

**Ellipse**

**FRC Team 6814, Sonoma Academy**

**Business Plan**



**Ellipse**

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# Executive Summary

## **Mission Statement**

*“Ellipse 6814 calls its members to be creative, gracious professionals, and committed to working passionately toward a common goal. Guided by adult mentors, student leaders and community partners, we prepare ourselves to be leaders in a dynamic and challenging world.”* - Ellipse 6814 Mission Statement.

## **Date Team Began**

August 18th, 2017

## **Team Summary**

Ellipse has a short history in the FRC world, we started in the fall of 2017. Ellipse provides a creative outlet for students to experience the implications of STEM. We are student run and student developed, which allows students of all ages to have the experience of being put into a leadership role. By allowing students to experience a new form of academic integrity and gracious professionalism, Ellipse is not only a robotics team, but a safe place for growth and understanding.

## **Program Summary**

FIRST was founded in 1989 to inspire young people's interest and participation in science and technology. FIRST designs accessible, innovative programs that motivate young people to pursue education and career opportunities in science, technology, engineering, and math, while building self-confidence, knowledge, and life skills.

## **Location of Team**

Santa Rosa, California.

## **Current Sponsors**

Kraus Motor Co.

Brin-Wojcicki Foundation

## **Team Impact/Outreach**

Ellipse 6814 is part of an alliance with other FRC Rookie teams that aims to support each other through brainstorming and idea sharing. This alliance provides the team with helpful information that can increase our chances of having a successful first year experience. We have formed a relationship with a newly forming team in British Columbia (Iris 7173). This alliance is for brainstorming, sharing ideas, and growing a collective skill sets. However, our team will still continue in asking and providing assistants from other teams. We have also become sister teams with Leviathan Robotics 6883, another rookie team located in Santa Rosa. We are comparing robot designs and working on cooperatively building game elements to practice together. We hope to grow and maintain a relationship with Leviathan Robotics for years to come. Ellipse 6814 is also reaching out to local elementary and middle schools. Ellipse 6814 is currently teaching robotics via Lego Mindstorms to Kawana Springs Elementary School. We are planning to make more connections with schools in the outlying Sonoma area to share our love of robotics as well as educate them about FIRST Robotics.

Once the season kicks into high gear, the team will organize and host two informational dinners. The first dinner will provide information to the member's parents, as FRC is a new enterprise for most families. This will provide inclusion and foster a positive relationship with team families. The following dinner will be before the regional competition for sponsors, other teams, local government officials, heads of school, and other school employees. We will invite local schools and government officials in order to spread the word of the FRC program to our community to create a fun and friendly environment dedicated to the learning of robotics.

### **Summary of Future Team Plans**

To consider the future, we hope to create a fun and friendly, but competitive, environment. Both now and in the future, Ellipse 6814 aims to provide structure for experienced students and fresh faces alike. In our first year, we have set the lofty goal of achieving the Rookie All Star award, and have reached out to multiple other recipients to look for guidance on how to achieve it. We hope that in all years to come, students walk away from the team with experience in all aspects of robotics.

# Team Overview

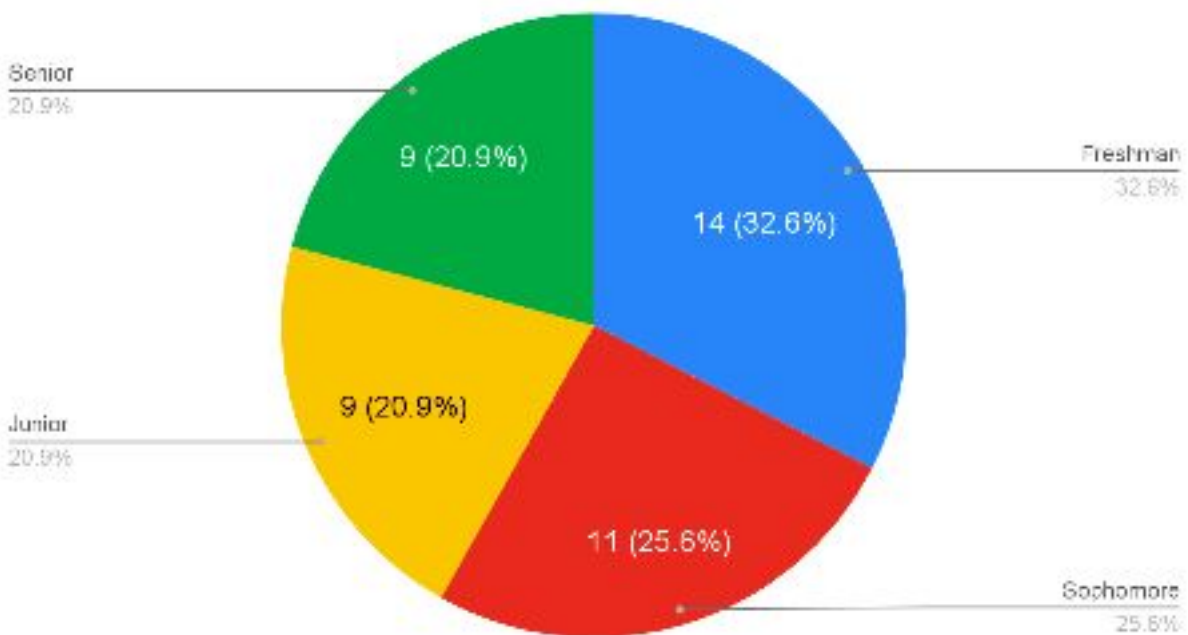
## Team History

Ellipse has a short history as we were founded in 2017. The 2018 season will be our first chance at competing in an FRC event. Student Bryce Hanson, proposed the idea of an FRC Robotics team during the middle of the 2016-2017 school year, and has been working with teacher Ramsey Musallam, to make the vision a reality. The FRC program is the first robotics of any sort that our school will be participating in, and Sonoma Academy is thrilled to begin this new robotics team.

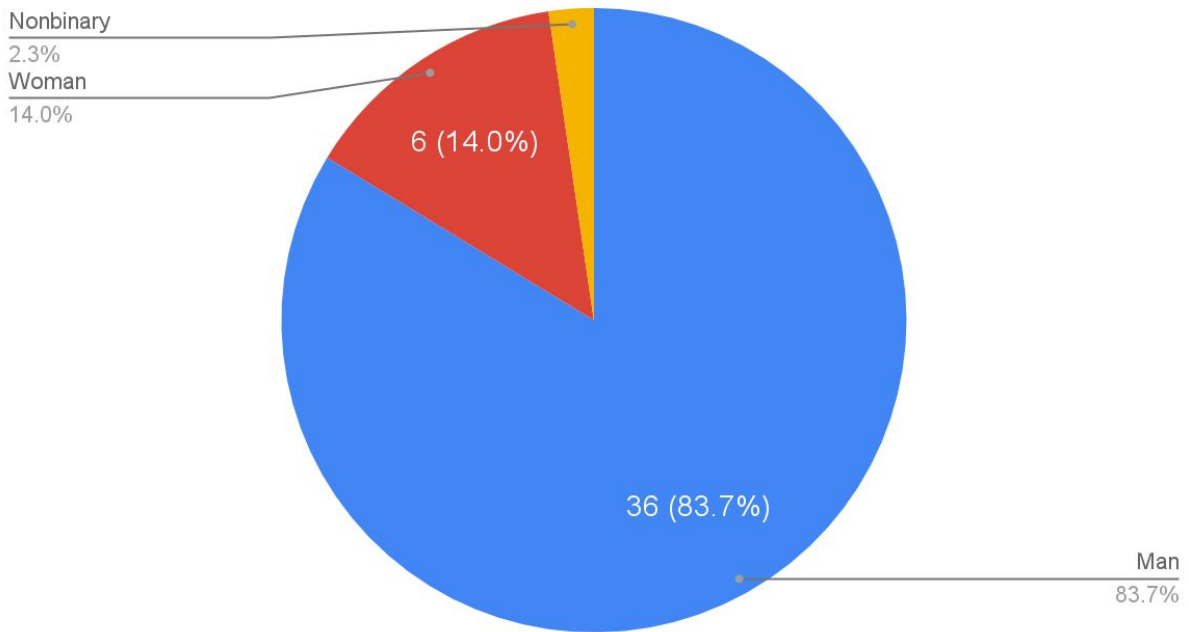
## Student Team Members

We welcome all individuals with different robotic backgrounds, from students who live and breathe robotics to beginner students who simply want to learn more about the world of science, technology, engineering, and math. We have team members from all grade levels, and have divided the group into multiple subdivisions in order to to increase productivity. These subdivisions include: Fabrication, Actuation, Programming, Electronics, Treasury, and Communications.

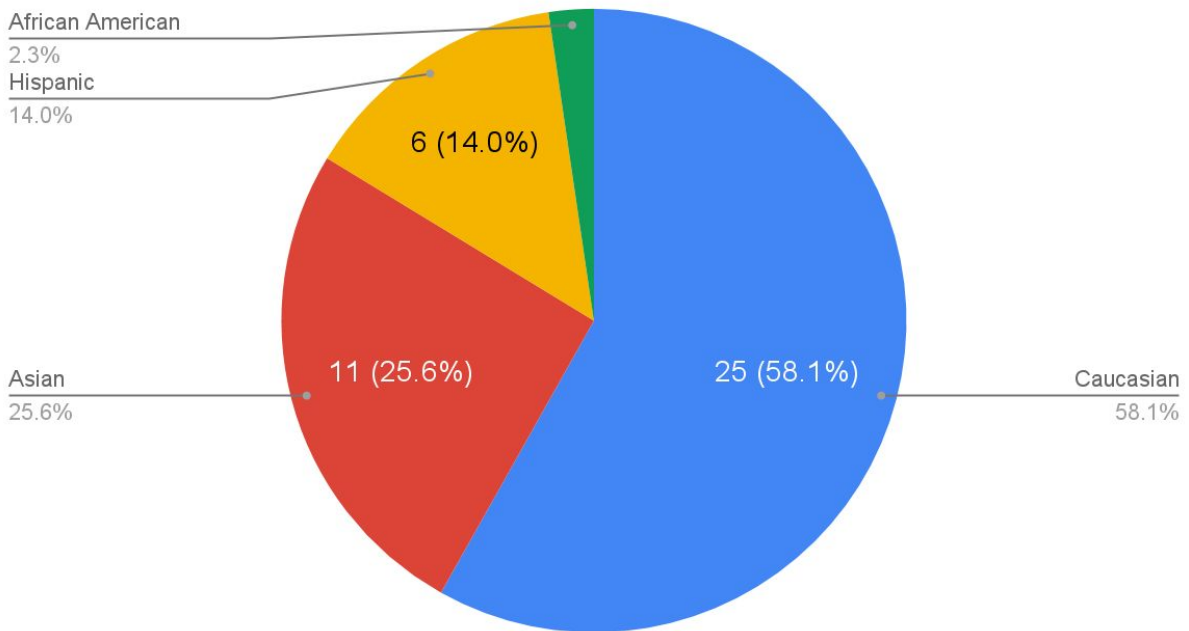
Team by Grade



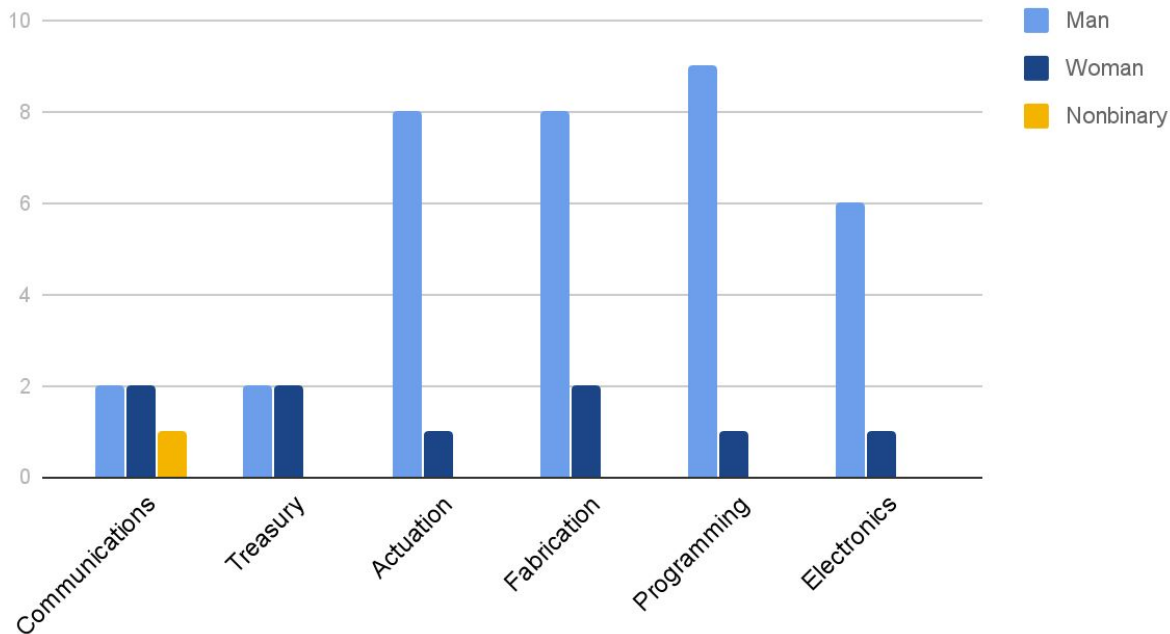
## Team by Gender



## Team by Ethnicity



## Subteams by Gender



## Team Mentors

The majority of Ellipse 6814 is student run. This is due to the fact that one of our goals is to create positions of leadership for the students to fill. We believe working on an FRC team can create team building skills that are extremely useful for post-high school careers.



### Ramsey Musallam

Ramsey Musallam is the lead mentor of Ellipse 6814. He is a secondary science instructor at Sonoma Academy in Santa Rosa, California. Ramsey has also served as an adjunct professor of education at the University of San Francisco and Touro University in the San Francisco Bay Area. Prior to his role as a science instructor at Sonoma Academy, Ramsey served as a Science Instructor and Director of Inquiry and Innovation at Sacred Heart Cathedral in downtown San Francisco for 15 years. In addition his role as a science teacher, Ramsey runs invention workshops for elementary and middle school students in the greater Bay Area.



### Changa Imara

Changa Imara is an assistant mentor of Ellipse 6814. He received a bachelor's degree from UC Davis in 2006. He teaches programming at Sonoma Academy as well as providing the HelpDesk tech support. He has worked as an Apple Genius and webapp developer in the past.



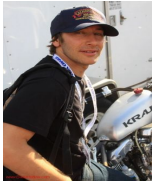
### Lisa Zavieh

Lisa Zavieh, is an assistant mentor of Ellipse 6814. She received both her bachelor's and master's degrees from Cal Poly and her Ph.D. from Penn State. She is the Sonoma Academy STEM department chair and has worked as an engineer and mathematician.



**Eric Moes**

Eric Moes is an assistant mentor of Ellipse 6814. He received his bachelor’s degree from UC Berkeley. He has worked as an architect, energy consultant, and received teaching credentials to become a licensed high school STEM teacher.



**Satya Kraus**

Satya Kraus is an assistant mentor of Ellipse 6814. He owns and operates Kraus Motor Co., a company that makes precision aftermarket motorcycle parts. Satya will be helping oversee the fabrication and actuation subteams.



**Carole Hanson**

Carole Hanson is an assistant mentor of Ellipse 6814. She received her bachelor’s degree from UC Santa Cruz. She now works as a perinatal consultant in San Francisco. Carole will be helping oversee the treasury and communications subteams.

## Team Sponsorships and Grants



Kraus is an American brand dedicated to designing and manufacturing high quality, performance products for popular American motorcycle models. Kraus Products improve performance, comfort, and safety through the use of modern suspension, user control and braking technologies. Our products unite the visceral and exciting feel of an American v-twin with the capabilities of a technologically advanced road handling motorcycle.

THE BRIN WOJCICKI  
FOUNDATION

The Brin Wojcicki Foundation is helmed by Google cofounder Sergey Brin and his wife Anne Wojcicki (although they are now separated). Much of their grantmaking takes place in the Bay Area, with health (Parkinson's research), education, and poverty being high priorities.





# Team Management

## Membership Recruitment

Ellipse 6814 is composed of 48 members, 42 students and 6 teachers/mentors. Our team is very large for a school of 300, mainly due to the increasing amount of interest in robotics we have received over this past year. Due to our inclusivity and newness, we do not have any sort of application process. However, the students are separated into specialized subteams based on their interest and skill level. We wanted to make sure that the students have an interest in the team and are willing to put forth the time commitment necessary to make sure that this will be a successful venture.

## Team Membership

This team is a year-long commitment for the robotics members. Students are encouraged to join the robotics team's quarterly exploratory, where we meet to plan out the upcoming season, prep incoming members, and organize the team structure. During the first two weeks of build, Sonoma Academy has a program called Intersession, and through this program the students on Ellipse 6814 will be able to work on the robot all day. Our team will then meet after school on Tuesdays and Wednesdays for 2 hours, in this time we will start making real progress with the robot. We have dedicated parts of the year for different development purposes: team development, robot construction, and competition. We adapt our schedule in order to make use of our team's time efficiently.

## Team Structure

Our team is organized into six separate subteams, each assigned with a specific task or objective. For example, we have a team dedicated to communications and another team specifically dedicated to fabrication. There are also teams dedicated to programming, actuation, electronics, and treasury. Each of our teams make an equal and significant contribution to our team's success. Essentially, we have taken a divide-and-conquer approach. Each member has identified his/her strengths and/or weaknesses, and based upon that, teams have been assigned.

# Subteam Description

### **Actuation Team**

- The Actuation Team is responsible for the construction of all moving parts on the robot. The actuation lead, Jaia Foster, is responsible for guiding and managing the actuation team to complete all tasks. The Actuation Lead will report directly to the Vice Captain for Fabrication and Actuation, Anish Bedi, who will report progress to the Captain, Bryce Hanson.

### **Fabrication Team**

- The fabrication Team is responsible for building various game elements and other structures needed to improve our robot. The Fabrication Lead, Kailen Kraus, will report directly to the Vice Captain for Fabrication and Actuation, Anish Bedi, who will report progress to the Captain, Bryce Hanson.

### **Programming Team**

- The Programming Team is responsible for the writing of all programs associated with all autonomous functions and remote controlling of the robot as well as any specialized actuation needs. The Programming Lead, Adrian Hanson, is responsible for guiding and managing the programming team to complete all tasks. The Programming Lead will report directly to the Vice Captain for Programming and Electronics, Dane Holcombe, who will report progress to the Captain, Bryce Hanson.

### **Electronics Team**

- The Electronics Team are responsible for the building and securing of all electronic components of the robot. Components include wireless communication and remote controls, RoboRio microprocessor, miscellaneous actuation electronics and securing/protecting all wires and connections. The Electronics Leads, Kevin Yang and Duncan Birdstall, are responsible for guiding and managing the electronics team to complete all tasks. The Electronics Lead will report directly to the Vice Captain for Programming and Electronics, Dane Holcombe, who will report progress to the Captain, Bryce Hanson.

### **Treasury Team**

- The Treasury Team is responsible for managing all actions associating with the financial state of the team. Such actions include creation of the business plan, facilitating fundraising initiatives, securing sponsorships and writing grants. The Treasuring Lead, Alejandro Tonda, is responsible for guiding and managing the treasury team to complete all tasks. The Treasury Lead will report directly to the Vice Captain for Communications and Treasury, Anna Miller, who will report progress to the Captain, Bryce Hanson.

### **Communications Team**

- The Communications Team is responsible for overseeing the development of all marketing materials and communication strategies including wearables, advertising materials, social media platforms all aligned with team name and logo. The Communications Lead, Matti Hathaway, is responsible for guiding and managing the communications team to complete all tasks. The Communications Lead will report directly to the Vice Captain for Communications and Treasury, Anna Miller, who will report progress to the Captain, Bryce Hanson.

# Team Leadership Breakdown

## **Captain**

Bryce Hanson

## **Vice Captain of Fabrication and Actuation**

Anish Bedi

## **Vice Captain of Programming and Electronics**

Dane Holcombe

## **Vice Captain of Communications and Treasury**

Anna Miller

## **Fabrication Lead**

Kailen Kraus

- Deputy: Jordan Salmonsens

## **Actuation Lead**

Jaia Foster

- Deputy: Adri Kornfein

## **Programming Lead**

Adrian Hanson

- Deputy: Olivia Egan

## **Electronic Leads**

Kevin Yang

Duncan Birdstall

## **Communications Lead**

Matti Hathaway

## **Treasury Lead**

Alejandro Tonda

# Future Plans and Implementation

## Strengths - Opportunities - Weaknesses - Threats (SWOT) Analysis

<p><b>Strengths:</b> Ellipse 6814 is fortunate to have the full support of the Sonoma Academy administration and community. In the newly unveiled building on the SA campus, the Guild and Commons, there is an entire workshop specifically for robotics. This gives us access to a wide arrange of tools, from TIG welders and CNC machines, to everyday hand tools. Our team is also full of bright-minded students eager to get to work, and that enthusiasm is being leveraged by the team to great effect. Beyond that, Ellipse 6814 has access to mentors, sponsors, and community members that other schools might not be able to reach.</p>	<p><b>Weaknesses:</b> Ellipse 6814 is a brand new robotics team and thus does not have the experience that other teams might have. We do not have the well-worn paths of efficiency but are looking to other teams to learn how to make them.</p>
<p><b>Opportunities:</b> We are grateful to have the opportunity to work in the space provided to us by our school. We also have a two week period of "Intercession" that allows our members to work for 5+ hours a day during the build season. Intersession, as explained above, is a program that is put on by Sonoma Academy to give students an opportunity to explore their interest. As one can imagine, this is going to help us immensely. We are also very fortunate to have such an excited team. Many of the members are already experienced in robotics and have a good base of knowledge to dive right into this processes.</p>	<p><b>Threats:</b> One of our biggest threats is not being able to properly organize our team, resulting in failure to build the robot before competition. This, however, seems very unlikely as the Ellipse 6814 leadership has been reaching out to other teams and companies to analyze and emulate their strategies.</p>

## Future Plans

We hope to gain many experienced mentors who can help us learn new skills as well as to mentor rookie teams in the coming years. We are grateful to have mentors from other teams in the FIRST community, therefore, when we have more experience we will support rookie teams in the same way we are supported. We are planning to hold a dinner for the families, friends, and members of the teams in our community to provide information and strengthen our relationship for the upcoming competition season. Our team also plans to increase our impact at Sonoma Academy in order to raise interest in STEM programs by promoting our team. Due to the generosity of our school, we are going to have a dedicated lab space complete with access to power tools and safety equipment during the building process. We are all very excited to begin working together and achieve our current goals.

## Implementation Plan

Strategy	Actions	Group Responsible	Planned Completion
Raise Funds	Find sponsors and apply for grants	Treasury team	January 2018
Parent Information Dinner	Hold a dinner for parents to learn more about the FRC program	Leadership team, treasury team	January 2018
Build the Robot	Plan, design, and build the robot	Fabrication, Actuation, Programming, and Electronics teams	February 22nd, 2018
Build the game elements	Visualize and replicate the game field for practice	Fabrication team	February 2018
Practice driving and troubleshoot	Replicate the competition conditions and play the game	Drive team, other teams as needed	March 2018
Local community dinner	Hold a dinner for FRC teams, local education and government officials, and team sponsors to help spread the word of FIRST	Leadership team, Treasury team	March 2018

# Team Budget

## Expenses

Item	Cost
Season Registration	\$6000
Additional Regional Event	\$4000
Second Chassis & Associated Parts	\$1500
Materials for Two Robots	\$8000
Field Construction	\$300
Unforeseen Expenses	\$200
<b>Total</b>	<b>\$20,000</b>

Item	Gain
Sonoma Academy Contribution	\$7000
\$85/Student Dues	~\$3400
Grupo Suma	\$1000
<b>Total</b>	<b>\$10,400</b>

**Total funds needed:**

**\$9,600**

# Sponsor Benefits

## Sponsorship Levels

**\$2500+ Sun:** Large logo on robot and banner\* + premium placement on website + optional robot demonstration on site at your company + VIP in-person tour of our workshop + sign our robot + official Ellipse jersey

**\$1000+ Jupiter:** Medium logo on robot and banner\* + premium placement on website + VIP in-person tour of our workshop + sign our robot + official Ellipse jersey

**\$500+ Neptune:** Small logo on robot and banner\* + logo on website + VIP tour of our work spaces + virtual tour of our workshop

**\$100+ Earth:** Logo on website + virtual tour of our workshop

**\$50+ Comet:** Name on website as a contributor + virtual tour of our workshop

**\$25+ Sputnik:** Name mentioned on website as a contributor

## Additional Support Through Mentorship:

Please reach out to Ellipse 6814 if you are interested in serving as a mentor for any of the subteams on our robotics team: fabrication, actuation, electrical, programming, treasury, communications.

## Why Our Team Is Unique

Ellipse 6814 is a perfect place for students to develop dynamic leadership skills, culture a love of STEM disciplines, and have a fantastic time doing it. We have a unique scheduling opportunity which allows Ellipse 6814 members to have a two week long deep dive into the robotics season without the impediment of school, creating a build of excitement that will be in full momentum when school goes back in session.





# Team Contact Information

**Website:** Ellipse6814.org

**Email:** General@Ellipse6814.org

**Facebook:** Ellipse 6814

**Twitter:** @Ellipse6814

**Instagram:** @Ellipse6814

**Snapchat:** Ellipse6814

## Main Contacts

### Mentor

Ramsey Musallam

Title: Head Mentor

Email: [Ramsey.Musallam@SonomaAcademy.org](mailto:Ramsey.Musallam@SonomaAcademy.org)

### Mentor

Changa Imara

Title: Mentor

Email: [Changa.Imara@SonomaAcademy.org](mailto:Changa.Imara@SonomaAcademy.org)

### Team Captain

Bryce Hanson

Title: Captain

Email: [Bryce.Hanson@SonomaAcademy.org](mailto:Bryce.Hanson@SonomaAcademy.org)

### Team Meeting Information

Location: Sonoma Academy

### Sponsorship Information

Please contact the team for more information.

Donations may be tax deductible.

### Mailing Address

Ellipse 6814

2500 Farmers Lane

Santa Rosa, CA 95404