



# **SPONTANEOUS CONSTRUCTION**

## **Business Plan**

### **2020-21 Season**

Spontaneous Construction

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## Introduction

Hello, we are Spontaneous Construction, a robotics team from Shoreview, MN. We participate in an international robotics competition called *FIRST* Tech Challenge (FTC). This is our third year competing in FTC, and we are excited about the season!

The purpose of this document is to:

- Describe who we are and what we have accomplished in the past.
- Outline our goals for the upcoming robotics season.
- Provide information on how you can help us achieve those goals.

## Who We Are

We are a co-ed team of 10th and 11th graders. All of our team members are students at Mounds View High School. We are all passionate about learning STEM (Science, Technology, Engineering, and Math) and exploring the exciting world of robotics.



We started our robotics journey as a *FIRST* LEGO League (FLL) team in 2015. Over the past 6 years, we gained and lost members until we formed the group we have today. After aging out of the FLL program, we decided to move up to FTC and have now been competing for three years.

## Our Accomplishments

Our first year after moving to FTC we continued our success by winning awards for both our 3D printing and our Engineering Notebook. We had a great first year and learned a lot about robotics.

In our second year we received a 3D printing award and won the first place Innovate Award that advanced us to the State Tournament.

## About *FIRST*

*FIRST* stands for 'For Inspiration and Recognition of Science and Technology'. *FIRST* was founded in 1989 and has the mission 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* consists of four different robotics and research programs:



## About *FIRST* Tech Challenge

*FIRST* Tech Challenge (FTC) is a robotics competition where teams of up to 15 members in grades 7-12 design, build, and program robots to compete in a head-to-head competition against other teams. The robot is made out of different materials including commercial robot pieces and 3D printed parts. The robots are operated on a 12-foot by 12-foot playing field with 4 robots on the field at once, playing in alliances of two teams per alliance. Alliances compete to gain points by doing various things on the playing field. The competition consists of a 30-second pre-programmed period followed by a 2-minute driver-operated period, the last 30 seconds of which are called the endgame. Alliances can score points throughout.

This year's challenge is called Ultimate Goal.

For more information on *FIRST*, visit

<https://www.firstinspires.org/>



## Season Goals

### Robot:

- Keep an accurate and detailed Engineering Notebook.
- Use CAD software to create custom parts for our robot.
- Learn about and prototype new subsystems to tackle the challenges this season.
- Learn about and implement a smart positioning system to make Autonomous more consistent.
- Further develop a vision system to improve object recognition in Autonomous.

### Fundraising:

- Develop relationships with people and companies in the industry.
- Apply for grants to fund the team.
- Run fundraising events.

### Outreach:

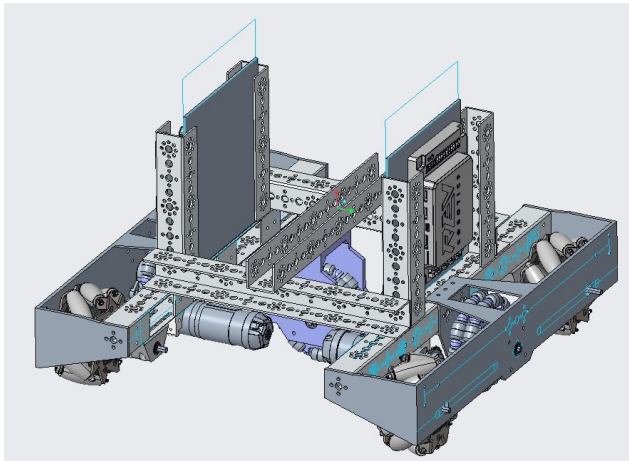
- Reach out to people who aren't aware of youth robotics programs to spread the word about *FIRST*.
- Reach out to local technology and engineering companies to learn about what they do and find mentors to help us develop the skills we need to compete more effectively.
- Reach out to local robotics teams to offer assistance and encouragement
- Volunteer at more *FIRST* tournaments

## Off-Season Events

We love sharing our passion for robotics! This off-season we participated in multiple outreach events.

### Target Demo and Tour

We were invited to demo our robot at the Target Northern Campus in Brooklyn Park with other FLL, FTC, and FRC teams. Four members went to the campus to demo our robot and talk to interested engineers. We were able to have a scrimmage with the other FTC teams after the demo along with going on a tour of their Guest Experience Center. We had a great time talking with everyone and hope to do this again in the future.



### CADing Contest

Three members of our team will compete in a CADing contest with other FTC and FRC teams. We will have a week to make a 3D model of a robot under certain guidelines. The competition starts on July 3rd and we'll have seven days to CAD. Once the model is finished it is submitted to be judged. We are very excited to compete!

### FLL Jr. Expo

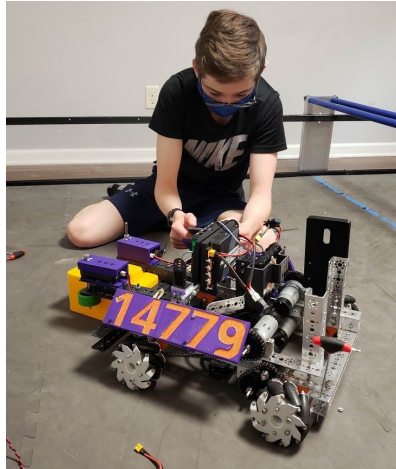
We volunteer at many *FIRST* events. Our team brought our two robots with us. We allowed kids to try driving our robots and talked to the parents about *FIRST* and the programs that come after FLL Jr. We handed out robot driver's licenses and stickers to the kids after they drove the robot. It was a ton of fun to talk to the kids as they were all excited to see the big robots, and we would love to volunteer at more of these events in the future.



# This Season

## Team

With the new challenges that everyone has been facing this year we have still been trying to work together as a team to prepare for the Ultimate Goal Season. We meet regularly over a video call to keep up on things and have materials to prototype and plan from home. So far we have been very successful.



## Hardware

We have been working on creating an outline for our robot next season. We have been designing and CADing a custom chassis for our drivetrain. The chassis will be stronger and more adaptable to our designs. Odometry pods have also been CADed by our team members. These pods will hold wheels and sensors to track the robot's position on the field. Prototypes are also being created to test different types of extension systems which we anticipate we will need next season.

## Software

We have also been working to prepare our software for the Ultimate Goal season. So far we have been programming the odometry pods to work on the robot once implemented. The odometry pods will assist our autonomous program and make our placement on the field more consistent. As a side project we have also been working on a button that will notify our team members when pressed. We would use this at competitions when Judges are coming to ask questions.



## Season Budget

Monetary donations will go toward the following items in our budget:











Categories	Item	Cost
Registration	<i>FIRST</i> Registration	\$275.00
	MN Registration	\$350.00
	State tournament registration	\$400.00
Season game pieces	FTC Field Kit	\$450.00
Robot	Electronics	\$1,000.00
	Extra parts	\$1,000.00
	Tools	\$225.00
Marketing	Uniforms	\$1,000.00
	Buttons, Banners, Pit Display	\$700.00
Miscellaneous	Meals, Team Food	\$1,000.00
	3D Printer	\$1,000.00
	Other Parts	\$600.00
		Total: \$8,000.00

If you are unable to donate money, there are many other ways you can help:

- In-kind donations of materials or mentorship, any help will be appreciated
- Share this document with other companies that may be interested in sponsoring us
- Volunteer at any *FIRST* events, FLL Discover, FLL Explore, FLL Challenge, FTC, or FRC. More information at <https://hightechkids.org/>.

## Sponsorship Info

In exchange for your generous donation, we provide the following benefits to your company:

Benefits:	Amount Donated:			
	\$100	\$250	\$500	\$1,000
Your Logo on the sidebar and sponsorship page of our website as well as in our newsletter				
Your Logo on the back of our cart, which we bring to all our competitions and outreach events				
Your Logo included in a 2' x 6' sponsor banner, which is displayed at the qualifier and most outreach events				
Your Logo on our robot				

We look forward to our new season and hope that you can support us. We are always happy to meet new sponsors.

Checks can be made out to:

**Spontaneous Construction FTC #14779**

Checks can be mailed to:

**Spontaneous Construction**

**877 Arbogast St.**

**Shoreview, MN 55126**

## Conclusion

Our team is excited for our third year of *FIRST* Tech Challenge and we would like to thank everyone who has and will help us this season. Ultimate Goal is sure to be a blast!

Even if you can't help us in any way, we would still love to tell you about FTC and give your company a demonstration of our robot. Please contact us to schedule a date! If you have any questions or would like to get in touch with us you can contact us at (651-529-5803), [team@spontaneousconstruction.com](mailto:team@spontaneousconstruction.com), or find us on Social Media at:

Instagram: @sponconftc

Twitter: @sponconftc

Facebook: facebook.com/sponconftc

Website: [www.spontaneousconstruction.com](http://www.spontaneousconstruction.com)

Thank you for your time and consideration!