

Monkey Madness
FTC Team 5096
2013 Business Plan



2013 FTC World Champions

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1.0 Introduction

1.1 FIRST

FIRST (For Inspiration and Recognition of Science and Technology) was founded in 1989 to inspire young people's interest and participation in science and technology. Based in Manchester, NH, *FIRST* is a not-for-profit public charity that designs accessible, innovative programs that motivate young people to pursue education and career opportunities in science, technology, engineering, and math (STEM) while building self-confidence, knowledge, and life skills.

1.2 Team 5096, Monkey Madness

We are a team of six Huntsville High School students based in Huntsville, Alabama. Six years ago, we started as a *FIRST* Lego League (FLL) team that competed at the FLL level for three years. Through hard work and great community support, we won three Alabama State Championships and earned invitations to the annual *FIRST* World Championship twice and one invitation to the US Open Tournament. At the US Open, we were proud to receive the Gracious Professionalism Award which is awarded to the team that demonstrates the best sportsmanship throughout the year.

Three years ago, we moved up to the *FIRST* Tech Challenge division geared toward high school students. Building on the knowledge gained during our FLL years and applying the same work ethic and community support, we earned invitations to the World Championship both years! In our rookie year, we won the Georgia State Championship and received the third place Inspire Award at World; the Inspire Award is given to the team that excels in all judging categories and the robot competition.

Last year, we spent over 650 hours focusing on innovative design and game strategy.... the result... Kentucky State Champions and World Champions! The season started with over 2,500 FTC teams worldwide and we were part of the three team alliance that was named World Champion. Based on our performance at the World Championship in April, we were invited to compete in the Asian Pacific Invitational which was held in Sydney, Australia in July. We received the second place Inspire Award, second place in the robot competition, and the Connect Award; the Connect Award is given to the team that most connected with their local community and the engineering community.

Though we are proud of our success on the field, our mission is to grow *FIRST* robotics and STEM learning in Northern Alabama by mentoring new teams and starting a robotics club at Huntsville High.



1.3 Mission Statement

To build a world class robot, spread robotics in our schools and community in order to promote *FIRST* and STEM learning, and grow in our own knowledge.

2.0 Goals

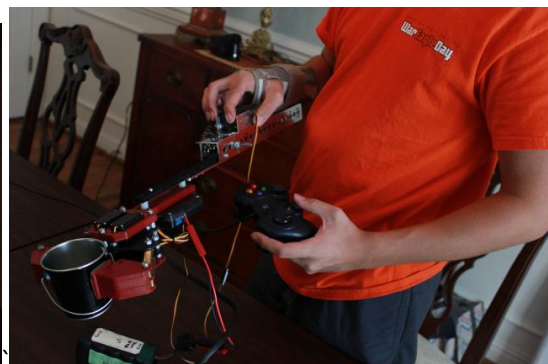
2.1 Major Project Milestones

September 7, 2013	FTC Game Release Host North Alabama FTC Kick-off
September 30, 2013	Deliver 1st Prototype of Robotic Arm Attachment
November 9, 2013	Kell Robotics Qualifier, Acworth, GA
December 14, 2013	Arkansas State Tournament
January 25, 2014	Wheeler Robotics Qualifier, Marietta, GA
February 8, 2014	Georgia State Championship, Southern Polytechnic State University
February 26-28, 2014	Super Regional Tournament, San Antonio, Texas
April 23 -26, 2014	World Championship, St. Louis, MO

2.2 Team Goals

We meet at the beginning of each competition season, to set goals for our team. The goals we have set for the 2013-2014 season are as follows:

1. Design and fabricate a fast, nimble and robust robot that is competitive at the world level by:
 - Developing a comprehensive CAD model prior to robot build
 - Designing a more efficient drive train design
 - Implementing a “Leap-frog” design development
2. Apply our robotic knowledge to a real world situation by designing and fabricating a robotic attachment based on our 2012-2013 robotic arm for a quadriplegic man in Denver, CO to help him perform simple tasks around his house.



3. Grow FTC and STEM in our schools and community by
 - Chartering a robotics club at Huntsville High School
 - Mentoring teams in our community, both FLL and FTC
 - Sharing with teams internationally
 - Hosting a FTC Kick-off event in September
4. Reach out to professionals to gain insight on how to improve our robot and to grow in our own knowledge.

2.3 Projected Hours and Team Commitment

Last year, it was determined that each team member averaged between 600 and 650 hours on robotics related activities including, but not limited to, robot design and build, outreach activities, training, and competitions.

This year, we project the total number of hours spent on robotic related activities to decrease due to college prep, family time, budget concerns, and extracurricular activities. The team has committed to the following:

- 8 hours/week to design and build competition robot; hours spent on robot design will increase the closer we get to a tournament.
- 2 hours/month for HHS Robotics Club meetings
- 1 hour/month for HHS Robotics Club officers meeting
- Participation in 2 qualifiers and up to 2 State Tournaments plus Super-Regional and the World Championship if we qualify
- Mentoring FLL and FTC teams
- Design and delivery of robotic arm attachment including updates and any redesigns
- Demonstrations

We believe with this level of commitment, we can be a very competitive team and can help promote robotics and STEM in our community.

3.0 Sustainability

3.1 2013 – 2014 Budget

Income:

Sponsorship	\$17,685
Fundraising	\$1,000

Expenses:

FTC Registration	\$275
FTC Qualifiers (2)	\$200
FTC State Tournaments (2)	\$500
FTC Super-Regional/World Championship*	\$1,500
Lodging (4 Rooms x 4 nights @\$110/room)	\$1,760
Lodging (4 Rooms x 11 nights @\$110/room)*	\$4,840
Airfare (6 team + 1 coach + 1 sponsor ~\$450)*	\$3,600
FTC Parts	\$4,095
Motors - 40 @ \$25/each	
Servos – 60 @\$25/each	
Controllers (3)	

Servo (2), Motor (1) @ \$80/each	
Encoders – 4@ \$80/each	
Multiplexer – 1 @ \$30/each	
Sensors – 3 @ \$55/each	
Gears – 2 kits @ \$90/kit	
Sprocket/Chain Pack - \$70	
Battery Packs - 4 @ \$50/each	
Channel Aluminum Kit - \$196	
Power Pole Set - \$39	
Wire, 18 gauge - \$15	
Tools – Vise Grip/Chain Breaker, \$40	
Shipping - \$100 (estimate)	
“Block Party” Field	\$275
Pit/Giveaways	\$250
Outreach	\$890
Arm	
RC Controller/Transmitter - \$55	
Continuous Rotation Servo - \$65	
DC 90 degree Servo – 2 @ \$20/each	
Arm Sleeve - \$15	
Battery Pack - \$25	
Rack & Pinion Assembly - \$20	
Shipping - \$25	
Robotics Club (Huntsville High School)	
Tetrix Robotics Starter Kit - \$665	
Miscellaneous	\$500
Income Total:	\$18,685
Expenses Total:	\$18,685

* Must qualify in order to compete at these tournaments.

3.2 Recruiting Team Members

We recruit new team members using the following guidelines:

- Must be a student of Huntsville High School
- Must be a member of the Huntsville High Robotics Club
- Must receive an unanimous vote in favor by current team members
- No previous robotics experience necessary

3.3 Training

We are actively pursuing ways to work with professional mentors to learn new skills and to improve our knowledge of engineering design, CAD, programming, and other STEM areas. Our goals for this year are:

- Attending the Auburn Sr. TIGERS Engineering Summer CAMP
- Learning PTC Pro-E
- Taking the AP Programming Class offered at Huntsville High School

- Learning more about Bio-Medical Engineering to aid in our research for the robotic attachment

3.4 Risks and Opportunities

Our risks and opportunities are focused on the sustainability of the team from an execution and monetary perspective. The risks and opportunities in competition are fluid and can only be minimized and maximized, respectively, with solid preparation.

3.4.1 Risks

Risk 1 – Conflict with other Activities: All the members of the team participate in other after-school activities including Band, Church and Sports. Conflicts with these activities have already been identified, specifically, an important performance in Band by two of the members. To mitigate the risk, the team let the Band Director know of the conflict early and a compromise was worked out to deconflict the Band performance and Robotics tournament. To date, no major Church or Sports conflicts have been identified. Risk 1 is considered closed.

Risk 2 – Budget Shortfall: Due to the current economic environment, fundraising is more challenging than in past years. Also, an additional level of competition, the Super Regional, has been added to the tournament schedule. To mitigate this risk the team has put more emphasis on planning both expenses and fundraising. The detailed budget in section 3.1 was developed to ensure all expenses are absolutely necessary and is constantly reviewed. For example, if the team qualifies for advancement in an early tournament, competing in additional qualifying tournaments at that level may be dropped to conserve funds. On the fundraising side, the team is submitting requests earlier than in previous years to increase the likelihood of the request being approved. Risk 2 is open and carries a “medium” level.

3.4.2 Opportunities

Opportunity 1 – Expand Corporate Sponsor Requests: In the past, requests for support were made mainly to Engineering companies and organizations. Leveraging the past work in STEM and the recognition from School and Legislative Officials, it may be possible to get other organizations interested in supporting the team. Candidates identified for the expanded sponsorship are: government grants (from the Legislators) and local businesses.

Opportunity 2 – Expand Fundraising and Family Contributions: To be competitive at the World Tournament level requires a major commitment of time from all team members. In previous years, team building exercises were held to allow the team time away from the design process and interact doing activities like bowling or paintball. This year the team building time can be spent on fundraising doing activities like car washes or candy sales. Any shortfall of funding the budget will need to be made up by Family contributions.

4.0 Outreach and Recognition

4.1 2012 - 2013 Outreach Activities

The mission of *FIRST* is to show students of every age that science, technology, and problem-solving are fun and rewarding. We have become passionate about this mission as well and have focused our outreach activities to spread this vision. We have learned first-hand that while helping others is fun and rewarding; the ones who are enriched the most are ourselves.

- Hosted *FIRST* Lego League (FLL) Tournament at Hampton Cove Elementary School, 2011 & 2012
- Hosted the Inaugural *FIRST* Tech Challenge (FTC) Tournament in Alabama, 2012
- Mentored the several local FLL teams 2009 thru 2012
- Mentored FTC team, Team Cherokee, from Center, AL, 2011& 2012
- Mentored the local 4-H FTC team, RogueBots, 2012
- Volunteered as Camp Counselors for the Summer Engineering Camp (SEC) 4 Robotics sponsored by the National Society of Black Engineers and the Huntsville City School System, 2011 & 2012
- Taught NXT programming classes at the NASA ERC for FLL coaches and mentors, 2011 & 2012
- Demonstrated (interactive) at the Huntsville City School STEM Expo held at Hampton Cove Middle School, 2012
- Provided 15-20 demos for our corporate sponsors and community, 2011 – 2013
- Tutored math at the Sparkman Homes Boys and Girls Club, 2012

4.2 2012-2013 Recognition

Due to the success of our 2012-2013 season, we have been honored to receive recognition from several of our local, state, and federal leaders.

- Letter of Recognition from U.S. Senator Richard Shelby
- Letter of Recognition from U.S. Congressman Mo Brooks
- Certificate of Recognition from Alabama Governor Robert Bentley
- Resolution from Alabama State Senator Orr
- 2 Proclamations from Mayor Tommy Battle and the Huntsville City Council
- 3 Resolutions from the Huntsville City School Board

5.0 Resources

5.1 North Alabama Robotics

The In 2012, we formed a 501(c) 3 nonprofit, North Alabama Robotics, to serve as an umbrella organization for robotics teams in North Alabama. The specific purposes of North Alabama Robotics are:

1. Serving the public by offering fun, technology-based enrichment activities and outreach with a focus on programs that are affordable and sustainable

2. Working with existing school robotics clubs to expand their program and helping schools and community groups without programs start their own
3. Partnering with robotic organization to offer both regional and state robotic competitions as well as provide support and administrative structure to the area teams

If you are interested in sponsoring our team, we will display your Company's logo on our robot as well as in our pit area. Please provide a digital copy of your logo along with any donation to:

North Alabama Robotics
Attn: Sheryl Darrow
3002 Boundary Oaks Drive
Hampton Cove, AL 35763

5.2 Resources

For more information on FIRST and the Monkey Madness Robotics Team, please visit the following links:

FIRST Links

- FIRST Website: <http://www.usfirst.org/>
- FIRST Tech Challenge Website: <http://www.usfirst.org/roboticsprograms/ftc>
- FTC in Alabama: <http://alabamaftc.zzi.org/>

Monkey Madness Links

- Team Website: <http://teammonkeymadness.com/>
- You Tube Channel: <http://www.youtube.com/user/MonkeyMadnessFTC5096>
 - World Record High Score in Asia Pacific Invitational 2013 (Robot 5096):
<http://www.youtube.com/watch?v=CPn6JXnQyOk>
 - World Championship 2013 Final Round (Robot 5096):
<http://www.youtube.com/watch?v=NY--aH1bgIc>
 - World Championship 2012 High Score (Robot 5096):
http://www.youtube.com/watch?v=tno7KEbH_4c
- **Social Media**
 - Facebook: <https://www.facebook.com/MonkeyMadness5096?ref=hl>
 - Twitter: <https://twitter.com/MonkeyMadness>
 - Instagram: <http://instagram.com/monkeymadness5096?ref=badge#>