

PREPARING AN FTC ROBOT FOR A MATCH

Before Your First Match (Ideally should be done before you get to the competition)

- Visit [Get Ready for Inspection](#) on the *FIRST* Web site, and become familiar with the Software Inspection Checklist.
- In the 2010-2011 Season, you will not be required to bring your own laptop and game controllers to the playing field; the Field Control System (FCS) will be present and operated by an official FTC FCS Operator. But it is recommended that you become familiar with the operation of the Samantha WiFi module and the FCS that will be used at the competition. Visit www.usfirst.org/ftc/samantha to download the current version of the Samantha FCS software. **Do this early!**

Become familiar with the LED light sequence on the Samantha that indicates when the module is ready for play.

AT THE PLAYING FIELD

Software inspection will prepare you for the entire process of playing a match. This is simply a tip sheet to help you prepare for what to expect at the event.

- Report to queuing and get instructions on where you should queue.
- Follow the queuer's instructions on when to proceed to your field
- Place your robot in the starting position
 - Make sure the Bluetooth on the NXT is turned OFF
 - NXT is powered on, and the autonomous and tele-op programs are present
 - NXT is named with your team number
 - The Samantha WiFi Module is connected to the NXT, and powered on
 - The TETRIX motor controller is powered on
 - Check that your Tele-Op filename is correct
- Follow the instructions of the FCS operator on which game controllers you will be using for the match. **It is critical that you use the correct controller.**
- Start your Autonomous program (on the NXT)

AT "END OF MATCH"

- Wait for the 'All Clear' signal from the Head Referee or FTA.
- Coach and one driver leave the field immediately.

Final driver should:

- Turn off the NXT module.
- Turn off power to the robot.
- Remove game pieces from robot and leave them on the playing field.
- Return the robot alliance flag to a queuer on the way off stage.
- Return robot to the pit area and prepare for the next match.

FTC ROBOT TROUBLESHOOTING GUIDE

Symptom	Possible Cause or Remedy
Typical Causes of Samantha WiFi Connection issues	<ul style="list-style-type: none"> • NXT is turned OFF. • Low NXT or TETRIX battery. • Samantha WiFi communications module power wires from a motor or speed controller are loose or disconnected. Power wires downstream of the controller connected to the Samantha are loose or disconnected. • The USB cable connection between the NXT and Samantha communication module is loose, disconnected, or damaged. • The Samantha WiFi communications module may be buried behind too much metal thus preventing communication with the wireless router. • WiFi network settings are not loaded on the Samantha communications module.
NXT Module will not turn "ON" when Orange button is pressed. (nothing shows on LCD, no sound)	<ul style="list-style-type: none"> • NXT battery pack is missing. <ul style="list-style-type: none"> -Install charged battery pack. • NXT battery pack is dead. <ul style="list-style-type: none"> -Replace / Recharge battery pack. • NXT battery is not properly seated in the NXT. • Contact springs in the NXT may be bent out of position or compressed too much. • NXT Firmware is corrupted. <ul style="list-style-type: none"> - Press Orange button and listen for a very soft "clicking" sound from the NXT Module. If "clicking", reset the NXT by pressing the small reset button at bottom of the mounting hole below the USB port, for 10 seconds. Reload the NXT firmware and the team's software programs.
Robot does not respond to driver commands.	<ul style="list-style-type: none"> • Verify the correct program is loaded and running on the NXT. • NXT and/or 12V TETRIX battery is turned off, dead or low. • Check red mode light on the Logitech Dual Action Controller. <ul style="list-style-type: none"> -If „ON“, press mode button to toggle the light off. • WiFi connection with the computer is lost or not established. • Electrical wiring is loose or disconnected. <ul style="list-style-type: none"> -Check the wiring of the battery, HiTechnic Motor and Servo Controllers. • Check 20A TETRIX battery fuse connected to the battery pack. <ul style="list-style-type: none"> - If „blown“, check wire connections and wire insulation for shorts prior to replacing the fuse.
Robot runs, but does not behave as expected. Some functions may work and others do not.	<ul style="list-style-type: none"> • NXT battery pack or 12V TETRIX battery may have low voltage. • Verify all software is current and all updates have been applied. • Check robot programming. • Verify the correct program is loaded and running on the NXT. • Check the Red mode light on the Logitech Dual Action Game Controller. <ul style="list-style-type: none"> -If „ON“, press mode button to toggle the light off. • Wires to the DC motor terminals may be loose or disconnected. Wires connected to the HiTechnic controllers may be loose or disconnected.
Motor or servo performance degrades rapidly or stops working during use.	<ul style="list-style-type: none"> • 12V TETRIX battery may be low. • Check for loose power connections. • Check Servo motors, Gears, & DC motors for freedom of movement/excessive heat. • Clear obstructions, change gearing, add motors or reduce physical load on motor.
NXT will not turn on, display is blank.	<ul style="list-style-type: none"> • NXT battery is dead or low. <p>Place the NXT close to your ear and listen for a very soft "click of death." Reset the NXT by pressing the small reset button underneath the NXT below the USB port, for 10 seconds. Reload the NXT firmware and the team's software programs</p>