## Chairman's Award - Team 2202

### 2020 - Team 2202

### Team Number

2202

### Team Name, Corporate/University Sponsors


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

There are no units for quantifying the friendship, knowledge & support students find on BEAST. 2202 is a hub for all students interested in STEM education, business, analytics & construction. We are an inclusive team that supports LGBTQ+ & gender diversity with 15 girls (22%) and 1 non-binary member. 2202 members have opportunities to work with excellent mentors on the team and in internship programs at sponsor companies. We build more than robots; we build skills and bonds for life.

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

Our recognizable team brand establishes FIRST as a core part of our community. Since starting our FIRST STEM camp 5 years ago, we are approached by people wanting to get involved. It is known as a fun, educational way to get kids participating early. This drives interest in FLL & FTC—the camp yields a 24% conversion rate to FIRST programs. Due to our impact, our community seeks out opportunities to engage and has learned to embrace the leadership, teamwork & critical thinking skills of STEM.

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

From demoing our robot at Summerfest to speaking on the 2019 FIRST FRC Robot Reveal Livestream, 2202 spreads the message of FIRST. We reach 12,000+ people each year in the 4th of July Parade. We show visitors at Discovery World Robotics Week, the Maker Faire, & Holiday Market what FIRST is all about. We go to local elementary schools on High Interest Days to inspire students to join FLL; the impact shows, over the past 5 years there's been a 500% increase in district FLL teams.

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

2202 leads workshops at FRC Training Days, volunteers at FLL, FTC & FRC competitions, & runs FRC multi-team practice days. We are going Green with solar-powered batteries for shop tools, reducing single use plastic consumption & encouraging E-Cycling. We are developing grants to inspire other teams to become more sustainable. We lead by example to reduce stigma around mental health by participating in the Out of the Darkness Walk & hosting a Talk Saves Lives event.
Describe the team's initiatives to help start or form other FRC teams

Our team has started 5188, 4095 and 6223 directly & supports the creation of other FRC teams through knowledge sharing. Our lead mentor has offered our best advice about creating a team, growing, attracting key sponsors, & working with school administrations o many schools in our area. We support rookie teams like 6807 with our multi-team practice day to ensure that these teams are sustainable. Our long term plans include starting an FRC team in our neighboring district of Wauwatosa.

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

Since 2017, we've started FTC teams 13201, 16460 & 16310 and in 2019 we started 7 new FLL teams. We started 16 FLL teams total since 2014 through spreading FIRST in our community and supporting these teams with continued assistance. We visit elementary & middle school High Interest Day events & hold an annual summer STEM camp to inspire younger students to join FIRST, keeping them committed & engaged. A BEAST Mentor started a FLL Jr team for his son & will progress through the program.

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

We introduce FLL students to FTC & FRC by bringing them to the shop to see both teams in action, while helping them with their projects & robots. We organize an annual FLL Scrimmage for teams to practice their presentations, test their robots, & experience competition. FLL coaches were inspired to transition & start FTC teams w/ BEAST's mentorship. We ensure FTC sustainability by assisting with grant writing, fundraising suggestions, Sponsors (ABB & GE) & volunteering at FTC qualifiers.

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)

We dedicated over 2700+ hours to mentor FLL & FTC in the past two seasons. We run an FLL Scrimmage to prepare teams for competition. We assist teams with grant writing, 3D printed parts & CAD designs. Our mentors offer their knowledge for the FLL teams to present their projects for expert feedback. We secured dedicated FTC work space in our school, mentor FTC, machine parts & build carts for their robot transportation. 2202 alumni continue to mentor other teams after graduation.

Describe your Corporate/University Sponsors

Our sponsors comprise 55% of our income. Large sponsors include national & local companies: GE, ABB, Milwaukee Tool, Lockheed Martin, CBRE|ESI, MSOE, Signicast, Trace-A-Matic & more. We're proud of maintaining a diversified portfolio of 16 sponsors, individual private donations & the WI DPI Robotics League Participation Grant. We represented FIRST demoing our robot for 300+ employees at our new Gold Level sponsor JCI's Happy New Year MKE event celebrating donations including those to FIRST.

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

We build mutually beneficial relationships w/ sponsors. We communicate regularly through Build Season emails & videos & deliver handmade thank you gifts each year. We also attract mentors from our sponsors. During a facility tour, employees at Sentry were so impressed by our students that they began mentoring us & machining custom parts. Another sponsor's employee worked w/ us to start an FLL team for his kids. Our members intern or work for sponsor companies & attend sponsor Universities.

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

FIRST hosts an innovative, robotics challenge each year to teach students of all ages about STEM principles, collaboration & leadership. Dean Kamen created the program to motivate students to get involved in FIRST & let them know everyone can Go Pro with STEM. FIRST provides a sense of family for mentors & students. Students collaborate with professionals in their field to build & program robots, manage teams as businesses, compete with Gracious Professionalism & motivate other teams.

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

We sent 9 people to the 2019 FIRST National Advocacy Conference in Washington D.C. to connect w/ our state legislators about STEM. We founded the WI FIRST Advocacy Committee along w/ nearby teams. Our goal is to increase support & funding for FIRST teams & increase STEM industry in WI. We meet w/ school administrators, the Elmbrook school board, State Sen. Kooyenga & Rep. Vining. To share our team's sustainability initiative, we'll petition FIRST to create a new Sustainability Award.

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

200+ students participate in FIRST Robotics in our district in 2020 due to our presence & ongoing outreach. In 2006, 2202 began at Brookfield East HS as B'East, the 1st FIRST team in our district. We have steadily grown our team members, mentors & united our district by combining w/ Brookfield Central HS & rebranding as BEAST Robotics. 2202's exemplary FIRST robotics culture creates a STEM movement that makes FIRST accessible to every student in the district and continues growing each year.
Dustin Laufenberg

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

Mission
To spread FIRST to every student in our district, so they learn STEM skills, leadership & teamwork in an engaging environment while making a positive impact on our community & having fun!

Intro
2202 embodies the message of FIRST in our actions, initiatives, outreach, & service by spreading FIRST skills & benefits to every student in our district, advocating for positive change at multiple levels of society & government, & honoring the core identity we share, created from the students of our team over the years. Every season, we work diligently to sustain that growth through creating a recognizable brand in our community.

Identity
2202 began at Brookfield East as B’East Robotics. In 2013, we opened enrollment to Brookfield Central & became BEAST: Building Education & Awareness for Science & Technology. Our schools are fierce rivals in sports & academics but on BEAST we are united.

2202 has a unique sense of belonging & community. Our large team is allocated into groups to keep students actively engaged. At Saturday lunches, the whole team discusses projects & robot progress. Each year, students elect their peers to be subteam leads. During build season students co-lead projects with mentors to make & fabricate parts. Student leads & mentors collaborate across subteams.

2202 has 28 mentors including FIRST alumni & sponsor employees. We nurture long term relationships with sponsors, who provide funding & custom machined parts in addition to mentorship. In return, we spread awareness about our sponsors in our school & community. Several team members intern & alumni work at sponsor companies.

Mental Health
Reducing the stigma around mental health is important to us after losing a team founder to suicide. Students are able to talk about personal struggles & use BEAST as a support network. We work with the American Foundation for Suicide Prevention (AFSP) to host Talk Saves Lives—an event to educate our members about mental health, depression & suicide prevention. 52 members, family & friends walked in the AFSP 2019 Out of the Darkness Walk & raised over $2,500 to help reduce the suicide rate 20% by 2025.

Service
2202 values serving our community. Our 3rd annual Goodwill e-cycle drive brought our e-junk collection total to 4200 lbs. Goodwill teaches disadvantaged people hands-on assembly skills by disassembling donations to recycle. We bought STEM related toys for Toys for Tots; FTC 13201 then hosted a toy drive with our guidance. We stocked 1500 food boxes at Hunger Task Force, collected supplies for the Guest House & played volleyball against other clubs & teams to support the Elmbrook Rotary Club’s annual Spikes for Tykes fundraiser.

Inspiration
STEM Camp
2202 students volunteered 4000+ hours to run our annual FIRST summer STEM camp over the last 5 years for 151 campers. For 3 days, campers build & program LEGO Mindstorm robots & do STEM experiments. This program is an introduction to FIRST; students grades 4-6 see demos of FLL, FTC & our FRC robots. Our camp effectively boosts interest in FIRST in our district: 25 campers are now members of 10 FLL teams, 3 FTC teams, & 6 have joined FRC 2202. We have documented a 24% conversion rate from participation in STEM camp to participation in FIRST.

To empower other FRC teams to create their own camps, we launched a website with instructions, checklists, activity plans & schedules available for free use. Teams can utilize our documents to easily run a camp & spread FIRST to drive FLL enrollment in their districts. The site has 679 lifetime pageviews from 232 unique visitors.

Mentorship
Over the past 2 seasons, 2202 logged 2700+ documented hours mentoring & supporting FLL & FTC growth in our district.

FLL & FLL Jr.
2202 Started: 3 FLL teams. Assisted: 5 FLL Jr. teams & 22 FLL teams. Mentored: 12 FLL teams. To support local teams, 2202 hosts an annual FLL Scrimmage. Teams test their robots, present their projects & participate in a Core Values Challenge with FLL judges. We dedicate 170 hours annually running the event. Multiple FLL teams advanced to State in 2019, with one team qualifying for Worlds & winning 1st place Project Research Award.
Beyond the Scrimmage, we mentor FLL teams, 3D-print parts for their projects, & help them with CAD. In past years, we have hosted a mock competition for 6 Jr. FLL & FLL teams we started at a parochial school. Team member Daniel ran a camp teaching FLL students how to code. We continue to do demonstrations at all 5 local elementary schools' High Interest Days & all our middle schools to spread the word about FIRST to potential participants. Programming Lead Xander runs a summer camp to teach Java for students entering FIRST programs.

FTC
In 2017, we achieved a long-standing goal of starting FTC. We have grown to 3 FTC teams in our district: 13201, 16310 & 16460. 2202 secured a dedicated classroom for the FTC teams to use for meeting & practicing. Many BEAST members mentor the FTC teams, machine parts in the shop & help them secure money through grant & fundraising opportunities. 2202 volunteers at FTC qualifiers to support these teams. All 3 FTC teams advanced to State in 2020.

Outreach
At Discovery World’s Robotics Week, we demo our robots for hundreds of students as ambassadors of FIRST. We are a favorite in the community 4th of July Parade, where we impact 12,000+ people each year. We demo our robot at the Holiday Christmas Market & in front of thousands of people at Summerfest.

FRC Support
We support FRC teams by volunteering at FRC Rock River Off-Season competition & bringing our robot to Summerfest & Maker Faire’s RoboFest competition. For over 5 years, 2202 has presented at the WI FRC Training Day, teaching classes about the KOP, robot design/building, fundraising/marketing, & programming.

BEAST started FRC teams 5188, 4095 & 6223 & has mentored teams 1747, 171 & 4247. We support the continuous improvement of all FRC teams year-round as a founding member of the Waukesha County Robotics Coalition, with BEAST member Dustin serving as the Business Manager. We support FRC teams in our community by hosting a Multi Team Practice Day where we set up a practice field for robots & drive teams to practice together. In 2018, an inspector conducted pre-inspections. In 2019, we practiced, & strategized with 537, 1732, 5148, 2506, & 269. Team 269 was on Spring Break & didn’t have access to their shop, so they came back the following weekend to share our workshop before the regional.

Impact
School Partnerships
An ongoing goal of 2202 is a partnership to embed FIRST in our school curriculum. We regularly communicate with school administration to discuss shared goals. Our successes include the advocacy for & creation of a paid Robotics FTC & FRC Coach at our schools & we are involved in hiring new faculty with FIRST experience. Our team secured a dedicated FIRST space within the school for our shop & practice field. We partner with LAUNCH, a Center for Advanced Professional Studies program, & utilize their collaborative space for brainstorming each year.

We share our major accomplishments with the School Board by presenting at their locally televised meetings to demonstrate the benefits of FIRST programs. The Board presented us with a Certificate of Commendation in 2018 in recognition of our district-wide successes.

Government Relationships
2202 believes that government support is essential to sustaining & advancing STEM in our schools. State Senator Dale Kooypenga visited our shop & drove our robot. He presented our team with a Citation by the Assembly in 2014, recognizing our hard work & positive impact on our community. Our team inspired him to co-author Assembly Bill 564 in 2018, an expansion of the robotics participation grant bill. He attended our 2018 FLL Scrimmage where he saw the effects of the bill in action. We invited Rep. Robyn Vining to the 2019 FLL Scrimmage where she saw the full scope of 2202’s positive effects on our community.

We sent 9 BEAST members to the 2019 FIRST National Advocacy Conference to meet with our congresspeople on Capitol Hill about increasing the presence of FIRST & STEM in WI. Inspired by this event, we became a founding member of the WI FIRST Advocacy Committee in 2019. The goal is to grow the number of FIRST teams in Wisconsin by advocating for an increase in funding & support for FIRST. We are currently planning a “FIRST Day” at the state capitol where teams of all levels will meet with state representatives, demo robots & give a formal presentation to the Board of Education.

Sustainability
Inspired by the Teaser video for FIRST RISE & events in the world around us, we developed a stronger focus on environmental sustainability. Building on our existing E-cycle drive, our 2020 Sustainability Initiative is: only use refillable water bottles, use solar-powered batteries for our cordless tools, redistribute unused team apparel & create a FIRST Sustainability Award. We are offering a grant for FRC teams to become more “green.” Teams at the regionals we are attending can submit a form describing their top 3 environmental initiatives & what positive changes they could make with the grant. 2202 will be petitioning FIRST for the creation of a Sustainability Award.

Conclusion
We met the goals we set 5 years ago to establish a strong progression of FIRST programs in our district. We realize that
there is still room for growth. 2202 will continue to raise awareness for these programs to make FIRST available to every student in our district. We have made FIRST an integral part of our community. We are nurturing relationships with our elected officials that ensure support for FIRST. We are initiating a vital plan to incorporate sustainability within our own team & are inspiring other teams to join us. 2202 instills a culture of FIRST & STEM in the world around us, building a long-lasting program that will sustain innovation & collaboration for years to come.