

All Girls Tournament 2017



Nov. 11th, 2017
Bloomfield Girls Robotics Competition

Agenda

- ▶ Student team roles
- ▶ Pits and preparing your robot for competition
- ▶ Troubleshooting your robot
- ▶ Behind the Glass
- ▶ Field Volunteers
- ▶ Q and A



Preparing robot for each match - in the pits

- ▶ Read the rules!
- ▶ Systems check - Make sure all robot functions are working.
- ▶ Fully charged battery - secure the battery in the robot and make sure to secure the battery connection.
- ▶ Bumper colors - do you need to change for the next match?



Troubleshooting Robot Problems

Common trouble spots

Learn about your robot -
Control System Hardware



Preparing the Team

- ▶ Competition Team - for this competition the driver, operator, pilot and human player must be a female, high school student. Coaches may be any adult.
- ▶ Pit Crew - for this competition, all students working on the robot must be a female, high school student. Males may provide advice and advise the pit crew, but should not do the direct work on the robot or programming.
- ▶ Scouting Team - many teams identify a scouting team to collect qualitative and quantitative data on robot performance and capabilities. The data collection usually includes an on-field performance component and information gathered from conversations with team members in the pits. These conversations are referred to as “pit scouting”. This is a good way to meet and interact with other team members.
- ▶ Strategy Team - the strategy team differs from the scouting team. They use the data collected from the scouting team and information from “pit scouting” to provide the competition team with specific match strategies.



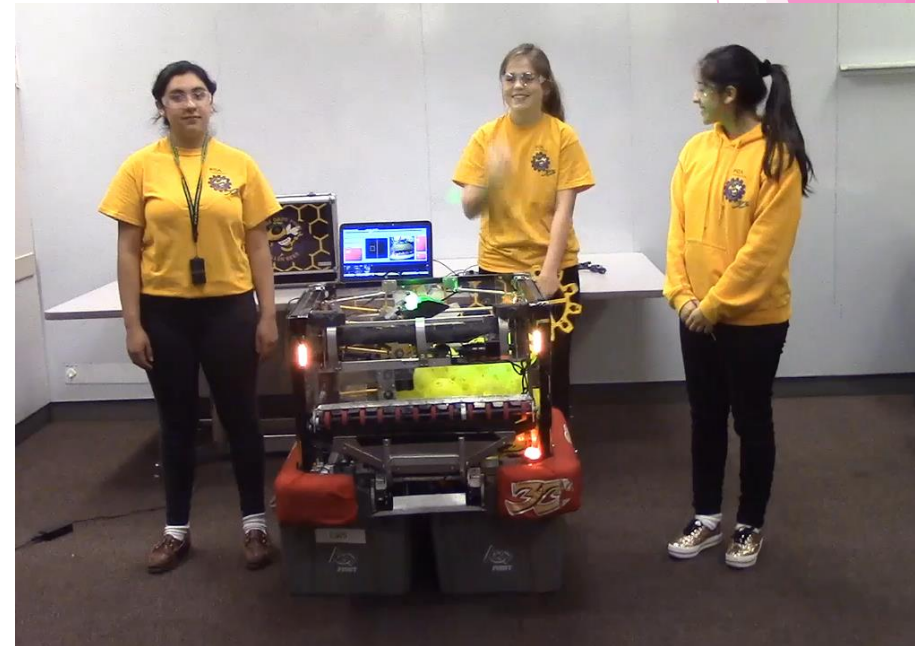
Competition Team

- ▶ Driver - usually the student who controls the robot's primary movements
- ▶ Operator - usually the student who controls the robot's secondary movements
- ▶ Coach - this can be a student or an adult. They are limited in what they can do behind the glass. Review the rules and know the limits!
- ▶ Human player - a student who manipulates the game pieces outside of the field
- ▶ Pilot - for the 2017 Steamworks game, this is a student in the airship who collects the gears to build the gear set to activate a rotor and releases the ropes for the robots to climb.



Pit crew

- ▶ Each team typically has a “pit crew” to cover the maintenance, repair and match preparation.
 - ▶ This pit crew should know how to do a systems check. The system check should test all functions of the robot in a safe manner.
 - ▶ The pit crew should be able to change the robot bumpers to the assigned alliance colors quickly.
 - ▶ Be ready to make repairs to the robot. For many of the robots, this is the last competition after 2 district events, state championships, World championships, offseason demonstrations and offseason competitions - the robot components will be experiencing fatigue and strain from previous competitions.



Things to do before competition

- ▶ Make a plan for competition team roles. Who will be in what roles and when? Will the roles stay the same during the competition or change?
- ▶ Make a checklist for preparing the robot for competition.
- ▶ Make a pit crew systems check protocol.
- ▶ Field placement practice:
 1. Practice lifting the robot and setting it up on the competition field.
 2. Do you need pre-loaded fuel and gears?
 3. Where does the robot need to be placed on the field to accurately run the autonomous mode?
 4. How do you turn on your robot? Where is the main breaker located?
 5. What is the rule about where the robot must be placed at the beginning of the match? (Hint - pg 54 of FRC Game Manual).



On the field and behind the glass

- ▶ Volunteers at the event will help line up the red and blue alliances in the order of the matches. This is known as the “queue”.
- ▶ When it is time to set up for your match, the competition team will bring the robot (on a cart) to the gate of the field. The comp team lifts the robot off of the cart, carries the robot through the gate on to the field and places the robot in the starting configuration.
 - ▶ Carts must remain outside of the field perimeter and the queue crew will have a “cart parking” area.
- ▶ Other competition team members should set up the rope and the driver station.

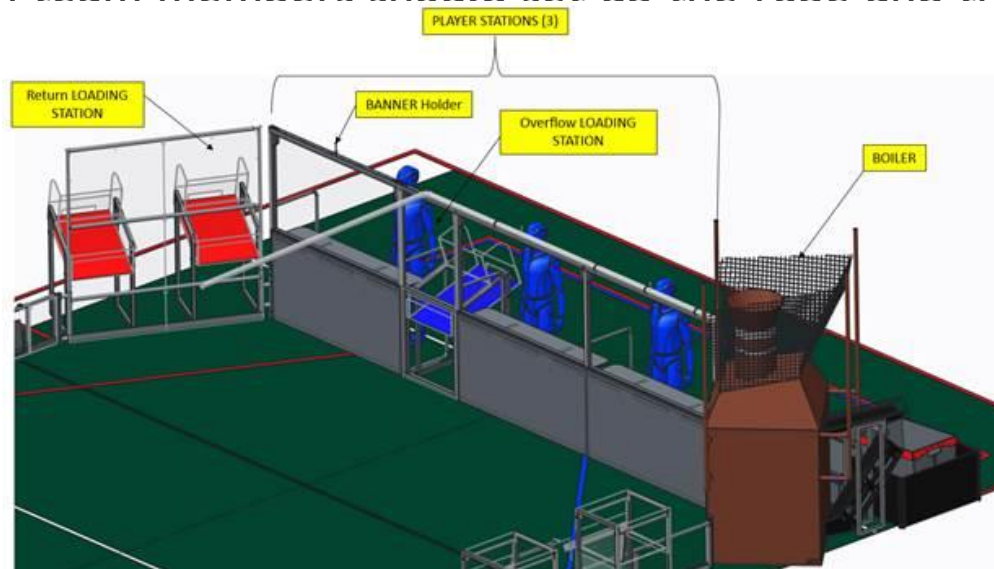
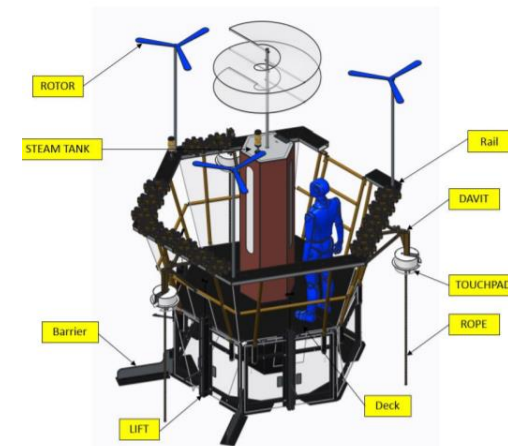


Figure 3-7: AIRSHIP elements



On the field

Don't forget.....



To turn on
your robot!

The robot needs time to boot up and establish a communication link to the field. Powering up the robot as soon as possible helps this process get started so the FTA can assist if needed.

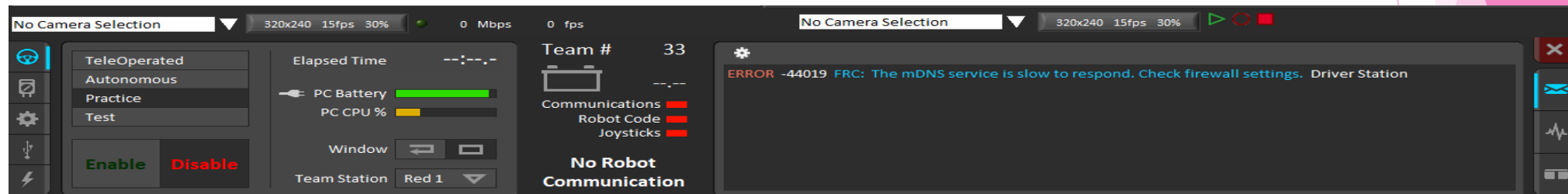
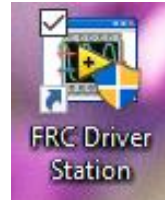
Behind the Glass - at the Driver's Station

- ▶ The match schedule will assign each team to a driver station and either red or blue alliance.
 - ▶ Easy way to locate the assigned driver station -
 - ▶ Look for the black panel that shows the team number to the audience. A small number is located on the back of the panel. This is the driver station number.
 - ▶ Hint #2: Driver stations are arranged left-to-right as you face the field from behind the glass.
- ▶ Each driver station has 3 items for each team:
 - ▶ 1 A/C electrical outlet. Use this to plug in your driver station laptop.
 - ▶ 1 Ethernet cord. Plug this cord into your driver station laptop. This cord is connected to the Field Management System (FMS) to control communications between the laptop, Driver Station, joysticks and the robot.
 - ▶ 1 E-Stop. This is an emergency stop button used in case of an emergency. Pressing this E-stop during a match will immediately stop your robot. Once this is pressed, the robot cannot be restarted for the rest of the match. In the case of an emergency, push the red button.



Behind the Glass

- ▶ Plug in the laptop to the field network, using the provided Ethernet cable.
- ▶ Launch the Driver Station software.



- ▶ Plug in the joysticks. Know what F1 will do during a match.....
- ▶ Plug in the laptop power cord to the A/C outlet on the driver station shelf.



Who are all of these people around the field?

- ▶ FTA - Field Technical Advisor. The FTA keeps the field network running and works to connect the robots to the network. They typically wear a shirt with the letters FTA on the back.
- ▶ Head Referee - The head ref is the authority on the rules of the game. They can assess penalties and fouls. They typically wear a yellow shirt. They are assisted by referees in black and white “ref” shirts.
- ▶ CSA - Control System Advisor. The CSA is an expert on the robot controls and can assist teams with troubleshooting robot problems. A CSA can be found wearing an orange baseball-style hat.
- ▶ Field Supervisor / Field Reset. This group of people makes sure the field and game pieces are placed in the correct positions at the beginning of the match. This group wears an event volunteer shirt.
- ▶ Emcee / Game Announcer. The MC and announcer introduce the teams, make announcements, and provide play-by-play information.
- ▶ Inspectors - At offseason events, we don't have inspectors.



Resources

- ▶ FRC Screen Steps Live
 - ▶ [Robot Troubleshooting](#)
 - ▶ [Status Light Quick Reference](#)

The screenshot shows the '2017 FRC Control System' website. The header includes the FIRST logo and navigation links for '2017 FRC Control System', 'FRC Game Q&A', 'FRC Game Manual', and '2014 CS Archive'. The WPI logo is also present. A search bar is located at the top right. The main content area is titled 'Troubleshooting' and lists several links: 'General Troubleshooting', 'Robot Preemptive Troubleshooting', 'Status Light Quick Reference', 'Driver Station Log File Viewer', 'RoboRIO Brownout and Understanding Current Draw', and 'Support Resources'. A pink arrow points to the 'Status Light Quick Reference' link. On the left sidebar, there is a 'Download Manual PDF' button highlighted with an orange border. The footer of the page states 'Documentation site powered by ScreenSteps Live'.



Thank you

▶ Good Luck and we will see you on November 11th!

