many people willing to be dedicated to this team, working hours on end every day with little to no complaints. Seeing such competitive team spirit during competitions was an experience like no other. I found myself wanting to be a part of it: a team that is truly passionate about what they work towards. I understood why people stayed and devoted part of their high school experiences to this team. Going to Champs only made me see this in an even clearer light. From cheering in the stands to seeing what other teams worked on in the pits, being a part of this team appealed to me more and more."

- Winnie Huang

Reflections



“I just want to thank everyone who made this year so much better than I expected. Thank you for dealing with me for these three years and all the small little things I get way too excited about. Thank you for being patient with me as I messed up the smallest, simplest autons. Thank you for letting me obsess over party mode, no matter how many times I accidentally deleted it. Thank you for letting me go half crazy over formatting and naming conventions. Thank you for showing me that 10:30pm is really a bit too early for bedtime. Thank you for teaching me so much about everything. Thank you for responding to my many many annoying messages and questions. Thank you for letting me complain over dumb things to you. Thank you for dealing with me when my brain stopped working from a lack of sleep. Thank you for being so nice to me even when you really didn’t have to. Thank you for giving me something to look forward to after school. Thank you for making this year so great.” - Renee Mui

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“The real reason that I started writing this was because it finally hit me that some of my closest friends are leaving for college. I’m going to preface this by saying that I’m so incredibly happy and proud of all of them and will be cheering them on from Stuyvesant every step of the way. They’re going to do such incredible things and have so much fun and I can’t wait for all their crazy college stories. But, for a moment, let me be selfish and admit that I will miss them more than words can really express. These are people I’ve known for 3 years (and some more), and I’ve made so many amazing memories with them. These are people I go to for comfort when I’m feeling my worst and people I



Reflections



message with my most abominable jokes and people I can always count on for an uplifting meal and laughing until I cry. They're irreplaceable to me, and have guided me with kindness and courage for much of my StuyPulse career. I've learned so much from all of them, and it absolutely destroys me to think that I couldn't help bring them to Einstein and get them the win they deserve for being the people they are. And soon they will be gone. I remember when, in my freshman year, I started crying over the



seniors graduating during our post-champs cryfest. I told Yi Lin, who was a junior at the time, 'I love you guys so much- I'm gonna miss you so much when you graduate.' To this, she laughed and assured me she had another year (now, that class is gone as well). I distinctly remember thinking, 'I'm going to be devastated when the class of 2020 graduates. 'And all too soon, we have arrived at that point. It is my time to be devastated. I love them very much. If you happen to be reading this, I love you very much. Thank you for so many years of unconditional friendship." - Brianna Leung

Future Aspirations



We asked our elected council what their goals or aspirations were for the upcoming season.

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Brianna, *President of Engineering*: I hope to make StuyPulse the premier NYC robotics team.

Michelle, *Vice President of Engineering*: In the coming season, I hope that I can learn to be a responsible leader that younger members can be inspired by.

Renee, *President of Software Engineering*: I hope this team can become a place where anyone can find something they enjoy doing and friends they enjoy doing it with.

Sam, *Vice President of Software Engineering*: I want to be able to inspire younger members to find joy in writing code, but also lead our team to completing difficult projects.

Sabrina, *President of Marketing*: I hope StuyPulse becomes the team that brings the NYC community together and provides opportunities that wouldn't be available otherwise.

Ian, *Vice President of Marketing*: I wish to become a better leader and push myself out of my comfort zone. I want to try new things and gain more experience.



Update During COVID-19



Due to COVID-19, the remainder of the season following our first competition was cancelled and we were unable to hold meetings in our lab. However, we did not let this stop our workflow and continued with weekly virtual meetings. We even had our first virtual charter meeting and elections! Our seniors missed out on the last time they would be able to attend Champs, among many other senior traditions, but we did not want their hard work for the past four years to go unnoticed. We started an Instagram project called Senior Spotlight, where we featured a senior and their dedication to StuyPulse every day, and created a thank-you video to seniors and mentors that we watched together through Zoom. Currently, our team is holding a design competition where groups are creating original robot designs for Infinite Recharge, the game for the 2020 season, and code to go along with it. Our software engineering department is also in the process of revamping their newbie education to prepare for incoming members in September. Although we don't have a lab where members can obtain hands-on experience, we are continuing to engage our members virtually.

