



2023 Business Plan

Boba Bots 253

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Executive Summary

Mission Statement

As the Boba Bots, we aim to create a safe, welcoming, and spirited environment for youth in our community to develop their interests in engineering and leadership. We focus on creating opportunities for students to learn and gain firsthand experience in both STEM and soft skills while having fun. We emphasize collaboration, innovation, and persistence as we strive for achievement in the FIRST Robotics Competition.

Team Demographics

Established: 1998

53 Members

6 Technical Mentors

1 Teacher Advisor

1 Certified Parent Supervisors

28.3% Female

13.1% Non-Binary/Prefer Not To Answer

Team History

Our team was founded in December 1997 as Team Themis (#154) by four Mills High School students: Eric Park, Bill Allan, Francis Hahn, and Gilbert Lip. At its founding, the team had about 10 student members and a few teacher mentors, and struggled to raise the \$4000 required for registration by the deadline due to its late founding. In 1999, the team number changed to #253, and the team renamed themselves to the Mills Robotics Team, with a total membership of 38 members and a budget of \$14,300.

The team continued steadily for many years, but interest in the team eventually declined. By 2012, the team was back to having less than 10 members, and the business department had no members - the team was once again struggling to raise enough money to survive. However, in the 2013-14 season, a sophomore revived the nonexistent operations department, reviving the team through an increased budget and school outreach. By 2016, the team had about 30 members, and was able to attend an offseason competition in addition to their yearly regional; by 2018, the team was attending four competitions in a year and had grown to a size of 78 registered members. This year, our team has a registered membership of 72 students, 86% of which are active members - the team's highest member retention rate in recorded history. Our team also has 8 technical mentors, a teacher advisor, and 2 parent & alumni supervisors supporting the team.

In the past few years, many changes have helped to promote sustainability, including rebranding to the Boba Bots, changing team leadership structure, and a rigorous development of new curriculum. The team has begun to branch out beyond its direct reach through outreach events, going from 1 event in 2018 to 5 in 2019 and 15 in 2020. However since 2021 the number of outreach events that were available to us lowered significantly, but we still attempted to conduct outreach. In 2021 we attended 8 outreach events.

Team Leadership

The team is split into four departments: Construction, Electronics, Programming, and Operations. The first three departments are collectively referred to as the technical departments and are responsible for robot assembly. Specifically, Construction is responsible for design, CAD, and mechanical assembly of the robot, while the Electronics department is responsible for designing the robot control system and wiring the robot. Finally, the Programming department writes robot code and autonomous functions. The Operations department, on the other hand, is responsible for everything non-technical that goes into running the team, including team logistics, business, publicity / imagery, and outreach. There is one Operations Captain and one Technical Captain who lead the team as a whole and have the final say on all team decisions.

Each technical department has two leads, who divide up department leadership responsibilities, and our Operations department has a captain and assistant captain. Co-leads carry equal responsibility for leading their department, and must communicate with each other to divide work and make decisions. The team changed the leadership structure in 2018 to allow for more efficiency and better decision-making: having one lead per department relied too much on the singular lead's skills, and often made it difficult to pass on knowledge between graduating classes and underclassmen. In addition, co-leads also allow for better sustainability. Not only does the split allow leads to dedicate more time to educating underclassmen, the team requires at least one non-senior involved in each department's leadership, in order to ensure sustainability.

Team Leadership

In April, prospective students apply and interview for leadership positions. Interviews are conducted and decisions are made by the graduating seniors and mentors. By using an application process, the team ensures they can have well-qualified leads. Underclassmen are encouraged to apply for leadership positions even if they do not expect to get the role, in order to practice job application and interviewing skills.

As our team heavily emphasizes our student leadership, it is our students who make crucial decisions about the team. However, our students work closely with our technical mentors and may turn to them for guidance, drawing upon their knowledge and years of experience. In addition, the team's lead mentors are also the club's teacher advisors; as advisors, they have the ability to override student decisions if it is crucial for the safety or integrity of the team.

Our team also has several ASCC mentors, or certified parent supervisors, who are approved to supervise our team. These parents also help the team organize competition logistics. Through the support, students can work for longer hours during build season and focus on their work. These mentors are often dedicated parents and are crucial to the team's success; we advertise the opportunity to mentor us at the beginning of every year.

Team Schedule

Every year, the team kicks off with the beginning of the school year, with the first meeting of the year during late August. Throughout the fall, the team meets Mondays, Wednesdays, and Fridays from 3:45 to 5 in the Makerspace. The team's first new member meeting is in early September. Prospective members learn about the team, and then spend the next two weeks choosing to commit to a department. Wednesday meetings are set aside for teaching curriculum to new members. Mondays and Fridays are instead dedicated to working on the robot, preparing for offseason competitions, or hosting additional lessons.

The team typically attends two offseason competitions in the Fall: Calgames and Capital City Classic, however this year we were unable to attend the latter as it has been canceled. Unlike during the competition season, the team's focus is not on winning competitions; instead, the team prioritizes giving underclassmen experience and training new members in preparation for the real competition season.

In addition, the majority of the team's outreach efforts are hosted over summer or during offseason. The team brings the previous year's robot to events throughout the community. Underclassmen are highly encouraged to get involved in outreach in order to practice public speaking skills and gain experience working with members of the community. This year, the team also encouraged members to present at local FLL and FTC events throughout the fall and piloted our first entirely virtual summer program, SMART 2021!

Once build season kicks off in early January, the team hosts meetings every day from 3:45 to 7, and on weekends from 10 to 2. On the day of kickoff, team leads attend the kickoff event, and then meet to set goals and priorities for the season, and develop a schedule for the build season. On the first Monday after kickoff, the team organizes a kickoff meeting for general members to discuss game strategy and begin brainstorming robot ideas. The rest of the build season is spent focusing on construction of the robot and preparation for competition.

The team tries to attend two regional competitions every year, prioritizing San Francisco Regional—the local regional—over others. If the team manages to qualify, they also attend Championships in mid-April.

Finances

For the full budget, see Appendix B.

Our team determines our budget at the very beginning of the year by assessing our previous year's budget and adjusting our categories based on our team goals. When budgeting our money, one of our biggest priorities is setting aside funds for various projects to improve our team capabilities. This year, we focused on buying a trailer for transporting our robot in. In the past we have relied either on the generosity of our parent volunteers and mentors or U-HAUL for robot and tool transportation to and from competition. This year, in order to ensure smoother transport of the robot and we have decided to invest in a trailer. Other projects that we set aside money for included purchasing a new driver station laptop, ordering new imagery and marketing materials, and general new tools and equipment.

This year, our fundraising goals were slightly modified based on our sources of income in the past. In 2019, we set a goal of \$26,500 raised from companies, including both large donations and grants. However, our team had failed to meet that goal, due to missing a few opportunities for grants from large companies as well as losing connections with some of our previous sponsors. With that in mind, we lowered our goal for grants and corporate sponsorships to \$20,000 - based upon money we could likely get from reliable sponsors - and decided to focus additional efforts on fundraising from the community.

Community businesses and sponsors are a key part of the team's fundraising strategy. Over the past few years, the business department has begun reaching out to many local companies and organizations. A few times every year, the team conducts a "business field trip", in which members visit local stores, ask for donations. However, this year we decided against asking local businesses for sponsorships as we understand that many small businesses are suffering financially during such hard times. So this year, we conducted a chocolate fundraiser and so far we have sold almost 80 boxes of chocolate!

Finances

To keep sponsors engaged in our team we strive to maintain good communication and relations with them. This is mostly done through social media, as well as through a weekly sponsor newsletter written by the Operations department to keeps sponsors updated on team events. The team has strived to make personal connections with local sponsors by inviting them to tour the makerspace, meet the team, and attend team events. In addition, we have developed sponsorship tiers (see Appendix D) in order to set benchmarks for sponsor recognition on various team promotional materials, showing our appreciation for our sponsors. By cultivating relationships with our sponsors, the team can both gain a reliable source of income and valuable connections through the community.

Marketing

Marketing plays a crucial role in sustaining our team. Through marketing, the team can promote team activities, encourage growth, and generate interest in team outreach events.

Team imagery is a central part of our marketing plan, as our distinctive team name and color help build brand recognition. Various promotional materials help support our brand, including handouts such as buttons, stickers, and business cards, as well as our team pit and outreach display, consisting of our team banner, flag, and team documents. Our team branding is the cornerstone of our marketing; by standing out, our team makes itself memorable to other FRC teams as well as community members.

Team growth over the past several years has largely been a result of marketing to the community. The majority of our new members learn of the team from outreach presentations at Taylor, the local middle school; in addition, many learn of us from our booth at the school club fair in early September. In addition to student-focused events, the team markets to the general community at many of non-engineering focused events, such as the San Mateo County Fair, Millbrae Machines Car Show, and other events. Outreach events serve several purposes in marketing: by building recognition within the community, the team can meet people and gain opportunities for sponsorship, mentorship, and future events.

Team Jackets

This year, our team decided to sell jackets and patches as an alternative to sweatshirts. Doing so is more cost efficient for the team. We plan on selling two types of patches; yearly game patches, which will be sold to both team members and people from outside of the team, and team patches, which present team roles (e.i: Captain, Operations, Lead). We expect to profit an estimated total of \$1,069.50 in the next four years of selling merch. The following chart presents our patch inventory and estimated profit for the next 4 years:

<u>Description</u>	<u>Quantity Ordered</u>	<u>Unit Price</u>	<u>Money Spent</u>	<u>Team Price</u>	<u>General Price</u>	<u>Gross Product</u>	<u>Net</u>
2in logo generic	1000	0.5	500	1	2	1960	1460
3in 2019 Deep Space	50	2.98	149	3	5	170	21
3in 2020 Infinite Recharge	50	2.98	149	3	5	170	21
3in 2021 COVID	50	2.98	149	3	5	170	21
3in 2022 Rapid React	50	2.98	149	3	5	170	21
3in 2023 Charged Up	50	2.98	149	3	5	170	21
3in 2024	50	2.98	149	3	5	170	21
3in 2025	50	2.98	149	3	5	170	21
3in 2026	50	2.98	149	3	5	170	21
2in Lead	20	9.36	187.2	-	-	0	-187.2
2in Captain	10	9.36	93.6	-	-	0	-93.6
3in Business	50	2.98	149	3	-	150	1
3in Imagery	20	6.79	135.8	3	-	60	-75.8
3in Outreach	20	6.79	135.8	3	-	60	-75.8
3in Strategy	50	2.98	149	3	-	150	1
3in Electronics	50	2.98	149	3	-	150	1
3in Programming	50	2.98	149	3	-	150	1
3in Construction	50	2.98	149	3	-	150	1
3in Mentor	10	13.11	131.1	-	-	0	-131.1
Total							1069.5

*comes with jacket: *pay for separately:

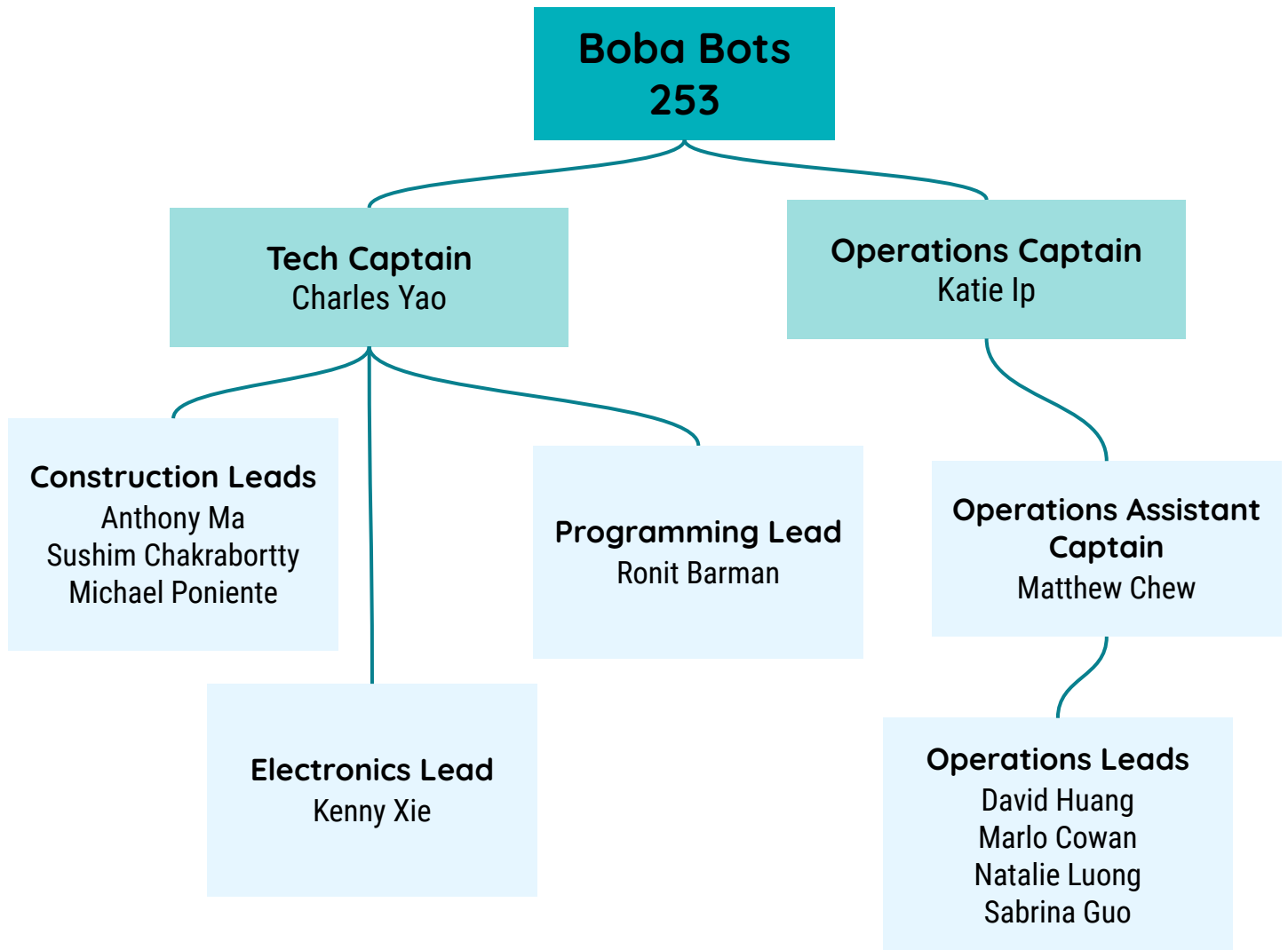
Note: Negative gross product for Imagery and Outreach patches are due to higher unit prices. If continued in the future, more will be ordered, so we won't end up with a negative profit. Lead, Captain, and Mentor patches are covered by the team, as a thank you for their dedication and contributions to the team.

Communication

Our team uses several methods of communication between our team members, parents, and mentors in order to facilitate relationships and teamwork.

- **Slack:** Our main platform for communication throughout the team is Slack, where leads and members can effectively communicate and organize ongoing department logistics. General team announcements and mentor communications are also conducted through Slack.
- **Discord:** Our team uses discord as a more informal method of communication, primarily used for non-robotics discussion and getting to know each other better. Announcements are also posted here, albeit in a more casual manner than Slack.
- **Weekly Newsletter:** The team sends out a weekly newsletter, targeted at sponsors and parents, in order to recap our activities and progress and announce upcoming events. Our weekly newsletter is our primary form of communication with parents and sponsors and is important to help us maintain relationships with them.
- **Social Media:** Instagram is our main team social media, in which we focus on posting updates and recaps as well as sponsor shoutouts and member shoutouts. Our Instagram account also posts many “fun” posts, such as countdowns to competitions and celebrations for holidays. Our team is currently working on branching out to Twitter and Facebook, following a similar format to our Instagram posts.

Appendix A: Leadership Diagram



Appendix B: Financials

INCOME	AMOUNT
Carry Over 2020-2021	\$47,853.06
Corporate Grants	\$6,300
Fundraising	\$8,546.96
General Donations	\$11,237.68
Contract Fees	\$1,690.00
<u>TOTAL INCOME</u>	\$75,627.70

EXPENSES	AMOUNT
Competition Robot	\$2,899.71
Registration Fees (Regionals)	\$6,000
Registration Fees (Offseason)	\$250.00
Facilities	\$415.77
Tools and Equipment	\$2,193.66
Trailer	\$2,071.13
Marketing & Outreach	\$6,076.24
Food	\$95.10
<u>TOTAL EXPENSES</u>	\$20,001.61

Appendix C: SWOT Risk Analysis

STRENGTHS <ul style="list-style-type: none">- Student run atmosphere- Maintaining connections with the community- Spirited, supportive team culture- Partnership with other FRC teams	WEAKNESSES <ul style="list-style-type: none">- Perseverance and dedication in younger members- Difficulty securing strong sponsorships- Inefficient work leads to delays or falling behind schedule
OPPORTUNITIES <ul style="list-style-type: none">- Participating in more community events for team exposure and possible sponsorships- Growing relationship with mentors to provide the team with more resources and support- Work with local elementary schools or businesses to create robotics and engineering opportunities for youth	THREATS <ul style="list-style-type: none">- Team has well-defined curriculum for freshmen, but no curriculum for sophomore / junior years- No clear definition for leadership divisions: if a pair of leaders fails to communicate with each other, the work could become unfairly divided and lead to a nonfunctional department.- Large team may pose a difficulty for younger members to be involved.- Uneven member distribution among grades

Appendix D: Sponsorship Tiers

Support from our generous sponsors is what allows our team to continue providing valuable education opportunities to students. Our operating budget, which includes registration fees, tools and materials, facilities, merchandise, and more, totals approximately \$30,000 annually.

Contributions of any form, including but not limited to monetary/in-kind donations, discounts on products, or assistance with fundraisers, are greatly appreciated and go directly towards our efforts to promote STEM education.

We use the sponsorship tiers below as a way to show our appreciation to our sponsors. Any non-monetary contributions are categorized using their approximate market value.

SPONSOR TIERS	Black Tea \$0+	Green Tea \$100+	Thai Tea \$500+	Royal Tea \$1,000+	Boba Tea \$2,000+	SPONSOR TIERS
Logo on Robot & Banner				●	●	Logo on Robot & Banner
Logo on T-shirt & Hoodie				●	●	Logo on T-shirt
Social Media Shoutout			●	●	●	Social Media Shoutout
Logo on Sponsor Page of Website		●	●	●	●	Logo on Sponsor Page of Website
A Warm Boba Bots Thank You	●	●	●	●	●	A Warm Boba Bots Thank You