c. Techniques

To assemble the core board, there are a few techniques that you will need to know.

Soldering to the middle of wires

Throughout the assembly process you will need to solder wires to branch off of other wires. This can be done through multiple methods, but the most durable is to strip the wire and solder to that point.

1. Prepare two pieces of wire as well as a method to strip the wire. This can be flush cutters, a wire stripper, or a knife.

Figure 22 – Prepared Wires and Tools

2. Strip the wire to reveal a segment of the copper. This will push the insulation so there is an excess on the end; this can be cut off at the end of the process.
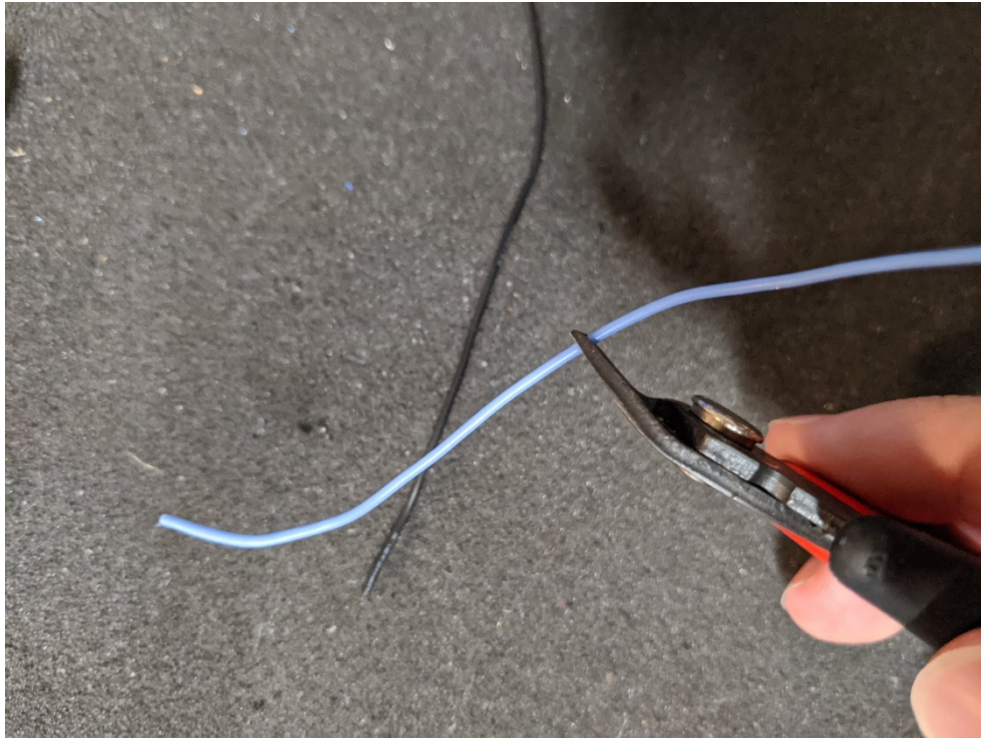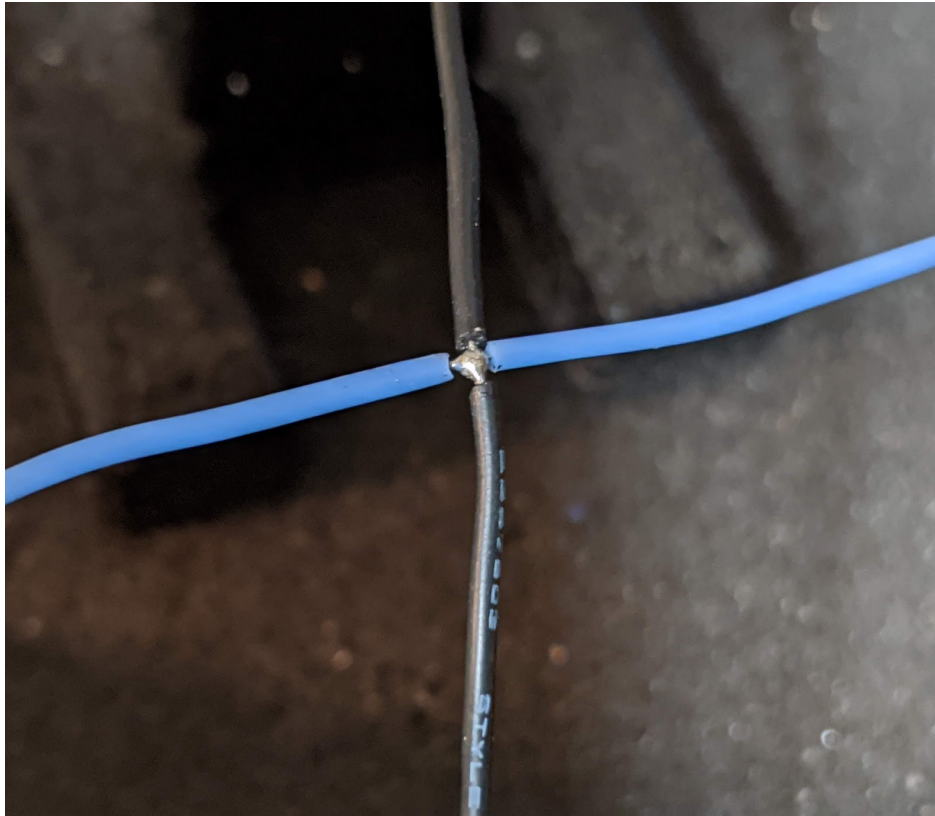
Figure 23 – Positioning of Tool
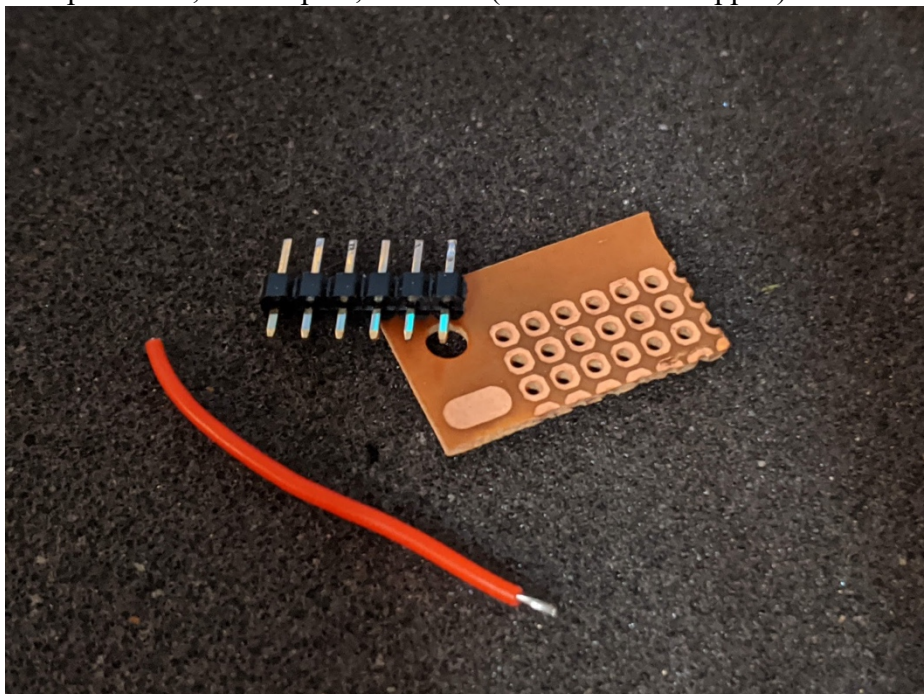

Figure 24 – Stripped Wires

3. Solder the two wires together.
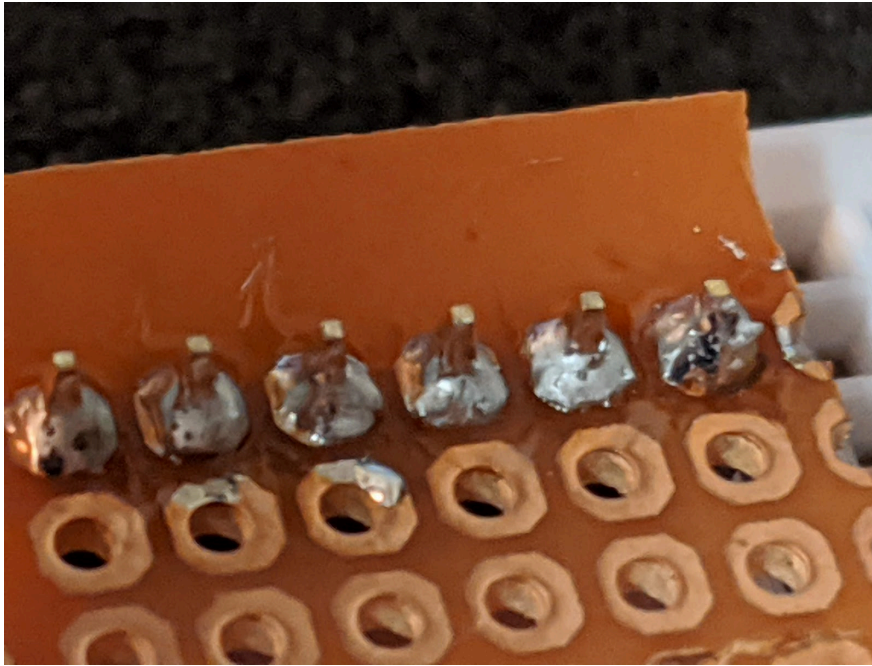
Figure 25 – Soldered Wires

Soldering header pins and wires to perfboard

1. Prepare the perfboard, header pins, and wire (with one end stripped).

Figure 26 – Prepared Materials

2. Solder the header pins to the perfboard.

AutoLung

Figure 27 – Header Pins Soldered to Perfboard

3. Follow these steps in order:
   a. Add a bit more solder to the pin you will solder the wire to.
   b. Heat the solder joint connecting the pin to the pad on the perfboard.
   c. Feed the wire into the solder joint so that the wire is covered with the solder. A common mistake is to let one side of the wire touch the solder and the other side not touch the solder; this can result in connections that break easily. If this is difficult, try adding more solder or flux if you have any.
   d. Remove the soldering iron.
   e. Inspect the solder connection. If there are issues, try adding more solder and/or repeating the process.

Figure 28 – Completed Connection