High Current Shut Down/Power Cycle Instructions

Version 2.0

Overview

These instructions outline a safe shutdown and restart of the LCR electrical subsystems.

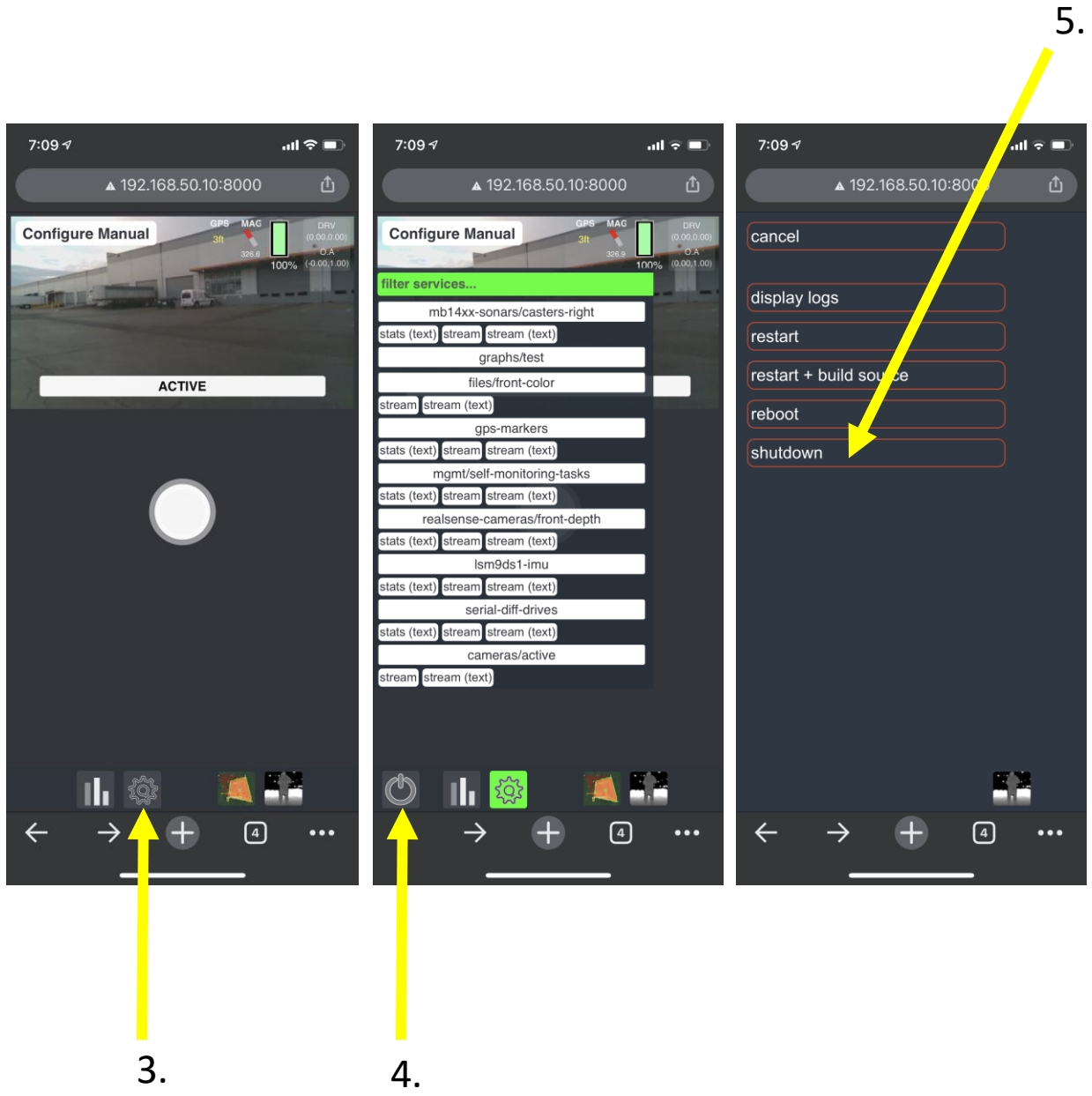
Issue: Need to power down for repairs or fully powercycle the electrical systems.

PPE: Wear eye protection and non conductive gloves

Tools: None Required

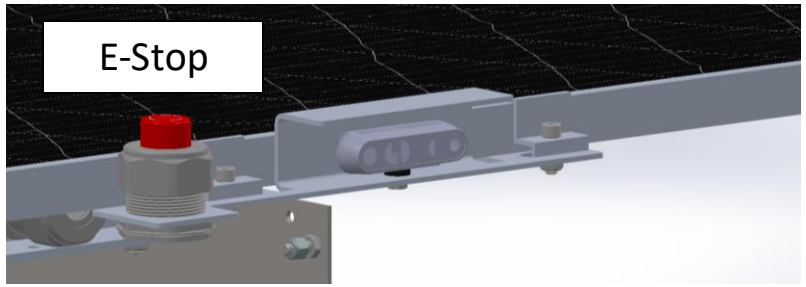
Power Down CPU

1. Connect to robot Wifi
2. Bring up Manual Control UI
3. Touch Gear Icon (lower left corner)
4. Press Power Icon (lower left corner)
5. Select "shutdown"



Engage Safety Shutoffs

1. Engage e-stop button



2. Turn motor drive shutoff to "off"/vertical position.

On position

Off position

Disconnect Solar Input from LCR

1. **If SCC is installed (red rectangular board)**: Unplug white/green solar input connectors on left side of charge board (see yellow arrow)
2. **If AltSCC is installed:** Unplug red MC4 connector from the solar panel

1: SCC

2: AltSCC

Unplug AC Charging Cable

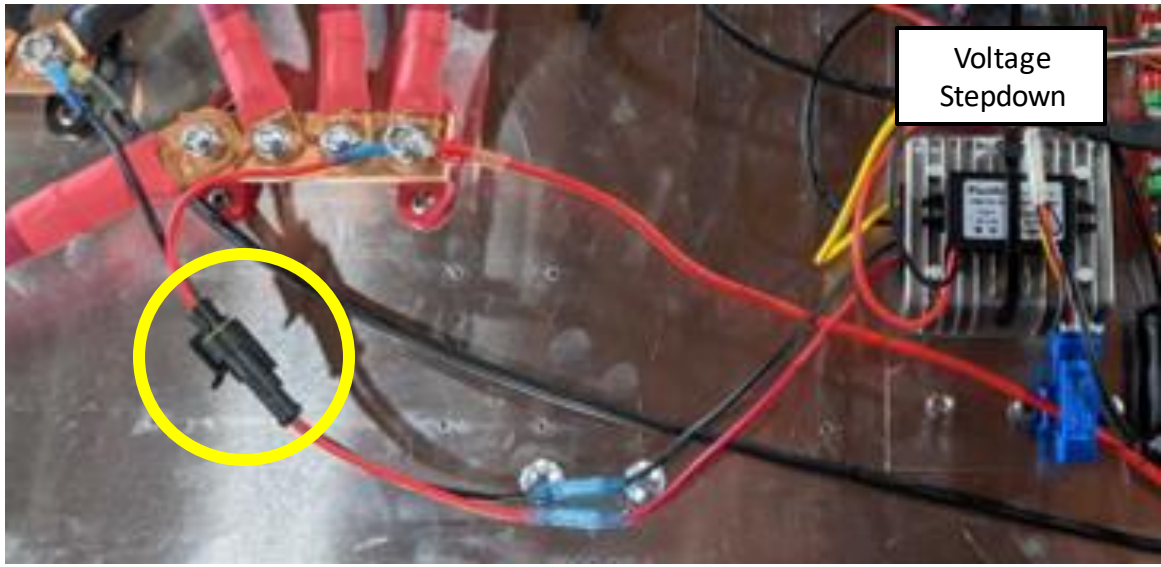
1. If the robot is charging, disconnect AC cable from plug on the side of robot frame

Power Down Low-Current Electronics

1. Lift and prop up solar panel
2. Remove clear polycarbonate electronics tray cover
3. Power down low-current electronics
    1. **If SCC is installed (red rectangular board):** Remove pink 4A fuse on rightmost green terminal labeled "HUB" and store fuse in secure spot.
    2. **If AltSCC is installed:** unplug the busbar connection plug shown to the right. Make sure you unplug the connector attached to the silver voltage stepdown regulator and not the identical connector attached to the black motor controller PCB.
4. The lights on the Pi board should turn off

4.1: SCC

4.2: AltSCC



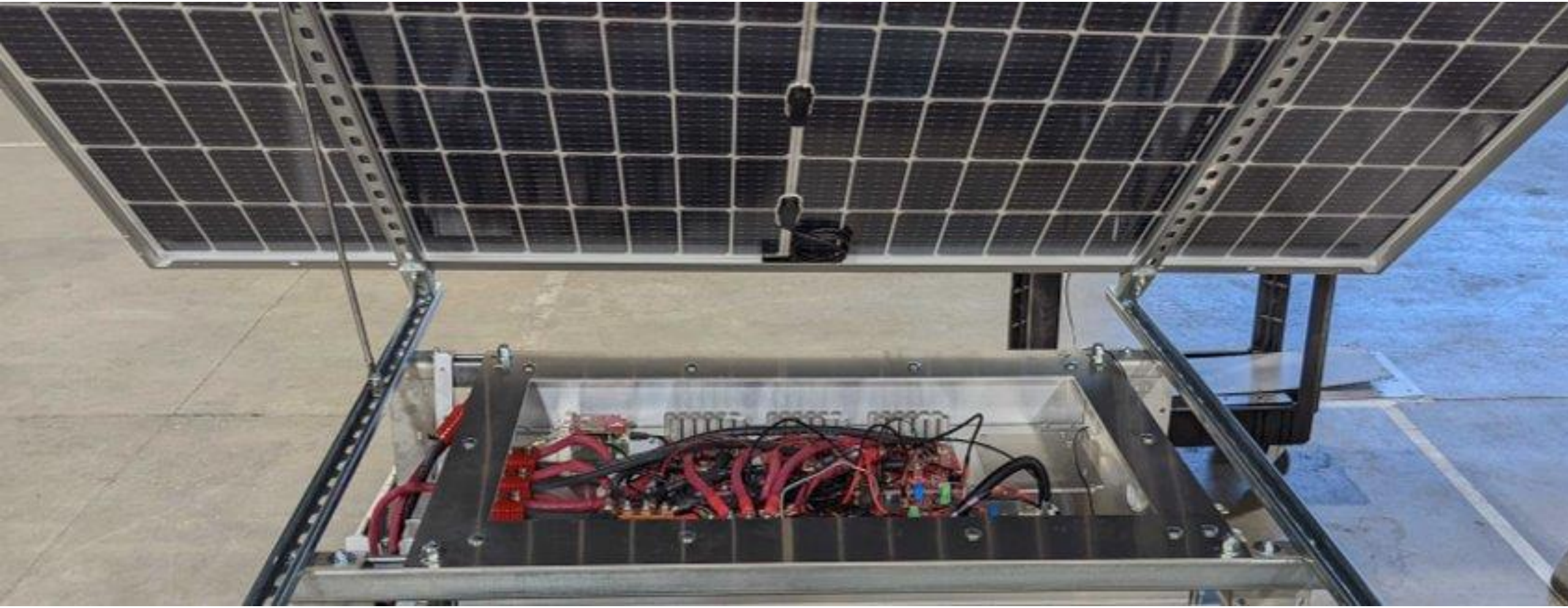
Remove Main Battery Terminal

1. Unplug the largest Anderson connector (green, grey, or blue) that connects to the batteries.
2. If there is a zip tie retaining it to a white support piece, preventing removal, cut zip tie

Wait for all lights in the tray to turn off

1. With the main battery connector, AC, and solar connectors removed, all lights inside the electronics tray will turn off after about 1 minute

Safe to Perform Electronics Tray Maintenance



Check for Loose Wiring/Connections

If maintenance was done on the tray do the following before powering up,

1. Ensure no loose wiring (e.g., unplugged antennas, USB cables, screw terminal wires)
2. Ensure all locknuts on busbars and motor controllers are tight
3. Ensure there are no tools resting on the top surface of the robot or anywhere in the tray

Restore power (reverse steps)

1. Plug in main battery Anderson connector
2. Power-up low-current electronics
    1. Either pink fuse (SCC) or black busbar connector (AltSCC)
3. Plug in AC charging cable (if applicable)
4. Connect to solar
    1. Either white/green plug (SCC) or red MC4 connector (AltSCC)
5. Release e-stop and turn motor shutoff switch to "on"/horizontal.
6. Wait for software to restart and WiFi SSID to become visible. Approximately 2 minutes before robot UI is available.
7. Connect to the robot, enable drive motors and verify it can drive