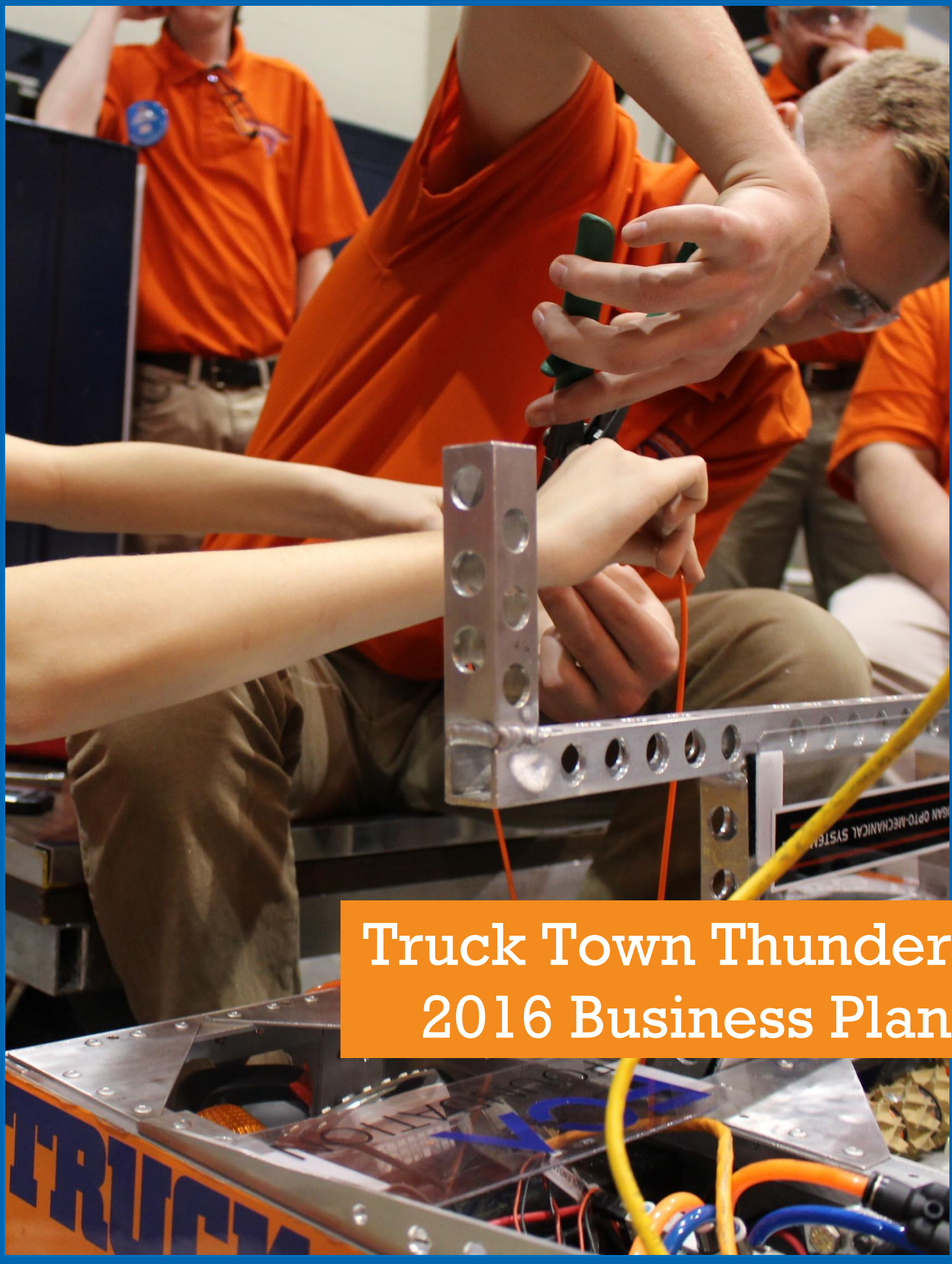


Truck Town Thunder
2016 Business Plan

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1.0 EXECUTIVE SUMMARY

Students and mentors take time each year to review the vision and mission statement of Truck Town Thunder (T3). It is important for T3 members to understand and confirm the mission and vision statement.

Vision Statement *FIRST* Team 68, T3's overall goal is to build a passionate team that encourages students to absorb new knowledge from dedicated team members while relentlessly having fun.

Mission Statement "To inspire peers to be more excited about science, engineering, and technology by engaging them in a hands-on mentor guided life-changing journey that prepares everyone for the future."

TEAM ORIGIN

T3 was founded in 1998 in Pontiac, MI by Tom Stevens, a former Global Chief Technology Officer of General Motors. He inspired a group of employees to start a *FIRST* robotics team. T3 operated out of the Pontiac Truck and Bus Plant, but was orphaned during GM's reorganization in 2009. With no home and an uncertain future, T3 lost members and was unable to recruit new ones. Eventually, T3 found its current home in Brandon High School's Wood and Metal Shop, along with its CAD lab and various other utilities. The team currently has 31 members and 19 mentors.

ORGANIZATIONAL STRUCTURE

Funding

Sponsors that invest in T3 and *FIRST* are more than just financial support, we give back to those who donate, and call them partners because of our work together. Partners build parts, provide mentors, open houses, and provide team meals. T3 further involves them by giving demos or shop tours to any partner that wishes to see the team. T3 refers to sponsors as partners to highlight the value of their contribution to T3 and *FIRST*. To ensure that funds are properly spent, an advisory board and parent group ensures that all funds are spent according to the team's needs.

Growth of the Team

To ensure the growth of the team, T3 has built, and currently maintains a system of youth programs within the school district which draws many children into the wide scope of *FIRST*. The children who grow up in this *FIRST* youth program join FRC teams go on to carry the influence of STEM throughout their lives. High school students are encouraged to find a student(s) to replace themselves when they graduate to continue the flow of new members into T3.

FIRST Program

Truck Town Thunder is a member of *FIRST*; the acronym stands For Inspiration and Recognition of Science and Technology. *FIRST* is a worldwide organization that benefits students as young as elementary age to the most senior individuals who are willing to volunteer for the program. T3's structure is built around opportunities to learn and experience *FIRST* principles. The team is managed by student project and team leaders with mentor support. Through with its partners are a critical part to the team's success. T3 created a Partnership Plan to help team members recruit partners as well as to ensure a secure financial network. T3 connects with its partners to promote continued relationships as well as engage the community. T3 strives to make sure student led design and build of the robot, team members learn to collaborate and communicate with their peers in a professional environment

RELATIONSHIPS AND DEPLOYMENT OF RESOURCES

Team Members

T3 uses a vast amount of communication resources to connect with team members, mentors, parents, and partners; emails, newsletters, and JIRA assignments are posted to keep all members updated. In order to be on T3 each student must regularly fill out a grade check to ensure they are fulfilling their obligations as a team member academically as well as to inform their teachers of their participation. Students attend training seminars during team meetings to make sure they are well educated in shop safety and tools. Prior to the game release mentors with varied expertise teach students skills to prepare for the competitive season. During build season the mentors support team members as needed with design, fabrication, and award submissions.. T3 prides itself on having a student designed, drafted, and built robot with minimum mentors' oversight.

Partners

T3 believes sponsors should be more than a financial contributor to the team. The team's partnership drive is used to recruit investors annually, which has resulted in partners returning year after year. The students develop a relationship with each partner they recruit.

Community Involvement

T3 is spreading the word of *FIRST* through Oakland County, and neighboring counties. T3 assists new teams by giving them resources to start their teams. T3 holds an innovation camp to introduce individuals to *FIRST*. The process begins with exposing students to *FIRST* in programs such as FLL Jr., FLL, and FTC. T3 is always ready to demonstrate their robot for partners and potential sponsors.

Inspiring Others

Demonstrations are provided at schools to inspire students to become involved in STEM and *FIRST*. Students on T3 set examples for their peers to follow by getting good grades and being leaders in their community. T3 constantly works to get younger generations interested in the *FIRST* community by mentoring programs such as FLL Jr., FLL, and FTC teams.

Getting the Most Out of *FIRST*

To ensure that every student on T3 gets the most out of *FIRST*, T3 offers a variety of different aspects of professional environment. Students gain opportunities to learn new skills, practice leadership, obtain scholarships, and make new friends. T3 provides students with leadership opportunities and STEM experience in a professional environment always using gracious professionalism.

FUTURE PLANS

The partnership goals for the years to come include retaining current partnerships and encouraging returning partners to increase their investments. T3 strives to make sure the partnership program builds relationships between students and partners. Within the next three years, the team plans to double the current partners investing in the team and inspiring large investors to partner with T3.

Initial plans are being discussed about establishing FLL Jr., FLL, and FTC teams for the Holly School District. The first step is building an interest through exposure with an innovation summer camp. The next step will be providing *FIRST* programs after school for students. The team's goal is for Holly to have its own FRC team by 2019. T3 continues to expand its student leadership experiences and opportunities. Student are leading the design process, work in the shop, and the team.

T3 experienced substantial growth this year and looks forward to introducing new members to the Thunder Youth Program during the 2016-17 school year. In the coming years, T3 plans to gain one FLL team every year and create a total of four FTC teams very soon.

RISK ANALYSIS

T3 implements a Mitigation plan called Assume, Avoid, Control, and Monitor to overcome incidents and accidents. T3 annually reviews SWOT Analysis to discuss opportunities and threats.

2.0 Team Origin

2.1 Formation of T3

In 1998, Tom Stevens, former Global Chief Technology Officer of General Motors inspired a group of employees to start a *FIRST* robotics team. *FIRST* Team 68, Truck Town Terror, was established at General Motors Truck Product Center (TPC) in Pontiac, Michigan. The team's first year began with twenty members from schools across Oakland County as a magnet team. The dream team was known as Truck Town Terror and had a successful beginning. The team was faced with many changes in the early years. The terrorist attacks of September 11, 2001 led the team to change its name to Truck Town Thunder (T3). The team experienced growth and success, but T3 faced several unforeseen obstacles. T3 had to pack all of the team's belongings up several times to relocate to new locations. In 2009, membership was down and due to GM's financial problems T3 again was faced with finding a new home. Recruiting new students in the Pontiac area had become difficult. Many of the high schools in the area now had *FIRST* robotics teams because of T3's introduction of *FIRST* to the community. A new relationship between T3 and the Brandon High School STEM program resulted in a new home for the team which increased T3's membership. This relationship has allowed Truck to be a highly competitive team on the field and in front of the judges.

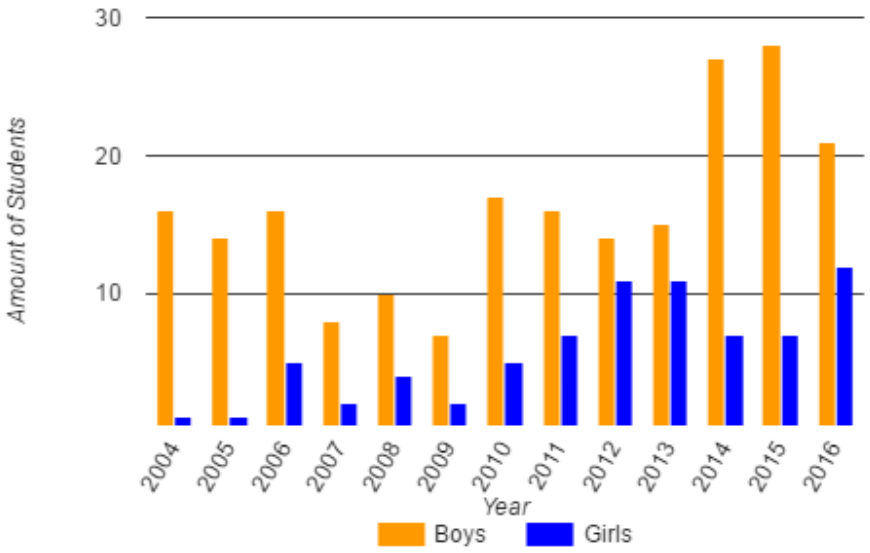
2.2 Current T3

T3 now resides in Brandon High School's Wood and Metal Shop, along with its CAD lab and various other utilities.

2.2.1 Students

T3 currently has 31 student members and 19 mentors. T3 pulls from Brandon (24 students) and Holly High School (three students), and Fenton High School (one student) as well as local homeschoolers (three students). Not only does the team continue to grow in numbers, but also in diversity. T3 is very proud to

Figure 1 -T3 Gender Ratios



1.2.2 Mentors

T3 is fortunate to have 19 mentors from various backgrounds; partners (eight mentors), teachers (three mentors), parents (seven mentors), and college students (two mentors).

Figure 2 - T3 Mentor Demographics

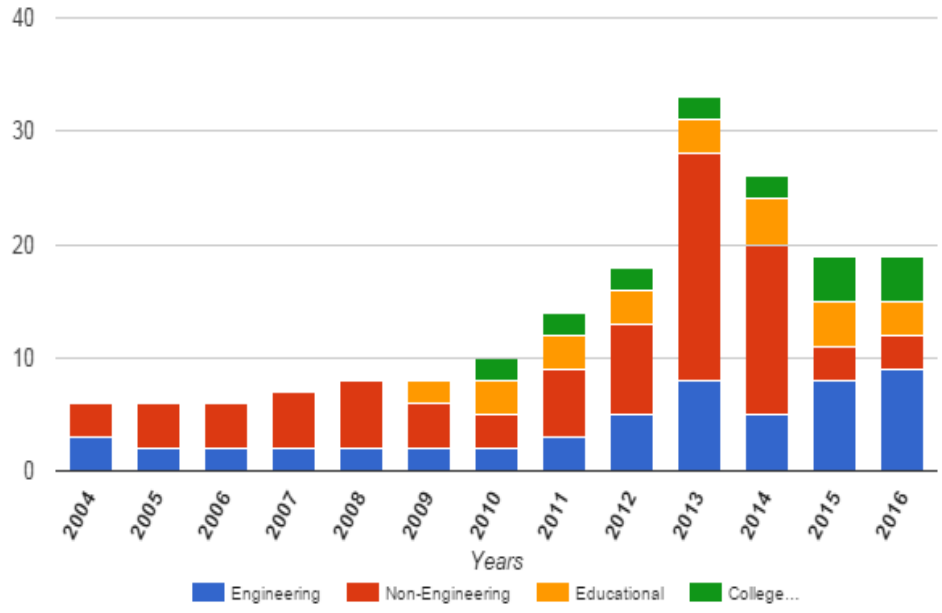
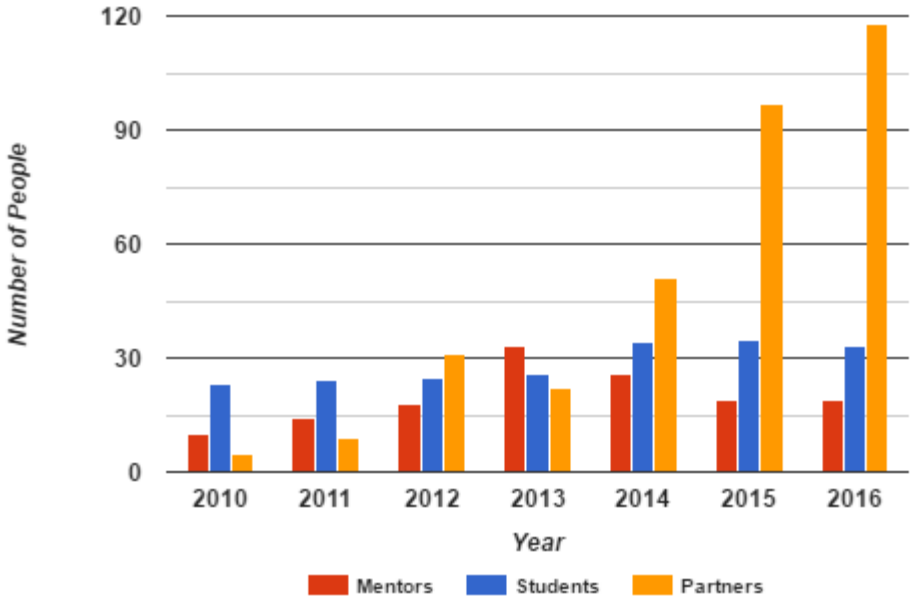


Figure 3 - Overall Growth



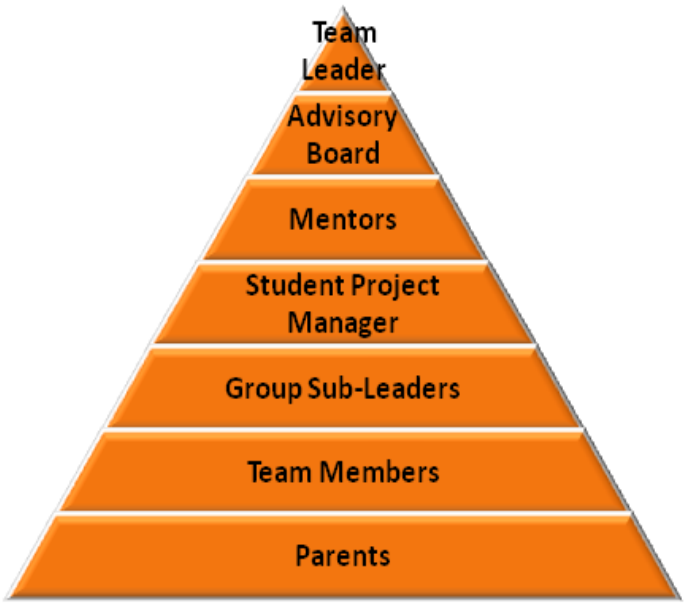
3.0 Team Organizational Structure

3.1 Funding

T3's main source of funding is its Partnership Program. This plan is implemented in the beginning of T3's off-season meetings and carried through until the end of the season. Reference Appendix I for more information on T3's partnership plan. Even though some of the businesses are not able to support when asked, the team member offers to put the business on the email list to inform the individual of T3's activities. This past year the team began a new initiative called 20/20/20. The initiative stands for $20 for 20 businesses in 20 days. Team members made a return visit to potential sponsors that were not interested in partnering with T3 this year. The partnership plan provides many opportunities for fundraiser while also building a bigger connection with partners. Truck Town Thunder works with The Michigan Renaissance Festival yearly to cook turkey legs for the public. This procedure raises $20,000 for the team as well as builds a stronger bond with the Renaissance Festival as a partner. One of T3's new partners, The Rotten Manor, approached the team looking for a site layout design for their haunted attraction, so T3 stepped up and designed The Rotten Manor. In return Rotten Manor allowed T3 to hold a benefit night where the team got to work as actors in the house and got a percentage of profit from the night's ticket sales. Truck Town Thunder also utilizes many different fundraisers such as Wojo's, Little Caesars, and MacPhee's to raise funds for the team. To ensure all of these funds are spent properly, T3 uses a Parent (PRO) group to appropriate funds.

3.2 Team Structure

Figure 4 - T3 Structure



T3 is led by a STEM teacher. The team leader is supported by five senior advisors, comprised of engineers, teachers, and business leaders. Additional leadership is provided by 19 mentors, made up of parents, partner representatives, and two college student team alumni. Figure 3.2.1 displays the leadership pyramid for the team. The team is reshuffled several times during a season for training and team building. The season starts out with Robot 101 training where new and returning students are exposed to the basic skills in all the following areas: robot build, CAD design, scouting, animation, safety, business responsibilities, and Chairman's Award. After the basic training, students are provided the opportunity to apply for one of the sixteen sub-team leadership roles during the build season. These students work directly with mentors and students to make sure deadlines are being met and problems that arise are brought to the attention of mentors, and the advisory board if needed. Students interested in applying for a sub-leader position must submit a resume and follow-up with an interview with the advisory board. The students sign a Duties and Responsibilities Agreement stating they understand the commitment involved with this position. After the sub-team leaders are selected, students are given the opportunity to choose a work group from the Engineering and Public Relations sub-teams. T3 feels students should have an opportunity to experience as many operations of a business as they are able to fit in during a season. The team project managers works with the two structures to make sure deadlines are being met and team members are accomplishing their groups' responsibilities.

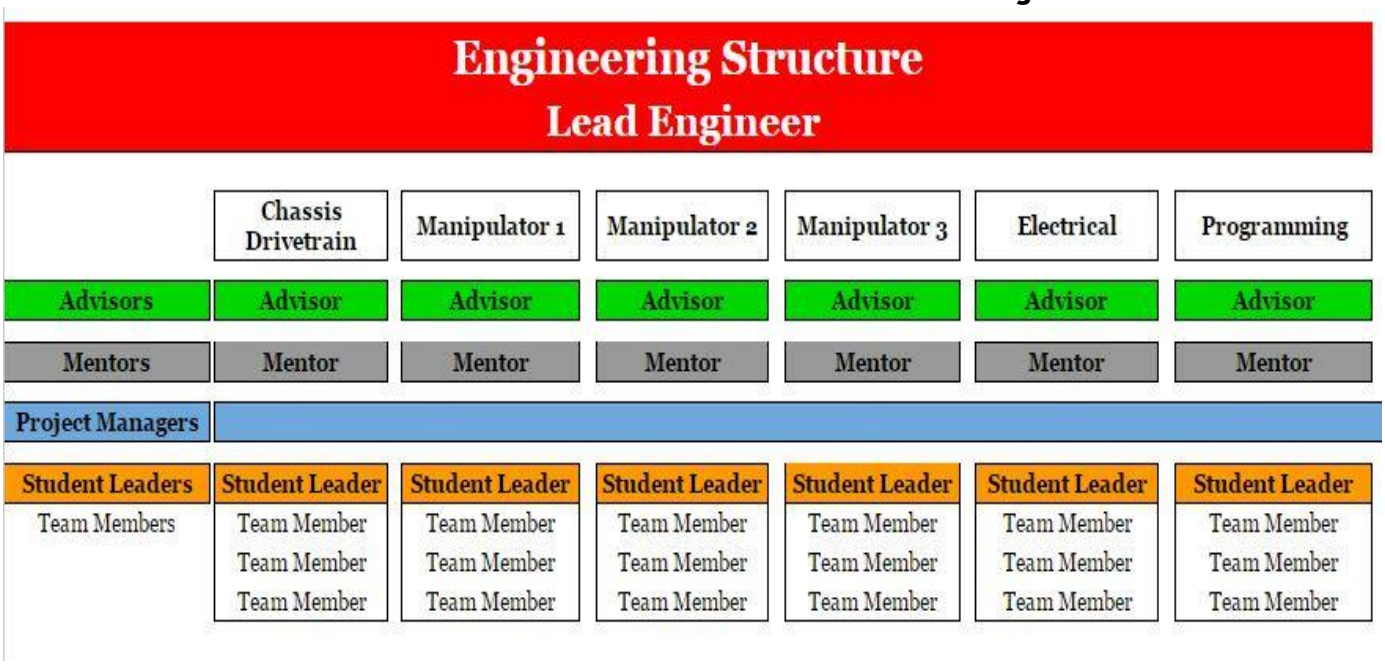
Project Managers

The project managers support and unite the team as well as maintain the flow of communication and information from one sub-team to another. There is both a Public Relations and Engineering project manager. They are responsible for keeping all sub teams informed on what is happening throughout the team. These leaders share their knowledge with each of the sub-teams so they may act together.

3.2.1 Engineering Structure

Each team member is allowed to choose a position relating in the technical structure. The positions relate to the build of the robot and a field for practice driving the robot. Team members have a chance to use and master skills learned during Robot 101 and Robot 102. Figure 5 provides the positions followed by the descriptions for the technical structure.

Figure 4 - Technical Structure



CAD Coordinator and SWBC

CAD Coordinator keeps track of the CAD drawings, weights of parts, and the material size and SWBC tracks the **S**chedule, robot **W**eight, **B**ill of materials, and **C**ost.

Chassis/Drivetrain

The chassis/drivetrain group designs the frame and transmissions of the robot. Members of the Chassis group are trained to use the lathe, mill parts, and weld, as well as be able to use all shop tools. Many Chassis members can also use CAD software.

Manipulator (1, 2, and 3)

The manipulator groups are designated to make mechanical attachments that are required for the robot that will accomplish a specific task. Members will use metalworking and design skills to develop the specified assembly within the six week build season. Traditionally, the team only has two manipulator groups; a third was added due to the increasing complexity and number of tasks that needed to be accomplished in the *FIRST* games. This year Manipulator 1 is responsible for building the intake, Manipulator 2 is responsible for latches, and Manipulator 3 is responsible for building the lifting mechanism.

Electrical

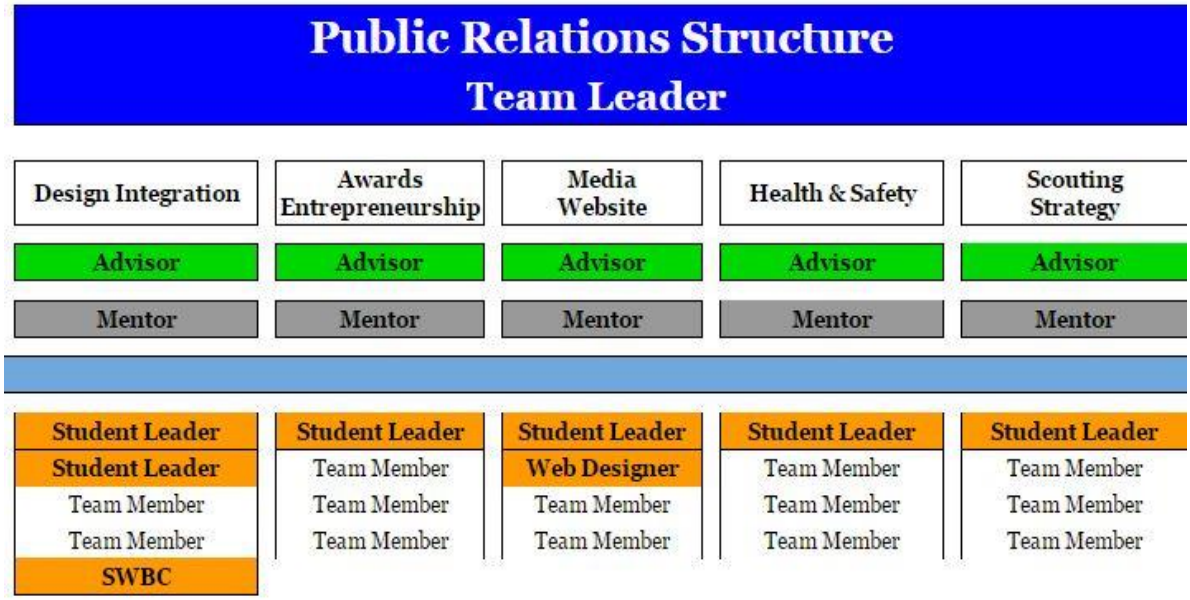
Working mostly with the programmers, the electrical group orchestrates the electrical wiring of the robot motors, actuators, and sensors. The group organizes the layout of physical objects such as the battery, main circuit breaker, and other electrical components. The group is also responsible for the inventory and organization of electrical components and pneumatic solenoid valves.

Programming
Programming is the group that is responsible for converting the rules of the game and the abilities of the robot into a game-winning strategy. The group has to take human rules, strategies, and ideas and convert them into a form that the robot can understand. Programming works with every technical group to ensure that their requirements are implemented in the finished robot.

3.2.2 Public Relations Structure

Similar to the technical structure, each student team member is allowed to select a position in the managerial structure. Students are presented an overview of the different topics involved with managerial positions in Robot 101. Figure 6 provides each of the positions followed by descriptions involved with accomplishing the manger structure.

Figure 5 - Public Relations Structure



Design Integration

The design group develops ideas and drawings to construct the robot. These drawings are not only used for fabrication, but are also used to show the judges how the mechanical components of the robot move. The design group is also in charge of the Bill of Materials and weight allocation of the robot throughout build season.

Awards/ Entrepreneurship
The awards group is in charge of writing and submitting awards for the team. The Woodie Flowers award is written about an inspirational mentor on the team. This group surveys student team members for their recommendation on a candidate for Woodie Flowers. The recommendations are used to compile the essay for the award. The awards group is also in charge of the prestigious Chairman's award, which includes an essay, a video, and a presentation. The group has to write thank-you notes and certificates of appreciation for sponsors. This group is also responsible for making continuous improvement on the Business Plan.

Media & Website
Media manages the team's Facebook and Twitter accounts, the production of videos, as well as documenting the team's activities with pictures and videos. This sub-team is in charge of making the Chairman's video. Its partner, the website group, manages the website as well as brainstorms ideas for videos. The website group focuses on spreading the word of our team and *FIRST* by providing current statistics on what we do by maintaining the website. This sub team is also in charge of keeping the website up to date on any documents that might need to be communicated to the team.

Health and Safety
The main goal of the health and safety group is to make the team as safe as possible. This includes constantly reminding team members about always taking safety precautions when in the shop, forming a safety plan, and placing safety related posters in as many places as possible in the environment. They also help plan the team meals and ensure all meals provide the right nutrients for the team members.

Scouting and Strategy
The scouting and strategy group is mainly in charge of the team's data. During the team's competitions, this sub-team is responsible for recording every match's data. This includes filling out the Microsoft Excel spreadsheet and making match sheets for the drive team. The match sheets are used to develop a strategy for the drive team resulting in successful performance for T3. The scouting sub-team is in charge of coming up with a game winning strategy and introducing it to the team. With this system everyone can be included before competitions and during the build season. This sub-team is also in charge of monitoring Chief Delphi for rule changes, strategic designs of other teams, and general information.

3.3 Recruitment
In order to keep the *FIRST* program growing, T3 grows their youth programs every year. To ensure the team doesn't decrease in numbers, T3 installed the replacement plan. Each senior on the team is recommended to find a younger student to train and take their place.

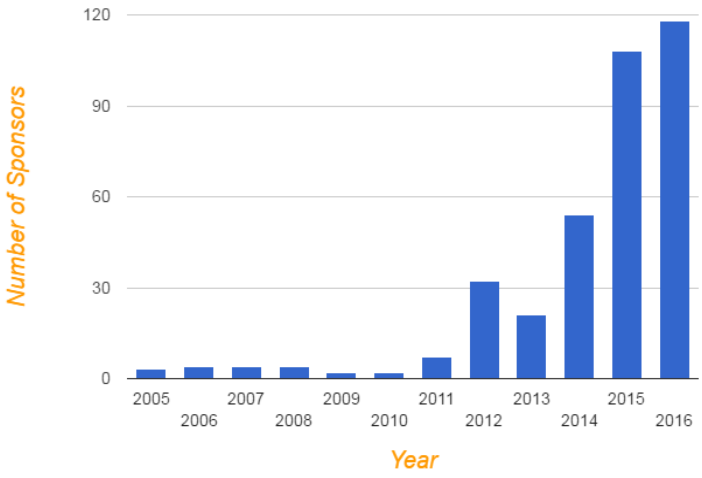
4.0 Relationships

4.1 Team Members
To ensure a good relationship with all of T3's members, many tactics of communication are instilled by the advisory board such as emails, text reminds. The team uses programs such a JIRA to assign tasks to keep members on task with their projects. To give students more of a leadership role, they can apply to be a leader of a sub-team. This gives students leadership experience and ensures the team is student led in order to enforce *FIRST* principles. That is why the team utilizes project managers to make sure the team runs smoothly.

4.2 Mentors
Mentors come from all backgrounds to help team. Mentors include partners, teachers, and parents all help assist the team. Mentors help on the team by training students, providing hands-on learning, and assisting wherever needed.

4.3 Partners
The team has different classifications between partners: there are those who donate financially and those who give meals, parts, fundraising opportunities, and mentors for the team. All forms of partnership are greatly appreciated by the team and the team ensures each partner is thanked for their service. To build stronger bonds with partners, T3 does certain tasks to help some partners. T3 does more than just cook turkey legs at the Renaissance Festival, some students are actually asked to fill positions in different areas of the Renaissance Festival to help management. T3 not only offers its students itself, but also their skill sets such as when T3 students helped design the Rotten Manor haunted house utilizing their CADD design skills.

Figure 6 - Partner Gorwth



Friends Of Truck Town

Sumthing Green Metal Recycling	Edward Jones Investments	R & G Automotive
BMM Industries	Tractor Supply	Renn Insurance Agency
Ace Hardware	O'Malley's Galley	Shaklee Products
Beer World	Belle Tire	Tom's Market
China Fare, LLC	Mark A. Young Jewelers	Village Pub
Common Scents Canine Center	SeptemberFest Fundraising	Waterford Family Chiropractic
Kerton Lumber	Angelic Heart Hospice	The Eckert Family
Mazza Auto Parts	Cindy's Salon	Brandon Chiropractic
Mooney's Barber Shop	Dr. R. C. Doeringer Family Dentist	Josh Eckert Can Drive
Muffler Man of Holly	Dryer Funeral Home	Personal Can Drive
Ortonville Liquor Store	First Impressions Hair Salon	Stephanie Preece
Accunet Web Services	Clarkston Brandon Credit Union	Hungry Howies
Brandon Athletic Boosters	Desert Angels	Indiana *FIRST*
Brandon High School	Engineering Tube Specialties	Kettering University
Brandon High School PTO	Fenton Robotics	Performance Racing Supplies
Brandon School District Staff	*FIRST* in Michigan	Subway
Brandon STEM Pathways Academy	Girl Scouts	T3 Parents
Brandon Technology	Holly High School	The Robot Space
BrecoFlex	Holly High School Staff	Walk for Warmth

Silver Partners

Baylis Animal Hospital	Randy Wise Ford	Ritenburgh Family
Blackhawks Auto Repair	River Rock	Brandon Family Dental
Brandon Tire & Auto Service	Szott Ford	Camp Fire Grill
D. Scott VanderVeen, DDS, PLLC	The Leal Family	Candy Cane Christmas Trees
Escamilla Amigos	Wilson Family	Munk Orthodontics
Hamilton's Propane	Scrap Metal	Pampered Chef
Image Space Incorporated	The Boat Bar	Lemaux Family
Jack D. Steele	Rankin Biomedical Corporation	The Szabo Family
Ken's Coney Island	Wojo's Greenhouse	Bueche's Food World
Little Caesars	Alice Richmond	Sydow Family
Marr Chiropractic	Bullfrogs	Detroit Rubber Group
Papa Bella's Pizza	Lane Car Company/Carite	Allgaier Family
Parker Engineering & Design	Lasco Ford	Babb Family
Pathtech Services, LLC	Orthodontic Specialists	Pittiglio Family

Gold Partners

A & W Ortonville	Sherman Publications	Treasured Rose
Genisys Credit Union	Bischer Family	Rotten Manor
Katcon	MMRA	Dolzynski Family

Platinum Partners

CEC Controls	Cross The Road Electronics	Esys Automation
Continental Automotive Group	Michigan Opto-Mechanical Systems LLC	Fiat Chrysler Automobile
	ARL Service	

Diamond Partners

General Motors

Michigan Renaissance Festival

Figure 7 – Current T3 Partners

5.0 Deployment Of Resources

5.1 Engaging the Community

To engage the community T3 holds an innovation camp every year to gain interest in STEM and *FIRST*. This gets kids into *FIRST* Lego League Junior and *FIRST* Lego League where they will be mentored by high school T3 members. In order to gain public support and recognition T3 participates in Septemberfest and various parades. This past year the new event of the Brandon Exploration Night was started; this is a great opportunity for T3 to get its word out. The expo gives the team the opportunity to present to incoming freshmen and recruit them for the team and show demos of previous robots to spike interest.

5.2 Inspiring Others

T3 does many things to inspire younger generations as well as older ones. The students on the team mentor youth programs and each year T3 hears all of the inspirational moments the FLL teams experienced. T3 is always acting as a team to be emulated by demonstrating gracious professionalism and maturity.

5.3 Getting the Most Out of *FIRST*

FIRST provides many scholastic opportunities for its participants such as scholarships and internships with a wide variety of engineering companies. In order to get the most out of *FIRST*, T3 enlist students in the STEM field to take part in the team since the two programs are closely related.

6.0 Thunder Youth Programs

Truck Town Thunder prides itself on its extensive reach of the youth program that was created specifically for children in grades 1 - 8. T3 currently has 11 FLL Jr. Teams, 6 FLL teams, and currently 1 FTC team. T3 is proud of how the program was designed, which allows for easy emulation by other groups. Fenton's own Titanium Tigers followed our youth program model after they sprouted from our outreach to create other *FIRST* teams.

FLL Jr., FLL and FTC teams are mentored by high school students which provides an opportunity for students to fulfill their community service requirements and develop leadership skills.

7.0 Future Plans

7.1 Sponsorship

T3 has big plans for its team in many areas. T3 hopes to gain more partners and possibly get more mentors from partners to help with the team. The team would like to increase the number of connections with partners and establish more relationships like Rotten Manor or Turkey Legs.

7.2 Outreach

T3 is working on expanding its reach and establishing a team in Holly. Spreading the message of *FIRST* is very important to Truck Town Thunder. In the year of 2017, T3 is looking into remodeling an old elementary building, Belle Ann Elementary, into a Robotics Center. On a more short term view, T3 also works to gain more youth programs.

7.3 New Robotics Center

In order to keep up with the growing number of youth programs and the projected interest for the high school team, Truck Town Thunder proposed a new idea to their local school board this year. The proposal is to gain access to half of a small former elementary school, mainly the gym and some classrooms, as a space for practice fields and an area to hold the Brandon Expo. A presentation was created with all ideas and plans for the new building.

8.0 Financial Statement

8.1 Income

T3's partnership drive recruits businesses that wish to partner annually with the team. The partnership drive was successful for T3 (Appendix 1). Since instituting this plan we have increased the number of partners investing in the team and providing mentorship.

8.2 Expenditures

T3 spends the money it gains from the partnership drive only on necessary items. Some expenditures are transportation to competitions, team uniforms, and a multitude of items for robots, like sheet metal, gears, bumper materials, and tank treads for the current season's robot.

9.0 Risk Analysis

9.1 Mitigation Plan

Assume, Avoid, Control, and Monitor is T3's philosophy when it comes to the mitigation of accidents. Assume that there could be a problem, avoid the problem if possible and if a problem occurs, Control it by either calling for help or by handling it yourself if possible, and Monitor the recipient of the injury to ensure they are healthy and doing well. This plan has been implemented by the Health and Safety sub-team for many years, T3 has continually monitored it to assess its efficacy with the intent of revising the philosophy if needed. Please reference Appendix 2 for more information on Risk Analysis.

9.2 Risk Analysis

The SWOT analysis was used to evaluate the **S**trengths, **W**eaknesses, **O**pportunities, and **T**hreats to *FIRST* Team 68 Truck Town Thunder's organization. The strengths and weaknesses refer to internal factors of the team. The opportunities and threats refer to external factors the team may encounter. The SWOT analysis is used to assist the team with making decisions for short term and long term goals for the team. Figure 7 demonstrates the summary of the analysis discussed by the team.



Figure 8 - SWOT Analysis

10.0 Branding

10.1 Branding Summary

The T3 branding program is a new installment to the team. Starting this year, in 2016, Truck Town Thunder is introducing their official branding plan. The plan has been assigned to the media team in particular and is a work in progress. The team is working on branding all aspects of the team from documentation, clothing, and banners to showcase the team's unity. The way T3 is instilling this plan will be a two year-long process to ensure everything runs smoothly.

10.2 Documents

1. The team font which is Google Docs's "Oxygen" font for words and Microsoft's "Rockwell" for numbers.
2. When writing newsletters for the team the Title Size is 36, Subtitle Size is 24, Heading Size is 12, and Normal Text is 10.
3. The team's colors are Blue #0066B2 and Orange#F38B1E
4. When using the blue, transparent logo, it must be placed on an orange background to showcase the white outline and vise versa with the orange transparent logo.

10.3 Clothing

T3 ensures the team presents itself as a whole and that everyone looks the same. The team posses 3 different competition shirts including the travel t-shirt, the competition polo, and the final day sponsor shirt (shown on right).



Figure 9 – Logo Branding



Figure 10 – T-Shirt Branding

11.0 Connections

Website: http://www.trucktownthunder.com/

Our twitter is used to communicate with everyone by providing links, team calendar, and competition pictures. The website has many different links with info about all mentors, members, and partners.

Email: info@trucktownthunder.com

The team email can be used to answer any questions anyone may have.

Facebook: https://www.facebook.com/trucktownthunder/

The Team's Facebook is run by the media team to keep the community up-to-date on all events and team bonding exercises.

Twitter: https://twitter.com/t3_robotics

The team twitter is also ran by the media team, providing instant updates at competitions and build sessions.

Youtube: https://www.youtube.com/channel/UCSaBfkkj_aly1NNZbjCN7nA

The team YouTube is kept up-to-date by publishing all media videos, such as build week videos, robot reveal, and team Chairman's videos.

APPENDIX 1

FUNDRAISING PLAN

Truck Town Thunder
FIRST Team 68

What is *FIRST*?

FIRST is a worldwide organization that benefits students as young as elementary age to the most senior individual that is willing to volunteer for the program. Dean Kamen, *FIRST* founder had a vision, *"To transform our culture by creating a world where science and technology are celebrated and where young people dream of becoming science and technology leaders." Dean's vision is followed up with the FIRST* mission statement, "Our mission is to inspire young people to be science and technology leaders, by engaging them in exciting mentor-based programs that build science, engineering and technology skills, that inspire innovation, and that foster well-rounded life capabilities including self-confidence, communication, and leadership." (usfirst.org)

- *FIRST* Lego League Junior – Ages 6 – 9 - Team members journey through solving a problem and displaying solution on poster board and using Lego brick to build a model to support their solution.
- *FIRST* Lego League – Ages 9 – 14 - Team members research the annual problem, design, build, test and program robots using LEGO MINDSTORMS® technology. They compete with their robot and present their research to a panel of judges.
- *FIRST* Tech Challenge (FTC) – Grades 7 -12- Team members design, build and program robots that will compete with an alliance. The robot kit is reusable from year-to-year. Students record all of their work in an Engineering notebook that is presented for an award at each competition.
- *FIRST* Robotics Challenge (FRC) -Grades 9 – 12 – Team members under strict rules, limited resources, and time limits are challenged to raise funds, design a team "brand," hone teamwork skills and build and program robots to perform prescribed tasks against a field of competitors. It's as close to "real-world engineering" as a student can get. (usfirst.org)

Additional information on all of the *FIRST* programs is available on the *FIRST* web page – www.firstinspires.org.

Team Budget

T3's advisory board prepares an annual budget. This budget is presented to parents and team members at the first meeting of the year. It is important for everyone to understand the financial commitment required for this organization to provide the scheduled opportunities.

2016 - Projected Robotics Budget

Expenses			Revenue	
Competition Registrations	Estimated	Actual	Current Account	
Districts	$5,000.00		FIRST Account	$4,000.00
3rd District Event	$1,000.00		MDE Grant Account	$2,500.00
State Regional	$4,000.00		Turkey Legs	$20,000.00
World Championships (If We Qualify)	$5,000.00		GM Championships (If We Qualify)	$19,000.00
Off-Season Events	$1,500.00		Student Obligations	$15,400.00
			Partnership Drive	$10,000.00
Team Transportation			MDE Grant (states)	$4,000.00
Indiana	$3,000.00		MDE Grant (worlds)	$5,000.00
Districts				
State Regional				
Gas	$1,500.00			
World Championships (If We Qualify)	$7,000.00			
Accommodations				
Kokomo Districts	$4,500.00			
State	$6,000.00			
World Championships (If We Qualify)	$6,000.00			
Off-Season Events	$0.00			
Food	$4,000.00			
Team Uniforms	$5,000.00			
Public Relation/Office Supplies	$2,000.00			
Robot	$12,000.00			
Banquet	$1,500.00			
Scholarships	$8,000.00			
Scholarship Fund	$0.00			
Estimated Expenses	$71,000.00		Revenue	$79,900.00
Fund Equity Difference		$8,900.00		

Team Impact and Outreach

T3 has had an amazing impact on the Brandon school system. T3 is included in pep assemblies and parades, elementary schools request assistance for science day, and high school teachers look for T3 students to help problem solve technical problems in classrooms. Brandon High School teachers strongly support the team because they have seen the change in students and enjoy the increased support the team provides to the district. The team also has formed an informal alliance with the Athletic Department. In 2013 robotics families started supporting the football team at the concession stands, Athletics was so pleased with the team's assistance, the department made a donation to the team to help with championship expenses in 2013. The next alliance was during the basketball season, T3 participated in selling 50/50 and raffle tickets involving the entire athletic department. Athletics and Robotics both understand the importance of each organization and continue to support each other.

Outreach is very important to Truck Town Thunder. Since T3 meets year round the team is available for many outreach opportunities. The team has been involved the following outreach opportunities:

- Ortonville Relay for Life. This event helps raise money for cancer patients as well as supporting family members of these patients. It also is a memorial to those who have lost their lives to cancer.
- EngiNERDS from Grand Blanc host an Extra Life fundraiser that T3 annually supports. This fundraiser is for the Children's Miracle Network which supports the children at Hurley Hospital.
- Septemberfest Festival held in downtown Ortonville offers an opportunity for the team's involvement. Our team offer exposure to the Ortonville community of the *FIRST* program. This festival brings the community and local business together for a day of fun.
- Annual Leukemia and Lymphoma Society, "Trick or Suites" at the Marriott Hotel in Pontiac, Michigan. The program provides an evening of events which includes trick or treating, pumpkin patch, haunted house, and many games for children who have cancer and their families.
- Campfire USA, to raise funds for military families to attend a week at the camp the funds were raised through a haunted lodge designed and built by Truck Town Thunder. T3 reached out to other high school groups for a combined group effort to man the haunted lodge. This is not all of the outreach the team has been involved with, but it is a good sample. T3 is always willing to step up and provide outreach to anyone in need.

T3 also understands the importance of outreach within the *FIRST* community. The team has received several awards for the "Gracious Professionalism®" the team displays at competitions. The team does not need a competition to reach out to *FIRST* teams. Mentors and student team members have been assisting Rookie *FIRST* team 5114, "Titanium Tigers." T3 has helped them with obtaining sponsors, preparing documents, assisting the team wherever assistance is needed, and sharing tools.

Partnership Plan

Truck Town Thunder participates in an annual Partnership Drive, during which students are assigned particular businesses from the Chamber of Commerce to request invite potential partners to invest in T3. In order to effectively build relationships with potential partners, team members follow a particular process.

Process

While making contact with a business, it is essential that students represent both our team T3 and *FIRST* professionally. To ensure this, team members uses the following suggestive set of guidelines:

- Truck Town Thunder initiates the Partnership Drive by obtaining a list of businesses from the Chamber of Commerce for Brandon and Holly Townships.
- The businesses are then divided up equally amongst the students on the team. By doing so, T3 avoids the event of multiple students attempting to gain partnership from a particular business, which may be detrimental to our relationship with them.
- Team members should dress to represent the team which means wearing a team shirt.
- Bring any business cards, brochures, etc. that include contact information.
- Ask to speak to the manager, owner, or employee handling financial responsibilities.
- Formally introduce yourself as a member of T3 team (ex. John Smith, part of *FIRST* Team 68 Truck Town Thunder).
- Present the benefits of partnering with Truck Town Thunder.
- If the business expresses interest, make further contact within a few weeks.
- If the business agrees to partner with the team, send a follow-up thank you letter.

Partnership Benefits

Truck Town Thunder is committed to all of the team sponsors for one year. The team is continually looking for sponsors to partner with, not only financially, but for individuals with engineering, technology and mechanical background that would be potentially interested in volunteering their time to join the advisory and mentor team. T*3* is confident that with financial support from dedicated sponsors the team will be able to fulfill the required registration, material, equipment and travel costs. For more information about the team, we strongly encourage visiting the team website http:// www.trucktownthunder.com/ The team has five levels of Sponsorship:

Friends of Truck Town—up to $100

Silver – $100 to $499
Website: Logo & link on sponsorship page http://trucktownthunder.com/)

Gold- $500 to $999
Team Shirts: Logo on on back of shirts (worn at events and tournaments)
Website: Logo & link on sponsorship page http://trucktownthunder.com/)

Platinum-$1000 to $4999
Robot: Logo of business
Team Shirts: Logo on on back of shirts (worn at events and tournaments)
Website: Logo & link on sponsorship page http://trucktownthunder.com/)
501c3 tax deduction

Diamond- $5000 and up
Trailer: Logo of business
Robot: Logo of business
Team Shirts: Logo on on back of shirts (worn at events and tournaments)
Website: Logo & link on sponsorship page http://trucktownthunder.com/)
501c3 tax deduction

Sponsorship is an investment in the future of each student which is truly appreciated by the entire team.

Why is Truck Town Thunder Unique

Investing in Truck Town Thunder is tantamount to investing in the future. Truck Town Thunder spreads its seeds throughout *FIRST*, causing plants of innovation and leadership to sprout in their place. Its youth program is its *magnum opus*, with 35 teams in FLL Jr., FLL, and FTC being formed as a direct result of T3's mentorship. T3 is able to do this because of its unique approach to fundraising. T3 approaches local businesses with the prospect of a partnership rather than a sponsorship, implying mutual benefit. This unique fundraising technique also allows T3 to give back to its seniors. Each student receives $250 for every year with the team upon graduation. This is $50 more than the financial obligation, and a $200 net gain for a 4-year student's college prospects in addition to the scholarships that students are likely to receive as a result of their involvement with the team.

APPENDIX 1

SAFETY PLAN



Truck Town Thunder
FIRST Team 68

Risks and Actions

The following is a disaster recovery plan for potential situations that might have severe implications for team continuity. The first step is to make sure that a team leader and student leader are responsible to put the plan into action if needed.

Risk: Loss of Corporate Sponsor

Impact:
- Loss of major funds
- Possible loss of GM mentors
- Loss of facilities
- Higher participation cost for students
- Less competitions attended

Action:
- Re-evaluate current budget
- Obtain new corporate sponsor
    - Have more than one corporate sponsor
    - Find new corporate sponsor
        - Team and parent meeting to discuss avenues to approach new businesses
        - Increase team sponsorship

Risk: Loss of Student Leader

Impact:
- Loss of passing on knowledge and experience
- Loss of a role model

Action:
- New student will step up to fill the position
- Cross training
    - Students are training other students on the team and sharing their skills and experiences
- Team member replacement plan
    - Seniors are required to recruit new team members to replace them upon graduation.

Risk: Loss of Key Team Mentor

Impact:
- Loss of experience and knowledge
- Loss of a role model
- Loss if competitive edge
- Possible higher cost for the robot (welding, machining, etc.)

Action:
- New mentor recruited
- Current mentors step up for responsibilities
- Call out to parents for specific talents
- Cross-train mentors
- Canvass parents to find interested potential mentors

Risk: Loss of School Mentors (Teachers)

Impact:
- Possible loss of building use
- Difficulty in coordination of travel, student info
- Less effective communication between school administration and the team
- Possible loss of computer lab
- Possible loss of financial support from school

Action:
- Maintain good relations with mentors
- Keep two mentors from school on team
- Document all procedures in case loss of a leader
- Maintain relations with school administration

Risk: Student Leaders Not Able to Travel

Impact:
- Less experience with driving, robot controls, repairs
- Limited experience in pits (judges, schedule, visitors)

Actions:
- Cross-train multiple students in all main areas (Pits, Scouting, Driving)
- Always have back-ups assigned an understudy

Risk: Loss of Building Use

Impact:
- Reduced to smaller workspace
- Loss of machines/tools, practice field space, etc.
- Loss of marquee for advertising
- Team may fold

Action:
- May result in reduction of team size
- Find a new meeting/workspace
- Keep area clean/organized

Risk: Serious Injury in the Lab

Impact:
- Temporarily cease all team building activities
- The school may put all limitations on student use of machines and shop

Action:
- Highest priority is to seek attention
- Analysis of accident would be required and the determination of corrective actions would be necessary before beginning of building activities
- Analyze all safety procedures and improve or change as needed
- Keep all students training on safe work practices and informed of possible consequences of neglecting safe practice
- Have a safety book for reference

Risk: Loss of Autodesk Inventor (Computer Aided Design) Software at School

Impact:

- Get machine fixed
- Seek other *FIRST* teams assistance for sharing of equipment
- Call out to sponsors and community for assistance compromised
- Would isolate Computer Aided Design (CAD) team members by requiring off site working arrangements

Action:

- Redefine scope of work
- Reevaluate time frame needed to accomplish new scope of work

Risk: Broken Machines, Broken Equipment

Impact:

- Cease work on robot until fixed
- Replacement of machine may not be possible
- Temporarily move to new build site

Action:

- Get machine fixed
- Seek other *FIRST* teams assistance for sharing of equipment
- Call out to sponsors and community for assistance

Team Contact Information

Website: TruckTownThunder.com
Team Email: info@trucktownthunder.com
Facebook: Truck Town Thunder
Twitter: @t3_robotics
Other Social Media Sites: Google Plus, YouTube

Main Contact:
Mentor Name: Andrew Spiece
Title: Team Leader
Email: info@trucktownthunder.com
Phone: 810-813-0363
Mailing Address: 1025 S. Ortonville Rd., Ortonville, MI 48462

Team Meeting Information:
Location: 1025 S. Ortonville Rd., Ortonville, MI
Days: Tuesday and Thursday – 5 p.m. until 9 p.m.
Saturday – 9 a.m. until 5 p.m.

Sponsorship Information:
Make Checks payable to: Brandon School District
Mailing Address: Truck Town Thunder Robotics
Brandon High School
1025 S. Ortonville Rd.
Ortonville, MI 48462