

***FIRST* Impact Award - Team 694**

2024 - Team 694
Team Number
694
Team Nickname
StuyPulse
Team Location
New York, NY - USA
Describe the impact of the <i>FIRST</i> program on team participants within the last 3 years. This can include but is not limited to percentages of those graduating high school, attending college, in STEM careers, and in <i>FIRST</i> programs as mentors/sponsors.
FIRST inspires our members to pursue STEM, with 95% of our current participants interested in STEM majors, and 91% of our alumni working in STEM fields. 100% of our alumni graduate high school, with 93% of them pursuing STEM majors at top colleges such as Columbia and MIT. 41% of our members will be the first in their family to attend college, and 81% are first-generation Americans. 4 of our alumni mentor our team and 15 others mentor other FIRST teams; 6 of our sponsors are also alumni.
Describe your community along with how your team addresses its unique opportunities and circumstances.
NYC's financial district has let us interact with many companies and sponsors. We had over 5 of our sponsors tour our lab and also visited workplaces, such as Reddit, to learn about professional opportunities. Due to budget and permit cuts to NYC schools, we have faced significantly shorter meeting times and employed Zoom for events such as CAD marathon. We utilized our limited time to work efficiently. We continue to advocate for more funding for NYC schools, especially in STEAM education.
Describe the team's methods, with emphasis on the past 3 years, for spreading the FIRST message in ways that are effective, scalable, sustainable, and creative. How does your team measure results?
StuyPulse gives STEAM experiences to all by giving back to the FIRST community. StuySplash is our annual conference series since 2012 and we've connected with teams via in-person and streaming. Presentations range from finance, software, to engineering. They have garnered over 23,000 views on our YouTube channel as well as 700 in-person attendees over the past three years. We've also met our City Councilmember and State Senator to advocate for more afterschool FIRST and STEAM funding.
Please provide specific examples of how your team members act as role models within the FIRST community with emphasis on the past 3 years.
Introducing younger students to STEAM, we've started 2 teams in the past year, partnering with Girl Scouts and schools to start more teams. In 2021, we created a FLL curriculum for future generations. We're working on a new SPIKE curriculum to better assist Puerto Rican and local teams we've mentored

since 2018. We've presented StuyLib, our open-source code library, and Simulations at NYC FIRST's Kickoff for the past 2 years, and hosted virtual meetings with other FRC teams on coding swerve.

Describe your team's initiatives to Assist, Mentor, and/or Start other *FIRST* teams with emphasis on activities within the past 3 years.

With our new lab that opened in 2022 with a \$1 million donation, we help many other teams. We share it with our school's two FTC teams and also assist them financially. We have hosted 8 FRC teams who have utilized our practice field and resources. During competitions, PulseCrew assists teams in engineering and software issues as well as lend components. At the 2023 NYC Regional, we answered 150+ calls alone, proud to continue our tradition of assisting teams at competitions since 2015.

Beyond starting teams, what initiatives have you done to help inspire young people to be science and technology leaders and innovators? What results have you seen from your efforts in the past 3 years?

We engaged in 12 demos in the past year, encouraging kids to pursue STEAM. At Battery Park City's annual STEAM Dream Day, kids build their own mini robots with our guidance. In Stuyvesant's annual open house, we demo our robot and inform prospective students on the importance of robotics. Veterans on the team also participate in a Newbie Education program that caters to all parts of the team, teaching the next generation of StuyPulse and passing on the STEAM legacy in Stuyvesant High School.

Describe the partnerships you've created with other organizations (teams, sponsors, educational institutions, philanthropic entities, etc.) and what you have accomplished together with emphasis on the past 3 years

Hosting StuySplash and running PulseCrew, we stay in touch with many teams, assisting them whether through SE mentoring or financial presentations. Working with our City Councilmember Christopher Marte and State Senator Shelley Mayer, we plan on writing legislation and testifying at budget hearings to increase STEAM funding. Our team volunteers at many FIRST events and 10+ of our mentors are key volunteers from robot inspectors to judges! We have hosted 4 demos/outreach events at MoMath.

Describe your team's efforts in the past 3 years to promote equity, diversity, and inclusion within your team, *FIRST*, and your communities.

Our team accepts all regardless of experience with 81% being first-generation Americans and 66% low income. In Newbie Education, veterans pass down knowledge to newbies. 4 out of 6 of our elected leaders are held by women across 3 departments. We've done 12 demos to bring exposure to STEAM to our community, such as at the National Museum of Mathematics (MoMath) and middle school IS187. We've held 3 bake sales in the past year to continue raising money for members who request financial aid.

Explain how you ensure your team and the initiatives you have created will continue to run effectively for the foreseeable future

As we expand our outreach efforts, we document all of our initiatives in a spreadsheet where both students and mentors can log their hours. Newbie Education is maintained in our team drive as we improve our curriculum every year. By maintaining a sponsorship tracker, we can effectively manage our finances and update our business plan. Reaching out to various organizations to demo, we have created a portfolio for our team and robot with FAQ to make the process of getting approval more efficient.

Describe your team's innovative strategies to recruit, retain, and engage your sponsors within the past 3 years

By hosting demos and our team's annual extravaganza, we engage with current sponsors and recruit new ones, expanding our network. We update our sponsors through social media and regular newsletters and weekly newsletters during build season. Using our team's 501(c)3 status we partake in corporate matching programs which increases our funding and also allows us to use Paypal. We invite sponsors to come tour our new lab and see how the team has benefitted from their generosity.

Highlight one area in which your team needs to improve and describe the steps actively being taken to make those improvements.

To make sure everyone is involved in outreach, we made an amendment to our team charter to have every member volunteer at least once during the season. Whether it's volunteering at FIRST events or mentoring teams, through promoting public service, we spread STEM awareness by giving back to our community. Documenting our initiatives in a shared spreadsheet, we currently have 125+ members who have volunteered this season, many of who continue to volunteer after discovering it's fun and rewarding.

Describe your team's goals to fulfill the mission of *FIRST* and the progress you have made towards those goals.

Every student finds their place on 694 in our many departments and sub-departments. We ensure every member is fully equipped with the skills they need to succeed with our curated Newbie Education curriculum that is adapted to every student's prior experience. Creating STEAM leaders, many following the FIRST mission, even after they graduate. Our alumni often come back to visit, sponsor, and mentor, giving back to the 694 family we've created and continuing to be a part of the FIRST community.

Briefly describe other matters of interest to the *FIRST* Judges, including items that may not fit into the above topics. The judges are interested in learning about aspects of your team that may be unique or particularly noteworthy.

With students from all over NYC, 694 brings us together. With late meetings and 2+ hour-long commutes, our members grow close. We are committed and enthusiastic as we all learn how to manage our time for both robotics and school. Our school is rigorous with the average student having 4 AP classes and 5 hours of work daily. Yet our members balance their passion for robotics and classes; many of our upperclassmen tutor underclassmen at meetings and competitions, ensuring no one falls behind.

Judge Feedback

Who/When

Feedback

Mar 16,
2024
09:49:49
AM EST

How can our team improve our written submission?

An area the team has an opportunity to improve.

Something that really impressed the judges.

Essay

IMPACT ON COMMUNITY StuyPulse members strive to make a difference within our community having experienced the impact of STEAM on ourselves.

Political Outreach In our mission to spread FIRST's impact, StuyPulse has actively engaged in political advocacy to secure increased funding for STEAM programs across schools in New York City and State. We have developed a close relationship with our City Councilmember Christopher Marte who has toured our lab and cheered for us on-site at the 2022 and 2023 NYC Regionals. We are currently working with Marte and his legislative writer to allocate more funding for programs like FIRST. We have been in contact with our State Senator Shelley Mayer's office to testify at state budget hearings about the impact that participating in FIRST has had on us, and how we wish for equal access for all. Through our political efforts, we are determined to broaden access to STEAM education for all so that more kids have learning opportunities.

Senior Center We volunteer at our local senior center and provide free one-on-one technological assistance to senior citizens. As we answer their technology questions, we guide them through tasks like how to send emails, unsubscribe from mailing lists, and even how to set up a printer. The joy on their faces after a problem is solved and when they've learned a new technology skill is always infectious. Joseph, the director of the senior center, calls us one of the center's most important partnerships in their newsletter. Due to this close relationship we've fostered, they came to cheer us on at the 2023 NYC Regional and were excited to see our robot in action.

Demos StuyPulse demonstrations inspire both potential team members and mentors to join our team, while simultaneously introducing the broader community to FIRST. Our demos take place at prominent public spaces like the Winter Garden in Brookfield Place and the Coney Island boardwalk. However, the demos that we resonate most deeply with are the ones we do at schools, museums, and parks. From demoing at the National Museum of Mathematics to I.S. 187 The Christa McAuliffe School, witnessing delighted children interacting with our robot encapsulates the profound impact of our outreach efforts. In fact, at Battery Park City Authority STEAM DREAM Day, one of the demos we have participated in for several years, we inspired a parent to coach the new FLL team we started with their Girl Scouts troop. Now, we mentor them every Tuesday. By spreading awareness of FIRST, StuyPulse is nurturing the next generation of leaders and collaborators.

IMPACT ON FIRST COMMUNITY FLL Extending our commitment beyond demos, StuyPulse actively encourages participation in FLL among young students. Last year, we started team 59724 at a local church, with children whose families had recently immigrated to the U.S. Despite the language barrier we had with five of the seven mentees, by collaborating with Spanish teachers at our school and Spanish-speaking members on our team, we were able to create Spanish materials so that every mentee felt comfortable to participate during our mentoring sessions, and eventually compete!

To make the mentoring process more efficient, we created a comprehensive FLL curriculum in 2021. Created by members who have been a part of FLL teams and wanted to continue being involved, our curriculum is easily accessible to anyone through our team website and consists of lesson plans, slideshows, and activity sheets meant to guide and support new FLL coaches. While we've used our curriculum to mentor teams, we have also used it to introduce FLL to our own team members, encouraging them to mentor teams themselves.

When Hurricane Maria struck Puerto Rico in 2017, the community was devastated. Seeking to help out in any way we could, we contacted the FLL affiliate, Miray Ramy, on the island, and from there, we began mentoring Puerto Rican FLL teams. Now, we meet remotely with FLL teams weekly, offering feedback on

their Innovation Projects, planning out robot paths together, and teaching them English language nuances to help them with their presentations. Since 2018, we have mentored 20+ teams, and we will continue rebuilding the FIRST community on the island. Many of our mentors who were once FLL participants themselves have had the opportunity to continue their FLL journey by meeting with the next FLL generation, inspiring them and guiding their unfaltering curiosity and creativity.

StuySplash Often a team highlight, StuySplash is our annual conference series since 2012. Students and mentors alike present on all aspects of FIRST, from custom software, how to mentor, and even FRC game history. This year, continuing a hybrid format to allow more participants from across the globe, we had 300+ in-person attendees from 35 different teams, and our YouTube recordings from the past 3 years have garnered over 23,000 views. Students from around the city come together on this one day to not only share their knowledge, but also to learn from our peers, all of us united by our shared passion. Doug, FRC team 4122's coach, messaged us that his students came to find him first thing in the morning to tell him all they learned at StuySplash, calling us a role model in the FIRST community for all. StuySplash exemplifies our commitment to fostering collaboration and learning among peers as we share perspectives of members and mentors beyond StuyPulse.

New Lab Through one of our alumni demos, the Lin brothers were inspired to donate \$1 million to renovate our lab. Since its grand opening in December of 2022, our space has been shared with engineering classes and many other robotics teams. From NYC FIRST posting about our open practice field on Instagram to advertising on Chief Delphi ourselves, we were able to share our space, resources, and assistance to 8 other teams, including ones from China and Turkey! During the 2023 President's break, Team 8739, Redhawk Robotics, was unable to use their own lab, so we shared our lab space with them for the entire week. We assisted them in 3D printing parts and practicing on our field; 8739 even gifted us a cake to express their gratitude. Our new lab allows us to embrace the spirit of cooperation and camaraderie that defines the FIRST community.

PulseCrew Knowing firsthand how stressful competitions can be, we created PulseCrew, composed of Software Engineering (SE) and Mechanical Engineering (ME) members who offer assistance to any team in need at competitions. At the 2023 NYC regional, we answered 150+ calls for help, one of which was team 5806. Realizing they had no comms during their final match, we were able to replace their VRM, which allowed them to win their final match, qualifying them for Champs. It was their first season qualifying and it was an extremely valuable experience seeing our assistance directly impact their performance that day. By communicating with volunteers at competitions, we know exactly which pit to go to and what we should expect. Since we started PulseCrew in 2015, our work with other teams at competitions has helped us build lasting relationships with them. We make sure to give every team we assist a business card with our email to contact with any future questions or concerns.

SE Mentoring In addition to PulseCrew, our SE members extend their expertise to mentorship roles, guiding FRC teams remotely. Last year, StuyPulse mentored five teams from New York, Michigan, and Indonesia: teams 3204, 4571, 1506, 7719, and 5599! We cover topics from Introduction to Java, robot programming, and higher-level topics like swerve control and control theory. We are grateful to welcome them regardless of their SE experience, and we strongly believe in the importance of empowering others within the FIRST community to excel and innovate.

IMPACT ON US Newbie Education Central to our team values is nurturing and empowering all, regardless of experience, which is why we have our Newbie Education program. Every new member

goes through Newbie Ed, and after one season, they are ready to pass on their knowledge to new members for the next season. Our program has created a lasting impact on our members, giving them valuable teaching skills. We have three departments: SE, ME, and Business. Our current Director of Newbie Relations, Richie, was inspired by many of our veteran members who influenced his passion for FRC robotics and computer engineering. He aspires to be a role model to newbies just as the veteran members were to him, spreading the same enthusiasm for software. Besides Newbie Ed, he has shared his knowledge by presenting at StuySplash and NYC FIRST's Kickoff and has mentored other FRC teams on Swerve and KitBot-a true testament to how our Newbie Ed program sets our members up for success within and out of our team.

Having created our Business Newbie Ed two years ago, we've grown our Business department from 2 to 20+. Our Director of Finance, Raihan, was a key contributor to our new curriculum, creating more hands-on activities for our newbies, from reaching out to sponsors or applying to grants. Similarly, Raihan presented at StuySplash on how to fund FRC teams to 20+ FIRST teams in attendance.

With our sustainable and always-adapting curriculum that we improve every year, we have created a cycle of passing on knowledge that ensures every season, our team members are equipped with the skills they need to succeed in FRC.

Inspiration Ultimately, StuyPulse's impact extends beyond our immediate community to inspire and empower individuals and communities both near and far. By sharing our passion for FIRST and STEAM, we aim to instill in others the same enthusiasm and purpose that drives us. Whether it's students a 10-minute walk away or students a 20+ hour flight away, we aspire to give the same life-changing experiences and precious memories we've been able to have because of FIRST; we strive to make a profound impact within our team and beyond.;

