



**Rohming Robots | Team 8477**

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**Greater Charleston**

South Carolina

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**2016-2017 Business Plan**

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## ***FIRST***<sup>®</sup> Overview

*FIRST*<sup>®</sup> (For Inspiration and Recognition of Science and Technology) is an organization that hosts robotics competitions for many different age groups from kindergarten to high school. The advantages of these contests are immense. One of the biggest benefits is that these competitions encourage teamwork, Gracious Professionalism, and “Coopertition”, which is the ability to cooperate with competitors. These things help students in future work environments. Students develop many important life skills like problem solving, tactical thinking, and teamwork. Team members gain valuable education in all areas, but more specifically in STEM (Science, Technology, Engineering and Math). *FIRST*<sup>®</sup> robotics programs also give participants beneficial hands-on experience with robots and the design engineering process. Finally, participants in *FIRST*<sup>®</sup> are provided a chance for many college scholarships.



# ***FIRST*<sup>®</sup> Tech Challenge Overview**

## ***What is it?***

*FIRST*<sup>®</sup> Tech Challenge (FTC) teams (10+ members, grades 7-12) are challenged to design, build, program, and operate robots to play a floor game in an alliance format. Participants call it “the hardest fun you’ll ever have!” Guided by adult coaches and mentors, students develop STEM skills and practice engineering principles (like keeping an engineering notebook), while realizing the value of hard work, innovation, and sharing ideas. The robot kit is reusable from year-to-year and can be programmed using multiple software interfaces. Teams also must raise funds, design and market their team brand, and do community outreach for which they can win awards. Participants have access to tens of millions of dollars in college scholarships. Each season concludes with regional Championships and an exciting *FIRST*<sup>®</sup> World Championship.

## ***What is the Impact?***

The positive impact on *FIRST*<sup>®</sup> Tech Challenge participants is gratifying and well documented. Over 84% have more interest in school, 84% have more interest in taking a challenging math or science course, and 86% are more interested in attending college. Also, participation in *FIRST*<sup>®</sup> allows access to millions in college scholarships made available by colleges, universities, and corporations who support *FIRST*<sup>®</sup>. This is an exclusive pool of financial help open only to *FIRST*<sup>®</sup> team members, giving them a competitive leg up on other students seeking educational funds.



(one new team member not pictured)

## **Team Mission**

The mission of the Rohming Robots is to encourage students to learn new skills and grow in their understanding of science and technology while inspiring others. We are committed to doing our best, refusing to give up, and learning from our mistakes, our mentors, and each other.

## **Team Vision**

To use our accomplishments to inspire teens and the community to resist the fear of failing by trying new endeavors.

## **Team Identity**

As a team, the Rohming Robots strive to resist settling for less than we are capable of as our minds “roam” for a better solution; however, our “rohming” is done like a robot - with procedures, plans, evaluations, and goals directing us as we explore. We know we may not be the best team, but we give our all to accomplish as much as we can. Resisting the desire to give up, striving to be our best, and learning all we can in our journey is what Rohming Robots is all about.

## Team Overview/History

Rohming Robots, FTC Team 8477 was founded in May 2014 by Linda Stewart, our Lead Coach/Mentor. The team began with eight team members, most of whom had been part of two *FIRST*<sup>®</sup> Lego League (FLL) Teams but were either aging out of FLL or looking for a higher level robotics challenge. We also decided to become a 4-H robotics-focused project club since 4-H has a similar vision for youth. Since we are not a school-based team, 4-H gives our team additional outreach opportunities and provides a support organization for our community group.

In our first year, the team did moderately well despite having no mentors outside of team parents and little funding until two months prior to the SC Championship. We finished 9<sup>th</sup> at our state FTC Championship in the robot competition and were selected for a finalist alliance which was eliminated in the first round. Rohming Robots received the Think Award, but we did not advance to the next level of competition.

Our second year, we added a number of new recruits from the community and developed relationships with two new mentors, Mr. Glen Phelps and Mrs. Cathy Fisher. We won the South Carolina FTC Championship by winning 1<sup>st</sup> place Inspire Award and being the captain of the winning alliance in the robot competition. In addition, we won second place Think Award. We advanced to the South Super Regional Championship where we competed with 71 other top teams from across the Southeast. Rohming Robots finished 19<sup>th</sup> in our division of 36 teams.

For the upcoming 2016-2017 competition season, we have added four new team members. Our team now consists of eleven team members, eight guys and three girls.

This will be the team's third year of competing in FTC. We have four rookies, one person with one year of experience, and the remaining six have two years of experience in FTC. Our team is based out of Charleston, SC, but we have team members from several communities in the Lowcountry. During the season, we meet twice a week at Charleston Southern University. So far, our team has graduated two Rohming Robots alumni.

The team has plans to conduct some training over the summer to help us to perform better in next year's competition. Part of the plan is to practice building a debris harvester, a linear slide lifting system, and a drivetrain to help prepare us for whatever next year's challenge may hold. The team is also going to practice using a new team organization plan over the summer so the team is familiar with it by the start of the season. Lastly, the team will train the new recruits so they can be up to speed by the start of the competition season.

## **Sustainability Plan**

The Rohming Robots plan to continue competing in FTC as long as it is still around. In order to do this, the team came up with a plan on how to keep the team active and competitive for future generations of Rohming Robots. The plan consists of four main points.

The first step is to generate excitement in the surrounding community. This allows our team to continue to not only expand FTC and *FIRST*<sup>®</sup>, but also get interest from students in the area. We have helped out a new FTC team that formed in the area, in addition to providing assistance to quite a few FLL teams. We plan to continue to help form new FLL teams through team run workshops and camps. We hope to encourage

professionals in the community to become mentors/coaches to teach our team and other FTC teams new skills and techniques.

Step number two is to actively recruit enthusiastic teens who fit Rohming Robots well. We offered several open house days during the 2015-2016 competition season where we invited interested students to visit to see what being a team member is like. This spring, we also began the process of taking applications and interviewing applicants to make sure we get committed recruits. After they join, the team spends a large amount of time training them to make sure they have all the tools they need to help the team, both now and in future seasons.

The third step is to build team materials. Year after year of FTC purchases accumulates a larger and more diverse supply of reusable parts, tools, and materials. This helps to relieve financial pressure on the team and allows them to not have to work as hard for fundraising.

Our final step is for our seniors and more experienced team members to train younger team members in their areas of skill. This allows the team to preserve the knowledge and skills which are acquired throughout the seasons.

The Rohming Robots are going to resist settling for less than our best, and that means continuing to use the interest we have generated as well as what we have learned and accumulated even after the original team members and founding coach have moved on to other things. Using this plan, our team plans to keep competing until the *FIRST*<sup>®</sup> Tech Challenge program ends.

## **Team Impact/Outreach**

Last season (February 2015-March 2016), the Rohming Robots contributed 363 total hours to community outreach/service with 267 of those hours from team members.

- Leading Lego Class at Homeschool Co-op
- Charleston STEM Festival 2015
- Charleston STEM Festival 2016
- Homeschool STEM event
- Charleston Engineers Joint Council Banquet 2015
- Charleston Engineers Joint Council Banquet 2016
- American Society Quality (ASQ) Conference 2015
- SME's Manufacturing Day Career Expo
- CDCA C5ISR 2015 Summit Event Participant
- Presentation for Mercedes-Benz Vans, LLC
- Mentored FLL Team 13128 - The Pro-Grammers
- Mentored FLL Team 12985 - TCA Tektons
- Hosted Charleston Practice/Build/Networking FTC Event (Scrimmage)
- Encouraged FTC #7021 - Robo Eagles - Military Magnet Academy, Charleston
- Assisted FTC #6386-Robo Crew-Hilton Head Christian Academy, Hilton Head

## 2016-2017 Goals

1. Use team structure to delegate tasks and make decisions.
2. Have the patience to design, model, and prototype before building.
3. Document the design process more accurately using pictures.
4. Be fully funded.
5. Encourage new FLL teams and inspire new FTC teams.
6. Use a variety of new parts and materials.
7. Build a durable and consistent robot.
8. Expand our community presence and team identity.
9. Have at least one working autonomous program by the end of November.
10. Advance to Super Regional Championship.
11. Be an alliance captain at our state tournament.

## SWOT Analysis

<b>Strengths</b>	<b>Weaknesses</b>
<ul style="list-style-type: none"> <li>● Well-balanced team</li> <li>● Significant FTC experience</li> <li>● Reigning state champions</li> <li>● Better team organization</li> <li>● Confidence</li> </ul>	<ul style="list-style-type: none"> <li>● Limited meeting space and times</li> <li>● Easily distracted</li> <li>● Need more mentors</li> <li>● Lack of outreach enthusiasm</li> </ul>
<b>Opportunities</b>	<b>Threats</b>
<ul style="list-style-type: none"> <li>● Expand our outreach in business, community, and FIRST</li> <li>● Rebranding</li> <li>● Share excitement about FIRST with homeschool community</li> <li>● Advance to the World Championship</li> </ul>	<ul style="list-style-type: none"> <li>● Scheduling challenges</li> <li>● Losing field space</li> <li>● Planning too far ahead</li> <li>● Poor time management</li> </ul>

## 2016-2017 Season Budget

<u>Expense</u>	<u>Budgeted</u>	<u>Estimated Income</u>
FIRST® Registration	275	Registration Grant, applied for - \$275
Android and Electronics Parts	500	
Team Computer	500	Possible PTC grant - \$500
Additional parts/raw materials	1200	
Tools & Storage Equipment	400	
Game field elements	500	
Marketing/Branding Materials	850	
Sponsor Rewards	350	
State registration	300	
Super-Regional Registration	500	
Travel Expenses	3375	
Food For Sat. Build Sessions	325	
Outreach projects & materials	250	
Misc. – Tax, Shipping, printing	400	
Team Fundraising		Estimate \$2500
	<b>\$ 9, 725</b>	<b>Needed for Season: \$6,450</b>

Make checks payable to **Clemson University Foundation** with 4-H Rohming Robots Club or our account number, **1224424**, in the memo line and mail to:

4-H Rohming Robots Club  
 1747 Manassas Drive  
 Charleston, SC 29414

Please also complete the Sponsorship Form which is included with this Business Plan.

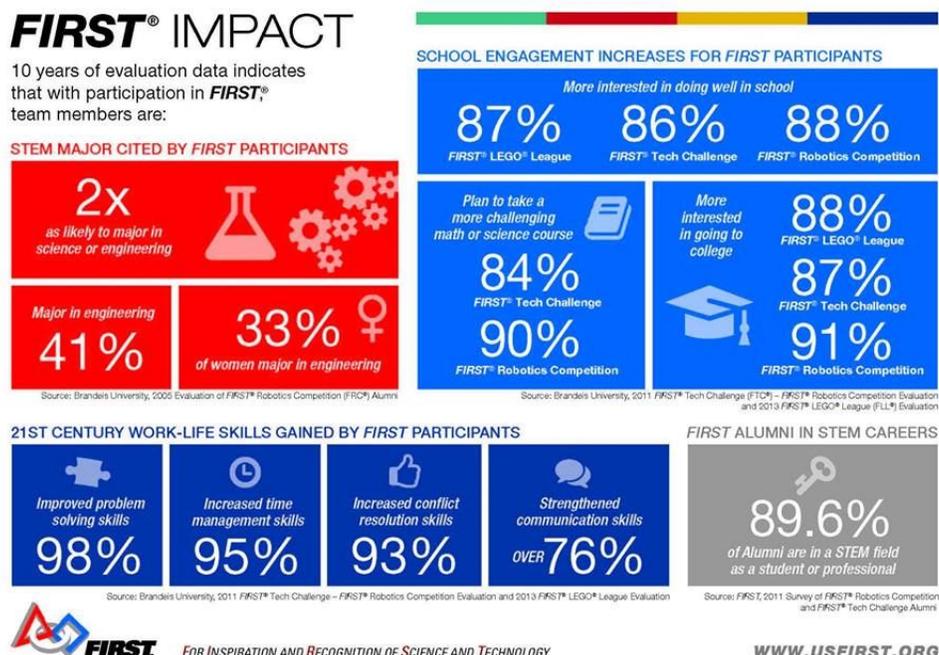
The EIN for Clemson University Foundation is: **57 - 0426335**

# Impact of Sponsorship

Every sponsor has a significant impact on our team. As an independent, community team, we have no institutional resources to draw upon. Your donation will help us to acquire the equipment, materials and resources to continue to advance as a team and to impact those in the community we come into contact with. *FIRST*<sup>®</sup> allows us to learn different skills such as electrical and mechanical engineering as well as programming. It also teaches personal skills like teamwork and gracious professionalism.

In addition to needing sponsors, Rohming Robots is also seeking in-kind materials and services such as tools, workshop space, and laptop computers. Access to metal machining services or welding services would also be valuable to our team.

Finally, we could benefit tremendously from additional community mentors with expertise in engineering, programming, project management, and marketing.



## Benefits of Sponsorship

- Helps to develop positive STEM experiences for young people in the community
- Increases awareness of your company
- Encourages a talented future workforce
- Sponsorship levels offer a chance to highlight your organization’s logo in a variety of places on our team’s marketing materials and even the team robot. See below for details on the levels of sponsorship

## Sponsorship Reward Levels

<b>LEVEL**</b>	<b>AMOUNT</b>	<b>REWARD</b>
Platinum	\$100	A thank-you letter and a social media shout out
Titanium	\$200	Platinum level plus a team photo and two team buttons
Constantan	\$300	Titanium level plus your logo/picture on team website
Mercury	\$500	Constantan level plus your logo on our T-shirt and a T-shirt
Diamond	\$1000	Mercury level plus a prominent logo on our robot
Teflon	\$2000	Diamond level plus a sponsor recognition plaque

\*\* As the sponsorship level increases, the electrical resistance of the material designating that level increases. Rohming Robots invites you to “join the resistance” and support our team at the highest level possible.