



## Chairman's Essay

FIRST Team 1741, Red Alert Robotics, was formed eleven years ago by a group of parents, students, and teachers to provide an opportunity for an extra-curricular STEM activity. Ever since, we have made it our mission to become a team that flourishes within the principles of FIRST. We look at challenges, successes, and failures as opportunities to grow. Our motto, "Challenge Accepted", displays our team's attitude towards the obstacles we encounter. Our dedication provides the drive to teach the importance of Gracious Professionalism® and STEAM (Science, Technology, Engineering, Art, and Mathematics) to all students.

In order to provide students with the fundamental resources to succeed, our twenty mentors dedicate ample amounts of their time to guide and inspire our team. By sustaining leadership, we build our stronghold, ensuring that we are continually improving. One Operations and four Engineering sub-team captains are selected through careful consideration; this helps the team divide duties while still working as a cohesive body. At the end of every season, the team appoints seven captains: Overall, Engineering, Robot Design, Operations, Strategy, Media, and Safety. The strong base these leaders provide allows our team to achieve our goals every year.

As we continue to grow, we work to maintain our relationship with our school to ensure our team's success. Two years ago, we faced a difficult time when the prospect of losing affiliation with our school became an alarming possibility. We then united alongside parents, mentors, and team alumni in a meeting with our superintendent. Our district was impressed with the impact of the program and decided it was important to continue the growth of the team. Additionally, the past few years our team has struggled to find a permanent facility due to construction projects and changes in administration. Our district recognized the need for a STEAM dedicated space and coordinated with our team to design it— not only for our team, but as a resource for the entire community. The Innovation Center was constructed in order to provide our team a workspace and access to design rooms and computers. To reward students for their commitment to Red Alert, our school granted us the opportunity to earn varsity letters, emphasizing that robotics is a pathway to excellence. We are one of the first robotics teams in Indiana to receive this honor and are very fortunate that our school recognizes the importance of the

FIRST program. Throughout the years we have participated in several events within our high school, such as the freshman orientation, back to school night, and the club fair. Our team demonstrated robots in order to introduce over 600 freshmen each year to the aspects of STEAM and FIRST. Not only are these events a great recruiting tool, but they support the growth of our relationship with our school. For over ten years, we have been given the honor to participate in the homecoming parade as one of the main floats and showcasing our t-shirt cannon robot. Because of our students' involvement throughout the school, we were approached by our theater department's tech crew in order to assist in creating a prop for the fall musical. Our students worked to design and build a motorized table that would "break" and then fix itself "magically". We also assisted at our local middle school's club, IT Girls, to encourage young girls to become involved in STEAM. This club introduced basic programming to its forty members through videos and the opportunity to design their own game.

Our team shows our passion for FIRST through our involvement in the FIRST family of programs. We want to ensure that we are continuing to build upon Red Alert's foundation and influencing students of all ages. We wouldn't be a FIRST team if building a robot was our only focus. Within our school district there are six FIRST LEGO League teams and one robotics club. Our students actively mentored four of these teams and assisted the others. Two teams nominated one of our student mentors who then received the Mentor of the Year award at a FIRST LEGO League tournament. In 2015, we hosted our first FIRST Tech Challenge kickoff, which twelve nearby teams attended. We started two FIRST Tech Challenge teams which prepare the 8th and 9th graders for FIRST Robotics Competition. Our team shares our facility with them in order to work side by side while they build and practice. We have hosted and run the Indy South FIRST LEGO League tournament for six years and the Indy South FIRST Tech Challenge tournament for two years. This past year, thirty-two teams joined us for the Indy South FIRST Tech Challenge tournament. We were invited to assist at the Central Library FIRST LEGO League tournament for the past three years. We host and run an annual Week 0 scrimmage for FIRST Robotics Competition teams. After noticing the need for volunteers at all our competitions, our students stepped up to help with field reset. Our team also assisted in starting a team in our county, 3180 and we have provided them with a care package each year. We have also delivered packages to neighboring teams 4926 and 5944. Our team makes an effort to help FIRST teams farther away from us as well. As the Championship in St. Louis approached in 2015, team 5188 was having trouble finding transportation. We offered them space on one of our buses so they would be able to attend.

Our team continually strives to spread the message of FIRST by serving our community. Eight years ago, two brothers who are visually impaired joined our team and in their honor we began participating in the annual Vision Walk. As a tribute to them we bring a large font game manual to competitions for anyone with a similar handicap. Camp Can Do, a camp for autistic children, invited 1741 to show

their campers fun STEM activities and our robot. Teaching that anyone can be involved in STEAM is a value that is particularly important to our members. To further help the community, we sew around thirty blankets each year for Project Linus, an organization that donates blankets to first responders. For the first time last year, our students partook in Pack Away Hunger and were able to pack 2,160 meals in a single afternoon. Some were shipped to Guatemala to aid hungry families and the rest were distributed within our community. During the holiday season we helped Ray Skillman's Clothe the Children Campaign by wrapping presents for 1,000 children. Similarly, we have participated in Operation Christmas Child where we packed shoeboxes for children in need.

Red Alert works with other organizations to inspire the next generation. Our GEARS outreach event (Girls Engineering Awesome Robots Successfully) was developed by our 2014 team captain for her Girl Scouts Gold Award project. During this event our students teach the girl scouts to program and build NXT robots. This helps girls develop a passion for STEAM and they can earn a badge for participating. "Watching the girls excitement grow when they finally achieve success with their robot's performance is a gratifying experience," said a current 1741 student. After our first year of volunteering at WFYI PBS Kids in the Park, we were granted the opportunity to give a couple of 20 minute stage presentations on the design process to reach out to over 30,000 people. We also attended a Pacer's Game, shooting off our T-shirt cannon before the game and demonstrating the powerful message of FIRST. In addition, Endress + Hauser, one of our major sponsors, has invited us for the past two years to participate in a fair that was geared toward impacting kids with companies that revolve around STEAM. Similarly, we have been invited to tour some of our sponsors' facilities. For the first time last November, we were approached by our local Barnes and Noble about participating in their Mini Makers Fair. In the three day event, our team demoed both our robot and one of our FIRST Tech Challenge team's robot, and also helped inspire kids with STEM-related toys. We have multiple library demonstrations each year, reaching out to hundreds of people. Likewise, a local church invited our team to demonstrate at their festival, giving children an insight on STEAM opportunities. During these demos, we bring one of the previous season's robots as well as materials that inform the public about FIRST and our team. Additionally, each summer we hold a 5-day Radical Robots camp for 3rd-6th graders. Our team members organize STEAM activities as well as teach kids to program and build NXT robots; last summer, fourteen kids attended.

Beyond conducting events within our community, we publish creative projects that teach about STEAM. "Ryan The Raccoon and the Terrific Treehouse" is a children's book written and illustrated by our team. This book emphasizes the importance of safety when working with tools and machines. The mobile app, "Fly Fly Away", was created by Red Alert students based on the FIRST game, Ultimate Ascent, and features a disc flying through goals and is available for download on the Google Play store. Our team has partnered with local businesses, such as

Strange Brew and Not Just Popcorn, with whom we created our own flavor of coffee, Robot Rampage, and our own popcorn, Red Alert Velvet. To introduce our students to different engineering possibilities, soldiers from Camp Atterbury, a local military base, came to our facility to showcase the robots they use and to see our FIRST robots in action.

Our team continues to strengthen our foundations and build upon what is already existing. By keeping our ideals in mind every step of the way, we are able to create a sustainable team. Inspiring our way to a better future, we build a team that is always expecting the unexpected and looking to evolve. With our strong leadership and unique team setup we continue to thrive in the world of FIRST.