

## ***FIRST* Impact Award - Team 8298**

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| <b>2024 - Team 8298</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>Team Number</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <b>8298</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>Team Nickname</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Mighty Morphing Banana Slugs                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Team Location</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Luverne, MN - USA                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <p><b>Describe the impact of the <i>FIRST</i> 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 <i>FIRST</i> programs as mentors/sponsors.</b></p>                                                                                                                                                                                                                                 |
| <p>We are the flagship team of Luverne Robotics, which has grown to become the 2nd largest extra-curricular in our district. We feel that FIRST is about so much more than building a robot – providing a sense of community and opportunities to explore skills and interact with people they otherwise may not. We have a 100% graduation rate; 67% of team graduates and 58% of current members pursuing STEM fields. 66% of our team serve as mentors for other teams and/or volunteers at FIRST events.</p>      |
| <p><b>Describe your community along with how your team addresses its unique opportunities and circumstances.</b></p>                                                                                                                                                                                                                                                                                                                                                                                                  |
| <p>Luverne, MN is a rural, conservative, and largely agricultural community with a population of 4,934. While our community is generally supportive of our robotics program, the lack of “big business” has proved challenging when it comes to securing large sponsorships and a diverse pool of potential mentors. Located 12 miles from both the South Dakota and Iowa state lines, we are given a unique opportunity to easily spread our outreach messages and expand FIRST programs beyond our borders.</p>     |
| <p><b>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?</b></p>                                                                                                                                                                                                                                                                                                    |
| <p>We divide our outreach efforts into 3 distinct paths: GEARS—creating STEM summer camps and visiting 4th-8th grade classrooms to discuss STEM topics, which has grown our program participation by 500% this year, COGS—demonstrating our bots and spreading the word at community events, other schools, and partnering with other extracurriculars like Drama, FFA and FCCLA, and LOCTITE—meeting with representatives at the federal, state and local levels to increase funding and advance STEM education.</p> |
| <p><b>Please provide specific examples of how your team members act as role models within the FIRST community with emphasis on the past 3 years.</b></p>                                                                                                                                                                                                                                                                                                                                                              |
| <p>We fully embrace FIRST Values, and instill them in the teams we mentor as they advance through the program. Our team has mentored a total of 121 students across 5 FLL and 2 FTC teams and offered support to an additional 5 FLL and 3 FRC teams in our area. 27 of our team members have volunteered</p>                                                                                                                                                                                                         |

at 15 FIRST events, some of which may not have been able to be held had we not been able to provide enough volunteers. Last year, our team captain, Zoey, was a Dean's List Finalist for both FTC and FRC.

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

Our team has started 5 FLL teams and 4 FTC teams and supplied over \$24,000 in program funds. We actively mentor 5 FLL, 2 FTC, and 1 FRC team. We have assisted at least 10 teams with parts, business plans, and collaboration. We brought our FTC and FRC bots to 6 school districts to demonstrate FIRST programs, as well as to the South Dakota FLL qualifiers, the Washington Pavilion Science Center, Rock Country Fair and the Sioux Falls Air Show to get more kids and parents interested in FTC and FRC.

**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 developed a summer SUMObots and a Coding camp for grades 3-5; 64% of participants signed up for FLL and FTC this year. We presented to 450 elementary students on 3D Printing, Coding and Robotics and supplied the elementary school with 4 3D printers, and even participated in our town's Trunk-or-Treat. We hosted an 8th Grade STEM Day. Our members have used Robotics and STEM as topics for presentations at FCCLA and FFA events. We built a robot for Maurice's invention in Beauty and the Beast.

**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 have partnered with the Marine Veterans Association, EMBE, and the American Legion to grow FLL within a 50-mile radius by 70%. We have worked with SWWC to garner DEED funding for SW Minnesota. We are active members of SASA and have advocated for funding in South Dakota and Minnesota, as well as at the U.S. Capitol. We are actively working with CTE in Minnesota to have Robotics recognized as a CTE program. We have created internships with our sponsors Backdraft Engineering and Midwest Fire.

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

Our team contains a wide range of viewpoints, backgrounds, and personalities. As a team, we are 62% female, 29% LGBTQ+, and 38% ASD – and we are viewed as a “safe space” for many. Females account for 92% of our leadership roles. Our team started a DE&I club within our school this year. All of our members that are 18 or older have joined the Rainbow Alliance. We are working to get Robotics recognized as a CTE program to allow Perkins funds to be spent on Robotics in underrepresented areas.

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

As the last of our founding team members graduates this year, we have been considering our legacy and creating an active succession plan to consider our FLL and FTC teams Banana Slugs in training. We have developed a 5-year plan to continue the outreach initiatives we have started. We have created The Greater Siouxland STEAM Association, a 501c3, and are actively working to acquire a building and establish an endowment fund so we can ensure STEM education will have a future in SW Minnesota.

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

We know that sponsors and support come in different shapes and sizes. We have taken the time to create handouts that cater to specific industries and differing political viewpoints, curating details that speak to our target audience and meet face-to-face when we can. By doing this, we have increased our sponsor pool by 450% and funding by 238% over the past 3 years. Partnering with sponsors to provide interns and efforts to pass the DEED bill will help us continue to grow our sponsorship pool.

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

Unfortunately, our technical mentor pool has dwindled in recent years. We had 4 in-house mentors in 2022 and only 1 in 2023 as others moved away (though 2 still support us when they can, but their time availability is diminished). We are actively trying to build an area mentor network, turning to MMBS alumni and parents to volunteer time and provide adult coverage; we are working with them at all levels up to FRC and introducing them to FIRST culture by having them help with FLL and FTC.

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

We plan to expand our outreach through our new 401c3, The Greater Siouxland STEAM Association, providing access to FIRST programs to students of all ages across MN, IA and SD. We hoped to establish Computer Science as a graduation requirement and have spoken to the Dept. of Ed and legislators from 6 states. We are also working with the Dir. of CTE in MN to make Robotics a CTE course and are in the process of providing him with other state's standards and curricula so he can take the next steps.

**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.**

In addition to all of our work on outreach, we also feel the need to network within the robotics community. We participate in FUM – our lead mentor is on the board and we have a representative on the PDO Recommendation Committee. We are the only Minnesota team actively participating in SASA and had team representatives attend the national conference in Washington D.C. last summer. We aren't all business, though. MMBS is known for FUN (our favorite core value) and making lasting impressions.

**Judge Feedback**

**Who/When**

**Feedback**

Mar 02,  
2024  
02:19:29  
PM EST

**As we continue our efforts to expand access to FIRST and STEM programs in our neck of the woods, what other programs and/or resources do you recommend we look into to encourage interest in STEM?**

**An area the team has an opportunity to improve.**

**Something that really impressed the judges.**

**Essay**

We are the Mighty Morphing Banana Slugs (MMBS), FRC 8298, from Luverne, MN. We are in our 5th Season of FRC and feel that this year's theme "Crescendo" fits our team as well. Each year, we learn more, expand our outreach and become more and more known throughout the FIRST Community. As our final founding members graduate this year, we hope to aim high and leave a legacy for future Banana Slugs. Our team is currently comprised of 31 student team members. Two of us, Alex and Zoey, both seniors, are in their 9th year of FIRST programs. Seven of us are new to FIRST this year. Despite the limited diversity of our school and community, we pride ourselves on our inclusivity and how many of our members see Robotics as a "safe space" within the school. We are 62% female, 29% LGBTQ+ and 38% neurodiverse. Many of our leadership roles are female-led, including our team captain, lead builder, lead CAD designer, 60% of our Drive Team and the student mentors that oversee our 4 FLL teams. Our head coach, Aaron Perkins, runs the entire Luverne Robotics program (75 students and 8 teams strong!) all 12 months of the year, helping in all aspects of the program as much as he can. Kelly, our newest mentor, was brought into the team this year to help us focus more on the business aspects of the program and help us streamline our organization. We have 4 other mentors that serve more as consultants due to their limited availability with focuses on programming, AutoCAD, and mental well-being. The Mighty Morphing Banana Slugs' mission is to inspire those around us to be involved and interested in science and technology through engaging mentor-led experiences and programs that foster growth in knowledge, coopertition and gracious professionalism. We believe that computer science and technology can and should be used to make the world a better place for all who currently live in it and for those who will. When our team started 5 seasons ago, we noticed the lack of STEM-based programs in our region of Minnesota and that few of our students were exposed to robotics, coding and computer science. As a result, we created the mission so that students in neighboring towns and states can reap the benefits of FIRST programs. We have homed in on three components to help us do just that, which has turned into our Team Motto: Mobilizing Minds, energizing Futures: GEARS, COGS, and LOCTITE Power Our Path to Progress! While these three components are always an important part of any robot build, for us, they mean so much more. GEARS stands for Generating & Educating Active Robotics Successors. This is how we establish a lasting legacy of robotics and STEM education within our school ensure that MMBS will be around for years to come. We started mentoring our middle school FLL team 4 years ago and over time, we assumed full responsibility for the FLL program in Luverne. We knew we had to start getting kids interested earlier, so we started going down to the elementary school and teaching mini courses to 3rd, 4th and 5th graders on 3D Printing, TinkerCAD, Coding and Robotics. Over the past three years, we have successfully impacted 450 students through this program. Last winter, we offered a SUMObots class through Community Ed, where students used recycled materials to create robots and then we taught the kids to wire them with motors and controllers and engaged them in friendly competition. This summer, we offered another Community Ed class, teaching Scratch, Block and HTML to 3rd- 5th graders. The impact has been profound: 64% of SUMObot participants and 62% of coding students joined either an FLL or FTC team this year. At the middle school level, we organized 8th-grade STEM Days, immersing students in the world of robotics and STEM education. Due to the popularity of these events, student participation in FLL has surged by 380%, while FTC participation has increased by 266% and Luverne Robotics now includes 4 FLL teams and 3 FTC teams. COGS stands for Community Outreach, Growth & Support; this is how we foster community, state and regional recognition of robotics, collaborate with Industry Leaders and support robotics in the surrounding areas. To gain both exposure and funding in our community, we participate in local craft shows, offering items that we build using our shop's 3D printers, CNC and laser engravers, like signs, earrings and cribbage boards. Through these exhibitions, we have raised awareness about Luverne Robotics to at least 600 members of our community. We also hosted a booth at the Rock County Fair, where we brought our bots and allowed fairgoers to drive the bots and try a challenge, reaching at least another 650 people. For further exposure

and community outreach, we brought our bots to Rock County Opportunities, an organization that teaches individuals with disabilities valuable employment skills, to provide enrichment activities to 30 clients, letting them drive the bots around the common area. We've also allowed community members to drive our robots at school open houses and community nights, reaching another 40 people. MMBS has also fostered connections with other student organizations. Those of us that participate in FCCLA presented on the advantages of STEM education throughout the country. We have collaborated with FFA to bridge the worlds of farming and robotics. We have also teamed up with the performing arts, providing merchandise and set pieces, including a robot prominently featured in our school's production of Beauty and the Beast. Outside of our immediate community, we have also participated in STEM Day at the Minnesota State Fair for the past two summers, sharing the benefits of FIRST programs with the general public as well as state and federal legislators. We partner with EMBE in Sioux Falls to expand the FIRST programs in South Dakota. Through this partnership have demonstrated our FTC and FRC bots to participants at SD FLL Qualifiers, showing 1100 FLL participants what they can do if they continue in the program. This past summer, MMBS and EMBE had booths and demonstrations at the Sioux Falls Air Show, exposing 3000 people to FIRST. In an effort to expand the number of FIRST teams in Southwest Minnesota, we've conducted demonstrations at SMSU, Edgerton, and Ellsworth. We've actively engaged with 8 other high schools in the vicinity, igniting the establishment of new FIRST teams. This has yielded a 43% increase in FLL teams, a 30% surge in FTC participation, and the formation of one additional FRC team within a 50-mile radius. Our commitment to fostering FIRST programs continues to make a significant difference. As FIRST programs continue to grow, we have helped fill the void in volunteers at FIRST events. We have had 87% of our team volunteer at 15 events across the region since 2021. We also have started an initiative with PRUSA, Unity, and Epic to create a curriculum that can be used by students outside of robotics to learn computer science skills. Our hope is to create a free computer science program for underserved communities. LOCTITE stands for Lobbying Organizations to Compel Technology Integration Towards Education. In other words, it is our advocacy program to promote, fund and advance STEM education at the Local, State and National levels by meeting with lawmakers and government organizations that play a direct role in ensuring the continued advancement of STEM initiatives. We began locally by presenting to our school board and city council to portray the benefits of FIRST. We see a need to not only promote STEM locally but want to affect real change for all students in Minnesota – as we are ranked 50th in the nation for Computer Science – and across the Upper Midwest. We've engaged in discussions with five different state legislators, including Erin Murphy and Carla Nelson, regarding the DEED Bill. This bill secured \$3 million for STEAM internships and \$1 million for robotics programs. Now that the bill has passed, our focus is on collaborating with SWWC to implement DEED in Southwest Minnesota. As a team, we are actively working alongside Joseph Graves, the SD Secretary of Education, and Emily Saed, the director of the MN STEM Ecosystem, to advocate for robotics as a CTE class that could be offered in schools. Another significant initiative we've started is to advocate for mandatory computer science for all. We have contacted 746 legislators in 7 states to promote the concept of a CS graduation requirement. We've also worked to champion STEM goals at the federal level. Advocating through SASA, our team has actively supported various STEM-based legislation, including the CHIPS act and ESSA, Title IV parts A and B. Additionally, we've worked towards increased Perkins funding. We are only just getting started on our journey of STEM expansion. We recently established non-profit organization, The Greater Siouxland STEAM Association, which will enable us to financially support and sustain our existing teams and those within the surrounding areas. Collaborating with sponsors, we've initiated an endowment aimed at preserving all teams in Southwestern Minnesota and South Dakota. Furthermore, we've actively engaged with the city council and mayor to secure a building to serve as homebase for our Robotics teams and the nonprofit and be a multifunctional space that serves as a STEAM learning center and community hub. This strategic

approach ensures ongoing support for our robotics teams and paves the way for expanding FIRST teams across the region. Over the first 5 years of our slug-tastic journey, through our initiatives of GEARS, COGS and LOCTITE, we have worked tirelessly to create opportunities for STEM and FIRST at many different levels, forging a “slimy” path for our Slug-cessors locally, state-wide, regionally, and across the nation.;

