

Vermont Region Championship

Saturday, March 7th
South Burlington High School

Brought to you by



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Stop by the OVR Technologies table in the lobby to test out a new dimension in Gaming!

Keynote Speaker

We are proud to welcome Colin Riggs



Colin Riggs is the Founder and CEO of Rigorous Technology, an industrial robotics company focused on bringing advanced robotic software technology on a modern control architecture to US manufacturers.

Prior to founding Rigorous, Colin Riggs led product development at Greensea IQ, a marine robotics company based in Vermont.

During his tenure at Greensea IQ, Colin developed the industry-leading robotic software platform for subsea robots.

He led dozens of integrations across the world and had the opportunity to work on programs including unexploded ordnance disposal, deep ocean research, utilities, and treasure hunting.

About *FIRST*



FIRST® (**F**or **I**nspiration and **R**ecognition of **S**cience and **T**echnology) 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*™. *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.

About *FIRST* Tech Challenge

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. Using blocks-based or text-based coding and custom fabrication with 3D printing, teams program classroom-scale robots to follow autonomous commands before student drivers take control in two-on-two matches. 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



Event Schedule

Start Time	End Time	Activity
7:30 AM	6:30 PM	Pit Area Open
8:00 AM	10:25 AM	Judging - Assigned time slots available at Pit Admin
8:00 AM	10:00 AM	Robot inspections open
8:15 AM	4:00 PM	Practice fields open
9:00 AM	10:00 AM	Fields open for Calibration and Measurement
10:15 AM	10:30 AM	Drivers' Meeting
10:30 AM	11:00 AM	Opening Ceremony, Keynote
11:00 AM	12:30 PM	Qualification Matches
12:30 PM	1:00 PM	Lunch Break
1:00 PM	2:48 PM	Qualification Matches resume
3:00 PM		Alliance selection begins
4:00 PM	6:00 PM	Playoff Matches and Awards

Match Play and Playoffs

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

During the qualifying matches, all teams will be ranked from first through last based on their Ranking Score (RS). The following table shows how teams are ranked in order:

Order Sort	Criteria
1st	RANKING SCORE (RS) – Average Ranking Points
2nd	Average ALLIANCE AUTO Points
3rd	Average TELEOP ALLIANCE ASCENT Points
4th	Highest MATCH Score (including FOULS)
5th	Random sort by the <i>FIRST</i> event management software

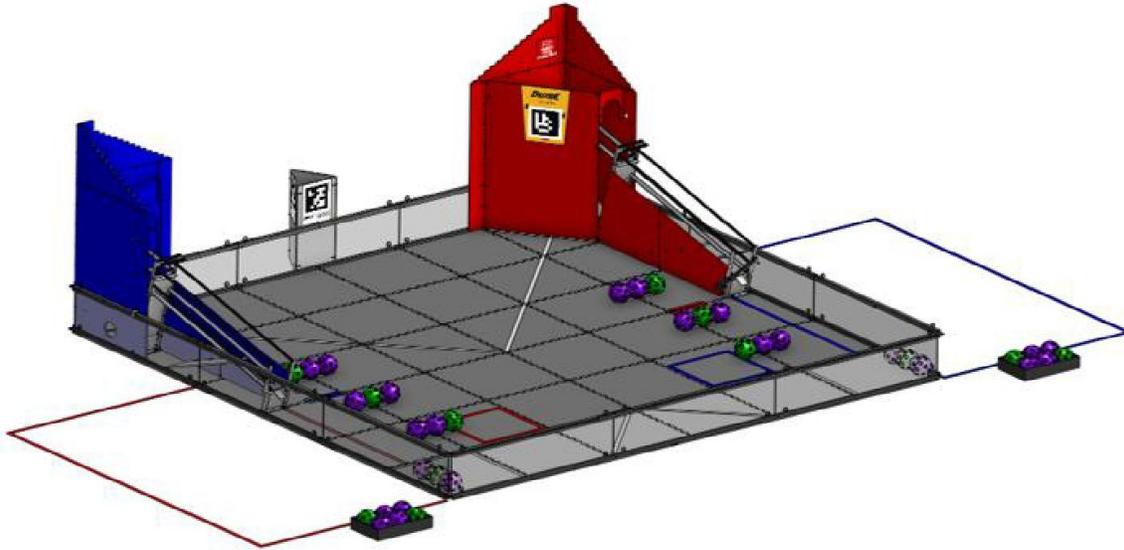
Alliance Selection

After all the qualifying matches are held, the Alliance Section begins. Up to eight alliance captains are selected based on the tournament size. These captains then pick one team to be their alliance partner for the Playoff Matches.

Playoff Matches

Alliances play in a double elimination style tournament which consists of an upper and lower bracket. Teams will face a new alliance each round until they have been defeated twice and are eliminated. The last alliance left standing is the event winner.

Game Description



The Game:

In DECODE™ presented by RTX 2 competing ALLIANCES of 2 teams each score purple and green ARTIFACTS in their GOAL, build PATTERNS, and race back to their BASE before time runs out.

Just before the match starts, the OBELISK is randomized to show one of 3 MOTIFS. The MOTIF for the MATCH defines what color PATTERN robots try to create on their RAMPS.

During the first 30 seconds of the MATCH, the ROBOTS operate autonomously. ROBOTS can use sensors to decode the randomized MATCH MOTIF. ROBOTS can earn points by scoring ARTIFACTS in their GOAL and building a PATTERN on their RAMP based on the MOTIF. ROBOTS also earn points for moving off the LAUNCH LINE.

During the remaining 2 minutes of the MATCH, human DRIVERS take control of their ROBOT. ROBOTS collect and continue to score ARTIFACTS in their GOAL to earn points. DRIVE TEAM members can retrieve ARTIFACTS from the ALLIANCE'S LOADING ZONE and help their ROBOTS by loading them with ARTIFACTS.

As time runs out, ALLIANCES can work together to return both of their ROBOTS to the BASE. ALLIANCES that build PATTERNS based on the MOTIF at the end of the MATCH earn additional points.

The ALLIANCE that earns the most points wins the MATCH and additional RANKING POINTS can be earned though completing other scoring achievements.

Scoring

Match Points

Autonomous Period:

Action	Points
LEAVE	3
ARTIFACT CLASSIFIED	3
ARTIFACT OVERFLOW	1
PATTERN: ARTIFACT matches MOTIF	2

Teleop Period:

Action	Points
ARTIFACT CLASSIFIED	3
ARTIFACT OVERFLOW	1
ARTIFACT DEPOT	1
PATTERN: ARTIFACT matches MOTIF	2
BASE Partially returned to BASE	5
BASE Fully returned to BASE	10
BASE Additional Bonus: 2 ROBOTS fully returned to BASE	10

Ranking Points

RP Type	Definition	Points
MOVEMENT	Combined LEAVE + BASE points earned at or above threshold	1
GOAL	The number of ARTIFACTS scored through the SQUARE at or above threshold	1
PATTERN	PATTERN points earned at or above threshold	1
WIN	Completing a MATCH with more MATCH points than your opponent	3
TIE	Completing a MATCH with the same MATCH points as your opponent	1

Participating Teams

Note: This list is subject to final updates

Number	Team Name	City
3397	HiveMind Robotics	Essex Junction
4946	Robo Raiders	Montpelier
5741	RoboHawks	Hinesburg
6731	Ringers	Saint Albans
7418	Batteries Not Included	So Burlington
8304	Wired Cats	Saxtons River
9622	Maple Mechanics	Rutland
9721	Green Mountain Gears	South Burlington
10899	Mansfield Mechanics United	Jericho
14251	Capital Robotics	Montpelier
16221	Manchester Machine Makers	Bondville
18351	Robo Raiders III	East Montpelier
18616	River Valley RAD's FTC Team	Springfield
18649	Green Mtn Gearheads	Hyde Park
18650	Cookie Clickers	Bennington
21577	Bulldog Robotics	Burlington
22683	JV RedHawks	Hinesburg
24107	Trash Pandas	Westford
24782	Robo Raiders II	Montpelier
26726	Lamoille Robotics	Hyde Park
28017	Winooski Middle/High School	Winooski
30656	The Interns	South Burlington
31719	Flying Tigers	Middlebury
32473	Bennington Bolts and Biscuits	Bennington
32818	Wired Cats Devo	Saxtons River

FIRST Alumni and Scholarships

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!



***FIRST*Tech Challenge Awards**

INSPIRE AWARD

The highest award that a team can be given. The team that receives this award is a strong ambassador for *FIRST* programs and a role model *FIRST* 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. This team shares their experiences, enthusiasm and knowledge with other teams, sponsors, their community, and the judges. Working as a unit, this team will have shown success in performing the task of designing and building a robot.

THINK AWARD

Removing engineering obstacles through creative thinking. This 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. The engineering content within the portfolio is the key reference for judges to help identify the most deserving team.

CONNECT AWARD

Connecting the dots between community, *FIRST*, and the diversity of the engineering world. This award is given to the team that connects with their local science, technology, engineering, and math (STEM) community. A true *FIRST* team is more than a sum of its parts and recognizes that engaging their local STEM community plays an essential part in their success. This team has a team plan and has identified steps to achieve their goals.

MOTIVATE AWARD

Sparking others to embrace the culture of *FIRST*! This team embraces the culture of *FIRST* and shows what it means to be a team. This team makes a collective effort to make *FIRST* known throughout their school and community and sparks others to embrace *FIRST*'s culture.

***FIRST*Tech Challenge Awards, Continued**

INNOVATE AWARD sponsored by RTX

Bringing great ideas from concept to reality. This award celebrates a team that thinks imaginatively and has the ingenuity, creativity, and inventiveness to make their designs come to life. This award is given to the team that has an innovative and creative robot design solution. Elements of this award include design, robustness, and creative thinking related to design. This award may address the design of the whole robot or of a mechanism attached to the robot and does not have to work all the time during matches to be considered for this award.

CONTROL AWARD

The Control Award celebrates a team that uses sensors and software to increase the robot's functionality during gameplay. This award is given to the team that demonstrates innovative thinking and solutions to solve game challenges such as autonomous operation, improving mechanical systems with intelligent control, or using sensors to achieve better results. The solution(s) should work consistently during matches.

DESIGN AWARD

The Design Award celebrates the team that demonstrates industrial design principles, striking a balance between form, function, and aesthetics. The design process used should result in a robot which is efficiently designed, and effectively addresses the game challenge.

COMPASS AWARD (Optional Award)

A beacon and leader in the journey of the team. This judged award recognizes an adult Coach or Mentor who has provided outstanding guidance and support for a team throughout the year and demonstrates to the team what it means to be a *Gracious Professional*.

Playoff Tournament Awards

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

***FIRST* Values**

Gracious Professionalism[®] — Dr. Woodie Flowers, *FIRST* Distinguished Advisor and Pappalardo Professor Emeritus of Mechanical Engineering, Massachusetts Institute of Technology, coined the term *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* Core Values**

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:



Thank You!

Thank you to all who help make this program possible for our students.

FIRST could not exist without our partners and the support of the many, many 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.

FIRST,[®] the *FIRST*[®] logo, *FIRST*[®] Robotics Competition, *FIRST*[®] Tech Challenge, *Coopertition*,[®] *Gracious Professionalism*,[®] *More Than Robots*, *SM INTO THE DEEP*, *SM* and *FIRST DIVE* are trademarks of For Inspiration and Recognition of Science and Technology (*FIRST*). *LEGO*[®] is a trademark of the LEGO Group. *FIRST*[®] *LEGO*[®] League is a jointly held trademark of *FIRST* and the LEGO Group. All other trademarks are the property of their respective owners. ©2024 *FIRST*.

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