

Chairman's Award - Team 888

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2021 - Team 888

Team Number

888

Team Nickname

Robotiators

Team Location

Glenelg, Maryland - USA

Describe the impact of the *FIRST* 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 *FIRST* programs as mentors/sponsors.

In the previous year, 95% of the seniors that were a part of robotics are currently pursuing a STEM degree in college and 10% of students are pursuing a higher education out of highschool. Through the FIRST program, Team 888, has opened up a multitude of opportunities to alumni, especially with internships and career paths. For example, two of our female alumni were recently accepted to NASA Pathways, a competitive college internship program that has an acceptance rate of 2.25%.

Describe your community along with how your team addresses its unique opportunities and circumstances.

Team 888 has always been cognizant that FIRST is more than a robotics competition and we embraced this other side of robotics more than ever when the country was put under lockdown. When working on the robot was impossible, we decided to help essential workers at the UMD Medical Center. Team 888 had an original goal of making 888 face masks, although the goal seemed daunting, we sewed over 2375 face masks, 3D printed 329 face shields and assembling 100 Vex RobotShields.

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?

From our school to the U.S. Capitol, team 888 participates in political advocacy. Our workshop has hosted county and state legislators. Additionally, we traveled to D.C. to the National Advocacy Conference to help raise awareness on STEAM education for the youth and the importance of developing FIRST programs in underrepresented communities. We found success when the "CHRISTA MCAULIFFE COMMEMORATIVE COIN ACT OF 2019" was passed and supports the FIRST Equity initiative.

Please provide specific examples of how your team members act as role models within the FIRST community with emphasis on the past 3 years.

Gracious Professionalism is one of, if not the, highest priority of team 888. At competitions, we don't solely focus on our own results. With \$ 6,000 in material ready to be used for competitions, we take pride in helping other teams reach their full potential. But to take Gracious Professionalism a step farther, we are always willing to lend a hand. The pit is limited to a few members of the team, but it remains common for Robotiators to be seen in other teams pits throughout the competition.

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

Team 888 received the Howard County Bright Minds Grant, which encouraged the growth of STEM programs, we wanted to plant a catalyst for STEM interests at a young age by using the funding to purchase kits to start three FLL Jr. teams at a Glenelg feeder school. Innovation, collaboration, and critical thinking are skills that the students will develop.

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?

To expose the youth to science and technology, we have held assemblies at local schools and libraries. The team believes the best way to spark interest in a child is to show them what the team builds. Therefore, we take different types of robots to the school events to demonstrate the exciting robot to the kids. Although there were some obstacles, not all schools were in our reach, our team had video conferenced a class and virtually demonstrated our robot.

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

Team 888 has been a part of the NASA House teams as a representative for NASA Goddard, we have been able to discuss with teams across the country through video conferences during the build season. Team 888 assisted McDonough Robotics 4505 when they were getting started, and over the years our relationship grew stronger. Team 4505 hosts the offseason competition "Battle O' Baltimore" and we help assemble the field the night before the competition and stay after to help disable the field.

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

During the 2019 off-season Team 888 believed STEM was missing a key component. With the inclusion of Art, STEAM was born. After introducing STEAM, the female enrollment saw an increase in all fields. STEAM was a gateway for female members to branch out into new fields in robotics. When the pandemic occurred, team 888 continued promoting inclusion with community outreach. 3D printed STEM kits were distributed to Title 1 Schools introducing impoverished students to new opportunities in STEM.

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

Organization is an important part of Team 888. We have a shared Google Drive that archives every document we ever use allowing us to save initiatives that were planned out in previous years and expand on them in the future. With a rotation of new students every four years, cumulative learning is a necessity for Team 888 to progress. This is why an environment is created where underclassmen can learn from their own experience and from the teaching of upperclassmen Leads and mentors.

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

Team 888 believes data and statistics are some of the best measures of growth and success in any organization. This is why we try our best to keep our sponsors updated on what their support has done for our Robotics Team with applicable metrics. Communication is a key point to our success in all facets of the business team. The very supportive families of Team 888 inquire with companies they work for to check if they sponsor non-profits. This is our most effective way of recruiting sponsors.

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

During virtual meetings, the team was having difficulties teaching new members skills that we would usually learn in the shop. The large groups in virtual meetings caused problems in communication and teaching each member the skills. To make improvements, Team 888 decided to use breakout rooms to make conversations more personal. We also held additional support meetings to help new members who are struggling with skills like coding.

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

Team 888 understands that *FIRST* helps kindle a well-rounded student, instead of just being a robotics competition. The structure of team 888 has leadership positions that help students develop confidence in themselves and communicate effectively with others. To spread out the responsibilities, we have two co-captains and five leads that have leadership meetings to ensure they are accomplishing their goals.

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.

As part of the community, team 888 strives to expand interest in STEM related activities. We created a storybook to spark imaginations through the art team, along with creating logos and merchandise for the team, but also to form new ways to reach robotic member's of the future. Due to the ongoing pandemic, we have defaulted to virtual meetings before school at eight in the morning. We are empowered to change the normal robotics standards by going above and beyond expectations.

Essay

In 2002, our rookie year, the Glenelg Robotiators were the first team in Howard County and one of four teams in Maryland. As our team became more experienced, we realized that we had the opportunity to do more for our community. We wanted to aid other schools in our county to join the FIRST robotics family and added six more teams in our county. But why just stop with our local teams?

We were able to help start seven teams in neighboring counties, like team 4505 McDonough Robotics. These teams have impacted hundreds of students over the years and stand as a testament to Team 888's dedication to promoting and creating STEAM opportunities for others.

The Robotiators have attended the FIRST National Advocacy Conference in Washington D.C. since 2017 to visit our federal legislators and advocate the importance of STEAM education in underprivileged areas. Through federal funding, these communities would have opportunities to have mentor-based STEAM activities. As a community, we understood that we were fortunate enough to have the resources to run the team for almost two decades. The team found success when Congress passed the "CHRISTA MCAULIFFE COMMEMORATIVE COIN ACT OF 2019" which supported the FIRST organization through the remembrance of Christa McAuliffe who passed away in the Challenger disaster.

The Robotiators believe that the foundation for FIRST sustainability begins with elementary school students. Through funding from the Howard County Bright Minds Grant, we were able to start three FLL Jr. teams at Lisbon Elementary School, a Glenelg feeder school. We educate the students

We lead assemblies at local elementary and middle schools as well as public libraries to inspire students to consider pursuing future STEAM experiences. While the highlight of these assemblies for many students might be seeing one of our demo bots built by first and second year team members, we make it a point to emphasize to audience members all the valuable skills and values that a FIRST program can bring to a school environment. These include discovery, innovation, and teamwork. With this foundation, students will already have FIRST principles in mind prior to becoming a Robotiator at Glenelg.

The pandemic abruptly halted our operations, but the Robotiators were not letting the season end early. Acknowledging that the pandemic was not in our control, we took the opportunity to direct our team's efforts elsewhere. During the mask shortage at the beginning of the pandemic, the Robotiators sewed over 2,300 face masks and 3D printed 330 face shields for the University of Maryland Medical Center. During this time, we embodied Dean Kamen's words, "FIRST is more than robots."

Although unable to build robots, we knew that we could take the opportunity to develop our character. Glenelg has a minority population of less than 25% which could hinder inclusion in extracurriculars throughout the school. We are proud that over 40% of our team identifies as a minority. During the 2020 offseason, students went through the "Inspiring Youth Voice" training and mentors went through "Inspiring Success" training, through the "Equity, Diversity, and Inclusions Training" provided by FIRST. Having a student with a hearing impairment for the first time, prompted us to add 15 minutes of ASL lessons at the beginning of a few meetings. This gives us the opportunity to learn new skills while being inclusive. We received funding through the FIRST Equity and Access grant to print STEAM kits for Title I elementary schools in our county. We decided to focus on one school this year, and are safely sending 50 3D printed STEAM kits that can be individually assembled from the home of each recipient. Each kit has a toy catapult and coloring storybook that engages each student's creativity and scientific curiosity.

While few members of the team have personally experienced financial struggles, we combat ignorance by adopting families during holidays such as Thanksgiving and Christmas. As a community we collect and donate canned goods, warm clothing, toys, and other items.

We carry the belief of gracious professionalism by radiating it at competitions. We always wheel in four large chests of tools and supplies. Our head mentor has jokingly said, "We bring enough parts to build another robot." For safety reasons we limit the number of people in the pit at any given time, but we always have more members eager to help. If a competitor's robot is not working, or has broken during a match, we provide guidance and try to help fix it, in some cases resurrecting robots so the team can continue to participate. This extends beyond being asked for help, our team is known for walking through the pits and offering our skills and inventory of extra tools and spare parts to other teams. As most of our team can attest to, robotics is a significant time commitment, but we also recognize the importance of academics. As Robotiators we are proud to say that FIRST has also influenced our academic lives. Many of our members are involved in the Project Lead the Way (PLTW) engineering career academy of the Computer Science career academy. Robotics provides us an opportunity to put into practice the skills we learn in class. Our build lead Derek has said, "I remember using the CNC router a few times in Computer Integrated Manufacturing (CIM) class. But in robotics, using the same machine, I was able to carve our team logo on the side panel of our shooter for our 2020 robot." Many of our members have had similar experiences where they are introduced to skills in class, but have the chance to further develop them through robotics.

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As a NASA House team, we have the opportunity to communicate with other House teams around the United States. As part of a student led effort, we hold bi-weekly meetings where teams foster collaboration by sharing any struggles we face during the season and work together to develop innovative solutions. By getting in contact with a mentor for the High school students United with NASA to Create Hardware (HUNCH) program, we were able to introduce it as the capstone PLTW engineering class, Engineering Design and Development (EDD). Students have the unique opportunity to research and design real-life projects for NASA through project based learning. Notably, two of our female alumni have gone on to participate in the highly competitive NASA Pathways Program. Out of 2,000 highly qualified college applicants, only 45 get accepted. As Robotiators alumni and Pathways participant Melissa states, "I never knew I would have the opportunity to work at NASA during high school and college by joining robotics."

In the summer of 2017, the Robotiators created a handbook designed to bring out the best in all of us. It created the foundational structure for the team which would then be updated every year to continue strengthening the team. Another important aspect of robotics is developing leadership skills. We encourage any of our members to become involved with leading the team. Our team is structured through a tree hierarchy starting with two Co-Captains, then five lead positions: Build, Outreach, Business, Art, and Systems. We also have several appointed roles such as Safety Captain. As robotics interest in the community grows, so does Team 888. Over the past five years, student involvement in the robotics program has more than doubled. At Glenelg, this makes The Robotiators the team with the most participants. While the 2018-19 team was composed of more than 50 students, only 6 were female. However, this year, the team is composed of 50 students, and 15 are female. With this increase in female participation, our female mentors are becoming an increasingly established part of the Robotiators. Last year, 19 out of 20 seniors that were part of the robotics team, have plans of pursuing a degree in a STEAM field in college.

During the 2019 offseason, the team refined ways to prepare new members for the build season. We decided to compete in Bunnybots which was an offseason competition that required students to build a brand new robot. New members were responsible for building most of the robot while experienced members advised and assisted them. This also benefited the experienced members because they learned how to effectively teach others and manage their time better which helped prepare the team for the 2020 build season. As a team we struggled to stay on schedule during the Bunnybots competition, but through these difficulties during the offseason, we developed better habits for the competition season. This helped lead us to winning our first blue banner in over 18 years during our 2020 district event.

Another goal of our 2019 offseason was incorporating art into robotics. We had the opportunity to create a float for our homecoming parade to showcase the exciting things we do at robotics. We displayed art pieces inspired by robotics and restored a chariot to ride during the parade. We also participated in the homecoming pep rally to show the entire school the projects we work on besides robots. We created new ways of advocating robotics by designing Robotiator themed buttons and stickers and developing an illustrated Robotiators storybook which we read to elementary school students during their storytime.

Change begins with an individual, from elementary school students all the way to our mentors. When we provide others with opportunities for STEAM development, sustain FIRST principles throughout our community, and are catalysts for personal development, greatness is achieved.