

## Team 1511 Rolling Thunder 2017 Chairman's Essay

An idea rolling in the minds of a young engineer and two parents grew to FRC1511, a team who is driven by extreme amounts of passion. We're the team that builds robots, relationships, our community and each other. We're the team that helps everyone. We'll try anything, stick with it, make it better, make it grow. We are every team and every team is us. We are Rolling Thunder. This is our story.

Led by a FIRST alum, our aspirations started high and we built a strong foundation our 1st year. We started with Rochester Rally: a Week 0 scrimmage. Yearly, we host about 20 teams who test their bots on our full field and use our shop and tools.

FLR was our 1st competition and fueled our passion for FIRST. Now, we're a go-to team for FLR and have 1511ers on the planning committee. They asked us to do demos at TEDxRochester, Robot Quick Builds, VIP tours and present to sponsors. We brought back the FLR social in 2014 and have run it since. We even got up early before school to do in-studio news interviews to promote FLR!

We stormed into Champs as rookies and started Rookie Meet & Greet, hosting 20+ teams each year to network and get info on sustainability. We won Champs Rookie All-Star and the storm intensified!

We finished our 1st year strong, hosting our own off-season event, Rah Cha Cha Ruckus. It's grown from a school gym to a concert venue, from 15 to 40 teams, who use Ruckus to recruit and train. We organize a committee of FIRSTers to run it and our team volunteers! As with all our events, news outlets cover it each year, spreading FIRST in our community.

Louder together, we joined forces with FRC340 to create FIRST MEGADrive in 2011. Two years later, USA Weekend Magazine featured us as Make a Difference Day National Honorees. We won \$10,000 that we used to start and sustain 6 FRC/FTC teams to continue "making a difference." In 6 years we donated 15,000+ kids' books and clothing, food, toys, and recyclable electronics.

We've always picked causes that hit close to home, like the LLS Light the Night Walk for Rachel, the JDRF Walk for Jordan, the CF Walk for Kyle and

made CHD Bravery Bags for Leo. For Honor Flight, we wrote letters and proudly welcomed home war heroes. In 2016, we were challenged with an out-of-this-world project! We repaired the Rochester Museum and Science Center Challenger Probe exhibit, where kids learn about space. We're adding more interactive elements and problem-solving scenarios!

3D printing prosthetic hands with e-NABLE combines two of our passions: using our technical skills and helping others! We've made 44 hands so far, for children with disabilities around the world. Some of our hands went to Iraq! We hope to present this project at Champs to get more teams involved.

Our 13 year partnership with Harris has been vital for our success. They provide engineers, make student-designed parts and hold an annual mentor lunch. We support them with demos at events like the Rochester Engineering Society Gala and Take Your Child to Work Day.

We organize fundraisers, like selling FIRST LED bulbs, car washes and pancake breakfasts. We raise \$10,000 yearly with our Patron Drive. We visit 100+ businesses who enjoy our newsletters, events and demos. Our model has made other teams more sustainable.

We impact all levels of FIRST: FLL 13 years ago, FLLJr 8 years ago, FTC 4 years ago. With student-raised funds, we've sponsored a total of 204 FLLJr/FLL/FTC teams, 31 this year, and mentored 50. By 2012, the District approved teacher stipends, we provided funds and the building blocks to get teams off the ground. At last, FIRST was in all 6 Penfield schools! This created a high density of Penfield FIRST teams. FIRST's VP of Digital Marketing contacted us to learn how we formed an "exemplary adoption of a robotics program" to create "more districts like Penfield across the US." With our reputation in FLL, programs like the YMCA and our library contacted us to start teams. For 12 years, we've run FLL coach seminars and summer camps for 100+ kids. Every year we hold help sessions for presentations, team-building, robot attachments and programming. We volunteer at FLL Qualifiers and local Champs. We run 2 FLL scrimmage style events, and the Penfield FLL Qualifier that we created 3 years ago.

2014 was a busy year as we also helped organize the 1st Rochester FTC Qualifier. We are on the planning committee, volunteer in major roles and publicize it. In 2012, we helped form FTC6996. We help them with programming, CAD, 3D printing robot parts, critiquing their engineering notebook and presentations. Our Week 0 event inspired them to host their own scrimmage in 2014. We're so proud of them; they made States all 4 years and hosted the Qualifier this year! They're the Oncoming Storm to our Thunder: 15 recruits in 4 years!

This year, we doubled the size of our team by recruiting through FLL/FTC teams, demos at schools, Club & Activity fairs, morning show and tech classes. New students are integrated with team building activities like bottle rockets, mock VEX competitions and getting lost in a corn maze! We learn tech skills and time management by dividing into 7 subteams that meet weekly. This year we added community service and FLL/FTC subteams. We used to have a program to get girls involved, but we realized we didn't need it as we have a culture where everyone feels welcome and can be equally involved!

We need to lift each other up by helping other teams reach their full potential. We've helped teams grow and be self-sustaining through talks at Champs and Regionals on topics such as safety, STEM legislation, starting teams, running events and leadership. We provided mentor training to FRC73, provided FRC5254 leadership tools to start their own program and jump-started FRC5433. Our handbook and safety program are used by many teams. We held an all day FRC workshop for 12 teams with talks from 5. We've helped teams from 17 countries; from a Mexican rookie team's business plan all the way to Israel translating files. We're an open-source team with a Build Season webcast, online engineering notebook and vlogs. Teams named our pit ThunderMart because we share everything! Pit admins send teams directly to us for help. We lend game pieces and field elements to teams. In 2016, we helped fund FRC1405's way to Champs and they became World Finalists. We've assisted 1016 FRC teams in 13 years!

Giving back to FIRST is a priority. We've beta-tested control systems for 8 years. We have 6 resources in the FIRST Fundraising Toolkit. Our CAD is

featured in *FIRST Robots: Behind the Design*. Need event volunteers? We supply FTAs, MCs, refs, judges and more!

Our robot brings smiles to 20+ demos a year: children's hospital, food truck rodeo and city schools. We love to demo with all levels of FIRST at places like FIRST Night at the Ballpark and ImagineRIT. We dove into the Maker movement 3 years ago when the Rochester Mini Maker Faire started, organizing the FIRST booth with a half field. Last year we demoed at the PHS Faire and this year we added Barnes & Noble. We run high-impact demos like EcoFair, Monroe County and NYS Fairs, sharing FIRST with over 2 million people over the years.

We couldn't have achieved so much without the leadership skills we learned by running our major events, demos, fundraisers, community services and subteams. We lead summer projects like revamping our robot cart and building drive bases. Elected students run meetings and organize recruitment, team building and training. 6 FRC teams attended our annual Leadership Boot Camp to learn public speaking, personal development and communication. Camp materials are used in a PHS leadership class.

Once a FIRSTer, always a FIRSTer; our alumni continue to impress us! Mo, Jackie and Mark are FRC lead mentors on 4930, 2340 and 1836. Josh, Vaughn, Ben and Jason mentor us, and many volunteer! Shauna did a communication exercise with us that she learned at NASA. 88% of our alumni have pursued STEM majors, earned \$296,000 in FIRST scholarships and work at places like Harris, Toyota and NASA. The 1511 Alumni Association tracks our 85 alumni.

We all hope to have that one adult in life who resonates with us like no other, who teaches us life skills we don't know how we ever lived without, who is a friend, a coach and a teacher: our mentors. They help us apply for scholarships, write recommendation letters, advise on school engineering projects and inspire us to pursue a variety of careers. Our parents are also an integral part of our team. We could not be successful without them; they feed our entire team, form our advisory board, do administrative tasks and mentor.

PHS is the final rivet in our success. Our superintendent insisted we attend the FIRST National Advocacy Conference (NAC) although it was during finals. The District provides 3 teachers and equipment like 28 Lego kits for middle school tech classes. We use the school year-round for events, robot builds and LAN parties. School staff wear red camo to competitions and on Spirit Days. We thank the School Board with demos, presentations and handmade awards!

STEM advocacy is one of the best parts of our high school career because we directly impact our government. We've attended the FIRST NAC for 3 years and are co-organizing it this year! We work with our representatives year-round to pass STEM legislation such as the Every Student Succeeds Act that funds afterschool programs like FIRST. These reps visit our school and events to talk with us and see what FIRST is about. At FLR, we co-host an advocacy info session to get more teams involved. We do Dean's Homework every year; last year, we advocated for the Christa McAuliffe commemorative coin in DC.

For 13 years, we've experienced hardships and love, death and life, but we're always there for each other. Our team is like Thunder; it doesn't just affect those who hear it, it creates a sound so powerful that it can be felt miles away. The Thunder keeps getting louder!