

**L&N STEMPUNKS
FRC TEAM 3966
BUSINESS PLAN
2015**

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EXECUTIVE SUMMARY

MISSION STATEMENT

Our mission as a team is to inspire the East Tennessee community in the STEM fields by reaching out and working with local organizations, schools, daycares, and much more. In doing this, we hope to empower the next generation of engineers, scientists, and business leaders through the vision of *FIRST*.



TEAM ORIGIN

OUR SCHOOL

Our school, the L&N STEM Academy, was founded in 2011 as the first public STEM magnet school in Tennessee. Our school was designed with a focus on STEM (Science, Technology, Engineering, and Math) education. All students take four years of the Design Thinking class that emphasizes Stanford University's d.School design process and lets all students explore science and engineering pathways. Our school also utilizes 1:1 technology; all students are loaned iPads and every classroom is equipped with a SmartBoard for digital, more personalized learning.

OUR TEAM

Our FRC team has worked to spread the FIRST mission since our inaugural year. In our first year the team consisted of only seven freshmen and one sophomore. We spent the fall semester building a robot for Knoxville's Veterans Day Parade, which we now participate in annually. Even though our robot did not prove to be competitive, our team gained the necessary experience for the next year.

The next year, 2013, was more prosperous. Our team doubled in size to twenty students and had experience from the previous year. Between 2013 and 2014, we underwent changes in both coaches and mentors and developed our first organizational structure.

Our 2014 FRC season marked the first time our robot was competitive on the field. 2014 was also the first year we applied for other awards and even placed 3rd internationally in the Safety Animation Award. With mentorship from our new coach, our team developed our branding standards and started partnerships with Tennessee FIRST by hosting the 2014 Smoky Mountain Regional Business Summit.

ORGANIZATIONAL STRUCTURE

Our team is organized into three departments: Engineering, Branding, and Business. Outreach is a large part of our whole team, which is organized by the Team Captain and done by all members. We believe that it is important that all team members have a chance to reach out to the community.

ENGINEERING DEPARTMENT

Our Engineering department focuses solely on the competition and designing the robot. Engineering contains three main subgroups: Mechanical, Electrical, and Programming. In addition, we have a Field Strategy subgroup that trains robot drivers and practices Coopertition by communicating with alliances and scouting during competition.

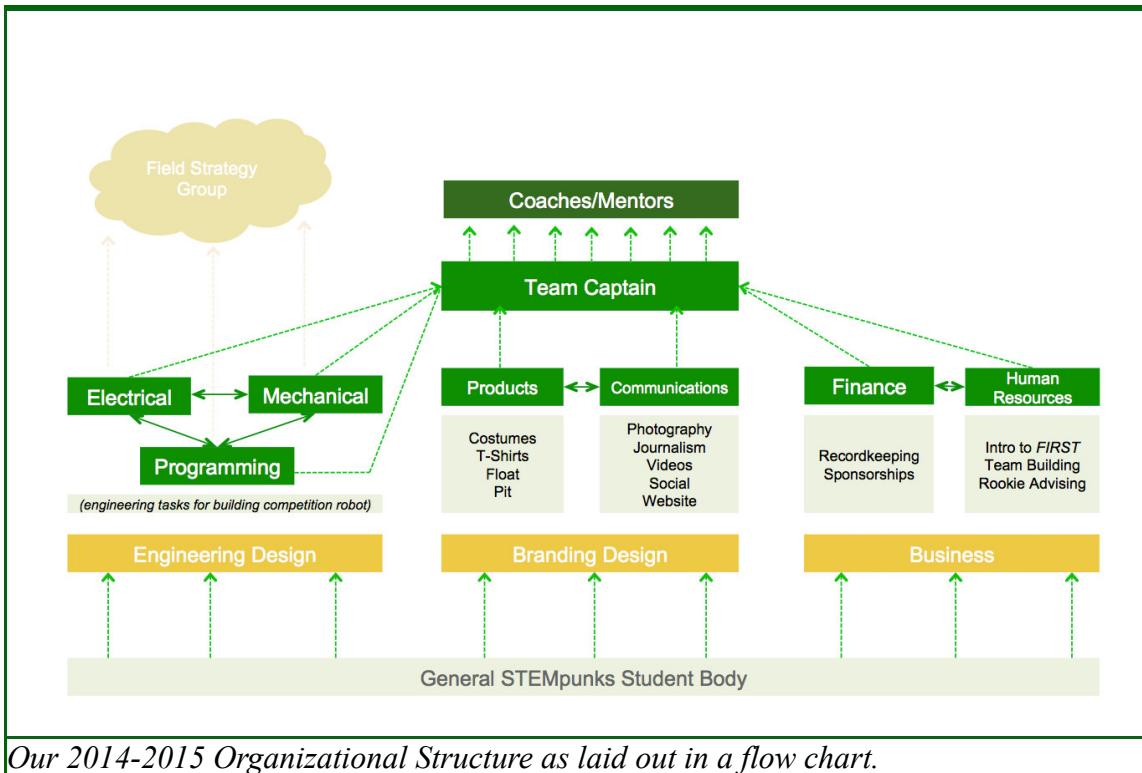
BRANDING DEPARTMENT

Our Branding department focuses on developing our branding standards (see Picture 1) and being our team's public voice. Branding has two subgroups: Products and Communications. The Products subgroup designs our physical branding such as the pit, t-shirts, buttons, and more. Our Communications team manages our media outlets and captures photos and videos.

BUSINESS DEPARTMENT

Our Business department is also split into two subgroups: Finance and Human Resources. As implied by the title, the Finance subgroup is in charge of securing and managing our funds. Human Resources focuses on developing relationships in the community, with other FIRST teams, and within our own team. Human Resources also ensures that our entire team practices Gracious Professionalism and Coopertition throughout the season and works to recruit new members.

ORGANIZATIONAL FLOW CHART



RELATIONSHIPS

INTERNAL

Our team spends most of our off-seasons focusing on improving relationships internally, with the community, with our sponsors, and with our school. In 2014 our team participated in three times more community events than we had in previous years. Our team's organizational structure has helped clarify expectations and responsibilities of all members and subgroups. We show appreciation for our mentors by including them on our website and sending them gifts during the holidays. Within our school we've focused on recruiting more members to the team, retaining current members, and supporting other school clubs. We bring our 2014 robot to school events to bring visibility to the team.

EXTERNAL

To support our community, we help promote local events and gatherings for businesses that assist our team. For example, we visit young children from at-risk inner-city schools to get them interested in science and engineering. We also emphasize giving back to sponsors and showing appreciation for them by participating at their events. Last year, we visited Bechtel, a multinational construction company and FIRST Strategic Partner, to speak about FIRST programs (see Picture 2). We also worked side-by-side with local coffee shop startup, K-Brew, and held a giveaway on our Facebook page that boosted our page by nearly 150 likes and made us the #1 FRC team page in the state. This massive brand strategy we implemented has allowed our team to become more visible across all fronts and enables us to teach other regional teams about using social media and help them develop their own branding standards.



DEPLOYMENT OF RESOURCES

Our team is closely tied to our community through our location, regional contacts, and local relationships. We regularly collaborate with Knox County elementary and middle schools to coordinate and participate in after-school science fairs, summer camps, and similar events. We appear at these events to promote STEM education through FIRST programs and principles to younger children.

This year, 2015, will be the first time our school has had a four-year graduating class. Through being an active member of FRC, several members from our team have applied for scholarships for various college programs. This year, our seniors have been accepted to colleges in fields such as mechatronics engineering. However, our team's achievements are not limited to our graduating class. Several of our underclassmen have been accepted into Tennessee Governor's School programs and have received internships in our community for summer 2015.

When we held the Smoky Mountain Regional Business Summit in 2014, we set out to focus on commonly overlooked topics by FRC teams. Multiple teams let us know how much they enjoyed the Business Summit, with one member stating that it "was the first time she felt valued in FRC."

In our team, students are learning computer-aided design, Java and Python programming, fabrication, electronics, business management skills, and much more. Besides technical skills, our members exemplify our school's STEM Habits (professionalism, collaboration, critical thinking, design, innovation, inquiry) and exercise Stanford University's d.school design process.

FUTURE PLANS

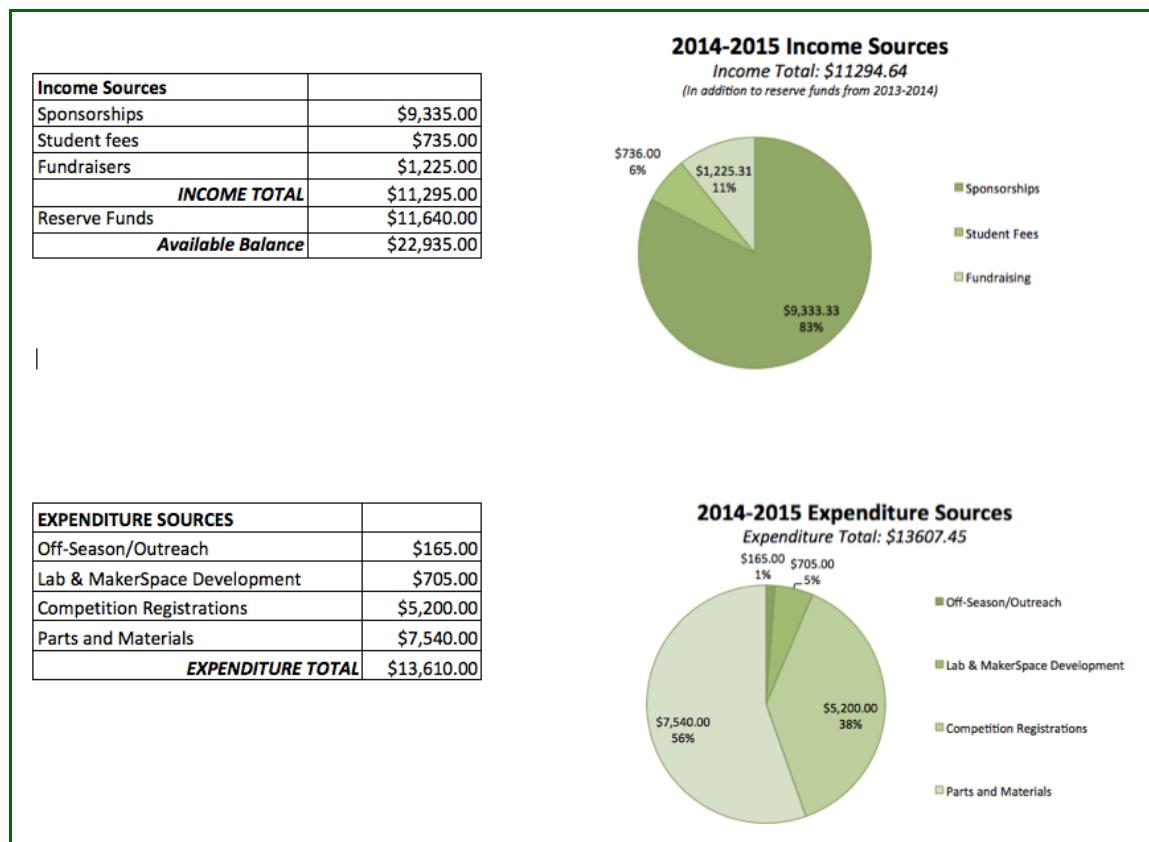
This year, our team went through the process of completely reorganizing itself due to changes in faculty. Unfortunately this long process led to a slow start for us. Next year, we hope to make FIRST Robotics not just a seasonal activity, but a truly year-round endeavor.

We discovered that we'd greatly benefit from further orientation of new members. We will continue teaching rookies basic skills from each of the three core departments by giving out rotational assignments. New members will spend a few weeks in each department before deciding on their greatest interest. Apart from advancing new member relations, we also plan to further our community outreach efforts next year through our community contacts. We hope to work on building relationships with other teams in the Knoxville area, and work to support younger FRC and FLL teams. We will also continue mentoring the Vine Middle School Destination Imagination team. We would also like to be more active in meeting with other teams at Oak Ridge National Laboratory's Manufacturing Design Facility, our local FRC forum. We will also seek to establish a relationship with the University of Tennessee chapter of the Society of Women Engineers to assist the female members of our team and encourage increased female membership.

FINANCIAL STATEMENT

Our Business team has preserved strong relations with some of our biggest sponsors, such as Knox County Schools, Bechtel, and UT-Battelle. In addition, we have also maintained several older local sponsors such as Clayton Homes. Our team as a whole understands the importance of fostering partnerships beyond monetary donations in our efforts to promote our mission of instilling our local community with a passion for science, technology, and engineering.

This year, the Finance subgroup also developed their fundraising plans for the school year, such as participating in Knox County School's annual coupon book sales. Not only has Finance organized multiple fundraisers, they have set aside money for a possibility of competing at a second out-of-state regional.



RISK ANALYSIS

Our team's biggest risk is sustainability. This year will be our first large graduating class, with about 10 members graduating. We need to ensure that each of these members passes on their responsibilities and skills to younger members. In addition, we also need to further develop strong affiliations with local community sponsors and partners as stewards of science and technology education. See Picture 3 for our Strengths, Weaknesses, Opportunities, and Threats chart.

Strengths of Our Team	Weaknesses of Our Team
<p>Camaraderie – We have high team morale, with everyone eager to be actively involved.</p> <p>Inclusivity – We're accepting and tolerant of those coming from all backgrounds, from our members to our community.</p> <p>Innovation – Our different departments are great at ideating during competition design.</p> <p>Branding - We have a uniform, professional brand that is cohesive throughout all aspects of our team.</p>	<p>CAD Knowledge - We're still familiarizing ourselves with CAD programs, with hopes to utilize these skills next competition season.</p> <p>Funding Issues - Our team has a small budget which hinders our ambitions for growth, so we are continually searching for more partnerships with sponsors from all areas.</p> <p>Commitments - Many of our team members are actively involved in multiple other organizations both at school and in our community.</p>
Opportunities to Pursue...	Threats to Our Team
<p>Promoting STEM Education - We aim to further our mission of inspiring our school and local community through STEM and engineering education.</p> <p>Diversity Plans - Continue recruiting more female and minority members to our team to promote equity through diversification.</p> <p>More Than Just Robots - Convey the concept that our team is about more than just building a robot (e.g. communications, finance)</p> <p>Organization of Team - Impose clearer expectations of roles.</p>	<p>Sustainability - With our first wave of seniors graduating and senior mentors possibly also leaving, we have a great need for implementing solutions such as active recruitment and reaching out to community partners for mentor retention and new member enlistment.</p> <p>Rookie Training - With the turnover to new members and mentors, we also still need to develop efficient and effective methods for training new personnel. Some of these protocols could include training and practice builds.</p>