Farragut Flagship

FIRST Robotics Team 3140

2016-17 Handbook

FOR INSPIRATION AND RECOGNITION OF SCIENCE AND TECHNOLOGY

TABLE OF CONTENTS

Mission Statement and Team Vision 3
Welcome/Introduction 4
What is FIRST? 4
Team Contact Information 4
Calendar and Schedule 5
    Attendance policy 6
Student Expectations 7
Gracious Professionalism Statement 7
Varsity Letter Criteria 9
TEAM ORGANIZATION:
Student Team Member Roles 10
    Executive Team 11
Fabrication Team 12
    CAD 12
    Electrical/Controls 12
    Build Team 13
Competition Team 14
    Strategy 14
    Scouting 14
    Drive 14
    Game Field 14
    Awards 14
Business Team 15
    Publicity 15
    Outreach 15
    Fundraising 15
    Animation 15
Adult Team Member Roles 16
    Mentors (Teachers, Advisors, Engineers, Alumni) 16
    Team Mentor Positions 16
    Parents 17
    Parent Boosters 18
    Parent Booster Positions 18
Basic Safety Rules 19
Competitions 20
Scholarships and Awards 21
History of FIRST Team 3140 24
TEAM 3140 FORMS:
    Student Application & Contract 28
    Mentor Contract 30
    Release and Consent Form 31
    Helpful Webpages

Mission Statement

The mission of the Farragut Flagship FIRST Robotics Team is to let students explore all areas of education and to work with mentors to share and apply knowledge of engineering, business, and leadership skills through a fun, hands-on experience. As a team, members work toward a common goal of designing, building, marketing, and operating a competitive robot in a business-like environment while supporting the ideals of FIRST. As a member of the FIRST family, you'll learn to perform high-quality, well-informed work while learning and competing intensely, but treating one another with respect and kindness in the process – this is called "Gracious Professionalism." You will also enjoy the satisfaction of knowing that you have acted with integrity and empathy. FIRST is not just about robots; it's about ideas and people, too.

Team Vision

To have a structure and organization that emphasizes a Student-driven Team. The expectation is that students will contribute meaningfully to and accomplish all aspects of robotic construction and team operation and will leave the team with experiences and skills that will have a direct impact in their future success.

Our philosophy is that our robot is student designed and student built. Sub-Teams design their components of the robot and student leaders work together to incorporate the designs into one robot. They must meet all rules set forth by FIRST. Mentors are there to guide and review issues, but it is ultimately the students' decision.

The winners of FIRST competitions are teams, not individuals. Being a team means not fighting over who is right or wrong. Discussion and compromise are the foundation for a successful team. For better or worse, this is a student-designed and built robot.

Welcome and Introduction

Welcome to the Flagship Robotics Team! We think you will find your experiences here very rewarding and enjoyable. This guide is intended to give you an understanding of the program and your responsibilities as a team member. In the following pages you will find information relating to team history, selection process, team rules, team guidelines, organization of events, travel and many other aspects of our team.

What is FIRST?

FIRST (**F**or **I**nspiration and **R**ecognition of **S**cience and **T**echnology) Robotics Competition (FRC) is a unique sport of the mind designed to help high-school-aged young people discover how interesting and rewarding the life of engineers and researchers can be. To learn more about FIRST, visit their website: http://www.usfirst.org

The FIRST Robotics Competition challenges teams of young people and their mentors to solve a common problem in a six-week timeframe using a standard "kit of parts" and a common set of rules. Teams build robots to meet a certain task and enter them in competitions designed by Dean Kamen, Dr. Woodie Flowers, a committee of engineers and other professionals. FIRST redefines winning for these students because they are rewarded for excellence in design, demonstrated team spirit, gracious professionalism, maturity, and the ability to overcome obstacles. Scoring the most points is a secondary goal.

TEAM CONTACT INFORMATION

Jane Skinner jane.skinner@knoxschools.org
Aundrea Mitchell aundrea.mtchell@knoxschools.org
Chris Allen c557paul@gmail.com
Farragut Flagship Robotics Website: farragutrobotics.org
Facebook: Farragut Flagship FIRST Robotics Team 3140
Farragut High School: 865-966-9775
US FIRST website: www.usfirst.org
Regional Director: LJ Robinson ljrobinsoniii@aol.com
Mark Buckner markabuckner@gmail.com
Discussion Forum: www.chiefdelphi.com (make sure to register!)
Build Blitz: http://www.buildblitz.com/

Basic Calendar/Schedule

The robotics team meets year-round with varying levels of involvement by the "seasons," defined as preseason, build, competition, and summer. Throughout the seasons, there will be events such as community service participation, demonstrations, training sessions, workshops, and fundraising. We expect members to take part in events all year long. While we strive to have a regular build schedule many issues can change this schedule. Please check for updates on the team's Slack.

CHECK EMAILS/SLACK FOR ANY LAST MINUTE CHANGES TO MEETING TIMES.

Preseason

Preseason is from mid-August through the end of December (approximately 36 team meetings). During preseason, there will be on average, two meetings a week. The meetings will be held every **Monday in room T304 (CTE Bldg.) and will run from 3:35-5:00pm and Thursday 6:00-8:00pm**. The first 15 minutes will be administrative: team management, planning upcoming events (team building, fundraising, community service) and announcements. The remaining meeting time will be used for presentations, training, work-sessions, and team building activities to learn the necessary skills for build season.

This is the time period when your dedication, grades, and team performance is monitored very closely to make sure they are up to the standards of the team. Close attention is paid to attendance to meetings and to team fundraisers, training, community service, and public relations events.

Special Fall Events:

Robotics Revolution, Summer Insanity, Robotics Open House, Off-season Competition, Pancake Breakfast, Tee-shirt launching at home football game, UTK Engineer's Day, BSA Merit Badge Workshop, Meet and Greet at ORHS, Beta Testing, Pre-build Celebration.

Build Season

Build Season is from January through mid-February (six weeks). We meet Monday, Tuesday, Thursday, Friday from 3:30-9:00pm and Saturday 9am-4pm.

- During the evening work sessions we will eat from 6:00-6:30 and during the day long work sessions we will eat from 12:00-12:30
- *During the evening work sessions, there will be a clean-up and wrap-up from 8:30-9:00 and during the day- long work sessions the clean-up and wrap-up will be from 3:30-4:00. This clean-up is an integral part of keeping the team working smoothly.*
- Students should bring homework to evening work sessions and spend the needed time completing their school work.
- There may be some flexibility with the schedule if progress is being made Saturday's time may be extended and Sunday afternoons and/or Wednesday evenings added.

Competition Season

Competition Season is from the end of February through the end of April when the robot and the travel team to regional competition sites. Typically the team will compete in 2 regional competitions, one out-of-state event, near the beginning of build season and the other will be Smoky Mountain Regional in Knoxville. **During this season meeting days will revert to preseason times Mondays 3:30-5:00**.

Additional days and times will be added for the drive team to practice (during these times additional minor modifications can be performed, if it does not interfere with drive practice.

Summer Season

Summer Season is from the end of April through the end of July. The most important activity during summer season is the robotics summer camp for middle school students. Everyone is expected to help plan, administer, and teach this camp. The team will also participate in the Farragut 4th of July parade, and participate in outreach and community service projects. Times and dates will be determined at the close of each school year.

Attendance

Attendance will be taken at every meeting and at team events. It is your responsibility to see a Reporter/Historian when you arrive and again when you leave. Team members must realize that good attendance is essential to making the team successful. Attendance will also be a factor in determining which students travel with the team.

- Your start time begins when the Reporter/Historian marks you present… No Exceptions.
- Your end time ends when you leave and the Reporter/Historian marks you out. If you leave without notifying the Reporter/Historian or a teacher mentor you lose credit for that day's attendance.
- During build season, attendance is a must! We only have six weeks to work and every minute counts. If people don't show up on time to work on their task, the whole team suffers.
- If you are a group leader and cannot attend a team meeting, you need to speak with Ms. Mitchell or Ms. Skinner prior to the meeting.
- If you do not remain in the work area (CTE Engineering T304, 305), you will be sent home and lose credit for that day's attendance.

Student Expectations

Farragut Flagship FIRST Robotics Team 3140 will successfully compete in FIRST Robotics through the collaboration of all team members such that every member is proud of their contribution and feels a strong sense of ownership in the final result. Therefore, all students will be expected to fulfill these expectations for the greater good of the team.

- **Safety:** Students are expected to learn and consistently follow safe work habits. Before working in the labs and with tools and equipment, each student will be required to take safety training (both general and for specific equipment). Students may not use power equipment without the permission of Ms. Mitchell. Students may not work in the lab or shop without an approved teacher or mentor present. When in doubt…ASK!
- **Shop/Lab Maintenance:** ALL students, mentors, and teachers are responsible for taking care of the facilities, tools, materials and FRC inventory. The team's needs are second to the needs of the FHS Engineering Program. Everyone is expected to neatly put tools and materials away; clean machines, tables, and floors; and to assist with organization and repairs as needed. Anyone using the facilities will plan time to contribute to clean up both during and at the end of each work session. All participants will report to an adult mentor regarding these matters.

Gracious Professionalism

Gracious Professionalism is in short, good sportsmanship taken to a new, lofty level. "Dr. Woodie Flowers, FIRST National Advisor and Pappalardo Professor Emeritus of Mechanical Engineering, Massachusetts Institute of Technology, coined the term "Gracious Professionalism."

Gracious Professionalism is part of the ethos of FIRST. It's a way of doing things that encourages high-quality work, emphasizes the value of others, and respects individuals and the community. With Gracious Professionalism, fierce competition and mutual gain are not separate notions. Gracious professionals learn and compete like crazy, but treat one another with respect and kindness in the process. They avoid treating anyone like losers. No chest thumping tough talk, but no sticky-sweet platitudes either. Knowledge, competition, and empathy are comfortably blended. In the long run, Gracious Professionalism is part of pursuing a meaningful life. One can add to society and enjoy the satisfaction of knowing one has acted with integrity and sensitivity."

Gracious Professionalism was the founding moral of FIRST Robotics, and it is just as much as important to respect and embody today as it was then. Today's world seems caught up in high quality of life and values that aren't necessarily ethically sound like winning at all costs. Founder Dean Kamen has asked us in the past to contemplate sports and how our society looks up to athletes, and often those ideals of winning at all costs and other ill-morals. By following Gracious Professionalism students are preparing themselves, and becoming part of, a mutually-concerned and productive world. A world in which science and technology is embraced for its augmentations to our quality of life.

- **Grades**: Students will put priority on their grades over the team's needs. Students must not choose robotics over maintaining good academic status. REMEMBER – HOMEWORK COMES FIRST! Maintain good study habits and grades (2.5 minimum) each semester.
- **Attendance/Schedule:** Students should attend all meetings, for a team is greater than the sum of its parts. High attendance levels leads to more productivity and a greater level of creative inspiration through the exchange of ideas. Expected attendance rate is 60%.

- **Fundraising and Community Service—**All members are required to participate in these team-sponsored events.
- **Positive Contributions:** When in attendance, students are expected to participate and positively contribute while behaving in a manner that is gracious and professional. All students should be reliable and responsible. They should willingly accept responsibilities of all types for the good of the team and should fulfill tasks to the best of their abilities and in a timely manner.
- **Communication:** Students are expected to remain in communication with the team and check notifications of meetings and progress on a daily basis.
- **School Policies:** Students must follow the policies and procedures of Knox County Schools and Farragut High School during school and at team events and competitions.
- **Independent Study:** Students are expected to contribute to the skill and knowledge base of the team through independent research, study, and skill development. There are many easily accessible resources that will help students to understand the FIRST organization and management, game rules and strategy, robotics subsystems, and engineering concepts. Students should seek relevant and accurate information to share with the team. They should also participate in training opportunities prior to the "build season". Informed and skilled individuals are the key to a successful and happy team.
  Everyone needs to become an "Expert" in at least one area.
- **Documentation:** Documentation is an important aspect of the engineering workplace. This team environment follows real-world expectations. Students will consistently document attendance, ideas, progress, and materials used during all activities.

Farragut High School Robotics Team 3140
Varsity Letter Criteria

In order to establish a clear policy of expectations and benefits for earning a varsity letter in Robotics, the following guidelines have been put into effect. Please note that the list below is a set of minimum requirements. Students will also be evaluated based upon their leadership, ingenuity, teamwork, and willingness to volunteer for the benefit of the team.

Varsity Team Member (11th and 12th grade students)

Benefits:
1) Enhanced applications for FIRST Scholarships, Awards and Contests.
2) Increased likelihood of leadership position.
3) Increased opportunities for professional achievement.

Expectations:
1) Varsity letters are earned and not simply given.
2) All members must adhere to "Student Expectations (p 7-8) in order to remain active in Robotics, which includes a GPA of 2.5.
3) All members must finish the season in good standing in order to earn ANY award.
4) Maintain consistent 80% meeting attendance over the course of the year.
5) Attendance at all mandatory meetings including the FIRST Season Kick-Off.
6) Full attendance for all competitions and workshops.
7) Full participation and attendance the week before and the week of any competition.
8) Timely response to all action requests.
9) Completion of all assigned tasks.
10) Participate in outreach events after school or on the weekends (examples include freshman orientation night, back-to-school night, middle school robotics workshop, summer insanity), fundraising, and community service.

The teacher mentors, with the approval of the Principal, maintain the right to waive requirements of letter award under unusual or exceptional circumstances to participants who display extraordinary talent, leadership, commitment, or dedication to the Robotics Team. Student team members and adult mentors may make recommendations for consideration.

Team Organization

The FHS teacher/mentors, Ms. Mitchell and Ms. Skinner oversee the team. These people are responsible for ensuring that all the students have a successful, fun, and safe experience on the Flagship Robotics Team. In addition, these individuals are responsible for the success of the program to the FHS administration and KCS Board of Education as well as to key sponsors.

Student Roles

The Flagship Robotics Team is made of an Executive Team and several Sub Teams, all of which are required to get the FIRST project completed. By dividing into specialized groups students are able to focus on specific aspects of the project. The teams are described in the following sections and can be seen in the organization chart at the end of this section. Teams are led by a Student Lead and one or more Mentors.

Student Leads will generally be a veteran team member. The role of the Student Leads is to ensure that quality work is completed on time. Student Leads along with the Mentor will have final say when there are differing opinions on how to design something or what needs to get done. The Student Leads should work to resolve the issues if possible before getting the mentors involved. They are also responsible for ensuring that all students are assigned to tasks. Remember, that the Student Lead is responsible to the mentors for the success of the team, but it is up to all the students on the team to work together to ensure team success. Finally, Student Leads will be responsible for maintaining documentation and sharing and presenting their work progress with the other team leaders.

The role of the Mentor (teacher, advisor, engineer, alumni, or parent) is to provide advice and guidance to the team, how they plan, work, and design, as well as instructions on how to accomplish tasks and use tools or machines. The mentors should not be building the robot but may assist in building certain aspects that require more skill or experience with the goal of showing the student how to complete the task so that if the skill or part is needed again the students are ready to do the work. The mentors are also responsible for making sure that all students are involved in the team's activities and inexperienced students are taught the skills necessary for them to be productive members of the team.

All Flagship team members are expected to:

- ***Work safely***
- ***Obtain and facilitate training***
- ***Work as a team***
- ***Contribute to the technical binder and awards projects***
- ***Review online discussion boards***

Executive Team

The Executive Team will be made up of selected student leaders and mentors that meet regularly as needed (Typically, Fridays from 3:36-4:15).

This team is made up of adult mentors and:

Project Managers (PM): It is the duty the PM to prepare agendas for team meetings, lead all team meetings and direct the team in tasks that achieve the team goals.

Assistant Project Manager (APM): It is the duty of the APM to see that there is strong membership, team tasks are being accomplished and to accept the PM responsibility as occasion may demand. This/These officer(s) also oversee scouting, publicity, outreach and fundraising efforts.

Reporter/Historian (RH): It is the duty of the RH to keep accurate records of attendance and individual participation in all team activities, alert the media to the team news and keep a complete report of the team's activities. This/These officer(s) also help prepare team videos and publications.

Safety and Security Captain (SSC): It is the duty of the SSC to maintain a proper work area, that students have proper machine certifications and that ***all*** members are working safely. This officer also assists in tasks to achieve team goals.

Award's Manager (AM): It is the duty of the AM to compile and submit materials for various FRC awards and recognition. These awards include, but are not limited to: Safety Animation, Chairman's Award, and Entrepreneurship Award.

This team will be in charge of:

- Coming up with agendas and running the team meetings
- Organizing any preseason teambuilding activities
- Keeping track of sub team reports (journals, drawings, BOM)
- Making decisions about the team
- Creating and distributing team emails, Slack announcements and correspondence
- Maintaining and updating the team calendar
- Plan new member recruiting (Summer Insanity, for which all members will participate)
- Monitor team budgets and fundraising budget (along with teachers)
- Maintain and update student handbook
- Keep track of student/team achievements
- Initiate and approve team activities
- Appoint a Reporter/Historian, whose role is to keep accurate records of attendance and individual participation in all team activities.

Fabrication Team

Computer-Aided Design Team

Offseason:

- Learn SolidWorks 3D Modeling & download our current version.
- Design the offseason drivetrain in CAD, select and design wheels, and procure and build all drivetrain parts, then assemble the offseason drivetrain.
- *Design and build preseason mechanism*
- Review past year's competition for ideas
- *Clean and rework prior robots' mechanical systems*
- Study other teams' previous robot designs for ideas
- Run 3D Printing

Build Season:

- Select and design the mechanisms that match the team's primary strategies.
- Work with the team to determine the placement of components.
- Work with the team to properly fabricate components of the robot.
- Compose technical binder
- Create and maintain bill of materials
- Run 3D Printing

Electronics/Controls Team

Offseason:

- Develop a preseason prototype board
- Learn motor characteristics
- Learn wiring diagram
- Learn FRC rules/regulations
- Clean and rework prior robots' electrical systems
- Experiment with sensors
- Learn Java, LabView and other programming languages as needed
- Understand and modify last year's code
- Develop techniques for autonomous mode
- Develop and write code for all robot functions (i.e. Sensors)
- Research past games and experiment with creating code for a variety of tasks

Build Season:

- Design and lay out the electrical subsystem
- Implement all sensors and design respective housings
- Determine power needs and plan for efficient use of stored power.
- Work with the programmers to insure effective controls.
- Design a program that accomplishes the needs of all the functions of the robot
- Implement autonomous

Build Team

Offseason:

- Safety training
- Learn to properly use tools and machines
- Modify robots
- Develop prototyping skills
- Learn to read engineering drawings

Build Season:

- Prototype designs
- Build competition robots (at least two)
- Test and evaluate robot effectiveness
- Make necessary repairs and adjustments to robots

Competition Team

Strategy Team

Offseason:

- Review and learn the rules from last year
- Decide on methods for strategy development
- Train drivers and human players
- Come up with strategies for scouting and data collection

Build Season:

- Become experts on all the rules in the game manual.
- Train drivers, human players, and coaches how to correctly play the game.
- Data retrieved from scouting will be analyzed to develop new strategies& select team alliances.

Scouting Team

Offseason:

- Learn to effectively scout teams
- Review previous year's game
- Scout offseason competition
- Fulfill scouting duties at competitions
- Plan and execute incentive system

Build Season:

- Study game
- Plan and execute incentive system
- Scouting will be done before, during, and sometimes after competitions. Scouting includes robot design and performance, practice round results, and match results.
- Data retrieved from scouting will be analyzed to develop new strategies & select team alliances.
- Fulfill scouting duties at competitions

Drive Team

Offseason & Build Season:

- Practice driving
- Understand game rules
- Pass drive team test

Game Field Team

Offseason:

- Review previous games and elements to learn about common construction techniques
- Create & maintain pit design and organizational elements to improve team efficiency and image.

Build Season:

- Analyze field drawings from FIRST and determine method of designing game field elements
- Create a bill of materials for what is needed to build the field
- Fabricate and assemble needed field elements within two weeks after Kickoff
- Store materials in a way that they can be reused for later demonstrations or practice

Awards Team

Offseason & Build Season:

- Research award-winning teams
- Collect and organize team artifacts
- Submit awards while prior to deadlines

Business Team

Publicity Team

All Seasons:

- Provide content for team fliers, pamphlets, team newsletter and marketing items
- Design team shirts, buttons and promotional materials
- Record all team meetings and events through photo and video
- Create team recruiting videos and promotional videos
- Collect and record content for the Chairman's Award submission (essays, video, and presentation)
- Determine submissions/criteria for other awards and help team achieve them
- Webpage
    - Learn webpage criteria from *FIRST*
    - Discuss new ideas for webpage
    - Complete content to the webpage
- Improve sponsor interaction and recognition

Outreach Team

Offseason:

- Work with the Executive Team in planning promotions for Summer Insanity
- Plan and facilitate outreach activities
- Assist local FLL teams

Build Season:

- Plan outreach activities
    - Most especially reveal video
- Publicize team activities

Fundraising Team

Offseason:

- Plan and execute fundraising events
- Encourage team participation in fundraising events

Animation Team

Preseason:

- Plan and execute Safety Animation

Student Team Lead Positions for Build Season

Executive Team
Marketing/Public Relations
Outreach
Animation
Mechanical/Drive Systems/Fabrication
Electrical/Pneumatics
Programming/Sensors
Strategy/Drive/Rules
Game Field/Pit

Adult Team Members

Adult team members (teachers, parents, advisors, mentors, engineers, alumni) are an essential part of the FIRST program and will collectively be referred to as Mentors. All adult members are expected to be role models, maintain a positive attitude and follow all safety rules and behavior guidelines in this handbook. They are encouraged to read the FIRST Mentoring Guide available at the FIRST website (www.usfirst.org) www.usfirst.org/uploadedFiles/Community/FRC/Team_Resources/Mentoring%20Guide.pdf

Helping the students reach their full potential is the primary reason for participating in FIRST. We know that mentors have families, jobs, and other important commitments outside of the team. We ask that mentors properly inform us up front as to how much time they think they will be able to contribute.

Mentors are expected to use their expertise to guide the students as they build the robot and show them how to build an effective and safe robot. Mentors are to be trained in the safe and correct use of all tools and equipment on site. Mentors are NOT expected to build the robot. Ideally, mentors should not be using any of the tools except for training others. In cases where time or skills require mentors to perform some of the labor, they should be explaining their actions and decisions to the students and making sure the students understand what is going on.

Mentors are responsible for:

- Inspiring students in science and technology and to do more than most people expect of high school students.
- Motivating and engaging students in meaningful activities in the designing, building, marketing, and operating of the robot.
- Teaching & guiding students in all parts of the designing, building, marketing, and operating of the robot.
- Creating an atmosphere of open communications where students feel free to think independently, voice their opinions, and take risks as long as they do not impose a safety hazard. Mentors are expected to be active listeners and they are expected to make sure that everyone understands what is being said or what is being decided.
- Following safety procedures such as wearing safety glasses & using power equipment properly.
- Making sure that students are completing tasks on time. This includes providing a timeline for activities & trusting students to complete tasks while holding them accountable for their assignments.
- Creating an atmosphere of trust and respect. Mentors are expected to show trust and respect to every student while fostering the same trust and respect in themselves. This may include being a confidant for students who are looking for a trustworthy, mature person to share personal information with.
- Making sure that a safe environment is maintained and safety procedures are being followed. If there is an unsafe condition, mentors must step in and restore safety to the situation.
- Referring any student behavioral problems to the Teacher Mentor(s).
- Facilitating instruction and having students do as much of the work as possible. They are to coach, teach, and observe students while remaining ready to step in as needed.

Mentors Background Checks

Knox County requires that all mentors have background checks. See Ms. Mitchell or Ms. Skinner for paperwork.

2016-2017 Adult Team Mentor Positions

General Mentor Fabrication Programming Electrical CAD
3DPrinting Web Site Game Field Pit Business Outreach

Parent Expectations and Responsibilities

Parents/guardians are an integral part of our team and are very important to our success. Parents are also a key factor in the motivation and dedication of their student. Parents are encouraged to keep up-to-date with what their child is working on with the team and the progress that the team has made. Parents should stop in at the build site from time to time to see how things are going.

Parents are encouraged to become team mentors. Becoming a mentor adds additional responsibilities, but is a very rewarding experience. They do not have to be engineers to qualify to be mentors. NEMO (Non-Engineering Mentor Organization, www.firstnemo.org) helps parents volunteer with FIRST even if they are not involved with the robot. NEMO has a list that shows 101 ways that parents can help.

Parents/guardians are responsible for:

- Attending all parent meetings. These meetings typically occur monthly.
- Providing timely transportation to and from meetings and events.
- Signing and returning permission and field trip forms and providing accurate and current information regarding medical alerts, phone numbers and email addresses. A dependable email address is important as this is the primary communication method used to announce upcoming activities and events and for contacting members of the team.
- Checking their email often and communicate any correspondence with their families.
- Providing meals during the build season. The food committee puts together the schedule for dinners.
- Assisting their student in all fundraising activities.
- Providing transportation, at their cost, to return the student home, if there is a violation of the code of conduct while on an out-of-town competition.
- Attending events and providing support for the team. These events may be competitions, team gatherings, or public events.

Updated 7/19/16

Parent Boosters

The Parent Boosters promote and support Farragut Flagship FIRST Robotics Team 3140. This parent support group does so much to help the team run successfully: plan and conduct fundraisers, plan and organize the kick-off event, organize parents for providing meals throughout build season, make all the arrangements (transportation, hotels, food) for competitions, public relations, plan and organize celebrations.

Donations

The team tries to fundraise to support its self, but it also depends on the donations of corporate sponsors. Parents/Companies wishing to donate to the team may do so. Parents wishing to ask about employee-matched donations should request the appropriate papers from their employer. We encourage parents to ask their places of employment for direct donations. Donations should be made payable to *Farragut High School.*

2016-17 NEMO/Parent Booster Positions

Job	Name
Chair	Mary Cook mrc.mobile@me.com
Chair elect	
Secretary	Laurie Varma lauven@tds.net
Treasurer	Jill Costanzo jcgardendesigner@gmail.com
Scholarships	Lori Butler butlervolfans@charter.net
Kick Off Coord	Laurie Varma lauven@tds.net
Fundraising	Karin Grindall karin.coulter@gmail.com
Corporate	Mary Krempasky mskrempasky@gmail.com
Grants	Karin Grindall karin.coulter@gmail.com
Pancake Breakfast	Desiree Hussein keycon2000@hotmail.com
Candy Bars	Valerie Rose valcrose@yahoo.com
Coupon Books	Aundrea Mitchell
support/ help	
Public Relations	
Marketing	
Team Spirit/T-shirt	Alisa Edmonds 1mommashepherd@gmail.com
Travel	Desiree Hussein keycon2000@hotmail.com
Photography mentor	
Car pools	
Celebration	
Chairman's Award	Cathy Simes cathysimes@gmail.com
Team Historian	Cathy Simes cathysimes@gmail.com
Meal Coordinator	
GRITS LUNCH	Gretchen Schulik
Web Site mentor	

Basic Safety Rules for Farragut Flagship FIRST Robotics Team

The following basic rules are designed to ensure the safety of students, mentors, and any visitors:

1. **Plan ahead**
    a. Think about the process of any task beforehand
    b. Make sure work areas and paths are clear
    c. Clamp or secure work
    d. Double-check machine set ups
    e. Never rush a job or task
2. **Learn the correct use of machines and tools.**
    a. You must be trained and certified before using any equipment.
    b. No student is allowed to use a power tool or machine without an approved mentor's supervision.
    c. Use the right tool for the right job
    d. Keep tools sharp and in good condition
    e. Don't overload or force tools and machines
    f. Keep hands/body out of danger areas
3. **Use PPE (Personal Protective Equipment)**
    a. Approved safety glasses must be worn at all times in the shop.
    b. When using loud equipment, hearing protection must be worn.
    c. Understand when gloves should and should not be worn.
4. **Avoid distractions**
    a. Horseplay will not be allowed at any time.
    b. Never approach or talk to someone who is using a power tool or machine.
    c. Excessively loud talking or music will not be allowed in the shop.
    d. Do not wear headphones in the shop
5. **Maintain a safe working environment**
    a. Properly store all tools and materials immediately after use.
    b. While working, keep materials and equipment out of walkways.
    c. Immediately after using machines and tools dispose of all waste materials and clear away your setups (bits, clamps, guides, etc.)
    d. Clean as you work. Do not leave your messes for others to clean.
    e. Minimize clutter in the work areas.

Training on specific equipment and skills will be provided in a variety of forms (Powerpoints, handouts, demonstrations, tests).

All team members must also study the FRC Safety Manual and be prepared for a test that will be administered before the FRC Kickoff:
http://www.usfirst.org/sites/default/files/uploadedFiles/Robotics_Programs/FRC/Game_and_Season__Info/2013/2013_FRC_Team_Safety_Manual_Final_rev_B.pdf

Competitions

Our team plans to compete in two regional events and hopefully the World Championship Event.
Regional Events: We will typically compete in the Smoky Mountain Regional (Knoxville) and either the Palmetto Regional (Myrtle Beach) or the Peachtree Regional (Atlanta). Most regional events follow a set pattern as follows:
Wednesday: This is the day we typically travel to the competition venue**;** this is the day before the competition starts. If possible the robot and pit are taken to the venue and dropped off in the evening.
Thursday*:* The team will have breakfast at the hotel or local restaurant. The team travels to the venue prior to the doors opening. The drive team and some of the pit crew enter early to set up the pits, unpack the robot and start the robot inspection process. When the team arrives it starts the scouting process, locates a place in the stands, and walks around getting to know the other teams by trading buttons with them.
Usually our robot will practice several times during the afternoon. While pit crew works, the multimedia/scouting team is taking pictures of each robot at the event, and the scouting team is reviewing the performance of the other robots. Usually the day ends at 5:00 or 6:00pm. The drive team and pit crew may be required to stay and work on the robot until the pit closes.
The remainder of the team will go to dinner as a group if possible. After dinner the team will return to the hotel. A team meeting may be held sometime before curfew at 11:00pm.
Friday: In the morning the team will have breakfast. The entire team will arrive at the competition before the venue is open, typically 8:00am. The main team will locate a place in the stands, while the photo and scouting teams work on their assignments. The media team will prepare to film each match our team competes in and replay it for the field team (driver/operator/human player/coach) immediately after the match to review the performance and strategy. We may have as many as four or five seeding matches on Friday.
Saturday: The pits open up at 8:00am. Our team would have had breakfast earlier that morning. Upon entering our team again locates a place in the stands. Opening ceremonies start at 9:00am with the final seeding matches following. Depending on the format of the competition the finals occur in the early afternoon. The format of these finals varies from year to year. At the conclusion of the competition there is an award ceremony where the remaining trophies are passed out. When this is complete the team will pack up the robot and pit to transport back to the school. This is usually around 5:00pm. Depending on how far away the event is, the team typically returns home after the awards ceremony.

Consent and Release forms

Everyone attending FRC events (Kickoff, Competition, etc.) must complete a Consent and Release form. This release form must be submitted electronically via either the Team Information Management System (TIMS) or the Student Team Information Member System (STIMS). Attendees under 18 years old must supply an accurate parent email address so that parents can confirm electronically.

Competition Protocol

There are certain practices that we will follow to earn the respect of the FIRST community.
Cheering: ***Cheering is more than yelling at the top of your lungs***. True cheering is enjoying the event and celebrating the excitement of the moment. Organization is the key to this being a powerful tool. Your spirit leaders will give you direction and guidance for this activity. You are not expected to be cheering 100% of the time, however, when we are cheering all team members are expected to stand and cheer to the best of their ability. Sitting in the stands looking bored, engrossed with electronic devices, carrying on personal conversations while others are cheering is not good for the team image and is not permitted.
Award Ceremony: During the ceremony we will applaud the teams that are winning awards. When we applaud we will stand to show our respect for what they have accomplished.
Public Relations: All team members should make an effort to meet and interact with other team members, mentors, judges and FIRST personnel.
Litter: If you see a mess (paper or trash) you should make an effort to pick it up. That goes for the area you are sitting as well as any other location in the arena.
Things We Do Not Do At An Event:

- Wearing of personal music devices is forbidden while in team attire or at an event.
- Team attire may not be altered or worn in any manner not approved by the mentors.
- Students may not play cards or any other games at the event.
- Our team will not engage in negative behavior toward another team or team member.
- Our team will not display displeasure over any decision by a referee or judge.
- Team members will not exchange negative remarks to each other, no matter what the situation.

Scholarships and Awards

Millions of dollars' worth of scholarship offerings are available to students participating in the FRC program. Team members and parents should review the usfirst.org site for frequent changes and updates on FIRST Scholarships. Most scholarships go to students pursuing a scientific or technical degree, but there are some for more general studies as well. Don't let this opportunity slip by!

Chairman's Award
The Chairman's Award represents the spirit of FIRST. It honors the team that, in the judges' estimation, best represents a model for other teams to emulate. It embodies the goals and mission of FIRST. It remains our most prestigious award.
Selected by: Chairman's Judge Panel (application and interview process)
Championship Winner Award
Award celebrates the alliance that wins the final match of the Championship Playoffs
Selection based upon Robot Performance
Championship Finalist Award
Award celebrates the alliance that makes it to the final match of the Championship Playoffs
Selection based upon Robot Performance
Creativity Award Sponsored by Xerox
This award celebrates creative design, in process, execution, or via a creative or unique strategy of play. It is focused on a feature or features of the machine or development process.

Selected by: Judges

Division Champion Award

Award celebrates the alliance that wins the final match in their division at the Championship. *Selection based upon Robot Performance*

Finalist Award

Award celebrates the alliance that makes it to the final match in its division at the Championship. *Selection based upon Robot Performance*

Engineering Inspiration Award

Award celebrates a team's outstanding efforts in advancing respect/appreciation for engineering and engineers, both within their school & their community. *Selected by: Judges*

Entrepreneurship Award*Sponsored by Kleiner Perkins Caufield & Byers

Award celebrates the entrepreneurial spirit and recognizes a team which has developed a comprehensive business plan in order to define, manage and achieve team objectives. This team displays entrepreneurial enthusiasm and the vital business skills to ensure a self-sustaining program. *Selected by: Judges*

Excellence in Engineering*Sponsored by Delphi

Award celebrates an advantageous machine feature(s). This award recognizes any aspect of engineering elegance that reinforces the principles of FIRST. *Selected by: Judges*

Dean's List Award

Award celebrates outstanding student leaders whose passion for and effectiveness at attaining FIRST ideals is exemplary. *Selected by: Judges*

FIRST Future Innovator Award*Sponsored by the Abbott Fund

Award celebrates innovation and intellectual property creation inspired by the FIRST season experience FIRST Future Innovator Award *Selected by: a Judge Panel*

Founder's Award

FIRST presents this award to honor an organization or individual that has contributed significantly to the growth of FIRST. *Selected by: FIRST*

Gracious Professionalism® Award*Sponsored by Johnson & Johnson

Award celebrates outstanding sportsmanship and continuous Gracious Professionalism® in the heat of competition, both on and off the playing field. *Selected by: Judges*

Highest Rookie Seed Award

Award celebrates the highest-seeded rookie team at the conclusion of the qualifying rounds. *Selection based upon Robot Performance*

Imagery Award*In honor of Jack Kamen

Award celebrates attractiveness in engineering and outstanding visual aesthetic integration from the machine to the team appearance. *Selected by: Judges*

Industrial Design Award*Sponsored by General Motors

Award celebrates form and function in an efficiently designed machine that effectively addresses the game challenge. *Selected by: Judges*

Industrial Safety Award* *Sponsored by Underwriters Laboratories

Award celebrates the team that progresses beyond safety fundamentals by using innovative ways to eliminate or protect against hazards. The winning team consistently demonstrates excellence in industrial safety performance that shines throughout the competition from unbagging to re-pack. *Selected by: Safety Advisors*

Innovation in Control Award*Sponsored by Rockwell Automation

Award celebrates an innovative control system or application of control components

(electrical, mechanical or software) to provide unique machine functions.
Selected by: Judges

Judges' Award

During the course of the competition, the judging panel may encounter a team whose unique efforts, performance or dynamics merit recognition. *Selected by: Judges*

Quality Award*Sponsored by Motorola

Award celebrates machine robustness in concept and fabrication. *Selected by: Judges*

Regional/District Finalist Award

Award celebrates the alliance that makes it to the final match of the competition
Selection based upon Robot Performance

Regional/District Winner Award

Award celebrates the alliance that wins the final match of the competition.
Selection based upon Robot Performance

Rookie All Star Award

Award celebrates the rookie team exemplifying a young but strong partnership effort, as well as implementing the mission of FIRST: To inspire students to learn more about science and technology. *Selected by: Judges*

Rookie Inspiration Award

Award celebrates a rookie team's outstanding success in advancing respect and appreciation for engineering and engineers both within their school and in their community.
Selected by: Judges

Safety Animation Award*This is a pre-season award

FIRST and Underwriter's Laboratories (UL) invite teams to submit a short animated film to promote team safety.

Team Spirit Award*Sponsored by Chrysler

Award celebrates extraordinary enthusiasm and spirit through exceptional partnership and teamwork to further the objectives of FIRST. *Selected by: Judges*

Media and Technology Innovation Award*Sponsored by Comcast

Replacing Website Award

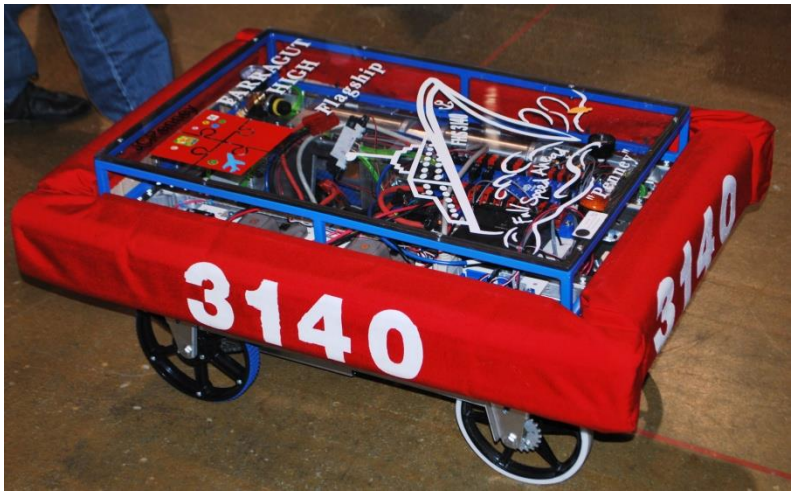
Award celebrates teams that look beyond the team website, taking into account the numerous ways people search for and consume content. *Selection by: TBD*

Woodie Flowers Award*Sponsored by Dr. William Murphy

Award celebrates effective communication in the art and science of engineering/design. Dr. William Murphy founded this prestigious award in 1996 to recognize mentors who lead, inspire and empower those around them by using excellent communication skills.
Selected by: Panel of prior WFA Winners

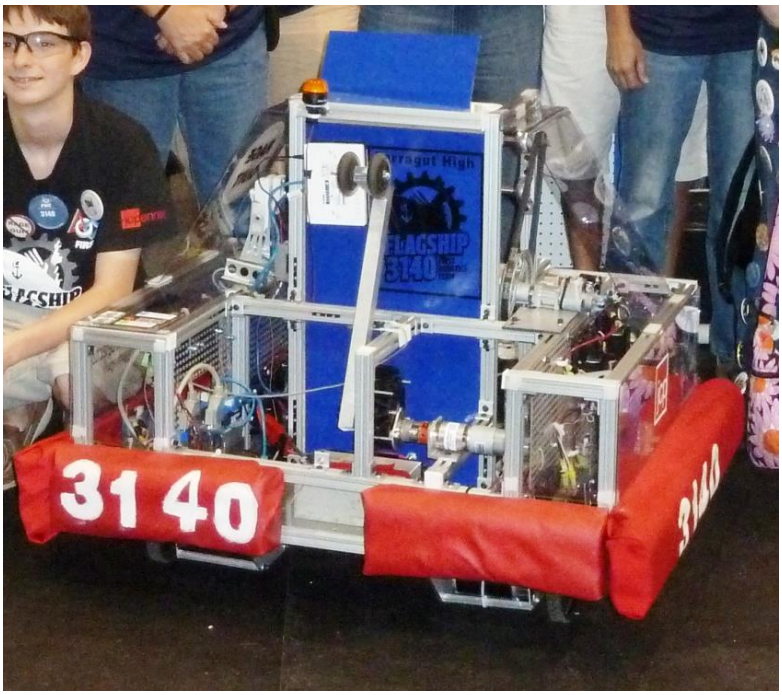
History of FIRST Team 3140

Farragut Flagship Team 3140 was formed in the Fall of 2009 from a partnership with The University of Tennessee at Knoxville engineering department, FHS Science Academy, and the pre-engineering department of the FHS CTE group. During the Fall season, Webb School of Knoxville, Catholic High School, and our team attended weekly workshops organized and presented by the UTK engineering department. JC Penney—Turkey Creek sponsored us during our "rookie" season by providing our entry fee for the Peachtree Regional, t-shirts for competition, an additional $1000 for incidentals raised by their employees, and lots of moral support. In January, a core group of 20 members attended the 2010 kickoff in Atlanta, Georgia and competed in the "Breakaway" at the Peachtree Regional competition in Atlanta Georgia in early March.

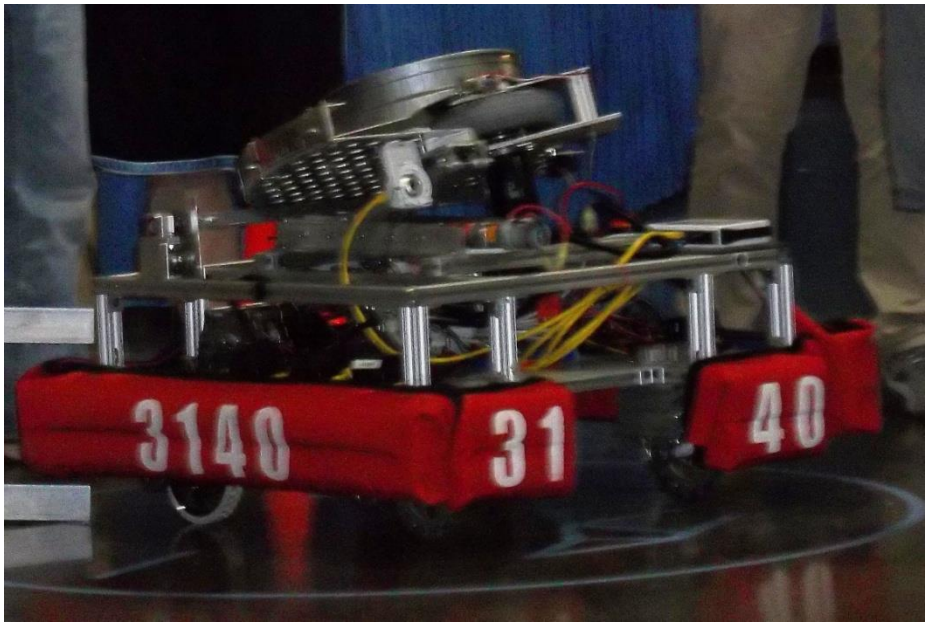


In our second year (2010-11), we gained additional sponsors including TVA, NASA, The Wakefield Corporation, Remotec, The Junior League of Knoxville, Hick's Orthodontics, and State Farm. We competed at the Smoky Mountain Regional in 2011 playing "LogoMotion". Due to our community efforts and visibility, we attracted the attention of the superintendent of Knox County Schools. Our outreach and education program included the team conducting a Summer Robotics Camp and five-day CAD Workshop. We also inspired two more public schools in Knox County to participate in the FRC, including Harden Valley Academy and Gibbs High School.

ORNL joined as sponsors in our third year (2011-12). They also provided us the opportunity to work at the Manufacturing Demonstration Facility (MDF) and to interact with the professionals working there. We are grateful for the open lines of communication between the teams, mentors, and sponsors; which this relationship has provided. During this season our team expanded to include students from Maryville and Bearden high schools as well as an engineering mentor from Remotec. We competed in the "Rebound Rumble" game at the Palmetto Regional in Charleston SC and at the Smoky Mountain Regional in Knoxville. Our team expanded outreach by offering Robotics Merit Badge workshops for the Boy Scouts of America. We also conducted a 2nd Annual Summer Robotics Camp for 40 students.



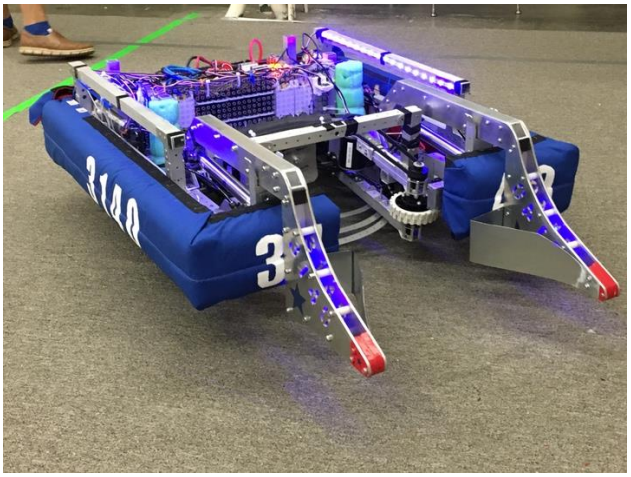
The 2012-13 season brought Knox County on board sponsoring all the robotics teams in the county for the first time. We competed in the "Ultimate Ascent" game at the Palmetto Regional in Myrtle Beach SC and the Smoky Mountain Regional in Knoxville. We mentored three robotics teams and three FLL teams. We continued the outreach program including a BSA Workshop and the 3rd Annual Summer Robotics Camp.



During the 2013-2014 year 3140 we continued our regular outreach programs such as the robotics merit badge camp and summer camp. We mentored a first lego league team and also went to the fall festival at the Farragut Primary, Fourth of July parade, and several other outreach activities. Our robot **Ron Ball** used six trampoline springs and a hoop made of conduit to launch the ball. The springs were tensioned and released using two large cam wheels. Ron Ball had a vacuum pickup system consisting of the bottom of a bucket with surgical tubing glued on as a seal. The bucket was on an arm that swung down grabbed the ball and swung back setting the ball on the conduit while the vacuum sat in the middle of the hoop. 2014 was the first year we had built a competition bot and a practice bot though the practice bot was built after build season was done. That year we went to the Palmetto regional and Smoky Mountain regional.

Our sixth year (2014-2015) we had many firsts. The summer started like every other one previously. We conducted and led our summer camp and participated in the Fourth of July parade. That build season we were able to finish two robots before bag and tag. We competed at the Georgia Southern Classic in Perry Georgia and at the Smoky Mountain Regional in Knoxville. At the Smoky Mountain we won our first award, the Quality Award, which celebrates a robot's robustness in design and fabrication. For the first time ever, we were invited and competed at World's Competition in St. Louis. During the summer we built a PR Robot (tshirt launcher) to allow us to tinker with a mecanum drive train. SANIC MVIII

The 2016 off-season and build season have shown to be huge successes. During one week of June of 2015, aspiring members would come to the CTE Building and learn from veterans and mentors about the basics of FIRST robotics, ending with an enjoyable experience with SumoBots. 3140 participated in Farragut's 4th of July Parade. Also over the summer was the construction of the PR Robot, which is used to shoot T-Shirts to the crowds of football games. The team gained an understanding of Mechanum wheels from this project. Numerous fundraisers were held at local restaurants such as *Jet's Pizza*, *Lakeside Tavern*, and other lower-level schooling events of *Fall Fest* and *Family Fun Night*. 2016's build season began with a Kickoff at UT in Knoxville, and we sprang to work building a new robot. Major accomplishments include a complete game field (made with the help of mentor Troy Jensen), successful vision coding with the aid of our Alcoa sponsorship, and a working shooter. With a high number of new members, reaching out to over 50 by pre-season's start, we had finished exceedingly well, with 3rd place at Rock City Regional, and 6th place at Smoky Mountain Regional. **2016 Robot: nacls**



FIRST Robotics Team 3140, Farragut Flagship
2016-17 Student Application and Contract

Student Name:_____
Student ID number_____
Address:_____
E-mail address: _____
Student Cell: _____
Home Phone: _____Parent Cell: _____

Team Contract:
The following contract is designed to ensure that every student, mentor, and parent fully understands the expectations of the Farragut Flagship FIRST Robotics Team.

- I have read and will abide by the entire Team handbook (available on School Fusion), in particular the Student Expectations, and I understand and accept my obligations as a member of the team.
- I will maintain an average of 2.5 minimum each semester.
- I understand and will abide by the **safety rules** that must be followed during the process of designing, building, and operating a robot.
- I will consistently engage in activities that promote a safe, orderly, and clean work environment.
- Every family must provide at least 1 meal during build season.
- Every family must supply team snacks and water during off-season
- I understand the consequences of any prohibited behavior.
- I will work hard to contribute to the team by conducting independent research and skill development and will participate in available training sessions.
- I understand the development of a robot is a cooperative learning experience for both mentors and students.
- I understand the responsibilities of the student leaders and will respect their authority.
- I agree to be held accountable for my attendance and expected level of contribution at all meetings and events, including team fundraising.
- I will be held accountable for my productivity as a team member.
- I will be responsible for keeping current with email communications and will respond promptly.
- I will support the ideals of FIRST Robotics and goals of the Farragut Flagship Robotics Team.
- I have read the entire contract and agree to all guidelines and expectations set forth in the Team Handbook.

Student Signature:_____ Date:_____

Parent Signature:_____ Date:_____

Continued on back…

Application Questionaire:

Name _____Grade _____

GPA_____ Have you been involved with other FIRST organizations?_____

Name 2 or 3 teachers who would recommend you _____
_____

Why do you want to be a member of the Farragut Flagship Robotics Team?
_____
_____
_____
_____

What would you like to learn?
_____
_____
_____
_____

What skills/experience do you have to offer or have contributed to other clubs?
_____
_____
_____
_____
_____
_____

I have experience in:

_____ Marketing/Public Relations
_____ Outreach
_____ Animation
_____ Mechanical
_____ Drive Systems
_____ Fabrication
_____ Electrical
_____ Pneumatics
_____ Programming/Sensors
_____ Competition Strategy/Drive/Rules
_____ Game Field
_____ Pit (fix and repair in competitions)
_____ Art/Design
_____ Other

I would like to work on:

_____ Marketing/Public Relations
_____ Outreach
_____ Animation
_____ Mechanical
_____ Drive Systems
_____ Fabrication
_____ Electrical
_____ Pneumatics
_____ Programming/Sensors
_____ Competition Strategy/Drive/Rules
_____ Game Field
_____ Pit (fix and repair in competitions)
_____ Art/Design
_____ Other

_____

Signature

Farragut Flagship FIRST Robotics Team
Mentor/Parent Form

Mentor Name:_____
Address:_____
E-mail address: _____
Cell: _____ Work Phone: _____
Which days and times will you be available to commit to this project?
Preseason: _____
Build Season: _____
Occupation or Areas of Skill: _____
_____
If you would like for us to acknowledge your workplace as a partner as a result of your involvement, please provide their name and address. _____
_____

I would like to work on:

_____	Marketing/Public Relations	_____	Pneumatics
_____	Outreach	_____	Programming/Sensors
_____	Animation	_____	Competition Strategy/Drive/Rules
_____	Mechanical	_____	Game Field
_____	Drive Systems	_____	Pit (fix and repair in competitions)
_____	Fabrication	_____	Art/Design
_____	Electrical	_____	Other

Participation in the FIRST Robotics Team will require a large commitment on your part. To be a part of the team you must:

- Every family must provide at least 1 meal during build season.
- Every family must supply team snacks and water during off-season
- Complete Background Check requirements as established by Knox County Schools. See or email Skinner or Mitchell for paperwork.
- Model behavior that is appropriate for a high school learning environment.
- Participate with a positive attitude.
- Promote a safe, orderly, and clean work environment.
- Maintain a high level of professionalism while interacting with students.
- Model and ensure that the students abide by the **safety rules** that must be followed during the process of designing, building, and operating a robot.
- Follow all guidelines set forth in the team handbook
- Guide the students through the process of decision-making and building the robot that the students have conceived and designed.
- Keep current with email communications and respond promptly.
- Support the ideals of FIRST Robotics and goals of the Farragut Flagship Robotics Team.

I have read the Farragut Flagship FIRST Robotics Team Handbook. I understand failure to follow these guidelines will result in intervention and possible removal from the team.
Mentor Signature_____ Date _____

FIRST Robotics Team Consent Form

2016-2017 Farragut High School

Fee: $100.00

As the parent/guardian of _____, a FHS student has my permission to participate in the FIRST Robotics Team. I also realize that the Knox County School System, Farragut High School and its representatives will not be financially responsible for any costs, injury, or accident which may occur while participating with this team.

I, as a parent/guardian, give permission for my child to attend workshops, competitions and related activities off-campus and out of state. Transportation will be provided by parents.

I, as a parent/guardian, give permission for FHS to release related photographs or videos of my child to local, state and national newspapers and publications.

I, as a parent/guardian, realize that safety training and testing will be required to participate in lab and shop activities (information regarding health issues that may limit activities should be provided).

Please record any health or medical concerns such as allergies, restrictions, limitations, diabetes, etc:_____

_____

_____

Parent/Guardian signature _____ Date _____

Phone number _____ Cell phone number_____

Email address_____

Student signature _____ Date _____

Cell phone number _____Student ID number _____

Email address_____ Grade level_____

Updated 7/19/16

Date:_____ Grade: _____ Student ID#_____

FARRAGUT HIGH SCHOOL
KNOX COUNTY SCHOOLS

AUTHORIZATION FOR NEWS MEDIA CONTACT

I hereby give Knox County Schools and Farragut High School full, unrestricted authorization to allow my minor child, identified below, a student at **FARRAGUT HIGH SCHOOL** to appear in still and motion pictures for publication and broadcast by the news media. I also give full and unrestricted authorization for my minor child to speak with members of the news media as may be deemed appropriate by representatives of Knox County Schools. I understand that in dealing with the news media, I have no right to inspect and approve final use of the materials covered hereunder. I have read and understand this release, and certify that the information provided is true and accurate.

RELEASE/AUTHORIZATION TO PUBLISH

I hereby give Knox County Schools and Farragut High School full, unrestricted rights to publish, distribute electronically and/or use any still or motion pictures, of me for use in editorial content, art, advertising, trade or any other lawful purpose. I understand my likeness may be used in advertising and/or promotions. I hereby release and hold harmless the above named, its successors, employees, agents, and assigns from any liability or claims of damage whatsoever in connection with said use of my likeness. I waive any right to inspect and approve final use of materials covered hereunder. I certify that I am 18 years of age, or if a minor, have included as signatory to the release my parent or legal guardian, whose name and signature appear below. I have read and understand this Release, and certify that the information provided is true and accurate.

STUDENT:_____ _____, A MINOR
(Print name of Student) (Signature of Student)

PARENT AND LEGAL GUARDIAN:

_____
(Print name of parent or legal guardian)

_____
(Signature of parent or legal guardian)