How to SSCI SoccerBots

Laptop Hub

# Hardware Inventory

* (1) Laptop: SSCI-26
* (2) EV3 SoccerBots: SSCI-19, SSCI-24
* Blue SSCI Soccer Bots bucket. Inner tray stores small inventory.
* (4) Silver Logitech gamepads and dongles (marked with yellow, blue, green, red tape)
* (8) spare AA batteries for gamepads
* (2) Patchwork leather hacky sack ball
* (2) cowbells
* (1) 6’ folding table
* (1) folding wooden border for table edge
* (1) Plug strip for laptop and charger power
* (1) Extension cord. Choose size for venue.

# Hardware Setup

* Table
  + Unfold wooden border and drop onto table. It should fit snugly.
* Laptop & Gamepad pairings:
  + Plug Blue gamepad dongle into front USB port on right side
  + Plug Yellow gamepad dongle into back USB port on right side
* Inspect robots:
  + Ensure all joints, cables, and fittings are snug and connected

# Software Setup

Do these steps for each Robot:

1. Attach gamepad dongles to laptop. Insert batteries in gamepads.
2. Boot both robots (press center dark gray button). Robots take a couple minutes to boot.
3. Boot laptop and login to **soccerbots** account (password: **outreach**)
4. Start SoccerBot program on each robot:
   1. Ensure Bluetooth logo appears next to battery level icon at top of screen.
      * Reboot robot until Bluetooth logo appears.
   2. Select “File Browser”, click dark gray button
   3. Select “RunSoccerbot.sh\*”, click dark gray button
   4. Robot is ready when lights turn orange
5. On laptop: (Do this after both robots show orange lights)
   1. Double-click “SoccerbotHost” icon in middle of desktop
   2. When the host window opens, tap a button on one gamepad. Note which gamepad label blinks on the screen.
   3. Select the correct color for that gamepad. e.g. Click “BLUE” for the gamepad with blue tape and “YELLOW” for the gamepad with yellow tape
6. Verify control of robot by pressing any button on gamepad first, THEN try thumbsticks second.
7. Laptop lid may be closed for convenience if plugged in. While the laptop is connected to power it will stay awake. On battery, it will go to sleep.

# Gameplay

* Each player gets 1 try per wait-in-line.
* Give quick controls training to new players as required.
  + Any button kicks
  + Thumbsticks use “Tank” style control, which is harder, but faster
  + D-pad uses “Arcade” style control, which is easier, but slower
  + Robot screen is PowerUp meter and shows available power-up.
* Objective is for a robot to make the ball to touch the wall at the far end of the field.
* Match play:
  + Player bots begin by touching the end-wall directly in front of each player
  + Check players ready. “Drivers are you ready?”
  + Countdown match. “3 – 2 – 1 – Go!”
  + Drop ball at center field.
  + Match lasts until any goal is scored or 1-minute, whichever comes first. If it looks like a stalemate or close match, count down the last 5-10 seconds to make it exciting.
  + Bots that fall over are restored in-place, or at home position for grossly mismatched players. Gameplay does not stop while ref corrects a fallen bot.

# Shutdown and pack up

* Quit the SoccerbotHost program on the laptop. X in the upper right corner.
* Quit the robots. Click the back button.
* Shutdown the robots. Click the back button until “Power Off” appears. Select that.
* Shutdown the laptop. Start > Power > Shut down
* Replace each gamepad dongle in the correct gamepad (match Blue and Yellow).
* Remove the batteries from the gamepads.

# Troubleshooting

* After selecting “RunSoccerbot.sh”:
  + The lights keep flashing green forever
    - Check the screen for messages. If it says a motor is not connected, check that motor’s cable on both ends. If it looks well connected, try unplugging one end and re-plugging it. The message should clear and the robot will go to the orange lights.
  + The light goes orange for a while, then solid green back at the main menu
    - Ensure the Bluetooth logo appears at the top of the menu screen. Reboot the robot until the logo appears.
* Robot suddenly stops dead
  + Robot battery died. Replace battery, reboot robot and RunSoccerbot.sh
  + Laptop went to sleep. Check laptop power.
  + Gamepad stopped working. See gamepad section below. Replace batteries. (Flashing Red/Green light on gamepad may warn of low battery)
* One Robot wheel stops driving
  + Check motor cables to be completely plugged in
* Robot left wheel stops driving or controls start behaving very strangely
  + Gamepad “Mode” button got pressed. (See gamepad section below.) Check for Solid Red/Green light on Gamepad. Press “Mode” button next to light to make it go out.
* Gamepad issues – Silver Gamepads
  + Most silver gamepad issues can be diagnosed using the green light on the front of the gamepad.  
      
    This chart shows the meaning of the status lights while *no buttons* are being pressed on the gamepad.

|  |  |  |  |
| --- | --- | --- | --- |
|  | | **Gamepad is working** | **Gamepad is not working** |
| **Green Light** | **Off** | Connected; Normal operation | Gamepad asleep/dead batt |
| **On** | Mode switched (d-pad/stick swap) |  |
| **Flashing** | Low battery | Lost sync |

* + The gamepad will go to sleep if no button is pushed for several minutes. When this happens, press any button (*not the thumbsticks*) in order to wake it back up.
    - If the gamepad connects to its receiver dongle, the green light will blink once and go out.
    - If the gamepad cannot connect to its dongle, then the green light will flash for 10 seconds and the gamepad will go back to sleep.
  + How to re-sync the gamepad to the computer:
    1. Unplug/Replug the Logitech nano-receiver, then press a colored button on the gamepad. Listen for the Windows “device connected” sounds.  
       If that works, then you’re done. If not, then continue…
    2. Open the Game Controllers Control Panel:   
       Windows Key > type “game controllers” > Set up USB game controllers
    3. After the Game Controllers Control Panel opens, press any button on the gamepad. This will cause it to connect. After a couple seconds, the gamepad will appear in the Game Controllers list and the green light will go out.
    4. Verify correct sync by pressing any button on the gamepad. The name of in the Game Controllers Control Panel should change to “Logitech Cordless Rumblepad 2”.
  + If the gamepad is working normally, but the green light is flashing, the batteries are getting low. Don’t worry, even after the light starts flashing, the batteries will still last for several hours.
  + *NOTE*: The gamepad Nano receiver is permanently paired with a specific gamepad. Make sure that each Nano receiver gets stored in the battery compartment of its matching gamepad.
* Bluetooth issues
  + Bluetooth issues can be tricky. Try these steps. Stop when you get a good connection:
    1. [Sorry, no troubleshooting tips at this time]