

## **FIRST Impact Award - Team 2370**

<b>2024 - Team 2370</b>
<b>Team Number</b>
<b>2370</b>
<b>Team Nickname</b>
IBOTS
<b>Team Location</b>
Rutland, VT - USA
<b>Describe the impact of the <i>FIRST</i> program on team participants within the last 3 years. This can include but is not limited to percentages of those graduating high school, attending college, in STEM careers, and in <i>FIRST</i> programs as mentors/sponsors.</b>
FIRST has been integral to creating social-emotional connections and camaraderie amongst our students. IBOTS has a 100% high school graduation rate, compared to 91% statewide. 86% of IBOTS graduates went on to higher education in STEAM fields, and 9 alumni serve as FIRST mentors. 2 IBOTS have been VT Presidential Scholars in CTE. Our graduates have attended WPI, RPI, RIT, VTC, UVM, and Clarkson University. Recent graduates are benefiting from more than half a million dollars in scholarships.
<b>Describe your community along with how your team addresses its unique opportunities and circumstances.</b>
Rutland, VT is a small and economically challenged community, geographically isolated with limited diversity and residents' average age of 51. Homelessness in VT is the 2nd highest in the US with Rutland having a 78% Free & Reduced Lunch rate. We address these challenges by partnering with our community assets such as our Makerspace, Stafford Tech Center and GE Volunteers to create opportunities and inspire our youth to pursue STEAM related careers to help lift our community out of poverty.
<b>Describe the team's methods, with emphasis on the past 3 years, for spreading the <i>FIRST</i> message in ways that are effective, scalable, sustainable, and creative. How does your team measure results?</b>
We helped start FIRSTinVT, a statewide non-profit which starts and sustains new FIRST teams: increasing FLL teams from 24 to 57 and FRC teams from 3 to 6. We have mentored 1 FTC team, 9 FLL teams, and 2 rookie FRC teams. With more than 20 outreach events and camps we've expanded the local FLL pipeline from 4 to 6 teams. 55% of our FRC team started on FLL teams. New grants enabled us to create a multiyear business plan, acquire space for hosting FLL camps and the only FRC practice field in VT.
<b>Please provide specific examples of how your team members act as role models within the <i>FIRST</i> community with emphasis on the past 3 years.</b>

- Legislative advocacy for youth programs, including FIRST programs - Mentoring and volunteering with FTC and FLL teams (400 hours) - Volunteering at FRC competitions (over 1,300 hours) - Mentored and supported three new FRC teams in our state (100 hours) - Hosted & ran the first ever VT FLL Qualifying Event - Creating social media, marketing, and outreach materials - Over 20 outreach and community events; leading camps for youth

**Describe your team's initiatives to Assist, Mentor, and/or Start other *FIRST* teams with emphasis on activities within the past 3 years.**

We mentored all FRC rookie teams in Vermont (8883,9101,9096), providing materials, tools, parts, and experience. At events throughout the season, we collaborate with other teams to collect data and share our scouting system (1153, 1757, 6324, 5687, 6933, 9101, 8708, 3654 ). The IBOTS published a season-long build blog to show our process, and have assisted other teams at events with programming, electrical, and mechanical expertise. The IBOTS mentor one FTC team and three FLL teams.

**Beyond starting teams, what initiatives have you done to help inspire young people to be science and technology leaders and innovators? What results have you seen from your efforts in the past 3 years?**

In the past 3 years, IBOTS have reached over 100 students by running 6 STEAM camps focused on coding, LEGO robotics, and engineering fundamentals. In this time our FLL participation has doubled. We partnered with our local makerspace to provide high quality youth programming in the evenings and school breaks. We also work with our local kid's museum to run robotics programs for kids aged 6-9. Each year we give a scholarship to a graduating senior in memory of a recently passed mentor.

**Describe the partnerships you've created with other organizations (teams, sponsors, educational institutions, philanthropic entities, etc.) and what you have accomplished together with emphasis on the past 3 years**

We work with Come Alive Outside, Partners for Prevention, and the Wonderfeet Kids Museum to promote FIRST. We also mentored FRC teams 9101 and 9096, increasing the number of VT teams in our state by 50%. Since 2020, four alumni have gone on to work for our corporate sponsors. Our ongoing partnership with The MINT enabled us to provide a full practice field for all Vermont teams. We join our corporate sponsors for community events such as National Night Out and our local Chamber of Commerce.

**Describe your team's efforts in the past 3 years to promote equity, diversity, and inclusion within your team, *FIRST*, and your communities.**

- Our female students work with Vermont Works For Women to mentor young girls through a program called Rosie's girls that empowers girls to explore the trades and other male dominated fields - Nearly 50% of our students and mentors are females. - We focus on social emotional wellbeing and building soft skills - We assisted with the Rutland Vermont Pride Prom - IBOTS provides financial assistance to students so there is no barrier to entry meaning everyone can participate in FIRST

**Explain how you ensure your team and the initiatives you have created will continue to run effectively for the foreseeable future**

Recruiting: We've created a pipeline through FLL & FTC teams, increasing our team size by 5% per year. Fundraising: We sustain firm partnerships with our sponsors and fundraise locally. We've grown our budget by 40% since 2020. Space: We've partnered with the local Tech Center and The MINT to grow

our build space and open a field for all FRC teams. Our space has doubled since 2020. Mentors: We've recruited parents, alumni and local professionals to mentor, increasing our engagement by 250%

**Describe your team's innovative strategies to recruit, retain, and engage your sponsors within the past 3 years**

IBOTS provided 3D printing services for a sponsor in return for powder coating our parts. Our sponsors provide internships and full-time positions for our team members and we provide them with a full-color yearbook focused on student outcomes. IBOTS presented in front of our sponsors' executive teams and we hosted the local Chamber of Commerce and Economic Development annual meeting in 2023, where we received the Innovator of the Year award in front of 250 business and industry professionals.

**Highlight one area in which your team needs to improve and describe the steps actively being taken to make those improvements.**

Due to our successful recruitment efforts and procurement of advanced tooling we have outgrown our current home. To solve this, we've formed a partnership with The MINT, Rutland's makerspace. The IBOTS provide STEAM summer camps for students in our region in return for 2600 square feet of space. This enables us to host a full practice field that will be open to all FRC teams year-round. We expect to have this second home operational within a year.

**Describe your team's goals to fulfill the mission of *FIRST* and the progress you have made towards those goals.**

We promote and support STEAM education and experiences in Rutland County and the state of Vermont. Beyond technical skills, we instill self confidence, leadership, communication and teamwork in all of our members. More than 80% of our team members report increased confidence, communication skills, and the ability to work with others as a result of IBOTS and FIRST. Students develop leadership through leading STEAM camps, mentoring opportunities, and leading FRC projects.

**Briefly describe other matters of interest to the *FIRST* Judges, including items that may not fit into the above topics. The judges are interested in learning about aspects of your team that may be unique or particularly noteworthy.**

We sustain and grow our organization through focused outreach, school & community partnerships, strong business connections, and a passion for communicating the ideals of FIRST in our community. Our organization focuses heavily on student and adult volunteering at FIRST events, and the IBOTS have invested more than 1,300 hours volunteering in the past 3 years.

Our adults and students in our organization also volunteer in the community, dedicating more than 1,000 hours in the past year alone.

**Judge Feedback**

Who/When	Feedback
Apr 06, 2024 11:16:30 AM EST	<p><b>If you could go back to when you were in high school, what would you do differently to have a greater impact on your community?</b></p> <p><b>An area the team has an opportunity to improve.</b></p> <p><b>Something that really impressed the judges.</b></p>

## Essay

Meet the IBOTS 2370 You probably recognize our logo with the bright green gear. A gear can only cause an impact or create motion through connection. Just like a gear - the IBOTS create an impact through our connections - with our teammates, the FIRST community in Vermont & New England, and with our local community of Rutland Vermont. We focus on these connections to amplify the message and values of FIRST. Our impact resonates at the local, state, regional, and individual level.

With every turn of our gear since our inaugural year of 2008, the IBOTS mission has remained steadfast: to inspire the next generation of innovators, engineers, and leaders through immersive STEAM experiences. We cultivate a culture of creativity, collaboration, communication, and lifelong learning, equipping young minds with the skills to excel and make a positive impact on our world.

IBOTS is a community based team in Rutland, VT with 20 students from 4 different high schools. Nearly half of our students and mentors are females. Our mentors join us from a range of industries and backgrounds: education, IT, engineering, and manufacturing. IBOTS inspires our students to remain connected with FIRST beyond graduation boasting 9 FIRST mentors who are IBOTS alumni. One of our mentors, a founding member of the IBOTS, has invested 14 years with the IBOTS and 18 years total with FIRST Robotics. We also have strong support from parents and community members throughout the year. Students lead our sub-teams in Design, Mechanical, Electrical, Programming, Scouting, and Digital Media, following our motto of "Learn it, Do it, Teach it".

Local Rutland is a small and economically challenged community, geographically isolated with limited diversity and residents' average age of 51. Homelessness in VT is the 2nd highest in the US with Rutland having a 78% Free & Reduced Lunch rate. The IBOTS and Rutland Area Robotics (RAR) overcome these challenges and provide hope and inspiration to our community by partnering with our local assets such as The MINT Makerspace, Stafford Tech Center and GE Volunteers to create educational opportunities that inspire our youth to pursue STEAM related careers to help lift our community out of poverty.

IBOTS focus on community connections to amplify the message and values of FIRST in Vermont and to inspire the youth in our community to dream big and develop the skills and qualities necessary to achieve those dreams. We recognize the barriers hindering students from engaging in science and technology, and provide avenues for learning both technical and soft skills outside the traditional classroom.

We are the primary source for STEAM educational experiences for school aged children in our community. In 2023 alone, our students ran 6 week-long STEAM camps for kids (K-8). Due to grant funding, camps were offered free of charge for youth. Camps included Build-Your-Own Remotely Operated Vehicle and Rosie's Girls Camps dedicated to introducing girls to non-traditional skills and careers. Over 250 kids have attended our STEAM camps over the past three years.

IBOTS have volunteered as counselors for FLL summer camps (ages 7-14) to help recruit new members and build a pipeline where kids can start their FIRST robotics journey at an early age and continue through graduation. We have created a vibrant FIRST pipeline in our community where over 50% of our FRC students started on FLL teams.

We have promoted STEAM and FIRST in our community through partnerships with Come Alive Outside, Partners for Prevention, and Wonderfeet Kids Museum participating at many family/youth focused events

such as the Rutland Whoopie Pie Festival, Magical Mischief, Halloween Parade, and National Night Out, garnering significant community interest and reaching 15,000 people.

State In 2021, IBOTS and RAR helped to found FIRSTinVT, a statewide non-profit organization dedicated to starting new FIRST teams at all levels. Last year, FIRSTinVT nearly doubled the number of FLL teams in VT, which necessitated regional qualifying events in our state for the first time. IBOTS hosted and ran the FLL So. VT Qualifying event in Rutland. Although none of our volunteers had ever run an event before, our dedication, persistence, and bit of ingenuity made the event a huge success. During the event, the scoring system experienced technical difficulties, but our students quickly solved the problem by creating a paper solution on the fly, keeping the event not only on time, but ahead of schedule. IBOTS received positive feedback from participants on how well the event ran where kids had an inspiring, fun day.

IBOTS can be found around the state supporting FIRSTinVT initiatives, showcasing their robots and the impact of FIRST on their technical and soft skills. IBOTS demonstrated skills through student led presentations to business and community members. Through events at BETA Technologies, American Precision Museum, and Tech Jam Conference, we were able to reach diverse audiences highlighting the opportunities within FIRST (reaching 750 people). Additionally, IBOTS have traveled to 3 schools and libraries in the area to demonstrate what FRC robotics looks like to encourage creation of new teams in the state.

We recently opened a 2,600 sq/ft robotics hub for VT, where FLL, FTC, and FRC teams can come together to collaborate and practice. Using funds raised from summer camps and grants, we are able to sustainably continue to provide this space to the FIRSTinVT community as well as support our local makerspace operations for the foreseeable future.

For the 2024 season, IBOTS hosted a VT statewide FRC kickoff event where each team was able to receive their kit, collaborate, discuss, and brainstorm for this year's challenge. As part of the event IBOTS invited teams to the new FRC practice field where they could see the layout of the game and help build new field elements. Regional IBOTS live the ethos of Coopertition and Gracious Professionalism from helping set up the field at events like Battle of the Bay to supporting other teams at competitions with their mechanical, electrical, and programming needs to sharing our scouting system.

In the past three years, we have directly shared our scouting system and data with more than a dozen teams. We created a dynamic database that is easily altered for each event and season. We frequently work with teams, providing our software as well as inputting data together at events. We publicly share all of our recorded competition data. In 2022, Tech Tigers 3654, qualified for Worlds, and we provided them with a customized version of our scouting system. We trained them on how to use, navigate, and configure it for Worlds. For years, the IBOTS have volunteered to help at FRC events. Our parents, alumni, and team members have filled roles including judges, field assembly/resetter, robot inspector, safety attendant, and pit admin dedicating thousands of volunteer hours to support FIRST.

In recent years we have increased our reach beyond Vermont through regional events and social media. Presenting at the Pease Air National Guard Base event in NH we reached 10,000 people. At this event we were thrilled to meet Dean Kamen who visited our display and signed our team banner. Our social media posts, Gear Up with the IBOTS vlog and build blog have expanded our online reach exponentially! Our Halloween Parade post alone had over 1.4K views. Our build blog and vlog communicate our team's

process and progress to over 1200 followers online.

Industry IBOTS' connections with business and industry is vital to our success. Our two founding sponsors, GE Volunteers and Alderman's remain strong, vital supporters to this day. GE provides both financial and mentorship support for our students. GE staff provide training and guidance in CAD, fabrication, mechanical, and electrical. In turn we participate in the GE Family Day event and present to our corporate sponsors on our progress and development as a team.

We expanded our partnership with The MINT enabling them to double their space which now includes Vermont's first and only full size FRC practice field and robotics hub. Through hosting events and team activities at our new location, IBOTS have increased visibility and awareness of The MINT within our community. In 2023, IBOTS hosted the annual meeting for the Chamber and Economic Dev. of Rutland Region (CEDRR) at The MINT, where 250 business and industry professionals were present to see the IBOTS receive the Innovator of the Year Award. Individual Our students and alumni say, "I wouldn't be the person I am today without IBOTS and FIRST". Initially feeling shy and unsure, but through experiences in IBOTS, developed their voice and confidence to communicate and work with others. Increased leadership is evident in our students. Advocacy for youth in our state is a top priority for the IBOTS. One of our students facilitated statewide forums for the Future of Vermont Action Team as part of an initiative to identify strategies to advance opportunities for youth in Vermont.

IBOTS aspire to pursue advanced education and skills and are prepared for future success. 100% of our graduates in the past 2 years went on to pursue college degrees in STEAM related majors at WPI, RIT, RPI, UVM, and Clarkson. In 2023, 2 IBOTS were valedictorians and awarded UVM's Green and Gold scholarship paying their full tuition to UVM. In the past 3 years, 2 IBOTS have been recognized as VT Presidential Scholars in CTE. Our most recent graduates are benefiting from more than half a million dollars in scholarships. RAR awards a \$500 scholarship for 2 graduating members each year.

We hope the teamwork and transfer of knowledge not only spreads throughout team members but with the community as we show and talk about what we do and why we do it. Our legacy will be a positive one with the core value of helping others at the forefront of our future endeavors. ;

