

Rapid Robots

FTC team from Novi Middle School

A brown L-shaped decorative line that starts from the bottom right and extends horizontally and vertically, framing the text.

About First



FIRST® is the world's leading nonprofit for youth advancing STEM education.

FIRST combines the rigor of STEM learning with the fun and excitement of traditional sports and the inspiration that comes from community through programs that have a proven impact on learning, interest, and skill-building inside and outside of the classroom.

FIRST By The Numbers



2.5 million+ student participants impacted in 100+ countries since 1989



Millions of volunteer hours served annually



Thousands of events held each year

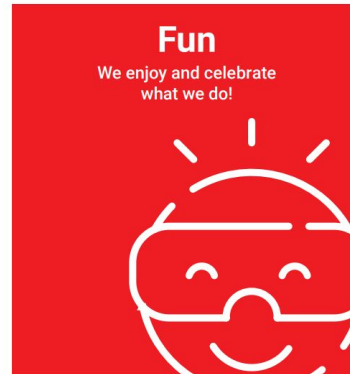
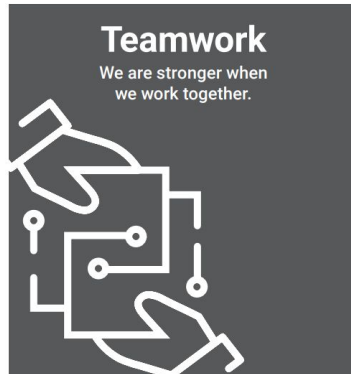
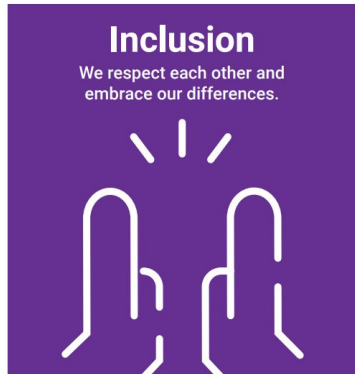
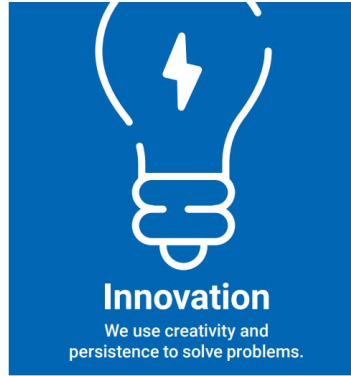
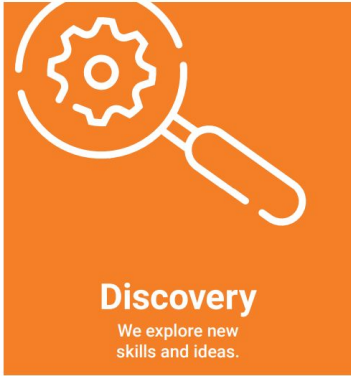


81% of *FIRST* alumni declare a STEM major by their fourth year in college (compared to 68% of peers in [FIRST Longitudinal Study](#))



50% of female *FIRST* alumni declare a major in engineering or computer science by their fourth year of college (compared to 14% of peers in [FIRST Longitudinal Study](#))

Benefits - FIRST Core Values



Gracious Professionalism

Gracious Professionalism is part of the ethos of FIRST.

It's a way of doing things that encourages high-quality work, emphasizes the value of others, and respects individuals and the community.

It is part of pursuing a meaningful life. One can add to society and enjoy the satisfaction of knowing one has acted with integrity and sensitivity.

Coopertition

Coopertition is displaying unqualified kindness and respect in the face of fierce competition. It is founded on the concept and a philosophy that teams can and should help and cooperate with each other even as they compete.

Coopertition involves learning from teammates. It is teaching teammates. It is learning from Mentors. And it is managing and being managed. *Coopertition* means competing always, but assisting and enabling others when you can.

FIRST Robotics Programs



FIRST in Michigan

FIRST
ROBOTICS
COMPETITION

HIGH
SCHOOL

FIRST
TECH
CHALLENGE

MIDDLE
SCHOOL

FIRST
LEGO
LEAGUE

CHALLENGE

UPPER
ELEMENTARY

FIRST
LEGO
LEAGUE

EXPLORE

KINDERGARTEN
- GRADE 3

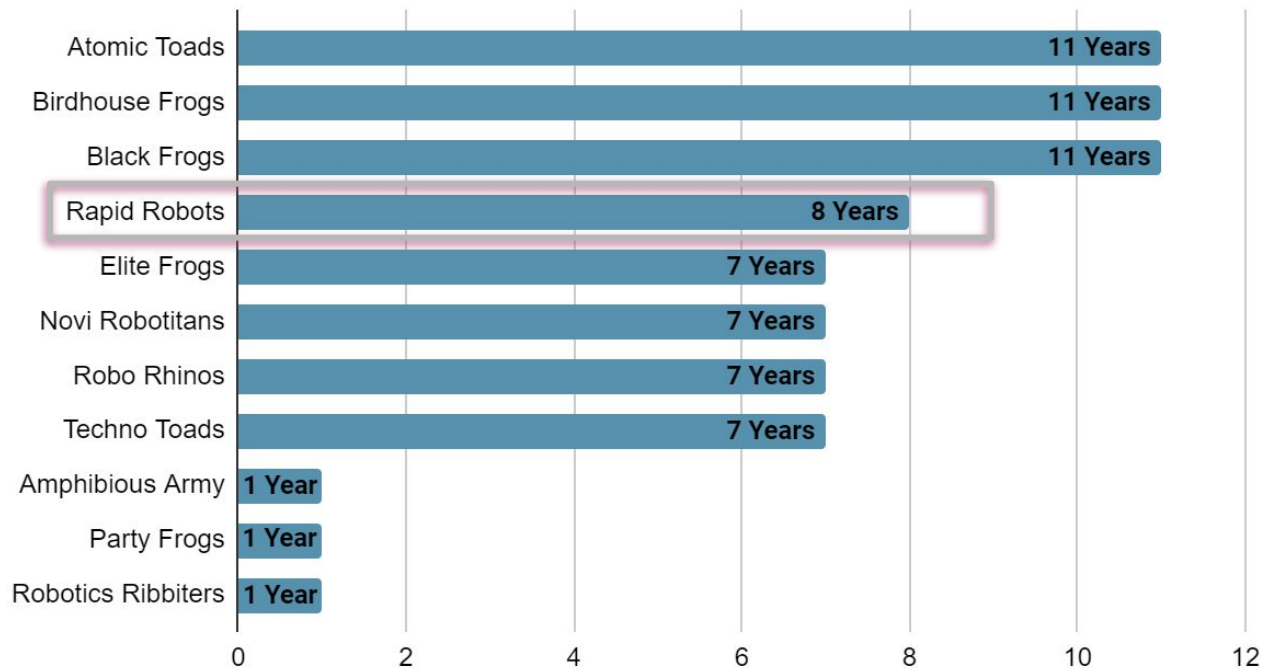
FIRST
LEGO
LEAGUE

DISCOVER

PRESCHOOL

Overview of FTC Teams in Novi

Years Since Inception

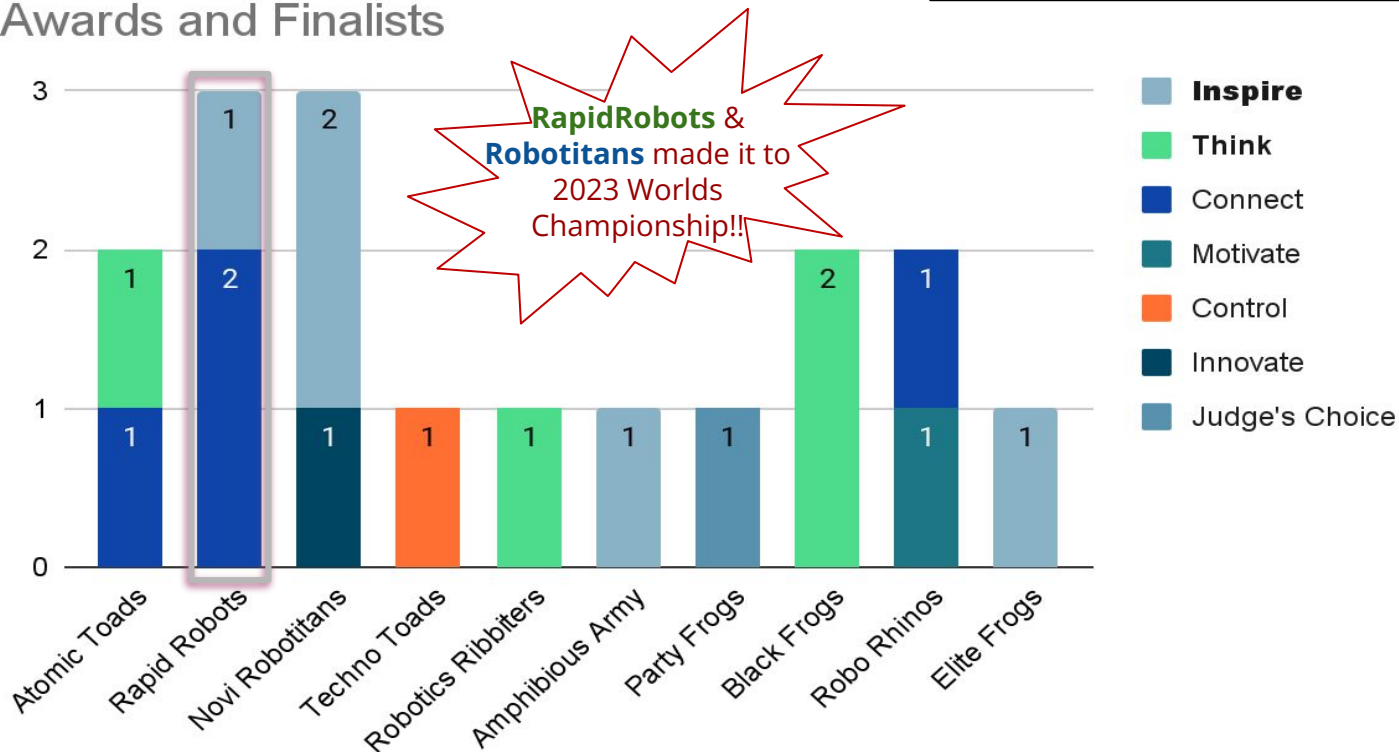


Rapid Robots

Season 2022-23 outcome



Awards and Finalists



Key Highlights



OUTREACH

800+ Hours

3 Plant visits *Technical*

4 School visits

1 OCCRA Preparatory match

1 City Office

4 Community Heritage Volunteering

4 Conservation & Environment

4 Mentoring FLL and FTC



AUDIENCE VISIBILITY

400+ during heritage walk

100+ during industry expert visits

50+ international Outreach

250+ School seminars and events

200+ during community Events



MENTORS

7 Internal

2 Novi High School Youth Mentors

Multiple Industry Experts



COOPERTITION®

Sharing parts

Help in programming

Judging Sessions

Robot build challenges

Interaction with **3** other FTC/FLL teams.

1 team won the Inspire Award that took consultations from our mentors!

Key Highlights



FINANCE

Team Contribution

\$2,388

Sponsorship

Platinum: **\$19,444**

Gold: **\$1,000**

Silver: **\$1,050**

Total: \$23,832



INNOVATION

Dual Clamp Design

Lateral mount of Viper Slides

H-Configuration Chassis

Motors selection **optimization**



TECHNOLOGY

TensorFlow

Artificial Intelligence

Machine Learning

Multi-Threading

Multi-Tasking



AWARDS

Powerplay Season

Competing in **World's** championship

MI State championship Inspire AWARD 2nd place

Inspire Award Winner

Connect Award Winner

Finalist Alliance 1st Pick

Think Award Finalist

Inspire Award Finalist

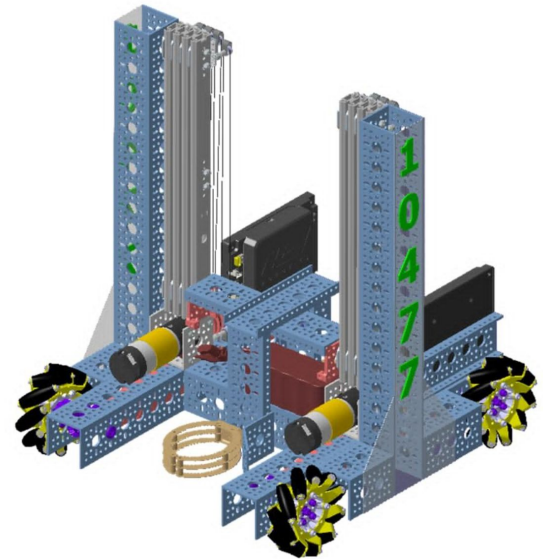
Connect Award Finalist

Design Award Finalist

N-ergize-R Evolution

Our robot has evolved a lot throughout the season, ultimately adding up to 14 different iterations, each innovative and beneficial to the robot.

- This involves changing and prototyping new designs.
 - Ex. Going from a bulky cup shaped claw to a lighter finger-like design
- We also added supporting parts to our original design concepts to improve them.
 - Ex. We went from one vertically mounted linear slide, to using 2 to make the whole up-and-down motion faster and more stable.
- We also tested out ideas and implemented suggestions from our outreach activities.
 - Ex. Making sure the bulk of the weight was in the center; a suggestion from an outreach with a start-up company, Peer Robotics.

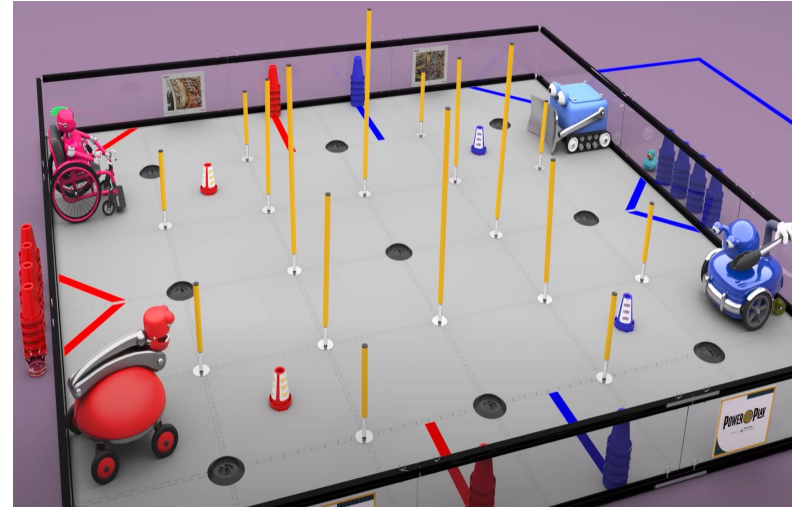


Where Design Meets Game Play



Our robot has definitely been shaped overtime to do its best in this year's game, PowerPlay.

- Many elements of our robot have been changed to complete tasks more efficiently and precisely.
 - Ex. We programmed our controllers to have specialized buttons for various pole heights. Ex. We added a second vertically mounted linear slide to lift up the claws faster.
- We also changed elements of our robot because they interfered with tasks or didn't work that well.
 - Ex. One version of our claw was a bulky cup shaped design which interfered with the beacon. This was changed to better accommodate the beacon and other uses of the claw.
- Our overall design also includes many innovative and unique components.
 - Ex. Probably the most notable of these are the two claws mounted between our 2 slides. This greatly improved our gameplay by making it faster and easier to lift and place cones.



PowerPlay Season Impressions

RAPID ROBOTS #10477

★ Competing in the world's championship with 191 national and international teams conducted in Houston TX. ★



Rapid Robots – Team members



Aarush



Abhishti



Ayansh



Debakshi



Gaurang



Ishaan K



Ishaan P



Karthikeya



Shushruth



Sohan



Veer



Vyom



2022-2023 Awards

* World's 2022-2023 *

States:

1. Inspire 2nd Place
2. Connect 1st Place

Qualifiers:

1. Inspire winner
2. Connect winner
3. Finalist alliance 1st pick
4. Think finalist
5. Design finalist

PowerPlay Season Impressions



Thank You

Thank You To Our Sponsors

Thank You To Our School District

Thank You To Our Parents/Mentors/Coaches

Thank You To The City Council Members and the Mayor