

Chairman's Award - Team 5837

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2020 - Team 5837

Team Number

5837

Team Name, Corporate/University Sponsors

John Deere/Denso/Waterloo Community Schools/Leighty Foundation&East High School&West High School

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

Our primary goal is always to ensure our teammates leave high school with a passion for kindness, service, and success. *FIRST* provides opportunities for our goals to come to fruition. Through the program, students learn important life skills, such as learning how to network with professionals and the ability to speak in crowds. In addition, students gain insight into careers in STEM and the basics of engineering. Our team strives to prepare students for their careers, education, and their lives.

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

Three years ago we partnered with multiple minority organizations to host a screening of Hidden Figures for students in our city on MLK Jr. Day. We've also hosted the "Cedar Valley Robot Rally in the Valley" with our mayor to declare the last week of March as "Robot Week." In addition, we participated in our school district's "Swing Show" to show students how fun *FIRST* can be. We've also been chosen to work with John Deere to make a promotional video about *FIRST*, which reached a wide audience.

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

Throughout the years, we've spread the message of *FIRST* in a plethora of ways. Not only have we volunteered at FLL events to inspire future generations to continue in *FIRST*, we've also appeared in the media to spread our message to a wider community. We've been in both our local newspaper and news station. To expand our reach, we partnered with John Deere to create a promotional video titled "What's Your Mission?" which has been shown at multiple *FIRST* events and has over 1,500 views.

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

Our team actively inspires *FIRST* teams by being involved in outreach events. For example, our team frequently volunteers at FLL events to show our support for *FIRST*. Along with younger members in *FIRST*, we also push our own team members to hone different skills. We encourage team members to do well in school by hosting homework sessions in our facility. If the team cannot help, we turn to our mentors as they have real-world knowledge applicable to our lessons which helps us to understand.

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

Three years ago we helped the rookie team 6455 get off the ground by sharing with them the lessons learned from our rookie season, helping get their kitbot up and running, and offering advice on how they too could be Rookie All Stars. We also helped team 6145 by lending our programming knowledge during their rookie year.

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

Four years ago we revived FTC team 5023 after they lost their coach and were left with only one student. We donated a coach and team members at events so the 5023 member could get the chance to compete. Now we are happy to say that he is in FRC and FTC 5023 is still going strong. This year we restarted FTC team 7248 after being dormant for 4 years. We provided them with students, mentors, and materials to build their robot. We also revived FTC team 5445 after they were left without members.

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

We have assisted younger FTC teams and an FRC team in our town by providing programming tips as well as pointers about making their teams successful by highlighting the issues we faced in our rookie season. Our lead mentor has also collaborated with five FTC teams in India to help them get their John Deere sponsorship renewed in 2019. He's also met with an FRC team in Mexico for the last five years as well as one in China on two separate occasions. His goal was to assist in their funding.

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 our founding year, one of our students stepped up to mentor two middle school FLL teams after their mentor moved away. The next year one of our students began mentoring an FLL team and has continued to do so while in college. Three years ago we also had two students who mentored FTC team 5023, and one student who mentored FTC team 8008. After the individual who mentored FTC team 8008 graduated, another one took their place and we continue to mentoring their team today.

Describe your Corporate/University Sponsors

Our largest sponsor has always been John Deere as they have supported us since our foundation. We also partner with the Waterloo Community School District and the Waterloo Schools Foundation, allowing us to increase STEM awareness with younger generations. We have also reached out to the local Leighty foundation and Denso, a manufacturing company, for additional monetary funds.

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

Our partnership with John Deere has always been exceptionally strong. They provide a majority of our mentors from the Waterloo headquarters. In 2017, they selected our team out of 445 others to make a promotional video shown at investor meetings and FRC regionals. We are also strongly connected with sponsors from the Waterloo Community School District because they provide us with a place to house our team. They are also the main source of our recruitment and allow us to demonstrate at events.

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

FIRST is so much more than just building robots. It has programs ranging from elementary to high school that challenges students to tackle real world problems, develop critical thinking skills and work together as a team. Each level increases in challenge and size and allows you to work with teams from around the city, state, country, and world. It's a program that values how you win more than if you win, with an emphasis on developing gracious professionals and tomorrow's innovators.

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

Our team is comprised of students from all over Waterloo. Waterloo is a city in which many people go without the luxuries of a safe, wealthy community. With the poverty rate in children being 28% it is our goal to provide students with opportunities to overcome the cycle of poverty, regardless of gender, class, race, or religion. As we continue to promote STEM in our community we strive to grab hold of anyone willing to learn and inspire them to make better lives for themselves.

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

We are not older than 5 years.

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

Audrey Dillavou

Essay

Our Mission:

Since the founding of FRC Team 5837 Unity4Tech (U4T) in 2015, our goal has been to use FIRST and its principles as a guiding force for change by connecting students in our community to the opportunities provided by FIRST programs. In Waterloo, only 16% of our graduates go on to earn bachelor's degrees and even though John Deere is prevalent in our town, many students can't envision themselves working there. We want to show that it's achievable not just for students on our team but all students in our community. We do this by promoting STEM through outreach, connecting students with real-life engineers, and providing applicable experience that can prepare them for college and beyond.

Who We Are:

Our team is comprised of members of three FTC teams that compete simultaneously throughout the FTC and FRC seasons. Though it can be challenging to manage our FRC build season while also participating in FTC, we believe this model allows us to get the most hands-on experience in designing, programming, and constructing a robot. This year we restarted FTC Team 7248 after being dormant for 4 years and revitalized FTC Team 5445 by recruiting new students after they lost their previous members. We use these teams, along with our established FTC Team 7247, as a direct recruiting pool for our FRC team. During the FTC season, we develop our coding, CAD, design, and build skills to prepare us for the FRC season. Our team has members from both high schools in our town and we open our doors to students from the neighboring area that do not have FRC programs. We intentionally recruit low income and aspiring first-generation college students who participate in Educational Talent Search and Classic Upward Bound programs. While we have different backgrounds and compete against each other in FTC, this structure has fostered both gracious professionalism and cooperation among our members. While each team designs and builds a robot independently, we are housed in the same facility, attend outreach events together, and thrive off the supportive environment we've cultivated. We celebrate each other's victories, commiserate our losses and help each other throughout the process in order for everyone to compete to the best of their ability. These collaborative skills directly translate to our lives outside of FIRST. Often it feels as if our community has been pitted against itself; whether it's due to high school rivalries, wealth distribution, or racial tensions. Through FIRST, we provide a safe, supportive environment to anyone who needs it and demonstrates that everyone has something they can contribute and something they can learn from each other.

Mentors & Sponsors:

Our partnerships with John Deere helps us get more students and mentors interested in FIRST. 80% of our mentors are current or retired John Deere engineers. Not only do they teach students how to build and program robots, they also impart the importance of community outreach, team-building skills, and creative critical thinking. Our lead mentor and Woodie Flowers recipient, Richard Hurban, has assisted 5 FTC teams in India to retain their John Deere funding as well as other mentors in Brazil, Mexico, and China on budgeting strategies and leadership. Our partnership with John Deere extends beyond our mentors. Every year they invite us to demonstrate at Engineer's Week to actively introduce potential mentors to FIRST. In 2016 John Deere selected our team out of the then 445 FIRST teams they sponsored to make a promotional video that was shown to the board of directors and at all FRC regional and kick-off events.

Community Outreach:

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Outreach is the difference between building a robot and changing our community. We have spread FIRST by demonstrating at Waterloo and Dubuque STEM Fests, Waterloo Culture Fest, My Waterloo Days, Sturgis Falls, Denver Days, and the Iowa State Fair. We've helped Girl Scouts earn their robot badges and led a bridge-building workshop at the Expanding Your Horizons Conference to teach young girls to try, fail, then fail better. These events push us to step out of our comfort zones and spread our message to audiences of all ages and sizes. Our more unique outreach includes; inviting other area teams to host a robot petting zoo at our library, convincing our Mayor to declare the first week in March, "Robot Week". To celebrate diversity in STEM we partnered with the National Society of Black Engineers (NSBE), the Society for Hispanic Professional Engineers (SHPE) and the Society of Women Engineers (SWE) to coordinate a free screening of the movie Hidden Figures for students in our community. In 2018 we ran an event at the John Deere Tractor museum to challenge Waterloo students to see a different future than has been laid out to them by inviting the renowned "MIT Maker Czar" and East High graduate Dr. Martin Culpepper to speak about his journey from Waterloo to MIT. Afterwards we organized tours of the Cedar Valley Makerspace and UNI Metal Casting Center to show off the newly available resources to the public. We partnered with the iHope chapter of National AMBUCS to use the skills we've learned to ensure a higher quality of life for every child, by assembling modified tricycles for children with mobility issues and built a bike wash station and obstacle course for their fundraiser events. Through this outreach, we were contacted by a family asking us to modify a motorized toy car to be accessible for their child with mobility issues. This summer it became something bigger when Charles City Elementary School asked us to modify another toy car for a group of their students, so they could improve their coordination and strengthen their muscles. The car came with a remote so the parents could prevent crashes and overwrite the controls to keep the kids safe. This encourages them to explore more of their surroundings and be more involved in the world around them. Through all of these events, we are able to show our community how STEM can impact their lives regardless of their circumstance.

Furthering FIRST:

One of our biggest achievements this year is the work we've done with FLL. In December, our lead coach planned the first-ever Waterloo Qualifier event at Central Middle School. Our team, mentors, and alumni made up over 50% of the total volunteers, working as game timers, game queuers, judging timers, judging queuers, referees, and project reviewers for FLL Jr. at the doubleheader event. In January, we also volunteered for the FLL State Championship at Iowa State University. We hope to start a trend of having the teams that come to demo their robot at events also volunteer as well. Working at FLL events allows us to demonstrate enthusiasm and inspire younger generations to continue their journey through FIRST, as well as showing them the importance of volunteerism and giving back.

Alumni Impact:

As we enter our fifth year, this is the first season without any of our founding members. Thankfully FIRST has prepared our alumni by exposing them not only to the opportunities in STEM but giving them a chance to be leaders. In turn, they have given us high school survival tips, shoulders to cry on, academic assistance, connections to teachers, employers, and educational programs, as well as a blueprint for us to follow. Our alumni have beat the odds and gone on to attend various universities such as Iowa State, Purdue, Iowa, George Washington, Northern Iowa and more. They have continued to be active in the FIRST community; whether it be volunteering at the Iowa Regional, being a mentor for FLL teams, or restarting a student club at Iowa State called SOFIRST. They recognize that FIRST has made an immense impact on their lives so they strive to give back as much as possible. As one of our alumni explains, "Because of the nearly 3000 hours I've dedicated to FIRST the classes I am currently taking are just practicing my skills rather than learning from the start." We are proud to report that all of our seniors will be attending college or trade schools, with 75% being the first generation to attend.

Our Legacy:

Within the past five years, students with many different stories have walked through our doors. Many on our team come for reasons other than the robot itself. Some come for the special family environment, some because they know it's a safe space, and some just for a hot meal which they aren't always guaranteed at home. Regardless of why they initially join, they always get hooked on robotics. They end up coming to our meetings daily, investing their own time and effort into something bigger than themselves. By the time they leave their last meeting, they have the confidence that they can make a difference in their lives and the lives of others. Without FIRST, our team would not be able to reach as many students and show them a path towards success. The founders of Unity4Tech had aspirations to achieve a legacy, not only for ourselves, but for the community around us, and one that would last a lifetime. Our team continues to honor the legacy of the U4T alumni by acting as a guiding force for change in our community.