

Chairman's Award - Team 2883

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2022 - Team 2883

Team Number

2883

Team Nickname

F.R.E.D (FIRST Robotics Engineering and Design)

Team Location

Warroad, Minnesota - USA

Describe the impact of the *FIRST* program on team participants within the last 3 years. This can include but is not limited to percentages of those graduating high school, attending college, in STEM careers, and in *FIRST* programs as mentors/sponsors.

F.R.E.D. builds leaders, leaders build communities, ONE ROBOT AT A TIME. 100% of students that were a part of Team 2883 have graduated, 90% of our alumni within the past three years are in college. 73% have gone into fields that are STEM related. Our alumni have helped shape our team to who we are today. 37% of our 16 current registered mentors are alumni. 32% of our alumni within the past three years are current volunteers or mentors with FIRST.

Describe your community along with how your team addresses its unique opportunities and circumstances.

We are a town that has a population of less than 2000 people. Although we are small, we are mighty. We pivoted in 2021 to present at outdoor events like the Polar Plunge and recently at FriLuftFest an event held on our river skate path. Our most popular event continues to be "What's Brewing with FRED at Caribou". Our newest venture is with the Indian Education program that is directed by a FRED Alumni hosting STEM discovery sessions.

Describe the team's methods, with emphasis on the past 3 years, for spreading the FIRST message in ways that are effective, scalable, sustainable, and creative. How does your team measure results?

We stage many local robot demonstrations, which we pivoted to outdoor events during Covid (Polar Plunge & FriLuftFest), "What's Brewing with FRED at Caribou," & march in parades-totaling 20+ outreach events per year. 34% of our current FRC students that "graduated" from FLL. We share our work spaces with our FLL teams to easily mentor these students. Our active recruitment with Lao & Native American communities increased our diversity from 100% Caucasian to 31% identifying as 2 or more races.

Please provide specific examples of how your team members act as role models within the FIRST community with emphasis on the past 3 years.

We have found success having our some of our Lego alumni and current FRC members help coach our current Lego teams, particularly helping our Jr. FLL team 17043 (Stargazers). We raise team members who are leaders as well as role models. We do this through programs such as professionalism 101 courses, as well as guiding students in how to teach children and guide them in learning about FIRST. This impacts them because it brings about an inspiration towards STEM and robotics within our kids.

Describe your team's initiatives to Assist, Mentor, and/or Start other *FIRST* teams with emphasis on activities within the past 3 years.

We continue to focus on assisting other teams in 2022 by cutting parts for the Greenbush Gators (5172) and Roseau Rams (2654) while helping them build field parts. We helped start 8225 Robodogs, Rolla, ND (2020) & have a 2020 alumni mentoring their team in 2022. In Winnipeg, Manitoba, we helped start Team 7532 Gophertronics (2019). 2 recent alumni started Teams 7532 & 8188 (Rookie year 2020). Lao Pow, an all Lao FLL team was started in 2020. Current FRC members mentor Stargazers Jr FLL 17043.

Beyond starting teams, what initiatives have you done to help inspire young people to be science and technology leaders and innovators? What results have you seen from your efforts in the past 3 years?

We start working with children in preschool so they have grown up with STEM activities as a natural part of their day. Our students are academic leaders in the classroom - for the last 6 years, the class valedictorian has been on F.R.E.D. Collectively, 2883 students log the most community service hours, earning top recognition by our district. Our alumni network inspires current FRC members by listing all the places and fields where we currently have representation.

Describe the partnerships you've created with other organizations (teams, sponsors, educational institutions, philanthropic entities, etc.) and what you have accomplished together with emphasis on the past 3 years

We share EV3 Robots & materials with the school in Sprague, Manitoba grades 9-12 for our "Robots without Borders" initiative. We helped start Team 7532 Gophertronics (2019), 8225 Robodog, Rolla, ND (2020), support FRC 2654 (Roseau) & Gators (5172) with parts in 2022. The Marvin Company provides mentors, funding & internships. We have secured them as a primary sponsor for the Great Northern regional.

Describe your team's efforts in the past 3 years to promote equity, diversity, and inclusion within your team, *FIRST*, and your communities.

The cultural diversity found in our school is unique given the homogeneity of the surrounding communities. 31% of team members identify as 2 or more races. Our newest venture is with the Indian Education program that is directed by a FRED Alumni hosting STEM discovery sessions. There were a number of students on our team that said that looking at the old logo and catchphrase "Fighting Rednecks" made them feel like there wasn't a place for them, so we changed it.

Explain how you ensure your team and the initiatives you have created will continue to run effectively for the foreseeable future

With Covid we lost team members and institutional knowledge. To counter that, we created Our buddy program, assigning veteran students with rookies. We decided to implement this program because we found that new students feel lost and don't know how to jump in. For 2022 we have intentionally placed "understudies" in key roles to insure continuity. Our Lego League program is our largest feeder of future FRC members.

Describe your team's innovative strategies to recruit, retain, and engage your sponsors within the past 3 years

In 2020, the University of Minnesota's Biomedical dept. reached out to our team to start building ventilator boxes. FRED enlisted the help of Marvin's and Polaris to help us fabricate a design. Several of our team members assembled all 24 ventilator boxes. Once the boxes were complete, we sent out 22 of them around the state, while 2 were kept within Roseau county. We partnered with Marvin to injection mold thousands of visors and our team came together to assemble the visors.

Highlight one area in which your team needs to improve and describe the steps actively being taken to make those improvements.

The nickname of "Fighting Rednecks" may have fit who the team was in 2012, but it doesn't fit the team we are today. We decided that we want F.R.E.D. to be a place where all are welcome. We had a student redesign our logo this year to simply be our name FRED and our number 2883 all linked together, to showcase we are stronger when we embrace innerconnectedness. We had some difficult conversations during Professionalism classes about race, inclusion and the image we want to convey.

Describe your team's goals to fulfill the mission of *FIRST* and the progress you have made towards those goals.

We truly believe we are building leaders one robot at a time by getting STEM activities into the preschool, robots in all 3rd grade classes, sending resources to Sprague, Manitoba, welcoming Native American students in STEM discovery sessions led by one of our alumni and current Indian Education director. We are honored to have won some FRC championships, but we are most proud of the alumni we have sent out that now are volunteering with FIRST (32% in the last 3 years) and in STEM fields 73%.

Briefly describe other matters of interest to the *FIRST* Judges, including items that may not fit into the above topics. The judges are interested in learning about aspects of your team that may be unique or particularly noteworthy.

We have noticed that some of our team members struggle to convey their ideas, lack confidence, have anxiety, self-identify as anxious, on the spectrum, or struggle with depression. In our Professionalism 101 sessions we work on active listening, eye contact, communication, and decision making. These soft skills are needed to be an effective

communicator and a successful leader. We have also initiated some difficult, but important conversations about inclusion, mental wellness and team identity.

Essay

F.R.E.D. is moving forward. Team 2883 is unique in many ways because of our geographical location, our relationships across the Canadian border, and our diversity within our team. Team 2883 is like countless trying to build back after Covid. The twist? We decided to have hard uncomfortable conversations about who we are and who we want to be. F.R.E.D. builds leaders, leaders build communities, ONE ROBOT AT A TIME by emphasizing professionalism, creative problem solving, and outreach. Building leaders means more to us than the robot we complete each year. The capacities we hope that you develop as being a part of our team are skills for life. New initiatives in 2022 include our Buddy Program, Alumni Network, team dinners, targeted Indian Education outreach, redesigning our logo, along with an expansion of our Professionalism 101 courses and a concentrated focus on FUN!

Our buddy program assigns veteran students with rookies so they have a go-to person. Whether they need to learn how to use a machine, log-in to accounts, or find out where the stash of snacks are, their buddy is there to help them. We decided to implement this program because we found that new students feel lost and don't know how to jump in. Having a buddy is a simple solution to the problem since it almost makes your first year feel like you have a one-on-one mentor either right by your side or a Snapchat away.

Professionalism 101 is back in 2022. Students attend sessions to work on active listening, eye contact, verbal and non-verbal communication, and confidence building. These exercises strengthen our team's capacity to spread the message of FIRST, are scalable, and can be easily reproduced with other teams. We started this program in 2020 before the shutdown, but now these skills are more important than ever since in-person communication has been so limited in these past two years.

WHO IS F.R.E.D.? When our team was started in 2009, F.R.E.D. was an acronym that stood for First Robotics Engineering and Design. This morphed into a different name and we came to be known as Fighting Rednecks Engineering & Design. There was a small group of us that had wanted to change our name and logo for some time, but it wasn't until Covid hit, that we decided we wanted to tear down the old and rebuild. Our mascot was a Caucasian male with a mullet wearing plaid with fists raised. Initially, it was a take on the Fighting Irish. There were a number of students on our team that said that looking at the old logo and catchphrase "Fighting Rednecks" made them feel embarrassed. The nickname may have fit who the team was in 2012, but it doesn't fit who we are today.

F.R.E.D. gets a makeover in 2022. We had a student redesign our logo this year to simply be our name FRED and our number 2883 all linked together, to showcase no matter how many differences people in our team may have we are still linked together making us stronger that way. We feel good about the progress we are making towards inclusivity and our new logo is a part of that.

F.R.E.D. is a family that has grown exponentially over the years and we are proud of all our alumni. That led us to create our own alumni network in 2022. We printed off rosters of all the team members going back to 2009 and contacted them through social media. Watching the responses come in has been so edifying. Our alumni span coast to coast, from SpaceX in Los Angeles to rural Maine. 100% of the alumni consented to be contacted by current F.R.E.D. members with any questions about their college or careers.

F.R.E.D. has grown from seven male members in 2009 to now having 55% females in 2022! Our shop underwent a \$5 million renovation in 2019; there is now a project based STEM learning by grade level, LEGO WeDo kits in the classrooms, and an elementary school STEM Club. A robotics class, focused on FIRST programs, is now integrated into the curriculum. F.R.E.D. has been awarded over \$900,000 in outside funds that have purchased new CTE equipment that benefits all students. Due to our efforts to bring more STEM into our school, our district added a technical education course to graduation requirements.

The stats? 100% of students that were on F.R.E.D. have graduated; 90% of our alumni within the past three years are in college. 73% have gone into fields that are STEM related. 37% of our 16 current registered mentors are alumni. 32% of our alumni within the past three years are current volunteers or mentors with FIRST. Two recent alumni (2018 and 2019 grads) have started their own teams where they attend college: Team 7532 [Gophertronics] Rookie year 2019 and Team 8188 [Grand Force] Rookie year 2020.

We have coordinated three FIRST LEGO League (FLL) teams and one Jr. team. Our most recent startup was FLL 44494 (Lao Pow), an all Lao team, a first for our region. This is our initiative to engage more of the Lao residents in Warroad, and bring them into FIRST. We have also mentored FLL teams 34305 (Lego the Woods), 21848 (Warbotics) and our Jr. team 17043 (Stargazers). This is a rebuilding year for our LEGO league teams and we are trying to get them ready to compete again in 2023.

F.R.E.D.'s friends are multitudinous. One of our main sponsors, Marvin, offers internships for our students. The strength of the relationships with our sponsors like Marvin, built over time, has allowed us funding for entirely new programs in our school like Medical Terminology, Introduction to Healthcare Professions and expansion of our FLL teams. New in 2022 is our partnership with Northland Technical College, the Advanced Resource Center (ARC) and Marvin. We received funding and a Skillsboss Manufacturing unit to train and certify students to become Certified Production Technicians (CPT) authorized by the Manufacturing Skills Standard Council (MSSC).

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F.R.E.D. gives back and stimulates people of all ages to support STEM by making robotics a major part of the Warroad community and beyond. In 2021 and 2022 we have done more outdoor presentations and events due to Covid restrictions. Just this month we worked with the welding class to create a fire pit to go on the 5 mile river skating path we have in town. F.R.E.D. members then handed out free hot dogs, hot chocolate, made snow volcanoes, took the EV3 robots out on the ice and tended to the fire in the new fire pit. One of our favorite outreach activities is "What's Brewing with F.R.E.D.?" coffee talks at our local Caribou Coffee shop. These events generate excitement and serve to educate the local community members about the programs. Plus, nearly all of us like to drink coffee and we are kind of treated like superstars when we bring out the robots. FUN!

We didn't stop trying to do outreach in 2020, we just had to be more creative. In March 2020, one of our team members took home two 3D printers from the school to make N95 masks in her basement with visors. Marvin partnered with us to injection mold visors and our team came together to assemble the visors. During the initial shut-down, the University of Minnesota's Department of Biomedical Engineering reached out to our team to start building and assembling ventilator boxes. FRED enlisted the help of Marvin's and Polaris to help us fabricate a design. Several of our team members assembled all 24 of the ventilator boxes.

Our team has chosen to exemplify the values of FIRST by volunteering at competitions and assisting teams. In early 2020, rookie team 8225 (Robodogs) Rolla, ND came to our shop multiple times. In January, 2020 they arrived with a kit of parts and left with a working robot in one weekend. Currently, in 2022, they have continued to call on us for assistance. One of our 2020 graduates serves as a lead mentor for their team now.

Prior to Covid, our team would cross the border north to Winnipeg, Manitoba to work with Team 7532-Gophertronics, the first-ever FRC team in the province. The travel restrictions in Canada both have forced Gophertronics to pause their involvement in FIRST, but the relationship is still there. When Gophertronics is ready to come back, we'll be there to help them.

We have sent our VEX robots and Lego supplies to Sprague, Manitoba along with lessons for students to use there. We had gotten permission to start a program called "Robots without Borders" before the shutdown in 2020. For now, we are just sharing our supplies and lessons. We hope one day soon that we can start crossing the border to send our students there and to have the Sprague students come to our shop.

As Hockeytown, USA, the biggest win we have is when we beat our neighbors the Roseau Rams. In 2020, we brought the Roseau Team 2654 into our workshop multiple times to provide assistance, utilize our programming, our mentors, and our resources. In 2022 we helped them build their field, gave them a chassis and cut parts for them. We have also assisted the Greenbush Gators, Team 5172, in 2022 by cutting parts for them. It is so great to reconnect with other teams again.

We are excited to help chair the Great Northern Regional and return to competition in 2022! Our main sponsor, Marvin, is also a primary sponsor for this event. Our alumni make up a large retinue of volunteers for this event. At FRC competitions, particularly GNR, our team handles pit safety glass stations, resetting the field, as flag ninjas, and giving tours as student ambassadors.

We are honored to be a part of spreading the message of FIRST. Our alumni are proud to have been a part of F.R.E.D. We have started six teams, continue initiatives in Manitoba, and Rolla, ND while sustaining FIRST through our school programs & community events. We are more than robots, we are building future leaders in STEM with an emphasis on giving back to their community, adopted or permanent. We prepare our students for the world, increasing their technical skills, while developing their communication and life skills. F.R.E.D. builds leaders ONE ROBOT AT A TIME.