Chairman's Award - Team 1086

2020 - Team 1086

Team Number
1086

Team Name, Corporate/University Sponsors
Powertrain Control Solutions / Midas of Richmond / Watson Machine Corp / Showbest Fixture Corp & Deep Run High School

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

Team 1086 ignites passion for STEM in our rookies, members and alumni by teaching them engineering, business, communication, teamwork, leadership & gracious professionalism. We have graduated 58 students in the last 5 years, with 100% going to college and 95% majoring in STEM. They attend such schools as Stanford, Carnegie Mellon, VATech, UVA, GMU, VCU, GATech, Olin College, Purdue, UCLA, W&M and Penn State. 50% of these alumni come back and support FIRST as coaches, mentors, and volunteers.

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

We have inspired 1000s at our 80+ demos at schools, libraries, scouts, RVA MakerFest, Scott's Addition Pumpkin Festival, etc. We engage underserved kids at camps, the Juvenile Detention Center & with LEGO-on-the-Go Bags and LEGO Math Kits. We encourage women in STEM at Techsters, Girls for Change Camp, Women ETC Conf and thru our partnership with the Society of Women Engineers. In 2016, we worked on VA Senate Bill 246 that funded $300K+ for STEM competition teams from 2016-2018.

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

Our team has set specific outreach goals that include growing the FIRST Program at all levels, engaging underserved and underrepresented youth in STEM and advocating for STEM education funding. Since 2010, Flat Dean and Woodie geocaching travel bugs have traveled 155,281 mi. to spread FIRST to 872 people in 28 countries. In addition, we use our Facebook page (1199 likes) and our Twitter account (3549 followers) to showcase our team's activities and other STEM opportunities.

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

As part of the FIRST National Advocacy Conference planning committee, we teach teams how to advocate for STEM education funding. We recruit teams, present on state level advocacy at NAC & FIRST Champs Conf., manage its social media and provide hotel rooms for teams in need. Our team makes gracious professionalism a WHEY of life by running & hosting FIRST events and demos & by always assisting other FIRST teams. Our contagious, cheesy spirit at tournaments incites other teams to cheer along.
Describe the team's initiatives to help start or form other FRC teams

Through our advocacy efforts, we encourage legislators to support funding for STEM education and new FIRST teams. As a result of these efforts, we were able to work with VA Sen. Stanley in 2016 to get Senate Bill 246 passed, which provided $300,000+ in grants for STEM competition teams in Title 1 schools with 40%+ free and reduced lunch students. This state funding was extended into 2018 and supported existing and new FIRST teams in VA.

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

We are passionate about growing FLL & FLL Jr because it introduces robotics at an early age. Our summer camps inspire parents to start FLL teams. We also hold team formation sessions at our local library. To aid new teams, we mentor them and run coach training, a kickoff & practice sessions on project presentation and core values. Annually, we run & host an FLL Tournament and an FLL Jr Expo. Our team donated $2000+ worth of parts to FTC 11484 to help them get started.

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

We run & host an FLL Jr Expo and have assisted 5 FLL Jr teams. For FLL, we run a project presentation/core values session each year and provide coaches training & programming lessons. Over the past 5 years, we assisted 81 FLL teams. We also run & host an FLL tournament and a kickoff. We helped teams 540 and 2402 plan their 1st FLL tournaments. We hosted an FTC Kickoff/Workshop, and hosted & ran an FTC competition. We have assisted 7 FTC teams and 78+ FRC teams during the last 5 years.

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)

In the past 5 years, we have mentored 2 FLL Jr teams and have hosted & run FLL Jr Expos. Also, we serve as mentors for FLL teams as well as offer support services, such as a kickoff, coaches training, programming, project presentation and core values workshops along with running and hosting FLL tournaments. In the past 5 years, we have mentored 21 FLL teams. We helped a Blue Cheese alum start FTC Team 11484 French Toast Bunch by mentoring and donating $2,000+ worth of parts.

Describe your Corporate/University Sponsors

Our program could not exist without the support of our sponsors. They provide build space, professional services & funds. Our sponsors include Powertrain Control Solutions (build site/mentors), Watson Machine Corp (fabrication), BMG Metals (metal), Trident Plastics (plastic) & SolidWorks (software). We get funding from Midas of Richmond, Showbest Fixture, Anthem, Cisco, Bondioli & Pavesi, Booz Allen Hamilton, Altria, JD Lewis Construction Management & Deep Run High School Robotics Booster Club.

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

We have sustained strong relationships with our primary sponsors. PCS provides build space, machinery, mentors & employs alumni. Our partnership with Midas of Richmond challenges us with a matching fundraising opportunity, and we support their canned food & blood drives. Watson Machining Co provides fabrication. Solidworks provides us CAD software & they used our CAD for an electrical tutorial for FIRST teams. We also have continued support from BMG Metals, Trident Plastics & Showbest Fixture.

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

FIRST was founded with the mission of inspiring kids to pursue STEM. Besides being a robotics competition, the program exposes students to hands-on learning & develops leaders. It builds important life skills such as innovation, self-confidence, problem-solving & communication. The community benefits from the program through workforce development. In addition, FIRST promotes an ideal called Gracious Professionalism, which emphasizes high quality work and respect for others.

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

Our team is passionate about spreading STEM with emphasis on underserved youth. We advocate at all levels of government for STEM education funding for programs like FIRST. We also continue to expand our international initiatives to advance STEM worldwide. We embrace the full FIRST program by not just competing with our robot but also showing the true spirit and intent of FIRST in everything we do. Any WHEY you slice it, Team 1086 Blue Cheese is making the world a CHEDDAR place!

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

Our team has grown from 12 to 65 team members with an increase in the number of women (25%) & minorities (55%). Our outreach has expanded with our three goals in mind: growing the FIRST Program, engaging the underserved in STEM & advocating for STEM education funding. As an integral part of the FIRST National Advocacy Conference committee, we recruit new teams, present at conferences and manage its social media. A large % of our alumni come back & help FIRST as coaches, mentors & volunteers.

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

**RECIPE FOR SUCCESS**

We are FIRST Team 1086 Blue Cheese, where our "Recipe for Success" makes everyone GRATE! We ignite passion for science, technology, engineering and math by growing the FIRST programs, advocating for STEM education funding and engaging underserved youth in STEM. Our team aims to BRIE the best we can BRIE by cultivating & spreading our cheese culture around our school, our community & worldwide.

**INGREDIENTS**

Like any good cheese, we start with only the finest ingredients. Our 65 students are a blend: 25% women, 55% minorities & 46% rookies. Another key ingredient is our sponsors, including Powertrain Control Solutions which opens its facility to us year-round & provides engineering mentors. After adding 2 coaches & 20 mentors, we have the perfect mixture.

Members are recruited by promoting our team at homecoming parades, orientations, curriculum nights and open houses - exposing our entire student body to FIRST. Every fall, we hold a team meet & greet with an ice cream social.

Our cheeseheads have to be SHARP. Those who need tutoring find help in our No Cheesehead Left Behind Program. We promote GOUĐA communication by using Google Groups and Slack. Our Cheese Whiz Academy educates team members so they are WELL-ROUNDĐ on all aspects of robotics. In order to train our rookies, we SLICE them into two groups & have them build kitbots, using the process to give them hands-on experience in machining, drivetrains, electrical, pneumatics, CAD and programming. At the end of build season, we run a mini competition with the kitbots.

We enhance the flavor of our cheese by holding CHED Talks (CheeseHead Engineering Discussions) to introduce team members to various STEM careers. Since 2011, we have had 34 talks and uploaded the videos on YouTube to inspire others. These STEM professionals talk about Police Bomb Robots, Animation, Robotics in Physical Therapy, Cyber Security & more.

**SPREADING OUR CULTURE**

All these ingredients CHURN together year round. We then spread our CULTURE around our community and the globe. Our extensive and sustained outreach programs not only make us a role model for other teams but make us leaders in STEM education.

**GROWING THE FIRST PROGRAM**

We are DAIRY passionate about growing FLLJr and FLL because it gets kids hooked on FIRST for life. We host and run FLLJr Expos and in the last 5 years, we have mentored 2 FLLJr teams and assisted five. We have also mentored 21 FLL teams and assisted 82. We support FLL teams by mentoring, training coaches, and holding an FLL Kickoff & a Presentation/Core Values Workshop. For the last 10 years, we have run & hosted an FLL Tournament. Our team also hosts the annual FLL statewide tournament directors' meeting.

During the last 5 years, we have hosted & run an FTC Tournament and hosted & assisted with an FTC workshop & kickoff. We also assisted 7 FTC teams and helped a Blue Cheese Alum start an FTC team at John Marshall HS by mentoring & donating $2,000+ of parts.

In partnership with FIRST, we have hosted an FRC District tournament for the last 3 years at our school. Our team did the setup/cleanup & 80% of the volunteers were team parents and alumni. At the tournament, we hosted an Open House to answer questions about the FIRST program, conducted a state level STEM education advocacy workshop & coordinated the VIP Ambassador Program. In 2018, when a snowstorm resulted in the CHS SW District Tournament being cancelled & moved to Richmond, we SWISS-tly helped FIRST get volunteers and did the setup/cleanup. This year, we hosted and ran an FRC week 0 Event.

We make gracious professionalism a WHEY of life. Over the past 5 years, we have assisted 78+ FRC teams by lending parts/batteries, repairing and programming robots, & giving Chairman's advice. We train other FRC teams by presenting at fall workshops at VCU and Falls Church, VA, on topics such as Drivetrains, Pneumatics, 3D Modeling, Inspection, Scouting, Chairman's, Safety & Programming.

**ADVOCACY**
We are on the cutting WEDGE when it comes to advocating for STEM education funding. Since 2013, we have joined other FIRST teams in DC to meet with VA US legislators to advocate for STEM education funds at the national level. This is known as the FIRST National Advocacy Conference (NAC) and we are one of the founding members of its coordinating committee. Our team has recruited 10 FIRST teams from around the country to join the program & have managed NAC's social media. For 4 years, our team has led a NAC session to train attendees on state-level advocacy. We have also run an advocacy workshop at an FRC District Tournament & with Team RUSH at FIRST Champs.

In 2019, we met with US Reps. Abigail Spanberger, Bobby Scott & Donald McEachin; US Senators Tim Kaine & Mark Warner; & the office of VA Gov. Ralph Northam to encourage their support of ESSA Title 4 Part A. We also met with Betsy DeVos, the US Sec. of Education, to talk about robotics' impact on public education. At the White House, we met with the Office of Science and Technology Policy.

Since 2008, we have met regularly with our VA State legislators to advocate for STEM education funding. In preparation for NAC, we meet with local government leaders to hear their concerns about federal education legislation. We have also testified before the VA Joint Commission on Technology & Science (JCOTS) to request STEM funding for underserved schools. We met with VA Sec. of Education and VA CTIO Keener on placing STEM education in the Governor's proposed 2016 budget.

We are proud of our work with VA Sen. Bill Stanley in 2016 to draft SB246, which created a grant program for STEM competition teams at high schools with at least 40% free lunch students. VA SB246 was passed & funded at $300,000! At the Governor's request, our team attended the signing of the bill. The funds have supported many existing and new FIRST teams in VA from 2016-2018.

OUTREACH

As active members of our community, we demo robots & engage children in STEM year round. In the last 5 years, we have done 80+ demos at schools, camps, YMCA, Scouts, libraries, museums & RVA Makerfest. Makerfest is one of our favorite demos, with 8000+ annual attendees. Last year, we partnered with the Society of Women Engineers to share circuit cards. This year, we participated in the Scott's Addition Pumpkin Festival where we demoed our robot and shared STEM activities - ozobots, circuit cards & program-a-human. For the last 7 years, we have run 2 weeks of LEGO Robotics Camp which includes engineering design, programming, and other STEM activities. Our camps have inspired parents to start FLL teams.

Started in June of 2008, our innovative Flat Dean & Woodie World Wide program continues to CHURN. By sending out FIRST approved images of Woodie & Dean, we encourage people to discover FIRST & celebrate STEM. The images have been to the South Pole, China & everywhere in between. Since 2010, 8 Flat Dean & Woodie geocaching travel bugs have traveled 155,281 mi. to spread FIRST to 872 people in 28 countries. We use Kiva microlending to fund education around the world - 56 loans in 26 countries. We also supported 20 public school teacher STEM initiatives through donorschoose.org.

While we continue our sustained outreach, we recognize that there is a critical need to expand our reach to women and the underserved. When a local Girl Scout Troop was one of 80 troops selected to pilot a new Cadet Robotics Badge, we helped them out. We brought the scouts to a local hospital to see the DaVinci operating robot, gave them a tour of our FRC tournament & let them drive our robot. We also demoed our robot at the Techster Conference, a coding camp for middle school girls. We taught a session at the Girls for Change STEM camp using the circuit cards activity and presented at the Women ETC Conference & received the Women ETC grant for promoting women in technology. Women occupy 31% of the leadership roles throughout our team.

Since 2010, we've asked the community to donate LEGOs for our outreaches. We donate 100s of lbs of LEGOs to at-risk daycares & underserved schools worldwide. We also make LEGO-on-the-Go drawstring bags (198) filled with LEGOs, which we donate to shelters so children can discover the thrill of building. We have created LEGO Math Kits (190) that teach basic math concepts and have donated them to organizations in the US & abroad.

Six years ago, we initiated an NXT LEGO robotics curriculum at James River Juvenile Detention Center by training its science teacher & helping them get NXT LEGO robotics kits and field setups. Every August, we let the students drive our robot & encourage them to get involved in their schools' robotics teams.

For the past 2 summers, we conducted a week-long STEM camp at Sacred Heart Center's Latino Cielito Lindo Camp where we shared coding and STEM activities using Ozobots, circuit cards, etc. In the last 5 years, we have also participated in the Richmond Minorities in Engineering Camp, the CodeVA Camp and the William & Mary STEM Camp. We demoed our robot at National Night Out at Richmond East End CommunityCtr and recruited kids to join its new FTC team.

We work with Sportable, which provides adaptive recreation opportunities in RVA. Last year, we prototyped a 3D printed adaptive device to help disabled athletes grip oars for rowing. After the VCU Hyperloop team requested help with machining and programming, we made them several parts & developed a GUI to display pod status.

FINAL PRODUCT
Our premier product is our cheeseheads - AGED TO PERFECTION. For the last 5 years, 100% of our seniors graduated & attend college and 95% are majoring in STEM. Alumni continue in FIRST by mentoring, coaching & volunteering. Our graduates work in companies such as Google, Amazon, Oculus, Blizzard, Capital One, Boeing, Genworth, Toyota, Dominion Energy, Cap Tech, McKesson and more.

As Blue Cheese ages, it gets better. Any WHEY you slice it, Team 1086 is making the galaxy a CHEDDAR place!