

Chairman's Award - Team 3313

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2019 - Team 3313

Team Number

3313

Team Name, Corporate/University Sponsors

3M/Aagard/Brenton Engineering/Massman/Leaf Valley Sportsman's Club/Force America/Douglas Machine&Alexandria Area High School

Briefly describe the impact of the *FIRST* program on team participants with special emphasis on the 2018/2019 year and the preceding two to five years

FIRST greatly impacts the students on our team by teaching them both technical and personal skills. Students graduate with a passion for STEM and a determination to succeed and inspire others through continued involvement in the FIRST programs. 100% of Mechatronics alumni in the last 5 years have gone to college, with two-thirds of them pursuing STEM majors. Seven of those alumni currently mentor our team and one continues to volunteer at FIRST competitions.

Describe the impact of the *FIRST* program on your community with special emphasis on the 2018/2019 year and the preceding two to five years

In the last 5 years, our team has reached over 10,000 people in the Alexandria area through business presentations, school demonstrations, children's camps, parades, expos, and many other public events. Through these events, we further the community's knowledge of STEM and FIRST, show them its values and benefits, and inspire both children and adults to invest in the future of STEM. We have helped transform our community into one that further respects and appreciates science and technology.

Team's innovative or creative method to spread the *FIRST* message

One way that our team has spread the FIRST message is through attending and giving demonstrations at the 2018 PMMI Pack Expo. While there, team members had the opportunity to present to the 50,000 business leaders from over 2,500 packaging machinery companies that attended the expo. Students promoted FIRST, discussed the effect it has had on their lives, and drove the robot, while at the same time learning about future opportunities in the packaging industry.

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

Our members serve as role models and inspires others by working to expand FIRST. To do this, we have started 1 FLL (FIRST Lego League) team and currently mentor/assist 2 FLL teams. We are in the process of starting more teams, with a goal of having 5 new teams started that we will mentor for the 2019 season. We also have ran and hosted 3 FLL competitions. With these actions, we have spread the word of FIRST and continue to encourage other teams/individuals to start and mentor teams themselves.

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

In our demonstrations for schools and businesses, we aim to inspire others to start or support FIRST teams. Our team's main focus has previously been on making a bigger impact in our community, such as starting FLL and FTC (FIRST Tech Challenge) teams at local schools. However, within the next year, we plan on spreading our influence further into nearby communities by talking with other school officials about making FIRST a part of their districts, starting with FRC teams.

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

In 2018, our team started FLL team #37705 Minitronics and made involvement possible for all via grants and sponsorships. After seeing the impact FIRST had on these students, our team became determined to start more teams in our school district. We recently visited 15 elementary classes to promote robotics and introduce students to FIRST. In April, we will be holding 2 meetings to bring potential mentors and team members together and help in reaching our goal of starting 5 more FLL and FTC teams.

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

During the 2018 season, our team assisted FLL team #37705 by sending our students to help them during several of their practices. We assist as many FRC teams as possible throughout the season by keeping in contact via email, especially with the 7 teams who are part of the West Central Alliance Hub and 27 involved with the Northern Minnesota Robotics Conference. Our team is also always proud to offer parts and personal assistance to any team in need during competitions.

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)

This year, our team mentored FLL team #43037, Space Pirates. We let them utilize our team's space throughout their season. Our team members and mentors visited them at least weekly, to help them with design, programming, and project ideas. The members from both teams are excited to continue our partnership in the future. Our students are also looking forward to mentoring several other teams that we are working to start before the 2019 FLL and FTC seasons.

Describe your Corporate/University Sponsors

Coming from a town that leads the packaging industry and is full of engineering-oriented companies, many community businesses graciously support us. 3M covers our regional competition fees while Agard, Massman, Brenton, Leaf Valley Sportsman Club, Douglas Machine, Force America and AAHS give monetary donations for supplies and travel expenses. Also, PMMI and Massman paid to ship our robot to Chicago for the Pack Expo. Sponsors also send employees to visit our practices and give their expertise.

Describe the strength of your partnership with your sponsors with special emphasis on the 2018/2019 year and the preceding two to five years

Team 3313 has created strong partnerships with each of our sponsors. We visit their businesses to talk with industry professionals, give demonstrations for all the employees to see our robot and learn about our team, and continue to stay in contact with them throughout the year. In return, our sponsors give us facility tours, educate us about potential futures in STEM careers, and visit us at practice to share their professional advice and develop a better understanding of our program.

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

FIRST is an international pre-professional program focused on STEM education. Students in grades K-12 are challenged to design, build, program, and test a robot to compete as a team at one of four age levels. They also do presentations showing how they can make a difference in the world. Through FIRST programs, students solve real-world problems and practice a set of core values that will lead them to successful futures while at the same time, having fun.

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

During the 2017-2018 season, our team started a sexual harassment awareness campaign called the Dead Battery Project. This project was started to make FIRST an even safer and more welcoming environment for everyone. At regionals, we talk to girls about how to get help if they are being harassed and then lead an educational all-girls meeting. Our team has joined forces with our school to make a difference in our community as well as with other FRC teams to spread this project beyond our reach.

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

Kailei Johnson

Essay

We are Team 3313, Mechatronics. We started in 2009 in the manufacturing town of Alexandria, MN with a goal of inspiring students and teaching them the skills that lead to successful futures. Since then, we have transformed the lives of students, invoked an appreciation for STEM in our community, and promoted FIRST to people around the country. We've inspired younger generations, created opportunities, assisted others in reaching their goals, helped those in need, and overall, made a difference in our world.

When Mechatronics was started 10 years ago, it was an all-male team with 15 members. Currently, 40% of team members are female and we work every year to reach out to guys and girls equally to ensure equitable involvement in FIRST. Through being on our team, students learn many useful life skills including woodworking, metalworking, mechanics, programming, money management, communication, public speaking, strategy, cooperation, problem-solving and even sewing. This skill set and knowledge has driven 100% of our graduating seniors in the last 5 years to pursue a college education and 2/3 of them have chosen STEM majors. For all Mechatronics alumni, regardless of their major, the 21st-century skills that they learned through FIRST have set them up for success in college and throughout life. Members graduate with extensive knowledge of STEM and a passion for FIRST that makes them determined to continue their involvement with the programs. 7 alumni now mentor the team, 2 volunteer at competitions, 1 started a robotics club at NDSU, and most of our current team members have already started their life-long journeys as volunteers and mentors.

For a lasting and successful FIRST program, it is vital for our community to share the same passion and appreciation for STEM as our team members. Mechatronics invokes the message of FIRST by taking every opportunity to involve ourselves in our community and its events. In the past 5 years, our team has volunteered at 4 community fundraisers, held 8 of our own, visited more than 70 businesses, driven our robots in 7 parades, been a part of 12 school fairs/expos, performed demonstrations for 5 community clubs, presented for the school board, and done more than 12 robot demonstrations at different businesses. Through all of these events, our team has furthered the knowledge of more than 10,000 people in our community about both FIRST and STEM.

In 2018, our team invited everyone in the local ESL (English as a Second Language) program to visit our practices. The people who attended were from Mexico - working at engineering businesses in our community. After seeing our practice, they wanted to continue helping our team by coming to more meetings and even competitions. They helped us with design and build ideas. In return, we had the opportunity to teach them about FIRST while at the same time providing a fun way for them to improve their English.

To spread FIRST worldwide, team members traveled to Chicago last fall to present at the PMMI Pack Expo. Our team was 1 of just 7 from around the country and the only Minnesotan team to attend. We had the opportunity to show our robot and talk to more than 50,000 employees from the 2,500+ packaging machinery companies that were in attendance. While promoting FIRST to people from all over the US, Germany, Mexico, China, Ukraine, Austria, and many other nations, students got to further their knowledge of STEM applications in the real world and future careers. One of our seniors, Chris, remarked, "We had the opportunity to be with several thousand of the best minds in the packaging industry. It was very inspiring to have so many people there to watch us demonstrate and spread the FIRST message. Not only that, but these people shared some of their personal expertise in the field of packaging." Several of our mentors who are in the packaging industry had previously attended this expo and they all agree that it is a great place for business leaders to see the technological advancements in their fields and our team is very proud to have been a part of that vision.

Back in our community, Team 3313 works to keep the definition of FIRST alive through inspiring young people to be interested in science and technology. We do this through presenting at school-wide events and visiting the many elementary and middle schools in our area. In the last five years, we have been a part of several events at different schools, talking to more than 3,000 students. During these events, we talk about robotics, do STEM activities, show students the robot, and even let them drive it. This leaves them with an excitement for STEM and asking, "When can I do this?". Every year, Team 3313 is also one of the main exhibitors at the Alexandria STEAM Expo. This event gives elementary students, as well as community members, an opportunity to learn about possibilities in STEAM careers and how it currently affects their lives.

This summer, Mechatronics team members will be running 6 STEM summer camps for elementary aged students. In these 4 day camps, we will use FLL and FTC robot kits to teach students about designing, building, and programming robots, along with other activities to teach about real life STEM applications. These camps will provide the opportunity for up to 180 students to receive hands-on STEM-based learning and fun, while at the same time, introducing them to the FIRST programs.

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After getting students in our community excited about STEM, our team works to make it possible for them to participate in FIRST. Last year, our team started FLL team #37703, Minitronics. In a low-income school with over 60% of our students qualifying for free and reduced lunch, we knew that an activity fee would be a major burden for many families. To solve this issue, we wrote 6 grants and got sponsorships to cover the cost of participation. We raised a total of \$3,575 which made involvement possible with no fee to any students. We also made it possible for another rookie FLL team, #43037 Space Pirates, to start by offering them our robotics space to meet in throughout their season.

Being on these teams had a great impact on all the students and because of that, we are determined to give this opportunity to others. In January, our team visited 15 elementary/middle school classes to talk to more than 400 students about FRC, FTC, and FLL. In April, we will be holding two student and parent meetings in the hopes of bringing students and mentors together to create new FLL and FTC teams. Our goal is to start 5 new teams by the start of the 2019 season and to help them secure funding so that there is little/no cost for the families. Team 3313 then plans to mentor the teams throughout their rookie season and beyond.

After teams have been started, our team works to help them to succeed. During the 2018 season, we assisted Minitronics by sending our students to help them during several practices. We also mentored Space Pirates by visiting them weekly, often more, during their practices to help them with design ideas, programming, and their project. We also invited both of these teams to join us during two days of our build season so that they could learn more about our team, FRC, and their futures in FIRST.

In December, Mechatronics ran and hosted 3 FLL competitions. The first was the Just For Fun community event. This small competition allowed 4 rookie FLL teams to run their robot with a timer and audience of around 60 people and to get experience going through judging sessions to help them prepare for their qualifiers. At the same time, this event provided training for our volunteers so they could be at the best of their abilities for the tournaments. The next week, our team ran and hosted 2 side by side qualifying tournaments. To make this 26 team event possible, Team 3313 brought together over 70 volunteers, many of which were new FIRST volunteers. Hundreds of community members came to watch the competition and for many, to experience FIRST for the first time.

Promoting robotics and helping to spread FIRST is a priority for our team, but we also work to make being a part of the program the best experience possible for everyone. Mechatronics is proud to have many female team members, but we still recognize that women are a minority in FIRST. Being less in numbers and also in physical size, girls are at a greater risk for sexual harassment and/or assault. In 2018, team members decided to do something to help in preventing harassment within robotics so we started The Dead Battery Project. During regionals, our team members talk to as many girls as possible, educating them about sexual harassment, how to get help, and giving them a phrase they can use if they are in an uncomfortable situation to alert other girls to help them. We then hold an all girls meeting in which we talk about sexual harassment and prevention and then open it up to Q and A. During our first meeting last year, we realized just how big this problem is. From there, we offered our information to other teams that would like to help us bring this project to other competitions. We gave the information to teams 2451, 2177, 7038, 1792. Of those, we know that 2177, The Robettes, and 1792, Round Table Robotics, brought it to the World Championship and 1792 also brought it to the Milwaukee Regional. We then decided to expand this project outside of the FIRST community. We have organized this with our school officials and will be talking to all 300+ freshmen at our high school in March. Our ultimate goal is to make all of FIRST and Alexandria Area High School a safer and more fun environment for everyone.

Team 3313 is dedicated to impacting the culture of our school, community, and world. With student outreach, premier leadership, innovation, and cooperation, we are working to inspire the next generation of science and technology leaders and to push towards a world that has a stronger recognition of STEM.