

Chairman's Award - Team 1718

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2022 - Team 1718

Team Number

1718

Team Nickname

The Fighting Pi

Team Location

Armada, Michigan - 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.

Team 1718 prepares students for their future; 100% of our students graduate, 99% pursue higher education and 98% follow a STEM related career path. 1718 students gain valuable innovative problem solving, efficient time management, technology literacy and effective public speaking skills at our 39 off-season workshops that focus on topics including: CAD, controls, machining, awards and media. Alumni credit their time on the team with the accumulation of over \$5.5 million in awarded scholarships.

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

1718 comes from a small agricultural town with limited access to STEM resources. Understanding underserved communities, we provide resources to 2nd and 3rd year FRC and FTC teams in our state. Our Student-funded and judged Infinite Possibilities Grant program has raised and donated over \$7,000 through bottle/can drives. To aid our local front-line heroes throughout the pandemic, we produced and donated 1100+ pieces of PPE: 687 masks, 350 face shields & 150 mask savers

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?

Inviting other FRC and FTC teams, we host a week-long demonstration at the Armada Fair, interacting with approx. 8400 of the 60k attendees. We use this opportunity to connect with youth and spark interest in *FIRST*. As a result, many students have joined *FIRST* and 25% of our students joined Team 1718. Team 4191 from Gebze, Turkey interviewed us on our sustainability practices, organization and diversity. This interview was recorded and is being used to assist developing teams in the Middle East.

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

Our students have led 157 students from 10 *FIRST* teams at our yearly Michigan Advocacy Conference. We shared our journey starting and hosting our state-level advocacy conference at the STEM Advocacy Conference of Texas's *FIRST* Advocacy Summit. For 9 years, we hosted and ran Michigan State Championship Seminars. We invited 15 teams to present at 31 seminars that covered over 22 STEM and business related topics. Each year over 400 attendees benefited from these seminar collaborations.

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

We hold FLL summer camps, with community youth, initiating their journey in subjects such as programming, fabrication and team-work. Six 1718 members act as student mentors on our local, state-award winning FTC and FLL Challenge teams, encouraging *FIRST* students. We offer our build space and practice field, fostering cooperation between local *FIRST* teams. We actively welcome team's inquiries, including those from India, Israel and Turkey, sharing 1718 business practices and publications.

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 run and host our state qualifying FLLC tournament: Armada Automation. This event provides 24 FLLC teams, per year, with opportunities for discovery and innovation. Our mentors, alumni, and students volunteer at this event, acting as role models for younger students. Our team holds demonstrations at multiple camps: The Muscular Dystrophy Camp (130 att/yr), Camp Skyline (140 att/yr), and the Royal Family Foster Camp (50 att/yr), providing *FIRST* to underserved populations.

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

We presented to our school board, resulting in the creation of a Maker's Space and a larger build space. This allows students from our school and team to access modern manufacturing equipment for STEM classes and extracurriculars. We supported the formation of the Macomb Local Advocacy Conference. We advised the setting of goals for the new Macomb County Robotics Alliance, participated on a Macomb Robotics Showcase panel and had county officials attend the Macomb district event.

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

Our students have completed *FIRST*'s Diversity, Equity, and Inclusion Training. We promote a more accessible team by implementing this training and encouraging a team diverse in socioeconomic status, gender and neurodiversity. Our advocacy and grant efforts are aimed at providing STEM access to underserved communities. 40% of the team's leadership is female. We provide many mediums of robotics education including: visual, tactile, and auditory, removing any barriers for participation.

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

We ensure sustainability through our effective feeder system - a system composed of aid, mentorship, and sponsorship of local FTC and FLL teams that maintains student interest in *FIRST* until high school. A SWOT analysis takes our team's weaknesses and external threats into account and provides comprehensive guidance for unexpected challenges. We update our documented design book, business & marketing plans, student handbook and leadership structure to reflect our team's evolving needs.

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

Sponsors are the foundational root of our organization. We form and strengthen connections to our sponsors by giving 12 in-person or online presentations, sending out weekly newsletters and posting tri-weekly on social media. We hold an annual sponsorship open house, providing sponsors interactive experiences in our build space, with our students. We initiated a group photo of 19 Department of Defense (DoD)-sponsored teams to express our appreciation for the DoD's support.

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

We launched a plan to improve full-team contribution by placing an importance on communication and creating more inclusive subsections. This resulted in regular-season meetings, off-season workshops, leadership-mentor meetings, and daily Lunch-N-Learn exchanges. We introduced Gantt charts, as well as a business plan system to our team, accurately distributing student workload and improving time-management.

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

Our team ethos: freshman, learn; sophomores, do; juniors, lead; and seniors, teach prepares students for future success. Our industry-based, professional mentors motivate students to participate in real-world engineering & design practices: CAD, prototyping, machining, budgeting and project management. To accomplish our goal to instill 21st-Century Skills, 1718 students attend the National Advocacy Conference, providing them with valuable opportunities to improve leadership and communication.

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.

For 5 years, we've hosted our student-run and initiated Michigan Advocacy Conference (MAC), mobilizing STEM

advocates in Michigan, meeting with elected officials to promote STEM education funding. Through constant promotion, fundraising and organization, we were able to provide a free 2021 event and increase our attendance by 205%. We hosted a student experience panel at MAC 2021, allowing first-time advocates to interact with state, national and international advocates from all over Michigan.

Essay

For the last 17 years, Team 1718, The Fighting Pi has created and maintained a network of future leaders that set an example of FIRST in their community, state, nation and world. Composed of 23 members and 14 mentors, 40% of team leadership is female. Pi teaches students to use critical thinking skills as innovative problem solvers with efficient time management while doing collaborative teamwork with dynamic leadership and effective public speaking. The majority of our 145 graduates stay involved in STEM beyond their time on our team: 98% entering STEM-related fields and 100% crediting their successes to our team.

Outreach:

We run and host demonstrations at the Armada Fair, exhibiting our robot every 15 minutes, 12 hours a day, for a 7 day period, interacting with approximately 8400 of the 60k attendees. Our students accumulate 1000+ work hours each year, interacting with fair-goers and volunteering for our sponsors. We connect students with FIRST teams in their community, inviting both FRC and FTC teams to present alongside us-encouraging STEM involvement in our rural area. Creating interest in FIRST and Team 1718, 25% of our students state that they joined our team because of this event.

Extending the message of FIRST, we demonstrate at Starbase, The Henry Ford Maker Faire (200k att./year), Special Forces Association, the Selfridge Air National Guard Base Air Show (100k att./year) and to our local 8th graders. To stimulate youth interest, we volunteer at the Muscular Dystrophy Association (MDA) Camp (130 att./year), Royal Family Foster Camp (50 att./year) and Camp Skyline (140 att./year). A team member with Muscular Dystrophy was joined by his peers at the MDA Camp, providing campers the opportunity to interact with our robot, educating them on the possibilities of FIRST and STEM programs. Due to our initiative, Team 1718 was mentioned at the MDA National Conference.

Team 1718 has strengthened public-speaking and critical-thinking skills of FIRST students at our five Leadership and two Chairman's Bootcamps. We spoke at Team 4810's charity event on leadership to encourage local FIRST students to improve skills. For two years, two of our students interned for a Wayne State University professor, helping him code and CAD a graduate-level drone swarm initiative; applying their FIRST-acquired knowledge throughout professional, academic environments.

Not letting the pandemic slow our team's FIRST participation, we produced and donated over 1100 pieces of Personal Protective Equipment: 687 face masks, 350 face shields and 150 mask savers for front-line workers. This donation was facilitated by both current and former students, assisting under-resourced hospitals in our surrounding area. Our team rearranged leadership roles and modified meetings, effectively addressing new FIRST At-Home Challenges. Our students attended a Virtual Chairman's Exchange, alongside seven other teams, and also a FIRST Virtual Chairman's Award Chat.

Expanding our team's global outreach, we collaborated with Team 4191 from Gebze, Turkey, sharing our organizational tools, business practices and sustainability efforts. Our interview was recorded and is being shared to a combined 4854 social media followers and to growing FIRST teams in the Middle East. Team 1718 has also had conversations with teams from Shoham, Israel and Mumbai, India, inquiring about the goals, objectives and publications that secured our team's international stature.

Sustaining the Future of FIRST:

To support developing 2nd and 3rd year FRC and FTC teams in Michigan, we started our Infinite Possibilities Grant program. These grants are entirely student judged and are fully student funded through our annual bottle/can drive. Over the past 8 years, we have awarded over \$7000, allowing financially struggling, novice teams to become more sustainable. The success of our grant program led a local middle school FTC team to create a similar grant system, aimed at supporting Michigan FLL teams: continuing our rural community's impact.

Yearly, we run and host our 24 FLLC team official qualifier tournament: Armada Automation, to showcase innovative problem-solving skills and achievements from the season. Our students, mentors and alumni volunteer at this event as judges, tabulators, referees and student ambassadors, acting as role models for younger students.

Team 1718 students mentor 3 FRC teams, 2 FTC teams, 6 FLL Challenge teams and 2 FLL Explore teams, promoting Gracious Professionalism and acting as examples for younger students to emulate. We taught the skills of programming, CAD, teamwork, robot design, creativity and 3D printing, inspiring student involvement in STEM. In our local district, we hold presentations for elementary students and attend annual FLL formation meetings, confirming our dedication to mentoring FLL teams.

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Students implemented Lunch-N-Learn discussions at our daily meal time gatherings to expand knowledge and infuse team culture. These fully student-conducted sessions increase student interaction through all sub-sections and are focused on team education. Cycling between team attributes and robot components, allows team members to learn and practice their FIRST-attained skills: collaborative teamwork, dynamic leadership and effective public speaking.

Students developed a marketing plan currently being applied to all team social media accounts such as Twitter, Instagram and Facebook. This intentional plan increases public awareness of Team 1718, including tri-weekly social media posts, utilization of optimal posting times and productive employment of platform data, to ensure a relevant internet presence. Since the introduction of our students' plan, the number of accounts reached on Instagram alone, has climbed by 3210%.

Advocacy:

Team 1718 connects and supports local teams at the Macomb County Robotics Alliance, where our students and mentors work to advise the shaping of alliance goals. One of our students participated in a panel at the Macomb Robotics Showcase and Macomb Local Advocacy Conference to encourage youth participation in FIRST programs. This event resulted in our state representative attending the Macomb District event. We participated in the STEM Advocacy Conference of Texas's Advocacy Summit on the FIRST Updates Now Twitch Channel, to speak about the process of student-creating the Michigan Advocacy Conference (MAC) and participated in a live chat to answer questions from inquiring teams across the nation.

Two of our female team leaders were invited to speak on the 2020 International Day for Women In STEM United Nations select panel, allowing them to promote and encourage female involvement in math and science settings. These role-model students met with other influential female government officials, connecting our team to a progressive, STEM-oriented future.

Since 2017, Team 1718 has hosted our annual Michigan Advocacy Conference: the first student organized advocacy conference in the nation. We have directed over 150 Michigan students to the state's capital, educating them on state-level, Michigan-specific advocacy. Newly-trained students are then given the opportunity to speak to their state-elected officials on the importance of increasing school enrichment funding in Section 99H of the Michigan State Budget. MAC 2021 included a student experience panel that allowed new advocates to interact with experienced local, state, national and international advocates, heightening awareness and influencing the mobilization of the next generation of FIRST representatives.

For five years, Team 1718 members have traveled to Washington D.C for the National Advocacy Conference (NAC), advocating for increases in STEM education funding in the Every Students Succeeds Act (ESSA) Title 4 part A: Academic Enrichment Grants. Students have led meetings with and shared personal testimonies to Michigan legislators: Sen. Debbie Stabenow, Sen. Garry Peters, Rep. Lisa McClain, and Rep. Haley Stevens, in addition to former Secretary of Education Betsy DeVos, gaining valuable advocacy experience, communication skills and public-speaking confidence. Federal appropriation for the ESSA's Academic Enrichment Grants have a proposed increase from \$1.22 billion to \$2 billion between fiscal year '21 and fiscal year '22.

Team 1718's application to the new National Advocacy Conference (NAC) Advisory Council was accepted for the council's inaugural year of 2022, on account of our distinguished, continuous efforts within the STEM advocacy community. At monthly meetings, two 1718 members have direct input on the shaping of the largest FIRST-centered advocacy conference in the country. Our council members work directly with NAC founders, first-handedly directing the future and sustainability of FIRST and STEM programs.

In 2020, Team 1718 was invited to become one of the initial five founding charter members of the Student Association for STEM Advocacy (SASA), the new parent organization of the National Advocacy Conference (NAC), because of our extensive knowledge and influence within the community of STEM advocacy. To make this membership official, we raised \$5,000 to help pilot this organization and provided our business plans, our school board presentations and a collaborative state advocacy conference toolkit. Through our recent in-depth involvement with this organization focused on increasing the expansion of STEM advocates, Team 1718 is trailblazing a more accessible path for FIRST students interested in the inner workings of STEM promotion.

Team 1718 prepares students for their professional future. We sustain a broad influence to progress our network of future leaders in STEM, improving social development and STEM involvement in our community, state, nation and world.