

**Maverick Boiler Robotics
FIRST Team 4272
Business Plan
2013**



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1.0 Executive Summary

1.1 MISSION STATEMENT

To fundamentally change the view of science and technology in our community, while fostering respect for engineering principles and establishing the same prestige comparable to the sports and the fine arts.

1.2 Beginning of Team

The team was founded in August, 2011. The team's rookie season was 2012 (Rebound Rumble)

1.3 Founders

2 Founding mentors (* still mentors):

Jacob Johnson*, Purdue University Student

Director 2011-present

Michael Mieher*, MHS Physics Teacher

Teacher Sponsor, 2011-present

1.4 Members

2012 Season

12 students, 8 mentors (1 teacher, 7 Purdue University students)

2013 Season

22 Students, 8 mentors (1 teacher, 7 Purdue University students)

1.5 Location and Facilities

McCutcheon High School

4951 Old US Highway 231 South Lafayette, Indiana 47909

We have one classroom, one computer lab, and two workshops for the team to work in (See appendix A)

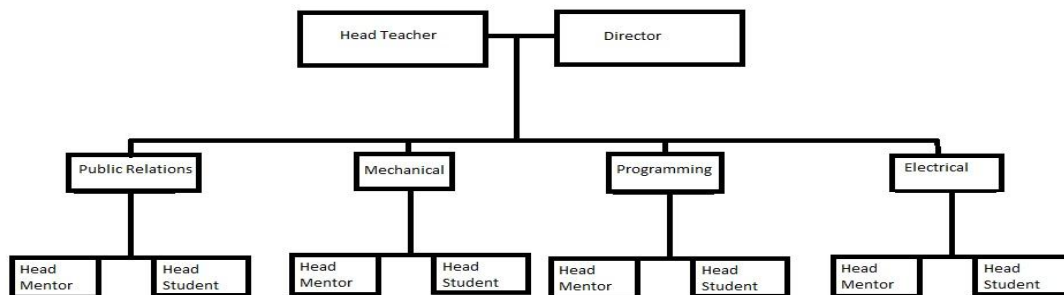
2.0 Team Summary

2.1 History and Background

Located in Tippecanoe School Corporation in Lafayette, Indiana, McCutcheon High School's Robotics team FIRST Team 4272 Maverick Boiler Robotics is a second year team that continues to expand. Team 4272 began as part of a plan to get an FRC team in every high school in Tippecanoe School Corporation. In August of 2011, a member of Purdue FIRST Programs Jacob Johnson made contact with McCutcheon High School with the plan to start an FRC team. Physics teacher Michael Mieher was recruited as the teacher sponsor and the two worked together to start a team in the school.

The team's rookie season was in 2012 with the game Rebound Rumble. The team attended Boilermaker regional in West Lafayette, Indiana and ranked 9th after 2 days of competition. The team made it to the semifinals.

2.2 Team Structure and Organization



The main leadership of our team consists of our teacher sponsor and our director who is from Purdue FIRST Programs. Each sub-team has its own director who works under the control of the main director. On the student level, we have one student who is selected as a representative of the students in decision-making.

All students in the high school may join the team. When they sign up for the team, they must first provide us with their basic information and get safety trained before they are allowed to work in the shop. Students are expected to follow all school guidelines while participating in robotics.



2.3 What we do

- Design and build a robot to compete in the FIRST Robotics Competition (FRC)
- Mentor high school students and teach them to create and document solutions to problems that develop their collaboration, leadership, critical thinking, engineering, communication, and entrepreneurial skills
- We apply design processes and thinking to develop products and methods that help grow our team into a sustainable business that embodies FIRST values while preparing our team to compete in FIRST Robotics competitions
- Increase respect for STEM and STEM-related initiatives

3.0 Program Summary

Maverick Boiler Robotics, FIRST Team 4272, is a FIRST Robotics team from Lafayette, Indiana. Our team is made up of students and teachers from the high school along with mentors from Purdue University.

Team 4272 is a relatively new team, with this year being only our second year. Although we are a small team, we are growing everyday as we work to increase the number of students we have, the amount of sponsorships we receive, and to increase the full impact that our team has on the community as a whole. Our mentors and students are dedicated and we have great plans for the future.

In our efforts to increase respect for and interest in science, technology, engineering, and math, our team builds a robot every year to participate in a game. During our six-week build, students, with guidance from mentors, analyze the game's aspects and design and build a robot to play the game. Following our six-week build season, we compete our robot at regional events and, if we qualify, at a championship event.

Being part of a FIRST robotics team is not just about building the robot, it is about community outreach. While our team is a newer team, we have a lot of programs planned for our future. These efforts would include trying to get a robotics team at every school in the corporation, growing exciting in young students with demonstrations at elementary and middle schools, and volunteering in the community as much as we can.

Through and through, our team is run like a business, making sure we keep our goals in our line of sight with whatever we do. Team 4272 knows that robotics is not just about building a robot, it is about building people.

4.0 FIRST Robotics

FIRST was founded in 1989 to inspire young people's interest and participation in science and technology. Based in Manchester, NH, the public charity designs accessible, innovative programs that motivate young people to pursue education and career opportunities in science, technology, engineering, and math, while building self-confidence, knowledge, and life skills.

Robotics Competition (FRC) is the most intensive robotics program in the world, providing students an experience as close to real-world engineering as they can get. Dubbed the “Varsity Sport for the Mind™”, there is truly nothing else like it. FRC has transformative impact – longitudinal studies have proven that FRC students are 66% more likely to attend college full-time, twice as likely to major in science and engineering, and four times as likely to pursue an engineering career. This is the level that team 4272 participates in.

In addition to FRC, we offer alternative robotics programs from kindergarten through high school. Junior FIRST LEGO League (Jr.FLL), FIRST LEGO League (FLL), and FIRST Tech Challenge (FTC) offer learning experiences to students of all ages.

The FIRST Robotics Competition stages short games played by robots. The robots are designed and built in six weeks (from a common set of parts) by a team of high-school-aged young people and a handful of engineers-Mentors. The students program and remotely control the robots in competition rounds on the field.

FRC is a unique Varsity Sport for the Mind designed to help high-school-aged young people discover how interesting and rewarding the lives of engineers and scientists can be. The unique traits of FRC include:

- It is a sport where participants play with and learn from the pros
- Designing and building a robot is a fascinating real-world professional experience
- Competing brings participants as much excitement and adrenaline rush as conventional varsity tournaments
- The game rules are a surprise every year

5.0 Goals

5.1 Overall team goals

- To teach students about science, technology, engineering, and math through the construction of a competition robot and through off-season projects
- To increase respect for science, technology, engineering, and math through construction of a competition robot and through off-season projects
- To have 100% graduation rate among students
- A continual growth of students, with at least five new members joining every year
- All team members understand the important concepts of FIRST such as Gracious Professionalism and Coopertition
- Acquire sponsors who will support our team for years to come
- Spread the message of FIRST through our school and community
- Build an award winning team

5.2 Individual member goals

- Each student will contact at least one potential sponsor during their time on the team
- Each student will put in their best effort during the build season
- Each student will learn at least one new skill each season

5.3 Technical goals

- Complete a competition robot on schedule
- Teach students technical skills through the design and build of a competition robot

5.4 Public relation goals

- Complete a Chairman's award submission, a strategic business plan, and a safety plan, along with a Woodie Flowers and Dean's List nominations
- Develop a team image and gather marketing supplies for the team
- Develop a community outreach program to spread the message of FIRST

6.0 Challenges

6.1 Member size

Problem: As a newer team, we have smaller numbers than many of the established teams. Lack of student membership is a challenge to our team when there is a lot of work to get done.

Solution: Our public relations department is hard at work on a marketing campaign to raise awareness of our team's presence within our school. Through flyers, announcements, and presentations at pep sessions we hope to produce a steady flow of students into our program

6.2 Other clubs/organizations

Problem: Many of our team members are diverse in their interests and are a part of many other clubs and organizations within the school. This proves as a problem when schedule conflicts arise.

Solution: Our team is working on fixing this through improved communications with other clubs and organizations in the school. We inform other clubs of our key dates that we wish members to be in attendance at and modify our schedule to their key events as well

6.3 Funding

Problem: As a new team, we do not have many sponsors that have been with us for many years. A lack of funding has been a problem for our team in the past and, if not addressed and handled, our team will not survive.

Solution: Our team develops a budget prior to each build season and sticks to the budget as much as possible. We contact businesses on a weekly basis in an effort to gain more sponsors. The team's public relations department has created a sponsorship hierarchy (see appendix B) to show sponsors the benefits they get from donating to our team and we always make sure to express our gratitude to all sponsors. On top of these actions, our team is planning a letter writing initiative in which each student will be responsible for mailing letters to 5 potential new sponsors for the team.



6.4 Mentorship

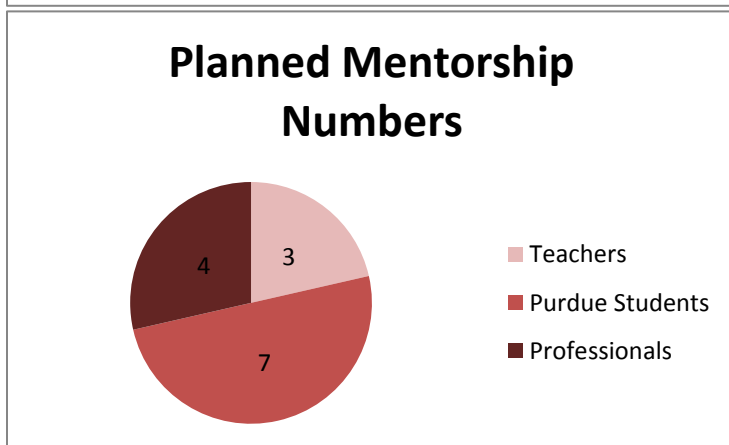
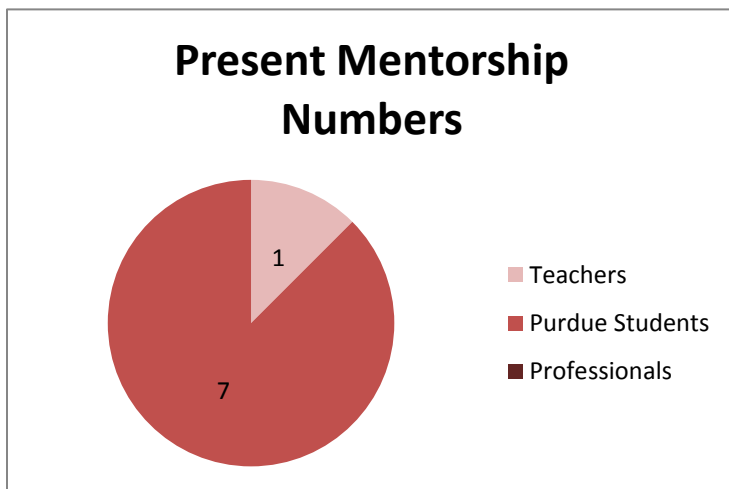
Problem: Our team faces numerous problems in regard to mentorship. One of our problems is the fact that we have only one teacher sponsor. If he is unavailable on a certain day, the whole team must cancel their meetings.

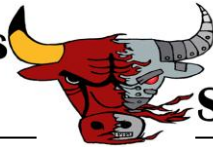
Another of our problems is that the majority of our mentors come from Purdue University, and thus we have a completely new set of mentors every four years.

Our last major problem is that we have no professional mentors on the team.

Solution: To address the problem with mentors, we are going to go out in the community and recruit. We wish to add at least two more teachers to our team.

We also hope to gain at least 4 professional mentors by next season. This will create a scenario in which only about half of our mentors come from Purdue University. Our goals with this can be illustrated below:





7.0 Risk Analysis

7.1 Risk Analysis Format

	Impact on team:	1-Low	2-Medium-Low	3-Medium	4-Medium-High	5-High
Likelihood of event occurring	1-Low	Yellow			Orange	
	2-Medium-Low	Yellow		Orange		Red
	3-Medium	Yellow	Orange		Red	
	4-Medium-High	Yellow		Orange	Red	
	5-High	Yellow		Orange		Red

Yellow: Low risk level

Orange: Medium risk level

Red: High risk level

7.2 Specific Risk Identification

Loss of Purdue FIRST Program(PFP) funding

Details: PFP is the organization that started team 4272, and they provide us with \$4,000 every year.

Likelihood: 1

Impact: 4

Risk level: Medium

Actions taken: To offset their major influence, we have diversified our sponsors, working to bring in more local and corporate sponsors.

Loss of major corporate sponsor

Details: Our current major corporate sponsors include Caterpillar, the Kelly Group, and JC Penney.

Likelihood: 4

Impact: 3

Risk level: Medium

Actions taken: We are working to find more corporate sponsors and increase our local sponsors to diversify our sources of income.

Loss of all corporate sponsors

Details: Our current major corporate sponsors include Caterpillar, the Kelly Group, and JC Penney.

Likelihood: 3

Impact: 5

Risk level: Medium

Action taken: We are trying to find new corporate and local sponsors for more varied revenue sources.

Loss of teacher sponsor

Details: We have only one teacher sponsoring our team, and without him we will not have access to the school or license to operate within it.

Likelihood: 1

Impact: 5

Risk level: High

Action taken: We are recruiting more teachers from within the school.

Loss of student leaders

Details: Key student leaders are a vital part of our team, but the students will eventually graduate.

Likelihood: 4

Impact: 3

Risk level: Medium

Action taken: Current members are continually trained to be leaders and recruitment is always going on (see 6.1 member size)



Loss of important mentors

Details: The majority of our mentors are Purdue students. As such, they will graduate eventually.

Likelihood: 4

Impact: 4

Risk level: High

Action taken: We are working to diversify our sources of mentors. (see 6.4 Mentorship)

Loss of large amounts of build season days

Details: Bad weather such as large snowstorms can cause school cancellations, and by extension Robotics cancellation.

Likelihood: 3

Impact: varies

Risk level: varies/low

Action taken: No preventative action can be taken, we must simply hope for good weather.

Loss of build area

Details: We currently do not have a build space primarily for our own use; our current space is provided by the school we operate out of.

Likelihood: 2

Impact: 5

Risk level: High

Action taken: We are taking actions to keep our work area in good condition so as not to lose our privileges of use.

8.0 Member information

8.1 Student information

All student information is collected and kept on record. This allows the team to keep track of member information and proper safety information about each student. This information is also used to communicate properly with students.

8.2 Team yearbook

In an effort to keep a compilation of yearly student information and to have a physical memory for students to keep once they graduate, our team constructs a yearbook. Each team member, students and mentors, receives an area to include their information and to write about themselves. All of the award submissions and information about the season's robot are also included in the yearbook.

8.3 Alumni information

Our team maintains the information of all alumni that have gone through the program. In this manner, our team tracks what are alumni do in their lives and always keep past members informed of our current projects.

9.0 Relationships

9.1 Purdue FIRST Programs

Purdue FIRST Programs is the organization that helped found our team and is one of our major sponsors. Through Purdue FIRST Programs, our team is also supplied mentors

9.2 School

At the moment, we have a very strong relationship with our school. The administration, both at the corporation level and the school level, has expressed their full support of our team. We get out in the school by performing and pep rallies and making our presence known. Our goal is to continue our efforts and to gain the respect of the staff members at McCutcheon, and the respect of the student body

9.3 Sponsors

Our team understands the importance of sponsors, so we make sure to take care of our sponsors. Our first effort in this is to send out emails every week during build season, and occasionally during the off-season to update our sponsors on what is happening within the team. We have also created a sponsorship hierarchy to show the sponsors what they get at each level (Appendix B). We also thank our sponsors every year by going out to their business and providing them with whatever they get at their sponsorship level as well as our gratitude.

9.4 Other teams

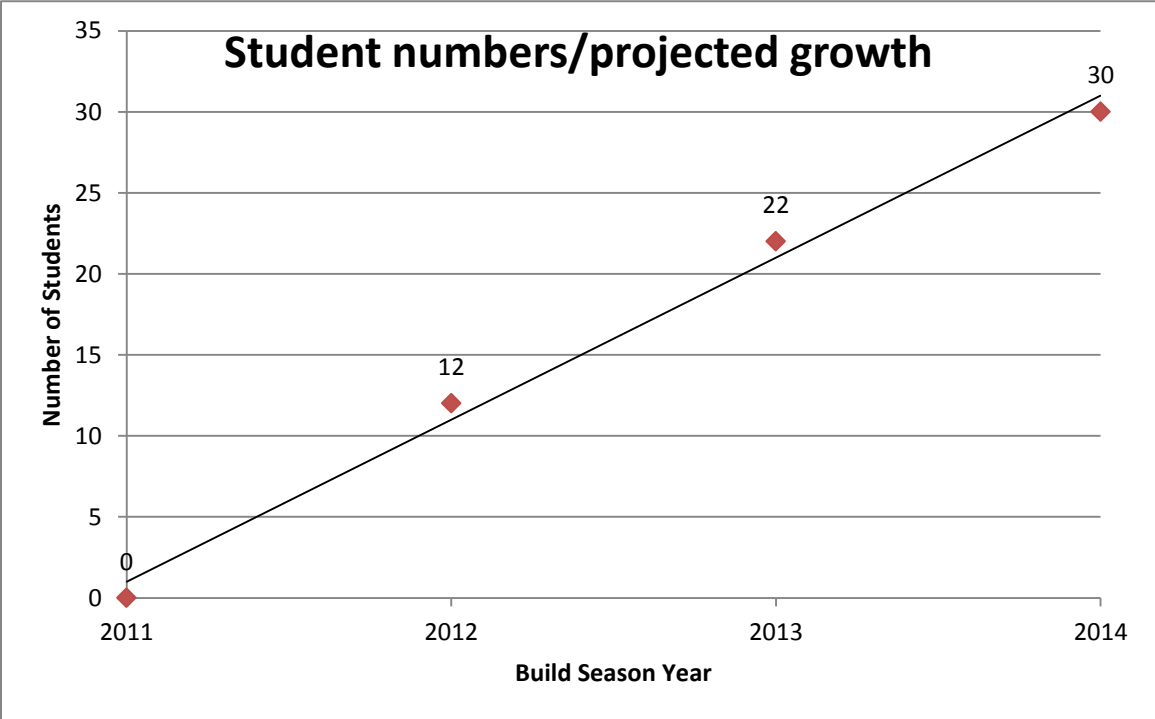
In our school corporation, there are 3 other teams. We have great relations with these teams and support each other when needed. We always provide support to other teams, and team up with them for community outreach projects and have a symbiotic relationship with them.



10.0 Growth

10.1 Student growth

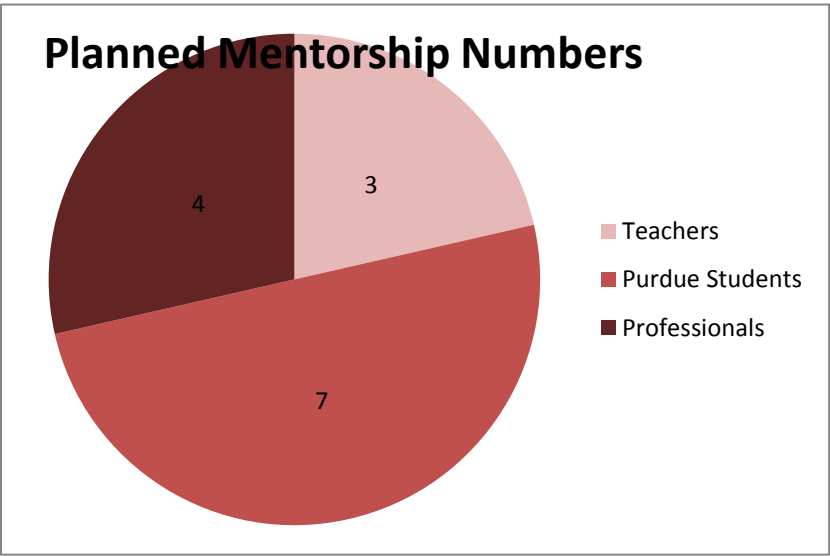
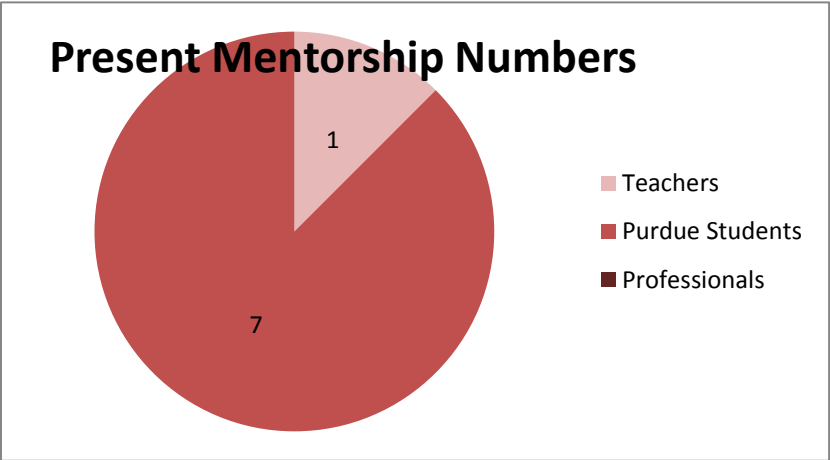
Continued participation of students in 4272 is the backbone of our program. We have charted our team’s student growth from our rookie year (2012) to the present along with our projections for next year.





10.2 Mentor growth

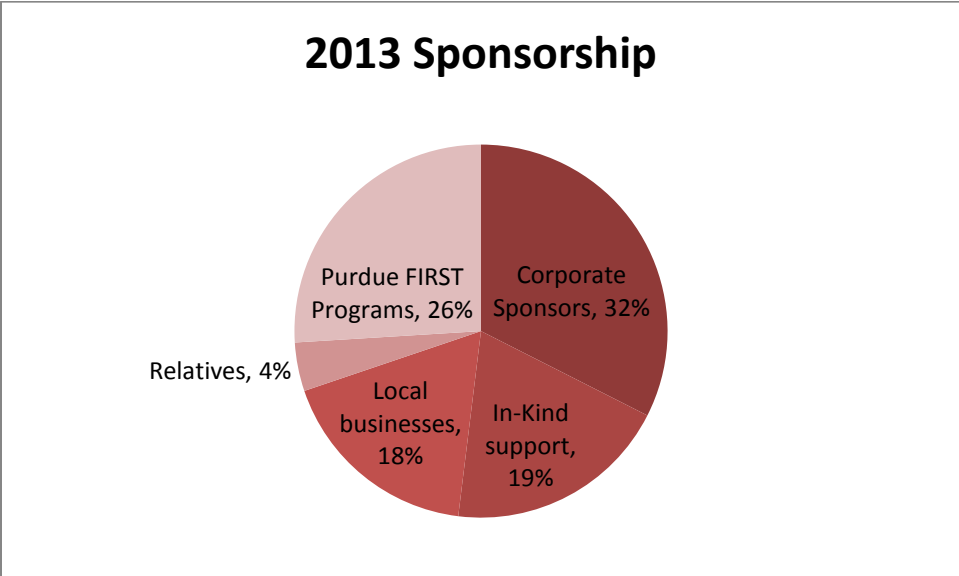
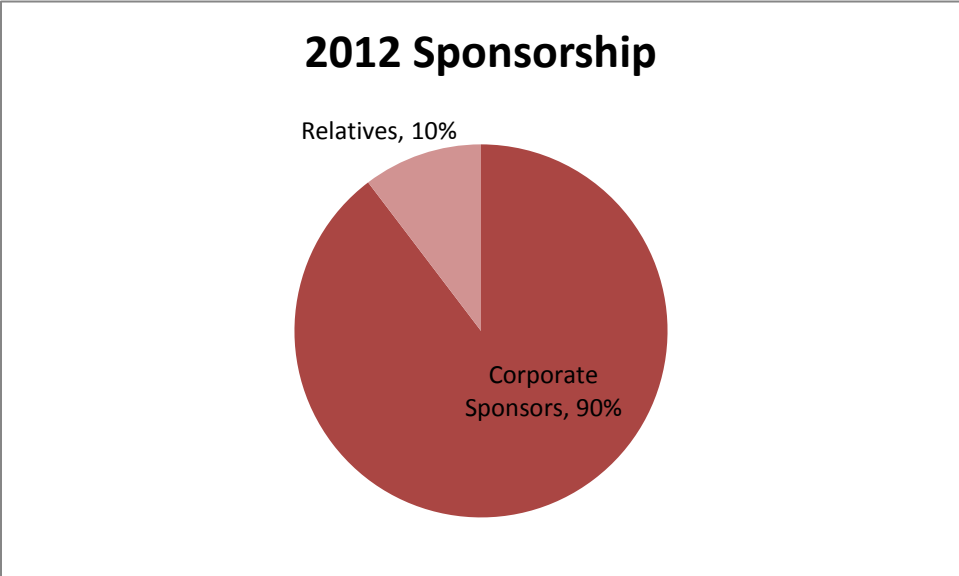
In our first two years, our teams mentor levels stayed at the exact same level. Our team is trying to diversify the mentors that we have on the team, not increase the number of mentors. Our current mentorship and projected mentorship can be seen below.





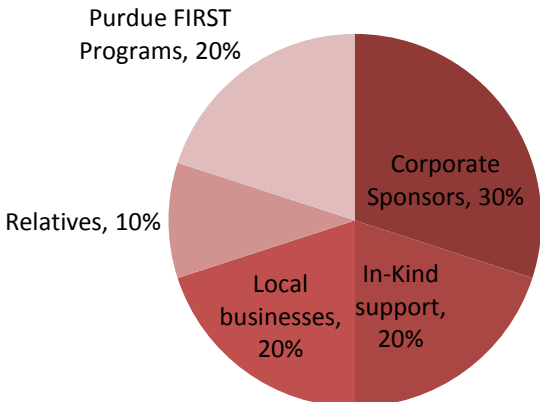
10.3 Sponsorship

In an effort to create a sustainable team, we are diversifying our sources of funding and sponsorship. Below is highlighted our sponsorship diversification for our rookie season, our current season, and our plans for the future.





Planned Sponsorship Percentages



11.0 Sustainability Plans

11.1 Students

To create a continual flow of students joining 4272, our team has implemented some recruitment efforts to attract members:

- **FLL Recruitment:** We plan an annual demonstration at a local FLL competition to make sure students in FLL continue on to FRC. Contact information is collected and students are contacted once they reach high school.
- **Pep rallies:** To reach the entire student body, our team puts demonstrations at all school pep sessions and appeals to the whole school to join the team.
- **School media:** Through the school newspaper and television station, we get the robotics team out in the community.
- **School-wide advertisement:** Flyers are located in the entire school that talk about the different aspects of robotics. These flyers attract many students and get the robotics team name in the school
- **Word-of mouth:** Each student is given the task of talking to classmates about the team. Word of mouth has proven to be the best way to convince students to join.

11.2 Mentors

[See 10.2 Mentor Growth]

11.3 Funds

Maintaining current sponsors: Sponsor thank is a big part of maintaining sponsors. All individuals or companies that contribute to our team are given rewards/thanks depending on which level they fall on our sponsorship hierarchy (see appendix B). All sponsors are also invited to every event that our team is involved in. This involves open houses, competitions and any time the sponsors would like to come to the shop during the build season

Maverick Boiler Robotics  **2013 Season**
F.I.R.S.T. Team 4272 **Strategic Business Plan**

Reaching out to new sponsors: Each student is given the task of contacting 5 potential new sponsors (businesses or relatives) each build season. A generic sponsor letter (see appendix C) is provided for students, but they are encouraged to write their own.

Grants: The team also continual writes grants to try to receive more funds.



12.0 Community Outreach

12.1 Started/Ongoing Projects

TippecanoeFIRST: This is our big project that involves working to get a robotics team in every school in the district. There is currently an FRC team in every high school. Our next step is getting FLL teams in all the middle schools. This involves demonstrations that we are planning at the school, recruitment of teachers and sponsors, approval from school administration, and then creation of teams. We are currently working with two middle schools on this effort and plan to expand to the rest once we are completed

FLL: Reaching out to FLL students is a way to continue the message of FIRST and convince students to continue on to FRC. We have so far planned an event at a local FLL competition and plan on continuing this for years to come.

Coopertition: Coopertition is a big part of our team. We help and support the 3 other teams in our school corporation and teach the ideal to our students. We have listed this as community outreach because it helps us to reach out to other teams.

12.2 Plans for the future

Parent group: Our team wishes for the parents of students to be more involved and connected to the team. Because of this, we plan to put together a parent group. The parent group will be in charge of meals for the team during the build season, chaperones for trips that require more adults, and transportation in case it is necessary. The parent group will also help with sponsorship for the team.

Community service: On top of many STEM-related initiatives, our team wants to reach out to the community by helping in other ways. We plan on working at a local soup kitchen, contributing to food banks, volunteering at animal shelters, and helping the members of the community in any way we can



13.0 Team Branding

Official team name: McCutcheon High School robotics team FIRST team 4272

Maverick Boiler Robotics

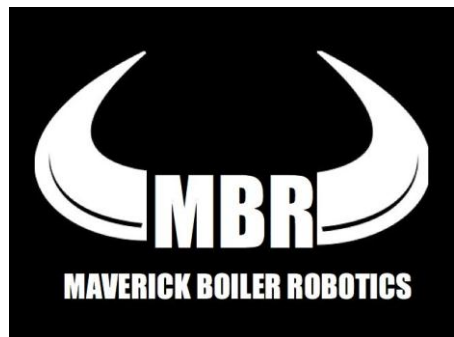
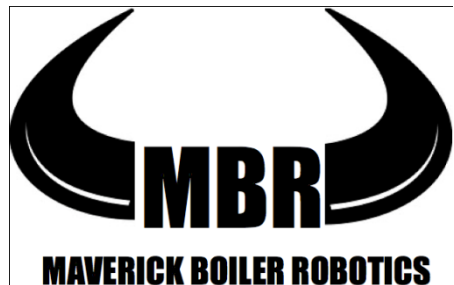
Team nickname: MBR (Maverick Boiler Robotics)

Official team colors: Maroon and Gold. Red and yellow is acceptable.

Logos and acceptable variations: Two main logos exist. For official purposes, the MBR logo (maroon) with horns is used:

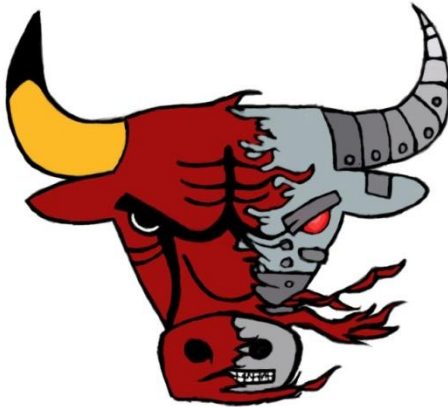


Acceptable variations of this logo:



Maverick Boiler Robotics 2013 Season F.I.R.S.T. Team 4272 Strategic Business Plan

Another logo that we have entitled “MavBorg” is included in many of our imagery efforts:



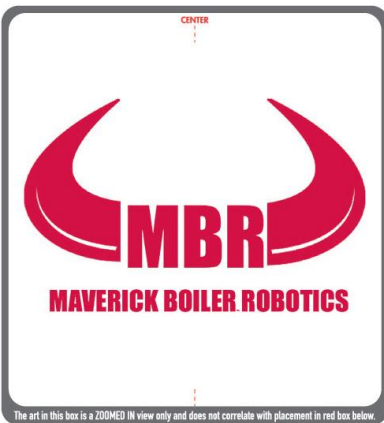
FIRST logo: The FIRST logo is included in many of our branding efforts as well

Apparel/imagery: Examples of our use of our image can be seen here:

Team t-shirt 2013

Load Note: 3" Load from the Bottom of the Collar

CENTER



The art in this box is a ZOOMED IN view only and does not correlate with placement in red box below.

FULL FRONT


ink Size: 10.75" x 6.78"

UGP Scarlet 200C

Load Note: 4" Load from the Bottom of the Collar

CENTER

4272




The art in this box is a ZOOMED IN view only and does not correlate with placement in red box below.

FULL BACK

ink Size: 11" x 9.13"

UGP Scarlet 200C





Team Flag



Team Banner

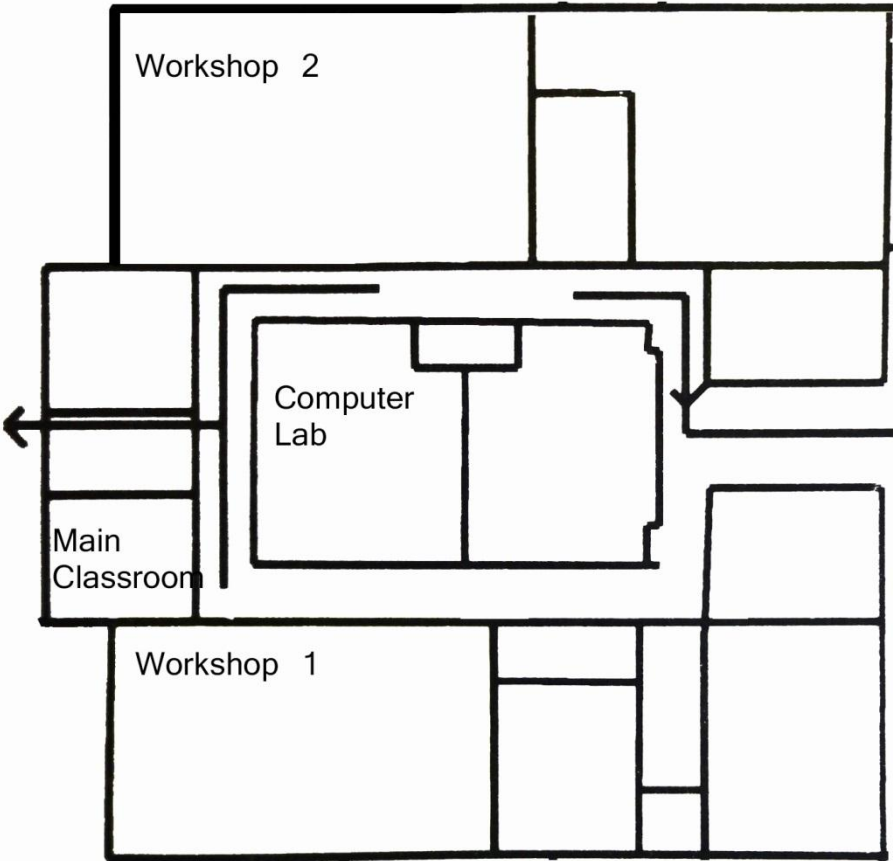


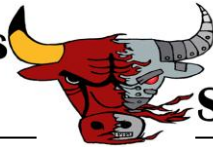
Team numbers (for stands)





Appendix A: Workshop layout





Appendix B: Sponsorship hierarchy



Sponsorship Levels

<p>\$5,000 or more “Platinum Sponsor”</p>	<ul style="list-style-type: none"> • Large logo and name on team shirt • Large logo and name on competition robot • Mentioned in the press releases • MBR VIP status at competitions
<p>\$2,500 “Gold Sponsor”</p>	<ul style="list-style-type: none"> • Medium logo and name on team shirt • Medium logo and name on competition robot
<p>\$1,000 “Silver Sponsor”</p>	<ul style="list-style-type: none"> • Small logo and name on team shirt • Small logo and name on competition robot • Mentioned in the press releases
<p>\$500 “Bronze Sponsor”</p>	<ul style="list-style-type: none"> • Small logo and name on team shirt • Small logo and name on competition robot

\$200: Community Champion

- Receive team shirt
- Receive team picture

\$100: Community Advocate

- Receive team picture

\$50 or less: Community Partner

- Team thank you note





Appendix C: Generic Sponsor Letter

Maverick Boiler Robotics
McCutcheon High School
4951 Old US Highway 231 South
Lafayette, IN 47909



To whom it may concern,

I'm writing on behalf of McCutcheon High School's robotics team; FIRST team 4272 Maverick Boiler Robotics. FIRST (For Inspiration and Recognition of Science and Technology) is an organization whose mission is to inspire young people to be science and technology leaders. FIRST accomplishes this by engaging students 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. Team 4272 is involved in the high school level of FIRST robotics entitled FIRST Robotics Competition, FRC for short. FRC is a varsity sport for the mind, combining the excitement of a sport with the rigors of science and technology.

Located in Lafayette, Indiana, team 4272 is a relatively new team with this year being only our second year. Although we are a small team, we are growing everyday as we work to increase the number of students we have, the amount of sponsorship we receive, and to increase the full impact our team has on the community as a whole. Our mentors and students are dedicated and we have great plans for the future. At the moment, we are halfway through our second season and are hard at work designing and building our competition robot.

Our season kicked off just a few short weeks ago and we have met almost every day to make sure we meet our February 19th deadline for building the robot. This year, our team plans on visiting two regionals; the Boilermaker Regional in West Lafayette, Indiana on March 14th-16th and the Crossroads Regional in Terre Haute, Indiana on April 4th-6th.

To run and maintain a robotics team, we need help from generous sponsors who are the foundation that many teams rely on. What we hope is that you will be able to sponsor our team and help keep 4272 going. Our team understands the importance of sponsors and always appreciates what they do to help us. I have attached a sponsorship hierarchy to show the different levels for sponsorship. We hope you will be able to help.

If you have any comments or questions, please feel free to contact us

Maverick Boiler Robotics Team 4272 is a not-for-profit 501(c)(3)