

Waialua Robotics-The Hawaiian Kids-Team# 359
2022-23 SY Sustainability/Business Plan
Entrepreneurship Award

Team Mission Statement:

*Team 359 strives to transform the culture of our diverse and historically underserved rural community by preparing students to compete and succeed in higher education. Specifically, we aim to spread the message of FIRST with a global vision, impacting as many people, teams, and programs as possible. In addition to participation in community events, utilization of media, and collaboration with our Hawaii State Government and other teams, Team 359 strives to transform the culture of our rural community by preparing students to succeed in higher education. Our long-term sustainability plan not only focuses on ensuring that our team will have the funding to finance all aspects of our participation in the FIRST Robotics Competition, but also concentrates on funding various STEM (Science, Technology, Engineering, and Math)-related and non-related programs in our school, feeder schools, community, and State. Furthermore, our successes in sustainability have allowed us to extend our resources to other teams and STEM-related programs around the world and establish a scholarship program that will assist 100% of our eligible graduating members in becoming the leaders of tomorrow. **Since inception, our program has produced a Valedictorian(s) 22 out of 23 seasons at Waialua High & Intermediate School.***

Team Origin:

- Date the team began: **August 1999**
- **Waialua High & Intermediate School, Waialua Robotics – STEM Learning Center 67-160 Farrington Hwy. Waialua, HI 96791**
- **There are 26 Students and 26 Adults in our program related to the FRC Competition and our entire STEM Robotics Learning Center which provides services to a majority of our students at Waialua High & Intermediate School.**

In 2003, our team lost crucial mentorship and businesses support. Since then and as a result, we ask the following guiding questions with respect to Team Growth, Sustainability and Outreach. This allows us to focus on the Problem/Challenges as we aim to consistently participate in many FIRST events, both locally, in the U.S. mainland, and internationally. In addition, we host many programs/teams annually on walkthrough tours and workshops in our facility. The events that took place in 2003 had forced us to work and treat our program like a “sustainable business” in ensuring sustainability, diversification through outreach, and growth.

During the current 2020 COVID-19 Pandemic, our program had permanently lost several major sponsors, most notably Dole Plantation and FIRST Hawaiian Bank. We had to reinvent ourselves again and look at how to gain new sponsors and partnerships, while incorporating new innovative avenues to raise funds. As a result, we are the most sustainable program moving forward, since our inception.

Team Growth:

- How can we recruit and retain new group members?
- How can we cohesively improve all our sub-teams?
- How can we train students that have different levels of robotics experience?
- How can we ensure that we prepare all team members to be a great representation of the Waialua Robotics Program & the FIRST culture?

Sustainability:

- How can we raise enough money to attend 4 Regionals per year, the Championship Event, and off-season events both nationally and internationally? i.e. China, Japan, Canada, U.S. Mainland
- How can we acquire more material sponsors and tools for our machine shop?
- How do we make program improvements in our facilities?

- How can we create, assess, and improve our fundraising initiatives and partnerships?
- How do we engage and thank our sponsors?

Outreach:

- How can we reach out and develop more meaningful relationships with other FIRST teams?
- How can we communicate the FIRST message of robotics to our Waialua/Haleiwa/Sunset Beach areas and other local communities in Hawaii?

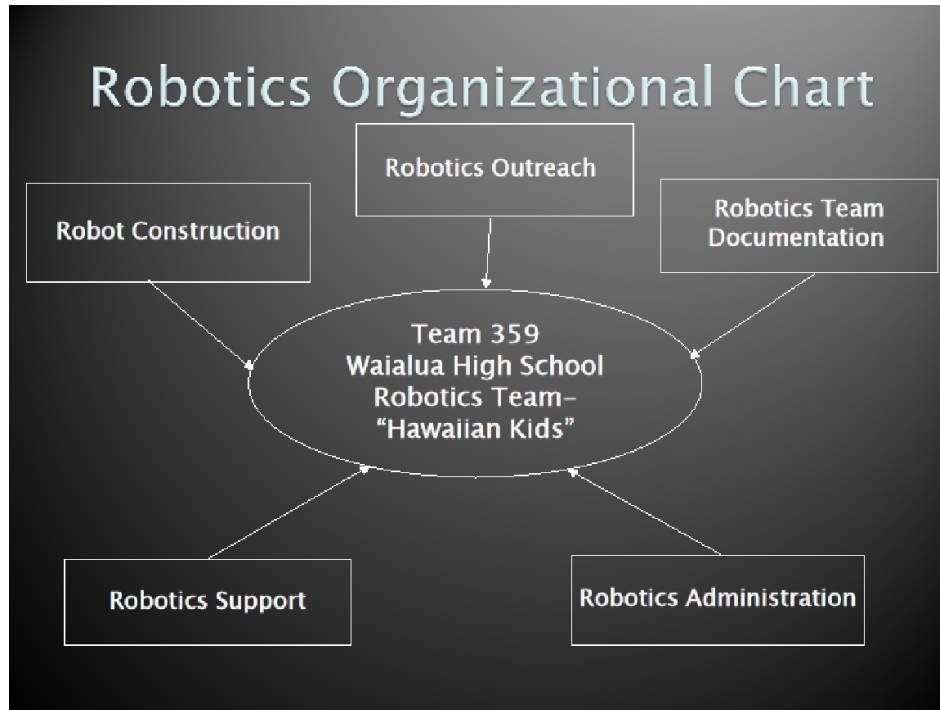
All participants below are current active volunteer members of the Waialua Robotics Program - STEM Learning Center. **Asterisk-Former Waialua Program Student-Alumni*

- Glenn Lee Lead All Areas-Coordinator, Program Funding, Mentor, FWR President and Drive Coach
- Sean Lunasco Lead Technology/Graphics, Lead Special Projects, Lead 3D Printing, CNC Machinist, CAD Design and Construction – Machine Shop, Maintenance, Facilities, Community Outreach, Funding, Lead Entrepreneurship, Lead Paint Mentor, and FWR Vice President
- Rhea Mae Arellano* Lead VEX EDR-MS and HS, CAD Design and Construction, Lead Shop Organization, Lead Inventory, Entrepreneurship Mentor, and FWR Secretary
- Ryden Omine VEX EDR-MS and HS Lead Engineering Mentor
- Madison Rice Middle School Exploratory Course– STEM Teacher
- Vacant High School Engineering Elective – STEM Teacher
- Randy Wood Lead Control Systems, 3D Printing, Programming and Electronics Mentor
- Melvin Matsunaga Lead Construction, Lead Shop and Machinist– Machine Shop, Maintenance, Facilities & Support Mentor
- Joseph Gudoy* Lead Welding & Construction Mentor
- Cody Smith* Lead CNC Machinist & CAD Design Mentor
- Malcolm Menor* Lead Electronics, 3D Printing & Construction Mentor
- Yoshio Yoshizumi* Electronics, Construction, & Fabrication and Testing Mentor
- Jefferson Bruno* Lead CAD Design and Machinist Mentor
- William Blaser III* Statistician & Lead Scout-Remote Mentor
- Paul Hutchinson* Construction, Scout, 3D Printing, Fabrication and Testing Mentor
- Manda Yeung Lead Social Media, Lead Digital Media-Photography & Video, Team Documentation, Impact and Awards, Team Travel Logistics & Activities, Training & Resources, Uniforms & Team Apparel – Remote Mentor
- Kobe Lunasco* Lead Animation, Technology/Graphics, Team Documentation, Digital Media, Impact and Awards, Uniforms & Team Apparel, Special Projects Mentor
- Carson Moniz* Construction, Shop Organization, Fabrication, Entrepreneurship Support
- Clyde Miyataki Outreach Events Volunteer, Judging, Non-Robot Team Support
- Sarah Miyataki Outreach Events Volunteer, Non-Robot Team Support
- Michele Lunasco Outreach Events Volunteer, Non-Robot Team Support
- Linda Souza Facilities, Data Collection, Lead Omiyage and Gifts, Fundraising Coordinator, Lead Meals and Snacks Coordinator, Team Travel Logistics & Activities, Non-Robot Team Support, and FWR Treasurer
- Janine Bregulla Facilities, Omiyage, Fundraising, Meals and Snacks, Outreach Events Volunteer, Non-Robot Team Support, Parent
- Rhayvyn Hirayama* Facilities, Omiyage, Fundraising, Meals and Snacks, Events and Tournaments Volunteer
- Arlene Tengan Facilities, Omiyage, Fundraising, Meals and Snacks, Events and Tournaments Volunteer
- Howard Cohen Lead Team Documentation, Lead Impact and Awards, Control Systems, Digital Media, FIRST HOF Team 359 Representative, FIRST Resources,

Technical & Documentation - Remote Mentor

Organization Structure:

The Waialua Robotics Team is comprised of 5 areas in its organization: Administration, Construction, Construction Support, Outreach, and Documentation.



- **Location of team and who are your sponsors**

Main Sponsors-McInerney Foundation, Waialua Federal Credit Union-**lost major sponsorship funding amount due to COVID-19**, First Hawaiian Bank-**lost initially due to COVID-19 Pandemic, but later came through**, Skydiving, Inc.-**lost major sponsorship funding amount due to COVID-19**, Dole Plantation-**lost major sponsorship support due to COVID-19 Pandemic**. New Major Sponsors-Friends of Hawaii Charities, Hawaii Technology Development Corporation, Title IV-A Student Support and Equity Grant (SSAE), ESSER Funds, State of Hawaii Dream Equipment Fund, Skydiving Hawaii, Maui Divers Jewelry, Hawaiian Electric Company, Atherton Family Foundation, and Corteva Agriscience.

Please see our Complete List of Sponsors during the 2022-23 School Year, Pearl Harbor Naval Shipyard & Intermediate Maintenance Facilities, Randy & Mary Wood.

- **What you do/services rendered**

In addition to financing our participation in the *FIRST* Robotics Competition, Team 359 continues to collaborate with over 10 Hawaii FRC teams **despite the COVID-19 Pandemic**; several FRC teams internationally such as Indonesia, a STEM Robotics elective class for all 7th and 8th grade students, and 4 middle and high school VEX EDR teams, all of which we fully fund and coordinate. Our finances also focus on sustaining other school-level programs through funding and technical support, as well as hosting various workshops for both community, state-wide, and national events to assist and impact other teams and schools. Specifically, we fund Band part-time teachers, supplies, equipment, and bus transportation. We also fund Middle Schools Sports stipends for coaches and uniforms/equipment/transportation for students. Aside from funding, Team 359 coordinates and volunteers at numerous STEM, family-oriented, and community service events year-round. Examples include working at Rotary Club functions and the Hawaii Special Olympics. Our program has created and developed a community STEM Learning Center offering Graphic Technology, Printing, PCB Milling, Laser Engraving, 3D printing, Mini-Milling and

Waterjet cutting services for other interested participants, businesses, and programs as a self-sustaining mechanism to fund our team.

We are also currently supported by our 501(c)(3) Friends of Waialua Robotics (FWR) Non-Profit organization to serve as a funding arm for the Waialua Robotics STEM Learning Center. Specifically, we are operating as a 501(c)(3) approved non-profit corporation established on January 19, 2016.

Examples of partnerships already established are with Midas, Montgomery Motorsports and Hammerhead Spear Gun, Bang & Olufsen where we have created prototype devices and products for these companies. We also partner with our local Oakley, Nike and Nixon representatives in getting support for apparel (team uniforms), safety glasses, and accessories in exchange for technical services and custom-made products.

During the COVID-19 Pandemic which had changed most of our traditional in-person meetings and virtual programming since March 2020, our program had developed a custom face shield and facemasks to support first responders and front-line employees at our local health care facilities, schools, and local businesses. Our team produced over 600 custom 3D printed and laser cut face shields and 1000 custom face masks from March –present. For more information on our Special Projects and the services we render, please visit <http://www.projects.waialuarobotics.com>. We also produced a highly profitable, high in demand, catalytic converter shield for automobiles to help them protect it against thieves. We have sold and installed over 230 shields since we launched it on July 28, 2021.

In 2020, our 501©3 corporation in partnership with Hawaii Technology Development Corporation, bid and worked on State PPE initiatives to help support the supply chain for the State of Hawaii while raising funds to support the Waialua Robotics Program. Currently, we offer an array of products and services to serve our community such as the local Hawaii Junior Golf Association and many local Restaurants and their distributors.

Relationships:

Students learn by working with mentors to develop products and processes that improve our team operations, our financial stability, and our ability to compete at FRC Competitions.

Student Leads and Veterans: Veteran team members and student leads are actively involved in training our rookies and in coordinating our teams to complete products and processes that meet our timelines.

Sub-team specific projects: These are challenging (require adult + student collaboration) and important (ensure our team's long-term success).

Regular sub-team meetings: Several sub-teams meet several times a week, so students have time to work with multiple mentors.

Regular leadership communication: Student and mentor leads often communicate to make sure sub-team efforts are connected to a cohesive big picture. We have a team captain and a lead mentor for each sub-team responsible for coordinating their respective goals.

Relationships with our Partners: Partnerships have been established with an ever-growing list of sponsors to help offset sponsorships lost (especially due to the current COVID-19 Pandemic). A large emphasis of our outreach program is looking to help other programs/teams in addition to ensuring the sustainability of our own program, feeder programs/schools, and relationships with our partners. This includes participating in service projects for our community/businesses, participating in sponsorship activities, coordinating tours of our Robotics program, helping young children and the elderly, and coordinating joint-venture benefit fundraisers, performing public demonstrations, while advocating the mission of FIRST through many forms of public media.

Deployment of Resources:

Waialua Robotics has raised over 12.5 (up from 8.5 in 2022 cumulative) million dollars since our inception, primarily from Federal Grants, State Legislative Funding, and private Corporations and Foundations that support our school community. The program has leveraged funding to support capital improvement for program facilities, robotics-related equipment, technology infrastructure (both equipment and supplies), and team operating expenses such as travel subsidies, registration fees, and learning activities for students. Our FRC program has traveled to the most different places and different regional tournaments in the history of FIRST.

The funding has ultimately helped to create and establish our Waialua Robotics STEM Learning Center, which in partnership with Career Technical Education, provide students with hands-on learning in the areas of Industrial

Engineering and Technology and Arts & Communication. Examples of programs of study include Design Technology, Gaming, Digital Media, Graphic Technology, Electronics, Metal Technology, Engineering and Building & Construction. Students are supported with high tech equipment such as computers, CAD software, learning materials and supplies, and industrial equipment for Project-Based Learning.

The Center also provides stipend support to encourage mentor volunteers to help provide their respective expertise, teaching students as a partnership with regular and part-time teaching staff at Waialua High School. In addition, the Center provides resources such as mobile laptops, and robotics kits to feeder programs in our school community to create a continuum from grades K-12.

Scholarships are provided to eligible students who complete a career pathway and participate in FIRST Robotics.

Future plans: – *what are your plans for growth in the next 3 years in the areas of sponsorship, team and community outreach (including helping FIRST grow)*

Since our program began, our team works towards sustainability, long-term growth plans, and a designated Waialua Robotics Team business account to sustain FIRST expenses, infrastructure costs, travel costs, and scholarships for students.

We develop and maintain a business-like structure that addresses all need areas of our program and to ensure that all students can pursue their post-secondary career interests, primarily in STEM. We have a comprehensive and diversified academic and financial plan which assures that the *Waialua Robotics STEM Learning Center* will continue for years to come, while achieving at a high level in all phases of our robotics curriculum, our partnership/outreach program, and our funding support. In addition, partnerships with the local Universities and Career Readiness Centers have helped our families of students prepare their child for post-secondary opportunities and education.

Team 359 plans to continue its pursuit to further *FIRST* globally. Our team has traveled to Japan, China, Taiwan and Australia in recent years to visit schools and participate in Robotics/STEM competitions and events. We also have been corresponding with STEM leaders with respect to possibly starting *FIRST* teams and participation in other international robot competitions. For example, our program visited China in November 2014, August 2015, August 2016, July 2017, July 2018, July 2019 and participated in the 2015 inaugural *FIRST* competition in Sydney, Australia. Our program also participates in the iREX Robotics Convention, the largest in the World every other year (i.e. 2013, 2015, and 2017). We also travelled to Taiwan in August 2019 and participated as consultants, workshop presenters, and judges for an off-season FRC event in preparation for the inaugural 2020 Taiwan FRC Competition. **Due to COVID-19, our plans to travel to both Taiwan and China in 2020 were postponed and the events have been cancelled until further notice. We do intend to resume those opportunities once the Pandemic has subsided opening up traveling to these regions again.** We are planning to go to Canada and Japan during the current 2022-23 SY.

To assist in expanding our outreach efforts, we are always looking to acquire larger corporate sponsorship and additional federally funded grants. Our goal is to build a dedicated STEM Innovation Learning Center to expand program offerings beyond Robotics and to help our entire community/State.

Summary of Team 359 Expenses 2022-23SY:

Robotics Competition Registration Fees	\$29,400
Competition Travel Expenses	\$85,000
Uniforms	\$4,500
Lesson Activities	\$10,000
Robot Materials and Equipment (includes maintenance)	\$55,000
Entrepreneurship Project Materials-PPE	\$10,000
Awards	\$2,500
Video AV, Computers, Software, peripherals, licenses	\$14,000
Startup costs, donation letters, postage	\$500
Omiyage-gifts, keychains, buttons, shirts	\$1,500
TOTAL	\$212,400

Donation List: 2021-22 School Year

Name of donor/organization:

Date

Amount (\$):

Diamond Sponsor (\$20,000 and up)

HI DOE Title IV-A SS&AE Grant	10/1/2022	300,000.00
UPLINK Grant	10/1/2022	75,000.00
21st CCLC Grant	7/1/2022	60,000.00
Friends of Waiialua Robotics - Special Projects	2022-23 SY	58,000.00
McInerney Foundation	9/19/2022	25,000.00
DoD STEM FIRST Robotics Grant-Parts	8/1/2022	23,500.00
Maui Divers Jewelry	12/30/2022	20,000.00

Platinum Sponsor (\$10,000 and up)

Gene Haas Foundation	2/15/2023	17,500.00
Waiialua High School STEM Learning Center	8/1/2022	17,000.00
Atherton Family Foundation	8/1/2022	15,000.00
First Hawaiian Bank Foundation	8/23/2022	10,000.00
Skydiving School, Inc.		10,000.00
Career Technical Education: Perkins and State 15849 Funding	9/1/2022	10,000.00

Gold Sponsor (\$5,000 and up)

Pioneer Hi-Bred International Corteva Agriscience	11/29/2022	8,500.00
Hawaiian Electric Company	8/1/2022	5,000.00
DoD STEM FIRST Robotics Grant - Championship Registration		5,000.00
Oakley - Jason Sakamoto	10/1/2022	5,000.00
Skydiving School, Inc.	12/27/2022	5,000.00
Randy and Mary Wood	12/29/2022	5,000.00

Silver Sponsor (\$1000 and up)

Waiialua High School Foundation		3,000.00
DoD STEM FIRST Robotics Grant - Regional Registration	8/1/2022	3,000.00
AFCEA Hawaii STEM Grant	8/18/2022	3,000.00
L3Harris Foundation Grant	12/1/2022	3,000.00
DoD STEM FIRST Robotics Grant - Registration		2,500.00
DoD STEM FIRST Robotics Grant - Championship Expenses		2,500.00
HawaiiUSA Federal Credit Union Foundation	8/15/2022	2,500.00
L3Harris Foundation Follow Up Grant		2,000.00
Friends of Hawaii Charities - Sony Open	5/31/2022	2,000.00
BAE Systems P&S		1,500.00
Intuitive Research Foundation		1,500.00
Island X Hawaii LLC	8/2/2022	1,000.00
Bayer Fund - Science Education	12/21/2022	1,000.00

Sponsors (less than \$1000)

R.M. Towill Foundation	9/17/2021	500.00
Fumiko Horii	9/27/2022	500.00
Eric Kugisaki	8/20/2022	200.00
Robert Baudrau	8/22/2022	200.00
Inez Koga	7/13/2021	100.00

Grand Total:

704,500.00

Risk Analysis:

SWOT Analysis: Providing Services to WHS Students

Strengths:

We have several committed mentors and students who are capable of training rookies

We have lots of facility spaces dedicated to STEM-Robotics, with much high-tech equipment such as 3D printers, a laser engraver, a Water Jet, mini mills and lathes, CNC routers, and CAD computer workstations.

We tend to attract students who enjoy challenging experiences and have above average work ethic and collaboration skills.

Weaknesses

Our team is still trying to close a divide between our technical and non-technical teams.

Need to refine our current team organizational chart and team organizational systems to get every student involved in both our technical and non-technical efforts.

Many of our students lack technical experience due to a shortage of other CTE classes that provide the foundation for technical skills.

We tend to attract students who are overcommitted (involved in many other afterschool activities) because we are such a small school.

Opportunities:

Our school is very well known in Robotics due to our past successes (currently in our 23rd season).

Our school administration is incredibly supportive of our STEM Learning Center. They allow our teachers, mentors, and staff members to attend FRC competitions and outreach events, which assist in the networking of potential and current sponsorship.

Threats:

Due to statewide budget shortfalls and the current COVID-19 Pandemic, funding for afterschool programs have diminished to no funding from the school level. However other federal funding support opportunities have come up as a result which we applied for and received this 2020-21 SY.

State assessments are mandatory could conflict/restrict our FRC tournaments.

Several afterschool programs compete for our students' time, despite the challenges of a limited number of program offerings across our school and State.