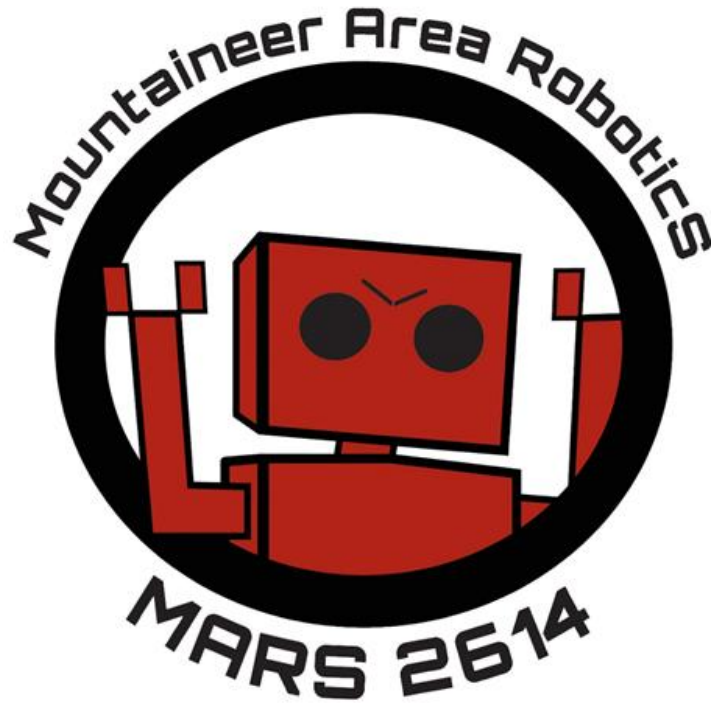


MARS

Mountaineer Area Robotics



Team 2614

FY 2015

Business Plan

Table of Contents

1. Executive Summary	4
1.1. Objectives	7
1.2. Mission	9
1.3. Keys to Success	11
2. Organization Summary	11
2.1. Legal Entity.....	13
2.2. Organization History	14
3. Products and Services	20
4. Market Analysis Summary	21
4.1. Market Segmentation	21
4.2. Target Market Segment Strategy.....	22
5. Web Plan Summary.....	23
5.1. Website Marketing Strategy	25
5.2. Development Requirements.....	26
6. Strategy and Implementation Summary.....	26
6.1. SWOT Analysis.....	27
6.1.1. Strengths.....	28
6.1.2. Weaknesses	29
6.1.3. Opportunities.....	30
6.1.4. Threats	30
6.2. Fundraising Strategy	31
6.2.1. Funding Forecast.....	34
7. Management Summary	36
8. Financial Plan	40
8.1. Break-even Analysis	41
8.2. Projected Surplus or Deficit.....	42
8.3. Projected Cash Flow.....	45
8.4. Projected Balance Sheet.....	45

1. Executive Summary

This is a summary of the main highlights of the MARS business plan for the fiscal year period of July 1, 2014 through June 30, 2015. It should be noted that this is not only used as a document submitted for a FIRST competition, but also to direct team activities, and assist in the team's funding efforts. As such, beyond this Executive Summary section, the plan follows a more standard format used in the private sector. The team feels it important to teach its students this format as it will give them added skills upon graduation. When used to approach potential sponsors, this executive summary is replaced with one that better explains FIRST as a program and how the team competes within the FIRST organization. This is the only change between this document and the one presented outside of the FIRST community.

The MARS Vision Statement

MARS is an organization comprised of high school students, mentors, and parents hailing from across the world, based in North-central WV that provides a purpose- driven creative outlet through FIRST and additional STEM programs on an international level, as well as the statewide, national, and worldwide promotion of post-secondary education through community outreach and the support of our partners.

Our Mission

Using STEM education as our platform, it is the mission of MARS to increase, in West Virginia and around the world, focusing in rural and disadvantaged areas, the participation in post-secondary education in STEM programs. We do this through community outreach and development of technical programs designed to instill superior practical life skills in student, including:

- Gracious Professionalism®
- Teamwork
- Leadership
- Coopertition®

We also develop in each of our student members exceptional personal productivity skills such as:

- a strong work ethic,
- superior dedication and commitment to team and community,
- and highly developed organizational skills.

In the end, the MARS mission can be summed up as giving students of all ages in West Virginia and around the world, the skills, means, and opportunities to develop in themselves their best futures possible.

More details on the MARS vision, and mission, plus a complete list and details of the team's governing values, can be found in Section 1.2 beginning on page 9.

TEAM ORIGIN

MARS was founded in 2008 by 12 student members of a former three-time state champion FIRST LEGO League team to continue their involvement in STEM education after moving on to their high school career. Building on the principle of creating a state-wide robotics network that encompasses elementary, middle, and high school youth, MARS has expanded FIRST programs into every corner of the state. Our relationships with West Virginia University, our local Board of Education, NASA, and 4-H are crucial to our success. The resources these organizations provide, such as financial assistance, facility access, shop equipment, and mentors, are invaluable to our progress. To date, the team is 38 members and 26 core mentors strong, with the program rapidly expanding annually. All graduates of the team have attended college on full or partial scholarship and most are majoring in STEM fields. Many of the local businesses and corporations have offered internship opportunities for MARS youth, either during or following their high school careers. A

MARS Team #2614 FY 2015 Business Plan

complete listing of the team's history and accomplishments can be found in Section 2.2 beginning on page 14.

ORGANIZATIONAL STRUCTURE

The MARS team receives funding from three primary sources: (1) grants, (2) sponsors, and (3) fundraising. This document contains extensive tables, graphs, and charts explaining in detail our accounting practices along with a complete list of our sponsors. The bulk of our financial plan can be found in Section 6.2 on page 31 and Section 8 beginning on page 40. These sections show both our past performance and future projections. MARS recruits new members through extensive outreach and support of Jr. FLL and FLL team's under our MARS Plan. The team keeps and retains the FIRST core principles by inculcating all our members with the teams governing values. These can be found in Section 1.2 on page 9.

RELATIONSHIPS

The MARS program currently encompasses youth from all over North-Central West Virginia who dedicate themselves to a rapidly expanding, statewide robotics network. Through partnerships with 4-H, NASA, the local school system, West Virginia University, and numerous corporate sponsors, MARS is contributing engaging educational opportunities and service to those in their statewide community. MARS sponsors and mentors teams in the FIRST LEGO League (FLL) division. This division serves students from grades 4 - 8 and between the ages of 9-14. MARS also sponsors and mentors teams in the Jr. FLL division which runs from grades K-3 and ages 6-9 and in FTC, another high school program. In its seven years of operation, MARS has been extremely successful, winning a variety of awards and earning a berth at the FIRST World FRC competition 6 out of 7 years. MARS has high hopes that they will once again gain the opportunity to compete at the World competition this season.

DEPLOYMENT OF RESOURCES

The entire existence of MARS revolves around our mission to gain community involvement and grow FIRST programs in the State of West Virginia under its MARS Plan. MARS is expanding this model to other rural and disadvantaged communities around the nation and world. We began by sponsoring and mentoring Jr. FLL and FLL teams throughout the state, with our student team members teaching and doing much of the mentoring in the elementary and middle school levels. By also starting other FLL teams throughout the state, we give these younger students something to aspire to as they reach high school and are ready for FTC or FRC programs. Further information about the MARS Plan, our target markets, and the services we offer can be found in Section 3, beginning on page 20, Section 4 beginning on page 21, and Section 6, on page 26.

FUTURE PLANS

MARS operates on an ongoing five year strategic and financial planning cycle. Under this system this plan is reviewed and updated annually. We do this because most successful firms in the private sector do the same, and because it has been the team's experience that creating meaningful, lasting change takes a commitment longer than three years. This document represents that plan. Our current goals and objectives for the next 5 years can be found in Section 1.1 beginning on page 7. These plans are then elaborated upon in detail throughout the document as they are affected by sponsorship, finances, outreach, target markets and general operations in their individual sections. The major future plan we have for the next five years is to further develop the MARS Plan and expand our successes both nationally and internationally. By 2019, the team would like to be actively sponsoring FRC and FTC teams in 2 other nations, perhaps culminating even in expanded team visit to our target nations if possible.

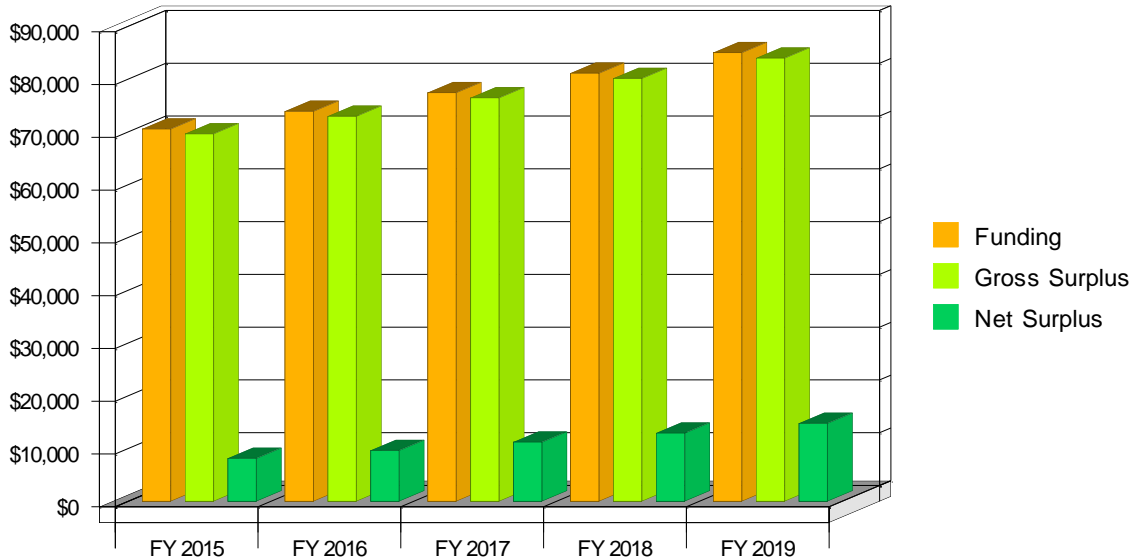
FINANCIAL STATEMENT

MARS endeavors to run itself as much as possible like a company. Most private companies do not produce a single financial statement, but three. These are a Profit & Loss Statement, Statement of Cash Flows, and a Balance Sheet. This document contains all three though it should be noted that because MARS is a 501(c)3 non-profit organization, our Profit & Loss Statement is referred to as a Surplus & Deficit statement. It also should be noted that because this document is a plan and looks to the future, all these statements (with the exception of the Past Performance Table) are provided on a pro forma basis. The goal of these is to give

MARS Team #2614 FY 2015 Business Plan

current and potential sponsors the necessary and relevant information to make sound funding decisions regarding the team. To that end, this document contains, a past performance table providing information for Mountaineer Area RoboticS the past 3 years, a break-even analysis, and a funding forecast in addition to the main financial statements. With the exception of the Past Performance Table, all our projections cover the current fiscal year as well as the next five fiscal years. Below is a chart highlighting our funding projections.

Highlights



Risk Analysis

MARS performed a SWOT (Strengths, Weaknesses, Opportunities, and Threats) analysis in Jan of 2014 as part of a planned upgrade for that year's (2013 - 2014) business plan. The team's methodology as to use two focus groups to perform the analysis. The first focus group consisted of members of the Chairman's Team. This group completed the rough work of identifying the various issues of each category. This information was then considered by a much larger focus group (hereafter, the MARS Student Focus Group) consisting of interested students from all sub-teams within the MARS organization. The MARS student Focus Group then narrowed the possibilities and identified those issues most relevant to the maintaining the team's competitive advantage over time. In the final analysis, the team discovered its major strengths lay in the areas of funding, mentors, facilities, and esprit de corps. Similarly the team's weaknesses lay mostly in the organizational development areas of Cultural Fade, Lack of Bench, and Organizational Silos. The analysis of the external environment, led to the identification of opportunities that are now being developed over the next several years as the MARS Plan. The team identified a few minor threats in the areas of economics, and sponsorship. Finally, the team discovered one major threat to its future sustainability. This and other details of the SWOT analysis can be found in Section 6.1 through 6.1.4 beginning on page 27.

1.1. Objectives

MARS as an organization is continually growing and evolving. Because of this, our goals and objectives as outlined in this business plan have changed slightly over last year's plan to reflect the changes in the organization as it evolves. While many of our long term objectives regarding our activities in WV, funding, and our commitment to Jr. FLL and FLL etc. have not changed, we are now proud to announce plans to expand our commitment to sponsoring and mentoring both FRC and FTC teams in WV and around the world. Additionally, we are setting new goals to expand our outreach activities to an international scale. To successfully attain these goals and objectives, considerable forethought and advanced preparation and planning are essential. To that end, MARS sets its goals each year in five-year increments and makes adjustments as necessary annually. Below is the list of MARS' goals and objective for the next five years.

Year One Goals (FY in 2015)

- FLL programs will be available in 30 WV counties.
- Increase statewide awareness of FIRST activities in WV in general, especially in state and private, primary, secondary, and post-secondary educational institutions.
- Help establish at least 3 FTC teams in WV.
- Host a 26 hour and 14 minute off season FRC endurance event Mountaineer Area Robotics
- Identify and research prospect nations to expand outreach activities as specified in the MARS Plan.
- Increase fundraising by 5%.
- Add at least one platinum level sponsor and two silver or gold-level sponsors.
- Maintain at least fifty-percent of graduating FLL students going into a high school FIRST program.
- Partner with sponsors to maintain current internships and develop additional internship opportunities.
- Increase participation in the scholarship application program for WV FRC graduates for postsecondary education by 50% over previous year.
- Increase the number of scholarships awarded to WV FRC graduates through the program by 50% over previous year.
- Identify opportunities to sponsor and develop FIRST programs internationally.

MARS Team #2614 FY 2015 Business Plan

Year Two Goals (FY Ending in 2016)

- Get a meeting with the West Virginia State Board of Education to make FIRST Robotics an officially recognized sport and consider establishing elective robotics classes.
- Establish 1 new FTC Team in WV.

- Identify possible grants to increase annual revenue to levels capable of supporting international operations
- Increase fundraising by 5%

- Add at least one platinum level sponsor and two silver or gold- level sponsors
- Partner with sponsors to maintain current internships and develop one additional STEM internship opportunity.
- Increase participation by FTC and FRC graduates in West Virginia in the FIRST scholarship application program by 2 more applicants over previous year.
- Identify second possible target nations in which to develop FIRST programs.
- Get Morgantown City Council to attend MARS FLL Qualifier.
- MARS graduates will maintain 95% post-secondary education attendance rate.
- FLL Programs will be available in 35 counties in WV.

Year Three Goals (FY Ending in 2017)

- Finalize second target nation and develop plan to sponsor and help develop FIRST programs.
- Apply to possible grants to increase annual revenue to levels capable of supporting international operations.
- Design and develop curriculum for robotics courses in conjunction with the West Virginia Board of Education.
- West Virginia governor will participate in state FLL Tournament.
- Establish at least one FTC team in WV.
- Increase funding by 5%.

- Add at least one platinum level sponsor, and two silver or gold-level sponsors (need more information).
- Increase participation in the FIRST scholarship application program for WV FRC graduates for post- secondary education by 2 applicants over previous year.
- MARS graduates will maintain 95% post-secondary education attendance rate.
- Partner with sponsors to maintain current internships and develop one additional STEM internship opportunity.
- FLL Programs will be available in 40 counties in WV.

Year Four Goals (FY Ending in 2018)

- West Virginia senator(s) will participate in state FLL Tournament.

- Begin sponsoring and developing FIRST programs in the second target nation.
- Identify and apply to possible grants to increase annual revenue to levels capable of supporting international operations (wait until we have cost information).
- FLL programs will be available in 45 WV counties.
- Finalize design and development of curriculum for robotics courses in conjunction with the West Virginia Board of Education.
- Establish at least 2 FTC teams through international outreach activities in India under the MARS plan.
- MARS graduates will maintain 95% post-secondary education attendance rate.

MARS Team #2614 FY 2015 Business Plan

- Increase funding by 5%.
- Establish at least one FRC team in WV.

- Add at least one platinum level sponsor, and two silver or gold-level sponsors (need more information).

- Increase participation in the FIRST scholarship application program for WV FRC graduates for post-secondary education by 2 applicants over the previous year.
- Partner with sponsors to maintain current internships and develop one additional STEM internship opportunity.

Year Five Goals (FY Ending in 2019)

- United States First Lady will participate in State FLL Tournament.
- Establish at least 2 FRC teams through international outreach activities in India under the MARS plan.
- Establish at least 2 FTC teams through international outreach activities in second target nation.

- Identify third possible target nations to develop FIRST programs within that nation.
- Identify and apply to possible grants to increase annual revenue to levels capable of supporting international operations.
- FLL Programs will be available in 50 counties in WV.
- Increase funding by 5%.
- Finalize implementation schedule for robotics classes in conjunction with the West Virginia Board of Education.

- MARS graduates will maintain 95% post-secondary education attendance rate.

- Add at least one platinum level sponsor and two silver or gold-level sponsors
- Establish at least one FRC or FTC team in WV.
- Partner with sponsors to maintain current FIRST internships and develop one additional STEM internship opportunity.

1.2. Mission

Vision Statement

MARS is an organization comprised of high school students, mentors, and parents hailing from across the world, based in North-central WV that provides a purpose-driven creative outlet through FIRST and additional STEM programs on an international level, as well as the statewide, national, and worldwide promotion of post-secondary education through community outreach and the support of our partners.

Governing Values

The following are the values that form the culture and fabric of MARS. They expect all the members and mentors to display these values at all times as role models of both FIRST and MARS.

- **"Squared Away"** - This is the team's primary governing value. Being "squared away" simply means that all the members (students and mentors alike) are expected to be in the right place, at the right time, with the right equipment, and the right attitude for the activity in question.

MARS Team #2614 FY 2015 Business Plan

- **Knowledge** - All the team's members are expected to be both knowledgeable and familiar with all aspects of the MARS organization and its operations. The team's members can speak with equal clarity about fundraising, community outreach, the business plan, and all other aspects of the team's operations.

- **Excellence** - No matter what the given task, the team's members will complete it on time with a superior level of quality and workmanship. Everything the team produces is of showpiece quality and contributes to their ability to sponsor and mentor other FIRST and FLL teams, and aids them in their community outreach.
- **Self-actualization** - The members cannot only be counted on to stay on task when supervision is absent, they can be relied upon to recognize work that needs to be done, and complete it on their own initiative.
- **Bold** - Where self-confidence meets enthusiasm, you get that quality of innovation to explore new avenues, take risks, think outside the box and develop new solutions that have not been tried before.
- **Hard-working** - This is the ability to stay on task until the task is complete.
- **Driven** - To be compelled by an unstoppable inner force to succeed and become the absolute best that one can possibly become.
- **Dedication/Commitment** - The willingness to pledge their time, their skills, and their labor to MARS, win or lose, in both the easy times, as well as, the hard times.
- **Gracious Professionalism®** - (a registered trademark of FIRST), A term coined by Dr. Woodie Flowers FIRST National Advisor and Pappalardo Professor Emeritus of Mechanical Engineering, MIT. Gracious Professionalism is a way of doing things that encourages high-quality work, emphasizes the value of others, and respects individuals and the community. It is the belief of both the members and mentors of MARS that this is a vital skill that today's workforce would do well to see more of.
- **Coopertition®** - (a registered trademark of FIRST) Coopertition is the concept and philosophy that members of any organization can and should help and cooperate with each other even as they compete so that all may benefit. Coopertition means competing always, but assisting and enabling others when you can.

Mission Statement

Using STEM education as our platform, it is the mission of MARS to increase, in West Virginia and around the world, focusing in rural and disadvantages areas, the participation in post-secondary education in STEM programs. We do this through community outreach and development of technical programs designed to instill superior practical life skills in student, including:

- Gracious Professionalism®
- Teamwork
- Leadership
- Coopertition®

We also develop in each of our student members exceptional personal productivity skills such as:

- a strong work ethic,
- superior dedication and commitment to team and community,
- and highly developed organizational skills.

MARS Team #2614 FY 2015 Business Plan

In the end, the MARS mission can be summed up as giving students of all ages in West Virginia and around the world, the skills, means, and opportunities to develop in themselves their best futures possible.

1.3. Keys to Success

It is the mission of MARS to increase, in West Virginia and around the world, the participation in post-secondary education in STEM programs, focusing in rural and disadvantaged areas. It is the team's greatest desire to help give students located in the state, nation, and world, the skills and opportunities needed to develop in themselves their best possible future. To this end, MARS has and continues to consider the following to be the keys to success essential to the successful achievement of its mission.

- **Increasing the awareness of FIRST throughout the world-** Increasing the general awareness of FIRST throughout West Virginia and the world in general is indeed important. However, it is considered especially important that awareness also be increased among primary, secondary, and postsecondary educational institutions, vocational institutions, and local businesses. Increased awareness among these businesses and institutions builds the legitimacy of FIRST and makes it easier for MARS to garner support for its activities.
- **Maintaining Adequate Funding** - Competing in FIRST is an expensive proposition. Building the robot, entrance fees, and providing for transportation & lodging for the team at regional and world competitions in a community where personal incomes are often well below the national average is always challenging. In addition, MARS operates year-round teaching our team members, mentoring FLL and FTC teams, and performing community outreach activities. If MARS is to continue to provide these valuable services maintaining adequate funding through sponsors and fundraising activities is perhaps our most vital key to success.
- **Helping to develop FTC, FLL and Jr. FLL teams throughout the state** - MARS actively recruits its team members from area FLL teams. By sponsoring and mentoring teams in the Jr. FLL league, we work to actively encourage and develop promising talent through their Lego League careers and then guide these individuals to the appropriate FTC or FRC team. Doing so gives us steady access to superior team members with significant FIRST experience.
- **Being Successful in FRC Competitions** - Everyone loves a winner. If MARS is to maintain its credibility as mentors, as well as retain and attract proper funding and sponsors, the team must be successful during each competition season.
- **Helping to develop avenues for students in WV to access the post-secondary educational system** - MARS teaches its team members a variety of technical and personal development skills that gives its members the desire and motivation to seek education past the high school level. In addition, partnership with many of our sponsors such as West Virginia University and NASA recognizes the efforts made by our team members and often aids them in making the dream of post-secondary education possible.

2. Organization Summary

Organization and Management

The Mountaineer Area RoboticS Team (MARS) is divided into four sub-teams. They are: the mechanical team, the programming team, the Chairman's/presentation team, and the competition teams. Students on

MARS Team #2614 FY 2015 Business Plan

team MARS are divided into sub-teams based on their interests, skills and goals. Each sub-team is led by adult and college mentors that help guide students. Students can change sub-teams between seasons but must learn an entirely different skill set during the off-season. A goal of MARS is for everyone on a sub-team to thoroughly understand their tasks and goals for the season. Each sub-team also has a student leader who helps keep the team on track during the season. Competition teams are formed at the end of the build season and play an important role at the regional competitions.

Below is a brief description of each of the sub-teams and their functions.

Mechanical Team

- **Build Crew:** This team does the actual assembly of the mechanical aspects for the robot during the build phase. The jobs vary depending on the direction of the build mentors and the abilities of the students. Be aware that to be a part of this crew and to be trusted enough to work in the workshop, one must demonstrate utmost respect for others, common sense, safe working skills, a lot of interest, hard work and good communication skills. Many of the students on this team join the Drive Team, Tiger Teams, and Pit Crew once competitions begin. (4-10 students)
- **Electrical Team:** The Electrical Team does the wiring of the robot. They connect all the components to make the robot operate. This group must communicate closely with the build and programming teams to make sure that there is no interruption of the robot's functions. The Electrical Team develops the robots sensors to interface mechanical and programming. They must have a good understanding of basic circuitry and robot components. (5-8 students)
- **Pit Crew:** The Pit Crew is a small group of students involved in the maintenance and creation of the robots, playing field, tools, and other accessories. During the off-season, students are expected to maintain current robots and tools. Once the competition season starts, the crew is responsible for the creation of a playing field to specific directions. At competitions, their major responsibility is the maintenance of the robot and tools. This job requires one to be punctual and present when required. It also requires one to be organized with tools and batteries. One must be willing to listen and learn from adults and work with their peers. (4-6 students)

Programming Team

- **Robot Programming:** This team develops the code for the autonomous and tele-operated functions of the robot. The team learns the LabVIEW programming language (and C++) during the off-season and works on actually programming the robot during the season. This team is also involved in the development and workings of various sensors and electronics. (5-8 students)
- **Computer Aided Design Team:** The CAD Team uses Autodesk products or Solidworks to create the CAD drawings that are used to construct the robot. Team members will be expected to commit large amounts of time, especially during the beginning of build season. Members will be expected to attend additional meetings and go through software training. They must have a computer at home to work on projects. (4 students)

Outreach and Public Relations (OPR) Team

- **Outreach Team:** The MARS Team is made up of several sub-teams, each of which focuses on a specific aspect of the FIRST challenge. Sub-teams naturally develop in the fall pre-season and winter build season. However, team members may be assigned to a sub- team because it is behind schedule or in need of personnel. Many students serve on multiple sub-teams; for example, build crew members also work in the pit crew or drive team after the conclusion of build season.
- **Communications/Public Relations Team:** The Communications Team works to hone interviewing skills and presentations. They often speak directly to groups, judges and

MARS Team #2614 FY 2015 Business Plan

the media. At competitions they are stationed outside the pit area to greet other team members and present our image to the public. The team will also keep up to date on FIRST rules revisions and inform the team throughout the competition season. This team will submit press releases and articles to the local news on a regular basis. They will take and archive photos of the events of the season. (2 Students)

- Video Team: The Video team will produce several video productions over the course of the year, including a video that complements the Chairman's document. Usually this three minute video is done in a creative way to support the information presented in the chairman's document and which can be used for team publicity. After competition season the Video Team creates other videos for PR, communication, outreach, and recruitment. An example of this is a video that thanks our sponsors, or a video that highlight some outreach projects that we are working on. They also maintain a visual record of the team's activities throughout the season. The video team will also record all the activity of our robot during practices and matches. This video will be reviewed by the scouting team immediately after the matches in order to provide the drive team with detailed information. This information gathered will allow the team to analyze the performance as well as strategies used to play the game. The students on this team should have an interest in using the video camera and editing using computer software. (4-6 students)
- Website Team: The website sub-team creates and maintains the MARS website. The team works year-round to update and improve existing content, both at team meetings and at home. Every build season, they submit the website for the Media and Technology Innovation Award sponsored by Comcast and NBC (formerly named the Website Excellence Award), which MARS has won multiple times. While students with previous experience in HTML code or graphic design are an asset, team members can learn the necessary skills as they work. The only requirement is the willingness to learn. (2 students)

Competition Teams

- Drive Team: The Drive Team consists of a driver, a co-pilot, a human player, a back coach, a backup co-pilot, and a backup driver. A competitive selection process using several robots from previous years selects the drive team. Students interested in becoming drivers should practice as much as possible to develop their skills. There is a main team and a back-up crew usually made up of rookie drivers. The drive team is required to stay with the robot a majority of the time at the competitions. They will also arrive early and stay late to practice at the competitions. This group must interact with the Scouting Team and the Pit Crew. (6 students)
- Scouting Team: The Scouting team is formed prior to the competition. Students on this team will develop materials and methods to assess the competition giving our team as much advantage as possible. The collection of data and the analysis of the information will assist our team in all phases of the competition. At the competition, this team will make presentations to the drive team on Thursday and Friday evenings. (2-4 Students).
- Tiger Support Teams: The Tiger Support teams are comprised of students from different parts of our organization. For example we have students from both Electrical Team, and Build Crew. These students work during FRC competitions to provide other teams with help and instruction. They serve as the main outreach team during competition. (20 students)

2.1. Legal Entity

MARS is a 501(c)3 nonprofit organization, offering sponsoring organizations the ability to make tax-deductible contributions to the team. The following is a list of the board membership of Mountaineer Area RoboticS:

MARS Team #2614 FY 2015 Business Plan

Chairman - Dr. Earl Scime, PhD

Vice Chairman - Phillip Tucker

Secretary/Treasurer - Dr. Ralph Utzman, PhD

Board Member - Herb Baker

Board Member - Mark Lusk

Each of our Board members may be contacted through the MARS website at http://www.MARSfirst.org/?page_id=767.

2.2. Organization History

MARS was founded in 2008 by 12 student members of a former three-time state champion FIRST LEGO League WV FLL team to continue their appreciation of STEM education after moving on to their high school career. Building on the principle of creating a state-wide robotics network that encompasses elementary, middle, and high school youth, MARS has expanded the program into every corner of the state. Our relationships with West Virginia University, our local Board of Education, NASA, and 4-H are crucial to our success. The resources these organizations provide, such as financial assistance, facility access, shop equipment, and mentors, are invaluable to our progress. To date, the team is 38 members and 26 core mentors strong, with the program rapidly expanding annually. All graduates of the team have attended college on a full or partial scholarship, and most of them are majoring in STEM fields. Many of the local businesses and corporations have offered internship opportunities for MARS youth, either during or following their high school careers.

In MARS's initial year of competition (2008), the team was awarded the Rookie All Star Award in Pittsburgh, in a field of eight teams. In addition, MARS competed in the quarter finals and the semi- finals as an alliance partner with FIRST team 337 and FIRST team 357 to win the Pittsburgh Regional. They then won a berth to Atlanta for the World Championship, where they enjoyed three days of intense competition with teams from around the world.

In MARS's second season (2009), they continued their success in competition. Besides making it to the semifinals at both the Pittsburgh and Palmetto Regionals, their advanced and innovative control system won the Rockwell Automation Innovation in Controls Award at both competitions. MARS also won a safety award at the Palmetto Regional. Off the field, MARS participated in many community outreach events, developed an inclusive marketing plan, and began developing a successful FLL program by starting eight and sponsoring ten FLL teams. To help other FRC teams, MARS developed an informational manual for rookie teams, *Search for Rookie Team Inspiration*, which they translated into three languages. MARS participated as a LabView beta test team and distributed the Orbit Ball game pieces to teams in need.

In MARS's third season (2010), they created the curriculum for a variety of summer camps, sponsored eleven and mentored fourteen FLL teams in three counties, and continued to grow the MARS team. MARS sponsored FLL teams swept the WV FLL state tournament, including first place overall, first in technical, and first on the field. The MARS FRC team competed in the Pittsburgh and Raleigh Regionals where they were awarded the Rockwell Automation Innovation in Controls Award at both regionals, capping a string of four consecutive Rockwell Controls Awards. At Raleigh, MARS also won the Engineering Inspiration Award for their extensive community outreach, sending team MARS to the World Championships in Atlanta, GA. At the World Championship, MARS team member Luke Scime was named one of the 10 Dean's List Award winners, of 45,000 FRC students, for his efforts in expanding FIRST.

MARS Team #2614 FY 2015 Business Plan

In MARS's fourth season (2011), their FLL program expanded dramatically and included teams in more than 15 counties. They started their first rookie FRC team at Winfield High School in Putnam County, WV, FIRST Team 3492, PARTS. MARS-sponsored FLL teams swept the WV FLL state tournament, including first and second place overall, first in research, and first on the field. The MARS FRC team competed in the Pittsburgh and Palmetto Regionals, captaining the 4th seeded alliance in Pittsburgh and the 2nd seeded alliance in Palmetto, and reaching the semifinals in both events. In Pittsburgh, MARS won the Entrepreneurship Award and Coach Dr. Earl Scime was named the Regional Woodie Flowers Award finalist winner. In Palmetto, they were awarded their second consecutive Engineering Inspiration Award, enabling the MARS team to attend the World Championships in St. Louis, MO. At the World Championship, MARS worked alongside their Rookie team, FIRST team 3492, who was on the winning alliance at the Pittsburgh Regional, and their FLL team, the MARS Rovers. After the completion of the regular season, the MARS team sent two robots and drive teams to compete in an off-season event, CORI (Central Ohio Robotics Initiative) alongside their Rookie Team, FIRST team 3492.

In MARS's fifth season (2012), their FLL program spread to over 20 West Virginia counties and one Southwestern Pennsylvania county, widening the impact of their FIRST program on the state. MARS mentored FLL teams swept the WV State Tournament with first and second place overall, first, second, and third in robot design, first and second for the research project, and the core value awards for Teamwork, Gracious Professionalism, and Inspiration. The team also led many summer camp activities and worked diligently to bring FIRST to more students than ever before. At the Pittsburgh Regional, the team won the regional and secured a spot at the World Competition. At the North Carolina Regional, MARS was a regional finalist, as well as won the Chairman's Award, the most-prestigious award on the regional level, for their extensive outreach efforts and spreading STEM education. At the World Competition in St. Louis, the team's robot was competitive in their division and the head coach, Dr. Earl Scime, won the Woodie Flower's Award, an award honoring a mentor who has dedicated his time to working with FIRST robotics programs. Dr. Scime was the first mentor in a four digit team number, as well as the first mentor in the 2,000 team numbers to win the World Woodie Flowers award. After the completion of the regular competition season, the team competed at two off season events, CORI (Central Ohio Robotics Initiative) and IRI (Indiana Robotics Invitational). At CORI, MARS placed as the runner up alliance, while at IRI, they placed 17th.

In MARS' sixth season (2013), they continued their outreach throughout the summer and fall, creating curriculum for many area youth summer camps, and expanding their FLL Program to 54 teams in 22 West Virginia Counties and one Southwestern Pennsylvania County, In addition, MARS continued to host its annual FLL scrimmage with 24 FLL teams and over 430 students in attendance. The team worked extensively with NASA and other FRC teams in the state to produce the West Virginia State FLL Tournament. MARS's outreach activities extended beyond FIRST as well. During this year, the team again conducted workshops at 4-H camps and also worked with the Boy Scouts of America[®] conducting two presentations, each of which was attended by 15 scouts. MARS was also available for, and worked with individual scouts earning their robotics merit badge. Projects such as these have helped MARS to reinforce the valuable tenets of STEM education throughout the state.

The 2012 - 2013 season was equally successful for MARS on the field of competition. At the Pittsburgh Regional the team ranked third in the overall standings and also had team member Nathan Utzman win the regional's Dean's List Finalist award. The Pittsburgh Regional also saw the team win the Entrepreneurship Award. The season continued at the Smoky Mountains Regional in Knoxville, TN, where the team again ranked third in overall standings. Here the team secured a berth at the World Championships by winning the Engineering Inspiration award. Finally the team rounded out this successful regional performance by once again winning the Entrepreneurship Award. The team finished out its season competing at the FIRST World Championship in St. Louis winning the Entrepreneurship Award. It is worth noting here that the team won the Entrepreneurship Award everywhere it competed during the 2013 season.

During the offseason of MARS' seventh year, 2013-2014, we continued and added many outreach activities. We displayed our robot at multiple state-wide festivals and fairs, such as the October Sky festival. We also ran workshops at two Boy Scout events, as well as hosting and volunteering at numerous STEM summer camps for students, such as TeKids and StemPloy. We also continued our

MARS Team #2614 FY 2015 Business Plan

work with FLL, scheduling bi-weekly mentoring sessions during the fall, then hosting our own pre-competition scrimmage and regional qualifier before helping NASA coordinate and providing multiple workers for the FLL State Tournament. The team also added the first international thread of the MARS Plan. Two different projects were started in India, one by a team member in Jackal, India under the name Technology For All, and one by a team alumni in Varanasi, India, where he was awarded a Gap year by Princeton University. These two projects began working together to institute FLL teams in rural areas of the country, and started gaining funding and sponsoring support both in the United States and in India. The team plans to continue supporting and growing this program, and similar programs all over the world.

The team also was very successful at competitions in the 2014 season. At the Palmetto Regional, the team won the Xerox Creativity Award, the Gracious Professional Award, and were finalists on the field. At the Smoky Mountains Regional, the team went home with a guaranteed spot at the World Championship as winners of the regional Chairman's Award and first place winners on the field, and also won the Gracious Professionalism Award, the Entrepreneurship award, and had a Dean's List award Finalist, Emily Raque. The team then competed at the World Championship in St. Louis, where they competed alongside many of the best teams around the world for four exciting days.

SUMMARY OF MARS AWARDS HISTORY

Year	Competition	Awards Won
2008	Pittsburgh Regional	Regional Winners Rookie All Star Award
	FIRST Championship	
2009	Palmetto Regional	Rockwell Automation Innovation in Control Award Industrial Safety Award Runner Up
	Pittsburgh Regional	Rockwell Automation Innovation in Control Award Website Excellence Award
2010	North Carolina Regional	Coopertition Award

MARS Team #2614 FY 2015 Business Plan

		<p>Engineering Inspiration Award</p> <p>Rockwell Automation Innovation in Control Award</p>
	Pittsburgh Regional	<p>Rockwell Automation Innovation in Control Award</p> <p>Dean's List Finalist- Luke Scime</p>
	FIRST Championship	World's Dean's List- Luke Scime
2011	Palmetto Regional	Engineering Inspiration Award
	Pittsburgh Regional	<p>Entrepreneurship Award</p> <p>Woodie Flowers Finalist Award- Dr. Earl Scime</p>
	FIRST Championship	
2012	North Carolina Regional	Regional Chairman's Award
	Pittsburgh Regional	<p>Rockwell Automation Innovation in Control Award</p> <p>Regional Champions</p>
	FIRST Championship	World Woodie Flowers Award- Dr. Earl Scime
	Indiana Robotics Invitational	Finished 17 th out of 70 teams

MARS Team #2614 FY 2015 Business Plan

2013	Smoky Mountains Regional	Engineering Inspiration Award Entrepreneurship Award
	Pittsburgh Regional	Entrepreneurship Award Dean's List Finalist- Nathan Utzman
	FIRST Championship	Entrepreneurship Award
2014	Palmetto Regional	Xerox Creativity Award Gracious Professionalism Award Regional Finalists
	Smoky Mountains Regional	Entrepreneurship Award FIRST Dean's List Award Finalist- Emily Raque Gracious Professionalism Award Regional Chairman's Award Regional Winners
	FIRST Championship	

MARS Team #2614 FY 2015 Business Plan

Past Performance			
	FY 2012	FY 2013	FY 2014
Funding	\$54,718	\$58,660	\$68,837
Gross Surplus	\$2,707	\$10,856	\$13,751
Gross Surplus %	4.95%	18.51%	19.98%
Operating Expenses	\$52,011	\$47,804	\$61,577
Balance Sheet			
	FY 2012	FY 2013	FY 2014
Current Assets			
Cash	\$2,707	\$2,707	\$13,751
Other Current Assets	\$0	\$0	\$0
Total Current Assets	\$2,707	\$2,707	\$13,751
Long-term Assets			
Long-term Assets	\$0	\$0	\$0
Accumulated Depreciation	\$0	\$0	\$0
Total Long-term Assets	\$0	\$0	\$0
Total Assets	\$2,707	\$2,707	\$13,751
Current Liabilities			
Current Borrowing	\$0	\$0	\$0
Other Current Liabilities (interest free)	\$0	\$0	\$0
Total Current Liabilities	\$0	\$0	\$0
Long-term Liabilities	\$0	\$0	\$0
Total Liabilities	\$0	\$0	\$0
Paid-in Capital	\$0	\$0	\$0
Retained Earnings	\$2,707	\$2,707	\$13,751
Earnings	\$0	\$0	\$0
Total Capital	\$2,707	\$2,707	\$13,751
Total Capital and Liabilities	\$2,707	\$2,707	\$13,751

3. Products and Services

The services and products provided by MARS all complement the main mission of the organization, which is to develop and promote increased participation in post-secondary education and STEM programs by students in WV and around the world.

Services

Secondary services are provided directly by the team members. Through our MARS outreach programs, students seek to develop an interest in science and technology at an early age, by utilizing our sponsorship and development of JrFLL, FLL, and FTC teams at the elementary and middle school levels throughout the state and in the areas of India affected by Technology for All. Many of these middle school students continue in the FIRST program by joining their local FRC and FTC teams once they enter high school. Finally, to ensure that these middle school students have a team to join, MARS is active in the sponsorship and development of high school FRC and FTC teams throughout the state and countries in which we have programs established.

Additionally, MARS's community outreach program provides a variety of services all designed to help bring more educational opportunities to the rural and economically disadvantaged areas of the world. Below is an overview of our services and some of our most recent accomplishments.

Services Overview

- mentor over 100 FLL teams in 35 counties WV
- Starting FLL teams in India - *Technology For All* program.
- 8 JrFLL teams started or mentored
- 6 FTC teams started or mentored
- Organizes and hosts annual FLL Scrimmage
- Organizes and staffs State Qualifier and Tournaments
- Robot demos at: Trans Tech Energy Conference, October Skies event and State Fairs
- United Way Open house
- IRI

Products

As a fundraising activity MARS offers two products for sale. The team's primary product is FIRST Green e-watt saver LED light bulbs. These technologically advanced light bulbs are provided by the FIRST organization as a fundraising product. A superior light bulb to standard incandescent bulbs, these LED bulbs provide a brightness of 450 lumens (40 watt equivalent) and have an estimated lifespan of 22.8 years. In addition they use only 8.5 watts of energy compared to a standard 40 watt bulb, and an estimated annual energy cost of only \$1.02. MARS offers these bulbs through the team's website and at local events, providing a green alternative to standard bulbs that will more than pay for themselves through both the bulb's longevity and energy savings over its lifespan.

MARS's second fundraising products are custom LEGO models of NASA's Magnetospheric Multiscale Satellite (MMS) spacecraft and NASA's Global Precipitation Measurement (GPM) space probe. Developed under a grant from NASA, and with the collaboration of with the NASA IV and V center in Fairmont, West Virginia, the LEGO MMS and GPM models were designed and built by student members of MARS. These models will be used by teachers around the country to teach students about NASA missions. The MMS was featured on the popular TV show *The Big Bang Theory*. This show has a weekly audience of 17.6 million viewers. This model is available for purchase through the website at: www.marsfirst.org/?page_id=3432. Over 100 MMS models (available since 2013) and over a dozen GPM (available since 2014) models have been sold.

4. Market Analysis Summary

To achieve the team's mission the team has divided their target market into the following five segments:

1. WV High School Students.
2. WV Students currently at the elementary and middle school levels.
3. Grant writing foundations and corporate sponsors.
4. Local Morgantown residents and internet purchases of "Green" products.
5. Fans of LEGO products and NASA (primarily schools, other FIRST teams)

4.1. Market Segmentation

As can be seen in the market analysis table and the associated market analysis pie chart, the current projections for the target market segments:

WV High School Students - The National Center for Education Statistics (NCES) predicted that High School Enrollment in WV would decrease by 11% between 2011 and 2023. These projections are from NCES's most recent study and that represents a change from the team's previous plans. As can be seen, the projected decline in actual students is minimal through 2019. Regardless of the rate of decline in students, West Virginia has 55 counties containing 157 high schools, and until each of these high schools has access to a FIRST FRC or FTC team, MARS will still consider this segment our primary target market.

WV Elementary and Middle School Students - The situation in this market segment is similar to that of WV high schools. The NCES also predicted an enrollment decrease of 11% for the same time period. As above, West Virginia has 653 elementary and middle schools throughout the state and until each of the students in these schools has access to an FLL, or Jr. FLL team, MARS will still address this target market through sponsorship and support activities.

Grant Writing Foundations and Corporate Sponsors - Through team research MARS has currently identified a potential of 50 possible sources of funding through each of these two avenues. They currently have only 21 sponsors which meets the current funding needs. However, the identification and acquisition of additional sources of funding will be an important key to the success of their mission over the next five years.

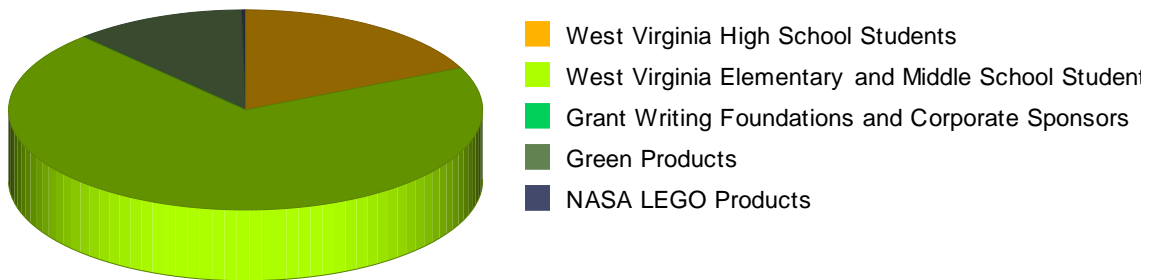
LED Light Bulbs - The potential market for MARS's LED light bulb is essentially the number of households in the greater Morgantown, WV area. As Morgantown is a stable and thriving city the actual growth rate is probably positive. However, as there is little chance that MARS will ever be able exhaust the market at its current size, we did not project any growth in the market over the period of this plan.

LEGO MMS and GPM models - MARS predicted that the market for this product would be school systems (primarily in WV) and perhaps some members of other FRC and FLL teams and their parents. As this is a difficult number to predict with the organization's current resources, they have set the potential market at 800 units. Once again, as it would be extremely difficult for their capacity to exceed the current market potential, they once again did not predict any growth potential.

MARS Team #2614 FY 2015 Business Plan

<i>Market Analysis</i>							
		2014	2015	2016	2017	2018	
Potential Customers	Growth						CAGR
West Virginia High School Students	-1%	51,721	51,204	50,692	50,185	49,683	-1.00%
West Virginia Elementary and Middle School Students	-1%	199,965	197,965	195,985	194,025	192,085	-1.00%
Grant Writing Foundations and Corporate Sponsors	10%	74	81	89	98	108	9.91%
Green Products	0%	33,446	33,446	33,446	33,446	33,446	0.00%
NASA LEGO Products	0%	800	800	800	800	800	0.00%
Total	-0.88%	286,006	283,496	281,012	278,554	276,122	-0.88%

Market Analysis (Pie)



4.2. Target Market Segment Strategy

Currently, only 17 percent of all West Virginia high school graduates complete any form of post-secondary education. This statistic is even lower for female graduates. According to the Brookings Institute, the U.S. job market has shown an ever-increasing need for high skill based, and high education based jobs over the last three decades with the greatest growth occurring within the technical and professional fields. Given this, MARS feels that if West Virginia is to remain competitive in its abilities to provide opportunities and good quality of life for its citizens over the long term, their youth must increase their participation in career training of any sort after high school. Given that the majority of job growth is occurring in technology intensive fields such as engineering and medical science and services, they feel the more high school graduates they can interest in these fields, the better the state's future will be.

MARS Team #2614 FY 2015 Business Plan

As such, the primary target market of the MARS organization is West Virginia high school students, especially female students, with an interest in developing their future potential for opportunity to its highest possible degree. It is MARS's goal, to always promote and increase this segment's participation in some form of post-secondary education. Their strategy is to raise awareness of FIRST within West Virginia, through success in competition, community outreach, and assisting in the development of new FRC and FTC teams throughout the state.

Just as important is the team's secondary market segment - students at the elementary and middle school level. MARS believes that the earlier they can promote and maintain an interest in science and technology, the better the chances are that these students will maintain that interest during their secondary educational career, and then go on to some form of post-secondary education after graduation. They have found that the field of robotics is an excellent platform not only to create and maintain an interest science and technology, but also to develop the communications and interpersonal skills so necessary to the student's overall success.

The third market segments are those organizations that provide funding through grants and corporate sponsorships. The strategy in approaching this market is to provide each of their sponsors with a superior organization in which they can invest their charitable contributions. Through their contributions, the team's sponsors play an important role in the successful completion of MARS's mission, which provides them not only the benefit of enhancing their own community outreach programs, but also improving West Virginia as a pool of potential quality employees over time.

Sales of LED light bulbs and LEGO products are tertiary markets for the team as the development of these segments to significant levels will draw resources away from the achievement of their primary mission. As such, the strategy in both these segments is largely internet sales with sales at local events as possible.

5. Web Plan Summary

The MARS website is divided into several main menus. They are as follows

- Home
 - This is a link back to the home page, which features our news blog, links to FIRST, and links to the team's Twitter and Facebook feeds.
- FIRST Programs
 - FIRST Lego League
 - FIRST Tech Challenge
 - FIRST Robotics Competition
 - This tab provides descriptions of each division of FIRST, as well as links to outside resources for starting teams or receiving assistance in running teams.
- Sponsoring
 - This page gives information on how to sponsor our team, the benefits of sponsorships, the levels of sponsorships for our team, and also has the logos and names of our current sponsors.
- Resources
 - FRC, FLL, and FTC Resources
 - Marvin's Storybook
 - ARA (Appalachian Robotics Alliance)
 - These pages provide links for the national and international FIRST system as well as our state-wide support alliance, the ARA. There is also a slide presentation of Marvin's Storybook, which was written by team members for reading to a younger audience.
- About MARS
 - Our History

MARS Team #2614 FY 2015 Business Plan

- Marvin's Journal
- Team Structure
- Mentors and Volunteers
- Join MARS
-
- The Plan
 - The MARS Plan
 - FLL Program
 - ARA (Appalachian Robotics Alliance)
 -
- For Sale
 - LED Lightbulbs
 - LEGO Models of NASA Spacecraft
 -
- Galleries
 -
- Calendar
 -
- MARS Team Mentors
- MARS Team Structure
- MARS Team Vital Statistics
- Robot Genealogy
- Contact Us

This section of the web site focuses on the team. It provides information about who the team's mentors are and the team's structure. In addition, MARS also provides general team statistics relating to the team and its accomplishments. The Robot Genealogy pages give a brief description of robots for each competition year.

Our Contact Us page is there to let everyone know how to contact MARS with questions or if they need more information about MARS or FIRST.

- Resources
 - 2012 and 2013 Chairman's Essay
 - How to Start a New Team
 - Resources: Tips and Tricks

The content in this section is meant to be helpful to other teams or people hoping to start a new FLL or FRC team. MARS has posted pictures of how the team's bumper covers are constructed, the Chairman's essay, Safety Video, programming code and other links to resources hoping that they will be beneficial to other teams.

- Sponsors

This link provides information about becoming a sponsor and a thank you to our current sponsors. Sponsors logos are linked back to their web sites to help them with marketing efforts as well.

- WV Plan

MARS Team #2614 FY 2015 Business Plan

- Educational Outreach
- Community Outreach
- Appalachian Robotics Alliance
- Partnerships
- Overcoming Barriers
- Sustainability
- FLL Program

The WV Plan portion of the website focuses on MARS outreach activities. It highlights some of MARS activities and some of the challenges that MARS faces. It is designed to show other teams how important outreach is and what we are currently doing to help promote education in the STEM fields. In addition, it lists Jr, FLL, FTC, and FRC teams in West Virginia.

- MARS Blog

News and events pertaining to the team or robotics are posted in the MARS blog. During competition season, MARS uses the blog to post scores of the matches for team members or families of team members who are not able to make it to competitions.

- Portfolio

Pictures are posted here of various events MARS has participated in.

- Calendar

Displays the calendar of events.

- "Support Our Team"
 - Light Bulbs
 - MMS Lego Model

Information is provided for others who would like to support the team. MARS has provided information here about the light bulbs the team sells and who to contact to purchase them. In addition, the team also sells MMS, and GPM Lego model kits; the information for ordering those can be found under the Support Our Team link.

5.1. Website Marketing Strategy

The website's main function is to provide information to the general public about robotics and the importance of encouraging others to inspire children to grow and excel in the STEM fields. The website provides links to FIRST so educators and adults wishing to sponsor teams can get additional information. The site also encourages others to contact the team with questions or if their team needs mentors or assistance.

MARS Team #2614 FY 2015 Business Plan

The "Sponsors" and "Support our Team" pages provide various ways for businesses, community groups, and individuals to assist the team so that they can continue to do outreach activities each year.

5.2. Development Requirements

The website is designed by the MARS website sub team. Students on this team are assisted by the help of a mentor to construct the web site. The team members learn how to convert videos for the web, create graphics, and learn HTML, CSS and WordPress. Content for the site is provided by the Outreach & Public Relations team and other mentors.

6. Strategy and Implementation Summary

Given the mission of using the field of robotics as a platform, it is the goal of MARS to develop and promote increased participation in post-secondary education of WV high school students. The strategy to attain this goal is to start as early as possible by sponsoring as many Jr. FLL and FLL teams as possible. MARS feels that by cultivating an interest in science and technology at a very early age, they have the best chance of maintaining that interest through high school and into college. As such, they concentrate the majority of their outreach efforts in the grades of 4 through 8 (ages 9 - 12). Recently, they have begun outreach programs at the grade levels of K through 3 (ages 6 - 9). They feel that if they can reach students at the very beginning of their career, by the time they are high school seniors, the need for skills in the fields of science and technology will be second nature and there will no question of their continuing their educations after high school.

MARS will continue to develop and promote the above strategy, previously known as the WV Plan, until all counties in the state of West Virginia contain a viable FIRST program. However, the team also realizes that West Virginia is not the only area with disadvantaged rural areas in the country or especially within the world. As such, MARS has begun expanding its outreach wherever it can beyond the borders of West Virginia to an international level. MARS now assists in the development of FIRST activities in other states such as Pennsylvania, and Maryland. In addition, MARS has a dedicated technical team of both students and mentors at every regional competition to assist rookie teams with problems they may be experiencing with their robots or in any other aspect of the competition that they might need assistance. To promote further interaction and camaraderie between robotics teams of all calibers, MARS (team # 2614), in partnership with West Virginia University, hosted the world's first 26 hour and 14 minute endurance robotics event. This event will took place in August of 2014 (FY 2014 - 2015) and was open to all. Also, during this fiscal year the team took the MARS Plan and enhanced it into a stratagem to establish FIRST programs in international counties. This new plan will take the exceedingly successful WV Plan model and adapt it such that the team can export it around the country and even around the world. As part of this plan, MARS has identified which countries might be best aided by developing STEM education within their student populace. Once these countries are identified, MARS will, approach the target nation, and develop techniques to help sponsor and mentor FIRST programs there. To date we have 2 members of our organization on the ground in India, and have already identified South Africa as a second possible target nation. MARS is expanding its mission, and the team is extremely excited about it.

6.1. SWOT Analysis

MARS performed a SWOT (Strengths, Weaknesses, Opportunities, and Threats) analysis in May and June of 2013 as part of a planned upgrade for the current (2013 - 2014) business plan. The team's methodology was to use two focus groups to perform the analysis. The first focus group consisted of members of the Outreach & Public Relations Team. This group completed the rough work of identifying the various issues of each category. This information was then considered by a much larger focus group (hereafter, the MARS Student Focus Group) consisting of interested students from all sub-teams within the MARS organization. The MARS Student Focus Group then narrowed the possibilities and identified those issues most relevant to the maintaining the team's competitive advantage over time. During the 2014-15 season, another updated group of MARS students reviewed the recent analysis, and made necessary changes and rearrangements.

The MARS Focus Group divided the components of the SWOT Analysis into two categories. The first category is the internal environment represented in our analysis by the components of Strengths, and Weaknesses. In conducting this part of the analysis the team considered the various resources, capabilities, and competencies that gives MARS its competitive advantage. The external environment is comprised of the opportunities and threats that can affect MARS's viability as a whole. Among the items considered here were our primary markets (elementary, middle, and high school students across the globe) and what forces might affect our ability to continue our organizational mission.

The final analysis of the MARS Focus Group identified the following:

Internal Environment:

Strengths:

- Funding
- Mentors
- Facilities
- Esprit de Corps
- Team Alumni

Weaknesses:

- Cultural Fade
- Lack of Bench
- Organizational Silos

External Environment

Opportunities

- Rural Communities Outside West Virginia
- International Outreach

Threats

- Macroeconomic fluctuations
- Loss of Core Partners or Sponsorship
- Loss of Key Personnel to Outside Employment Opportunities or Other Hazards

These individual issues will be discussed in detail in the following sections

6.1.1. Strengths

The following have been identified by MARS Student Focus Group to be the major strengths of the organization

Funding - Funding was identified earlier as one of the team's keys to success (see section 1.3 on page 11) FIRST and by extension MARS is an extremely good investment for both foundations providing grants, and corporations seeking to reinvest in their community through tax deductible donations and sponsorships. MARS has been blessed with funding from a wide variety of sources. Over the years MARS had developed a close, ongoing, working relationship with many of our sponsoring partners. These relationships have allowed MARS a certain level of consistency in our funding from year to year. These kinds of relationships can only be developed through our belief in our organizational mission and trust in our stewardship of their investment.

Mentors - MARS has a mentor team of consisting of 26 core members. These mentors come from a variety of fields including: Education, Higher Education, Business, and Industry. All are highly experienced in their fields. Many have advanced degrees, some have international reputations. As is to be expected, with so many mentors in the educational field, the level of instruction that the students benefit from allows them to perform well above the average of their peers. Add in industry experts from the private sector and it is easy to see why the team receives a level of instruction that gives them a competitive advantage.

Facilities - MARS has access to extensive facilities to aid them in its organizational mission. West Virginia University graciously provides access to rooms, labs, computers, and workshops. Early in 2013, the Monongalia County Board of education provided an entire building for use as a full-sized practice field. This practice facility has benefited not only MARS but many other FRC teams from the surrounding area as well. Additionally, space is now being developed within the building to provide practice facilities for area FTC teams as well.

Esprit de Corps - The organizational culture of MARS lends itself to a very close knit family like atmosphere. Because the team is comprised of two traditionally rival high schools, as well as, many home school students the team cannot commit to the organizational culture of any one of its components. As such, MARS has developed its own culture unique to the team itself. Such a culture not only manifests itself as a united effort towards FIRST competitions, but the team mission as well. Teammates not only interact at MARS functions, but in non-FIRST related activities. Be it in helping each other around with household projects, movie nights at the theater, or just hanging out, you will find both team members and mentors involved. Because of this family like esprit de corps, when competition time rolls around MARS naturally transforms into an extremely focused unified effort that is a force to be reckoned with in any regional first competition.

Team Alumni - Each year, an average of five to ten students graduate from high school and MARS. However, many of these students continue their time on the team as "mentors-in-training," returning over college holidays and weekend breaks to assist the team in many aspects. For this reason, they have been categorized as a major strength of the team. Because of the wonderful environment on the MARS team (see Esprit de Corps), these students enjoy returning whenever possible to lead and set examples for younger members, which along with adult mentors gives our team a tremendous range of experience to utilize.

6.1.2. Weaknesses

The following have been identified as organizational weaknesses by the MARS Student Focus Group

Cultural Fade - Any organizations success is defined by its culture. Many organizations start out very successful because its original members interacted in such a way that as they built relationships and became a team, they formed a common set of core attitudes, values, traditions, and expectations of each other that unified their efforts toward success. It is these core attributes which make one organization different from another even if they are part of the same larger community (like FIRST). However, as older members of the organization leave and are replaced by new ones, this culture which initially led to success can fade if not properly transmitted to the new generations. Such cultural fading can lead to organizational inefficiencies and, in some instances, even conflict which can hamper the organizations future success. We have been making preservative steps in the past year to re-establish the core values/tradition that were inherent in our original members by teaching new members and personnel the traditions and beliefs that were

While not yet a problem the team is beginning to notice that as its original members have graduated high school, become student mentors, and now are graduating college, the team's commitment to our governing values (see section 1.2 on page 9) is beginning to waiver. Further, this cultural fade is manifesting itself in other weaknesses such as the lack of bench, and organizations silos as described below. Given this, MARS will spend a considerable amount of effort in this year's post-season, and next year's pre-season re-energizing the team's commitment to its governing values.

Lack of Bench - Most sports teams have a first string, second string, and sometimes a third string of players. Generally the first string players are the team's most seasoned and experienced players. The second and third string players are less experience players who are still learning, but who can step in for a first string player if necessary. Eventually, the second and third string players move up and are promoted as the members of the first string retire. Collectively these second and third string players are called the "bench." Currently, MARS has no formal method of developing its junior members, to step up and take leadership of the team as the senior members graduate. A similar situation is beginning to manifest itself as mentors who are parents leave the team as their children graduate. As such, junior students and mentors are both having to learn from scratch the skills and procedures necessary to maintain a superior organizational skill level. MARS as a team has recognized the need to begin developing our bench and has begun implementing efforts to teach our junior members (student and mentor alike) the critical tasks, policies, and procedures that will maintain the team's level of readiness and competitive edge.

Organizational Silos - In the cold war, this country's nuclear deterrence was based in part by placing each of our nuclear missiles in an underground tube like facility called a "silo." These silos were hardened to be self-contained units operating as a whole yet totally separate and distinct from each other. In addition, little to no communication occurred between these silos. For the military this was by design. As an organization grows, a similar phenomenon occurs. In organizations, as growth occurs individual functions with the organization become more separate and distinct from each other as the increase in members allows for specialization, over organizations with fewer members who must wear many hats. While some degree of specialization is desirable, organizational silos occur when these individual specializations begin to "harden" that is become separate entities with little interaction between them. When this occurs communications break down. Shortly thereafter, so does team unity, morale, and effectiveness. While this is not yet a severe problem, MARS has two Meta-silos developing the first is the technical silo, and the second is the Outreach & Public Relations silo. There is also evidence that within each of these meta-silos, smaller silos are forming.

At this point in time, none of these weaknesses have developed into full blown problems. Indeed, as stated in the preceding section, esprit de corps is one of the team's major strengths. In fact, these weaknesses are common in most organizations. They should be expected in an

organization like MARS which has grown from 12 to 42 members in only six years. The important thing is that both the students and mentors of the team have recognized these potential weaknesses and are taking steps to mitigate them before they have a dilatory effect on the team's competitiveness.

6.1.3. Opportunities

In discussing the many opportunities available to MARS, the Focus Group has identified the following as the best suited to supporting and expanding the team's organizational mission.

Rural Communities Outside West Virginia - MARS began with an inspiration to develop an interest in STEM fields, and increase the participation rate in post-secondary education among West Virginia high school graduates. As the team became more and more inspired, they developed what became the West Virginia Plan which has led to the rapid expansion of FIRST programs throughout the state with a high proportion of graduates in these FIRST programs going on to college and other post-secondary educational venues. While we will continue the WV Plan until every county in the state had a strong and viable FIRST program, the team has concluded that they can now become the inspiration. MARS believes that the problems faced by West Virginia are faced by many rural communities throughout the United States. As such, MARS believes it is possible to spread the WV Plan model to other rural communities which with MARS support can then be adapted to that state's needs, thus developing their own state plan. Because of this MARS is now actively seeking to attract other rural communities seeking to inspire their students to pursue higher education and the STEM fields through FIRST programs. Additionally, MARS is committed to provide any assistance possible to develop their FIRST program to their highest level.

International Outreach - MARS realizes that just as rural communities across the United States may face similar problems as West Virginia, many countries may also face these problems, perhaps even on a larger scale. Given this, beginning this year (2014 - 2015 season) the team actively began seeking and identifying potential nations which might be interested in MARS sponsoring and supporting FIRST programs. We are proud to report that during this period we were able to identify India and place one student and one alumni in the country to begin developing FLL programs. MARS recognizes that international outreach of this nature is quite an undertaking. That having been said, the team is willing to make the necessary commitment and it the team's goal to help sponsor 2 FRC teams and 2 FTC teams internationally.

MARS has no intention of abandoning its WV Plan, and will continue its efforts in West Virginia until we have reached all its goals. However, the team recognizes that to export the WV Plan it must adapt the plan, and reassess its goals and objectives. To that end, MARS will begin development of a new plan called "The MARS Plan" beginning in the 2014 - 2015 season (also our Fiscal Year.) The MARS plan will formally define the team's strategy for exporting interest in higher education, and the STEM fields to rural areas across the nation, and if possible across the world.

6.1.4. Threats

Because of the nature of FIRST, the MARS team faces no viable competitive threats to its viability. However, there are a few factors in the external environment that could pose a threat to the long term viability of the organization:

Loss of Core Partners and Sponsorship - MARS has four core partners that sponsor the majority of its activities. These are The United Way, WVU, NASA, and the Monongalia County Board of Education. These four partners provide the majority of the team's financial, facilities,

MARS Team #2614 FY 2015 Business Plan

technical, and educational support. While ALL our sponsors are important to the team, loss of support by any one of these three would severely hamper the team's ability to operate at its current levels.

Macroeconomic Fluctuations - In addition to the facility, technical and educational need described above, MARS would be unable to function without the generous funding provided by our corporate sponsors, and foundation grants. Unfortunately, fluctuations in the nation's overall economy can at time negatively affect the availability of funds available to the team. This is especially true of our local sponsors whose budgets are often more severely impacted than large institutions, such as WVU, and NASA.

While the above threats are indeed real and must be considered, they are survivable should they manifest themselves. In the end, there is little MARS as an organization can do to mitigate the risk other than maintain good stewardship of its resources, be watchful, and plan accordingly. The overall risk of these factors is rather low and is currently no cause for concern. However, the MARS Focus Group identified one major threat that should it ever manifest itself would significantly, and negatively affect the organization's viability.

Loss of Key Personnel to Outside Employment Opportunities or Other Hazards - While students will join MARS when they enter high school and leave the team as they graduate, it is the team's adult leadership (mentors) that provides the ongoing organizational and logistical support that makes the very existence of MARS possible. While all our mentors are valuable to the team, the MARS Focus Group has identified two key personnel vital to the team and its ongoing operations. These personnel are Dr. Earl Scime, PhD. and Mr. Phil Tucker. They are the team's lead coaches. Currently, their expertise, experience, and contacts in both the FIRST and business communities are irreplaceable to the team. This can best be described in the following rather morbid, yet descriptive scenario. If either Dr. Scime *OR* Mr. Tucker were to step off the curb and be hit by a bus, the resulting loss would have catastrophic consequences to the future viability of MARS from which the organization might never recover. If *BOTH* Mr. Tucker and Dr. Scime were to be hit by the same bus (or two separate busses for that matter), MARS team #2614 would simply cease to exist. While neither Dr. Scime nor Mr. Tucker have any intention of leaving the team, it is these unidentifiable and unknown risks in the areas of employment, health, or any number of other factors which make this such a viable risk to the team. The MARS Focus Group informed both Dr. Scime, and Mr. Tucker of this threat upon its discovery in August of 2013 and they have agreed to consider some form of succession planning in the coming year to mitigate this threat.

6.2. Fundraising Strategy

SPONSORSHIP STRATEGY

MARS offers fundraising opportunities at a variety of levels to sponsors and grant providers on an annual basis. Sponsoring MARS is a great way to support STEM education in the West Virginia. 100% of all donations go towards registration fees, robot parts, materials, and student lodging during travel to competitions. All donors are recognized in a variety of ways. Below is a list of the sponsorship levels and their associated benefits:

PLATINUM SPONSOR - \$5,000 and up
Listing in all Literature
Active logo link on website
Listing on the team T-shirt
Sponsor name on robot
Identification as a primary sponsor informal team name.

MARS Team #2614 FY 2015 Business Plan

GOLD SPONSOR - \$1,000 - \$4,999

Listing in all Literature
Active logo link on team website
Listing on the team T-shirt
Sponsor name on robot

SILVER SPONSOR - \$250 - \$999

Listing in all literature
Logo on team website
Listing on t-shirt

BRONZE SPONSOR - \$50 - \$249

Listing in all literature
Logo on team website

2014 - 2015 SPONSORSHIP

Below is a list of sponsors for the 2014 - 2015 season.

- Badger and Sal Financial: Certified Public Accountant and Consultant
- HHP Internal Medicine
- The Mattinglys
- Tanners Alley





West Virginia University including:

- WVU Benjamin M. Statler College of Engineering and Mineral Resources
- WVU Department of Physics and Astronomy



National Aeronautics and Space Administration including:

- NASA IV & V
- Magnetospheric Multiscale Satellite Mission
- Global Precipitation Measurement Mission





For more information on the team's sponsors, visit the website at http://www.marsfirst.org/?page_id=104 For reference information contact MARS at (304) 293-5125.

6.2.1. Funding Forecast

MARS receives its funding through three primary avenues:

1. Grants
2. Sponsors and Donors
3. Fundraising

Limited additional funding comes from miscellaneous sources but these funds are not significant enough to warrant their own category, as such, they have been included in the category named "Miscellaneous."

MARS Team #2614 FY 2015 Business Plan

GRANTS

Grants comprise one of the two main sources of funding for MARS. Grants come from programs and organizational foundations. For the 2014 - 2015 season, the projected funding through this avenue amounts to \$15,986.00.

SPONSORSHIPS AND DONORS

Sponsorships and donations is the primary funding avenue for MARS. Without the generous support of corporate sponsors and private donors, achieving the MARS mission would be nearly impossible. For the 2014 - 2015 season, MARS projects \$51,100.00 through this avenue.

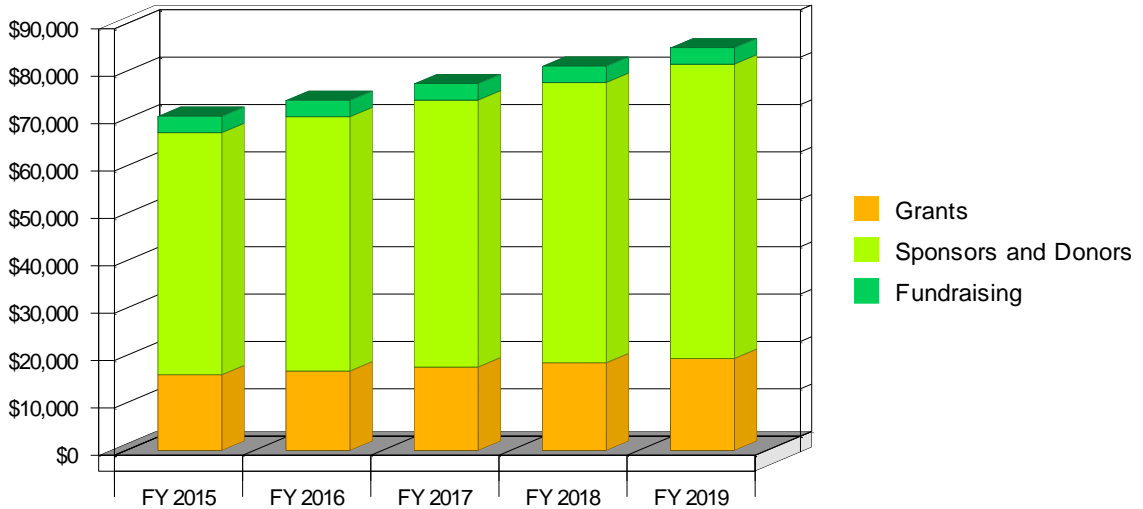
FUNDRAISING

MARS fundraising activities comprise local and internet sales of LED light bulbs, LEGO MMS models and the new LEGO GPM models. For the 2014 - 2015 season, the projected funding through these avenues is expected to be \$3,500.00.

<i>Funding Forecast</i>					
	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019
Funding					
Grants	\$15,986	\$16,786	\$17,625	\$18,506	\$19,431
Sponsors and Donors	\$51,100	\$53,655	\$56,338	\$59,155	\$62,113
Fundraising	\$3,500	\$3,500	\$3,500	\$3,500	\$3,500
Total Funding	\$70,586	\$73,941	\$77,463	\$81,161	\$85,044
Direct Cost of Funding	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019
Funding Materials	\$849	\$874	\$900	\$925	\$952
Miscellaneous	\$64	\$66	\$68	\$70	\$72
Subtotal Cost of Funding	\$913	\$940	\$968	\$995	\$1,024

MARS Team #2614 FY 2015 Business Plan

Funding by Year



7. Management Summary

The management functions associated with MARS are carried out by a talented group of mentors that assist, guide and teach the students in each of the team's activities. Currently MARS has 26 core mentors, including 10 college student "Mentors in Training" Below is our complete mentor roster divided by the functions they perform for the team.

Lead Mentors

- Dr. Earl Scime, PhD.
- Phil Tucker

Animation

- Diane Raque

Build Season Meals Planning

- Maureen Tennant

Building Management (practice facility)

- Mark Tennant
- Aaron Kitzmiller

MARS Team #2614 FY 2015 Business Plan

Build Season Integration

- Dr. Earl Scime, PhD.
- Mark Lusk
 - Caroline Hamrick (Mentor in Training)

Build to Win

- Mark Tennant
- Aaron Kitzmiller
 - Ryan Utzman (Mentor in Training)
 - Elliot Gurra-Blackmer (Mentor in Training)

Business Plan

- Michael DeHaan, MSILR
- Dr. Sandy Baldwin, PhD.
 - Kari DeMicco (Mentor in Training)

Carts

- Dr. Todd Hamrick, PhD.

Driver Training

- Dr. Earl Scime, PhD.
 - Scott Hamrick (Mentor in Training)
 - Jesse Van Glahn (Mentor in Training)

Electronics

- Phil Tucker
 - Greg Lusk (Mentor in Training)
 - Caroline Hamrick (Mentor in Training)
 - Nathan Utzman (Mentor in Training)
 - Emily Raque (Mentor in Training)

Field Elements

- Mark Lusk
 - Elliot Guerra-Blackmer (Mentor in Training)

FLL

- Dr. Earl Scime, PhD.
- Phil Tucker
- Mark Tennant
 - Haley Tucker (Mentor in Training)

FLL Judge Advisor

- Phil Tucker
 - Haley Tucker (Mentor in Training)

Fundraising

- Dr. Earl Scime, PhD.
- Janet Nurkiewicz

Hotels and Travel

- Dr. Mary Ann Fajvan, PhD.
- Margaret Mattson

Lift System Design

- Dr. Elvira Stanescu, PhD.
 - Jesse Van Glahn (Mentor in Training)

Light Bulb Sales

- Dr. Mary Ann Fajvan, PhD.

Logistics

- Dr. Earl Scime, PhD.
- Debbie Hamrick, RN
- Subra Subramanyam

Mechanical Fabrication

- Dr. Earl Scime, PhD
- Dr. Todd Hamrick, PhD
 - Jared Leggett (Mentor in Training)
 - Eric Tennant (Mentor in Training)
 - Courtney Mercer (Mentor in Training)

MMS/GPM

- Dr. Earl Scime, PhD.
- Annette Dennis

Outreach & Public Relations Team

- Dr. Ralph Utzman, PhD..
- Libby DeHaan
- Dr. Sandy Baldwin, PhD.
- Michael DeHaan, MSILR
 - Alex Stout (Mentor in Training)
 - Kari DeMicco (Mentor in Training)
 - Shannon Ballard (Mentor in Training)
 - Ben Taylor (Mentor in Training)
 - **Emily Raque (Mentor in Training)**

Photography

- Janet Nurkiewicz
 - Kari DeMicco

MARS Team #2614 FY 2015 Business Plan

Pit Area Structure

- Herb Baker
- Dr. Earl Scime, PhD.

Recruiting

- Phil Tucker
- Rachel Kitzmiller

Robot Cart

- Mark Lusk
 - Greg Lusk (Mentor in Training)
 - Ryan Utzman (Mentor in Training)

SensoBot Project

- Steve Raque
 - Nathan Utzman (Mentor in Training)
 - Caroline Hamrick (Mentor in Training)
 - Nick Ohi (Mentor in Training)

Scouting

- Rachel Kitzmiller
- Jerald Baker

Shop

- Dr. Todd Hamrick, PhD.
- Herb Baker

Software

- Steve Raque
- Frank Tate
 - Nick Ohi (Mentor in Training)
 - Luke Scime (Mentor in Training)
 - Matt Gramlich (Mentor in Training)

Special Events Planning

- Dr. Mary Ann Fajvan, PhD.

Trailer

- Herb Baker

Transmission Design

- Tim Floyd
- Dr. Earl Scime, PhD.

T-Shirts, Paraphernalia

- Amy Mercer
 - Kari DeMicco (Mentor in Training)

Video

- Trish Vos
 - Alex Stout (Mentor in Training)

Vision Processing

- Dr. Frank Tate, PhD.

Website

- Libby DeHaan
- Dr. Sandy Baldwin, PhD.

Workshop Organization

- Dr. David Lederman, PhD.
 - Alex Bonnstetter (Mentor in Training)

24 Hour Event

- Mark Tennant
- Janet Nurkiewicz

8. Financial Plan

MARS projects a need for funding growth of 5% per annum to achieve its goals and objectives. This growth is expected to be obtained through the retention and renewal of current grants, the continued support of their current sponsors and donors, as well as, the acquisition of new grants, sponsorships, and increased fundraising. At the current time, MARS intends to continue to operate on a cash basis, and does not intend to use debt as an instrument to fund its activities.

MARS believes that in pursuing this strategy it can continue to grow its operations while still maintaining a positive surplus without the acquisition of any long-term liabilities. Further detail of our projections is included in the following charts:

- Surplus and Deficit
- Cash Flow
- Balance Sheet

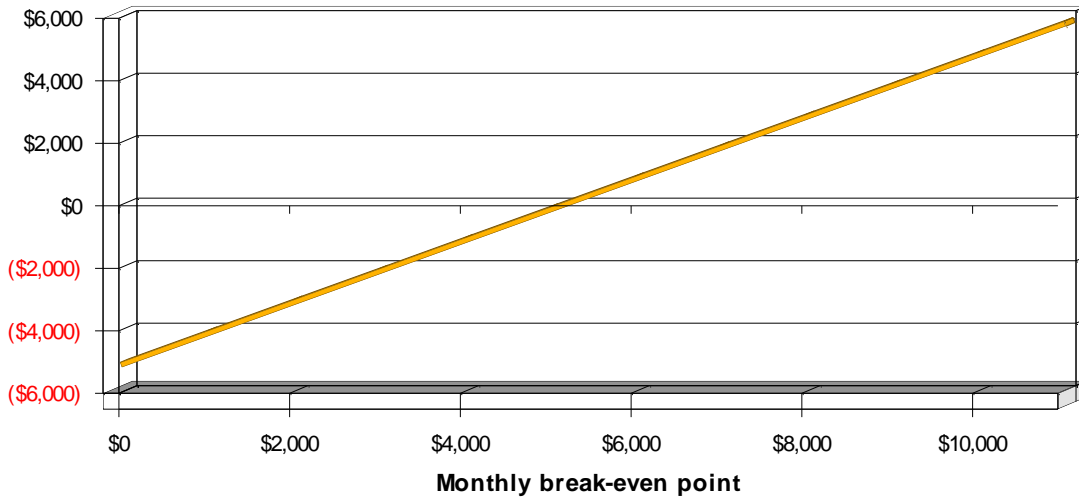
MARS Team #2614 FY 2015 Business Plan

8.1. Break-even Analysis

As can be seen in the charts below, MARS has a monthly break-even point that is only slightly above its fixed cost of \$5124.00. For the fiscal year ending on June 30, 2015 the organization must average a monthly revenue through all its funding sources of \$5191.00 to cover its projected expenses for the year and break-even.

<i>Break-even Analysis</i>	
Monthly Revenue Break-even	\$5,191
Assumptions:	
Average Percent Variable Cost	1%
Estimated Monthly Fixed Cost	\$5,124

Break-even Analysis



Break-even point = where line intersects with 0

8.2. Projected Surplus or Deficit

MARS operates on a cash basis paying its bills at the time the expense is incurred. Because of this our surplus table will always show that the organization has either a break-even or positive status. These figures are included in the table on the following page. The following areas of the table should be noted:

Payroll Expenses: As can be seen MARS has no payroll expenses, as they have no paid personnel either full or part-time.. All mentors and other support personnel are volunteers donating their time free of charge.

Marketing and Promotion Expenses: All of MARS's marketing and promotion efforts are conducted as part of its outreach activities, or through its fundraising activities such as the sale of organizational Lego models, patches, buttons, etc. As such, MARS has no direct expenses related to a marketing or promotion functions. The costs associated with purchasing its fundraising sale items are included as a direct cost of funding.

Depreciation: As of the 2014 - 2015 fiscal year, MARS owns no major long-term assets. As such, there are no depreciation expenses recorded.

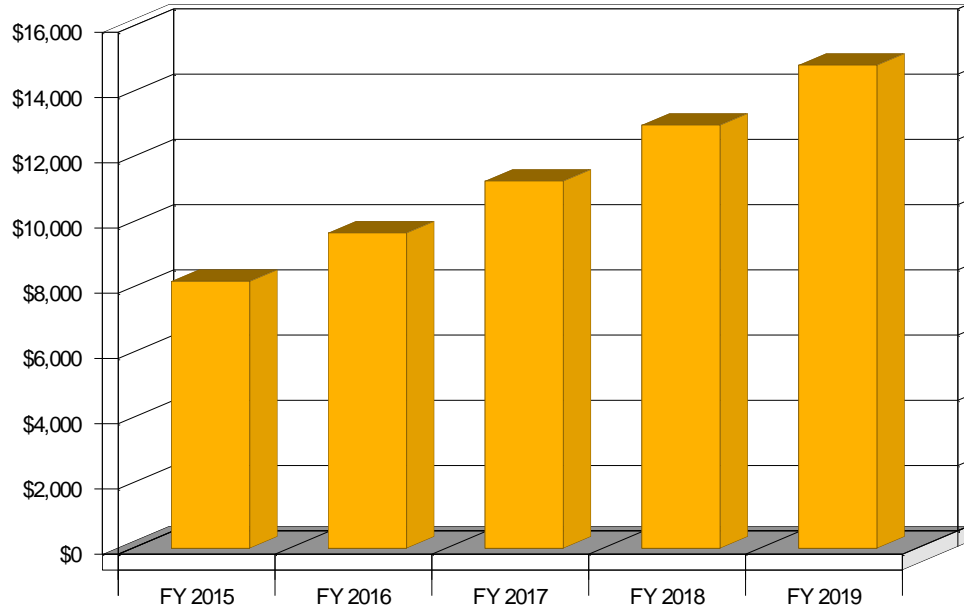
The flow of the team's surplus and deficit is represented graphically in the two graphs located on page 44.

MARS Team #2614 FY 2015 Business Plan

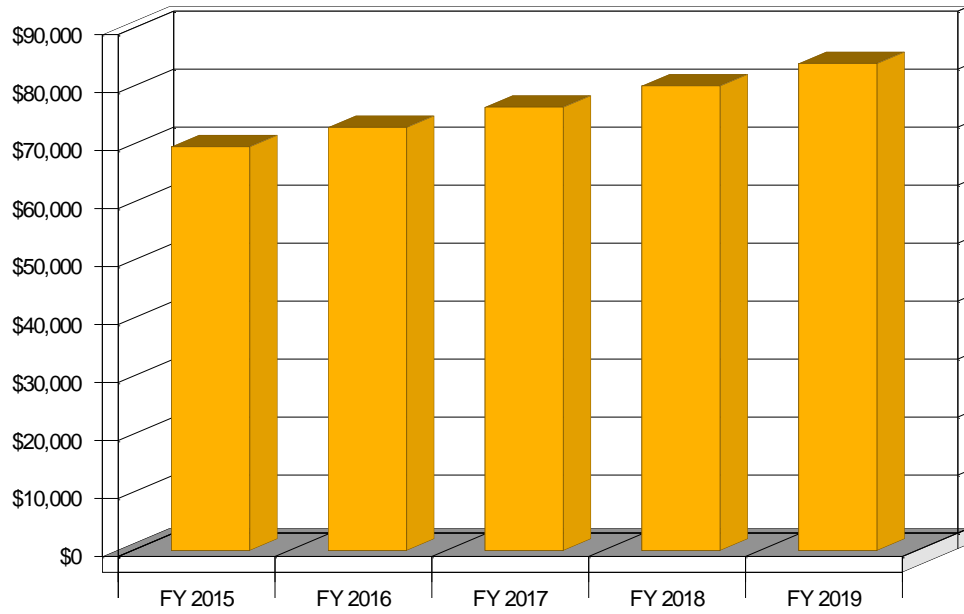
<i>Surplus and Deficit</i>					
	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019
Funding	\$70,586	\$73,941	\$77,463	\$81,161	\$85,044
Direct Cost	\$913	\$940	\$968	\$995	\$1,024
Other Costs of Goods	\$0	\$0	\$0	\$0	\$0
	-----	-----	-----	-----	-----
Total Direct Cost	\$913	\$940	\$968	\$995	\$1,024
Gross Surplus	\$69,673	\$73,001	\$76,495	\$80,166	\$84,020
Gross Surplus %	98.71%	98.73%	98.75%	98.77%	98.80%
Expenses					
Payroll	\$0	\$0	\$0	\$0	\$0
Marketing/Promotion	\$0	\$0	\$0	\$0	\$0
Depreciation	\$0	\$0	\$0	\$0	\$0
Building Expenses	\$1,309	\$1,348	\$1,389	\$1,430	\$1,473
Event Registration	\$15,800	\$16,274	\$16,762	\$17,265	\$17,783
FLL/FTC Support	\$6,214	\$6,400	\$6,592	\$6,790	\$6,993
Outreach	\$4,563	\$4,699	\$4,841	\$4,986	\$5,136
Robot Construction	\$8,418	\$8,671	\$8,931	\$9,199	\$9,475
Travel	\$14,978	\$15,427	\$15,890	\$16,366	\$16,858
WVRox	\$9,126	\$9,400	\$9,682	\$9,972	\$10,271
Miscellaneous	\$1,076	\$1,108	\$1,142	\$1,176	\$1,211
	-----	-----	-----	-----	-----
Total Operating Expenses	\$61,484	\$63,327	\$65,229	\$67,184	\$69,200
Surplus Before Interest and Taxes	\$8,189	\$9,674	\$11,266	\$12,982	\$14,820
EBITDA	\$8,189	\$9,674	\$11,266	\$12,982	\$14,820
Interest Expense	\$0	\$0	\$0	\$0	\$0
Taxes Incurred	\$0	\$0	\$0	\$0	\$0
Net Surplus	\$8,189	\$9,674	\$11,266	\$12,982	\$14,820
Net Surplus/Funding	11.60%	13.08%	14.54%	16.00%	17.43%

MARS Team #2614 FY 2015 Business Plan

Surplus Yearly



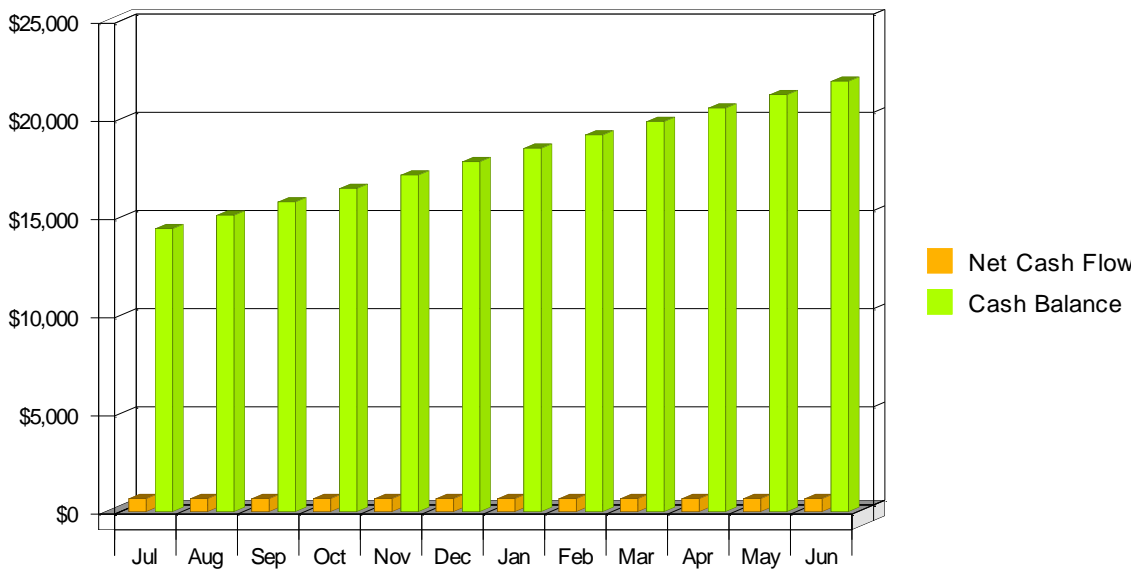
Gross Surplus Yearly



8.3. Projected Cash Flow

As can be seen graphically in the chart below, MARS always maintains a positive cash flow as it operates on a cash basis. This means that Team #2614 maintains no debt on either a current or long-term basis. It should be noted that the chart below depicts a simple cash flow model where revenue is acquired at a constant rate over the fiscal year. We project, however, that MARS will acquire the majority of our funding during the first half of the fiscal year, and the majority of our expenses will occur from January through April as the team builds the robot, registers for regionals, and travels as a team. This more accurate cash flow will be depicted in next years past performance section of the FY 2015 - 2016 plan.

Cash



8.4. Projected Balance Sheet

The pro-forma balance sheets for the time period covered by this plan show a robust net worth growth. It is highly likely that over time the future net worth figures will be adjusted significantly downward as the team appropriates these assets to projects designed to achieve our mission, such as the development of the MARS Plan with its international implications and added expenses. It should be noted that expenses related to having two people in India this year will not appear until the 2015 - 2016 plan is developed and will appear in our the Past Performance section. At that point, we will develop more solid cost projections on the cost of sustaining those operations, as well as, expanding these international programs..

MARS Team #2614 FY 2015 Business Plan

<i>Pro Forma Balance Sheet</i>					
	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019
Assets					
Current Assets					
Cash	\$21,940	\$31,614	\$42,880	\$55,862	\$70,682
Other Current Assets	\$0	\$0	\$0	\$0	\$0
Total Current Assets	\$21,940	\$31,614	\$42,880	\$55,862	\$70,682
Long-term Assets					
Long-term Assets	\$0	\$0	\$0	\$0	\$0
Accumulated Depreciation	\$0	\$0	\$0	\$0	\$0
Total Long-term Assets	\$0	\$0	\$0	\$0	\$0
Total Assets	\$21,940	\$31,614	\$42,880	\$55,862	\$70,682
Liabilities and Capital	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019
Current Liabilities					
Current Borrowing	\$0	\$0	\$0	\$0	\$0
Other Current Liabilities	\$0	\$0	\$0	\$0	\$0
Subtotal Current Liabilities	\$0	\$0	\$0	\$0	\$0
Long-term Liabilities	\$0	\$0	\$0	\$0	\$0
Total Liabilities	\$0	\$0	\$0	\$0	\$0
Paid-in Capital	\$0	\$0	\$0	\$0	\$0
Accumulated Surplus/Deficit	\$13,751	\$21,940	\$31,614	\$42,880	\$55,862
Surplus/Deficit	\$8,189	\$9,674	\$11,266	\$12,982	\$14,820
Total Capital	\$21,940	\$31,614	\$42,880	\$55,862	\$70,682
Total Liabilities and Capital	\$21,940	\$31,614	\$42,880	\$55,862	\$70,682
Net Worth	\$21,940	\$31,614	\$42,880	\$55,862	\$70,682

Appendix

Funding Forecast													
		Jul-14	Aug-14	Sep-14	Oct-14	Nov-14	Dec-14	Jan-15	Feb-15	Mar-15	Apr-15	May-15	Jun-15
Funding													
Grants	0%	\$1,332	\$1,332	\$1,332	\$1,332	\$1,332	\$1,332	\$1,332	\$1,332	\$1,332	\$1,332	\$1,332	\$1,332
Sponsors and Donors	0%	\$4,258	\$4,258	\$4,258	\$4,258	\$4,258	\$4,258	\$4,258	\$4,258	\$4,258	\$4,258	\$4,258	\$4,258
Fundraising	0%	\$292	\$292	\$292	\$292	\$292	\$292	\$292	\$292	\$292	\$292	\$292	\$292
Total Funding		\$5,882	\$5,882	\$5,882	\$5,882	\$5,882	\$5,882	\$5,882	\$5,882	\$5,882	\$5,882	\$5,882	\$5,882
Direct Cost of Funding													
Funding Materials		\$71	\$71	\$71	\$71	\$71	\$71	\$71	\$71	\$71	\$71	\$71	\$71
Miscellaneous		\$5	\$5	\$5	\$5	\$5	\$5	\$5	\$5	\$5	\$5	\$5	\$5
Subtotal Cost of Funding		\$76	\$76	\$76	\$76	\$76	\$76	\$76	\$76	\$76	\$76	\$76	\$76

Appendix

Surplus and Deficit												
	Jul-14	Aug-14	Sep-14	Oct-14	Nov-14	Dec-14	Jan-15	Feb-15	Mar-15	Apr-15	May-15	Jun-15
Funding	\$5,882	\$5,882	\$5,882	\$5,882	\$5,882	\$5,882	\$5,882	\$5,882	\$5,882	\$5,882	\$5,882	\$5,882
Direct Cost	\$76	\$76	\$76	\$76	\$76	\$76	\$76	\$76	\$76	\$76	\$76	\$76
Other Costs of Goods	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Total Direct Cost	\$76	\$76	\$76	\$76	\$76	\$76	\$76	\$76	\$76	\$76	\$76	\$76
Gross Surplus	\$5,806	\$5,806	\$5,806	\$5,806	\$5,806	\$5,806	\$5,806	\$5,806	\$5,806	\$5,806	\$5,806	\$5,806
Gross Surplus %	98.71%	98.71%	98.71%	98.71%	98.71%	98.71%	98.71%	98.71%	98.71%	98.71%	98.71%	98.71%
Expenses												
Payroll	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Marketing/Promotion	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Depreciation	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Building Expenses	\$109	\$109	\$109	\$109	\$109	\$109	\$109	\$109	\$109	\$109	\$109	\$109
Event Registration	\$1,317	\$1,317	\$1,317	\$1,317	\$1,317	\$1,317	\$1,317	\$1,317	\$1,317	\$1,317	\$1,317	\$1,317
FLL/FTC Support	\$518	\$518	\$518	\$518	\$518	\$518	\$518	\$518	\$518	\$518	\$518	\$518
Outreach	15% \$380	\$380	\$380	\$380	\$380	\$380	\$380	\$380	\$380	\$380	\$380	\$380
Robot Construction	\$702	\$702	\$702	\$702	\$702	\$702	\$702	\$702	\$702	\$702	\$702	\$702
Travel	\$1,248	\$1,248	\$1,248	\$1,248	\$1,248	\$1,248	\$1,248	\$1,248	\$1,248	\$1,248	\$1,248	\$1,248
WVRox	\$761	\$761	\$761	\$761	\$761	\$761	\$761	\$761	\$761	\$761	\$761	\$761
Miscellaneous	\$90	\$90	\$90	\$90	\$90	\$90	\$90	\$90	\$90	\$90	\$90	\$90
Total Operating Expenses	\$5,124	\$5,124	\$5,124	\$5,124	\$5,124	\$5,124	\$5,124	\$5,124	\$5,124	\$5,124	\$5,124	\$5,124
Surplus Before Interest and Taxes	\$682	\$682	\$682	\$682	\$682	\$682	\$682	\$682	\$682	\$682	\$682	\$682
EBITDA	\$682	\$682	\$682	\$682	\$682	\$682	\$682	\$682	\$682	\$682	\$682	\$682
Interest Expense	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Taxes Incurred	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Net Surplus	\$682	\$682	\$682	\$682	\$682	\$682	\$682	\$682	\$682	\$682	\$682	\$682
Net Surplus/Funding	11.60%	11.60%	11.60%	11.60%	11.60%	11.60%	11.60%	11.60%	11.60%	11.60%	11.60%	11.60%

Appendix

Pro Forma Balance Sheet													
Assets	Starting Balances	Jul-14	Aug-14	Sep-14	Oct-14	Nov-14	Dec-14	Jan-15	Feb-15	Mar-15	Apr-15	May-15	Jun-15
Current Assets													
Cash	\$13,751	\$14,433	\$15,116	\$15,798	\$16,481	\$17,163	\$17,845	\$18,528	\$19,210	\$19,893	\$20,575	\$21,257	\$21,940
Other Current Assets	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Total Current Assets	\$13,751	\$14,433	\$15,116	\$15,798	\$16,481	\$17,163	\$17,845	\$18,528	\$19,210	\$19,893	\$20,575	\$21,257	\$21,940
Long-term Assets													
Long-term Assets	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Accumulated Depreciation	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Total Long-term Assets	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Total Assets	\$13,751	\$14,433	\$15,116	\$15,798	\$16,481	\$17,163	\$17,845	\$18,528	\$19,210	\$19,893	\$20,575	\$21,257	\$21,940
Liabilities and Capital		Jul-14	Aug-14	Sep-14	Oct-14	Nov-14	Dec-14	Jan-15	Feb-15	Mar-15	Apr-15	May-15	Jun-15
Current Liabilities													
Current Borrowing	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Other Current Liabilities	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Subtotal Current Liabilities	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Long-term Liabilities	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Total Liabilities	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Paid-in Capital	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Accumulated Surplus/Deficit	\$13,751	\$13,751	\$13,751	\$13,751	\$13,751	\$13,751	\$13,751	\$13,751	\$13,751	\$13,751	\$13,751	\$13,751	\$13,751
Surplus/Deficit	\$0	\$682	\$1,364	\$2,047	\$2,729	\$3,412	\$4,094	\$4,777	\$5,459	\$6,141	\$6,824	\$7,506	\$8,189
Total Capital	\$13,751	\$14,433	\$15,116	\$15,798	\$16,481	\$17,163	\$17,845	\$18,528	\$19,210	\$19,893	\$20,575	\$21,257	\$21,940
Total Liabilities and Capital	\$13,751	\$14,433	\$15,116	\$15,798	\$16,481	\$17,163	\$17,845	\$18,528	\$19,210	\$19,893	\$20,575	\$21,257	\$21,940
Net Worth	\$13,751	\$14,433	\$15,116	\$15,798	\$16,481	\$17,163	\$17,845	\$18,528	\$19,210	\$19,893	\$20,575	\$21,257	\$21,940