

Chairman's Award - Team 694

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2018 - Team 694

Team Number

694

Team Name, Corporate/University Sponsors

Stuyvesant High School Parents Association/DE Shaw/Bloomberg/Con Edison/Ann & Donovan Moore - Wallace Foundation/Abby & Tom Ferguson - Cox & Company/Dr. Joe Ricci/Justin Kim&Stuyvesant High School

Briefly describe the impact of the *FIRST* program on team participants with special emphasis on the 2017/2018 year and the preceding two to five years

By the time they graduate, StuyPulse members are equipped with the knowledge and tools they need to pursue their desired career. Members develop their leadership and cooperative skills and are encouraged to be creative, ingenuitive, and to take risks on a daily basis. We send our alumni to prestigious universities like MIT and Yale. Many go to create startups like Jolt, which has revolutionized concussion diagnosis. Others come back as mentors for StuyPulse or volunteers for FIRST.

Describe the impact of the *FIRST* program on your community with special emphasis on the 2017/2018 year and the preceding two to five years

StuyPulse has contributed 4000+ hours this year volunteering at soup kitchens, religious centers, and education programs. This holiday season, we donated 1.5+ tons of food and 200+ coats for the NYC's homeless. We run ubiquitous demonstrations throughout New York, and all have the goal of spreading the message of FIRST to Maker Faire, the World Financial Center, the SONY Wonder Fair, and more. We also host Stuy Splash yearly, a series of STEM related seminars given to FIRST teams since 2012.

Team's innovative or creative method to spread the *FIRST* message

StuyPulse relaunched several Youtube series: AskStuyPulse, FIRSTthoughts, and FIRSTstories. We frequently update our social media: Facebook, Twitter, Instagram, and lab livestreams on Twitch. We participate in demonstrations all over the city and connect with and mentor international teams, including teams from China. Our annual Stuy Splash seminars are open to teams and the general public to raise awareness and educate people about STEM and FIRST.

Describe examples of how your team members act as role models and inspire other *FIRST* team members to emulate

StuyPulse sets the bar high for Gracious Professionalism. Our team motto is to have a "red shirt in every pit." We've created Fix-It Crew, a group of members who help other teams with issues with their robot, and Mobility Missionaries, a similar group for software issues to help teams with autonomous code. Also, we run peer to peer newbie training with our new members, teaching them everything from Java to machining, and host Stuy Splash lectures, spreading our knowledge to other FIRST teams.

Describe the team's initiatives to help start or form other FRC teams

For the past 4 years, we worked with the Chinese Urban Youth Robotics Alliance and other FRC teams to start nearly 50 rookie teams. Since then, we have hosted Chinese teams at our school every year, allowing them to use our lab and helping them during competition. This year we started Global Immersion of FIRST Teams (GIFT), creating teams in Cyprus, Rwanda, Norway, and more! Both of these initiatives serve the same purpose: to create sustainable FRC and FTC teams worldwide.

Describe the team's initiatives to help start or form other *FIRST* teams (including Jr.FLL, FLL, & FTC)

Last year, we worked with a local elementary school to create an afterschool program, teaching kids about LEGO robotics. This year we have expanded that to create and mentor two FLL teams. Additionally, we have created two FTC teams and continue to give them funding, resources, and access to our labs. We also have formed other FTC and FLL teams by working with programs like RoboMindTech and Forest Hills Robotics.

Describe the team's initiatives on assisting other *FIRST* teams (including Jr.FLL, FLL, FTC, & FRC) with progressing through the *FIRST* program

StuyPulse actively mentors 5 FRC and 15 FLL teams. Furthermore, members strive to assist rookie teams by posting various online resources, including tutorials on AskStuyPulse and FIRSTthoughts, and StuySplash lectures. StuyPulse members, alumni, and mentors frequently volunteer as judges and referees at FLL, FTC, and FRC qualifiers and competitions. During our own competitions, we have Fix-It Crew and Mobility Missionaries to help teams with robot and code problems, respectively.

Describe how your team works with other *FIRST* teams to serve as mentors to younger or less experienced *FIRST* teams (includes Jr.FLL, FLL, FTC, & FRC teams)

We work with FTC teams 310 and 479, and have mentored FRC and FLL teams all over NYC. We went to China Robotics Challenge with 525, 987, and 1595, mentoring rookie and pre-rookie teams. We have also enlisted the help of NYC FIRST to spread the word that our mentorship and resources are available to other teams. In addition, by creating GIFT, it has allowed us to work with countless FGC teams to help them become FRC and FTC teams.

Describe your Corporate/University Sponsors

StuyPulse has a strong group of corporate, institutional, and individual sponsors who provide financial support for our team. With the help of our sponsors we are able to attend competitions and afford much needed materials for our robot. Our sponsors this year include the Stuyvesant High School Parents' Association, D.E.Shaw, Con Edison, Google, and Bloomberg, as well as many individual sponsors.

Describe the strength of your partnership with your sponsors with special emphasis on the 2017/2018 year and the preceding two to five years

StuyPulse endeavors to keep a strong relationship with all of our sponsors. Every month during the offseason and every week of build season, we send out newsletters to keep them updated with team events. We have sponsor benefits; the top sponsor names our robot! Sponsors are frequently invited to tour our lab and attend our events. We also have mutually beneficial relationships with the businesses in our community, including Barnes & Noble where we participate in their annual Mini Maker Faire.

Describe how your team would explain what *FIRST* is to someone who has never heard of it

For StuyPulse, FIRST is bigger than robotics. It is a platform to break boundaries, inspire innovation, strengthen communities, build bridges, and fuel growth. FIRST spreads STEM to the next generation of inventors and leaders and instills the FIRST values of teamwork, coopertition, and gracious professionalism to all corners of the globe.

Briefly describe other matters of interest to the *FIRST* judges, if any

StuyPulse is a student-run team with over 150 members, led by three co-presidents who work together to spread FIRST and STEM throughout NYC. Our team does not require any screening for members to join, and our members come from all backgrounds and levels of experience. All members are taught everything they need to know by veteran members who hold education lessons for new members.

Team Captain/Student Representative that has double-checked this submission.

Yedoh Kang

Essay

The StuyPulse Express: A Map to Success

In the fall of 2000, Team 694, StuyPulse, was created by 15 students who shared a love of robotics. For the 18 years since our inception, we have increased our sphere of influence exponentially from humble beginnings and reached across the globe. Like the New York City subways we use every day, StuyPulse members never stop in our efforts to promote FIRST's ideals—to build new "subway lines" and "stations"—wherever we go to spread STEM and FIRST where it has yet to be established. We always strive to better ourselves, our community, and our world.

StuyPulse Central Station

When new members, or newbies, join the team, they choose one of several routes to depart from—engineering, marketing, or programming. Once they board, they are taken under the wing of veteran members who design and run peer-to-peer newbie training to teach them everything they need to succeed. In their 4 years on the team, newbies go from learning about machines to leading their own projects. This year, we held a newbie practice competition which allowed them to get a hands-on experience in building and strategizing before the season.

Engineering newbies built VEX robots and played against each other on a miniature field, while programmers were introduced to Java and marketers learned about sponsors, awards, and management.

Being on the team inspires us to reach for new heights. Joe Blay is a prime example of the impact our team has had on our members. He boarded the 694 subway as a casual passenger and for the past 13 years has never disembarked. As a student, he was so inspired by the team that he pursued a STEM degree and not only became a math teacher at our school, but ascended to role of head coach. Every day, he works to inspire a love for STEM in future generation of students.

When Pulsites graduate, their next stop is prestigious universities like MIT, Brown, and Yale. Our alumni have a lasting impact on society; they create cutting-edge technologies like innovative dialysis machines. Some have founded companies like Formlabs, which builds low cost 3D printers, and Jolt, which revolutionized concussion diagnosis. We would not have been able to expand without sponsors. Each year, we work to strengthen bonds with existing sponsors and create new ones. With newsletters monthly in the offseason and weekly during build season, we ensure that each sponsor gets regular updates about StuyPulse. We also have sponsor benefits that correlate to donation amount: our top sponsor gets to name our bot!

Stuyvesant HS Local

Team 694 substantially impacts our school. With our help, two robotics classes were established, and we've helped update all the computers from outdated software to AutoCAD14. Many Pulsites currently serve as TAs for both our robotics and computer science classes.

To further raise the money we need to support our team, we host bake sales at our school several times throughout the year. We also host a biannual book sale outside our school where we don't just sell books; we demo our robots! Similarly, our robots are on display several times throughout the year. Students and parents gather around the displayed robots during our school's Winter Arts Showcase and ask us questions. When our school has an open house, we give robot demos and explain robotics to onlooking eighth graders and their parents. Many prospective students choose to come to our school as a result of their experience interacting with our team and robot! All these activities have one purpose: to cultivate an interest in STEM.

Outreach Junction

Our work does not stop at our school doors. We create new stations wherever we demo, expanding our lines and connecting STEM to everyone in the city. Outside our school, our robots have made appearances at Tribeca Film Festival, World Maker Faire, World Financial Center, NASA's "What's Your Favorite Space?" event, and at our sponsors' headquarters. At World Maker Faire, we were awarded "Best in Class" for 5 years in a row!

Also, we have made great strides in our mentoring initiatives. Our members currently mentor 15 FLL teams and 5 FRC teams, as well as provide funds, materials, and space for two FTC teams. We've strengthened the mentoring network we created in NYC last year and have continued to offer our services to many teams in the city. Last year, we worked with a local elementary school to teach students about robotics and FIRST. Due to the great amount of interest, we created 2 FLL teams and became their primary mentor. Next year, we aim to add another two, or even three FLL teams to that list! Every year at school, we host Stuy Splash, a series of FIRST and STEM lectures given by teammates, alumni, and mentors. This year, attendance has grown to over 100 and we've had the privilege of team 1807 and Canadian team 771 giving lectures! We graciously reciprocated, traveling to Ontario, Canada, to give a lecture at SWATposium, hosted by 771. Similarly, we helped host CyberStuy since last year, an interactive open house where over 300 low-income middle schoolers have their first experience in computer science. After last year's New York Regional, Pulsites organized Stuy Social, and several teams joined us to relax after a hectic competition.

In order to maintain strong connections with the community, we have a robust social media presence. Our newsletters and vlogs are actively sent out via Facebook, Instagram, Twitter, YouTube, Twitch, emails, and our website, where daily updates are the norm.

Last year, we updated and re-launched 3 YouTube initiatives; FIRSTthoughts to give advice to rookie teams; AskStuyPulse, to help other teams in specific areas of robotics; and FIRSTstories, where alumni talk about the impact of FIRST and robotics on their lives.

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Community Crossing

While the school is the first stop of our train, the 694 subway makes multiple stops in our community. We have done over 4000 hours of community service this year alone! This year we started an initiative to help local middle school students prepare for the Specialized High School Admissions Test, an exam to gain admissions to some of the best STEM high schools in New York City, including our own. In addition, we've done a variety of volunteering with one of our key sponsors, Bloomberg, and helped them with various park restoration efforts. Pulsites also do many activities throughout the year, such as helping out at hospitals, recreational centers, and religious centers. During the annual food and coat drive this year, we have been able to donate over 1.5 tons of food and 196 coats to homeless shelters!

Our outreach and community service has gained us a reputation with multiple media sources: we have been featured in The New York Times, The Wall Street Journal, and international newspapers. Additionally, for the past 2 years we've had the opportunity to demo our winning robot on FOX News and have participated in a Donors Choose video with Donald Bossi to publicize this program, which funds projects for public schools.

International Express

Pulsites see competitions as space to lay out new groundwork and forge connections with other FRC teams all over the world. Our motto is to have a "red shirt in every pit." To achieve this, our team has a group of skilled engineers, the Fix-It crew, that go to pits to help teams with help they need with their robot. Similarly, Mobility Missionaries are skilled programmers on the team that know C++, LabVIEW, and Java and help teams with coding issues.

For over 15 years, we've purchased equipment for teams that were unable to bring their own. Since our inception, we have developed connections with teams from more than 9 countries over the past 5 years, including Britain, Canada, Mexico, China, Israel, Japan, Brazil, Turkey, and Australia, and have provided them with assistance.

One of our biggest initiatives in spreading FIRST was in China. For the past 4 years, we worked with CUYRA and FIRST to travel to China and participate in China Robotics Challenge. We've started and mentored over 50 teams and helped them make the transition from pre-rookie to rookie teams. We helped them build not only their bots but also their team infrastructure. Through our efforts, we have won the Ambassador Award for 2 years in a row. In addition, we have invited Chinese teams to our school to shadow us and hosted seminars for them. The collaborated effort to spark the love of FIRST in China has resulted in the creation of the Shenzhen Regional and this year, the Shanghai Regional. One pre-rookie team was so impressed with us that they became team 6941 and took the team name IronPulse as a play off of StuyPulse!

This year, Pulsites have increased our pursuit to spread FIRST exponentially. Pulsites mentored Team Hope this summer, a team of Syrian refugees displaced in Lebanon, through the Global STEM Corps, an initiative made by the FIRST Global Competition (FGC) to help teams around the world. We communicated via WhatsApp and held weekly video classes on Skype to give them advice for prototyping and programming. Several members even went to cheer them on during FGC in D.C.!

As FGC ended, we co-founded a coalition with other participating teams in hopes to continue internationalizing FIRST and created a program called Global Immersion of FIRST Teams. Our main goal was to turn the FGC teams into sustainable FRC and FTC teams. As a result, we've been able to create and work with 2 FTC teams from Cyprus and Rwanda and the very first FRC teams in Norway and Aydin, Turkey.

The last stop is...

Stationed in NYC, Pulsites have been given the perfect platform to spread our love of FIRST and STEM. We hope to further improve from the team we were back in 2000, expanding our lines everywhere we go. Starting with our own team and increasing our influence to the world, we want to expand the STEM community, connect people to FIRST, and carry the FIRST message to every corner of the globe.