

Thank you for your interest in Red Thunder Robotics FRC Team #7166 and Wolfpack Robotics K-12! We appreciate the time you have taken to learn more about our program.

Wolfpack Robotics exists to provide an opportunity for students in the Laingsburg Community to access STEAM (Science, Technology, Engineering, Art, and Mathematics) education and to develop an interest in the many facets of a *FIRST* curriculum. *FIRST* (For Inspiration and Recognition of Science and Technology), www.firstinspires.org, is a global program developed in 1989 to inspire more interest in the fields of engineering, mathematics and science.

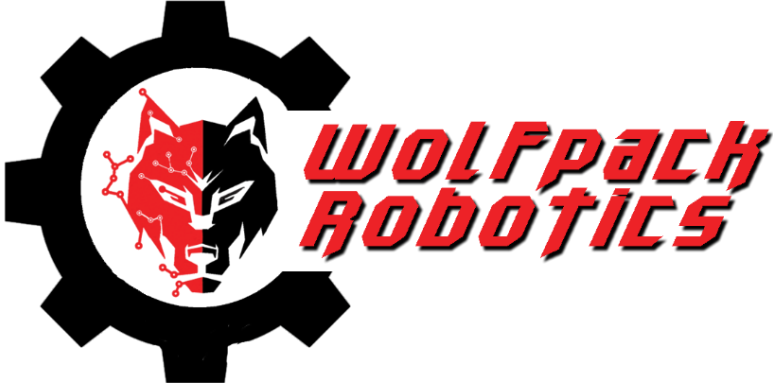
Our program prepares students to work and thrive in our every increasingly technological world and global economy. Wolfpack Robotics has a presence across grades K-12, including homeschool and out of district families. At each level, students are presented with age-appropriate challenges in which the students learn how to cooperate with one another, design and deliver presentations to adult judges, and build and program a robot. Moving into the middle school program, students must design, build, program, and operate a robot using an array of parts, including ones they print using a 3D printer to compete in head-to-head competitions. This truly unique STEAM learning culminates at the high school with an annual challenge requiring students to design, prototype, machine, fabricate, and program a competition robot to complete an assigned task – all in the span of six weeks!

The process of designing and building a robot is not easy. A typical high school competition robot costs over \$8,000 in materials and supplies and must be completed within six weeks. Six weeks flies by unbelievably fast with so many things to get done. The journey from learning of the game (a different set of tasks is unveiled each year to teams around the world simultaneously) to designing a robot's features to driving it during live match play is long and stressful, yet its value and benefits reach so far beyond robotics and competing. Through *FIRST*, our members gain a priceless opportunity to gain real life experience that cannot be found anywhere else while in school. Students gain exposure to 2-D and 3-D designing, computer programming, CNC manufacturing and 3-D printing, metal and plastic fabrication, public speaking, business management, project management, marketing, social media management, graphic design, and acquiring and developing sponsor relationships.

In order to make our journey successful, Wolfpack Robotics relies on the support from organizations like yours. One of the most effective ways is to sponsor us financially (see page 8 for sponsorship levels). By contributing monetary support, the teams are able to purchase necessary materials like 3D print filament, wheels, batteries, vision systems, drive trains, hand and power tools, aluminum, Lexan plastics and more to fabricate parts and construct robots. In return, we offer several benefits, including advertising space on the robot itself, on our banner exhibited in the competition and during community outreach events, and on our t-shirts. Businesses can also support our team in-kind through product donation and discounts which allow us to stretch our financial resources even further.

Any support offered will help enrich Team 7166, its younger *FIRST* counterparts, and Wolfpack Robotics to better ensure that students have opportunities and exposure to the areas of STEAM not available at Laingsburg Community Schools and prepare them to meet the growing demand for technologically adept humans in today's world.

Please do not hesitate to contact us at lhsrobotics7166@gmail.com. Thank you for your time and interest in Red Thunder Robotics FRC Team 7166 and Wolfpack Robotics K-12. We look forward to hearing from you soon!



“Our mission is to introduce students to STEM and real-life experiences through an immersion of design, programming, fabrication, team work, problem solving and collaboration.”

What We Represent

Laingsburg, a rural town northeast of Michigan’s capital city of Lansing, has the motto “Where the Country and City Meet.” The closest manufacturing or technology company is almost 20 miles away. Due to its small size, lack of shop and technical education courses, and relative isolation from career tech centers, STEM opportunities are scarce for the students within the Laingsburg Community. Red Thunder Robotics FRC (*FIRST* Robotics Competition) Team 7166 was established in the fall of 2017 to bring these much-needed skills to the high student body, and in turn, the community at large. Founded with a group of 15 students and one teacher mentor (Mr. Paul Garrett), Team 7166 revealed itself to be “The Closest Thing to Real-Life While in High School”. Wolfpack Robotics began in 2022 to continue the expansion of K-12 STEM education. As of today, the *FIRST* learning program is present for every grade level in the district.



Today the team has spread *FIRST* robotics throughout the district with a total of five elementary *FIRST* LEGO League teams, one middle school *FIRST* Tech Challenge team, and the flagship high school team. Operating a robotics program K-12 requires substantial funding from sponsors like your organization.

The high school team consists of fourteen members and five core mentors that include business professionals, parents, alumni and sponsor representatives. The founding mentor, Paul Garrett, is supported by two senior advisor mentors who assist in the supervision of engineering, design, fabrication, project management, operations, and safety. The middle school team, newly formed in the fall of 2022, has 12 students and two head mentors. Each elementary team is at their cap of six students (grades 1-3) and ten students (grades 4-5).

FIRST Robotics emphasizes women in STEAM and our teams have a strong female and non-binary component! Female and non-binary membership represents 40% at the high school level, although these demographics are represented at 75% within the student leadership team. At the middle and elementary school programs, this percentage is closer to 50%.

What is *FIRST*?

Wolfpack Robotics is a member of a larger organization called *FIRST* (www.firstinspires.org). *FIRST* was incorporated in 1989 and the inaugural *FIRST* FRC competition was held in 1992. For over 30 years, 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.”

FIRST and its teams operate under the following Core Values:

- **Discovery:** *We explore new skills and ideas*
- **Innovation:** *We use creativity and persistence to solve problems*
- **Impact:** *We apply what we learn to improve our world*
- **Inclusion:** *We respect each other and embrace our differences*
- **Teamwork:** *We are stronger when we work together*
- **Fun:** *We enjoy and celebrate what we do!*

FIRST Robotics has STEM programs to support children from ages four through high school. For the fall of 2023, competition teams have been established within Laingsburg Community Schools at four of the five levels!

FIRST LEGO League Discover	PreK	This playful introductory STEM program ignites young students' curiosity and builds their habits of learning with hands-on activities in the classroom and at home using LEGO DUPLO blocks
FIRST LEGO League Explore	K-3	In Explore, teams of students focus on the fundamentals of engineering as they explore real-world problems, learn to design and code, and create unique solutions made with LEGO bricks and powered by LEGO SPIKE Prime.
FIRST LEGO League Challenge	4-5	Friendly competition is at the heart of Challenge, as teams of students engage in research, problem-solving, coding, and engineering – building and programming a LEGO robot that navigates the missions of a robot game.
FIRST Tech Challenge (FTC)	6-8	Design, build, program, and operate a robot to compete in a head-to-head challenge in an alliance format. Guided by adult coaches and mentors, students develop STEM skills and practice engineering principles, while realizing the value of hard work, innovation, and working as a team.
FIRST Robotics Competition (FRC)	9-12	Under strict rules, limited time and resources, teams of students are challenged to raise funds, design a team "brand," hone teamwork skills, and build and program industrial-size robots to play a difficult field game against like-minded competitors. It's as close to real-world engineering as a student can get

High School Competition Team Structure



During the pre-season, members and interested students participate in classes in which skills in fabrication and machining, electronics, programming, and AutoCAD and 3-D modeling are acquired. Students are taught how to read a screw chart, the names and functions of different tools and learn to understand the different types of wiring as well as the various drive trains and functions a robot could have. Students are given the opportunity to learn how to read prints, practice cutting material, drilling and tapping holes, riveting pieces of material together and more in the fabricating basics course.

High school members also volunteer their time in the preseason to volunteer and assist our Junior teams. Through a calendar and sign-up approach, Junior team practices and events have at least one high school member present 100% of the time.

Student leaders and sub team captains participate in an annual Leadership Seminar. During this month-long training seminar, students learn of their own leadership styles, personality strengths and weaknesses, how to work effectively with others, and how to deal with difficult situations. It is through Leadership Seminar that student leaders are afforded the opportunity to run meetings and strategically plan for the upcoming season.

Sub teams:

- Design – *implements and enforces the design aspect of a robot build using 3D modeling software*
- Fabrication – *machines and fabricates parts, builds the robot from prototypes to the competition build. Also builds field elements and pit structures.*
- Electrical – *develops the schematic and orchestrates the wiring for the robot's sensors, motors, cameras, and vision system*
- Programming – *Responsible for all coding and troubleshooting for the robot's functions using VS code in addition to coding the vision systems, sensors, and any subsystem.*
- Safety – *Reviews OSHA standards and writes procedures and processes to ensure the safety of members; trains members on safe work practices; inspects and provides corrective actions*
- Marketing & PR – *Identifies potential sponsors, promotes the brand, manages social media platforms, updates sponsors and community, designs promotional materials, captures images and film, creates and displays signage and logo placement*
- Operations – *manages the budget of the team and reviews financials, develops schedules and deliverable timelines and ensures that sub teams achieve deadlines*



Awards and Achievements

2017-18 (Rookie Season):

- Rookie Inspiration Award

2018-19:

- Excellence in Engineering Award

2019-2020:

- Engineering Inspiration Award

2020-2021:

- District Chairman's Award – the most prestigious award that can be presented to an FRC team

2021-2022:

- Finished 5th after qualification matches at Jackson District Event, served as an alliance captain and finished 4th in playoffs

2022-2023:

- FRC team 7166 earns Sustainability Award and 7th alliance captain
- FRC team 7166 earns Imagery Award and 4th place alliance captain, finishing 3rd in playoffs
- FRC team 7166 advances to State Championship
- Rookie FTC team 21537 earns Judges' Choice Award



Workspace

Courtesy of an approved school bond in 2019, Team 7166 was able to expand into its own dedicated workspace, which it currently shares with the middle school *First Tech Challenge* team, Sneaky Suspicion #21537.

General hand and powered tools are available for student and mentor use. Each student must successfully complete a classroom safety component and hands on instruction before they can begin using tools. Certain tools, such as miter saws, are reserved for mentor use only. Students are able to use the drill press, bench grinder, sanders, and vertical saw under mentor supervision.

In 2020, Team 7166 purchased a Shop Sabre 23 CNC machine. This machine is open for any trained Laingsburg High School student to use. A significant donation from our sponsor, RePneu Tool, of more than \$8,000 in acrylic plastic allows the team to practice fabrication and cut custom awards.

The team’s workspace also houses three 3-D printers, used to machine parts for the competition robot, as well as team awards, and is also open for student use.

In 2021, donors through DonorsChoose.org provided sufficient funding to purchase a high-powered desktop computer that runs Adobe Photoshop, Adobe Premiere, Fusion 360, and AutoCAD 2020.

In 2022, the workshop again expanded to include a plasma cutting table, a compressed air system, and a MiG/TiG welder. These machines are available for student and mentor use.



Community Outreach/Team Impact

A core belief of *FIRST* is that teams give back to their communities. We host seven outreach events and participate in at least an additional two each year. Examples of our outreach activities include:

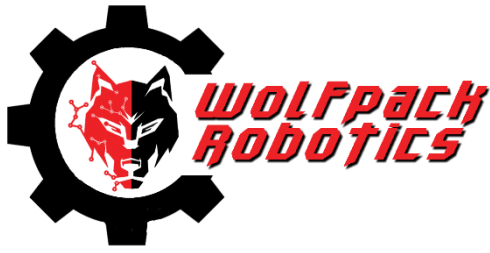
Family STEM Night	Robotics Read Aloud and STEM activity with kindergarten classes
Robot Demos and STEM table during middle school Science Fair	Girl Scouts Robotics Patches
Lions Club Chicken Dinner and Easter egg hunt volunteering	Robot Demonstrations at local fairs and festivals
Mentoring FIRST Lego Leagues and FTC for Laingsburg K-12	Impression 5 Science Museum volunteering
Mentoring Safety Captain from FRC Team 8374	Including females from other FRC teams to form all-female drive team for offseason event
Elementary Robot Demo night	Partnering with McLaren to Stop the Bleed

How Your Sponsorship Will Help

With your support, we can help our team and community at large engage, educate, and advance students in STEAM subjects so they can get the most from their education and have the skills necessary to be career or college ready. Wolfpack Robotics is **self-funded**, meaning almost all the funds needed to support the teams are raised on our own. As a result, sponsors and parent donors are instrumental to our **student-led teams**.

Middle and High School Team Expenses

<i>Middle and High School Teams Expenses</i>	<i>Elementary Teams Expenses</i>
Registration fees for events <i>(\$6k for HS, \$650 for MS, \$1k for HS offseason)</i>	Registration fees <i>(based on 6 Explore and 3 Challenge teams)</i>
\$7,650	\$1,575
Michigan State Championship Registration Fee for HS	Annual LEGO challenge set <i>(based on 6 Explore teams)</i>
\$4,000	\$900
World Championship Registration Fee for HS	New tablets and protective cases <i>(9 teams)</i>
\$5,000	\$1,000
Travel, lodging, and food expenses for out-of-town events including States and Worlds	Challenge game tables <i>(based on 3 teams)</i>
\$10,000	\$1,000
Pit Banner and Sponsor Banner, including vinyl logos for sponsors	
\$500	
Team t-shirts	
\$1,200	
Camera equipment <i>(a new camera is needed for 2023-24 season)</i>	
\$500	
Build season food	
\$1,200	
Robot materials for middle and high school teams	
\$10,500	
Field element raw materials for HS	
\$2,000	
Game field for middle school	
Buses to Events	
\$1,000-\$2,000	
Workshop improvements	
\$1,000	
Buttons and Stickers (marketing)	
\$450	
Laptops for CAD and programming <i>– current laptops are 4 years old</i>	
\$3,000	
Recruiting supplies	
\$250	
<i>Funding Needed to Support K-12</i>	<i>\$52,915</i>



Degrees of Sponsorship

Diamond Level: \$5,000+

- Your company is thanked during competitions, which are televised via The Blue Alliance, and saved on YouTube
- Large logo prominently displayed on robot
- Large logo prominently displayed on banner, which is displayed at events and tournaments
- Large logo displayed on team t-shirts, which are worn at events and tournaments
- Logo and website link are listed on team website
- Logo and website link are shared via team's social media platforms
- Memorabilia: Thank you plaque and team t-shirt
- Invitation to year-end awards banquet

Platinum Level: \$2,000-\$4,999

- Medium logo on robot
- Medium logo on banner, which is displayed at events and tournaments
- Medium logo on team t-shirts, which are worn at events and tournaments
- Logo and website link are listed on team website
- Logo and website link are shared via team's social media platforms
- Memorabilia: Thank you plaque and team t-shirt

Gold Level: \$500-\$1,999

- Small logo on robot
- Small logo on banner, which is displayed at events and tournaments
- Small logo on team t-shirts, which are worn at events and tournaments
- Logo and website link are listed on team website
- Logo and website link are shared via team's social media platforms
- Memorabilia: Thank you letter and team t-shirt

Silver Level: \$100-\$499

- Line of text with business name on robot
- Social media "shout out" on team's social media platforms
- Memorabilia: Thank you letter

How to Donate:

Checks can be made payable to Wolfpack Robotics Boosters Club and sent to 8008 Woodbury Road, Laingsburg, MI 48848. All donations are charitable tax deductions or can be allocated toward advertising expenses. Our tax-exempt number is: 92-1045931. In lieu of a check, you can donate via PayPal on our website, www.team7166.com.