

Chairman's Award - Team 3324

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2018 - Team 3324

Team Number

3324

Team Name, Corporate/University Sponsors

PAST Foundation/Honda R&D/Boeing/Metro PTSO/CORI/The Ohio State University/American Electric Power&Metro Early College 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

Students on 3324 are passionate for STEM because FIRST prepares them for internship opportunities at The Ohio State University, Battelle Memorial Institute, and Nationwide Children's Hospital. These experiences encourage 100% of our alumni to pursue STEM majors. It also inspires 32% to stay involved in FIRST, bringing FLL to children in a Honduras orphanage and mentoring FRC teams. Metrobots pursues their lasting passion for STEM and feed their knowledge to future innovators.

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

The Metrobots spreads STEM in our community through robot demonstrations at The Ohio State Fair, JP Morgan Chase, and Battelle Memorial Institute. We host various workshops at Columbus Metropolitan Libraries and Healthy Asian Youth. Moreover, we bring FIRST programs to schools all around Central Ohio. Our experience in FIRST allows us to pay it forward, working hard to bring STEM to large crowds and underserved students.

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

We spread the FIRST message through our 6 outreach committees: Women in STEM, Community, General Welfare, FIRST, Advocacy, and International. All students on our team join one of these committees, where they work to start and mentor FIRST teams, empower women to participate in engineering, bring STEM to students in our community and beyond through workshops, camps, and advocacy, and more. Our innovative method to globalize FIRST drives us to give others opportunities in FIRST and STEM education.

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

The Metrobots is advancing our relationship with FIRST teams in central Ohio, West Virginia, and western Pennsylvania by being ready-resources and promoting Gracious Professionalism. As the only Ohio FRC team to nationally advocate for STEM programs, we are executing efforts that encourage others to follow in our footsteps. We also focus on humanitarian and environmental volunteer work, all to exhibit how FIRST is truly more than robots, it's inspiring and improving communities.

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

This season alone, The Metrobots has taken the initiative to bring FRC to 3 new schools/communities in central Ohio to inspire students to pursue STEM. We hosted and mentored FRC 6964 as a pre-rookie team, preparing them for their first season this year through tool training, kit of parts assembly, and organization. We started FRC 6916 and 6927 this season, bringing FIRST and STEM to underserved students on these teams. Within the next year, we plan to start another FRC team in our community.

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

Bringing FIRST programs other than FRC to our community is extremely important to us. In 3 years, we have started 8 FLL teams that went on to initiate 9 more. We have also run a total of 6 FLL tournament in the last 5 years. Additionally, we started FTC team 10441, providing continuous mentor and monetary support. We have set ourselves out to start another FLL and FTC team, as well as our first FLL Jr team in the next year to continue bringing FIRST to students in our community.

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

The Metrobots always finds ways to share our resources with others. We provide FRC teams with build space and access to our full practice field and well-equipped machine shop. We host strategy meetings and scrimmages for teams to share ideas and compete in a collaborative environment. We share our team's iBooks and project plans to help team's with their organization. This year, we have assisted FRC 6916 by providing them with resources like CAD workshops, robot parts, and virtual resources.

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)

This season, The Metrobots is mentoring 2 rookie teams, FRC Teams 6927 and 6964. We provide these teams with a permanent build space and access to our machine shop and full practice field. We conduct team bonding activities together to ensure teams 6927 and 6964 feel welcomed in our community. We very closely mentor team 6927, guiding them through the FIRST experience by answering their questions and sharing our planning materials with them.

Describe your Corporate/University Sponsors

The PAST Foundation -Build Space and collaborative environment; Battelle -Materials and equipment -Mentors; Honda of America -Financial Contribution; Honda R&D -Financial Contribution -Mentors (2) during build season; AEP -Financial Contribution (pending) -Energy Workshop materials provided; Metro PTSO -Monetary Contribution; Boeing -Entry Fee Grant -Mentors (2) during build season; The Ohio State University -College mentors (7) -Internships and research offered to team members

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

Honda R&D and Honda of America have consistently been our largest sponsors, offering annual monetary support. Maintaining this relationship, The Metrobots participates in the Honda STEMfest each year. Additionally, The PAST Foundation graciously provides our build space where we work with our 13 corporately sponsored mentors in a collaborative environment. To develop our sponsor partnerships, we send out monthly team newsletters, lead tours of our build space, and host an annual team showcase.

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

FIRST Robotics inspires, motivates, and teaches us the power of collaboration, leadership, and outreach. Through FIRST, The Metrobots has gained unique opportunities, inspiring us to pursue STEM beyond high school. We have learned to effectively collaborate, becoming leaders in our communities. Most importantly, FIRST has taught us to give back in the same fashion that FIRST has given to us, pushing us to provide educational opportunities to underserved students around the world.

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

In addition to our FIRST outreach, The Metrobots give back to our community in other ways. We participate in an adopt-a-highway cleanup, encourage young women to pursue STEM through various workshops and awareness events. Moreover, we work with Montaña de Luz to improve the quality of education for orphans affected by HIV/AIDS. For our efforts, we were recognized on the local news 3 times and in The Columbus Dispatch, a prominent Ohio newspaper, in our 2017 season.

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

Melissa Olvera

Essay

Team 3324, The Metrobots, is not just an FRC team, we are a group of students on a never-ending quest to inspire others through FIRST and STEM. The iconic arcade game, Pac-Man, with twists and turns, ghosts and dots, and many levels is analogous to our team's journey. Adopting the retro-arcade theme, The Metrobots is playing Pac-Bot, our version of Pac-Man. In the game, the maze represents the communities we impact, the ghosts represent the obstacles we face, and the cherries represent our most impactful outreach events. Starting with a dream to make a difference, our passion and drive enables us to give back to our community and inspire those we reach, "powering up to the next level."

Our Team

Our journey through FIRST began in 2010 with 10 Metrobots who faced ghosts such as a lack of mentorship, monetary support, and materials. We defeated these ghosts and developed into a strong and diverse team of 57 students: 53% female, 44% male, and 3% identifying as other. Students on our team come from 27 different school districts. Almost half of our student come from Asian, Middle Eastern, African American, and Hispanic minority groups. Our diversity fuels us through the Pac-Bot maze, inspiring us to create an all-inclusive STEM workforce, where our students can become leaders in science and technology regardless of their background.

Our efforts in inspiring our students to continue with FIRST and STEM motivate 100% of our alumni to pursue STEM majors; 32% to continue involvement in FIRST by mentoring other teams and running FIRST clubs and events. Our alumni are not just another statistic but a group of leaders following their passion for STEM and supplying the next generation of students with knowledge.

To further advance in Pac-Bot, our team members develop and execute initiatives through our 6 outreach committees: FIRST, Women in STEM, Community, General Welfare, Advocacy, and International. The Pac-Bot maze is complex, but our commitment to giving back allows us to overcome ghosts and inspire people within and beyond our community, effectively spreading FIRST Robotics and STEM education.

FIRST

The Metrobots inspires students to find their passion for STEM through FIRST, enriching the Pac-Bot maze as we expand the FIRST community. As a founding member of the Center of Robotics Innovation (CORI), we establish connections with current and future robotics teams and serve as a mentor and a beacon of Gracious Professionalism. We provide CORI teams with annual strategy meetings, mock tournaments, and a build space containing a complete practice field and a well-equipped machine shop. Additionally, we co-host and volunteer at the CORI off-season event. Over the last 5 years, The Metrobots has run a total of 6 FLL tournaments and started 8 FLL teams who have gone on to create 9 more. Additionally, this past summer we ran 4 week-long FRC, FTC, and FLL camps, leaving over 120 middle school students eager to explore STEM and FIRST Robotics.

This season, we hosted half of the rookie FRC teams in Ohio during our Kickoff event. We are currently mentoring FRC 6964 and 6927 and assisting FRC 6916. The Metrobots is doing more than bringing FIRST to students around Central Ohio, we are exposing them to potential careers in STEM and providing them with 21st-century workforce skills.

In the Pac-Bot game, assisting and inspiring FRC team 6916 gave us a cherry power up. Mrs. Singh, the head coach of 6916, wholeheartedly told one of our students, "you guys have left us in such good shape." Moments like this are what our team truly works for. In setting team 6916 up for success, we fulfilled our mission to inspire their students to continue in the FIRST program and find their passion for STEM.

Women in STEM

Our team empowers women, breaking down barriers and establishing an all-inclusive STEM community. Internally, we have increased female participation on our team from 10% in our rookie season to 53% this year. In fact, this season our leadership team reached its highest female involvement at 71%! In 2017, 3 Metrobots participated in The PAST Foundation's initiative, Girls Who Lead, encouraging women to pursue STEM careers. Additionally, we ran a Women in Engineering workshop at Metro Middle School and an FLL Camp for Girls. These camps not only encourage girls to participate in STEM but inspire them to grow up and break the glass ceiling.

The Pac-Bot maze becomes more intricate as we reach beyond our community to empower women in STEM. This season, we are distributing Women in STEM themed buttons at FIRST and The Metrobots events. We are working to expand our efforts with the help of the Women's Fund and are planning events to continue promoting gender diversity in STEM.

Community

FRC 3324 increases awareness for STEM in the greater Columbus area which enriches the Pac-Bot maze. Our team annually presents at The Ohio State Fair, Honda STEM Fest, Battelle Memorial Institute, and JP Morgan Chase, inspiring attendees to participate in FIRST and STEM. Moreover, The Metrobots led a 9-week summer camp at the Millennium School, using Lego Mindstorm kits and design challenges to teach roughly 200 middle school students about engineering. We also held a series of physics/energy workshops at Columbus Metropolitan Libraries and several Maker Mania Days focused on hands-on STEM activities.

The Metrobots led a workshop at Healthy Asian Youth (HAY), which we consider a cherry event. As one of our team members says, "HAY is one of our events that resonates with me most. Seeing how excited the children were to experience STEM for the first time made the event 100 times more special." Cherry events like HAY help us realize the importance of providing STEM opportunities to underserved students.

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General Welfare

As our team advances in Pac-Bot, we improve our community by promoting a message of sustainability. In this notion, we hosted a Garbology workshop at The Metro Schools to teach students about the influence waste has on our planet and community. We also participated in a road cleanup event in collaboration with Keep Columbus Beautiful and hosted an E-cycle event at the CORI scrimmage.

Our team is lucky to be a part of a thriving community which we strive to share with others through humanitarian and environmental volunteer work. Over the next season, our team will make our non-educational outreach more prominent by volunteering at food pantries, raising awareness for endangered animals, advocating for LGBT+ issues, and testing ponds for pollutants.

Advocacy

Continuing on our journey, FRC 3324 increases support for STEM education by advocating within our community and to our representatives in Congress. Starting close to home, The Metrobots worked with The Metro Schools to implement 6 engineering courses including various Mechatronics classes, an introductory course on engineering and design, and a middle school Java programming course. Additionally, we worked with CORI to advocate to state legislature for the integration of FIRST into all Ohio schools.

After seeing the effectiveness of STEM programs within Ohio, The Metrobots began advocating on a national scale. Last summer, The Metrobots attended the FIRST National Advocacy Conference (NAC) in Washington, D.C. Alongside other FIRST teams, we requested full funding for ESSA Title 4 Part A to increase government support for after school STEM programs. Inspired by the FIRST NAC, we hosted a team showcase to educate others about our advocacy efforts. Additionally, we are currently planning an Ohio Advocacy Conference to teach local teams how to advocate for FIRST Robotics.

The Metrobot's advocacy efforts enable us to promote access to STEM education for students in Ohio, the nation, and soon, the world.

International

The Metrobots is looking beyond Columbus to bring STEM to underprivileged communities overseas, increasing the complexity of the Pac-Bot maze. Currently, we are working with Montaña de Luz (MdL), an HIV/AIDS orphanage in Honduras, to improve the quality of education for affected children. We volunteered at the U.S. headquarters of MdL, helping run the "Walk4Education." We also loaned Lego Mindstorm kits to team mentors for use in various STEM camps and donated clothing and general supplies to the orphanage.

The Metrobots is ecstatic about our upcoming cherry event with Montaña de Luz, where we will send several team members to Honduras to work with the children at the orphanage. By teaching internet safety workshops and donating computers, we will provide the children with resources and STEM opportunities they would not otherwise have. Being thousands of miles away from the orphanage creates another ghost in Pac-Bot however, our passion to provide the children at Montaña de Luz with a better education allows us to defeat this ghost and spread STEM to corners of the world it has not yet reached.

Powering Up to the Next Level

Starting with a dream to make a difference, our extensive efforts enabled us to improve our community in many ways. Every person we impact inspires us to continue to "power up to the next level," where, with the assistance of our sponsors and mentors and with an ever-growing passion and drive to give back, The Metrobots will further advance in Pac-Bot, fulfilling our mission to inspire personal and community development by creating innovative leaders and problem-solvers through collaborative outreach in STEM, community service, education, and FIRST Robotics.