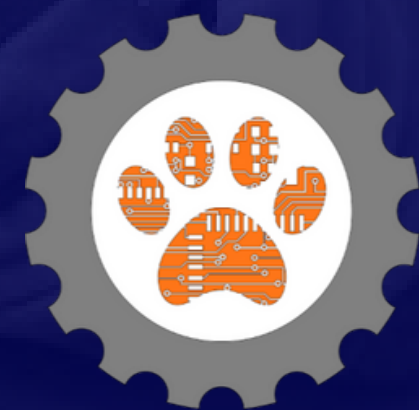


The Rook Book

Your Guide to Starting, Growing, and
Competing as a FIRST Team.



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Introduction to *FIRST*

What is *FIRST*?

FIRST, an acronym denoting For Inspiration and Recognition of Science and Technology, is a worldwide organization with the goal of introducing students to STEM and robotics. Every year, they create challenges for students of all ages to design a robot capable of fulfilling the tasks to win the game.



The founder, Dean Kamen, says that the vision of *FIRST* is "To transform our culture by creating a world where science and technology are celebrated and where young people dream of becoming science and technology leaders."

Gracious Professionalism



Gracious Professionalism is a way of doing things that encourages **high-quality work**, emphasizes the value of others, respects individuals, and the community.

With Gracious Professionalism, fierce competition and **mutual gain** are not separate notions. Gracious Professionalism enables **collaboration** and **respect** between competitors with the goal of fostering an environment where everyone can benefit. It also promotes a culture of continuous improvement where competitors can give each other feedback and work towards a higher goal.

Coopertition



Coopertition can be defined as a combination of **cooperation** and **competition**, which is precisely what happens when teams interact with each other at a competition, forming beneficial **partnerships**.

Teams support each other even though they compete on the field. Furthermore, by working together, teams can increase their chances of victory by sharing knowledge, resources, and even strategies. In addition, **friendly** competition between teams can keep them **motivated** and **determined**.

FIRST Levels:

FIRST is for all ages, so they have three levels depending on the age group.

FIRST Lego League (FLL):

- Ages 4-14
- Small lego robots to solve a problem
- Further divided into three sub-levels, FLL Explore, FLL Discover and FLL Challenge for smaller age groups



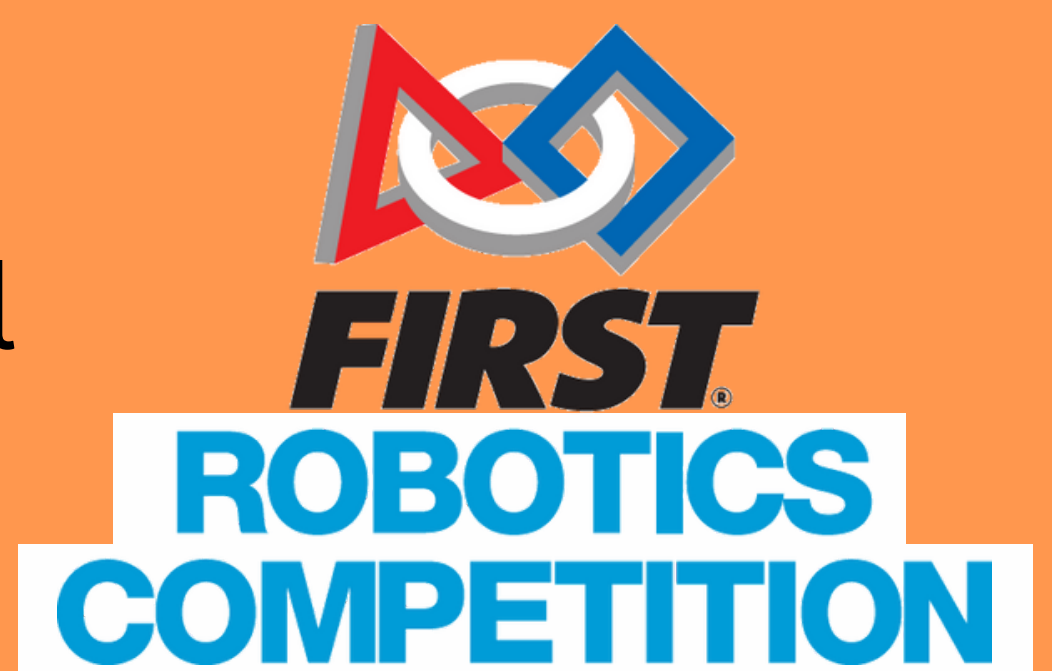
FIRST Tech Challenge (FTC):

- Ages 12-18
- Smaller mechanical robots to complete a challenge
- Introduced to Canada in 2020



FIRST Robotics Competition (FRC):

- Ages 14-18 (high school students)
- Human-sized mechanical robots to play a game
- E.g. The Sabre Bytes Team 772 is an FRC team.



FIRST Teams:

Every team is given a number originally based on the chronological order of when the team was registered. For example, the Sabre Bytes are FRC Team 772, which means we were the 772nd team to register in FRC. Therefore, we are proudly one of the oldest teams in Canada!



Now, many years later, FRC team numbers are in the nine thousands! These numbers are **always** required to be written on robot bumpers so that they are visible and distinguishable on the field. As well, during competitions, teams are called to the field and other locations by their number for efficiency, as opposed to their team name.

FRC/FTC Season

Timeline:



FLL Season

Timeline:



FRC Timeline Details:

September-January

Teams use this time to train new members and prepare for the season. Off-season events are run where teams can use their previous year's robot to compete in a no-stakes competition of the previous year's game.



First Saturday in January

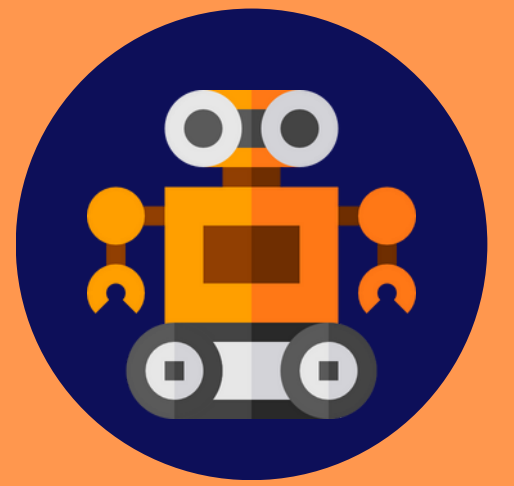
Teams can watch the the reveal on Twitch or at their local team kickoff event. Both the game animation and the rule book are released at this time. This marks the start of the build season. Teams are required to pick up their kit of parts that day as well.



FRC Timeline Details:

January-March

Teams brainstorm, prototype, design, and build their robot according to the rule book and their own innovations! Teams have about 6 weeks, or the amount of time until their first competition to build their robot. Many award written submissions are also due during this period in February.



March

Teams are required to compete in two district competitions where they are ranked to determine if they qualify for Provincials. Most years, there are 7 weeks of events; teams can apply for which events they'd like to attend.



FRC Timeline Details:

April

Qualifying teams attend their Provincial or Regional Championship. During the event, teams compete for a spot in the World Championship.



April

Approximately, the leading 600+ teams in the world compete at one 4-day long competition to determine which teams will be crowned the season champions and the overall award winners.





Competition (Types):

Practice Matches:

Practice Matches provide each team with an opportunity to operate its robot on the field prior to the start of the Qualification Matches.

Qualification Matches:

There are 9-12 Qualification Matches that allow each team to earn Ranking Points which determine their seeding position, and may qualify them for participation in the Playoff Matches.

After Qualification Matches, teams go through an alliance selection process in which the top ranking teams select which teams they would wish to play against in the final Playoff Matches.

Playoff Matches determine the event Champions!



Competition Environment:

Scouting:

Teams scout other robots to see what they are capable of in order to better prepare for alliance selection.



Stands:

Teams sit together in one section to watch and cheer for the robots on the field. To be considerate of other people, do not leave objects in the aisles or bring loud horns.



Competition Environment:

Pits:

The pit is the area where teams work on their robots between matches and set them up for their next match. The space measures 10x10. It has shelves and cabinets, with a section for the robot in the middle of it. Pits are open to everyone, but in between matches, be mindful not to interfere with a team working on their robot. Most teams also hand out team buttons/pins for guests and other teams to collect in their pits. This is another thing your team can do to increase team spirit, but be mindful of the waste it can create. One solution for this is to donate unwanted buttons to Team 772's recycling project *Buttons Be Gone*.



Competition Environment:

Quiet Rooms:

There are quiet rooms available if anyone ever needs a moment to themselves from the excitement of the competition.



Atmosphere: :

Be sure to expect plenty of music and dancing in between matches and during breaks. Be ready for tons of cheering from all the spectators and MCs during matches!



Awards:

A total of four categories of awards are presented: **Machine, Creativity, and Innovation Awards, Team Attribute Awards, Submitted Awards, and Robot Performance Awards.**

The **Founder's Award** and **Volunteer of the Year Award** are *separate awards*.

Teams must follow and implement FIRST Core Values in order to be eligible for the following awards:

- Autonomous Award
- Creativity Award
- Digital Animation Award
- Engineering Inspiration Award
- Excellence in Engineering Award
- Finalist
- FIRST Dean's List Award
- FIRST Impact Award (formerly Chairman's Award)
- Founder's Award

Awards (Continued):

- Gracious Professionalism® Award
- Highest Rookie Seed Award
- Imagery Award
- Industrial Design Award
- Innovation in Control Award
- Judges' Award
- Quality Award
- Rookie All-Star Award
- Rookie Inspiration Award
- Safety Animation Award
- Safety Star
- Team Spirit Award
- Team Sustainability Award
- Volunteer of the Year Award
- Winner
- Woodie Flowers Finalist Award

Diverse events offer different awards and not all awards are given out at every event.

**Need help with award submissions?
Go to our website and find Business
In A Box (under the Our Team page).**

Running an *FRC Team*

Team Breakdown:

- Every successful **FIRST Robotics Competition team** requires 10 or more motivated and determined high-school aged students who are willing to collaborate after school on a regular basis.
- At least two technically experienced adult mentors are needed to help guide the team through the various seasons and programs. (Please refer to pages 10-12 for a detailed walkthrough of the season).

There are several sub-teams to cater to each member's interests and skill sets.

- Business
- Mechanical
- Controls/Electrical
- Programming

Team Sections:

- **Business:**

Responsible for overseeing sponsorships, fundraising, outreach, and social media.



- **Mechanical:**

Handle designing, fabricating, and assembling the robot along with all of its necessary parts.



- **Controls:**

Manage designing, fabricating, and connecting all electrical and pneumatic components of the robot.



- **Programming:**

Establish a programming plan to code and enable complete robot function.





Mentors:

Appointed adult mentors are responsible for overseeing general projects including funding and outreach initiatives. For teams in search of support, the **FIRST Mentor Network** acts as a complimentary resource to connect teams with eager and available mentors.

Mentor Roles and Responsibilities:

- Season registration
- Assign and delegate tasks
- Provide assistance in all affairs
- Verify that the team meets the declared deadline for events and projects
- Organize and register members and submit consent forms
- Keep up to date with game and season updates

For more in depth information, refer to the **Guide to Running a FIRST® Robotics Competition Team** available on the FIRST website:
<https://www.firstinspires.org>






Funding:

An achievable and successful funding plan is crucial towards maintaining a sustainable team that will continue to flourish over the years.

The first step is to collaboratively create a budget which highlights both direct and indirect expenses to get a clear view of the funding required.

Budgets generally include registration fees, travel expenses, robot construction parts, and any relevant costs.

Once you've established a budget, it is important to acknowledge potential yet realistic funding opportunities. The best place to start is by applying to grants offered by FIRST. It is helpful to frequently check the FIRST website to obtain the most up-to-date information.



Funding (continued)

Alternate funding strategies include:

Parent support is a crucial factor in acquiring necessary funds. Not only can they offer direct financial support, they can help set up connections with potential sponsors.



One-time fundraisers such as bake sales, car washes, and merch sales are all effective methods to collect funds and increase immediate exposure throughout the community.

An active media presence plays a significant role towards reaching the right audience. By sharing your mission and message online, you can reach diverse sponsors that share the same goals as your team. These types of relationships with the public can help encourage and maintain partnerships.



FIRST Safety

Overview

Safety is a paramount of FIRST's standards. Therefore, it is crucial for teams to thoroughly understand the safety expectations set into place. Failure to comply with FIRST's safety regulations will result in negative repercussions, including possible disqualifications.



Mentors must lead by example and students must put in the effort to familiarize themselves with FIRST's safety manual, while encouraging others to do the same. Defective PPE must be reported to mentors to avoid possible accidents. Any and all injuries/incidents need to be addressed.

Basic Competition Safety

No running or yelling at any FIRST Robotics Competitions

At FIRST events, eye protection must be worn in pits and on the field

Place objects like backpacks and drawstring bags away from the aisle while in the stands

Safety glasses must be worn:

- At the metal shop
- When operating or near someone else operating a power tool
- While drilling

When walking around at an event, stay in pairs and inform a mentor of your whereabouts

To enter the pits at a competition, you need:

- Safety Glasses
- Long hair tied back
- Closed toe shoes






FIRST Dashboard

All team members must officially register to the FIRST Dashboard.

- Have the students' parents go to firstinspires.org and click **Register** in the top right corner.
- Parents need to enter their information to create a **Parent Account**.
- Once the parents have their account, they can go to the **Parent/Guardian - Youth** tab and add a child.
- Next, they must link their child to the team by selecting the correct program (**FIRST Robotics Competition, FIRST Tech Challenge or FIRST Lego League**) and then searching for the team number.
- After completion, the head mentor will need to approve the application.

The FIRST Dashboard is also where student award submitters will submit the awards and where students, mentors, and parents can apply to volunteer at different events.



Communication

Communication is key in team with a lot of different working parts. To keep everyone on task and provide everyone with team/season updates, we suggest finding a communication platform that all mentors, students and parents can access.

Our recommendation is to stick to one platform, but it never hurts to collect emails and phone numbers as backups, especially for **emergency contacts!** Some communication platforms we recommend include:



Slack



Discord



Webex



WhatsApp



Messenger



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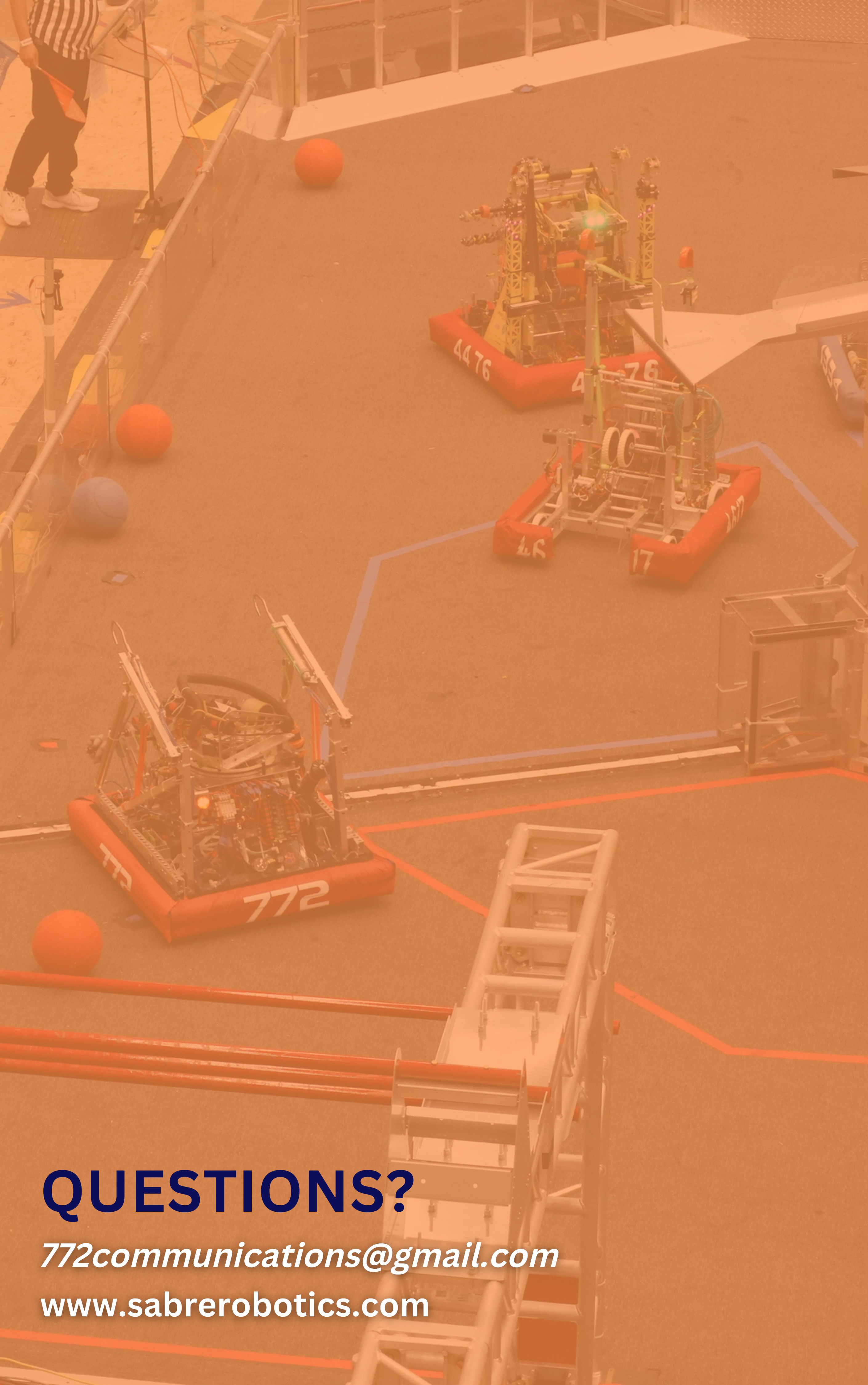
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QUESTIONS?

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