

Chairman's Award - Team 1885

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2019 - Team 1885

Team Number

1885

Team Name, Corporate/University Sponsors

US STEM Foundation/Lockheed Martin/Macedon Technologies/ASCO/Prince William County Schools&Battlefield High

Briefly describe the impact of the *FIRST* program on team participants with special emphasis on the 2018/2019 year and the preceding two to five years

The FIRST progression of programs has deeply impacted all members of ILITE, influencing them to pursue careers in STEM. 100% move on to STEM higher education and careers. FIRST opened doors for these students, allowing them to network with major companies such as Microsoft, Lockheed Martin, Google, and FIRST. ILITE's current students volunteer to deliver high-quality events to the Chesapeake District, learning Gracious Professionalism, and our alum show a passion for STEM as volunteers.

Describe the impact of the *FIRST* program on your community with special emphasis on the 2018/2019 year and the preceding two to five years

Throughout our history, ILITE has transformed our community into a culture where FIRST is a household word and STEM is cool. Sustaining support to all the FIRST programs, we helped expand robotics to every school in the county (multiple FIRST teams in many), designed robotics courses around FIRST programs and run 10+ FIRST events annually. As a robotics town, our community flocks to FIRST competitions, camps, and our STEAM Expo showcasing the progression of FIRST to 2000+ annually.

Team's innovative or creative method to spread the *FIRST* message

ILITE spreads the FIRST message through hands-on experiences, especially for the unreached. We provide FLL training to special education classes and internationally. Our summer camps inspire a pipeline of youth through hands-on training preparing them for participation in FIRST programs. Our "Kindness Campaign" engaged our school in practicing Gracious Professionalism, and spread to 30 local schools. We document our methods and make them available to others to spread and sustain this outreach.

Describe examples of how your team members act as role models and inspire other *FIRST* team members to emulate

ILITE is a role model to other FIRST teams in our district and beyond. ILITE team members are easily recognizable through their integrity, Gracious Professionalism, and Coopertition both on and off the field. For the past 3 years, ILITE has hosted an Effective Student Leadership in FRC conference at the World Championship, inspiring over 300 students from other FIRST teams each year. We encourage teams to spread the message of FIRST as far and wide as possible.

Describe the team's initiatives to help start or form other FRC teams

ILITE works with its local community to inspire the formation of FRC teams through our sustained support of the FIRST Progression of Programs. Through our IROC off-season event, workshops, and published guides/resources ILITE provides rookies and those looking to form teams the tools needed. Each year partnering with 1418 we lead FRC workshops and webinars, on strategy, leadership, scouting, electronics, and drivetrain. ILITE hosts FRC Kick-Off which includes educational and strategy sessions.

Describe the team's initiatives to help start or form other FIRST teams (including Jr.FLL, FLL, & FTC)

ILITE Robotics actively supports the creation of FLL Jr., FLL, and FTC teams. When ILITE first arose, their surrounding community lacked FIRST teams. To grow interest in FLL Jr., ILITE hosts an annual information session. ILITE has supported 80 FLL teams and taught teachers who continue to mentor the teams. We annually run workshops and summer camps on FLL skills. ILITE implemented FTC into the school, involving new students on 3-9 different FTC teams each year totaling over 40 teams mentored.

Describe the team's initiatives on assisting other FIRST teams (including Jr.FLL, FLL, FTC, & FRC) with progressing through the FIRST program

ILITE strives to utilize the staircase FIRST has built by encouraging growth within FIRST, starting with hosting FLL Jr. Expos and assisting 15 local FLL teams. After graduating from FLL, we give students the opportunity to join FTC with an afterschool program that ILITE students mentor. FRC students mentoring FTC students encourages them to join an FRC team. Familiarity and passion truly inspire the students to continue to pursue FIRST and STEM even after high school graduation.

Describe how your team works with other FIRST teams to serve as mentors to younger or less experienced FIRST teams (includes Jr.FLL, FLL, FTC, & FRC teams)

ILITE is continuously introducing students to FIRST; moreover, our students mentor FTC and FLL teams. Mentored FTC students progress to FRC and become the mentors, assisting FTC teams. We assist FLL teams through a 4 week FLL workshop program, summer camps and winter sessions. We teach FLL students programming, teamwork, and presentation skills, all necessary for competition. In addition to the workshops, we assist the FLL team at their schools. We run FLL Jr. information sessions and Expos.

Describe your Corporate/University Sponsors

Our sponsors range from well-known international corporations to small businesses, industry associations, and individuals including alum. Some of these sponsors have been with us since inception and alumni bring their employers into the fold. Our sponsors supply more than financial support including mentors, gifts in kind, outreach opportunities, and training. There is not space to list all our great sponsors, major long-term sponsors include Lockheed Martin, Micron, Google, Macedon, and ASCO.

Describe the strength of your partnership with your sponsors with special emphasis on the 2018/2019 year and the preceding two to five years

ILITE's partnership with sponsors is a leading factor in our success. Sponsors consistently seek out ILITE students and alum for employment. Smaller ILITE sponsors look to ILITE to assist in solving problems in their businesses. Many of ILITE's sponsors support annually. Our relationship with our sponsors have grown into mentorship. We are very fortunate that our mentors speak highly of ILITE at work. Whether it is family or corporate sponsors, no ounce of support goes unrecognized.

Describe how your team would explain what FIRST is to someone who has never heard of it

FIRST is an organization centered around inspiring a better future. They are "more than robots," teaching their members about leadership, communication, innovation, and every aspect of STEAM. This program is an opportunity for growth of every person and the environment they have created has formed a domino affect. FIRST creates the future inventors through a thought-provoking, robotic challenge. Inspiring Leaders In Technology and Engineering is the goal of FIRST.

Briefly describe other matters of interest to the FIRST judges, if any

ILITE, Inspiring Leaders In Technology and Engineering; is the goal of our team. Building a successful FRC team is a monumental task. As a FIRST judge, you have seen first hand the level of effort, resources, and commitment needed to build a successful program. Our team's success is just part of the story. The deeper story is the breadth and depth of ILITE's VISION and efforts to expand the values of FIRST to inspire the underserved and future generations in STEM and Gracious Professionalism.

Team Captain/Student Representative that has double-checked this submission.

Calvin Min

Essay

ILITE: Inspiring Leaders in Technology and Engineering
Inspiring Explorers to Shoot for the Stars

These are the voyages of the FIRST spaceship ILITE FRC 1885 - our 14-year FIRST-inspired mission to establish recognition for science and technology, sustain a community where persons of all ages explore and engage in problem-solving, and boldly transform our culture as no team has done before.

In 2005, we launched our near-Earth explorations with an FRC team and quickly achieved an orbit that includes the full progression of FIRST programs - FLL Jr., FLL, FTC, and FRC. Reaching beyond our initial orbit, we sought to attain a stable FIRST robotics community by providing mentoring, curriculum, and resources to launch robotics teams in all 96 schools in our county, but we didn't stop there! Continuing out into the solar system, we helped build and sustain the FIRST Chesapeake District by running a variety of social, competition, and training events that included student mentor "mingles" for cross-team collaboration to strengthen all of FIRST. Venturing deeper into the new horizons of the future, we strive to reach the unreached through our book series, international inspiration, service to the underserved, and promotion of Gracious Professionalism throughout our celestial sphere.

The FIRST missions have blasted off and are proceeding on-course. Let's review the telemetry. We are 'rocketing it' for FLL Jr. by holding team interest meetings, creating teams, and running FLL Jr. Expos and workshops. By bringing our young explorers to FTC and FRC events, we grow their dreams of becoming innovators and leaders in STEM. This gives them an opportunity to realize the promising future of STEM in their lives and our culture.

FLL is in a stable orbit: ILITE contributes to the sustainment of over 80 teams with unique workshops where FLL teams work with experienced ILITE students and access resources otherwise unavailable at their base school; ILITE's FLL double-qualifier inspires over 400 students each year to continue their STEM exploration; ILITE volunteers at FLL events across the state; and ILITE sustains its mission through training sessions for teachers and new coaches in the skills to effectively start and mentor FLL teams on their mission of exploration. FLL students are personally invited to ILITE's FIRST events, furthering the FIRST mission by inspiring them to stay passionate about exploring FIRST and growing in their STEM skills.

FTC systems are performing optimally. Our team keeps the STEM pipeline at full capacity with 3-9 active FTC teams annually, totaling over 40 FTC teams mentored. ILITE has assisted 12 local teams, hosting scrimmages and build days, and launching new explorers every year who continue on to FRC and beyond. We have been "mission control" for FTC Regional Qualifiers for over 12 years and volunteered at numerous regional and state FTC events annually.

The FRC mission plan consists of assisting FRC teams across the galaxy by sharing our entire robot's code-base, sharing our business and sponsorship documents (dubbed 'the gold standard' on FRC Discord), publishing spreadsheets and calculators for motors and drivetrains, and presenting best practices in student leadership at FIRST Championship. Across our district, we help teams build, make repairs, pass inspection and drive their robot, all to ensure explorers remain inspired as they encounter turbulence. Partnering each year with Vae Victis 1418 to lead FRC workshops, ILITE delivers workshops and conducts webinars on strategy, leadership, scouting, electronics, and drivetrain.

Furthering our mission to inspire more girls, ILITE participates in a "Women in STEM" panel featuring female FIRST mentors and alumni who are accomplished mission specialists in industry. ILITE assisted in the design of the "FIRST Chesapeake Women in STEM" recognition program serving as committee members and table hosts. Annually, we conduct hands-on activities for the "Girls in Aviation Day", run a "Girls in STEM" camp and offer Girl Scout badging at our STEAM Expo. This year's STEAM Expo, covering the entire progression of Girl Scout ranks, supports 52 badges!

Propelling our district further in its explorations, ILITE engages in joint missions with many teams. ILITE and Fresta Valley 1731 co-mentor each other by providing access and training in our machine shop, while team 1731 provides access to its practice field. ILITE also collaborates with Triple Helix 2363 to design and build lightweight, efficient gearboxes.

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Over the last 8 years, ILITE Robotics Off-Season Challenge (IROC) provides annually 30+ teams the opportunity to train new team members and collaborate with local teams. Most importantly, we are recruiting and training new event volunteers in a lower pressure environment. Because of ILITE's success hosting and running events and our experienced volunteers, ILITE had the honor of running the inaugural FIRST Chesapeake district event and has since been asked to run the week-1 district event each year. Our volunteers spread far and wide to assist and run many district events, such as FIRST Chesapeake District Championship and FIRST Championship. Annually, ILITE runs a mentor luncheon at District Championship for all teams in the district. ILITE assisted Night Hawks 614 to set up and manage their first district event. Even while competing, ILITE spearheaded an effort to get parts and repair field elements mid-competition.

Checking in with ILITE Mission Control, we see how we sustain many long term missions to explore deeper into the universe of STEM. Working with our representatives on Capitol Hill, we advocated for and advised on STEM-focused education legislation. We frequently present to the local school board and at local events demonstrating the positive effects of FIRST robotics and strong STEM programs in our schools. To support local teams, ILITE mentors, alumni, and students established the US STEM Foundation - a 501(c)(3) which has granted over \$300,000 in funding to FIRST teams across the region.

ILITE's STEAM Expo event embodies the mission of FIRST in our community by showcasing the complete progression of FIRST programs, attracting over 2000 attendees annually. We partner with schools and teams across our district to provide hands-on STEAM activities and encourage students of every age to join a FIRST team. ILITE invites local businesses, national corporations, and government and military organizations to both expose them to the power of FIRST programs and to exhibit their technologies to inspire new explorers.

As adventurers gain interest, we bring them into our annual summer camps to provide explorers from K-12 with skills in programming, robotics, and engineering that translate directly to the FIRST program for their age group. Hands-on science experiments and poster making camps prepare explorers for FLL Junior. LEGO summer camps teach programming and sensors to build skills for participation in FLL. Our 3D Printing camp introduces additive manufacturing technologies to students to incorporate into building more innovative FTC robots. Camps, such as Java programming, translate directly into FRC robotics and many camps, such as "Girls in STEM" and "Cyber Security," build students' problem-solving skills, interpersonal skills, and leadership skills to prepare them to be leaders in FIRST and their communities.

Expanding our explorations to the farthest frontiers, we have launched young explorers in Malaysia, Liberia, Ethiopia, Bolivia, Haiti, and Jamaica with FLL kits, computers, and video calls to mentor the students.

We work to engage underserved communities in FIRST missions. Our students are passionate about engaging in outreach and inspirational programs for students with autism, "at-risk" children, anti-bullying campaigns, and displaced military families. We introduced FLL into the special education program at our high school to provide this underserved community access to FIRST opportunities. ILITE also collected for "Toys for Tots" and raised over \$10,000 for the local food pantry to guarantee meals for food-insecure students. Our members participated in setting up a retreat environment for recovering wounded warriors in our area and helped build ramps for persons with disabilities with the "Ramps for the USA" program. To spread Gracious Professionalism beyond the FIRST community, ILITE started a "Kindness Campaign." This campaign spearheaded the unexpected impact of presenting over 250 presents to underprivileged children, the creation of the "Acts of Random Kindness" club and an annual "Kindness Week" at 30 local schools.

After explorers graduate from our program, 100% move on to STEM higher education and careers. They function as alumni ambassadors for FIRST by mentoring teams, volunteering, and organizing events in West Virginia, New York, Colorado, Washington, Florida, and many other regions and districts. Our alumni and mentors assisted at the inaugural FIRST Global Challenge. Leaders in their industries, our alumni use their positions to grow STEM outreach efforts for their current organizations that include the US Navy, Army, Air Force, Google, Microsoft, Facebook, IBM, Boeing, and Amazon. The words of alumnus Greg Kelso show the personal impact of ILITE: "To me, the most incredible thing about ILITE is that looking back, what prepared me the most for a career in software engineering in Army Special Operations... was ILITE."

Throughout our 14 year mission, over 80,000 minds have been inspired to be leaders in technology and engineering through our application of the progression of FIRST programs. Using more than robots, we are transforming our culture to celebrate science and technology while developing future generations of explorers with the well-rounded life capabilities of STEM skills, problem-solving, leadership, teamwork, and Gracious Professionalism.