



Hawai'i FTC Championship

Dec. 9-10, 2023

Le Jardin Academy | Kailua, Hawaii



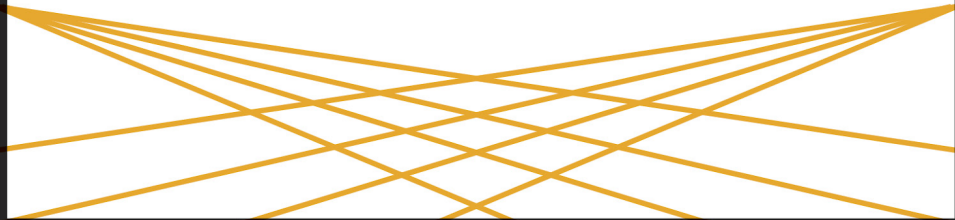
 LIVE streamed at [twitch.tv/hawaiifirstrobotics](https://www.twitch.tv/hawaiifirstrobotics)



PRESENTED BY  RTX

CREATE THE FUTURE

with big ideas and bold action as you
compete for a place in the spotlight
with this arts-inspired challenge.





FIRST® (For Inspiration and Recognition of Science and Technology) was founded in 1989 to inspire young people's interest and participation in science and technology. Based in Manchester, NH, the 501(c)(3) not-for-profit public charity 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.

*FIRST is More Than Robots.*SM *FIRST* participation is proven to encourage students to pursue education and careers in STEM-related fields, inspire them to become leaders and innovators, and enhance their 21st century work-life skills.

FIRST® Tech Challenge is an exciting, fun, global robotics program for students in grades 7-12. Teams are responsible for designing, building, and programming their robot to compete in an alliance format with and against other teams. The standard robot kit is reusable and can be programmed using a variety of java-based programming languages. Teams compete on and off the playing field for awards that celebrate robot design and performance, community outreach, *Gracious Professionalism*,® and sharing and spreading *FIRST* in their communities. Being on a *FIRST* team empowers students to:

- Think, explore, and project plan like scientists and engineers
- Have a fun, creative, and hands on STEAM experience
- Experiment, iterate, and overcome obstacles
- Apply real life math and science skills
- Build self-esteem and confidence
- 90% of participating students report learning how STEM can solve real world problems





** Celebrating 20 Years **

Hawai'i FIRST Robotics [HFR], is an all volunteer, non-profit organization dedicated to providing FIRST programs for Hawai'i children in grades 2 to 12. Please support our efforts with a generous donation or by volunteering at HFR events. Visit us at hawaiifirstrobotics.org for more information. Mahalo!

MAHALO to our Hawai'i Sponsors

HITACHI

Inspire the Next

PLATINUM SPONSORS

<p>PART OF THE SALTCHUK FAMILY OF COMPANIES</p>		

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Day 1: Saturday, Dec. 9th, League Tournament Agenda*

7:30am	Teams, please check-in & help set up
8:00 – 10:00 am	Inspections, Judge Interviews, Practice
10:10 am	Drivers Meeting
10:30 am	Opening Ceremony
10:45 am – 12:30 pm	Robot Matches
12:30 – 1:10 pm	Lunch Break
1:10 – 4:00 pm	Robot Matches Continued
4:15 pm	Awards
5:00 pm	Closing Ceremony

Day 2: Sunday, Dec. 10th, Championship Agenda*

7:30 am	Teams, please check-in & help set up
8:00 – 9:00 am	Inspections, Practice
9:15 am	Drivers Meeting
9:30 am	Opening Ceremony
10:05 am – 12:30 pm	Qualification Matches, Alliance Selection
12:30 – 1:10 pm	Lunch Break
1:10 pm	Elimination Matches
3:00 pm	Awards
3:30 pm	Closing Ceremony

* Please note that the tournament schedule is tentative. All times are subject to change. For any changes to the event's schedule, check in with Pit Admin

During the Qualifying Matches

After all teams have gone through the robot and field inspections, they are randomly assigned into alliances of two teams. A team's alliance partner in one match may be their opponent in another match.

Team Rank

After all qualifying matches, all teams will be ranked from first through last based on their averaged Ranking Points (RPs). If multiple teams have the same number of ranking points, then the teams will be ranked based on their averaged tiebreaker points (TBP). There are two types of Tiebreaker points; TBP1 and TBP2. TBP1 is their alliance's autonomous period score. TBP2 is the alliance's endgame score. If multiple teams have the same tiebreaker points as well, the teams will be ranked based on their highest match score. If this comparison still results in a tie, the next highest match score will be used until the tie is broken.

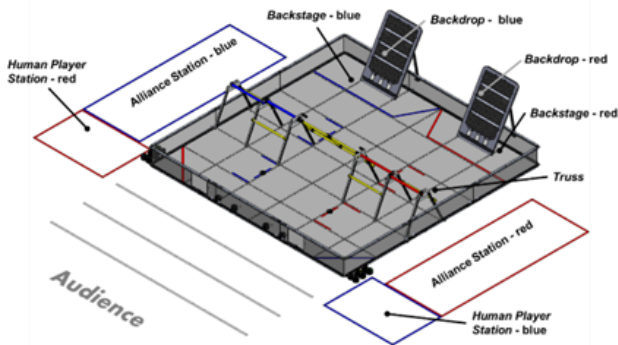
Alliance Selection

After all the qualifying matches are held, the Alliance Section begins. Four alliance captains are selected based on team rank. These captains then pick one or two additional teams (based on event size) to be their alliance partners for the Elimination Matches.

Elimination Matches

Alliances get a win, loss, or tie. The advancing alliance is the first one to win two matches.





The Game:

CENTERSTAGESM is played on a 12 ft. x 12 ft. (3.7m x 3.7m) square field with approximately 1 ft. (0.3 m) high walls and a soft foam mat floor. There are two Alliances – “red” and “blue” – made up of two Robots each. Pixels are the Alliance-neutral scoring elements. There are 94 Pixels (64 white, 10 purple, 10 yellow, and 10 green). Four white Pixels are used as indicators for the Autonomous Period to direct the Robots to specific scoring areas. At the back of the field are two alliance-specific Backdrop and Backstage areas where robots score Pixels. Approximately midfield are four Trusses made up of Riggings and one Stage Door. In the front corners of the field are alliance-specific Wings where robots receive Pixels from the Human Player. There are six stacks of Pixels against the front wall of the field for Robots to retrieve and score. In front of the field are three Landing Zones where Robots will launch Drones.

Robots must traverse around the field under the Truss or through the Stage Door to access Pixels located against the front field wall. Pixels may also be placed by the Human Player into the Wings for Robots to access and score on the Backdrop or Backstage. There are different colors of the Pixels or the Robots to score Mosaics of three non-white Pixels in certain patterns.

Prior to the start of the Match, Robots must be touching the wall closest to their alliance station at specified locations and may possess up to two Preload Pixels (one yellow and one purple) and their Drone. Teams may place their own manufactured Team Prop on the field directly in front of their Robot.

Matches have two distinct periods of play: a 30-second Autonomous period followed by a two-minute Driver-Controlled period. The last thirty seconds of the Driver-Controlled period is called the End Game which adds new scoring opportunities for the Robots to achieve.

Autonomous Period:

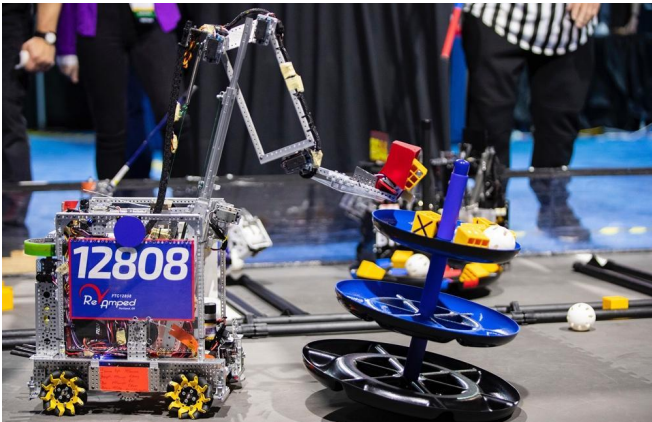
Robots may place Pixels in their corresponding Backdrop or Backstage closest to their Alliance Station. They can park in several locations at the end of the period for different points. Robots that can read the location of the Randomized Pixel and place their Pixel onto the correct Backdrop location earn points. Using their Team Prop to accomplish these tasks earns additional points.

Driver-Controlled Period:

Alliances earn points by scoring Pixels on their Backdrops or in their Backstage Areas. Mosaics on the Backdrop earn Artist Bonus points. Pixels crossing Set Lines on the Backdrop also earn Set Bonus points.

End Game:

Alliances may continue to score Pixels on Backdrops or Backstage. They may also launch Drones from their Robots over the Truss into Landing Zones in front of the Playing Field. They may also suspend their Robots from the Rigging connected to the Truss or Park their Robots in the Backstage for various points.



Autonomous Period Scoring:

Navigating:

Parked In Alliance Backstage:5 points

Randomization Tasks based on white Pixel:

Purple Pixel in Spike Mark location: 10 points

Yellow Pixel in correct column on Backdrop: 10 points

Randomization Tasks based on Team Art:

Purple Pixel in Spike Mark location: 20 points

Yellow Pixel in correct column on Backdrop: 20 points

Pixels:

Placed in Backstage: 3 points

Placed on Backdrop: 5 points

Driver-Controlled Period Scoring:

Pixels:

Placed in Backstage: 1 point

Placed on Backdrop: 3 points

Artist Bonus: 10 points

Set Bonus: 10 points each

End Game Scoring:

Robot Parked In Backstage: 5 points

Robot Suspended from Rigging: 20 points

Drone Launching:

In Landing Zone 1 (closest to the field): 30 points

In Landing Zone 2: 20 points

In Landing Zone 3: 10 points

TEAM #	TEAM NAME	SCHOOL/ORGANIZATION	CITY, STATE
6175	License To Shred	Punahou School	Honolulu, HI
6962	Pokébolts	Punahou School	Honolulu, HI
7438	Hot Spot Robotics	Mililani High School	Mililani, HI
8740	I'lobotics	Iolani School	Honolulu, HI
8741	I'lobotics	Iolani School	Honolulu, HI
9378	Magma Robotics	Kalani High School	Honolulu, HI
13088	Cyber Saints	St Catherine School	Kapaa, HI
14825	Waffles	Assets School	Honolulu, HI
15236	Owl Robotics	Mid-Pacific Institute	Honolulu, HI
16374	M.E.A.F.	Assets School	Honolulu, HI
17063	Hot Shot Robotics	Mililani High School	Honolulu, HI
17445	Waimea Robotics	Waimea High School	Waimea, HI
18883	Kawaikini Robotics	Waimea High School	Waimea, HI
20059	Pink Rubber Duckies	Punahou School	Honolulu, HI
20060	Puns PastaBots	Punahou School	Honolulu, HI
20061	Omega 2	Punahou School	Honolulu, HI
20062	Defused Kittens	Punahou School	Honolulu, HI
20063	t6hθACDCs	Punahou School	Honolulu, HI
20064	Majestic Monkeys	Punahou School	Honolulu, HI
20065	No Cheese	Punahou School	Honolulu, HI
20066	High Explosives Experts	Punahou School	Honolulu, HI
20076	Le Jardin Academy	Le Jardin Academy	Kailua, HI
20311	Voyagers	Island School	Lihue, HI
20423	Obsidian Robotics	Kalani High School	Honolulu, HI
22517	RoboWarriors	Kapaa High School	Kapaa, HI
22536	Crusaders	St Louis School	Honolulu, HI
23402	Pancakes	Assets School	Honolulu, HI
23562	Robo-Techs Hawaii	Family/Community	Honolulu, HI
23570	Saber Dynamics	Campbell High School	Ewa Beach, HI
23646	Junior Crusaders	St Louis School	Honolulu, HI

23647	Crusaders 2	St Louis School	Honolulu, HI
23657	HTA Kauai Robotics	Hawaii Tech. Academy	Lihue, HI
23803	Ko'olaupoko Robotics	Family/Community	Kailua, HI
23905	Despicable Me-Chanics	Family/Community	Kaneohe, HI
24056	Crusaders 3	St Louis School	Honolulu, HI
24106	KCS MS-1	Kaimuki Christian Sch.	Honolulu, HI
24132	Pumice Robotics	Kalani High School	Honolulu, HI
24425	Honu Warriors	Kapaa Middle School	Kapaa, HI



Participants and alumni of *FIRST* programs gain access to education and career discovery opportunities, connections to exclusive scholarships and employers, and a place in the *FIRST* community for life.

Learn more about scholarships, internships, and alumni opportunities at www.firstinspires.org/alumni. If you're a graduating senior, make sure to register in our dashboard so we can stay in touch!



AWARDS

INSPIRE Award

The highest award that a team can be given. This judged award is given to the team that truly embodied the “challenge” of the program. The team that receives this award is a strong ambassador for *FIRST* programs and a role model team. This team is a top contender for many other judged awards and is a gracious competitor. The Inspire Award winner is an inspiration to other teams, acting with *Gracious Professionalism*[®] both on and off the Playing Field.

THINK Award

Removing engineering obstacles through creative thinking. This judged award is given to the team that best reflects the journey the team took as they experienced the engineering design process during the build season.

CONNECT Award

Connecting the dots between community, *FIRST*, and the diversity of the engineering world. This judged award is given to the team that most connects with their local science, technology, engineering, and math (STEM) community.

INNOVATE Award sponsored by Raytheon Technologies

Bringing great ideas from concept to reality. This judged award celebrates a team that not only thinks outside the box, but also has the ingenuity and inventiveness to make its designs come to life. This judged award is given to the team that has the most innovative and creative robot design solution to any or all specific field elements or components in the game.

CONTROL Award sponsored by Arm

Mastering robot intelligence. This judged award celebrates a team that uses sensors and software to enhance the robot’s functionality on the field.

DESIGN Award

Industrial design at its best. This judged award recognizes design elements of the robot that are both functional and aesthetic. All

successful robots have innovative design aspects; however, the Design Award is presented to teams that incorporate industrial design elements into their solution.

ELIMINATION TOURNAMENT AWARDS

The winning alliance and finalist alliance are both recognized for their achievement in robot game performance.

FIRST World Championship Eligibility

The *Inspire Award Winner*, and the *Winning Alliance Captain* advance to the FIRST World Championship, in Houston, Texas.

FIRST Values

Gracious Professionalism[®] — *Gracious Professionalism* is part of the ethos of *FIRST*. It's a way of doing things that encourages high-quality work, emphasizes the value of others, and respects individuals and the community.

With *Gracious Professionalism*, fierce competition and mutual gain are not separate notions. Gracious professionals learn and compete like crazy but treat one another with respect and kindness in the process. They avoid treating anyone like losers. No chest thumping tough talk, but no sticky-sweet platitudes either. Knowledge, competition, and empathy are comfortably blended.

In the long run, *Gracious Professionalism* is part of pursuing a meaningful life. One can add to society and enjoy the satisfaction of knowing one has acted with integrity and sensitivity.

Coopertition[®] — *Coopertition* produces innovation. At *FIRST*, *Coopertition* is displaying unqualified kindness and respect in the face of fierce competition. *Coopertition* is founded on the concept and a philosophy that teams can and should help and cooperate with each other even as they compete.

Coopertition involves learning from teammates. It is teaching teammates. It is learning from mentors. And it is managing and being managed. *Coopertition* means competing always and assisting and enabling others when you can.

FIRST is committed to fostering, cultivating, and preserving a culture of equity, diversity, and inclusion that opens STEM opportunities for all. The *FIRST* community thrives under the set of *FIRST* Core Values:

<p>Discovery We explore new skills and ideas.</p> 	<p>Innovation We use creativity and persistence to solve problems.</p> 	<p>Impact We apply what we learn to improve our world.</p> 
<p>Inclusion We respect each other and embrace our differences.</p> 	<p>Teamwork We are stronger when we work together.</p> 	<p>Fun We enjoy and celebrate what we do!</p> 

Mahalo to Volunteers & Event Hosts

Hawai'i FIRST Robotics events are made possible through the support of volunteers who are passionate about empowering the next generation of talented problem solvers and community leaders. The following individuals made this Hawai'i FIRST Tech Challenge season possible.

Regional Partners: Aaron Dengler, Blake Uramoto, Peter Han

Volunteer Coordinator: Jenny Uramoto

Head Referee: Tyson Kikugawa

Event Hosts: Le Jardin Academy, 'Iolani School, Island School, Mililani High School, Kalani High School, Assets School


Judge Advisor: Teri Nobriga

Judges: Tim Donlon, Dale Zane, Brian Catlin, Hyejin Hickey, Michelle Bradley, Jhordan Figueroa, Derrick Shiroma, Luana Viveiros, Amy Miller, Vince Goldsmith

Event Support: Allan Ching, Amy Miller, Anna Chung, Beckey Wong, Blake Yamamoto, Brent Uramoto, Brian Catlin, Brian Dunkel, Bryan Silver, Bryson Goto, Christopher Barnhart, Crystal Kalauawa, Cynthia Hannah-White, Dale Zane, Danette Kobayashi, Derrick Shiroma, Enrique Che, Ho Shing Wong, Hyejin Hickey, Isaac Lau, Jennifer Thym, Jhordan Figueroa, Joshua Kuakini, Julie Weinstein, Kaikoa Viveiros, Kalani Fukuda, Kat Caswell, Kevin Dang, Kevin Durant, Kiana Kim, Kylie Swider, Leah Toma, Lisa Miyamoto-Matruda, Luana Viveiros, Marian Swider, Marissa Beasley, Martian Binonwangan, Megan Kobayashi, Michelle Bradley, Millie Ng, Rheta Kuwahara, Robin Wurtzel, Roxanne Balanay, Ryan Morita, Sandy Catlin, Summer Thym, Sylvia Wang, Teri Nobriga, Tiffany Chaiko, Tim Kaneshiro, Travis Takashima, Brekin, Vince

We invite you to volunteer and energize the next generation to build a better future. Learn more at firstinspires.org/ways-to-help/volunteer

Thank you to all our additional volunteers whose names did not make it into the printed program!



Thank you to all who help make this program possible for our students. *FIRST* could not exist without the support of the army of mentors, parents, teachers, and volunteers who step up to provide their time and expertise to inspire our young people to get excited about science, technology, engineering, and math.

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