

Chairman's Award - Team 2883

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2019 - Team 2883

Team Number

2883

Team Name, Corporate/University Sponsors

Marvin Windows/Rockwell Automation/Polaris&Warroad 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

In the last 5 years, roughly 86% of Team 2883 alumni have entered careers relating to skills learned from being in FIRST. Our alumni often return to mentor our team and volunteer at competitions. Robotics has provided a program where students explore and develop their own STEM skills and find their identity which helps to develop a community of motivated individuals contributing to the world. FIRST has helped our members become involved in the community, using their skills to pursue any ambition

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

We take pride in our community impact. Over the last 5 years, we have made a marked difference in our community. Warroad, known as Hockeytown@ USA, is now known for more than that. All in all, our total team makes up 3% of the town's population. We have permanent stations in local stores, and we have forever changed the curricula of the schools. The sport of the mind is an excellent alternative to the classical high school events, and the community is proud to stand behind us.

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

Our motto is "building engineers, doctors, business professionals, scientists, and teachers, one robot at a time." We model this with 20+ outreach events in our school, community, and beyond inspiring people of all ages and creating support for STEM in ways that weren't possible before. They engage students and adults, sparking excitement for FIRST programs. Our initiatives are expanding STEM in all directions within our community.

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

We mentor the younger members of our team in order to pass down the legacy of FIRST in the Warroad area and inspire a love for the program and its advantages. With the support of our mentors, students learn how to think critically in order to solve the unique challenges issued by FIRST. We also mentor our 2 FLL teams and FLL Jr. team. These students often continue on to our FRC team because they are inspired by our members to stay in the FIRST programs and learn more about STEM and themselves.

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

We have worked to spread FIRST further into Manitoba by creating the first FRC team in the province, 7532 Gophertronics, in Winnipeg. We are working with them, teaching them more about FIRST and mentoring them so they are able to compete. They joined our team for kickoff and we spent the first day talking strategy and robot designs. This is not the end of our Manitoba initiative. We have plans to start at least three other FRC teams in the next couple years.

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

Since our first season in 2009, FRED has seized the initiative on creating other FIRST teams. To date, we have started a one Jr FLL team, 17043 Stargazers, and two FLL teams, Warbotics 21848 and LEGO The Woods 34305. The FLL teams have been so successful under our mentorship that they have qualified for state each year. Warbotics was so successful they won state, qualifying for FIRST Championship as a third year team last season.

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

We take pride in assisting all teams. We host 1 Jr FLL team and 2 FLL teams, which we mentor. Throughout the years, we have assisted teams during the build season, including teams 3750, 5998, and 7532. In 2016, we aided 10 teams enough so they could compete, sometimes even when they were queued up to play against us. For this, we were recognized with the GP Award. In 2017, we aided team 4626, a team with only two students and an unassembled kit bot, to become competition worthy.

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)

FRED has mentored several other FIRST teams. Our students serve directly as mentors to our FLL Jr team, 2 FLL teams, and FRC team 7532 Gophertronics. We have also advised and mentored several regional FRC teams (3750, 7532, 5998, 4539) spread hundreds of miles apart. Our remote location is a factor for us, a factor we don't let stop us from spreading one of the core values of FIRST: giving back.

Describe your Corporate/University Sponsors

The support from our primary sponsor is astounding. Marvin has given incalculable support, in-kind contributions, and monetary donations totalling many hundreds of thousands of dollars over the existence of FRED. Polaris Industries has also been an important corporate sponsor to us, making several valuable donations. In 2018, Rockwell Automation became a major sponsor as well, donating monetarily and with volunteer mentors.

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

Our partnership with Marvin is very strong. They routinely provide us with mentors, support, financial assistance, and in-kind contributions. They matched a capital bond for school renovations. They value what we do, and wish to see us succeed. We are very grateful to them for what they do. Rockwell Automation has also been vital to our continued growth, providing us with mentors and financial assistance. Polaris regularly makes monetary contributions and provides mentors to our team as well.

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

FIRST is more than robots. There are many aspects, so there is a place for everyone. It's a great way to gain skills applicable to life beyond high school that can't be learned in any other sport. FIRST is the sport of the mind where teams work together while working against each other in the name of Gracious Professionalism. FIRST is fun for all ages and gives many benefits to students including public speaking, writing, and teamwork skills that can't be learned elsewhere outside the classroom.

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

Our team started with 9 members and is now pushing 40, of which 46% are female. This is a 450% increase. 100% of Team FRED members graduate, 86% have gone into careers using the skills they acquired as a member of the team.

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

Sarah Dignan

Essay

Small Town, Large Impact

Our town, with a population of approximately 1,800 people, lies five miles south of the Canadian border. Warroad may be small and isolated, but that has not stopped us from spreading and fulfilling the mission of FIRST. Team F.R.E.D.

(Fighting Rednecks Engineering and Design) has made a substantial impact consisting of 20+ outreach events. Being from a small town presents its challenges. We do not have the opportunities or resources to do things on the same scale as the metropolitan areas, but that does not make our influence any less important. Our team makes up approximately 3% of the population of Warroad. In comparison, 3% of the population of Minneapolis is about 12,300 people. The forty high school students that comprise Team 2883, 46% of which are girls, are spreading the message of FIRST in our school, our community, and internationally.

Warroad Schools

Team 2883 has impacted our school district in many ways. We have created and led a variety of activities and events spreading the message of FIRST. Some of these include LEGO WeDo kits, engaging special needs students, new curricula, STEM a la carte, and Project Go Baby Go, where we used our robotics skills to turn a toy car into a pre-wheelchair, training car for a boy with cerebral palsy.

Our impact on Warroad students and administration has resulted in new curricula for our school. Under the influence of F.R.E.D., our high school has added Industrial Technology classes for college credit including engineering and drafting classes. A robotics class was also integrated into the curriculum that focuses on the FIRST programs. This class is available to all students, regardless of their participation on our robotics team. These classes get students diving deeper into STEM and help them explore different careers that incorporate their newly acquired skills. In the last five years, 100% of F.R.E.D. team members have graduated and 86% have gone into careers related to skills they learned from their participation on the team. Team 2883 alumni often come back to mentor our team and volunteer at regionals due to the impact of our robotics program.

Team F.R.E.D. has helped spark interest in FIRST LEGO League (FLL) programs. In the 2015-16 season, we created the first team in Warroad, Team 21848-Warbotics. There was so much interest generated by Warbotics that it led to the formation of a second team, Team 34305- LEGO The Woods, in the 2017-18 season. Eight percent of the 220 sixth-through-eighth grade students at our school are now on these two LEGO teams. We share our work spaces with our FLL teams, making it easy to mentor these younger students and inspire in them a love for continued exploration of STEM beyond FLL and often to join our team. Both of our teams have qualified for the state championship; and last season, Warbotics won the MN State Championship, qualifying for FIRST Championship in Detroit as a third year team. We feature our LEGO teams at our local events, so we can ignite enthusiasm in younger kids about FIRST. Our program grew again this year with the addition of an FLL Jr. team, 17043 Stargazers. The team consists of five members who have all learned to program, but only one of them can read. These teams are mentored by F.R.E.D. students and we support them in all they do.

One of our initiatives includes taking LEGO WeDo kits into third grade classrooms once a week and teaching them about programming and the fabrication of robots. We help the students build and program the WeDo's. This initiative has expanded in the elementary and WeDo's are now a part of their curriculum. The third graders continue to use these kits under the instruction of their teachers. It has expanded into the fifth and sixth grades with our team's influence. These students are now learning programming and the LEGO WeDo software is on every elementary laptop giving access to all. This initiative has now been expanded to include a weekly workday, WeDo Wednesday, where special needs students and their friends improve their dexterity and interpersonal communication skills. We also worked with an older special needs student weekly using a LEGO WeDo as an attempt to grow his communication and fine-motor skills.

Community

F.R.E.D. gives back and inspires people of all ages to pursue STEM by making robotics a major part of the Warroad community. Over the last century, Warroad (also known as Hockeytown®, USA) has developed a distinct culture that revolves around hockey and fishing. However, the growth of FIRST programs in our community has ignited a shift in our culture. Science and technology are becoming an integral part of our town's lifestyle. Within our community, we have led FIRST robotics demonstrations at local businesses such as Doug's Supermarket and the Marvin Home Center (the local hardware store). Other team initiatives include Project Daycare, internships with our major sponsor, Marvin Windows and Doors, Santa's Workshop, STEM Camp, the Warroad Senior Living Center, Oktoberfest, Halloween - "Door To Door Trick or Treating," and serving at the Farmers' Union Oil Company Annual Meeting. Year-round, our team does various presentations and robot demonstrations throughout the county. Some of these have included the WHS Alumni Banquet, Polaris Industries, Warroad Public Library, Warroad Area Chamber of Commerce, and NMMA (Northwest Minnesota Manufacturer's Association).

Team 2883 is impacting ages one to over a hundred. We bring EV3 robots to kids at a local daycare. We show them how the robots work, which we believe piques their interest in robotics. We bond with the kids while building structures with pretzel sticks and marshmallows, as well as coloring F.R.E.D. coloring sheets. Before departing the daycare, our team shows them our robot reveal and talks with them about joining LEGO League.

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In the summer, we host a week-long STEM Camp held in June for sixth through eighth graders. The students make many projects, including a parabolic hot dog roaster and a rocket to launch on the last day. They also do team-building exercises designed to test communication and problem solving skills. We also visit the Warroad Senior Living Center to demonstrate our robot and present to the residents about the FIRST programs. Students work with the residents, showing them how to use technology to stay connected with their families.

Our outreach events within Roseau County include two parades, as well as demos at the Roseau County Fair. Team 2883 creates a float for the Warroad 4th of July parade, as well as the Roseau County Fair Parade. We hand out team buttons and candy, and do robot demonstrations. Our FIRST LEGO teams are included on our floats, and we also encourage them to demonstrate their robots, passing on what they have learned as part of their teams. These events generate excitement and serve to educate the local community members about the programs.

Beyond our Community Borders

FIRST is about helping others and spreading knowledge. Our team has chosen to exemplify these qualities at competitions by volunteering and helping other teams. Two very memorable competitions for us were the Northern Lights Regional in 2016 and the North Star Regional in 2017. At Northern Lights, our team helped program approximately 10 other teams' robots so they were able to participate and move on the field. At North Star, our team helped Team 4626 Iron Centaurs (a two member team with nothing but their kit of parts) build and program their robot. By day two, they were able to compete successfully by delivering gears and engaging in auto. Our team is also very involved in volunteering both at FRC and FLL competitions. At FRC competitions, our team handles pit safety glass stations, being flag ninjas, resetting the field, or giving tours as student ambassadors. At FLL competitions, we can be found volunteering as referees, assisting judges, or resetting tables. We have also helped Team 3750 Gator Robotics learn to program, teaching them the basics in LabView. In the following weeks, we kept in contact with them, checking in with them and helping as needed. Team 2883 continuously spreads knowledge and stays involved beyond the Warroad area. Team F.R.E.D. may not be able to travel across the seas, but we can drive 127.2 miles north to Winnipeg in order to grow the programs of FIRST further into Manitoba. Our team began its initiative in Manitoba by starting the first FRC team in the province, Team 7532 Gophertronics. Prior to kickoff, some of our team members and mentors went to Winnipeg to educate the new team on the mission of FIRST, demonstrate our robot, and assist their team with their first season of robotics. The team came to Warroad for kickoff and we hosted an event called "We The North!" that consisted of our team, Gophertronics, both of our FLL teams, and our FLL Jr. team. Nearby teams 5172 Gators and 3750 Gator Robotics were also invited to attend the event. We will continue to help expand the programs into Manitoba with plans to create at least three more teams in the next couple of years.

Team 2883 F.R.E.D. is very involved in our community and beyond. We do everything we can to spread the message of FIRST and get more people involved with what we have. We have started four teams, have begun our initiative in Manitoba, and created a love for FIRST within Warroad through a variety of events. We assist and mentor other teams in whatever ways we can and volunteer our time at competitions doing a variety of activities. Team 2883 is more than robots: we are preparing our students for the world, increasing their mechanical abilities, and growing their communication and presentation skills. Team 2883 F.R.E.D. is building engineers, doctors, business professionals, scientists, and teachers, one robot at a time.