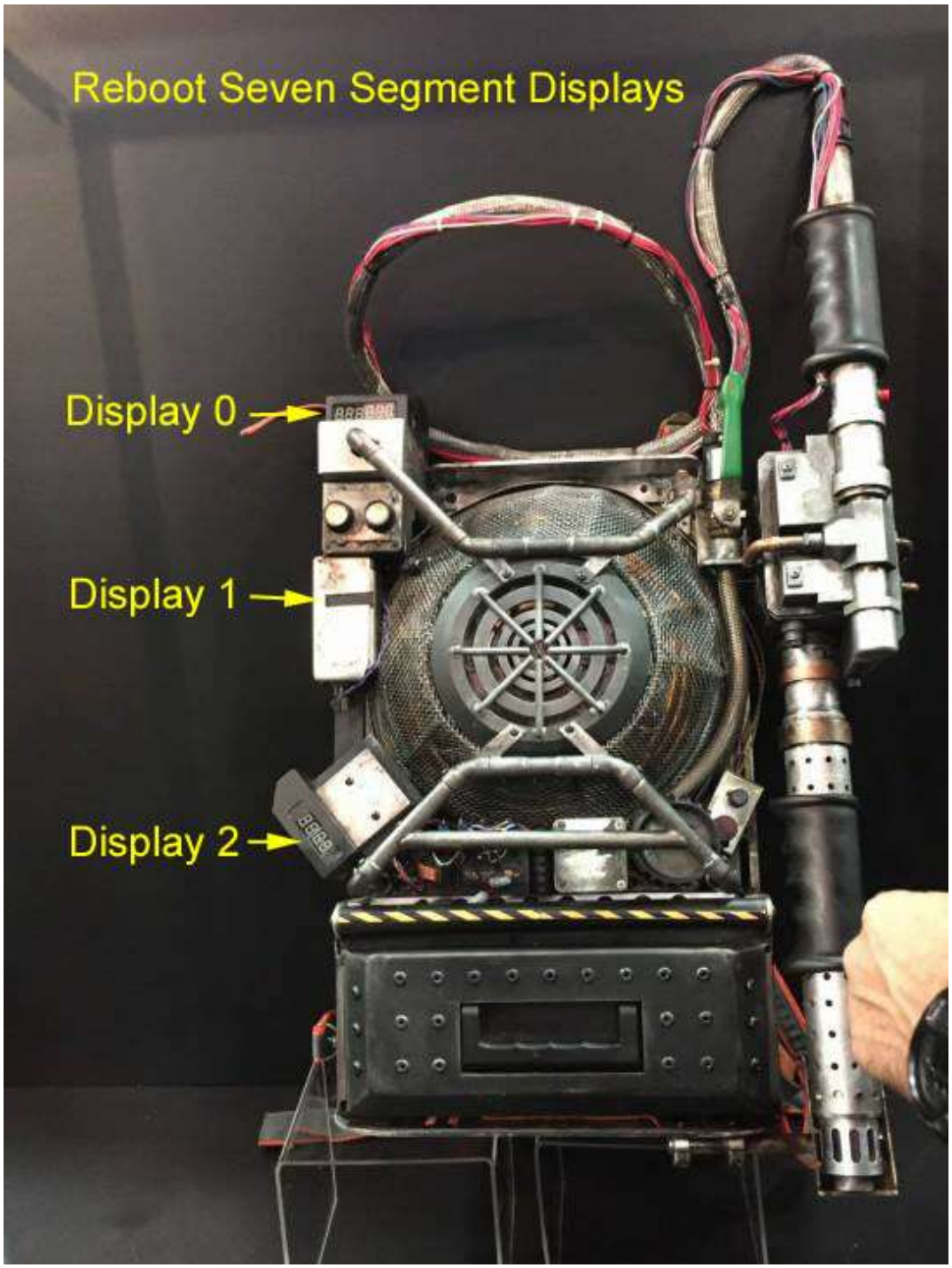
Reboot Proton Pack Seven Segment Displays

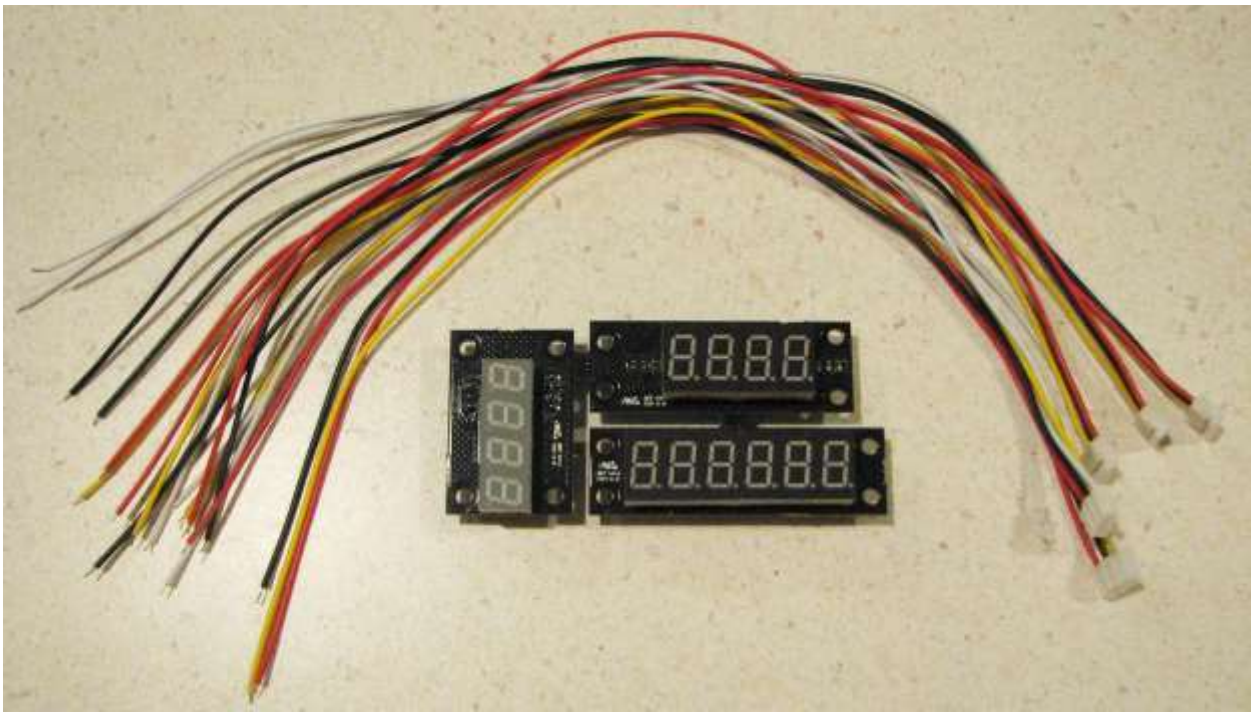
The reboot displays are designed to recreate the displays used in the new Ghostbusters movie's proton packs. It is for a set of boards with 7-segment displays and a surface mount display controller on the back of each board. Each display has a different configuration. They can all controlled by an external Arduino (not included), so the actual display operation can be easily changed to match whatever they end up doing with this displays in the movie.

Display 0 is a green 6 digit display and is located on the top left side of the pack.
Display 1 is yellow-green 4 digit display located on the upper center left side of the pack.
Display 2 is a green 4 digit display located at an angle on the lower center left side of the pack.



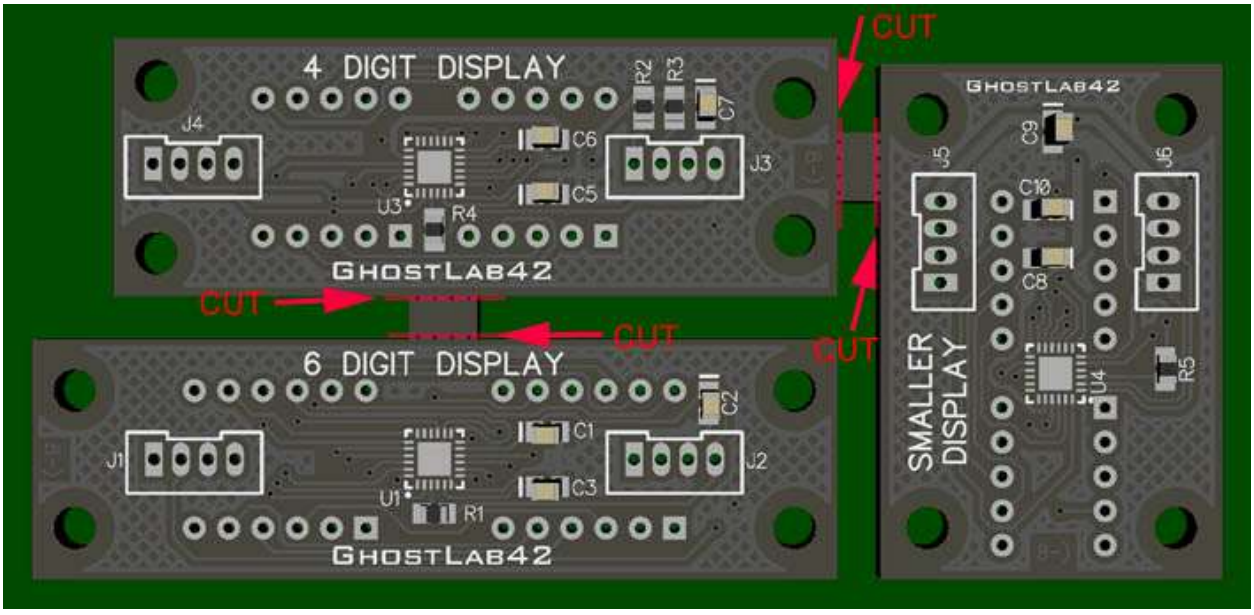
Board Prep:

The reboot kit comes with the three boards and five 4-pin cables so you can daisy-chain them together and control them from an Arduino using just two signal pins and +5V and Gnd.



The boards do need to be cut apart. They do have “rat bites” to make them break apart, but apparently the rat I used was missing a few teeth so it is best to just cut them apart and not count on being able to snap them apart. I use a Dremel, but a hacksaw will also work fine. The boards are made of glass epoxy, so it is probably best not to breathe in the debris generated while cutting them.

Four short cuts will be required to make three separate rectangular shaped boards:



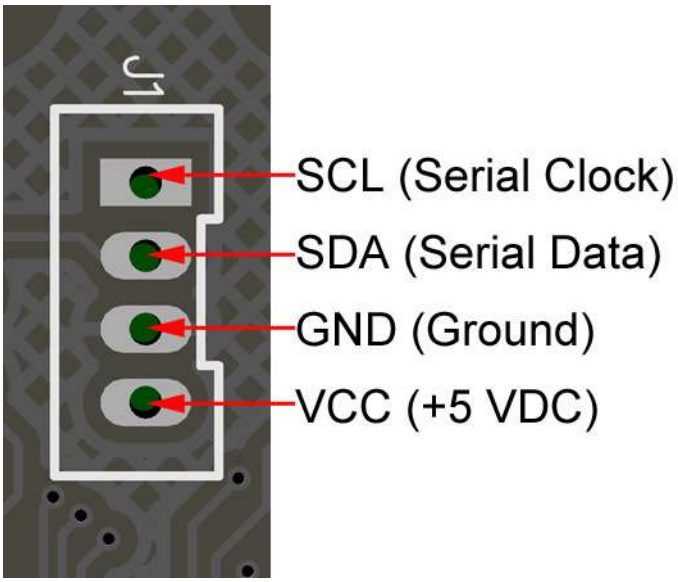
Connections:

The boards do need to be electrically connected to the Arduino and to each other. The kit includes five cables to help you make these connections.

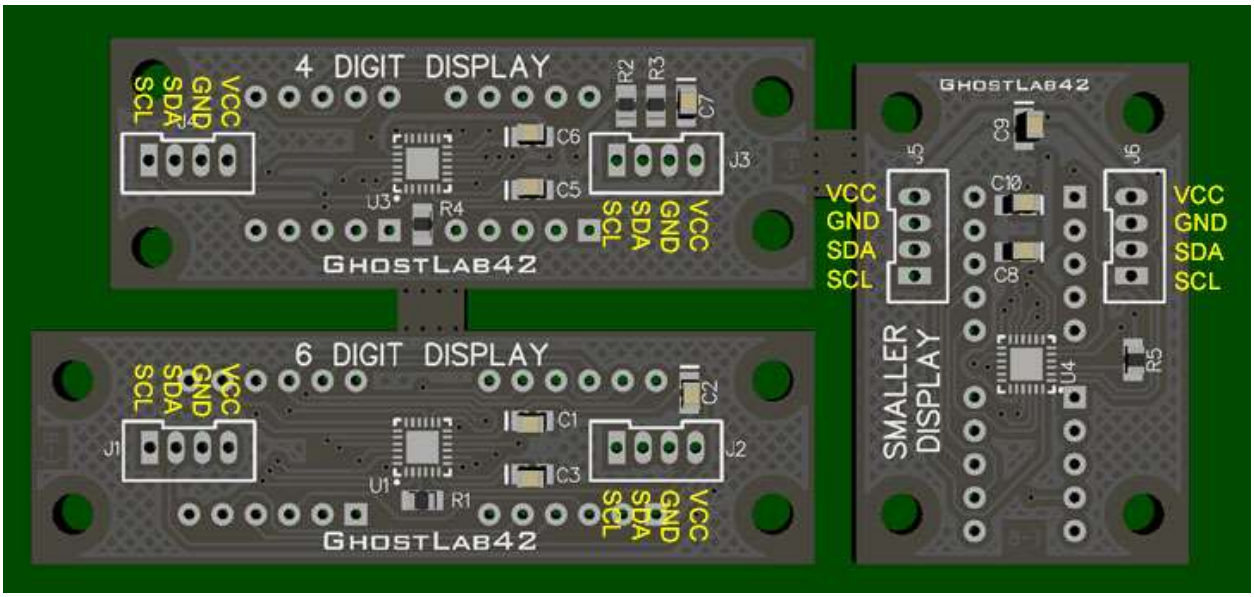
WARNING NOTE:
I thought the cables were consistently color coded, but they are not. So take great care to make sure the proper signals are connected and do not rely on a particular color of the wire.

Both of the connectors on each board have the same signal names, are connected electrically on the board and are identical – it does not matter which one you connect to. The reason for two connectors is so you can daisy-chain the boards together: Connect the Arduino to one connector then a cable from the other connector to a connector on another board, etc.

Here are the signal names for each connector:

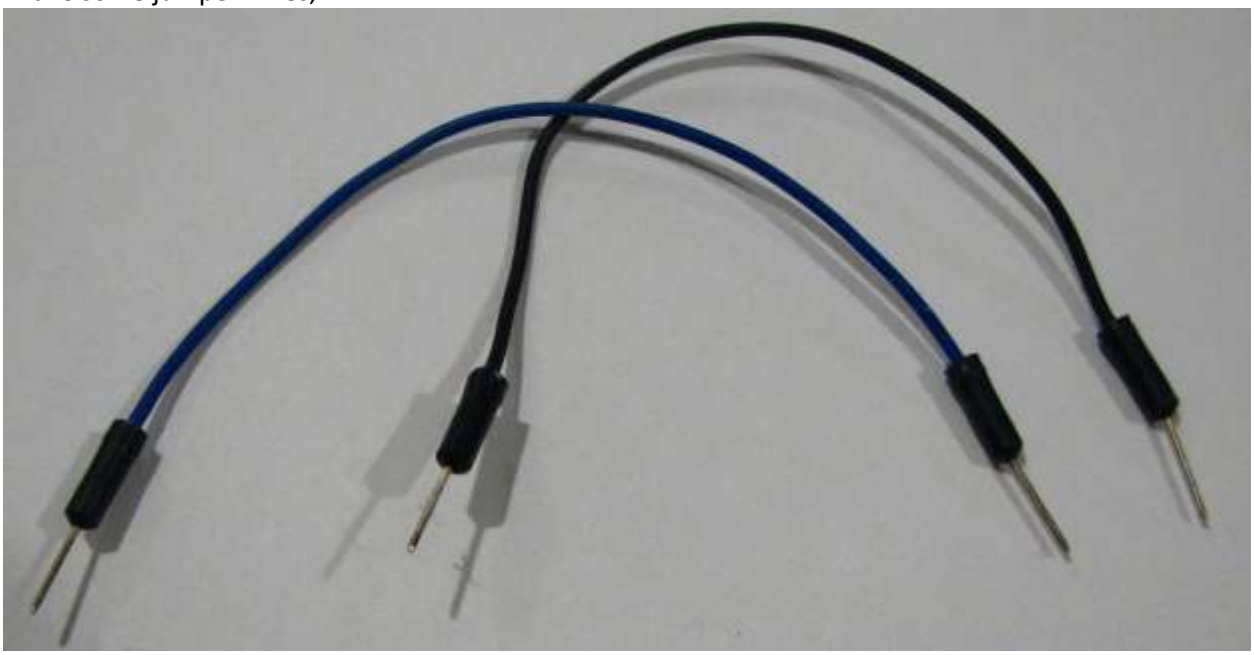


And here is a diagram showing the same information, but labeled near each of the connectors:

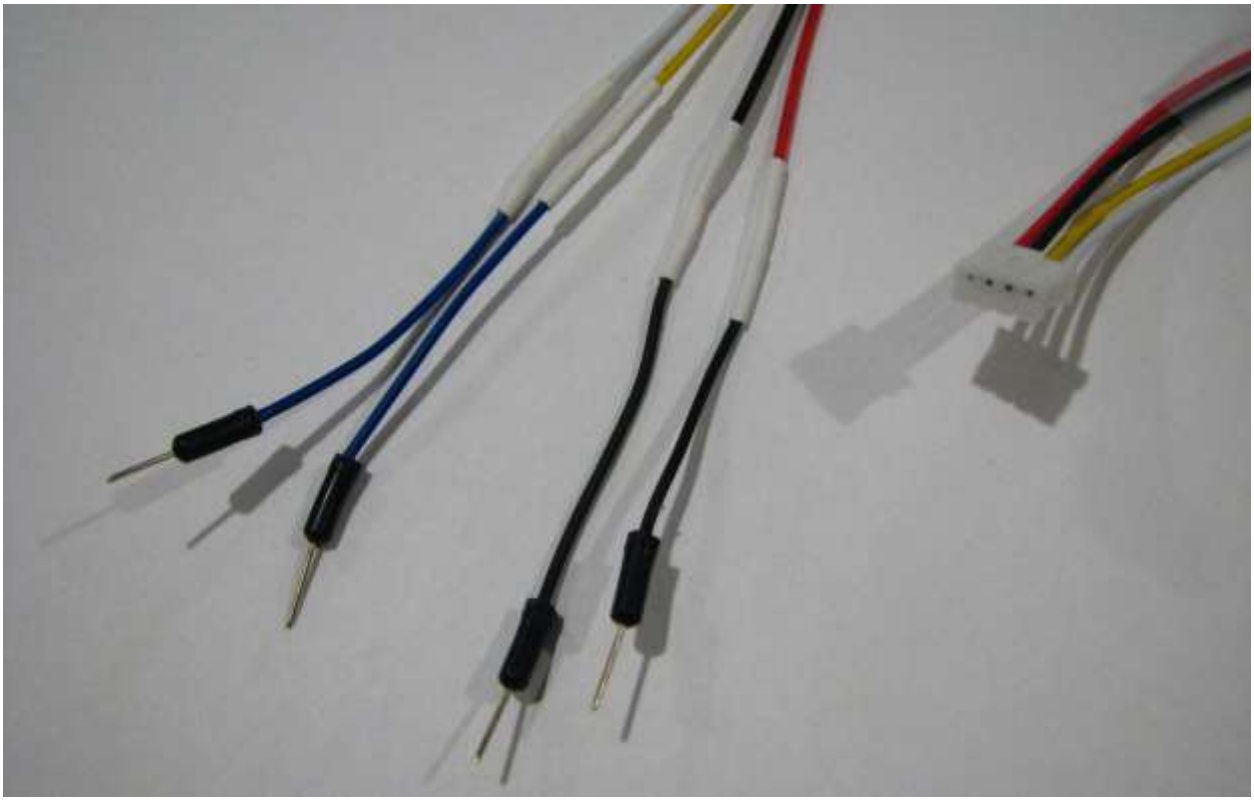


Different Arduinos have different connections, some are socketed and some provide solder holes. There are also breadboard/dev boards for making your own connections to a circuit board that can plug into the Arduino. In this example I am using an Arduino UNO which has sockets and will just directly attach to it.

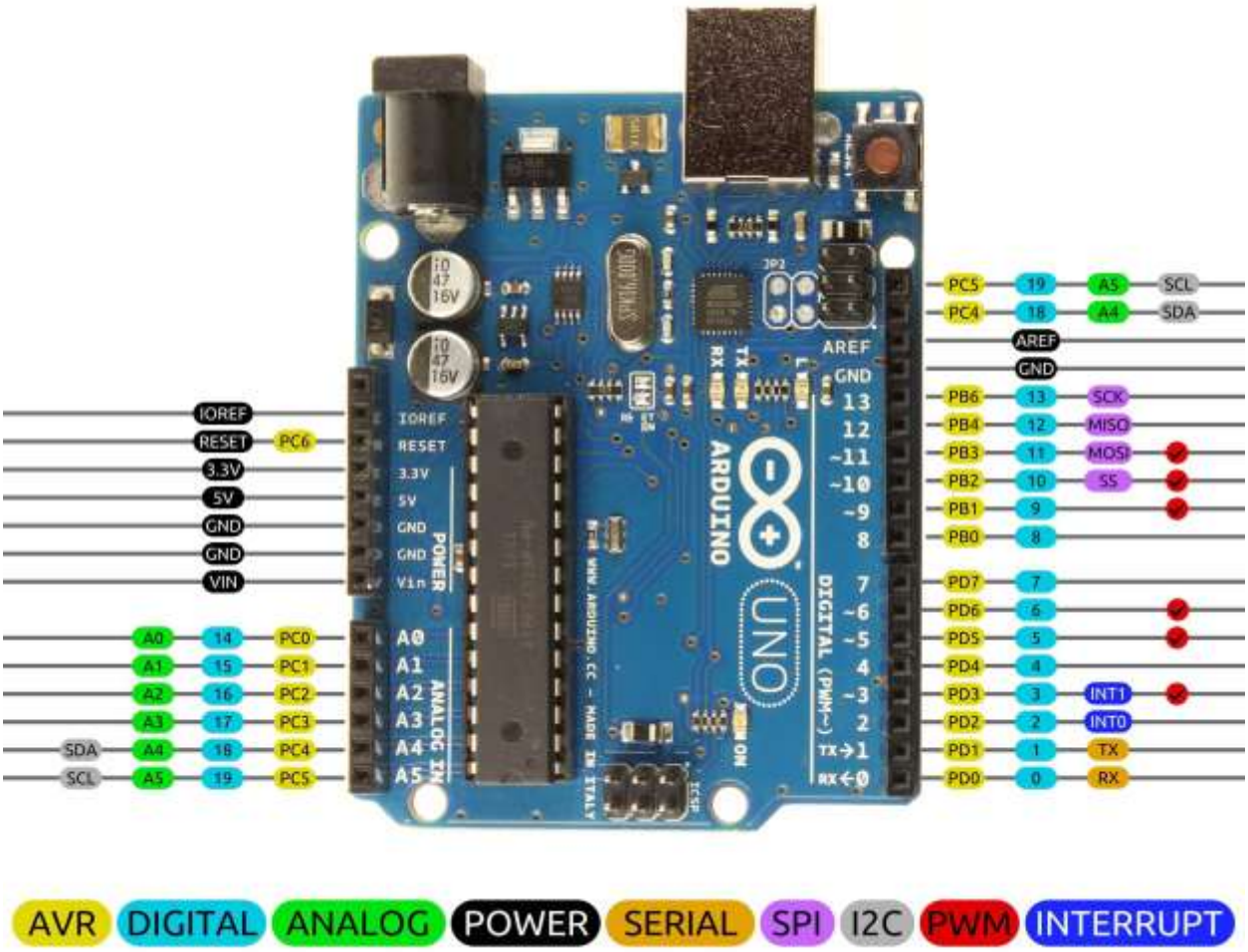
I have some jumper wires,



and cut them in half and attached to the end of one of the five cables:

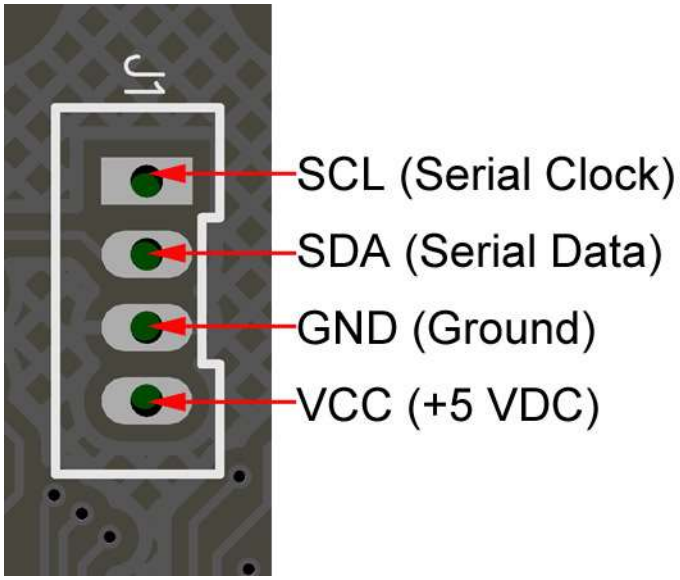


Here is a pinout diagram for the Arduino UNO (R3):

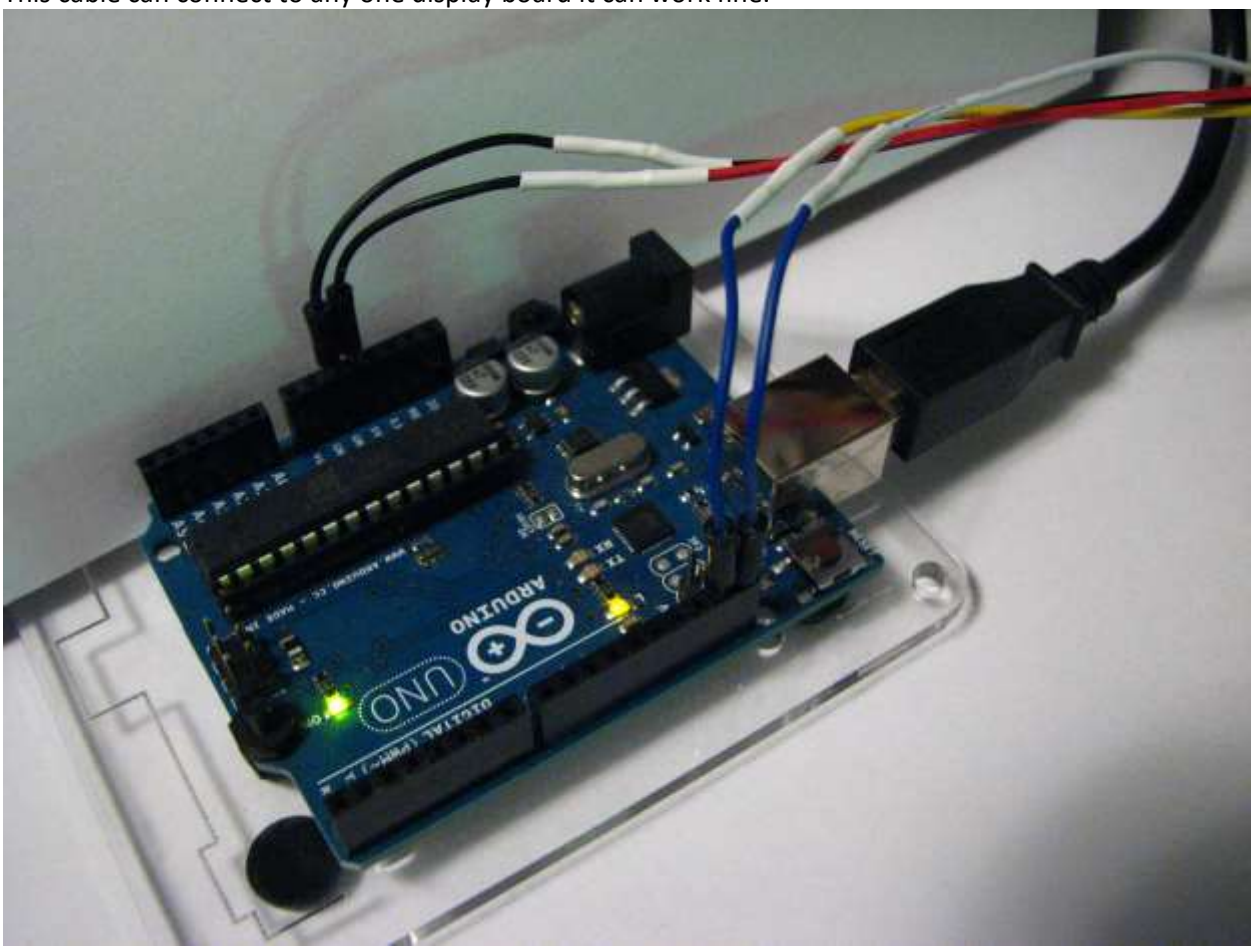


Connecting the four wires to the Arduino Uno:

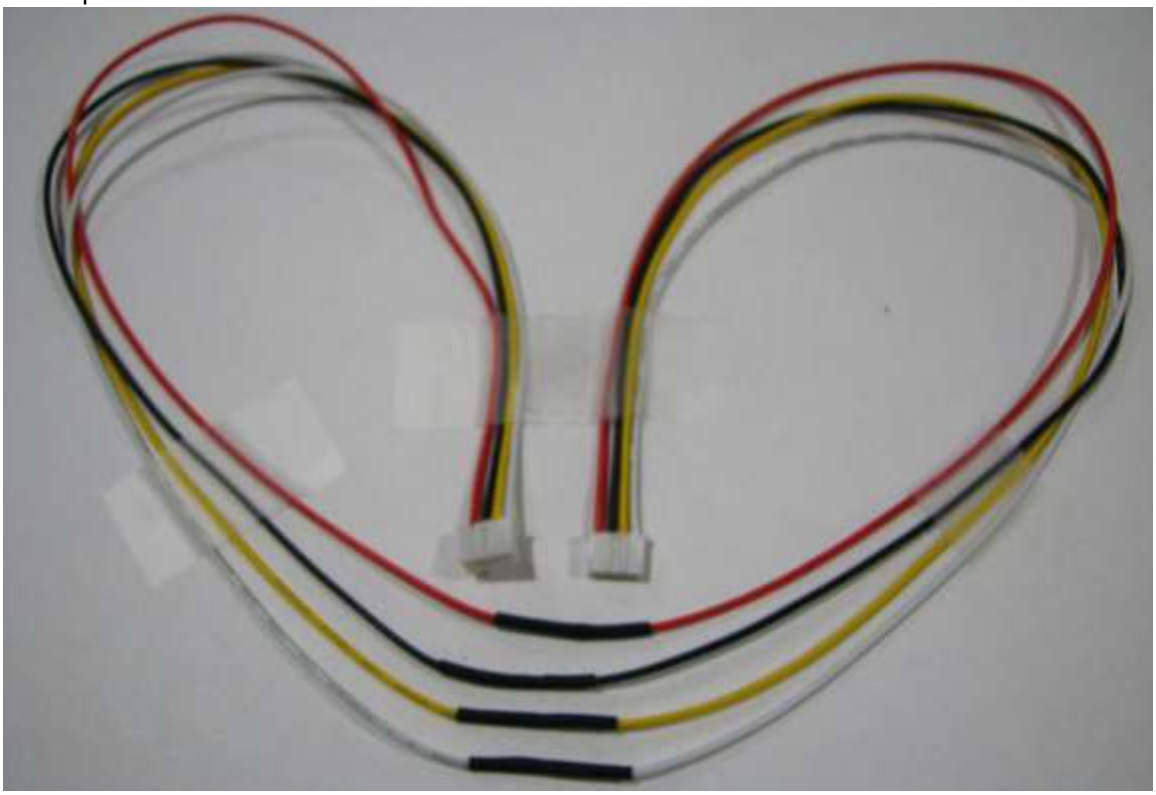
1) SLK from ANALOG IN section on upper right side (or lower left side)
2) SDA from ANALOG IN section on upper right side (or lower left side)
3) GND (Ground) from POWER section on middle left side
4) 5V from POWER section on middle left side



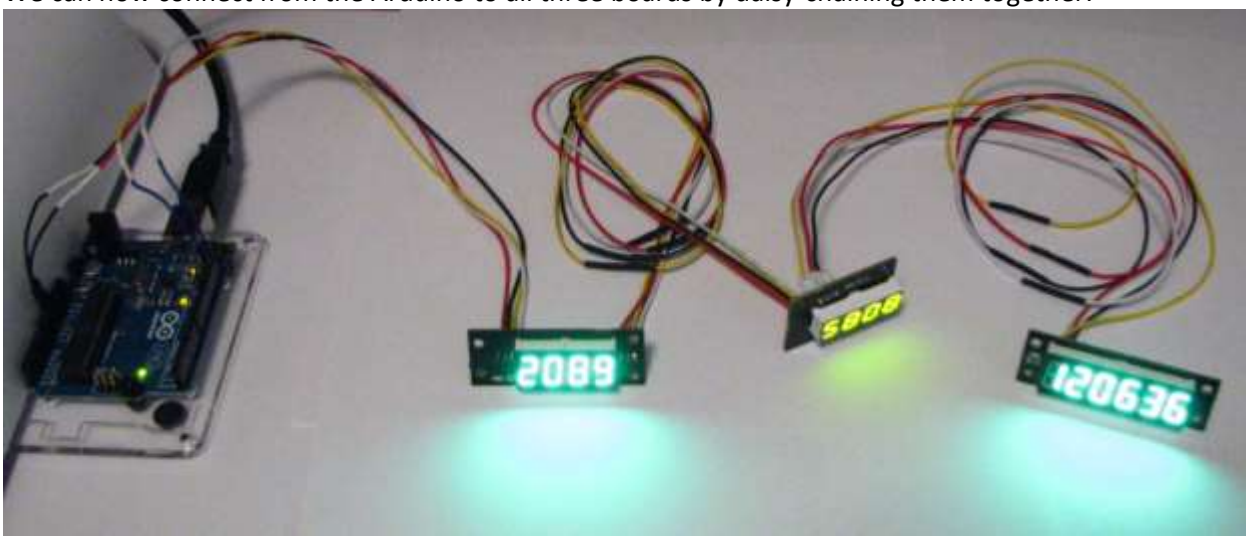
This cable can connect to any one display board it can work fine.



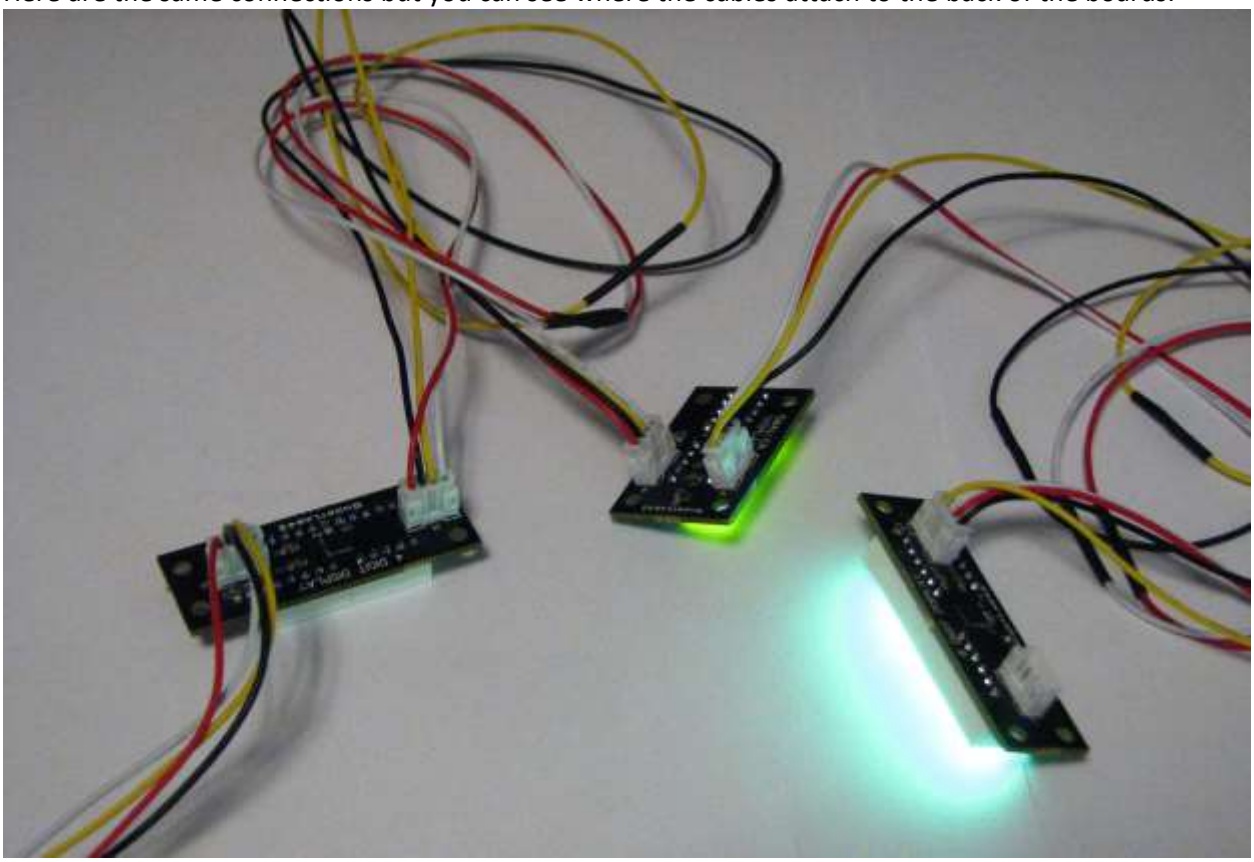
We really want to have all three controlled without any additional Arduino connections. To accomplish this we use the remaining four cables and soldered them together in pairs to make two longer cables with the 4 pin connector on both ends:



We can now connect from the Arduino to all three boards by daisy-chaining them together:



Here are the same connections but you can see where the cables attach to the back of the boards:



The two connectors on the board are identical, so it does not matter which one you plug into. There are two on each board so you can decide how to best route your cables and determine which one will only use one of the connectors (the last one in the chain!)

Board and Display Dimensions:

