



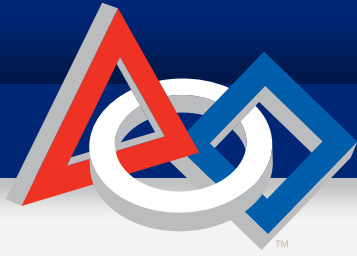
# EAGLE ROBOTICS

MOUNT PARAN CHRISTIAN SCHOOL

## BUSINESS PLAN



Eagle Robotics



FIRST® EFFECTS

*"Mount Paran Christian School is a place where faith and intellect grow as one.*

*Our robotics program captures the God-given talents of each student and fosters their curiosity, resilience, and creativity to better our community and the world.*

*Our high school robotics students routinely give back to our school community by mentoring younger students and supporting the growth of our middle school robotics program.*

*The opportunity afforded to our students to work with industry experts, learn skill sets for the work force and craft a level of expertise before entering college is a unique gift and a blessing."*

**Tawanna Rusk**

High School Head

Mount Paran Christian School

## The FIRST® Tech Challenge: **SPONSORS**

It takes a strong network of local and state-wide supporters who provide funding, mentorship, time and talent, volunteers, equipment, and more to make FIRST Tech Challenge (FTC) a reality in Georgia. FTC currently enjoys support from a wide range of sponsors including corporations, colleges and universities, community groups, museums, industry associations, and non-profit organizations.

We need your help in order to ensure FTC is available to every MPCCS student who dreams of developing the next generation of technological wonders. Will your company, your organization, your circle of influence, your personal actions be the next to help future science and technology leaders at Mount Paran? FTC teams develop strategy, build robots using a reusable, modular kit of parts, and compete head to head. Students learn to think like engineers.

### Students Get to

- Design, prototype, test, and compete using real-world practices (e.g. Engineering Notebooks, CAD software, and rapid prototyping)
- Get hands-on programming and rapid-prototyping experience
- Develop problem-solving, organizational, and team-building skills

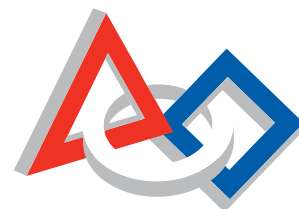


### Become an FTC Sponsor

- Provide financial support to teams and events.
- Provide equipment, facilities, and/or training
- Involve employees as Mentors, Coaches, and/or Volunteers
- Help host a tournament for your community

### Benefits of an FTC Sponsorship

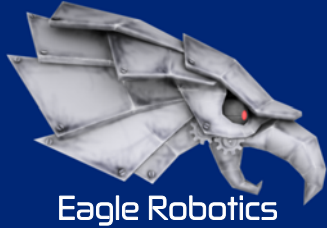
- Develops local talent to better position Mount Paran Christian School's young people and the state's economy for the future
- Strengthens company reputation in the community
- Increases employee volunteerism



FOR INSPIRATION AND RECOGNITION OF SCIENCE AND TECHNOLOGY

**FIRST®**

Visit [www.team7373.weebly.com](http://www.team7373.weebly.com) for more information about Eagle Robotics



Eagle Robotics



## The *FIRST*® Tech Challenge: **HOW IT WORKS**

### *FIRST*® EFFECTS

*FIRST* participants are significantly more likely to attend college

Twice as likely to go on to major in science and engineering

Three times more likely to specifically major in engineering

Young women in *FIRST* are four times more likely to expect to pursue science and engineering in college

Minority members of *FIRST* teams are more than twice as likely to enter the fields of science and engineering

Interest in pursuing careers in math and science has risen 84 percent

90 percent cite *FTC* as sparking interest in math and science

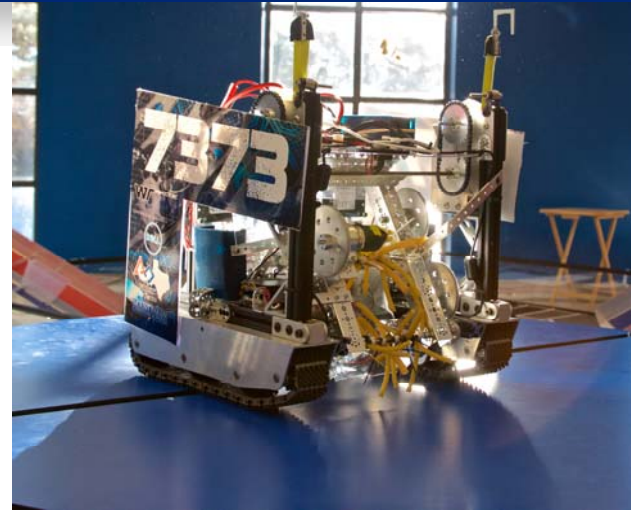
Source: Brandeis University Study

### The *FIRST* Tech Challenge (FTC) (Grades 7-12)

- Provides affordable, accessible opportunities to compete head to head using an exciting sports model
- Offers students a chance to develop strategy and build robots based on sound engineering principles

### How FTC Works

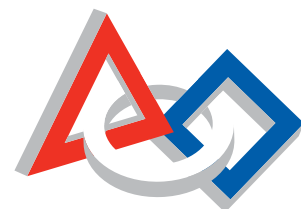
- Grades 7-12
- About 10 students per team
- 2 to 3 mentors per team
- Teams use a modular robotics platform to conceive, build, and compete in a *FIRST*-designed game
- Includes schools, home schools, after-school groups, churches, civic organizations, neighborhood groups
- Corporate Sponsors
- Sports-like events with judges and awards
- Up to 48 teams per event
- Can be used in and out of the classroom



### What FTC Offers

- Design, build, and program robots
- Get hands-on programming and rapid-prototyping experience
- Apply real-world math and science concepts
- Document the engineering process
- Develop problem-solving, organizational, and team building skills
- Learn about *Gracious Professionalism*®
- Compete and cooperate in Alliances at tournaments
- Earn a place in the *FTC* World Championship
- Qualify for more than \$10 million in college scholarships

Visit [www.firstinspires.org/robotics/FTC/](http://www.firstinspires.org/robotics/FTC/) for details, game rules, important dates, and up-to-date details on everything *FTC*



FOR INSPIRATION AND RECOGNITION OF SCIENCE AND TECHNOLOGY **FIRST**®

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## Team Summary

In 2002, the late Professor R. Glenn Allen (Southern Polytechnic State University Mechanical Engineering) invited Mount Paran Christian School STEM Coordinator Brad Smith to the inaugural year of the Georgia hub of the organization called BEST (Boosting Engineering, Science, and Technology). The team gratefully accepted his invitation, and thus Mount Paran's high school competition robotics team was born. The team spent ten years playing in the BEST league. In the 2013-2014 season, Eagle Robotics made a transition from the BEST organization to FIRST (For Inspiration and Recognition of Science and Technology), which was an exciting new adventure for the team.

Founded over twenty years ago, FIRST encourages students ages 6-18 to develop a love for science, technology, engineering, and math through competitive robotics. FIRST helps to spread STEM throughout the country and the world. Students can learn public speaking skills, make new connections with others who are interested in STEM, and gain skills that are useful in the workforce.

Today the team has grown substantially into two FIRST Tech Challenge teams. It now consists of more than twenty members and three coaches. The members are all students at Mount Paran Christian School. The team has two faculty coaches and one engineering mentor from Lockheed Martin. In the 2015-2016 season, Team 7373 was able to win their first *Inspire award*, the highest ranking competition award. They made it all the way to the Georgia state championship and hope to go even further this year.





# SWOT Analysis

## Strengths

- Experienced mentors
- Large number of experienced, dedicated team members
- Strong, well-developed team bonds and cooperative ability
- Access to many different tools and resources such as SharePoint, 3D Printers, CNC Mill, etc.
- Multiple team members are Certified SolidWorks Associates or are pursuing certification

## Weaknesses

- Need for more resources and sponsors to sustain the team as it grows
- Complexities of managing two teams
- Lack of experienced programmers
- Transportation becomes more challenging as there are more people, tools, and robots that must be moved to competitions
- Need to develop a sustainable program that will last even with the imminent graduation of many students

## Opportunities

- Immense opportunity to mentor and grow Mount Paran's FLL program while spreading FIRST ideals within our local community
- Supportive families of team members
- Access to local engineering companies for experience and learning from professional engineers
- Many individuals are taking coursework specifically to learn more in the areas of STEM such as Computer Science, Concepts of Engineering, Physics, or Pre-Calc/Calc which can all be applied to robotics

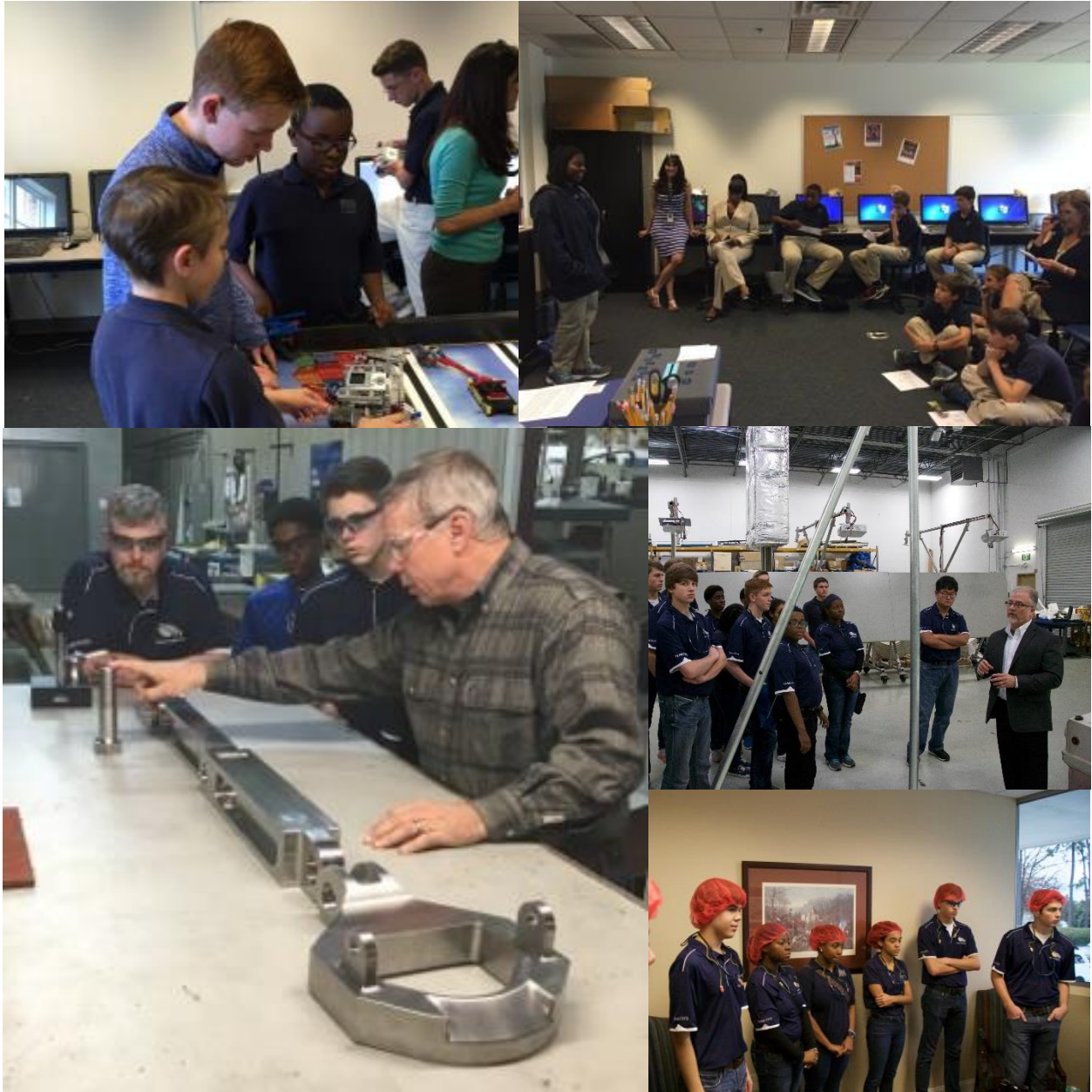
## Threats

- Uncertainty of sponsor landscape
- Ineffective communication strategies
- Challenging school schedules of team members
- Competing commitments of team members



# Team Impact/ Outreach

This year in Outreach, Eagle Robotics has committed to spread FIRST ideals while connecting with the community in various ways. First, the team will continue to mentor the three FLL teams they helped start at Mount Paran's Middle School. The team will also be volunteering at FIRST events such as FTC or FLL competitions. Finally, they will seek opportunities to spread STEM and FIRST outside of their school and FIRST community by connecting with local businesses and other organizations in their local area.





# Budget for 2016-17

This budget will cover all costs for two FIRST Tech Challenge teams though the Georgia State Championship. It will also cover the cost of one team traveling and competing at the South Superregionals. If more than one team makes it to Superregionals or a team(s) make it to World Championships in St. Louis, Missouri, additional funding will be needed in order for them to compete.

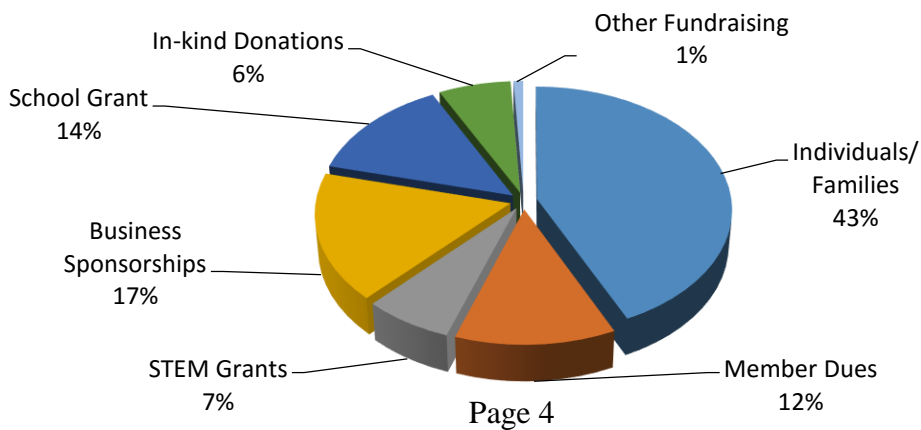
2015-16 Season

<b>Expenditures:</b>	<b>Cost</b>
Event Registration and Fees	\$775.00
Transportation	\$144.75
Marketing	\$1,776.17
Robot parts, robot tools, and equipment	\$14,175.82
Uniform	\$832.65
<b>Total:</b>	<b><u>\$17,704.39</u></b>

Season Projections

<b>Expenditures:</b>	<b>Projected Cost</b>
Event Registration and Fees	\$1,650.00
Transportation	\$500.00
Marketing	\$3,000.00
Robot parts, robot tools, and equipment	\$18,000.00
Uniform	\$2,900.00
Engineering Notebooks	\$550.00
South Superregionals	\$4,000.00
<b>Projected Total:</b>	<b><u>\$26,600.00</u></b>

**2015-2016 Season's Revenue Streams**





# Team Roles and Mentor Opportunities

Roles	Role Description
<b>Business</b>	Business Plan Bill of Materials Budget and Accounting Fundraising (Organization of Events, Solicitation, Documentation of Income) Purchases Branding and Marketing Strategy
<b>Digital Presence &amp; Public Relations</b>	Website, YouTube Channel, and Facebook Web Photos and Videos Group Email notices Event Promotion Sponsor relations (sending thank-you letters, keeping in touch with sponsors, keeping sponsors informed on upcoming events, managing the newsletter)
<b>Artwork and Digital Media</b>	Pit booth display panels and presentation artwork Posters, flyers, signs, competition giveaways, and Web art Coordinates outsourcing for graphics work Shirts and wearable gear Sponsor Logos Photography and Videography Coordinator for team portrait/robot portrait Manages team media archives
<b>CAD and Manufacturing</b>	CAD all parts prior to manufacture, construction, or assembly Maintains indexed folders of CAD parts, revisions, drawings, renderings, animations 3D printer operation and maintenance CNC Mill operation and maintenance Training for team on 3D printing or CNC mill operation Manage archives of CAD from previous years or databases of KOP parts
<b>Structural</b>	Keep team tools safe, develop training methods, and protocols Make sure tools are organized, maintained, and replenished when broken or worn Determine components and parts required for robot build Provide dimensioned drawings for CAD team, evidence of proof-of-concept testing, proof of engineering modeling, and evidence of performance testing for the notebook Construct robot



<p><b>Electrical</b></p>	<p>Provide electrical schematic drawings for notebook          Electrical mountings, housings, stress relief, surge protection, ESD solutions, and signal integrity/shielding          Electrical connection, soldering, wiring (routing), harnesses, and labeling          Battery acquisition (ALL kinds), maintenance, and charging          Provide evidence of testing of signal integrity, and connectivity</p>
<p><b>Software and Programming</b></p>	<p>Learn and instruct JAVA          Licenses          Installations          Computers          Cloud Storage Management          Software implementation and team training          Program the robot both Autonomously and Teleop          Coordinate with drives for control preferences          Document the code with flowcharts or other logic organizing tools</p>
<p><b>Outreach, Service, FTC Team Relations, and Corporate Visits</b></p>	<p>FLL Mentoring (coordinates participation)          Service Projects          Hosting or attending scrimmages, and events such as GRITS          Team relations at competitions (meet and greet, giveaways, scouting documents, and documenting assistance to other teams)          Organizing trips to visit local engineering businesses          Heads documentation of all outreach events</p>
<p><b>Coach/Mentor</b></p>	<p>Communications          Student Service through STEM          Team Safety/Training          Registrations for competition events          Field Trips          Oversees general sponsor relations          Media and digital presence moderation          Fundraising          Judge Training          Leadership Training          Volunteer Coordination          Transportation</p>



## Sponsor Benefits

- Platinum Level \$  $\geq$  \$1,000
  - Recognition on Website
  - Recognition in Newsletter
  - Recognition on Team Media Pages
  - Recognition on Team Print Collateral
  - Logo on Robot
  - Custom Sponsor Plaque
  - Logo/Name on Themed T-Shirt
- Gold Level \$999-\$500
  - Recognition on Website
  - Recognition in Newsletter
  - Recognition on Team Media Pages
  - Recognized on Team Print Collateral
  - Logo/Name on Themed T-Shirt
- Silver Level \$499-\$250
  - Recognition on Website
  - Receive digital Newsletter
  - Recognition on Team Media Pages
  - Logo/Name on Themed T-Shirt
- Eagle Level \$249-\$1
  - Recognition on Website
  - Receive digital Newsletter



## How is Eagle Robotics unique?

*Eagle Robotics is a large, diverse group with a unified desire to develop their God-given talents and abilities while honoring Him with a balance of professionalism, service, and infectious joviality.*

## Team Contact Information

Website: [team7373.weebly.com](http://team7373.weebly.com)

Team Email: [team7373robotics@gmail.com](mailto:team7373robotics@gmail.com)

Facebook: <https://www.facebook.com/team7373eaglerobotics/>

YouTube: [https://www.youtube.com/channel/UCQ9GOOzuVeujfhO\\_lg6lQog](https://www.youtube.com/channel/UCQ9GOOzuVeujfhO_lg6lQog)

### **Main Contacts:**

Head Coach: Brad Smith

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Team Captain: Jordan Moss

Email: [kk4jrj@gmail.com](mailto:kk4jrj@gmail.com)

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