

UNIVERSITY HIGH SCHOOL OF INDIANA



THE ROBOBLAZERS

2019 - 2020 FUNDRAISING PLAN

FUNDRAISING PLAN TABLE OF CONTENTS:

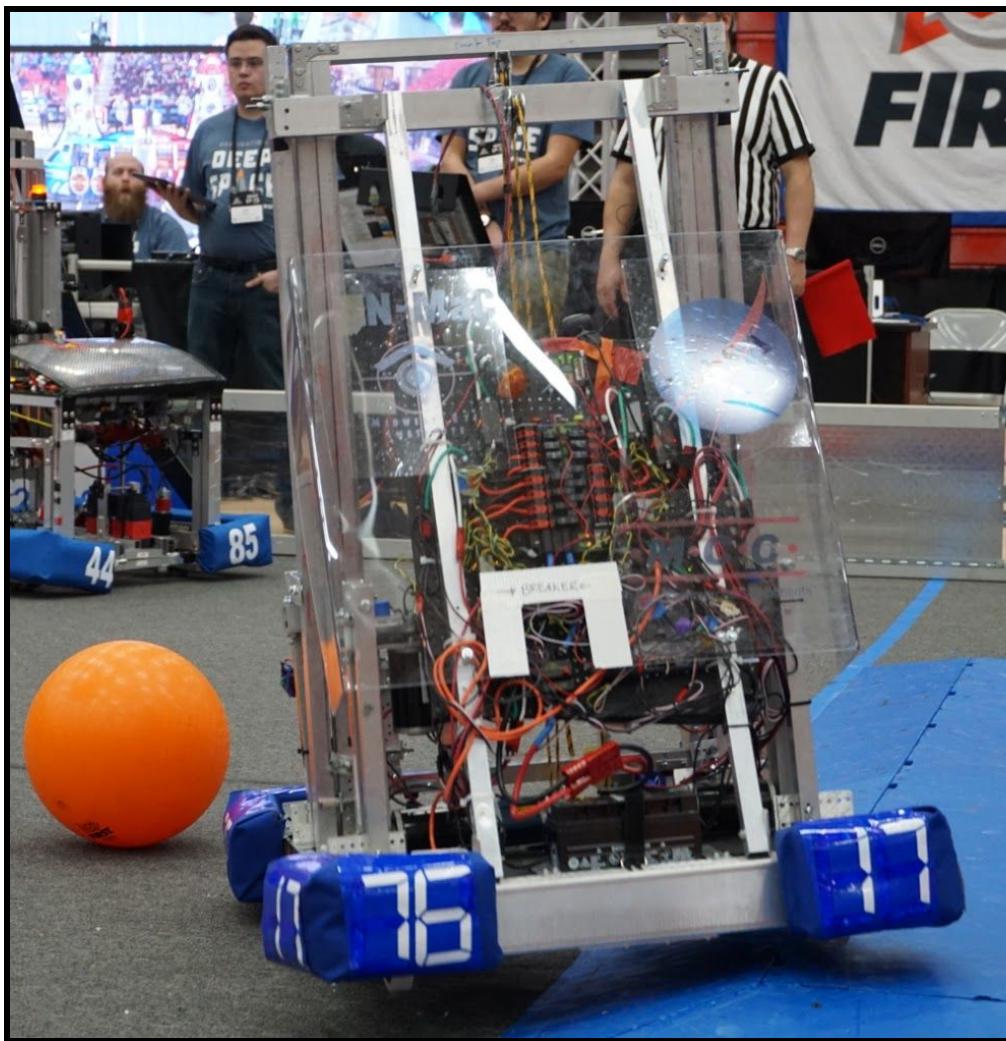
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About Us:

We are a second-year team competing in the FIRST Robotics Competition from University High School¹, a small, independent, coeducational college preparatory school located in the suburban city of Carmel, Indiana. Founded in 2000, the school now has over 300 students and 49 full and part-time faculty members with a 100 percent college placement rate for all students.

Our Robot: (2019 Season)



Our team is currently comprised of 15 students between the ages of 14 and 18, although we expect those numbers to grow during the coming season. In our first year, we received the Indiana State Rookie All-Star award, which allowed us to compete at the World Championship, where we were one of three rookie teams to win Rookie All-Star, edging out 39 other first-year teams from Taiwan, Canada, Switzerland, South Africa, and

¹ <https://www.universityhighschool.org/>

all around the US. We were also the second team in IndianaFIRST history to win the Rookie All-Star award at the international level.

The Rookie All-Star Award at World's:



The recipient of the Rookie All-Star Award is determined by a team of judges at each competition who interview members of our team to determine who is most worthy of receiving the award. Some factors that made our team and our story stand out to judges were our dedication, our work to promote STEM within the community both with and without a robotics focus, and our 100% student-driven team structure, which will be further explained in the Team Impact/Outreach and How Our Team is Unique sections.

Talking With Judges:



Our school is one hundred percent supportive of the team², allowing us to access to school vehicles, several materials and tools, and consistent classroom space. Our head of school visited us throughout the build season and came to support us at the state and international competitions. Additionally, our students are engaged, dedicated, passionate, and come to practice consistently, often committing over twenty hours a week to robotics.

Working on the Robot:



Although we have few mentors, they are specialized in mechanical and electrical engineering, which are key skills for excellent execution of a competition robot. Our student-driven team structure ensures that students deal directly with every aspect of the robot, such as the design, prototype, construction of the robot, and programming, while mentors simply help bring our ideas into fruition. More information on our mentors can be found in the Mentoring section.

For our second year, we are looking to continue our success through participating in several offseason events and continue to work with local middle and elementary schools to promote robotics and STEM education. For our second competition season, we are hoping to repeat our past success by qualifying for the state and possibly the international competitions. We know these goals are very ambitious but we know that we can achieve great things with your support.

² <https://www.universityhighschool.org/rookie-roboblazers-advance-to-state-competition/>

Program Summary:

The FIRST robotics competition began in 1992 in a New Hampshire school-gym with only 28 teams. Today there are over eight thousand of teams across the world and the program is only continuing to grow. Inspiring high school students with a combination of competition and cooperative work, FIRST is able to teach students about the inner workings of engineering, programming, and circuitry. Participants learn that the things they learn in school are applicable in the real world and can be exciting.

Indiana State Championship:



Detroit World Championship:



“The positive impact on FIRST Robotics Competition participants is gratifying and well documented. Over 88% have more interest in doing well in school and 92% are more interested in attending college.”³

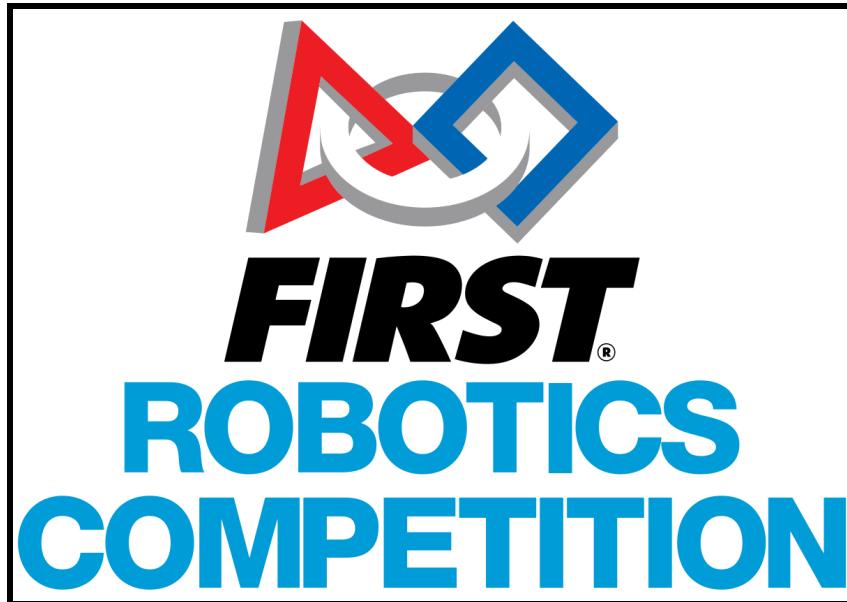
“The FIRST Robotics Competition gives high school students and their adult mentors the opportunity to work and create together to solve a common problem.”^{1a}

“The mission of FIRST® is to inspire young people to be science and technology leaders and innovators, by engaging them in exciting mentor-based programs that build science, engineering, and technology skills, that inspire innovation, and that foster well-rounded life capabilities including self-confidence, communication, and leadership.”^{1b}

“Dean Kamen is a prolific inventor, entrepreneur, and tireless advocate for science and technology. His passion and determination to help young people discover the excitement and rewards of science and technology are the cornerstones of FIRST. For over 25 years, Kamen has resolutely led the growth of FIRST to where it is now universally recognized as the leading, not-for-profit STEM engagement program for kids worldwide.”^{1c}

“FIRST Robotics is a really good opportunity to build key life skills such as teamwork, leadership, communication, and a good work ethic. It also enables students to get first-hand and invaluable experience in growing STEM fields like mechanical and electrical engineering and computer programming.”⁴

Additionally, FIRST students have access to 80 million dollars in exclusive merit scholarships for colleges and universities around the world with 200 scholarship providers. FIRST also has a unique alumni program that encourages former FIRST students to return to FIRST teams to mentor and/or volunteer at FIRST events.



³ <https://www.firstinspires.org/robotics/frc>

⁴ Karen Wang, Team #7617

SWOT Analysis:

Strengths

- Experience in our first year competition
- Won rookie all star award at Worlds (which recognizes the most resourceful first year teams, worldwide)
- Our mentors are specialized in mechanical engineering and technical fields
- Our students are academically strong and dedicated
- Established relationships with other teams, companies, and Indiana FIRST School administration and headmaster support

Weaknesses

- Needing to learn more engineering and other skills to have a more successful robot
- We have few mentors to guide us
- We have limited supplies and budget
- A small team

Opportunities

- Building further sponsorship relationships
- Recruiting more mentors
- Interest in STEM
- Recruiting more students
- Fundraising events
- Mentoring other teams
- Creating student interest in robotics in local middle/elementary schools
- Generating appreciation for STEM education within the community

Threats

- A small student body
- Lack of long-term sponsorships
- Not enough resources to pursue the ambitious goals set by students

Team Impact/Outreach:

Our team provides a platform for students interested in STEM to gain experience in technical fields. For students who were not previously interested in STEM, the program acts as a gateway to STEM. Students participating in this competition are able to promote and spread awareness of STEM education and are able to interact with more experienced teams and learn from them. As the students learn, they are able to set realistic goals and practice good sportsmanship for the team.

During our first competition season, a team of four students worked to develop a program that used artificial intelligence to optimize the drive route of the robot and submitted a scientific paper detailing their research, work, and findings to an artificial intelligence contest hosted by SenseTime, a leading artificial intelligence firm based in Beijing, China. They were later invited to present at an international artificial intelligence conference for middle and high school students in March 2019 in Beijing, China, where they received First Prize for their findings.

At the AI Conference in Beijing:



In April of this year, our team had its first outreach event at Victory Field. At this event, we used a borrowed robot from another FRC team and showcased its functions to younger children. This robot launched flying frisbees at high speeds. We presented the robot in conjunction with In-MaC's booth that displayed a simple autonomous cube-moving robot and taught about programs to promote STEM education. During the event, we told the children and their parents about FRC and how the robot works.

STEM Day at Victory Field: (in partnership with IN-MaC)



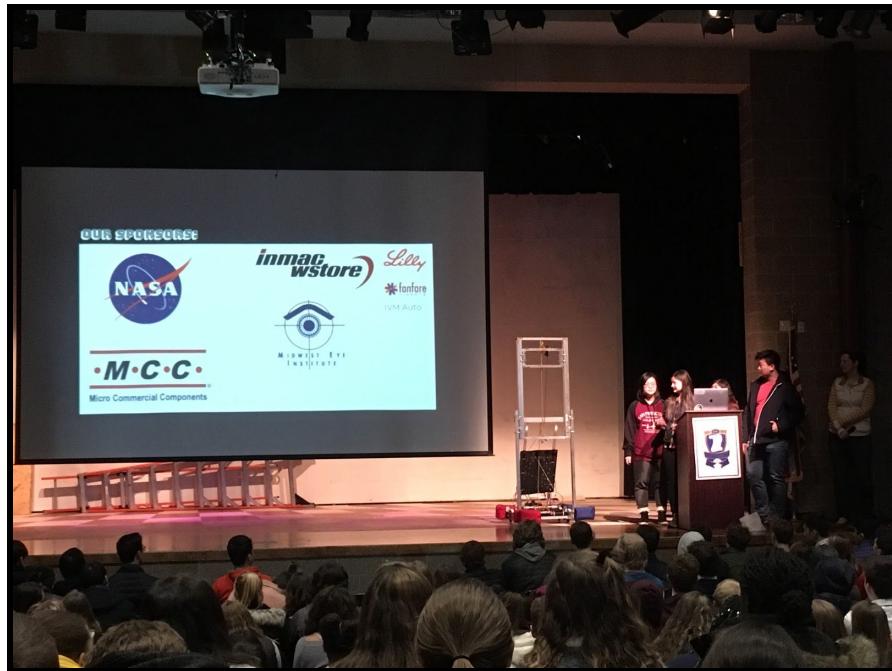
Afterward, in mid-May, we visited Sycamore School, a private day school with students in grades Pre-K through 8, and presented our personal competition robot to the middle school students. Although the school had their own robotics program, it was on a much smaller scale. Thus, several students were familiar with robotics but not necessarily with FRC. At the school, we talked with the students about the work required to run a successful team and all the skills that we learned through participation. Similar to the STEM event at Victory Field, we also allowed several students to drive our robot and ask questions pertaining to the competition. We plan to do a similar event at another K-8 school, The Orchard School, in the fall.

Our first year of fundraising taught us many things and included many successes in reaching out to companies. Our team was able to reach across the country to California and work with Micro Commercial Components, a component distribution company, and across the Atlantic ocean to TRIAD, a German camera company. As the season progressed, many of our sponsors continued to check in with our team and offered continuous support and interest in the work we were doing. After our final competition, we sent a summary report and thank-you cards to all of our generous sponsors.

In accordance with our Sponsorship Guidelines, certain companies may qualify for a special presentation about our robot and our competition season based on their donation amount. MCC, a leading sponsor for our robotics team, asked our team to present to them in late May. We video-chatted with a small group of executives from the California-based company and briefed them about the functions of the robot while telling them about our seasons successes. Afterward, we held a small Question and Answer for them to learn more about the competition and our future goals.

Additionally, our members are involved in leading many STEM-focused clubs and activities both within and outside the school, such as the Science Club, STEM Club, and doing volunteer STEM teaching and presentational work in local middle and elementary schools. Throughout the season, our team also gave several presentations on our accomplishments and robotics at school assemblies.

Presenting our Team's Accomplishments to our School:



One of our team's core values in diversity and inclusion. As the competition season came to a close, our team reflected and began considering options to further display solidarity and support of people of all backgrounds. In our second year, we are planning on being active members of two key diversity and inclusion organizations within FIRST: LGBTQ+ of FIRST and Unified Robotics.

LGBTQ+ of FIRST is an organization that promotes acceptance and respect for FIRST students, mentors, and volunteers of all sexualities and gender identities. Through hosting events such as Round Tables, which allow FIRST community members to discuss and share experiences on topics relating to the LGBTQ+ community, handing out pamphlets containing information on how to create a safer and more inclusive robotics space, and enabling FIRST community members from around the world to connect on its Discord server, LGBTQ+ of FIRST seeks to create an atmosphere of respect and understanding within the FIRST Robotics community.



Unified Robotics is an organization that hosts robotics competitions specifically geared towards students with special needs. Similar to Unified Track teams, Unified Robotics promotes inclusivity and respect for those with disabilities by creating a platform for them to learn and gain experience in robotics.

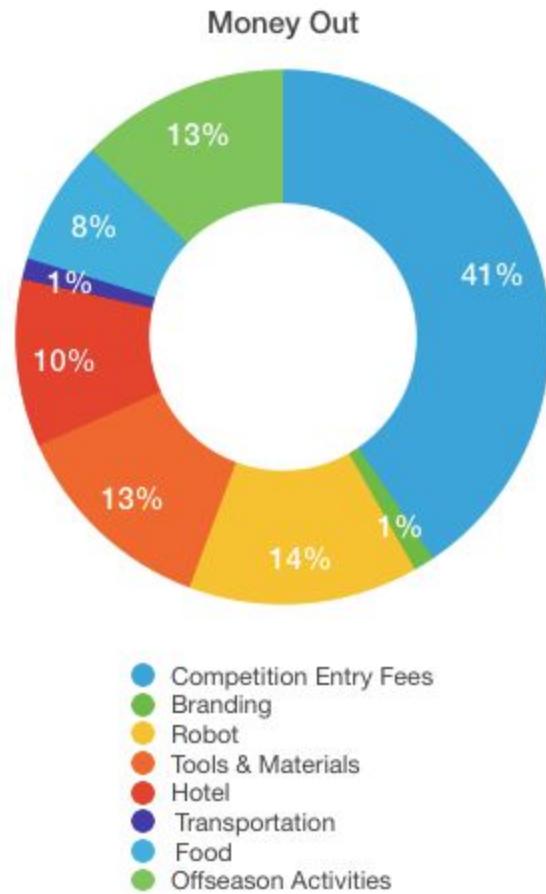


Team Budget:

MONEY IN	
Sponsorships	\$0
Fundraising Events	\$0
TOTAL INCOME	\$0

MONEY OUT	
Competition Entry Fees	\$16,000
Branding	\$500
Robot	\$5,500
Tools & Materials	\$5,000
Hotel	\$4,000
Transportation	\$500
Food	\$3,000
Offseason Activities	\$5,000
TOTAL EXPENSES	\$39,500

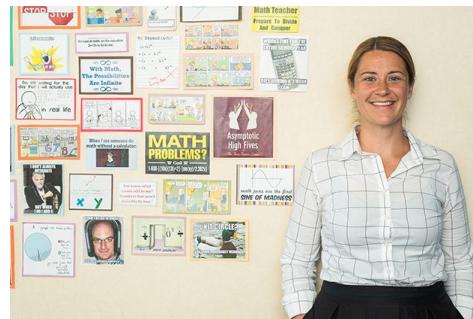
MONEY LEFT OVER	
Income minus expenses	-\$39,500



Mentoring:

Our team currently has two passionate mentors who guide us on a daily basis.⁵

Mrs. Meredith Hogan⁶ was a mentor on a FIRST world championship team. She has a master's degree in aerospace engineering from Purdue University. She worked as an aerospace engineer for Northrop Grumman Aerospace Systems for five years. She has been mentoring FIRST robotics teams for nine years, including teams #294, #1661, #2150, and #2637. She is currently a mathematics instructor at University High School.



Dr. Brandon Hogan⁷ was a mentor of another Indiana State Rookie All-Star team. He holds a Ph.D in physics from Purdue University and served as the Science Department Chair at The Buckley School in Sherman Oaks, California. He has been mentoring FIRST robotics teams for over ten years, including teams #1661, #2637, and #6451. He is currently a physics and mathematics instructor at University High School.



Robotics is an activity that calls on a diverse and varied skill set. Some examples of skills mentors can help students learn and hone through robotics are:

- CAD software and design
- Prototyping
- Electrical work
- Mechanical work
- Computer programming
- Managing finances
- Marketing and outreach

⁵ <https://www.universityhighschool.org/ufundblastoff/>

⁶ <https://www.universityhighschool.org/project/meredith-hogan-math-instructor/>

⁷ <https://www.universityhighschool.org/project/brandong-hogan/>

- Organizing travel logistics
- Graphic design
- Public speaking
- Social media outreach and management
- Project management
- Writing fundraising and award submission documents

Mentoring is a unique way to volunteer and connect with students by generating and inspiring further interest and passion in some of the areas mentioned above. Whether it be through coming in and meeting with students regularly, giving a presentation or lecture on important aspects of certain fields, or simply forwarding helpful information and tips, mentoring has a significant impact on the success of a team and its students.

If you are interested in mentoring, please contact us at roboblazers@universityhighschool.org. Any and all help will always be well-appreciated by our team.

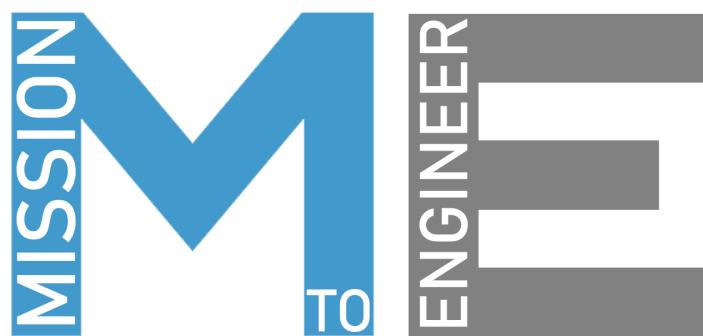
Materials We Need:

- Metal (preferably aluminum)
- Drill with level
- Pixy CMUCam5 Smart Vision Sensor Camera
- Motors
- Motor Controllers
- 3D printer
- Vice
- New drill bits
- Mecanum Wheels
- Long Allen wrenches (at least 12 inches)
- Air cylinders (four)
- Toolbox on wheels
- Angle grinder
- Logitech Extreme 3D Pro Joystick
- Large stepper bit
- Pressure gauge
- Pressure switch
- Steel hex shaft
- Anything else you can provide

How Our Team is Unique:

Our team is student-driven. We are completely funded by our fundraising efforts, allowing students from all backgrounds to join the team without a participation fee. In accordance to our school policy, we are a no-cut team. We believe robotics should be open to everyone. Therefore, any student that wants to join is accepted and becomes an important part of the team. We make it our mission to defeat barriers and encourage student interest in STEM. This means that students learn how to fundraise and manage money as well to support our no-cut policy. All of our students are extremely passionate in pursuing engineering, circuitry, computer programming, and design. By supporting us and helping to provide the necessary resources for us to compete, you are giving us the experience needed to pursue the STEM-related careers in the future.

Students willingly commit over twenty hours a week to robotics and are engaged, passionate, and come to practice consistently. We take outreach seriously and plan to partner with Unified Robotics, LGBTQ+ of FIRST, and Mission to Engineer to both further that goal and become a more diverse, inclusive, and service-driven team.



To reiterate, our team is completely student-driven, something that truly sets us apart from other robotics teams. Students deal entirely with the design, prototype, and construction of the robot and programming, while

mentors simply help bring our ideas into fruition with their skills. All decisions are made after thorough discussion and voting among the students. Competition robotics, however, has very little to do with awards and rankings. Our team values the relationships, opportunities, and experiences afforded to us by this program over all else.

The State Competition:



The World's Competition:



Become a Sponsor!

Step 1: Pick a Sponsor Level

Sponsorship from organizations like your own is vital for our team's success. Your support is important and merits special appreciation. In an attempt to show our thanks, we've crafted a tiered system for determining the benefits we offer to sponsors based on their contributions, pewter sponsorship being the lowest level and including the least benefits, and platinum/returning sponsors being the highest level that includes the most benefits. We're always looking to improve our system and appreciate any feedback. Tell us what you would like to see as a sponsor benefit!

Returning Sponsors: (returning sponsors have been supporting us for at least one year)

- Complimentary team t-shirts (adult XS to XL, max 5 shirts)
- Special recognition on our website and social media (exclusive to returning sponsors)
- A place on a banner flown at competitions and open only to returning sponsors.

Platinum Sponsor: \$10,000+

- Extra large business name on our team website and banner
- Extra large logo on our t-shirt and robot (displayed at all events & tournaments)
- A thank you letter from the entire team for your generous donation!
- Video or in-person demo of the robot at company events

Diamond Sponsor: \$5,000+

- Large business name on our team website and banner
- Large logo of individual/business on our t-shirt, and robot (displayed at events & tournaments)
- Members of the team will give a complimentary presentation to a small or large group of people providing more information and an optional interactive demonstration with a robot. (video call option available)
- Thank you letter from the entire team for your generous donation!

Gold Sponsor: \$2,000-\$4,999

- Medium-sized business name on our team website and banner
- Small logo of individual/business on our t-shirt, robot, and banner (displayed at events & tournaments)
- Sponsorship announcement at local and national events

Silver Sponsor: \$1,000-\$1,999

- Name of individual/business in medium font on our t-shirt design (displayed at events & tournaments)
- Small logo of individual/business on our website

Bronze Sponsor: \$500-\$999

- Name of individual/business in small font on our t-shirt design (displayed at events & tournaments)
- Name of individual/business in medium font on our website

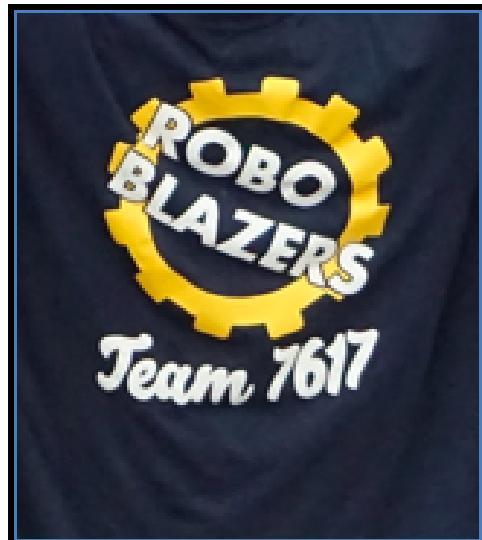
Pewter Sponsor: \$100-\$499

- Your company thanked on our team social media accounts
- Name of individual/business in regular font on our website
- Sponsor thank you certificate

Sponsor Benefit Terms Explained:

Team T-Shirts:

Front



Back (w/ logos)



Recognition on Website:

UNIVERSITY HIGH SCHOOL TEAM #7617: THE ROBOBLAZERS

HOME ABOUT US SPONSORSHIP MORE...

Thank you to our sponsors!

NASA

MCC
Micro Commercial Components

Example of large font/logo

POWERED BY weebly

N-MaC Lilly

Midwest Eye Institute

Example of medium font/logo

fanfare TICKETS

ODU A PERFECT ALLIANCE.

TRIAD MAGNETICS

IVM Auto

Example of small font/logo

Current Sponsors

NASA – Diamond Member
Micro Commercial Components (MCC) – Diamond Member
Boeing – Diamond Member
IN-MaC – Gold Member
Midwest Eye Institute – Gold Member
Eli Lilly and Co. – Silver Member
Fanfare Tickets – Silver Member
TRIAD Magnetics – Bronze Member
ODU – Bronze Member
IVM Auto – Bronze Member

Returning Sponsorship

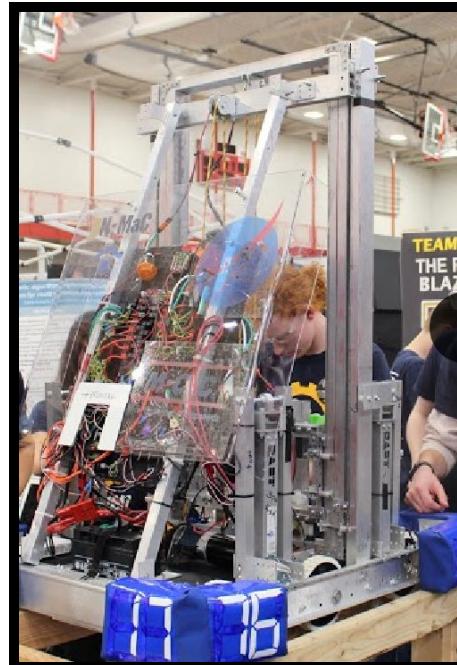
Returning sponsors are a vital part of our team's success and merit special recognition.
To these sponsors, we offer benefits such as complimentary team t-shirts, special recognition on our website and social media, and a place on an exclusive banner flown at competitions and open only to returning sponsors.

Our Generous Returning Sponsors!
TRIAD Magnetics – Bronze Member
Micro Commercial Components (MCC) – Diamond Member

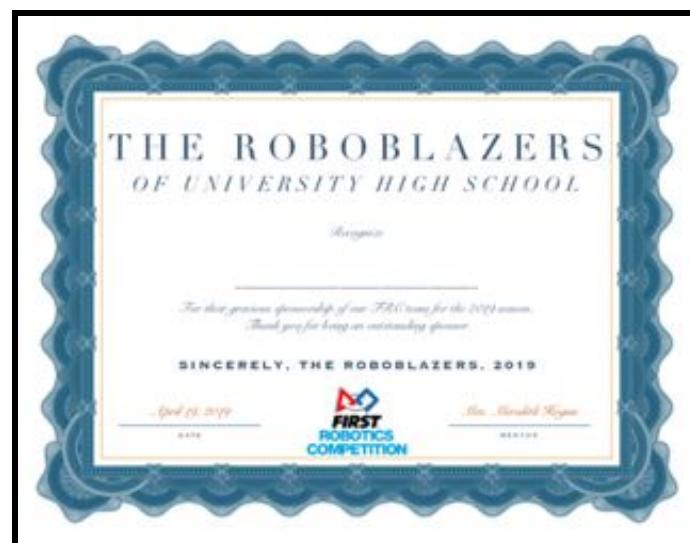
Recognition on Social Media and Sponsor Banner:



Logo on Robot:



Sponsor thank you certificate:



Step 2: Contact Us/Make a Payment

Checks should be made payable to University High School of Indiana (put “Robotics” in the memo line)

Donations are tax-deductible

Mailing Address: 2825 W 116th St, Carmel, IN 46032, USA

Attn: Roboblazers

Website: <https://uhsroboblazers.weebly.com/>

Twitter: <https://twitter.com/roboblazers>

EMAIL: ROBOBLAZERS@UNIVERSITYHIGH SCHOOL.ORG

Get in touch with our mentors:

Meredith Hogan:

Email: mhogan@universityhighschool.org

Phone: (317) 733-4475, ext. 416

Brandon Hogan:

Email: bhogan@universityhighschool.org

Phone: (317) 733-4475, ext. 128

Get in touch with our student captains:

Karen Wang: kwang@universityhighschool.org

Andy Tang: atang@universityhighschool.org

Team Meeting Information (may vary, please contact mhogan@universityhighschool.org to set up a visit):

Build and Competition Season (January-April):

Tuesday: 3:00 pm - 9:00 pm

Wednesday: 3:00 pm - 6:00 pm

Thursday: 6:00 pm - 9:00 pm

Saturday: 9:00 am - 5:00 pm

Offseason (May-December):

Monday: 3:45-6:45

Wednesday: 3:45-6:45

You are now a sponsor of the RoboBlazers!

Thank you immensely for the support of STEM and youth education you have shown by choosing to sponsor the RoboBlazers. By becoming a sponsor, you have helped the students of University High School learn important skills in STEM fields and opened up countless doors.

If you have any questions about sponsorship or the RoboBlazers, please email us at roboblazers@universityhighschool.org, and we'll get in touch promptly. Thank you again, and please do not hesitate to reach out. We want to know about our sponsors and ensure you have the best experience possible.

RoboBlazers with Thank You Banner at World's Competition:

