



L&N STEMPUNKS
FRC TEAM 3966
CHAIRMAN'S AWARD
2016

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MISSION STATEMENT

The mission of our team is to reach out and work with local schools, daycares, and organizations to inspire the East Tennessee community to become involved with science and engineering. We aim to communicate with local organizations to build meaningful relationships. We aspire to share our passion for FIRST programs and STEM education with the help of our families, friends, and sponsors. In doing so, we hope to empower the next generation of engineers, scientists, and business leaders through the vision of FIRST.

CHAIRMAN'S AWARD ESSAY

If members of the L&N STEMpunks were asked to describe the FIRST Robotics Competition in one word, *easy* would be nowhere on the list. Instead, one would find a series of adjectives such as *fun, challenging, rewarding, inspirational, and life-changing*. All of these words describe the FIRST Robotics Competition, but more than that, they're a reflection of how being a part of our FRC team has affected them as individuals.

Every member has gained essential experience since joining our team, including life skills like communication and collaboration. While communicating ideas and solving problems together is crucial for each season's competition, those very same skills are even more valuable outside of the lab. Communicating with our community is the most essential aspect of our team. It's the mission of the L&N STEMpunks to inspire our surrounding East Tennessee region about science and engineering. We work closely with community partners, sponsors, and events to incite positive change in both our local and national surroundings.

Every single student on our team has a genuine purpose that allows members to explore their passions. With positions ranging from mechanical and electrical engineering to social media and fundraising, there's a place for everyone to actively participate. Nina, our products team leader, has said, "I initially hesitated to join the team. While I do not enjoy the 'traditional' aspects of a robotics team, I was able to be passionate about developing our team's brand." Because of the involvement of members with a passion for art, we were awarded our first award at the Smoky Mountains Regional, the 2015 Jack Kamen Imagery Award.

By attending eleven outreach events in this year alone and sharing our love for robotics with roughly 4,500 people at those events, we inspired kids and families in our local community. Visiting schools and public events to showcase applications of STEM education is vital to reaching students who could find interest in FIRST. We try to give the best experience to all students, going so far as to building a special robot that kids can ride at events, providing them a unique, hands-on experience. Our team regularly

visits Vine Middle Magnet School. This year at their Magnet Showcase, attending students excitedly asked our members many questions about our team, our robots, and FRC. In dedicating our time to our community, we've had the pleasure to work with and help in producing the next generation of great scientists and engineers.

This past fall, members from our team traveled regularly to Green Magnet Academy to mentor their new FLL Team 18907, the PantherBots.¹ By helping their team every Thursday from September to December, we were able to guide the young students through their inaugural FIRST season, making it a great learning experience. The PantherBots are the first team we have fully mentored, providing us vital insight on how to support other teams in our region. We hope to mentor their team next season, as well as other FIRST teams in the future.

At the beginning of this school year, we also attended Mayor Tim Burchett's Back to School Bash, a free event where Knox County students could come and receive free school supplies to start off the year.² Over 2,000 parents, teachers, and students walked from booth to booth learning about programs in the county, including our team. We also brought one of our robots on stage to present our team history and FIRST values. Many people were amazed and surprised by our display, confessing they'd never before heard of FRC and asking how they could get their kids involved.

Our team also had the opportunity to participate in the Knox County Schools' Magnet Showcase.³ Students from across the county came to learn about Knox County's various magnet schools. We spoke to attendees about our school, the L&N STEM Academy, and advocated for STEM education. Our robot demonstrated to everyone at the event the extent of what is possible with science, technology, and engineering education, solidifying real-world application promoted by the FIRST

¹ Link to Knox News Article where our team is mentioned as a mentor to the PantherBots - <http://www.knoxnews.com/news/local/green-magnet-academy-students-learn-robotics-with-legos-2679b1f6-717d-1075-e053-0100007f1fb8-363665441.html>

² Here's a picture of us at the Back to School Bash with the Superintendent of Knox County Schools <https://twitter.com/LNSTEMpunks/status/630835842001428480>

³ Here we are at the Magnet Showcase talking to students from all across Knox County <https://twitter.com/LNSTEMpunks/status/654787177306460161>

program and our school.

This season, we've had a heavy focus on improving our sponsor relations, for old and new sponsors alike. We refined our approach to gaining and staying in contact with our sponsors, actively pursuing a few selected companies whom we can give proper time and attention to when in negotiation. Our team has also been looking for companies that have history of philanthropic giving and for grants for which our team can apply. When talking to potential sponsor, The Clayton Family Foundation, our Business team members had dinner with philanthropist Jim Clayton himself to talk about our team and aspirations.⁴ We left that meeting with a \$3,000 sponsorship from his foundation not only because of their generosity, but also because of the way we conveyed the importance of investing in students in the FIRST program. Through building these sponsor relations, we're able to reach a wider audience in ways we may not have before.

Community and sponsor relations came into play early this fall when our team was in need of a new lab space. Our team has been in existence as long as our school (five years). While we had a lab space at the STEM Academy for the four years, our school was in dire need of classroom space to accommodate our quickly growing student population. As we called numerous property owners in Knoxville explaining the FIRST program and the needs of our team, one individual needed no explanation. A gentleman at Henry & Wallace, a developer in Knoxville, had attended the Smoky Mountains Regional with his enthusiastic son in April of 2015.⁵ He was already familiar with our team and was ready to help out an FRC team in his community however he could. Through this community connection, Henry & Wallace has provided us our new lab space in one of the many buildings they own. Without their generous sponsorship,

⁴ The Clayton Family Foundation is a generous Gold level sponsor for our team this year.

<http://lnstempunks.org/sponsors>

⁵ Henry and Wallace LLC is a real estate developing company located downtown Knoxville, TN. They have generously sponsored our team by providing unused space downtown. Our primary contact at Henry & Wallace is Mr. Patrick King (patrick.king@henryandwallace.com). <http://henryandwallace.com/>

our team would not be able to function or even continue to exist this year.

The L&N STEMpunks annually run and host the Smoky Mountains Regional Business Summit⁶, a conference that brings together teams mainly in the greater Knoxville area, with more teams coming all the way from Georgia. At this event, our team members create and present fifteen to forty-five minute slideshows encompassing business, financing, social media, branding, team structure, and more. The goal is to help develop the attending teams skills in these areas, increasing their functionality and overall ability to present themselves to other community members, whether they be sponsors or schools. This is helpful for rookie teams learning how to manage a budget or create a brand, as well as for veterans who are just looking to sharpen and hone in on their team skills. It's also a fantastic opportunity for teams both regionally and nationally located to get to know each other better, increasing communication among all FRC teams.

One of our Summit attendees, Blount County Robotics, FRC Team 4504, contacted us before the start of this season, excited about a new project on which they wanted to collaborate with us⁷. Together, we've collected videos from local teams to create a single, well-produced video that is published as a weekly East Tennessee FRC update. These weekly videos are published to a newly created YouTube page so every team in our region stays updated with each other. To make the YouTube page more significant and beneficial for a wider, national audience, our teams also plan to make how-to videos, a website with all area team's contact information, and provide general FIRST updates as we move into the off season.

This winter, we partnered with FTC Team 8498, the Evil Purple Sox, for their new

⁶ Here is the webpage that we put together for the event – <https://lnstempunks.org/2015smrbs>

Some other pictures from the event: <https://twitter.com/LNSTEMPunks/status/645235057758732288>

⁷ In an effort to help teams across our East Tennessee region establish a noticeable and strong social media brand, we mentored Team 4504, Blount County Robotics, in their weekly video series project called the SMR Vault. With our support and expertise, Team 4504 was able to provide weekly updates throughout the build season to teams in our local Knoxville area.

https://www.youtube.com/channel/UCoT85r_bOpepcwN1V1_TSoA and <https://twitter.com/smrvault>

project "Socks for the Sox"⁸. This project was to collect socks and other warm clothing to provide to local shelters to give to the less fortunate. Our team collected over a hundred pairs of warm winter socks, along with children's clothing and jackets that were donated to the Knoxville Area Rescue Ministries. The drive was a fun and rewarding way to give back to a community that has given us so much. While it benefited our local community, it was also an excellent opportunity to collaborate with non-regional teams, building the strength of communication between ourselves and out of state teams.

Spreading outreach and advocacy nationally has become of increased importance to our team in the past year. When we recognized what we could be doing to help spread our passion for robotics, engineering, and science to our national community, we jumped at the chance to participate in the 2015 2nd Annual FIRST National Advocacy Conference⁹ in Washington, DC. The conference aimed to teach teams about detrimental issues in STEM education and how to speak confidently to elected government officials. There, we talked to key staffers of the Chairman of the Committee on Health, Education, Labor, and Pensions, Tennessee Senator Lamar Alexander. We also spoke to staffers of Tennessee's other senator, Bob Corker, and our House Representative, Jimmy Duncan. We expressed to each of them the importance of reauthorizing the Elementary and Secondary Education Act, and appropriating funds to support after-school, mentor-based programs like FIRST. The ESEA was successfully reauthorized in December 2015 as the "Every Student Succeeds Act" with bipartisan support.

⁸ Here's an example of one of the flyers we posted around our school and community to help drive awareness for the Socks for the Sox event we did with FTC Team 8498.

<https://twitter.com/LNSTEMPunks/status/668843331322052610>

⁹ Here's a link to Team 27's FIRST National Advocacy Conference webpage -

<http://www.teamrush27.net/nac>

Some pictures from the event can be found here:

<https://twitter.com/LNSTEMPunks/status/610805015515688961>

<https://twitter.com/LNSTEMPunks/status/610524919768698880>

<https://twitter.com/LNSTEMPunks/status/61011814731440128>

Communication and community are the most important aspects of our team. Without communication, there would be no way to accomplish what we do, whether we are building a robot, teaching younger kids, or gaining sponsors. Through communication, we engage our community by showing kids the meaning and importance of STEM, and can even help people in need. With our community, FRC is continually fun, challenging, rewarding, inspirational, and life-changing. We build strong relationships for our team, just like we build strong robots, one piece at a time, but done together.

CHAIRMAN'S AWARD QUESTIONS

How has the FIRST program impacted our team participants?

Through FIRST, our team has become family. FRC has created a home for every one of our students, with roles ranging from mechanical engineering to social media, and everything else in between. In five years, our members have built our team from the ground up, creating their own unique identities as a STEMpunk. We empower our students with confidence in developing skills for life, giving them the confidence to take command of their future, while also giving them a supportive family of teammates.

What impact has the FIRST program had on our community?

The L&N STEMpunks spread FIRST's message by bringing our love of robotics to people of all ages in our community. Our team works with many schools, daycares, and community centers to showcase what FIRST makes possible. Attending events such as the Steampunk Carnivale, Green Magnet Academy's Family Engineering Night, and the Rocky Hill Mad Science Family Fun Night gives us a chance to spread our excitement for science and engineering with approximately 4,500 people in the East Tennessee region.

What are our team's innovative or creative methods to spread the FIRST message?

This summer, our team attended the FIRST National Advocacy Conference in Washington DC, where they collaborated with other FRC teams and congressmen to advocate for national education reform. We also collaborated with other FIRST teams, such as FTC Team #8498, when we collected over 100 pieces of clothing for their donation drive for local charities. Through these efforts, we uphold the ideals of FIRST through collaboration, both within our local community and on a broader, national level.

How do our team members act as role models and inspire other FIRST team members?

We live by the saying “we’re only as strong as our weakest link.” Each member of our team mentors one another. When a student is unsure how to complete a task, there’s always another ready to teach them how to do it. When a student misses a meeting, there’s always another ready to send them updates. When a student makes a mistake, there’s always another prepared to step in and ensure it will be alright. We are continually role models to one another. Through our failures we are strong.

What are our team’s initiatives to help start or form other FIRST Robotics Competition teams in the local region?

Since we’re located in a team-dense region, we haven’t found the chance to form a new team. However, we do have ambitions. We recognize that starting a team is a challenge, but we’ve made it a goal to do so in our near future. We’ve researched schools in our area that currently do not have an FRC team in hopes of starting some next season. With this being our fifth year, we feel that our experience in engineering, branding, and business would benefit to any team that seeks our help, old or new.

How has our team helped start or form other FIRST teams?

We attend middle and elementary school events around East Tennessee. At these events, we get young students excited about robotics and engineering by letting them ride and drive a robot we made from previous competition robots. Students and their families can have fun while learning about the different opportunities offered through the FIRST program, our team, and our school. While we have not yet started another FIRST team, we are trying to inspire children to participate in FIRST.

How has our team assisted other FIRST teams with progressing through the FIRST program?

Our most effective initiative is the running and hosting of our annual Smoky Mountain Regional Business Summit. At SMRBS, we share the best practices in business for FRC teams. Our team members design and deliver impactful, experience-driven sessions that share actionable strategies. Some examples of our sessions include branding, budgeting, sponsor relations, and many other critical topics. This summit strengthens our relationships with teams, and their own skills in these areas.

How has our team worked with other FIRST teams to serve as mentors to younger or less experienced FIRST teams?

During the 2015 off-season, we consistently mentored a brand new FLL team #18907, the PantherBots, who were formed at our sister elementary magnet school, Green Magnet STEAM Academy. By helping their team every Thursday this past fall semester, we guided young students through their exciting inaugural FIRST competition season. In working with the PantherBots, we gained vital insight in how to work with teams of all ages. From this experience, we will more effectively help teams in the future.

Who are our corporate and university sponsors?

Every year, Bechtel and Knox County Schools help pay for our regionals. However, we strive to establish more than just monetary partnerships with our sponsors. For example, Leidos and UT-Battelle ensure that we have technical mentors on our team. We look to local businesses for their expertise, such as Riot Printing and Graphic Creations who assist us with printing our designs. This year, we also looked to SwipedOn, an app developer based in New Zealand, to help us track attendance at meetings.

What do our partnerships with our sponsors look like?

This season we focused on having a clearly defined sponsor rewards system. We provide rewards such as sending out weekly updates through a newsletter, and recognizing our sponsors on our team t-shirts. We have an especially strong relationship with our top sponsor, Henry & Wallace. They have provided us with lab space ever since our team lost access to our school space due to overcrowding. H&W has been crucial to our team this year, and we could not have competed without them.

How would our team explain the meaning of FIRST to someone who has never heard of it?

The FIRST Robotics Competition is a contest where you have to build a robot in six weeks to complete certain tasks. FIRST is more than just robots. On any given FIRST team, there are a variety of positions, with people working on everything from mechanical engineering to social media and finance. FIRST is about inspiration, it's about allowing students to fulfill their passions through a program unlike any other, and it's about building valuable skills for your entire life.

Additional information that you may not know about our team...

In five years, our team has overcome many struggles, but they have only made us stronger as a team. With three coach changes and an equal number of lab changes in the last year alone, we've learned to be adaptable to any situation and to rely on others when necessary. Because our community has so often helped us, we strive to help our community by giving back in the ways we know how. By continually finding more outreach events to attend, we are actively extending our reach within the community.

ACKNOWLEDGMENTS

THANK YOU TO OUR GENEROUS 2016 SPONSORS:

DIAMOND

HENRY & WALLACE

PLATINUM

BECHTEL

KNOX COUNTY SCHOOLS

GOLD

CLAYTON FAMILY FOUNDATION

SILVER

RADIO SYSTEMS CORPORATION • LEIDOS

PILOT FLYING J • CONSOLIDATED NUCLEAR SECURITY

RIOT PRINTING COMPANY • GRAPHIC CREATIONS

BRONZE

ALCOA • TENNESSEE VALLEY AUTHORITY

UT-BATTELLE • NORTHROP GRUMMAN

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