**Before Scanning**

1. Install Arduino software and code
   1. Download and install the latest Arduino package from <https://www.arduino.cc/en/Main/Software> (select all components during installation)
   2. Clone <https://github.com/CulhamLab/Arduino-MATLAB> to the PC (recommended to the GitHub app to streamline future updates)
   3. Add the "ArduinoIO\_V1" folder to the MATLAB path

**Setup – Control Room**

1. Connect the Arduino MEGA 2560 via USB
2. Run “arduino\_LED\_on.m” so that the LEDs will turn on as soon as they are plugged in
3. Plug the 3 labeled pins of the adapter (connector with many wires) into the corresponding PWM ports on the Arduino. Also plug the ground pin into any of the ground ports on the Arduino.
4. Connect the cable labeled “glove” (repurposed) to the adapter
5. Connect the other end of the glove cable to the filter plate, noting which port was used

**Setup – Scanner Room**

1. Before bringing the LEDs into the scanner, check them over to ensure that nothing extra is tangled in with them, caught on the tape, etc.
2. Tightly grip the metal connector while carrying the LEDs along the wall to the filter plate. Plug the connector into the same port that was used on the control room side.
   1. WARNING: The filter plate connector must never be brought near the scanner
   2. Also note that this connector contains the resistors for the LEDs, which are very fragile. Avoid putting strain on the cable near the connector as this could sheer the solders. If the resistors are ever damaged, Derek or Kevin can repair them but it is not a quick fix and requires taking them back to the workshop.
3. Verify that the LEDs are working taking the time to position them
   1. “arduino\_LED\_on.m” and “arduino\_LED\_off.m”
4. Uncoil the cables and position the LEDs. Note that any loops in the cable may cause the LEDs to flicker during scans (induced currents).
   1. Ask participants to notify you if they notice any flickering
   2. You may need to unspool the cable around the perimeter of the room to avoid loops
   3. Unused LEDs can remain coiled beside the filter plate