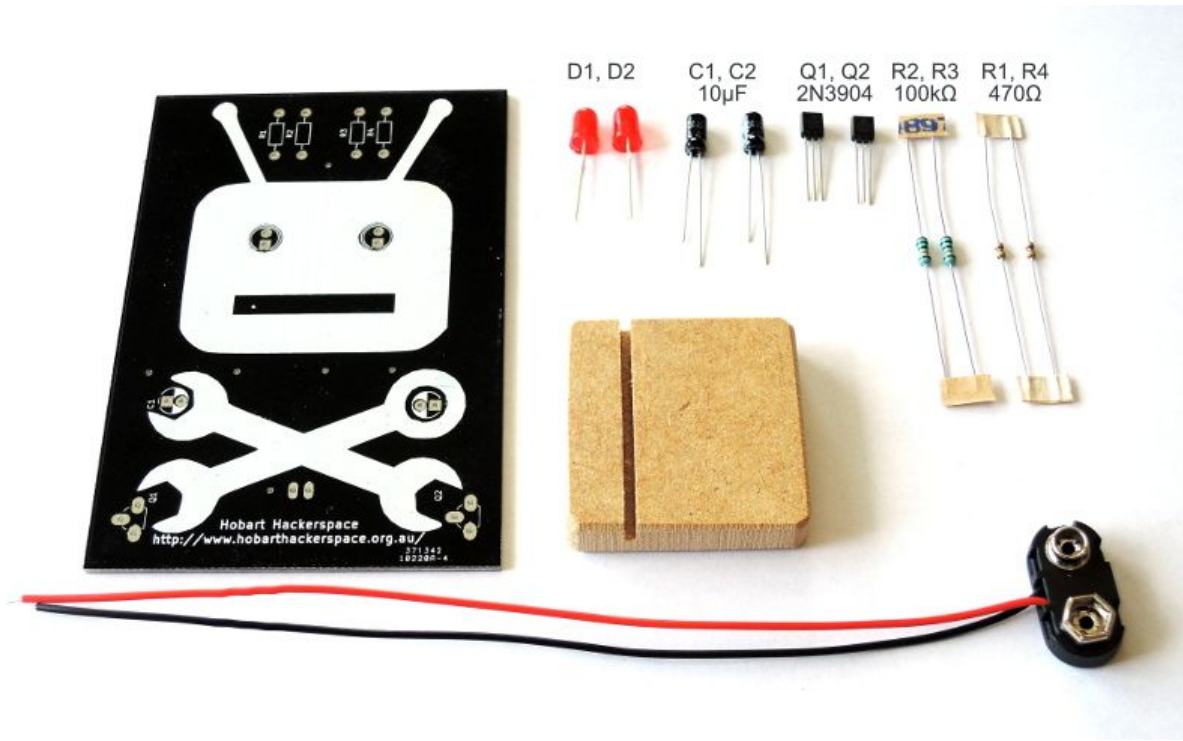
HOBART HACKERSPACE

Hacky Flash Kit - Assembly Notes

Documentation: v0.1 Last updated: 2017-01-19

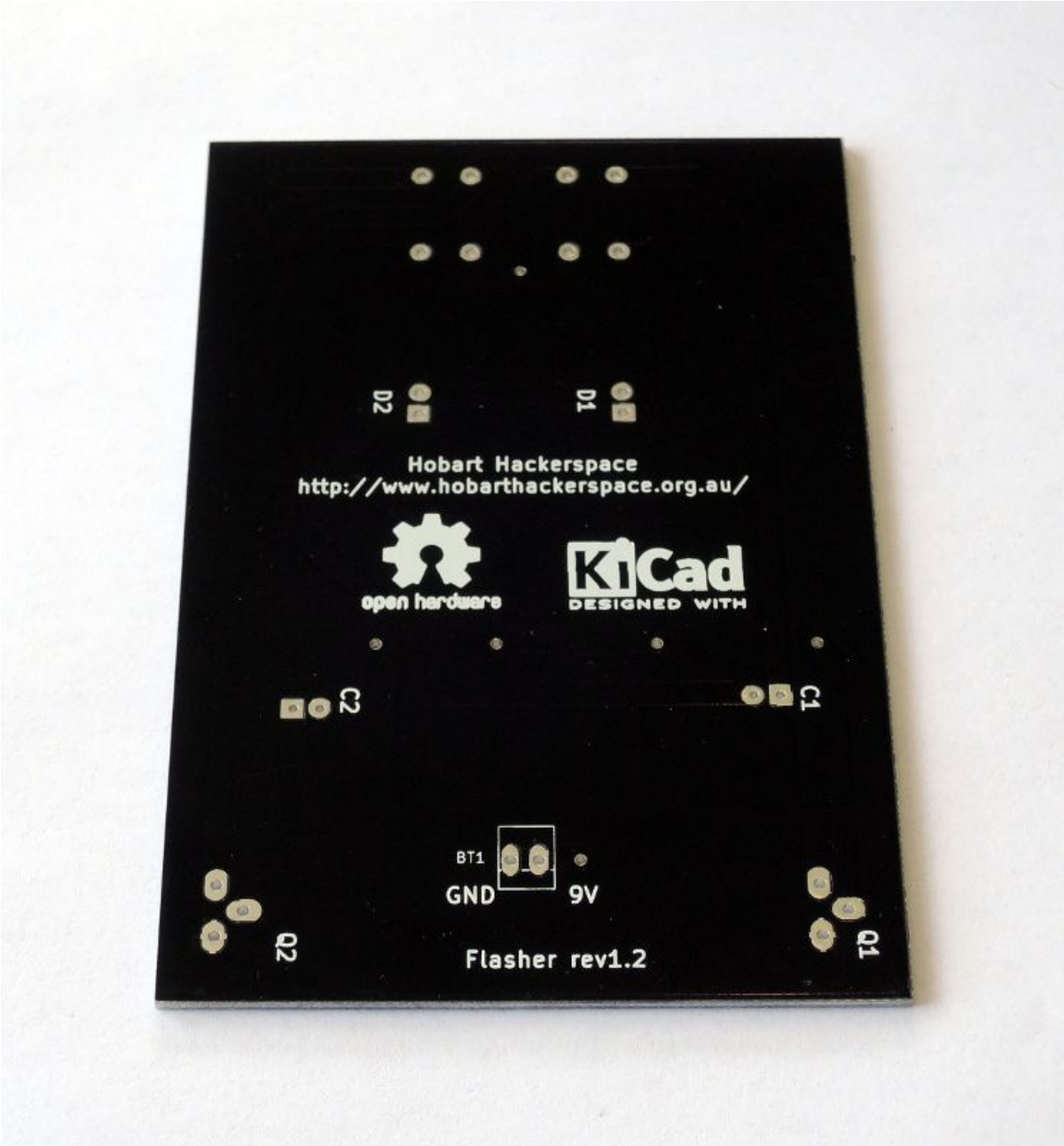
1) Check kit contents



Your kit should include

- The printed circuit board, with the Hobart Hackerspace logo on it
- 2 LEDs (D1 and D2)
- 2 10uF Capacitors (C1 and C2)
- 2 2N3904 transistors (Q1 and Q2)
- 4 Resistors (2 resistors R1 and R4, 470 ohm and 2 more R2 and R3 100k Ohm)
- A wooden stand
- A battery clip

2) Back of board

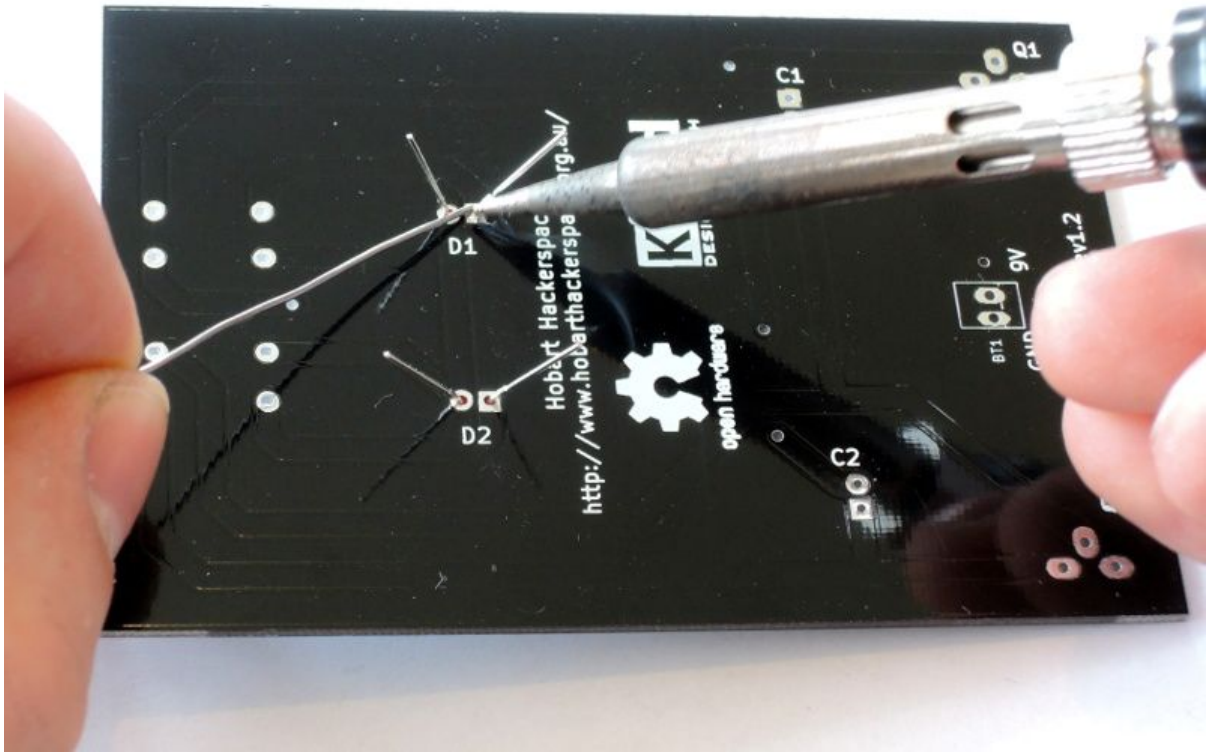


The back of the board is also labelled with the LED, capacitor and transistor positions.

3) Insert the LEDs the right way round

When inserting the LEDs (and other parts), it's **crucial** to get the leads the right way round. The long (+) lead goes towards the top of the face, and the short (-) lead goes towards the spanners, or towards the bottom of the face.

4) Soldering in the LEDs



When soldering, it can be helpful to put the component in the board, and spread apart the leads of the component. This helps hold it in place while you solder it.

Heat the junction between the lead and the board pad, with a wetted/tinned iron, then when it's warm enough (should only take 3 or less seconds), touch the solder to the joint.

If it doesn't work after 3-5 seconds, your iron might be corroded, or it might not be warm enough. Please ask your instructor for advice.

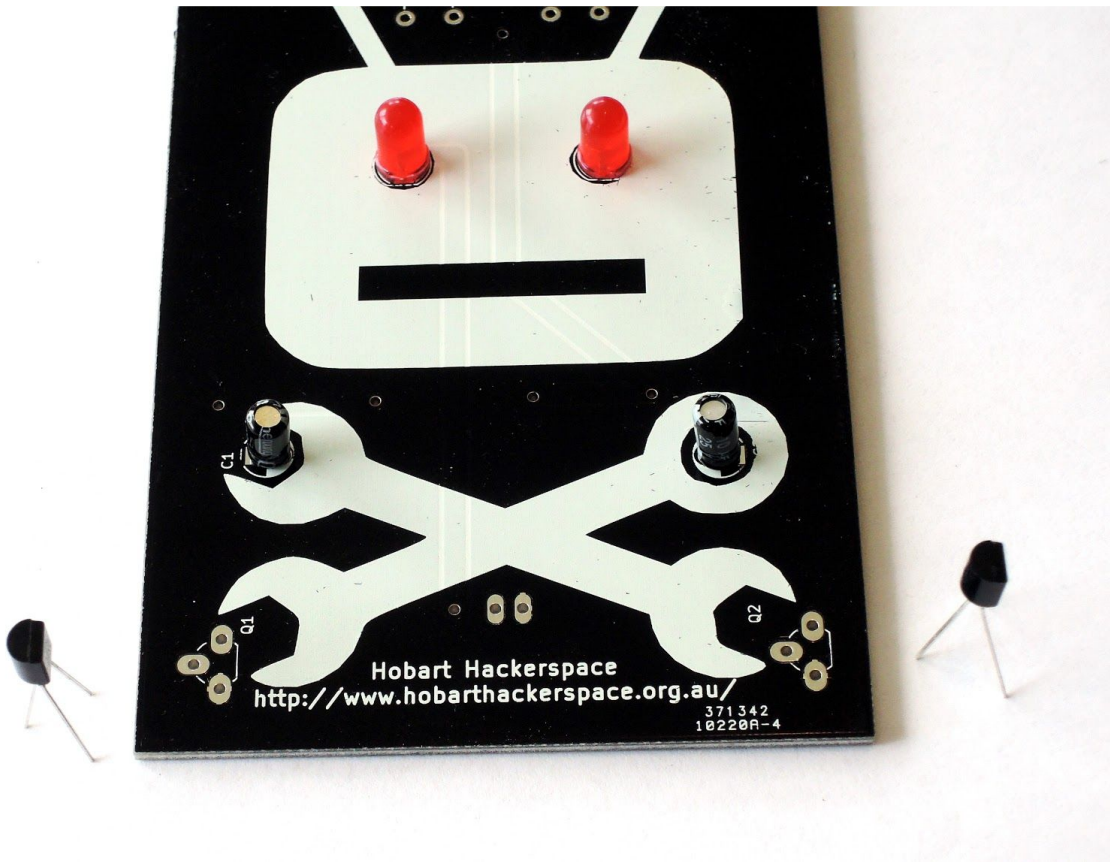
5) Capacitor direction (watch the white stripe)

The white stripes of the capacitors (the negative leg) also need to be pointing the right way. Towards each other in this case.

6) LEDs and Capacitors in place

Here's what the board looks like with the LEDs and capacitors soldered in place.

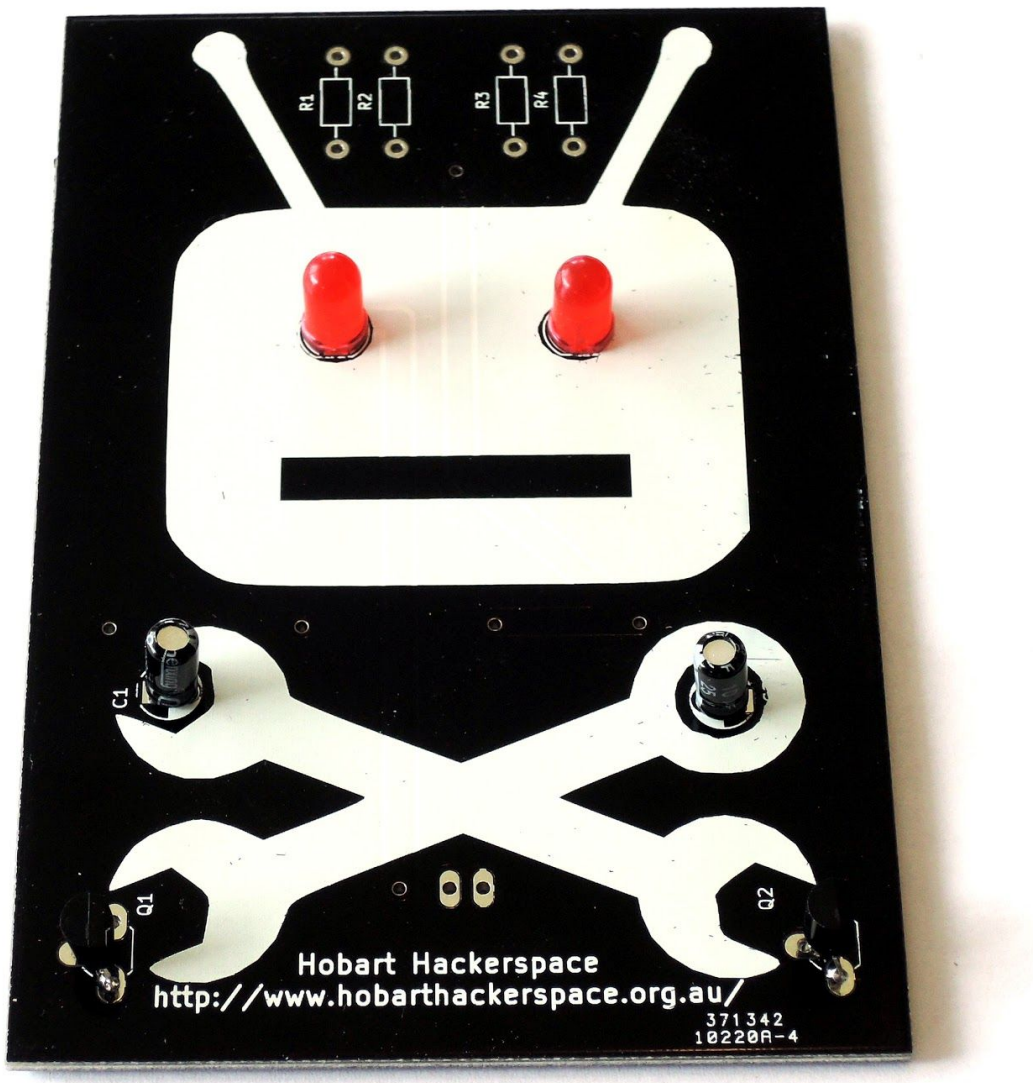
7) Transistor Direction



The transistors also need to be placed in the board in the right orientation.

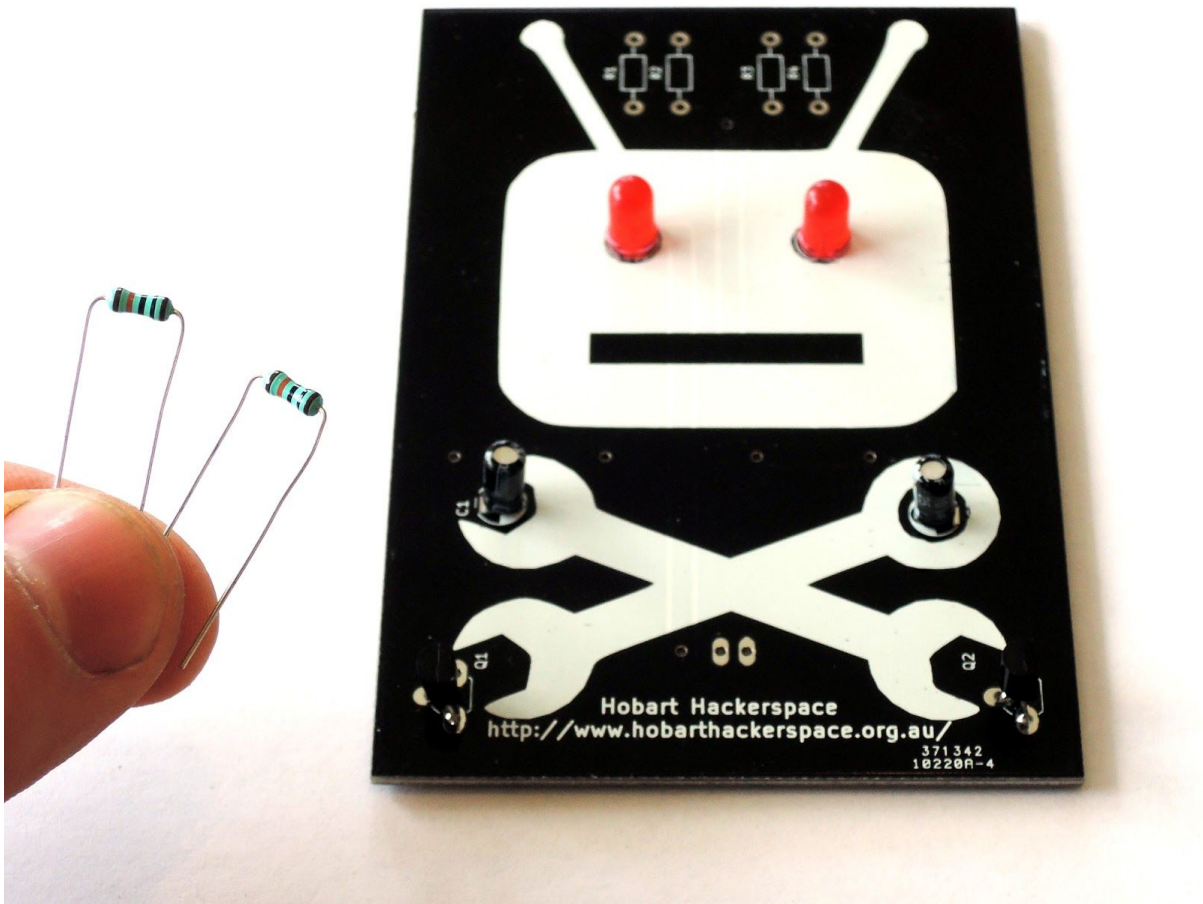
The flats on the transistor bodies correspond to flats in the white marking on the board. If you look closely, you can see the circles have a flat to the right hand side. Spread out the leads of the transistor, until they fit through the board, then adjust them some more to hold the transistor in place.

8) Transistors in place



It’s hard to see in this picture, but the transistors are now in place.

9) Forming resistor leads



To put the resistors in place, you need to form the leads.

Take the leads and gently bend them at right angles, until they resemble the resistors in the photograph. All four resistors need to look like this.

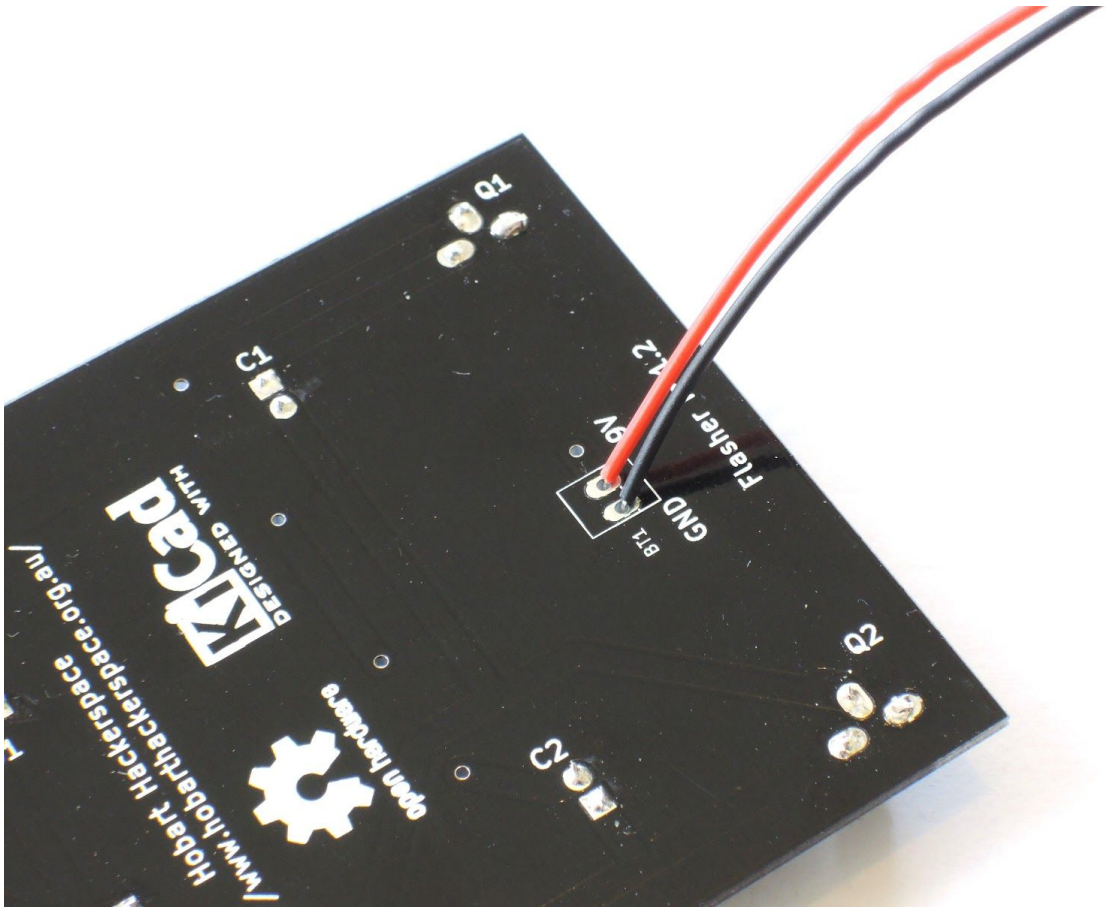
10) Resistors in place (R2 and R3)

Here you can see the first two resistors in place.

11) More resistors in place (R1 and R4)

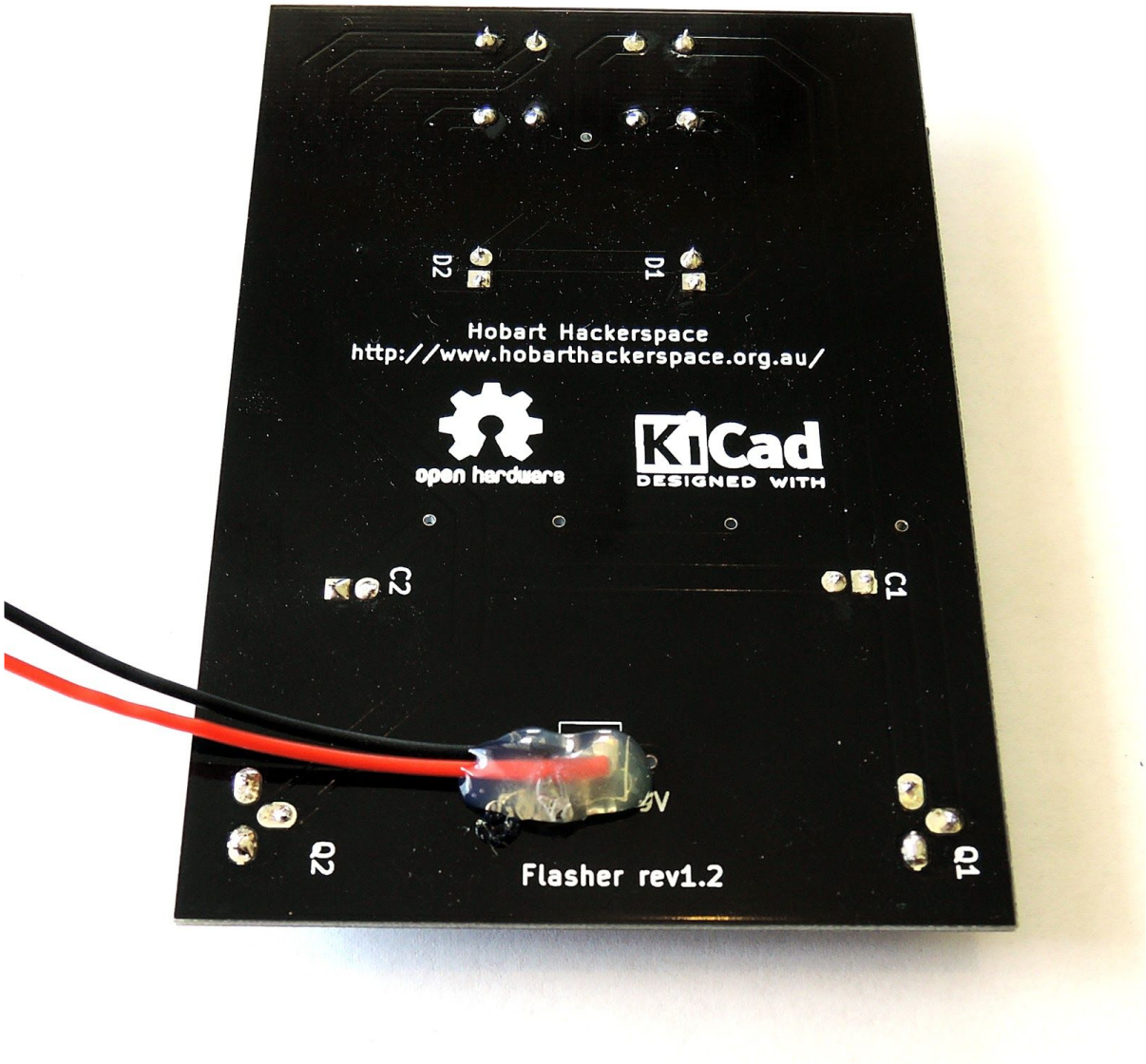
And now the remaining two are in place.

12) Battery leads in place



The leads to the battery clip need to be attached correctly too - the red (positive) lead going to the terminal marked 9v and the black (negative) lead going to the terminal marked GND.

13) Hot gluing the battery leads



It really helps to have a friend help with this stage, but it is possible on your own. The idea is to hot glue the battery leads in place, to make soldering much easier, and to also provide a strain relief for the wires.

14) Mounting the board in a stand

Clip the battery into the clip, and place the board in the provided stand, and your HackyFlash gadget should start blinking.

Thanks for taking part!