Aries
15342, Roseburg High School

Business Plan

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1.0 Executive Summary

1.1 FIRST® Description

FIRST® (For Inspiration and Recognition of Science and Technology) is an international foundation that promotes science and engineering through robotics. It was founded in 1989 by Dean Kamen and Woodie Flowers, both brilliant people. 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."

1.2 FIRST® Tech Challenge Overview

The *FIRST* Tech Challenge (FTC) is a robotics competition that provides students the opportunity to participate in a real world competitive STEM (Science, Technology, Engineering, and Math) team. 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 a variety of languages, including OnBot Java, which is a spinoff of Java. 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 championship events and an exciting *FIRST* Championship.

2.0 Executive Summary

2.1 Team Purpose

The purpose of our team is to increase interest in technology in our town, and to be a place to help foster and grow STEM knowledge and skills across our high school population. We strive to encourage STEM fields and post-secondary education with giving basic knowledge, career explanations, and problem solving skills that correlate those jobs.

2.2 Team Motto

"Nobody who ever gave his [or her] best regretted it."

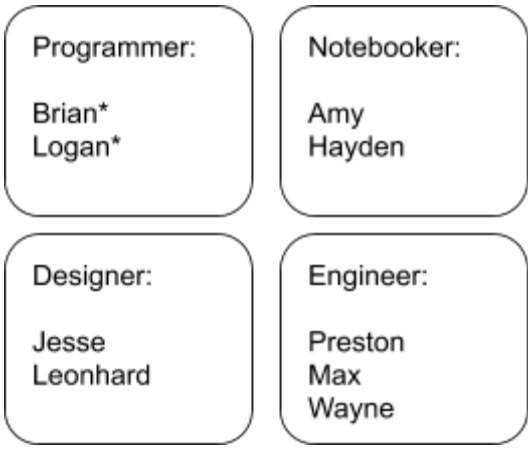
- *George Stanley Halas*

2.3 RHS Robotics Description

RHS Robotics is entering their fourth year as an organization this year. From 6 members and one FTC team, we have come a long way to three teams, over forty members, and being a three time state qualifier. Team Aries is a part of the three part conglomerate that makes up Roseburg High School Robotics.

2.4 Team Aries and Organizational Structure

Team Aries is a multi-faceted team. We are separated into four main parts on our team: Programmer, Engineer, Designer and Engineering Notebook. Although we do have some crossover of positions, we have only represented the primary roles. As you can see in the diagram on the right, we have a very functional team. The asterisks show the team captains, of which we have two.



2.5 Team Coaches and Mentors

Here on Aries we have two coaches and two mentors.Mrs. Knight and Mrs. Powell are the two coaches for our team. Mrs. Knight is a staff member at Roseburg High School working in the RHS Career Development Center and Mrs. Powell is a stay-at-home mom and the mother of Brian Powell on our team. As well as our two team coaches, we have two team mentors: Mr. Wier and Andrew Whightsil. The first mentor, Mr. Wier, is a physics teacher at Roseburg High School and he has been the executive authority of all Roseburg High School teams for his fourth year now. The second mentor, Andrew Whightsil, graduated from Roseburg High School last year and was the former president of Roseburg High School Robotics club. He is currently attending Umpqua Community College and planning to attend Oregon State University next year.

2.6 Team Relationships and Sponsors

As part of a robotics conglomerate, we have many intramural connections. These teams are 15341 Taurus and 13189 Scorpio. Outside of our school however, we have befriended many teams like 7750 Mini Maniacs from Roseburg, 9567 Cybernetic Elks from Elkton, and 12132 Biobotz2.0 from Roseburg. Together we have had many practices with these teams at Roseburg

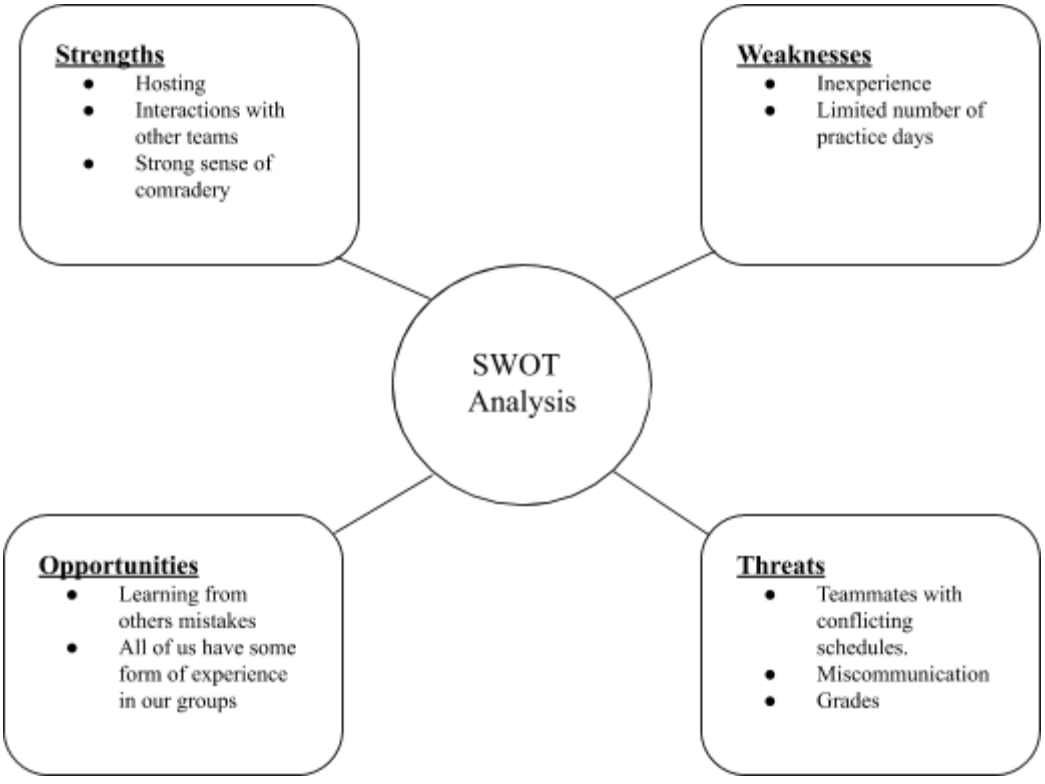
High School and because our partnerships we have been able to work to give an exchange of ideas to help better all teams involved.

3.0 Sustainability

3.1 Team Mission

For the 2019-2020 season, we as a team have organized our goals for the season. They are as follows: Establish an elementary school FLL team, place in the top three teams for competition at the league meet, and bring on newer teammates to help carry the team forward after the older members graduate. This sustainability allows for us to be able to push forward the involvement of robotics and STEAM in our community which in turn allows for exponential growth and the inspiration of the next generation of robotics students.

3.2 SWOT Analysis



Strengths: This year, we've had many advantages including a supportive coach and mentor, but the larger ones are our experience. On our team alone, we have a combined 18 years of experience in robotics, with three people having four years of experience in the FIRST program. We also have had a lot of experience in FTC, and our experience will definitely allow for us to set up for more future success.

Opportunities: We have the opportunity to use our experience from our past years to better ourselves and fall into similar positions that we were in last years competition such as not being able to get ample driving practice in. Another opportunity for us is that all of us we will be able to apply ourselves a little bit better to the situation.

Weaknesses: We have had a lot of newer kids on our team with new people constituting over 40% of our team. This could prove to be a hindrance by trying to get people to find their roles, and giving them all a type of "job exploration".

Threats: Despite all the positives that we have on our team, we certainly do have some threats on our team as well. Some of these threats have been realized, but thankfully so far this year, most have not. Some of our threats are teammates with conflicting schedules, which is a true thing with many members in our team being involved in sports and other on campus school activities. Another threat to us is the miscommunication that can happen to any team out there, due to absenteeism or some other form of truancy in robotics or responding to questions.

3.3 Team Goals

ACTIONS	STRATEGY
Expand the *FIRST* Program	- Reach out to Hucrest Elementary school by giving presentations to 5th graders about robotics. - Talk to Hucrest Elementary FLL Team and help show them to how to solve issues that they encounter.
Recruit new team members	- Reach out to teachers at RHS of fields that we specifically want (i.e. Journalism, Drafting, etc.)' - Hold interviews for interested applicants.
Develop Social Media Presence	- Further develop our YouTube channel, which has over 1500 views! - Help connect with teams across the nation about their robots.
Increase Team Funding	- Gain more team sponsors - Talk to local businesses about supporting our team - Plan fundraising events (i.e. Bottle & Can Drives, Dance, Car Washes, etc.)

3.4 Team Demographics

Team Information	
Team Year	2
Team Name	15342 Aries
Nickname	Aries
Location	Roseburg, OR
Locale	Roseburg High School, M - 211
Number of Students on Team	10
Number of Female Students on Team	2
Number of Male Students on Team	8
Number of High School Freshmen	1
Number of of High School Sophomores	8
Number of High School Seniors	1
Percent of African-American/Black Students on Team	10%
Percent of Asians on Team	20%
Percent of White/Caucasian Students on Team	70%
International Students on Team	1
Team Motto	*"Nobody who ever gave his [or her] best regretted it."* - *George Stanley Halas*
Team Website	Brian's Website
Team Blog	See Brian's Website

3.5 Summary of Team Growth

From last year, our team has stayed at the same number. However, we have grown a lot in younger aged students with only 1 student on our team being an upperclassmen. We have recruited a lot to help fill in the roles of the seniors and juniors from last year. We have been able to create a foreseeable future for our team because we have roles established from now until the time we graduate. We have an exciting path ahead of us, and we are ready for whatever it holds.

3.6 Summary of Future Team Plans

Aries has many goals this year, but one of the highlighted goals for us and our program has been the creation of Elementary FLL teams, and the fostering of young growth in FIRST and robotics. We've been able to see with our own eyes from the creation of the FLL and FTC teams at the local middle schools all the good that being involved in robotics early offers. Aries took charge of helping out Hucrest Elementary School with their robotics program, and we were able to create four teams and over sixty students our first year. Besides our first year with mentoring other teams, Aries has many other plans. We plan on reaching out to other FTC teams in our county about doing mini tournaments to help all of us get better. Aries has a goal of making state this year, and these practices will certainly help us get there.

3.8 Summary of Outreach

Our team has been fortunate enough to be able to work with our school district, and thanks to Roseburg Public Schools, we have been able to go to teach FIRST Lego League robotics at Hucrest Elementary School in our community. We have taught LEGO robotics to fifth graders giving them an explanation of what we do on a regular basis with the evaluation and implementation of the engineering process, and the process of building a robot and building upon your strengths and readjustment. We are hoping to continue this program for the future and continue our partnership with Umpqua STEAMHub and Roseburg Public Schools. We have also built up a YouTube channel that has garnered over 1500 views on our channel, and a robotics website with search engine impressions from over 10 countries.

4.0 Lessons Learned This Year

4.1 Time Management

We have learned a lot this year in robotics, but one of the highlights that has come up has been the newfound improvement of time management skills on our team. We have been implementing new practices such as the use of apps like GroupMe and Remind with scheduling on the apps to make sure that we get tasks done at robotics in an orderly manner.

4.2 Comradery

In the words of John Steinbeck, “All of them had a restlessness in common.” We as a team tried to create an environment where all of us could foster growth and discover newfound knowledge about the process of making a team that can work together in perfect sync. We have definitley come closer as mentors, friends, but more importantly we have become closer as a team through striving to make personal connections outside of the robotics lab.

4.3 Preparation

This year has led to a lot of timed decisions, and while we were happy with the times that we made them at, making those decisions can be difficult. We as a team can safely say that we are better able to evaluate our circumstances and conditions in which we are prepared to make a decision on the major and minor changes of our robot. We have become more thougtful people because of our experiences this year.

5.0 Conclusion

5.1 Conclusion

This year has been a whirlwind. We have had so many wonderful and new experiences from being ranked second in the River league all season long, placing first at meet three, and being able to help innovate a new way to lead and inspire elementary students to see all the opportunities that FIRST and the STEM field can offer in their futures. We have also come closer as a team through utilizing communications technologies more efficiently, and by establishing a better use of time management. We have been working hard on our many media outlets, including our YouTube channel and our website. We have been able to help make new changes to the robotics program this year, and we have seen the rewards of our hard efforts by looking at the way we have had fifth graders get excited about getting to make a robot, or by watching newer competitors in FTC finally being able to grasp concepts that we taught them and then implementing them to help build their robot to become better. Needless to say, this year has been our best yet, and we’re not planning on stopping here. We want to continue working on our robot and making the necessary improvements to make us a world class team.