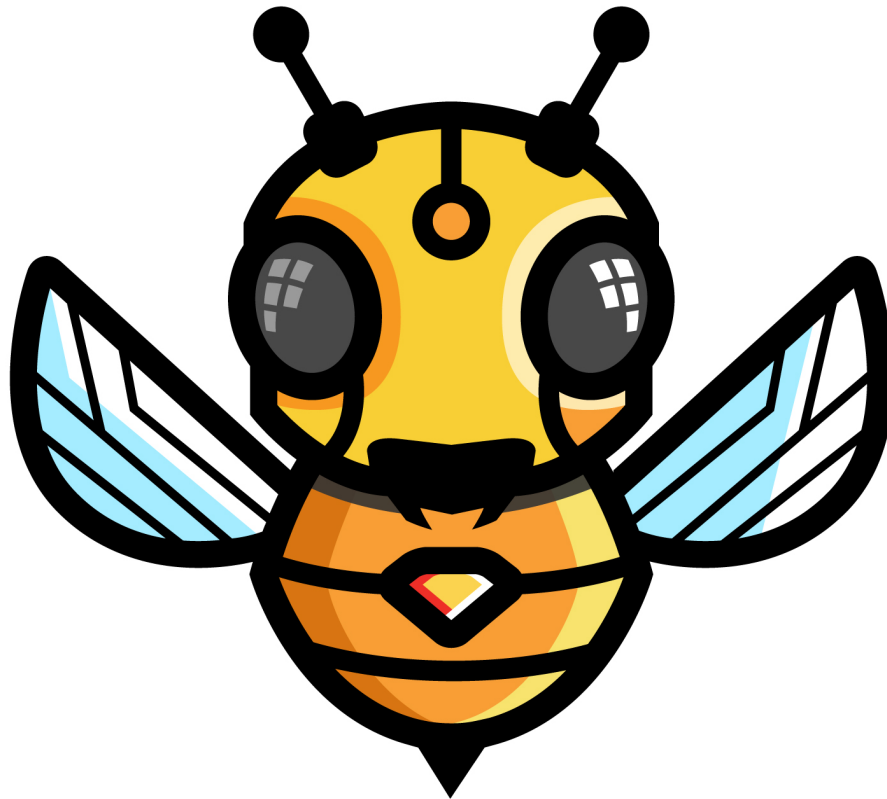


Team 7516



LOUISVILLE CENTRONS

2019-2020 Business Plan

Central High School Magnet Career Academy

www.louisvillecentrons.com

@CHSCentrons

Central High School Magnet Career Academy

Established 1870

1130 West Chestnut Street
Louisville, Kentucky 40203

Vision:

Relentlessly continuing our tradition as leaders of positive social change.

Mission:

Establish high academic expectations for all students,
Ensure post-secondary success for all students,
Engage in culturally responsive living, and
Encourage passionate pursuit of global citizenship.



The 2019-2020 Centrons Robotics Team!



Table of Contents

1. Executive Summary	1
1.1 Introduction	1
1.2 Our Team’s Mission Statement	1
1.3 What is First?	1
1.4 About Central High School	1
1.5 Team Goals	1
2. Team Information	2
2.1 Second Year	2
2.2 Location	2
2.3 Mentors	2
2.4 Alumni Advisors	2
2.5 Student Demographics	2
2.6 Team Sponsors	2
2.7 Team Growth	2
2.8 Collaboration With Other VEX Teams	3
3. Structure and Organization	4
3.1 Sub Teams	4
3.2 Executive Team	4
3.3 Engineering Team	5
3.4 Programming Team	6
3.5 Business Team	7
3.6 Safety	8
3.7 Schedule	8-9
4. Outreach	10
4.1 Summer Outreach	10
4.2 Fall Outreach	10
4.3 Spring Outreach	11
5. Marketing	12
5.1 Collaboration with Sports Marketing Magnet	12
5.2 In-District Marketing	12
5.3 Sponsors	12
5.4 Social Media	12
5.5 Promotional Items	12

6. Proposed Budget	13
6.1 Projected Funding Sources	13
6.2 Estimated Expenses	13
6.3 2019 Balance Sheet	14
7. Photos	15-16
8. Sponsors	17

1. Executive Summary

1.1 Introduction

This document is our proposed plan for our second year as a FIRST Robotics FRC team. It is a guideline for financial planning, but we will also use it as a basis for our activity structure.

1.2 Our Team's Mission Statement

"The mission of the Louisville Centrons FIRST Robotics Team is to allow our students to explore a synthesis of academic disciplines, including Engineering, Informational Technology, and Business Marketing. As a team, our members will work to design, build, and market a competitive robot while supporting the ideals of FIRST."

1.3 What is FIRST?

The For Inspirational and Recognition of Science and Technology (FIRST) organization was founded by Dean Kamen and Woodie Flowers in 1989. The intention of FIRST is to engage students into the fields of engineering and technology by creating a cooperative robotics competition. Their website is <https://www.firstinspires.org/robotics/frc>.

1.4 About Central High School

Central High School Career Magnet Academy is located at 1130 W. Chestnut St, Louisville, KY 40203 and has served the downtown community since 1882. Central began in a time dramatically different from now; - a time of separation, inequality, and injustice for many people. In 1870, a group of leading black citizens appealed to the Louisville Board of Education for free schools for their children. The Board of Education opened two buildings in October for educating "children of the Africa race," to be financed by taxes collected from the black community. Thus began what eventually was to become Central High School. Consequently, Central has a rich history of academic and athletic achievement through many generations, and many students have parents, grandparents, or other family members who attended Central. This results in a deep sense of pride and tradition within the school and surrounding community.

1.5 Team Goals

Our team plans to build upon our experiences from last year to build a competitive robot that will be used in one or more events. It is our goal that each student increases his or her knowledge about engineering, computer science, coding, and mechanics. Furthermore, we hope to be able to leave enough funding at the end of the year for seeding the program in 2021.

2. Team Information

2.1 Second Year

We will be entering this season as a veteran team! We are going to build upon our experience from last year to further develop our team's understanding of engineering, coding, competition, and team planning.

2.2 Location

The Louisville Centrons is a school team of Central High School Magnet Career Academy located in Louisville, Kentucky. We operate out of our makerspace, The Colony.

2.3 Mentors

Our mentors from last year are returning. Coach Jim Gilbert has taught at Central for 21 years, and teaches Cyber Engineering. Coach Shawn Canaday has taught Information technology for 26 years in Kentucky and Illinois. Administrator Chris Brown has been at Central for 12 years and teaches programming and material processing.

2.4 Engineering Advisors

In addition to the team mentors, we two engineering students from the University of Louisville Speed School of Engineering: Alex Rana and Garrett Kremer. Alex is a former Central High School student, and Garrett was on hand to help us with our robot build last year.

2.5 Student Demographics

We have 44 students on our FIRST and VEX robotics teams, 17 girls and 27 boys. The team make up is 9 seniors, 14 juniors, 12 sophomores, and 9 freshmen.

2.6 Team Sponsors

The University of Louisville Speed School of Engineering is our primary sponsor. They have supported Central's robotics programs for five years. We also attained grants from Argosy and Toyota this year. We plan on reaching out to other organizations for donations and gifts in kind before the start of the season.

2.7 Team Growth

Last year we worked on increasing the number of students on our team. We are happy to report that our robotics membership has increased by 59%. We hope to continue to reach out to our student body and interest them in our program.

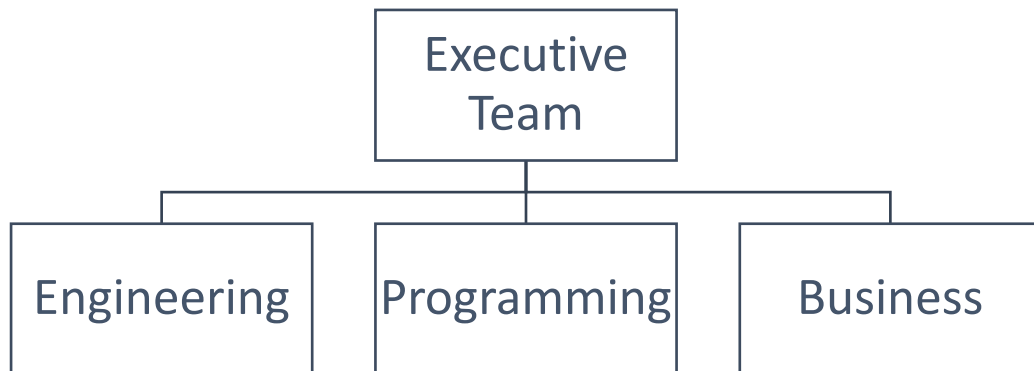
2.8 Collaboration with Other FIRST Teams

Team 5492, Winner's Circle RoboJockeys from Manual High School, has been a very gracious mentor program. They helped us out immensely during our first year. We have partnered with them for two outreach events since the season ended.

3. Structure and Organization

3.1 Sub-Teams

Our team is divided into four groups based upon student strengths. Sub teams of engineering, programming, and business will focus on specific aspects of the project. Final decisions and guidance will be made by the executive team.



3.2 Executive Team

This team is composed of four seniors, all of which belong to Central's Innovation Magnet Program. Each student has a background in either FIRST or VEX robotics, and all are on an educational track to enroll in a college of engineering. They are also heading up our school's STLP team.



3.3 Engineering Team

The engineering team will be responsible for planning, building, and testing the competition robot. The chassis will be built in class as part of our Cyber Engineering construction. The rest of the robot will be developed by our after-school teams. The engineering team will also form the Pit Crew during competitions.

Engineering Team

Design

Chassis
Fabrication

Arms
and
Grippers

Electronics

Testing

Pit
Crew



3.4 Programming Team

The Programming Team will develop the coding and controllers for the robot. We plan on creating programs in both C++ and LabVIEW this year. Each program will be tested for efficiency, and one will be chosen for competitions. The Programming Team will also be responsible for analyzing the game rules and acting as on the Pit Crew during competitions.

Programing Team

Coding

Controllers

Game
Rules

Field
Analysis

Pit
Crew



3.5 Business Team

The Business Team will be critical to the success of the Centrons. Their primary role will be following our financing plan for the season and finding additional funding sources. They will accomplish this by soliciting sponsors and planning fundraising. They will also be responsible for purchasing, social media, public relations, community outreach, and tournament relations. They will work closely with Central High School’s Sports Marketing Magnet program to develop an advertising plan.

Business Team

Financial
Planning

Purchasing

Sponsor
Relations

Social
Media

Public
Relations and
Outreach

Tournament
Relations



3.6 Safety

We will make safety a critical aspect of our team's ethos. This year we are installing a position of safety director to our administration team. This individual will be responsible for creating a mobile safety station that can be attached to our pit area during tournaments. All members will be required to know all safety requirements. Eye protection must be worn by any member working with the robot. Our makerspace is equipped with an industrial first aid kit, and the mentor/teachers have been trained by the school district to respond to hazards.

3.7 Schedule

We have designated three seasons for our team. In the pre-season phase we have been recruiting members, registering our team, and formulating this business plan. Our sponsor has donated funds to purchase a second roboRIO, and we will use that processor to create test beds for exploring motor controllers and the pneumatics system. We have been meeting once a week to educate ourselves about FIRST by researching past events and looking at other teams' business plans. The build season will start in January with the delivery of the Kit of Parts. We will meet three days a week during build season to work on our robot. During our competition phase we plan to attend the Smoky Mountain regional in March. If funds are available, we will also attempt to attend the Miami Valley regional in February.

September	4, 11, 18, 25	Wednesday	Regular Team Meeting	2:30-4:00
October	2, 9, 23, 30	Wednesday	Regular Team Meeting	2:30-4:00
November	6, 13, 27	Wednesday	Regular Team Meeting	2:30-4:00
December	4, 11	Wednesday	Regular Team Meeting	2:30-4:00
January	6	Monday	FIRST Kickoff	2:30-4:00
January	9, 10	Wed-Thurs	Design Session	2:30-4:00
January	15, 16	Wed-Thurs	Build Session	2:30-4:00
January	22, 23	Wed-Thurs	Build Session	2:30-4:00
January	29, 30	Wed-Thurs	Build Session	2:30-4:00

February	5, 6	Wed-Thurs	Build Session	2:30-4:00
February	12, 13	Wed-Thurs	Build Session	2:30-4:00
February	19, 20	Wed-Thurs	Build Session	2:30-4:00
February	21	Friday	Robot Unveiling	TBA
February	26-29	Wed-Sat	Miami Valley Regional (depended on funding)	
March	25-28	Wed-Sat	Smoky Mountain Regional (registered)	

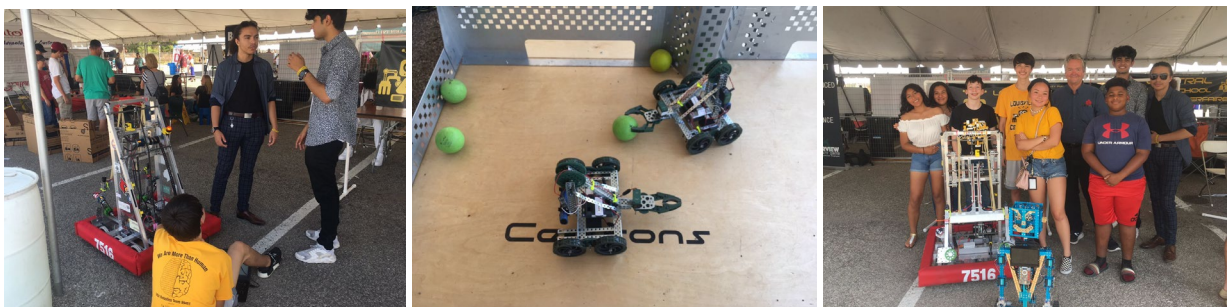
4. Outreach

4.1 Summer Outreach

We have completed two community outreach programs since last season. The first involved a pairing with team 5492, the Louisville RoboJockeys, for a robotics demonstration with the Lincoln Foundation's STEM middle school summer camp hosted by Central High School. Both teams demonstrated their robots, spoke about their experiences, and allowed the campers a chance to drive the robots.



Our second outreach was participation in the Louisville Maker Faire. Our team set up a booth that demonstrated our FIRST robot, and we had a number of VEX Clawbots in a miniature competition field for visitors to drive. Our school has been affiliated with the local Maker Faire for five years, but this was the first time that we sponsored our own booth.



4.2 Fall Outreach

In our school district's October Showcase of Schools, we had a table display about our Cyber Engineering classes, and we had our FIRST robot on display. In November, we will host Louisville's only high school VEX tournament, the Yellow Jacket Challenge. This will be the tournament's fifth year, and each member of our robotics team will be in attendance. We will display our FIRST robot at the tournament, along with a display board highlighting our FIRST experiences.

4.3 Spring Outreach

We will unveil our next FIRST robot in late February during a school assembly. After tournament season, we will try to showcase the robot to various middle schools. We have been invited back to the Lincoln Foundation STEM camp and the Louisville Maker Faire, so we will plan out those visits once the season runs down.

5. Marketing

5.1 Collaboration with Sports Marketing Magnet

We are fortunate that one of the magnet programs at Central is Sport Marketing. We intend to work with this class to refine our marketing plan. They can assist us with advertising, video editing, and graphic arts. Their expertise will be critical in allowing us to spread the word about the Centrons.

5.2 In-District Marketing

Part of our marketing plan will be an awareness campaign at both Central High School and the school district at large. We will primarily advertise in our school to attract new members. Last year, our robot unveiling coincided with a board of education meeting held here at our school. This gave us the perfect audience show off the work of our students. We plan to have a robot unveiling in February during a similar meeting or school assembly.

5.3 Sponsors

One of the biggest functions of our marketing team will be to solicit grants from local sponsors. Since our district has an endowment foundation, we are not able to ask the larger corporations in the Louisville area for funding. So we will focus our efforts on local colleges and businesses. Each sponsor will be printed in our advertising, featured on the side of our robot, and listed on our pit banner during tournaments.

5.4 Social Media

The marketing team will be responsible for keeping a team presence in social media. We have a Twitter account which is telling the story of our multiple endeavors (@CHSCentrons). We also have a dedicated Instagram account and YouTube channel.

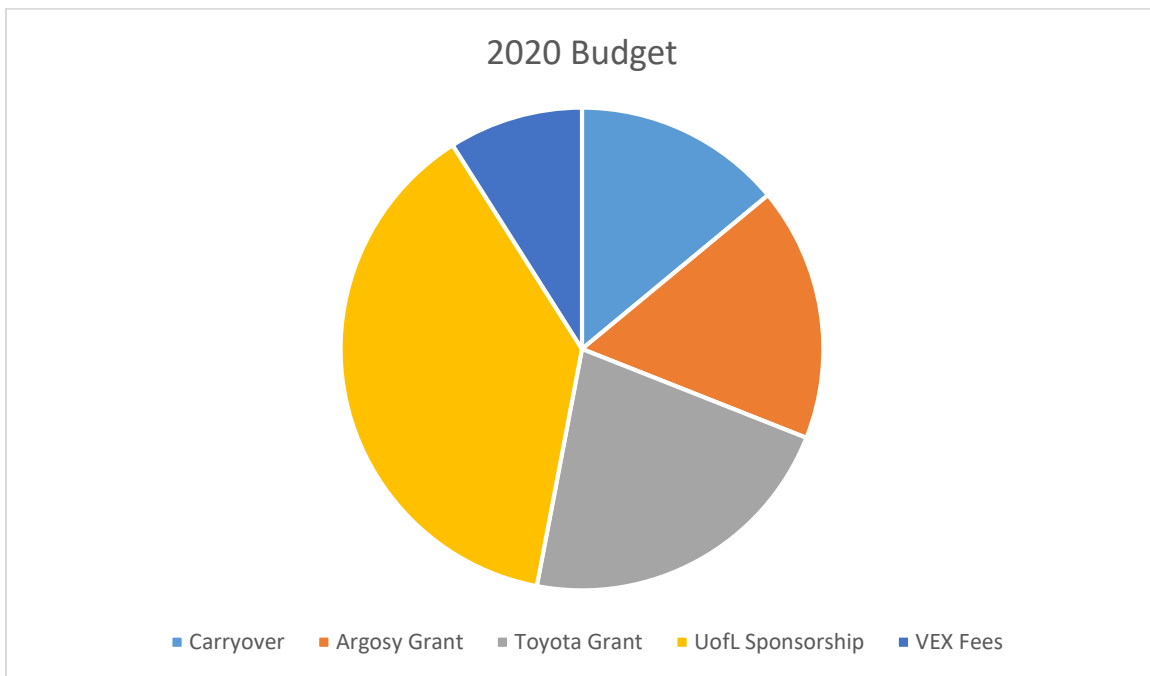
5.5 Promotional Items

We are proposing spending \$500 on promotional items such as buttons, stickers, and logo cards to use at the tournaments while recruiting partners. We can also use these items for visitors to our maker space and during our outreach programs.

6. Proposed Budget

6.1 Projected Funding Sources: \$11,606.37

Carryover Balance (2019)	14%	\$1,606.37
Argosy Grant (Second Year)	17%	\$2,000.00
Toyota Grant	22%	\$2,500.00
UofL Sponsorship	38%	\$4,500.00
VEX Tournament Fees	9%	\$1000.00



6.2 Estimated Expenses: \$10,700.00

Competition and Registration Fees	\$5,200
Robot Parts (estimated)	\$3,000
Travel Expenses (estimated)	\$2,000
Marketing	\$500

6.3 2019 Balance Sheet

Proposed Funding Sources: \$11,000.00

Rookie Grant (First Year)	36%	\$4,000.00
Sponsorships	36%	\$4,000.00
Mentor Gift	5%	\$500.00
School Budget (from magnet program)	14%	\$1,500.00
District Travel Funds	9%	\$1,000.00

Actual Funding Sources: \$11,160.00

Robotics Club Carryover Balance (2018)	4%	\$473.00
Rookie Grant (First Year)	36%	\$4,000.00
Mentor Gift	18%	\$2,000.00
UofL Grant	14%	\$1,538.00
VEX Tournament Fees	21%	\$2,330.00
Donations	7%	\$819.00

Expenditures: \$10,206.15

FIRST Rookie Fee	61%	\$6,200.00
Additional Parts	13%	\$1,338.00
Travel Expenses	26%	\$2,668.15

Working Balance: \$953.85

7. Photos



Our 2019 robot, *Diane Porter*

2019 Trip to Smoky Mountain Regional



8. Sponsors

8.1 Major Donors

We are grateful and indebted to our sponsors. The cost of this program would be overwhelming for our classroom budgets, but there are people who believe in the students of Central High School, and the donations we receive allow us to create life-changing experiences.



F. J. Foundation Inc.



8.2 Gifts in Kind

Argo Networks
A & M Machine Company LLC