

One Thousand, Seven Hundred and Eighty-One. That's how many people live in the small town of Warroad, Minnesota. When people think of our small community, they think of hockey, fishing, hunting, and robotics. We are Team 2883, but most people know us as F.R.E.D., or Fighting Rednecks Engineering and Design. Throughout the past nine years, our team has been hard at work creating robots that are able to compete at regional events. However, that is not all that our robotics team has accomplished. They have developed new skills in both social and technical aspects of the real world. Our members have to interact with others throughout the robotics season, during both build days and regional competitions. This has given Team 2883's members the opportunity to strengthen their social skills and their ability to work with others. Our members' lives have been impacted by helping them realize their full potential as individuals. We have exemplified the true meaning of FIRST by impacting the lives of our members, our community, and our school.

Robotics has inspired our members to pursue STEM careers. Many students have decided to further their education in majors such as engineering, drafting, and game design because of our robotics program. One of our alumni is currently on the Dean's List for engineering at the University of Minnesota Twin Cities. Another alumni is currently programming drones for agriculture. Last year, 60% of our robotics graduates went on to STEM related careers. FIRST has also granted our members the opportunity to obtain scholarships to help pay for college. This past season one of our members received a \$2,000 scholarship, which has helped fund this student's education in chemical engineering. Robotics has been able to give our members experience in Science, Technology, Engineering, and Math (STEM) that will be used for the rest of their lives.

Our members have also discovered how their own skill set can impact the lives of those around them. One specific group of people that our team has worked with are the residents of

our local senior living center. We have shown the residents how to use social media websites such as Facebook, Twitter, Pinterest, and Youtube which makes it easier for them to connect with their families. As a result of engaging the members of our community in hands-on activities that promote FIRST, we have grown our town's knowledge of STEM. Team 2883 has given presentations in different places around town and marched in the annual 4th of July parade. These activities have made our team's name better known throughout our community. If you were to ask a person in Warroad what they knew about FIRST and the robotics program, many of our community members would be able to give you a basic explanation.

Not only have we impacted the lives of the people in our community, but we have also helped develop three other robotics teams in our region. We have provided these teams with guidance in programming, design, and electrical ideas. We take pride in knowing that with our help, these teams will have a better chance of succeeding in their competitions. This coming summer we also plan to take a trip to Manitoba, Canada to give a presentation in some of the schools close to the border. Our presentation will describe what FIRST is and how this program can better their schools and communities.

Our team members have enjoyed being involved in our small town as well as the surrounding areas. Due to our involvement, many individuals have become positive role models to the children growing up in our town. Two years ago, Team 2883 started a FIRST Lego League team in Warroad. Our FIRST Lego League team, more commonly known as Warbotics, has participated in competitions at the state level twice despite being a team for only two years. Since the inception of Warbotics, we have also begun to show our elementary students how to use Lego WeDo's. The Lego WeDo's have introduced third graders to the new and exciting world of STEM. We have accomplished this by going into their classrooms during the school day and spending an hour teaching them how to build and design their own robots. Our members

have left a lasting impression on the third grade students, and the students continue to look forward to the day when they will get to be a part of our robotics team. These young children may not always realize that by “playing” with these robots, they are gaining STEM skills while using their own knowledge to operate the Lego Education WeDo Sets properly.

This past summer we also provided a week-long STEM camp for fourth through eighth grade students. Our team spent the week showing these students how much fun STEM can be. The students participated in many different activities including: making parabolic hot dog solar cookers, assembling model rockets, and learning how to use GPS technology. All of these activities showed our campers that they can still have fun while learning. After the week came to a close, each student left with a smile on their face and a greater knowledge of what STEM is all about. There were multiple teachers who assisted at the camp, and the camp left a lasting impression on them as well. Because of this, more hands-on activities have been brought into the classrooms on a daily basis. We have also talked to these teachers about bringing in a STEM academy, and utilizing our current teaching staff to teach STEM programs. These initiatives would not be possible without the eagerness to teach from our robotics team.

Another positive has resulted because of the WeDo Legos. A former robotics team member, now a promising, hopeful mechanical engineering student at the University of Minnesota Duluth, has a brother Jacob who is autistic. As a result, Team 2883 started a project to feed his interest by introducing him to the robotics program. We have begun this by introducing him to the Lego WeDo's 2.0. With the project in motion, this extraordinary student will develop fine motor skills and better his communication skills.

Our team did a project in 2014 entitled, “Project Go Baby Go.” We transformed a battery-powered car into a car a preschool boy with cerebral palsy could drive on his own. This car enabled him to interact with his classmates. As a result of this project, he was able to be

more independent at home and at school. It also helped to teach this young boy fine motor skills, which he used expertly after receiving his joystick powered wheelchair.

Team F.R.E.D. is also involved with curriculum development in our school. Currently, the team has helped launch two College-In-The-High-School classes. Students that take engineering and drafting classes receive college credit from Itasca Community College. These opportunities would be difficult to accomplish without the collaboration of the colleges and the F.R.E.D. team. Along with this curriculum development, Team F.R.E.D. has received more than \$240,000 in grant money that has been used to add new technology to Warroad High School. This equipment includes: a CNC plasma cutter, a CNC mill, a large format printer, a vinyl cutter, and two 3-D printers. All of these machines are being used on a daily basis by students in the Fabrication Lab, or as it is referred to by most, the FabLab. Warroad High School now offers a course dedicated to teaching students how to use this technology. The FabLab class increases the understanding of fabrication and STEM and how it can be used to improve the technological literacy of all students. We also have an elective class designed for our robotics team. This class is for anyone that has an interest in robotics or would like to gain more knowledge about FIRST and STEM.

Team 2883's members believe that the true meaning of FIRST is to have the ability to create their own future. We have shown the true meaning of FIRST through impacting the lives of our members, our community, and our school. Our team has had the opportunity to take part in the FIRST Robotics competitions because of contributions from local businesses. The team is sponsored by Marvin Windows and Doors, and has been for nine years. Polaris, a company in a neighboring town, has also been another major sponsor of our team for the past four years. Due to the contributions of these donors, our team has been able to excel and be thoroughly competitive while keeping our small community involved and excited about robotics. Since the

inception of Team 2883, we have been able to impact the lives of hundreds of people, and given many students opportunities that they could've only dreamed of. However, this is not the end for the F.R.E.D. robotics team. We are constantly coming up with new ways to introduce people of all ages to FIRST, and encourage them to become more involved in the STEM community.