

FRC 3824 HVA RoHAWKtics

Summary Business Plan

2021-22



Mission Statement

FIRST Team 3824, the HVA RoHAWKtics, operates as one team to accomplish one goal: connect individuals by encouraging learning, leadership, creativity, inclusion, fun, and friendship by building robots together. We work to meaningfully inspire by practicing skill development, curiosity, innovation, resourcefulness, and student-led teamwork.

Team History & Growth

Mrs. Mary Lin, a computer science teacher at Hardin Valley Academy (HVA), established Team 3824 in late 2010. In FRC 3824's inaugural year, the original Hawks worked out of a large closet at school. Despite the lack of resources, the team won Rookie All-Star at the 2011 Smoky Mountains Regional. In the following season, two other HVA teachers, Mrs. Beth Love and Mr. John Tilson, became lead mentors.

In 2011, the RoHAWKtics were granted workspace at the Oak Ridge National Lab (ORNL) National Transportation Research Center (NTRC) and Manufacturing Demonstration Facility (MDF). The mentors introduced us to state-of-the-art manufacturing techniques, including large-scale 3D printing, and partnerships with the additive manufacturing industry. While at the MDF, the team earned nine blue banners (including one Woodie Flowers Award, one Dean's List Award, and one Chairman's Award) and qualified for Championships five times. In this time, we grew from 13 to over 60 members.

In 2017, the team lost access to the MDF workspace, along with many of the ORNL mentors who had worked by our side. Lacking a suitable work space at HVA, the team received a gracious invitation from FRC 3140, Farragut Flagship, to share space in their CTE building. This arrangement was a challenge but carried the team through the next three FRC seasons. The RoHAWKtics continued to compete at a high level and excel in outreach activities with support from both HVA faculty and Farragut mentors. For the first time in 2019, a parent mentor, Cary Busby, stepped in as lead mentor for the team. Under the stress of new leadership and the continuous search for a permanent space, 3824 managed to qualify for Championships in 2019 (on a wild card) and 2020 (with our second Chairman's award). Along with the abrupt end of the 2020 season, Farragut High School reintroduced construction classes at the CTE building that displaced both robotics teams, leaving the RoHAWKtics stranded amidst a global pandemic.

After exploring dozens of possibilities, the team worked with a creative and trusting HVA administration to establish a workshop at HVA for the first time since 2011. A year of hard work resulted in \$15,000 raised for a 20-foot trailer and tools, which became our Mobile Machine Shop. Though the pandemic threatened robotics activities worldwide, our team retained about 30 members who helped relocate and reorganize the school's Makerspace in 2021.

Finally, in 2022, FRC 3824 has restored itself. In July, administrators allocated a spot in the STEM hallway to display 3824's achievements. Being present and visible in our school building

has increased interest and boosted membership to 52 members, who now have the support of six faculty mentors and a small group of parent and community volunteer mentors.

Organizational Structure

FRC 3824 is student-led under faculty and volunteer mentorship. Anticipating high growth and turnover rates in 2022-23, the team established a larger student leadership team composed of experienced seniors as well as enthusiastic underclassmen in three levels of leadership - executive captains, subteam captains, and project coordinators. The executive captains work with the lead mentor while subteam captains are supported by experienced mentors in their respective areas. (See Appendix 1, Organizational Chart.)

The high mentor turnover rate last year means that many new mentors are working to find the best ways to support the team as the 2022 season progresses.

Graduating seniors comprise a disproportionately large fraction of the 2022 team, so this leadership structure prepares the underclassmen for succeeding by letting them work side-by-side with the departing seniors. (See Appendix 3, Team Makeup.)

In the next two years, Team 3824 expects to retain or grow membership. With sufficient mentor recruiting, 3824 could potentially reactivate its dormant FTC team, 11675, as an introductory experience for new team members.

Risk Analysis

The last three years have presented nearly every Risk and Threat from previous years' SWOT analyses: loss of workspace, mentor turnover, loss of work time, reduced funding, and new expenses. There were also new threats that we had not considered, such as having all of our traditional outreach opportunities canceled for a whole year and competing remotely. The 2022 team created an updated SWOT analysis that displays the continued challenges along with rich opportunities for the team. (See Appendix 2, SWOT Analysis)

Marketing and Outreach

The HVA RoHAWKtics maintain a website, three social media accounts, and a Youtube page. Team 3824 is passionate about outreach in East Tennessee. We spread STEM awareness by speaking about robotics at local elementary school STEM nights and MUSE Knoxville events. We also volunteer at seasonal events such as the 4th of July Parade, the East Tennessee Children's Hospital fundraiser, Fantasy of Trees. (See Appendix 5: Community Impact)

Our brand and image have been consistent since 2012, featuring the "Hawk" logo, blue "backdraft" cap, and denim shirt. This image represents our school colors while also reflecting the value of tradition and hard work.

In 2021 and 2022, however, our most important marketing efforts have been within our own school. A larger and more diverse group of HVA students is aware of robotics due to the following changes:

1. Increased number of faculty mentors (from 2 to 5).
2. Increased visibility of robotics work (Mobile Machine Shop, blue banner display).
3. More accessible meeting location and time (at HVA immediately after school).
4. Increasing personalized invites (friend-to-friend)

Financials

When HVA was founded, the school was limited to four nonprofits: the Athletic Council, the HVA Foundation, the PTO, and the school itself. HVA RoHAWKtics operates as part of the HVA Foundation, a 501(c)(3) nonprofit organization whose mission is to support educational efforts within the school.

Benefits of the Foundation include the use of nonprofit status to receive educational grants and maintain tax-exempt status. The Foundation allows the RoHAWKtics coach to use a purchasing card, which simplifies the process of obtaining supplies and traveling. Foundation purchase accounting is done by the lead mentor, a RoHAWKtics parent volunteer, and the Foundation treasurer.

In 2020, the RoHAWKtics opened a Venmo account for ease of collecting payments for team fees, fan attire, concession stand monies at events, donations, and other collections of individual amounts. The Venmo account is co-owned by the lead mentor and a parent volunteer, to provide dual oversight.

Since the RoHAWKtics have qualified for Championships 8 times in 11 years, we budget for that possibility. In 2020 and 2022, we estimate our annual expenses to be around \$85,000. (Without Championships, this drops to \$55,000.) The annual budget is allocated to pay for travel, robot build expenses, uniforms, supplies and team meals. (See Appendix 4: Financials)

Student fees of \$500 each only covers a fraction of the expenses. Income sources for the general operating budget include sponsorships ranging from \$100 to \$5200, team member fees, proceeds from the concession stand at our FLL tournament, "dine-out" nights, and other fundraisers. Special projects such as the Mobile Shop and travel to Championships are completed through additional fundraising efforts such as a Main Event "Fun-Raiser" and a Givebutter campaign. Givebutter allows students to seek donations from their friends and family, through which nearly half the cost of the Mobile Shop was generated.

Appendix 1: Organizational Chart

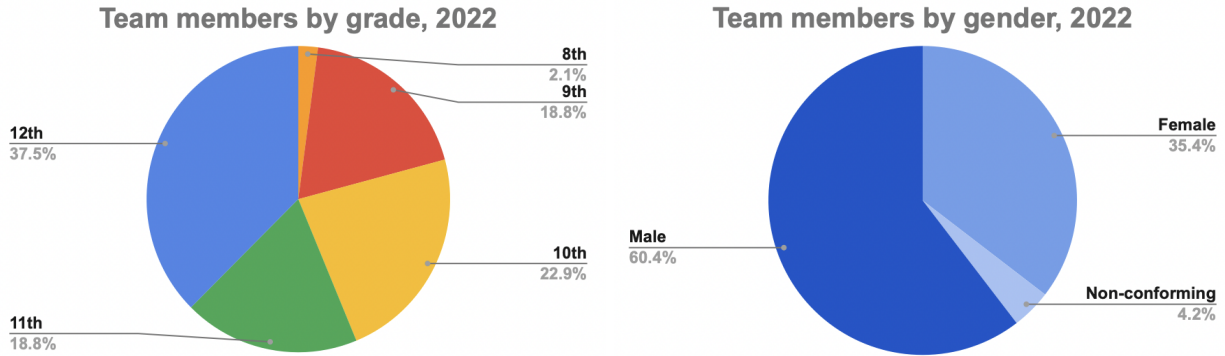
FRC 3824 Leadership Team, 2021-22

Executive Captains Lead Mentor: Cary Busby					
Iris Li Robot/Shop Safety & Health		Sophie Hoang Systems Integration Trello Manager		Leah Busby Operations FLL Volunteer Coordinator, FRC Awards	
Subteam Leadership					
Build <i>Mentors: Jeremy Busby, Sam Keener, Spencer Allen</i>	Programming <i>Mentor: James Sternberg, Dave Rusbarsky</i>	Scouting <i>Mentor: OPEN</i>	Design <i>Mentor: Emma Howard</i>	Business <i>Mentor: Shay Boswell, Victor Agreda</i>	Faculty Mentors
Mechanical Lead: AJ Jinks	Programming Lead: Erik Anningson	Scouting* Co-Lead: Weston Agreda	CAD Lead: Riley Morgan	Business Lead & Sponsor Relations: Zoe Winterbotham	James Sternberg Carrie Brimi Nancy Busch
Electronics Lead: Ariana Torres	Documentation Lead: Ty Johnston	Scouting* Co-Lead: Grant Johnson	FOT** Project Manager: Griffen Shipley	Imagery Lead: Autumn Adkins	Kristy Casey Brandy Kinkead Gerri Parker
Robot Project Manager: Daisy Arnwine			Digital Animation: OPEN	Social Media & Scrapbook: OPEN	Ashli Beele***
Shop Coordinator: Lucas Byrd				Outreach Coordinator: OPEN	
		*Opportunity to further define two roles	**FOT: Fantasy of Trees		***STEM Principal

Appendix 2: SWOT Analysis

Strengths	Weaknesses
<ul style="list-style-type: none"> ● Growing membership ● Adaptability ● Owning a complete mobile workshop ● Strong student leadership ● Strong team relationship built through Discord chats, game nights, & socials ● Past competitive success 	<ul style="list-style-type: none"> ● Low self-motivation in members ● Not all team leaders are present at most meetings ● Slow communication due to layered leadership structure
Opportunities	Threats
<ul style="list-style-type: none"> ● Organic recruitment ● Create H.V. Middle School team ● Mobile shop outreach ● Off season camp to boost morale ● Large alumni network 	<ul style="list-style-type: none"> ● Illness ● Graduating experienced members ● Dwindling technical mentors ● School cancellation leads to canceled meetings

Appendix 3: Team Makeup



Appendix 4: Financials

Income Statement 2020 -2021 season		Balance Sheet as of Dec. 31, 2021	
Income		Assets	
Team Fees	\$ 21,000	Current Assets	
Sponsorships	\$ 26,683	Foundation bank acct	\$ 32,159
Grants	\$ 4,550	School account	\$ 15,340
Fundraisers	\$ 4,824	Total Current Assets	\$ 47,499
Total Income	\$ 57,057	Fixed Assets	
Expenses		Trailers	\$ 20,000
Travel	\$ 10,710	Tools	\$ 20,000
Registration fees	\$ 9,000	Parts	\$ 5,000
Uniforms & attire	\$ 4,688	Collateral	\$ 2,000
Robot expenses	\$ 8,536	Total Fixed Assets	\$ 47,000
Marketing and Website	\$ 1,211	Total Assets	\$ 94,499
Tools & Equipment	\$ 2,559	Liabilities	
Total Expenses	\$ 36,704	Registration fees payable	\$ 9,000
Net Income	\$ 20,353	Travel fees payable	\$ 10,000
		Total Liabilities	\$ 19,000
		Total Equity	\$ 75,499

Appendix 5: Community Impact

