

## Chairman's Award - Team 1306

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2020 - Team 1306

### Team Number

1306

### Team Name, Corporate/University Sponsors

Isthmus Engr. & Mfg./Plastic Ingenuity/Clack Corp/Genesis Hair/EVCO Plastics/Roche-Nimblegen/Amtelco/Glass Nickel Pizza/Findorff/Tormach&BadgerBOTS Robotics Corporation

### Briefly describe the impact of the *FIRST* program on team participants within the last five years.

The FIRST program allows students to tackle industry-level programming and engineering tasks in preparation for competitions, while also gaining valuable technical skills applicable to STEM careers. To obtain and manage funding for parts, members on our student-led team develop financial and communication skills that have launched students into their careers: our alumni have used these technical and soft skills to attain careers at cutting-edge companies such as Google, Microsoft, and PayPal.

### Describe the impact of the *FIRST* program on your community within the last five years.

Students on Team 1306 utilize our community build-space and sponsor relations to spread STEM: making appearances on local news broadcasts during community events such as our annual test-run event at Isthmus Engineering's facility. Additionally, BadgerBOTS resources are shared with the Dane County community, making equipment accessible to all. To further spread STEM education, students on our team organized a traveling LEGO outreach program to give students hands-on experience with NXT robots.

### Describe the team's methods for spreading the *FIRST* message in ways that are effective, scalable, sustainable, and creative.

Outreach initiatives such as our Battlebots competition was viewed by approximately 200 people last year, building a platform to share robotics with students. 1306 also encourages community involvement, coordinating efforts such as starting two clubs at a local school, organizing a state-wide programming competition, and creating an outreach bot to showcase the FIRST program to the community. Our alumni continue to spread FIRST's message after graduating by starting and mentoring FIRST teams.

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

As a student-led, student-run team, each meeting is planned, executed and documented entirely by students. Through this collaborative work-space, experienced students demonstrate leadership skills to newer members. For the past 14 years, our team has helped younger students at FLL tournaments, volunteering hundreds of person hours each year. Additionally, 1306 assisted rookie team 6574 (Ferradermis) in 2017, allowing them to visit our work-space and learn fundraising and management strategies.

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

Our regularly updated blog contains tips on time management and competition strategies, providing new teams with resources to get started. Additionally, to assist other FRC teams, 1306 developed a scouting application to serve as a template for teams without a system for scouting. Last year, 1306 introduced the app to over 90 teams at regional competitions. On an international scale, 1306 assisted Ukrainian Team 7851 (NueraBlink) in their rookie year by offering them competition strategies.

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

Since 2015, the BadgerBOTS Robotics Corporation (BRC) has impacted over 170 FLL teams at our Badgerland-Wolfpack regional. Additionally, the BRC's summer camps build on the interests of 7-13 year olds by providing fun and engaging activities. Our team's robot demonstrations at local elementary and middle schools encourage students to join or create a FIRST team, while our participation in the annual club fair at a local high school has led to the creation of a student-run STEM Club.

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

Our team's shared learning space is open to all levels of FIRST, allowing younger students to take interest in older student's work. Through this center, students on Team 1306 mentor FLL teams, forming long-lasting bonds. At the Badgerland-Wolfpack FLL tournament, our team demonstrates our competition robot, building interest among aspiring students. In combination with one another, these efforts motivate students to stay in the FIRST program, creating a strong community to learn and grow.

**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)**

Last season, our team helped two rookie teams, 7596 (Trojan Horses) and 7627 (14 Rohan), at a regional competition by constructing parts of their robot. Additionally, 1306 has hosted the Milwaukee Chairman's Exchange for the past 2 years, providing guidance to teams submitting for Chairman's. Both these efforts contributed to us winning the Gracious Professionalism award. 1306 also hosts events, such as our Pi Day fundraiser, to raise money for FLL and FTC teams to continue in the FIRST program.

**Describe your Corporate/University Sponsors**

BadgerBOTS Team 1306 has 16 sponsors that are diverse in their services. Sponsors such as Slack and Solidworks provide communication and design software that helps 1306 with daily operations. Other long-term sponsors include Isthmus Engineering and Manufacturing, EVCO plastics, and Github. Non-corporate sponsors such as UW Madison enables our team to attend STEM and Science Nights on their campus, while the Wisconsin Department of Public Instruction connects our team with a larger community.

**Describe the strength of your partnership with your sponsors within the last five years.**

On Team 1306, close bonds are formed between students and sponsors each year, opening opportunities for both parties to become more involved in the STEM community. As a result, the majority of our sponsors return each year. Isthmus Engineering, a long-time sponsor, provides students with valuable advice and resources, such as allowing 1306 host a pre-season event at their facility. These meaningful connections have led to alumni working for company sponsors, advancing the STEM community.

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

FIRST is a non-profit organization that strives to provide global STEM opportunities to the next generation. The FIRST Program allows students to experience hands-on engineering in a competitive, fun environment. Additionally, FIRST provides a platform for students to expand on their leadership and soft skills when taking initiative of small and large-scale projects. As a whole, these experiences allow students of all ages to explore potential interests, preparing them for future careers.

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

Upon returning from the FIRST advocacy event in Washington DC, our team was inspired to organize a similar initiative in our community to recognize and raise money for STEM programs. To make this happen, 1306 is working with three other FRC teams and two FTC teams to organize an annual event at our capitol. These efforts contributed to the Department of Public Instruction (DPI) grant doubling, making STEM opportunities more accessible to citizens of Wisconsin.

**For FRC teams older than 5 years, briefly describe your team's broader impact from its inception.**

With support from our 501(c)(3) nonprofit organization, BadgerBOTS Team 1306 is able to provide STEM opportunities and scholarships for students from 8 schools in the greater Madison area. Special efforts have also been made to spread STEM education to minorities in our community through our partnership with the Girl Scouts and Centro Hispano. Additionally, our team shows that FIRST's impact goes beyond robots by hosting events, such as food and blood drives, to help the entire community.

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

Max Roquitte

## Essay

Sixteen years ago, Ben Senson planted the seed that was BadgerBOTS Team 1306, filling the void of STEM education for young adults. Starting with just a few members, this seed would eventually grow into a flourishing tree, forming a foundation for the future. Even through changes, our team has maintained the same five core values that we began our mission with. We value LEARNING, as it provides students with a foundation, giving them the tools for success. As students learn, they GROW their knowledge base, discovering their interests and talents along the way. Once endowed with enough information, students bring their ideas to life by CREATING, and spread knowledge by TEACHING. Throughout the process, students develop a passion for STEM and make efforts to INSPIRE the community.

Like the roots of a tree, LEARNING is essential to the success of our student-led, student-run team. After becoming a 501(c)(3) non-profit and creating the BadgerBOTS Robotics Corporation (BRC) in 2011, 1306 formed the BadgerBOTS Education Center, a space that nurtures STEM learning for Dane County residents. Through this structure, students learn and share their knowledge with others, demonstrating our student-led, student-run philosophy. Because students are interested in a wide range of activities, they end up pursuing a magnitude of endeavours ranging from programming to art, resulting in students experimenting in new fields of interest. From this atmosphere, many students on Team 1306 pursue activities outside their primary focus. For instance, you'll find programmers on our team involving themselves in fundraising, while outreach coordinators experiment with CAD. This crossover allows our students to branch out and diversify their experiences, gaining knowledge in multiple areas of interest. Annual team bonding events, such as our picnics and pre-season competitions, connect students with fellow team members and integrate them into our community. These bonds are long-lasting and work to create a welcoming atmosphere which allows students to confidently expand on their interests. These experiences prove to be beneficial for years to come as students transition to adulthood.

After taking root in team culture, students mature, reaching their branches towards the sun. By doing this, they GROW towards a bright, excellent future. To fuel this growth, we operate year-round, keeping our students engaged during the off-season. Annual events, such as our Battlebots tournament, band students into groups, allowing them to work together to create and compete with a small robot. Through past summer projects, our team conducted a mock build season, and was able to get a grant from NASA to construct a near-space weather balloon. These initiatives offer an opportunity for the growth of both academic and communication skills. Challenges that push problem solving expands a student's critical thinking while working in a team builds valuable interpersonal skills. Our alumni stay in contact with Team 1306's sponsors and use these connections as a gateway into the workforce. Many alumni have secured positions at innovative companies such as Google, Microsoft, Isthmus Engineering, and Redfin, putting the technical and soft-skills gained from BadgerBOTS to work. These experiences empower students on Team 1306 to develop a sense of their strengths and limits, ultimately allowing them to grow towards a better version of themselves.

As a tree grows, it's able to produce fruit for others to enjoy. Similarly, after Team 1306 students learn and grow, they have the opportunity to CREATE their own fruits. Drawing from years of experience as well as a passion to assist peers and the community, our team's efforts crystallized in the formation of numerous FIRST teams. 1306 also worked closely with our parent organization, the BadgerBOTS Robotics Corporation, to create 170 FLL teams and 11 FTC teams. In fact, our education center is a base for 5 of these FTC teams, and provides a space for FLL and FLL Jr teams to practice. To assist these teams, 1306 organizes events that sustains STEM education in our community. Our annual Pi Day celebration holds silent auctions and contests where the local community can watch robot demos while eating some pie! The money raised from these auctions goes towards supporting other FIRST teams, allowing STEM opportunities in our community to be accessible to all. Furthermore, our team is working with the community to increase accessibility in other pursuits: we have been in contact with several community members to design an off-road hiking wheelchair. 1306 also designed a scouting app for teams to use at competitions. This app simplifies the scouting process by automatically organizing data on our website, which serves as a starting point for FRC teams that lack an adequate scouting system. Since this app's release, we've distributed it over 90 FRC teams, allowing them to use our creations to advance their strategy. With the continuous expansion of our team, students will continue to bring new, innovative ideas into fruition, spreading our mission far and wide.

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A healthy tree has strong branches with green leaves. When sunlight beams on the tree, its leaves cast shadows onto the forest floor, providing a canopy of shade for the wildlife below. Likewise, our team provides shelter and guidance by TEACHING other students. As our first step in assisting other FIRST teams, 1306 reached out to FRC Team 6574 (Ferradermis) and supplied them with a drive-train. Additionally, 1306 invited Ferradermis to our work-space and provided fundraising and competition tips to make their STEM programs more sustainable. Last season, 1306 assisted rookie teams 7596 (Trojan Horses) and 7627 (14 Rohan) at regional competitions by building parts of their robot which allowed them to compete. Our team has hosted the Chairman's Exchange for the past two years at these regional competitions, allowing new and experienced teams to practice and get feedback on their presentations. FIRST recognized these efforts by presenting the Gracious Professionalism award to us at the 2019 Seven Rivers regional competition. Through close work with our parent organization, students on Team 1306 have developed and taught STEM courses, reaching over 1,000 younger students at our summer camps. These courses teach a wide variety of topics ranging from programming and mechanics to painting and literature. This combination of education opportunities that we provide equips alumni with a variety of skills. Alumni use these skills at universities by becoming teacher assistants and mentoring other FIRST teams. For instance, Ben Shraego, an alumni from 2004, now teaches STEM classes at a local high school and runs a large engineering club, displaying the cycle of student to teacher.

A well developed tree intertwines its roots with others, stimulating surrounding trees to flourish. Like these roots, students on Team 1306 participate in various outreach events; they INSPIRE the local and national community to become involved in STEM programs. Our team takes initiative to keep students in the FIRST program by hosting the annual FLL Badgerland-Wolfpack Regional tournament where we showcase our outreach robot to younger students. Our team has hosted this tournament for the past 15 years, showcasing our work to nearly 5,000 people. 1306's participation in the 2016 Entrepreneurial Conference, 2018/2020 Madison Maker Faire, and 2018/2019 Discovery Expo allowed us to display our outreach robot to thousands of people. In the past years, students on our team also created the BadgerBOTS on Wheels Program to inspire younger students to get involved in the FIRST program. This outreach program gives students hands-on experiences with LEGO NXT robots. To open our doors to underrepresented communities, 1306 organized STEM events with Girl Scout Brownie Troop 8335 and Centro Hispano, a community center which aims to provide the tools and support to help Hispanic members of the community achieve their goals. Such efforts showcase our team's desire to spark an interest among underrepresented demographics in STEM fields. At a government level, 1306 partook in the 2019 FIRST advocacy event in Washington D.C. to push for more funding for STEM education. Upon returning home, our students were impelled to push for change in our local government. Since then, our team has organized efforts with Representative Mandela Barnes to discuss how to increase STEM awareness in Wisconsin. Our team has also invited three other FRC teams and two FTC teams to work with us to achieve our goal of expanding STEM education in our community. These efforts have resulted in the doubling of funding we receive from one of our biggest sponsors, The Wisconsin Department of Public Instruction (DPI). By increasing their DPI grants, STEM activities are able to receive more funding and become more accessible to residents in our community.

From absorbing nutrients into our body of students to intertwining roots with other organizations, instilling a passion to inspire, BadgerBOTS Team 1306 is a flourishing tree that not only sustains itself, but also supports the growth of other trees. 1306 teaches students technical and soft-skills through our student-led, student-run root system, allowing them to grow and create their ideas. Our outreach program extends our roots further, ensuring that students of all ages have access to the same experience that we do. Through this cycle, a student starts in our root systems by learning and ends by inspiring. Just as we have done for the past 15 years, 1306 will continue to expand the reach of our roots, spreading STEM education at an exponential rate.