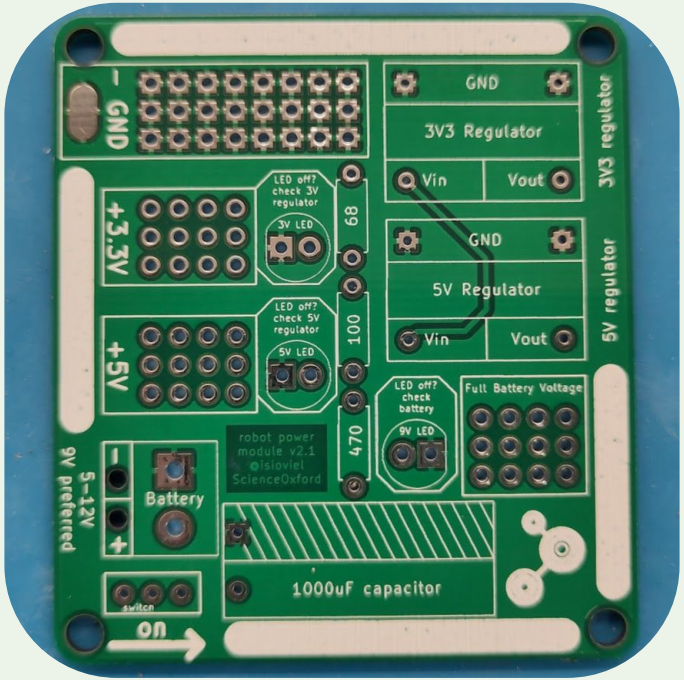
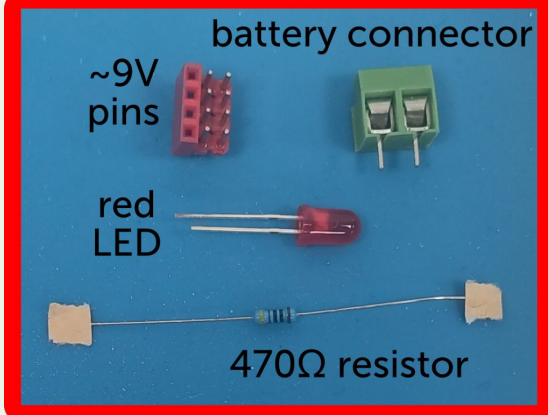
STEP 1

Check that you have all of the components you need.

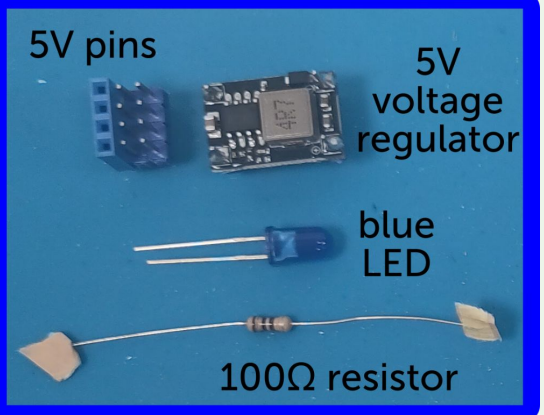
A text list is on the next page.



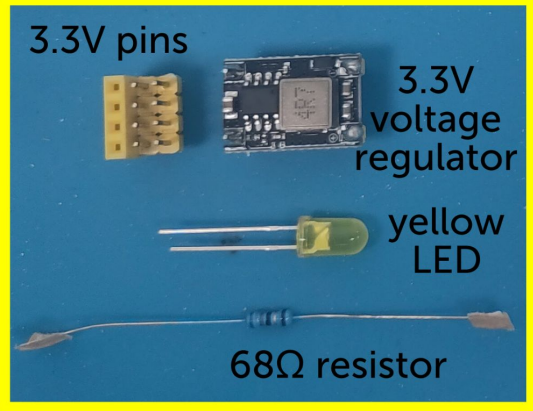
Red ~9V Section



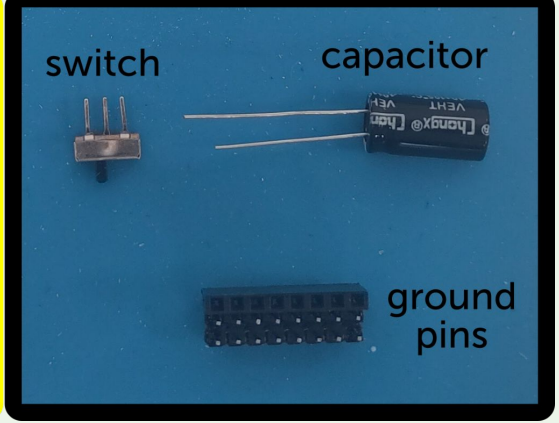
Blue 5V Section



Yellow 3.3V Section



Other Components

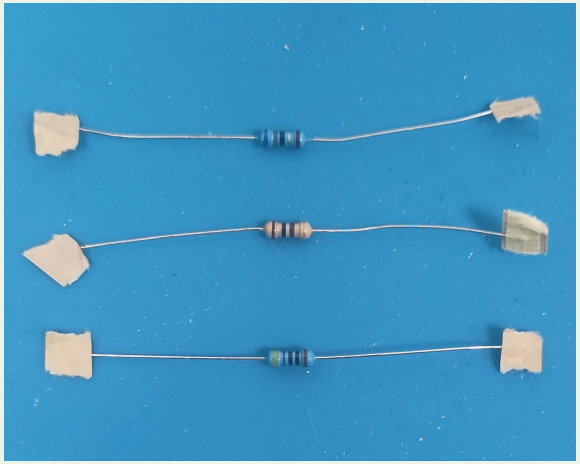


STEP 1

Check that you have all of the components.

A picture list is on the previous page.

- ❑ Printed circuit board
- ❑ Resistors (3)
  - ❑ 470Ω
  - ❑ 100Ω
  - ❑ 68Ω
- ❑ Switch
- ❑ Voltage regulators (2)
  - ❑ Blue 5V
  - ❑ Yellow 3.3V
- ❑ Capacitor
- ❑ LEDs (3)
  - ❑ Red
  - ❑ Blue
  - ❑ Yellow
- ❑ Pin headers (4)
  - ❑ Red
  - ❑ Blue
  - ❑ Yellow
  - ❑ Black
- ❑ Battery connector



If your resistors do not have labels, work out which is which from the colours.

Resistor Calculator

STEP 2

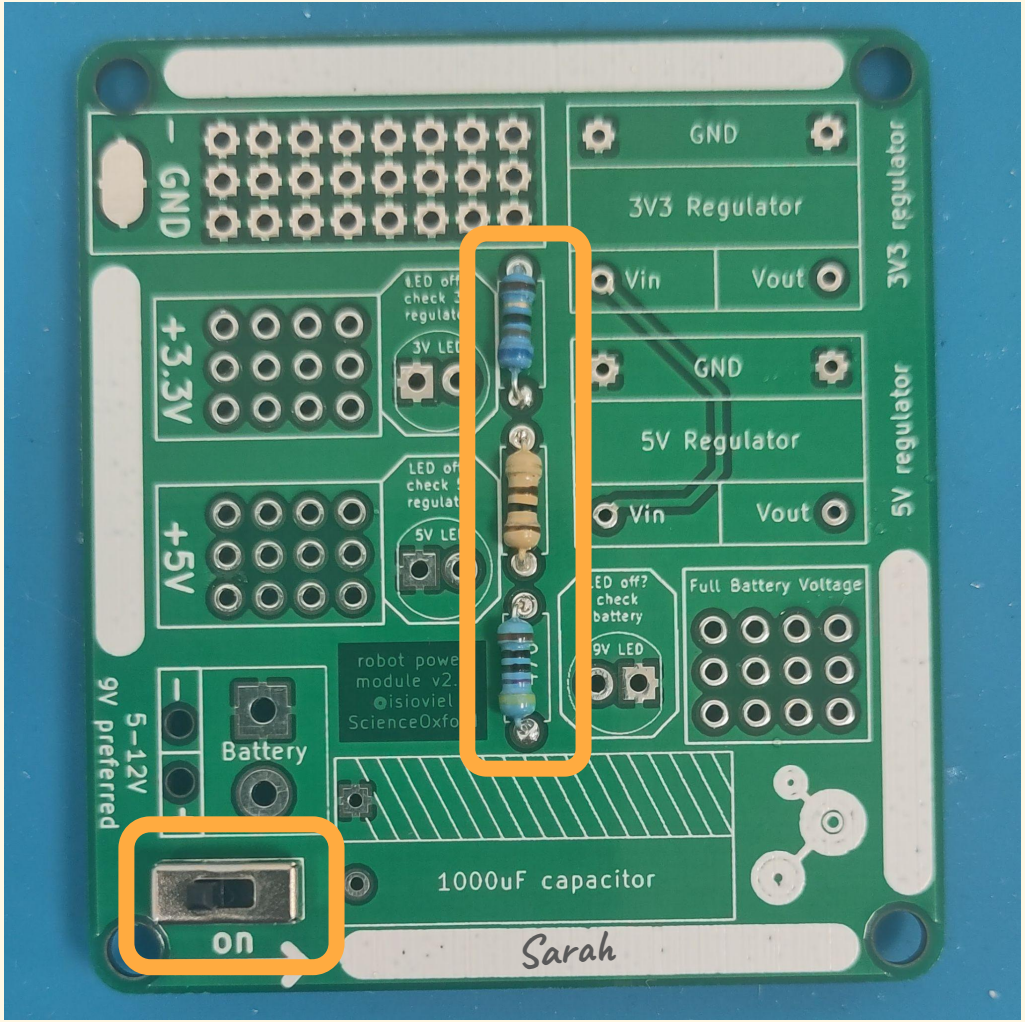
- ❏ Write your name on a white space with marker.

STEP 3

- ❏ Solder the three resistors.
  - ❏ 68Ω resistor to the space labelled **68R**
  - ❏ 100Ω resistor to the space labelled **100R**
  - ❏ 470Ω resistor to the space labelled **470R**

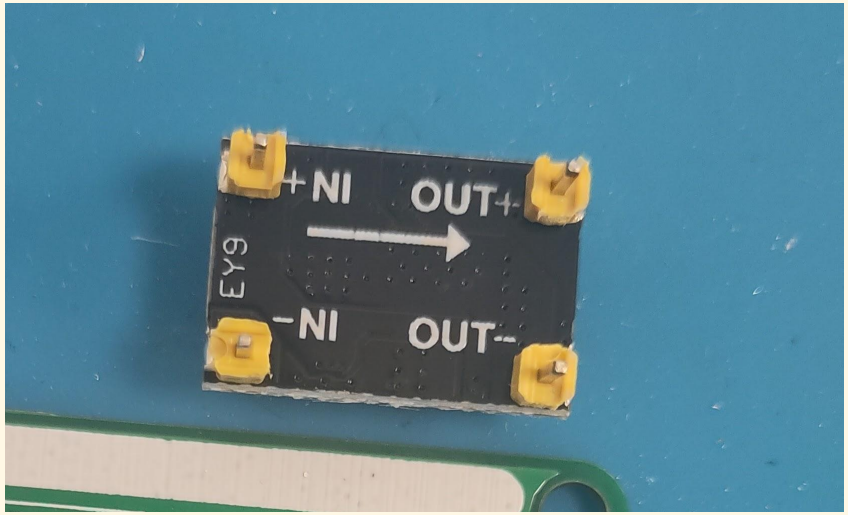
STEP 4

- ❏ Solder the switch.



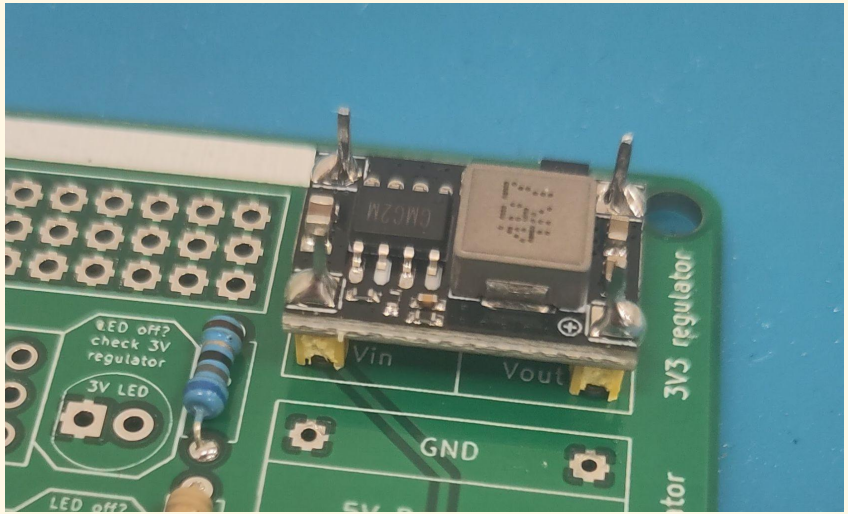
STEP 5

- ❏ Find the 3.3V voltage regulator (**yellow** pins).
- ❏ It is **very important** that this is the right way round.
  - ❏ One side is labelled IN, to match **`Vin`** on the board.
  - ❏ One side is labelled OUT, to match **`Vout`** on the board.
- ❏ Check that it lines up like the picture, then solder to the **`3V3 Regulator`** space on the board.



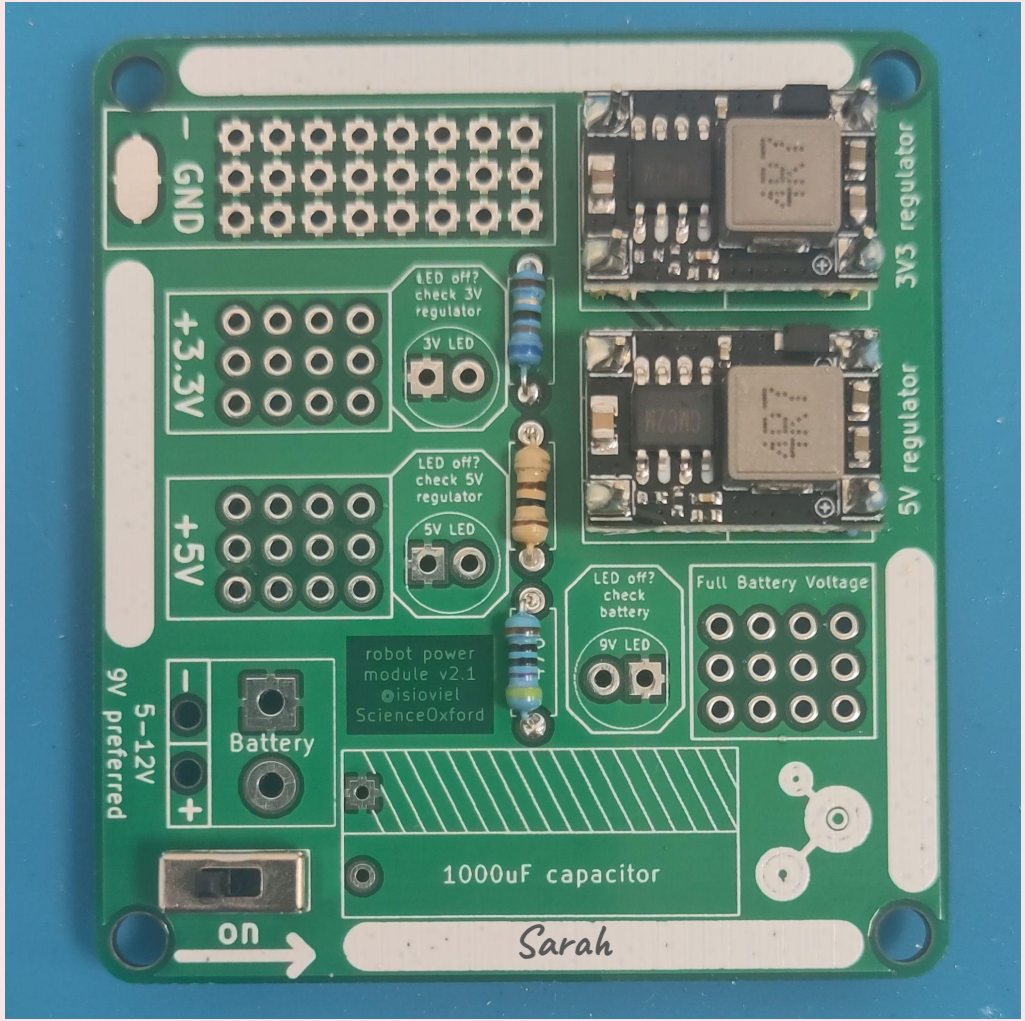
STEP 6

- ❏ Repeat for the 5V regulator (**blue** pins) in the **`5V Regulator`** space.



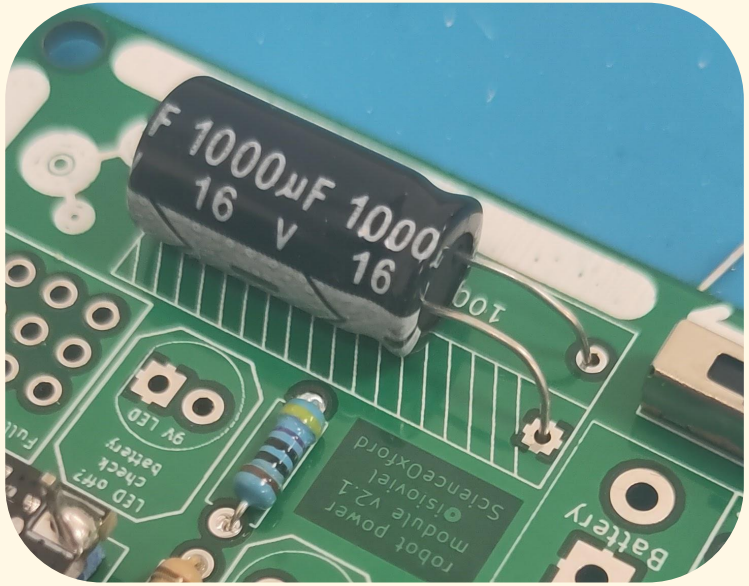
Your board so far...

- ✓ Resistors (3)
  - ✓ 470Ω
  - ✓ 100Ω
  - ✓ 68Ω
- ✓ Switch
- ✓ Voltage regulators (2)
  - ✓ Blue 5V
  - ✓ Yellow 3.3V

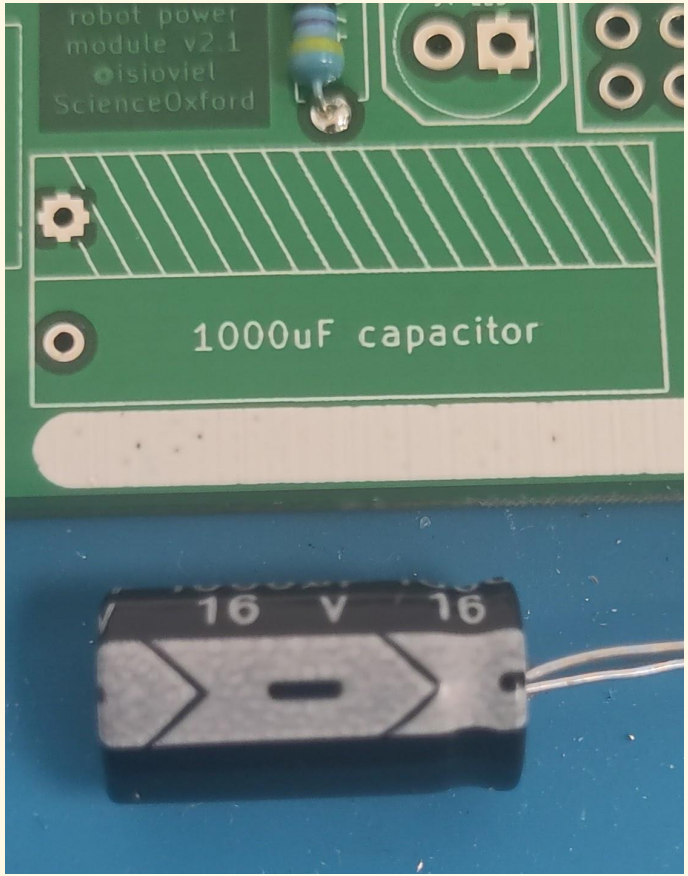


STEP 7

- ❏ Find the capacitor.
- ❏ It is **important** that this is the right way round.
  - ❏ The white stripe in the negative side.
  - ❏ This matches the stripy part of the board.



- ❏ Bend the legs, as in the picture on the left.
- ❏ Attach to the board with the stripes lined up.

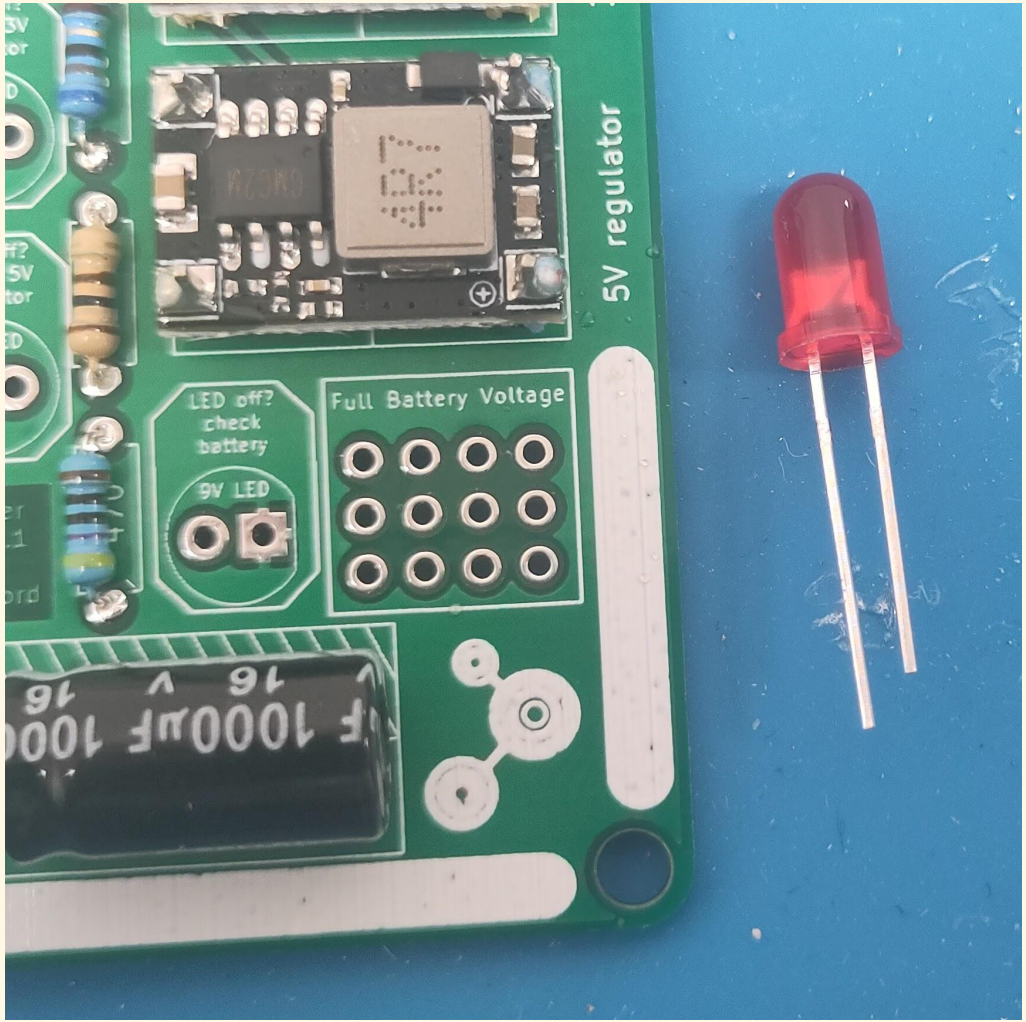


STEP 8

- ❏ Take your **red** LED, this goes into the **9V LED** space on the board.
- ❏ Remember, LEDs only work one way round - the **short leg** goes into the **square hole**.

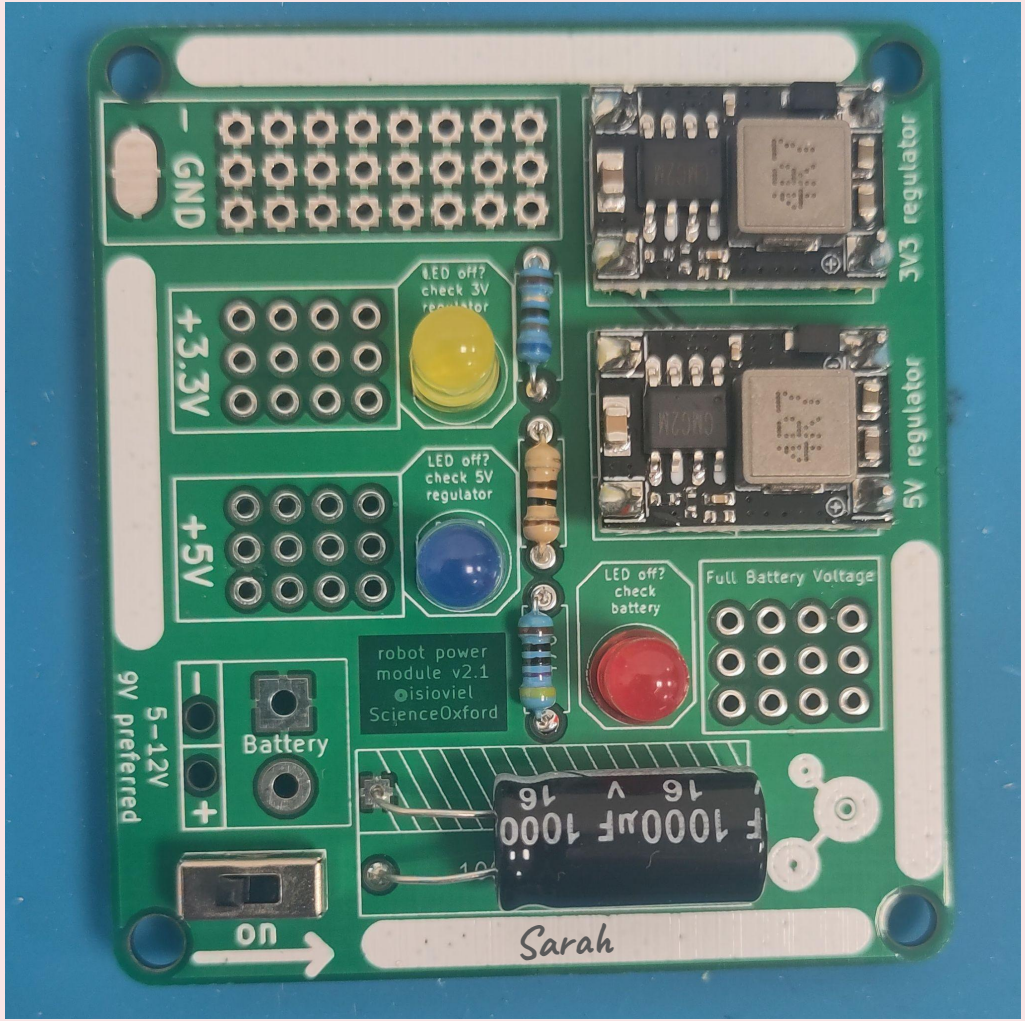
STEP 9

- ❏ Repeat for the other two LEDS.
  - ❏ **Blue** LED into the **5V LED** space on the board.
  - ❏ **Yellow** LED into the **3V LED** space on the board.



Your board so far...

- ✓ Resistors (3)
- ✓ Switch
- ✓ Voltage regulators (2)
- ✓ Capacitor
- ✓ LEDs
  - ✓ Red
  - ✓ Blue
  - ✓ Yellow

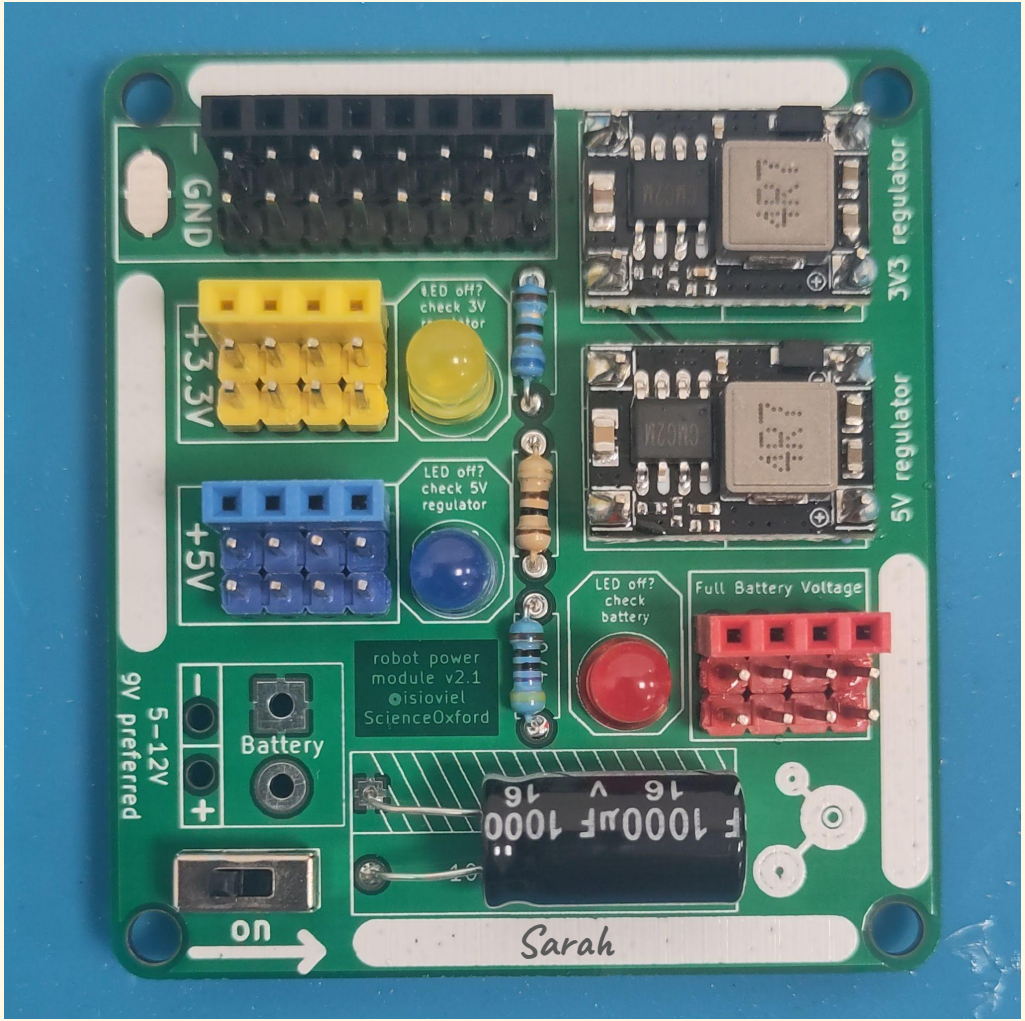


STEP 10

- ❏ Take your **red** pin headers, these go into the **`Full Battery Voltage`** space on the board.

STEP 11

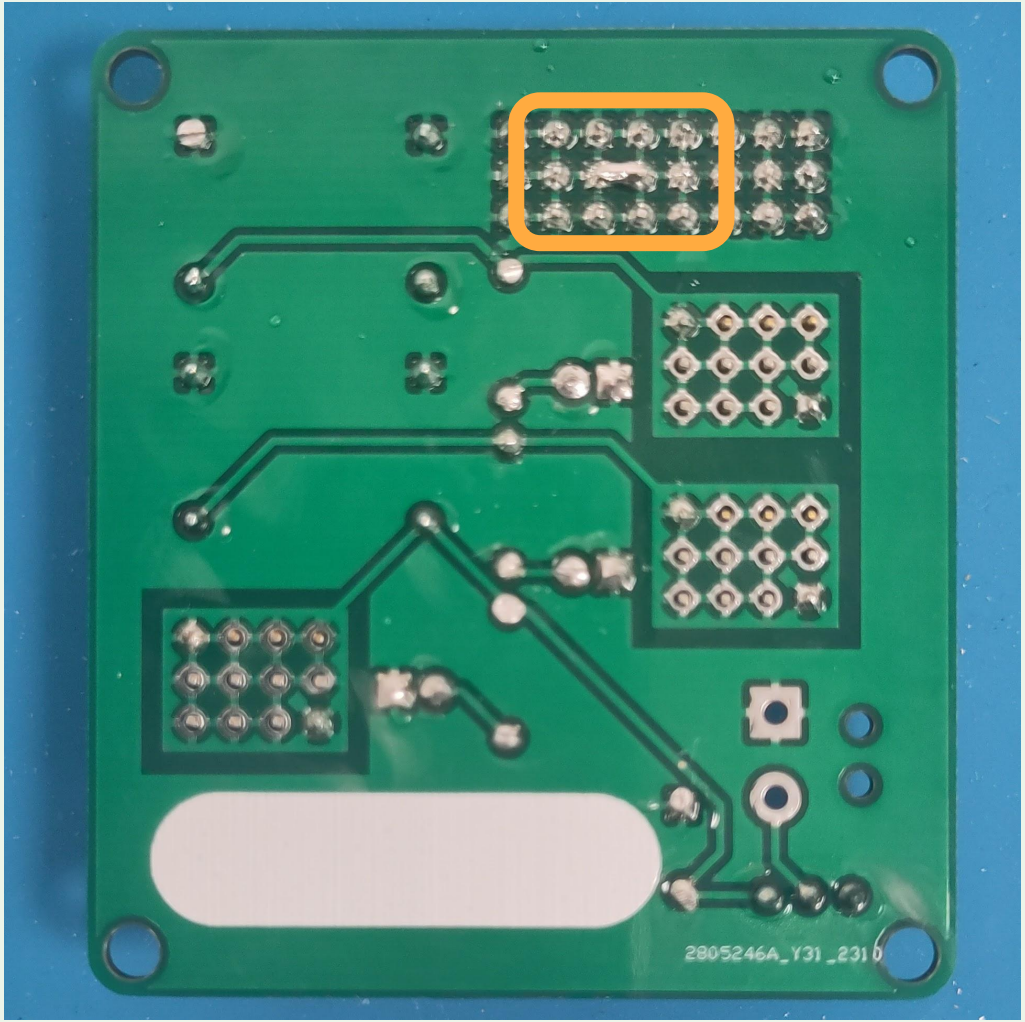
- ❏ Repeat for the other three sections.
  - ❏ **Blue** pin headers into the **`+5V`** space on the board.
  - ❏ **Yellow** pin headers into the **`+3.3V`** space.
  - ❏ **Black** pin headers into the **`-GND`** space.



Adding all of these pin headers takes a long time, but you do not need to be as careful as the other sections.

It does not matter if there is too much solder in each section, connecting more than one pin together.

This is because every pin in the section is connected together inside the board.

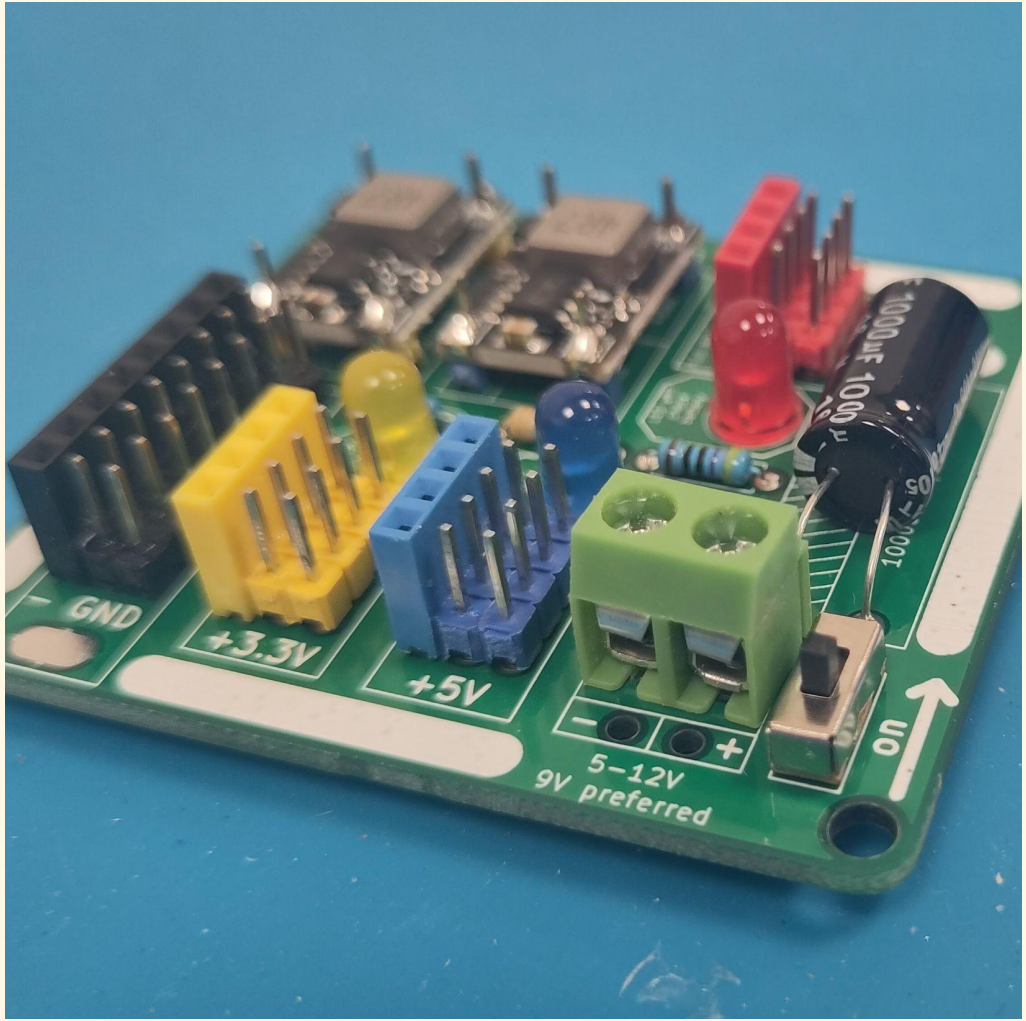


STEP 12

- ❏ Solder your battery connector, with the metal parts facing outwards.

Your board is now ready to be connected to a battery!

A workshop leader will check your soldering *- if there is a short circuit, components can get damaged, so it is safest to fix any problems before connecting it to power.*



Your finished board...

- ✓ Resistors (3)
- ✓ Switch
- ✓ Voltage regulators (2)
- ✓ Capacitor
- ✓ LEDs (3)
- ✓ Pin headers (4)
- ✓ Battery connector
- ✓ 9V battery