

Chairman's Award - Team 66

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2020 - Team 66

Team Number

66

Team Name, Corporate/University Sponsors

General Motors Corp/Michigan Department of Education/ZF&Ypsilanti STEMM Middle College

Briefly describe the impact of the *FIRST* program on team participants within the last five years.

GR recognized early on the life changing power of FIRST and have worked to harness that power in a way that impacts not only the brightest and best, but also the most vulnerable students. Because of our FIRST-centered school, in 2018 team members averaged test scores higher than the state average for the first time in the team's 22 year history and where 100% of Middle College team members will earn college credits, a majority of whom are first-generation college students.

Describe the impact of the *FIRST* program on your community within the last five years.

Being the very first team in our county, GR created a cultural recognition of FIRST that paved the way for the 392 FIRST teams that have existed in our surrounding communities. GR hosts annual FLL summer camps for 180 students; many are now members of our team and attend the STEMM Middle College. GR also hosts "Fun Science Fridays" at elementary schools to engage over 500 students with STEM and inspire them to join the Grizzly Pipeline.

Describe the team's methods for spreading the *FIRST* message in ways that are effective, scalable, sustainable, and creative.

GR takes PR seriously. We utilize traditional media outlets to spread the impact of FIRST. GR has been featured by HBO, US News & World Report, PBS, Automotive News, and countless other international media outlets. We also seek to influence education policy makers around the world, which is why we've presented the GR educational model at 8 total international and national education conferences.

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

Our lead programmer Dalton is a role model for us all. He used GR as a launch pad for his programming skills. Despite losing his legal guardian and becoming homeless, he remains diligent in his studies and mentors JFLL, FLL, FTC, & FRC teams. He's traveled to the state capitol to present our code to the Governor, to DC to lobby Congress for FIRST, and China to meet with ZF. Dalton is one of many Grizzlies who challenge the limits of what's possible in their situations and in the world.

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

We developed the Teacher Professional Learning model that aims to debunk the myth that running an FRC team is too difficult. In our model, we teach teachers how to build and program robots. Working with FIRST in Michigan and Kettering University we grew this model into a statewide program. With grant funds from the Argosy Foundation, FIM now runs a 2-day training using our method to train teachers from across the state. Our students presented at this training, where 14 FRC teams were started.

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

We designed and run a training for elem. teachers to help them tackle the challenges of leading a FIRST team. 18 of 36 teachers who participated in the Teacher Professional Learning Program are now leading 19 of our new JFLL and FLL teams. We also secured a \$25,000 grant from Washtenaw Promise to integrate FIRST-based curriculum into all classrooms at the YCS Middle School. We also use our post-kickoff events to expose new students to FTC, resulting in 3 new FTC teams.

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

We've started 19 new FIRST teams to grow the FIRST pipeline in our and around our district, which exposes all students in our district to FIRST from pre-k to college. We also run a Post-Kickoff Workshop for area FTC teams, mentoring teams and helping brainstorm ways to tackle the game. GR assisted 13 teams in completing the Michigan Education Dept's grant for funding. We also partnered with UM to host weekly trainings called Girls Who Code, to spur girls' interest in programming FIRST robots.

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)

Numerous GR students mentor the JFLL, FLL, and FTC teams in our Grizzly Pipeline. It's an amazing opportunity for us to help those who will follow in our footsteps rise above their circumstances and succeed like our mentors do for us. One Grizzly member, Britney, happens to be deaf; however, she doesn't allow that barrier to stop her from mentoring. She states, "by giving back to these little kids, I can give them opportunities like I got."

Describe your Corporate/University Sponsors

Our diverse support starts with General Motors, who has stood by us for 21 years. Our recent strategy of developing well-rounded partnerships has resulted in 37 sponsors giving at varying levels of financial, technical, and educational support. Industrial partners include ZF, DTE Energy, Michigan Aerospace, and Ford. Our education partners include the Univ. of Michigan, Purdue Univ., Kettering Univ., Eastern Michigan Univ., Washtenaw Community College and Ypsilanti Community Schools.

Describe the strength of your partnership with your sponsors within the last five years.

We were the first team sponsored by auto supplier ZF and pitched their leadership on the benefits of supporting FIRST. Since 2016, ZF has invested \$458,000 in supporting FIRST programs. ZF recognizes FIRST's impact, as it provides a valuable opportunity to recruit experienced engineers. ZF also funded our trip to China so we could pitch their Asia division on the benefits of supporting FIRST teams locally, while also giving our students the global business experience they seek to recruit.

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

FIRST is a life saving program that gives students the tools they need to achieve success whether that's graduating from high school, or creating professional connections for their career. Through a mentor-based approach to building robots that compete in yearly changing challenges, students develop support systems and self-confidence. During the competition season, teams work with others to achieve success and where everyone is celebrated for their hard work and dedication.

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

In partnership with MiSTEM Region 2, who is working to build a STEM culture and integrate business and community into education, we're developing the Washtenaw Robotics and Engineering Community Center. We have developed partnerships with Washtenaw Intermediate School District, Ypsilanti Township, Ypsilanti Community Schools, Michigan Aerospace, HWA Analytics, Washtenaw. Promise, and A2Y Chamber. Our partnership secured a \$75K Prosperity Grant to assist in the creation of the WRECC.

For FRC teams older than 5 years, briefly describe your team's broader impact from its inception.

Over 22 years, our program went from being world champions, to watching our school district shutter, to creating an academic model where students are workforce-ready and schools across the world want to emulate our model. Our city witnessed the closure of 4 auto plants and 2 school districts. But because we understood how FIRST impacted our students, we reinvented our education system around FIRST's Principles and now we are synonymous in our city as "the hope of a better future".

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

Jenae Gonzalez

Essay

The mission of Grizzly Robotics is to change the world one life at a time. For 22 years, we've used FIRST to destroy the generational cycle of poverty for our students by developing high-functioning STEM leaders. By using the FIRST experience, Team 66 reinvented education and diverted the school-to-prison pipeline to a new path for students from pre-kindergarten to college and into STEM careers. Our model helped FIRST change its view of the role it could play in education--forever magnifying the impact of FIRST.

GRIZZLIES GROW THE FIRST COMMUNITY

The story of FIRST in Washtenaw County is directly tied to the story of Team 66. As the very first team in our county, we've spent 22 years promoting FIRST and STEM across the region. Since 1998, we've participated in over 500 demonstrations in cities and schools. GR created a cultural recognition of FIRST that paved the way for the 392 FIRST teams that have existed in the surrounding communities (31 FRC, 55 FTC, 184 FLL, 122 Jr FLL). In just the past 5 years we've been directly responsible for starting 22 FIRST teams and mentoring 13 FIRST teams.

To address the issue of program stability for local teams, GR is developing the Washtenaw Robotics & Engineering Community Center (WRECC). The WRECC will provide FIRST teams with build space and tools with mentor support from local businesses. With our partners, we've secured a \$75k prosperity region grant and a \$300k bond for creating the facility.

We identified a lack of teacher-experience as one of the biggest challenges to recruiting and keeping lead mentors. In 2019, GR developed a two-day training model for teachers, where Team 66 students teach attendees how to program and build their own robots and how to incorporate FIRST principles into their classrooms. GR's training model has been used in 4 local districts. We also helped FIRST in Michigan secure funding from the Argosy Foundation to support the expansion of the GR teacher training model, engaging teachers from across the state in a professional learning event at Kettering University. As a result, the GR training model started 34 FIRST teams (14 FRC, 19 FTC/FLL/JFLL).

The community support systems we've created have allowed students, like our lead programmer Dalton, to thrive. Going from being homeless to earning an associate's degree in computer science while still in high school, he states "GR was the family I didn't have, and the stability I needed to succeed." Dalton's now given back to the global FIRST community by working with FIRST and WPI to update the FRC control system documents and create docs.wpilib.org, the document library provided to teams writing FRC robot code. Dalton's efforts have helped create community-driven control system documentation so rookie teams could focus on game-specific programming rather than hardware basics.

GRIZZLIES CHANGING CULTURE

GR has a reputation for making FIRST really loud. We have been fortunate to use our success on and off the field, as a platform to promote FIRST.

GR is a pillar in the Ypsilanti community. Over the last 5 years, we've shared FIRST at over 100 community and corporate events. Diana, our team captain at the time and ESL student, gave a TEDx Talk on the impact FIRST has in education. We've also had over 1 million exposures to FIRST over the last 22 years at the Annual Ypsi Fest, where we've put the community behind the controls of our robots.

We have also used our achievement data at the FIRST National Advocacy Conference, to help pave the way for federal funding of FIRST programs. GR's FIRST advocacy work inspired Congresswoman Debbie Dingell to draft and introduce the first Christa McAuliffe Coin Bill, which was recently signed into law and will provide millions of dollars in support of FIRST.

Michigan Governor Rick Snyder, who was awarded the 2015 FIRST "Make it Loud" Award by Dean Kamen, chose our STEMM Middle College as the place where he would sign his final education funding bill. In his speech, he praised GR; suggesting others should emulate our educational model of using FIRST in the classroom.

In 2018, we amplified FIRST to over 32 million people on HBO's Real Sports with Bryant Gumbel. The show featured GR student Orlando, who entered the Middle College at 5th grade reading and 4th grade math levels, but will graduate in 2020 with a college Machinist Certification and 15+ college credits.

GRIZZLIES CHANGING EDUCATION AND LIVES

In our community, 78% are minority? the median household income is only \$27,000; 69% qualify for free/reduced lunch; and in recent studies, Washtenaw County was found to have the 13th highest wealth inequality in the USA. In spite of the financial, social, and academic barriers we face every day, the support systems we build are our chance to succeed.

In 2013, Team 66 started the STEM & Manufacturing (STEMM) Middle College by incorporating the principles of FIRST (experiential learning, mentor-based approach, intentional community involvement, embedded life-skills) in the classroom. This 5-year model revolves around GR and requires all students take engineering and manufacturing courses, build and program robots, and complete 15+ college credits and a Certification. Every student in the STEMM Middle College is immersed in FIRST's principles. In 2012, only 69% of students graduated from high school. However, since our inception, our graduation rate has averaged over 87%, reaching a high of 97%.

Since 2013 the STEMM Middle College has enrolled 550+ students; 200+ students graduated; and 2600+ college credits have been earned by our high school students. GR's model has transformed education and changed the trajectory of our lives. Angelo, now a STEMM student, attended one of our summer camps in elementary school and later entered the STEMM Middle College and joined Team 66. He entered the Middle College not proficient in ELA or Math, but after experiencing FIRST in the classroom he is now excelling, coaches an FTC team, and taught his former teachers how to use robots in their classroom.

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Despite our model's incredible success, students were enrolling in the Middle College significantly behind. We took two actions to change this dynamic. First, we created a cradle-to-career-to-mentor pipeline (Grizzly Pipeline), by starting 19 JFLL, FLL, FTC teams. Now students in our district are mentored, supported, and exposed to FIRST starting in preschool until they transition to college and careers. As a result, 11 of our mentors are alumni who returned as professionals to inspire students.

Taking what we learned through creating the STEMM Middle College, we expanded our educational model to YCS middle school by securing a \$25k grant to purchase FIRST platform robots. GR students ran professional development seminars to train middle school teachers on how to use FIRST principles in their curriculum. Following the seminars hosted by GR students, 496 middle school students are now also exposed to FIRST's principles in their classrooms. GR also focuses on preparing students to enter the workforce with global experiences that employers seek. In 2018, we traveled to China where we mentored 2 pre-rookie FRC teams and met with corporate sponsors, Honeywell and ZF, urging them to support FIRST teams in China. Students like Ariana, who once struggled to speak in her classes, now successfully present in corporate boardrooms at global companies, an experience that none of our students would have experienced had it not been for GR.

Our efforts have been recognized at all levels within FIRST. "I've worked with many FIRST teams, but none that embodied the program's mission more passionately or effectively than Grizzly Robotics. Many Ypsilanti STEMM Middle College students face incredible personal, family or financial challenges, but the mentorship and empowerment this program provides have created truly life-changing outcomes for its students," said Jamie Berman, FIRST communications consultant.

GRIZZLIES CHANGED FIRST

GR fundamentally expanded what FIRST leadership thought was possible with their mission. Because of our success, FIRST recognized they can reach all students in a school district, as opposed to only those students involved with robotics as after-school activities.

Don Bossi, former President of FIRST said it best, "FIRST programs have primarily been viewed as after-school activities, but the ground-breaking adoption of FIRST principles within the Ypsilanti STEMM Middle College shows that this educational approach can have an even greater impact when integrated into the core curriculum."

Two years ago, FIRST conducted a case study of GR and released a 5-page report, entitled A New Type of School Teaches Skills for the Future, that detailed FIRST's impact on education. Even more impressive, FRC Team 3182 Athena's Warriors used the case study to convince their school district to not eliminate their team.

GR has given 8 presentations at national and international conferences across the world on how to reinvent education using FIRST. In 2019, 2 of those presentations were given by our lead mentor and FIRST VP of Strategy & Impact where hundreds of educational leaders learned how to incorporate the GR model.

All our hard work has earned us numerous community awards and international recognition, providing us the opportunity to become a model for the rest of the FIRST community to emulate. This led FIRST to select Team 66 as the FRC team highlighted at the 2018 and 2019 Championship Showcases; but recognition doesn't mean the work is done. While presenting on stage in 2019, GR was also hosting the Michigan Department of Education's 16 regional STEM education directors at Championships for a strategic retreat on integrating FIRST in their school districts. Even those who were unfamiliar with FIRST are now strong allies in adopting our model.

The late Woodie Flowers struck the core of our mission when he said, "Grizzly Robotics is trying to change the world by changing education□"