

Workshop PCB (Printed Circuit Board)



R1

R2



R3

R4



C1 - Capacitor

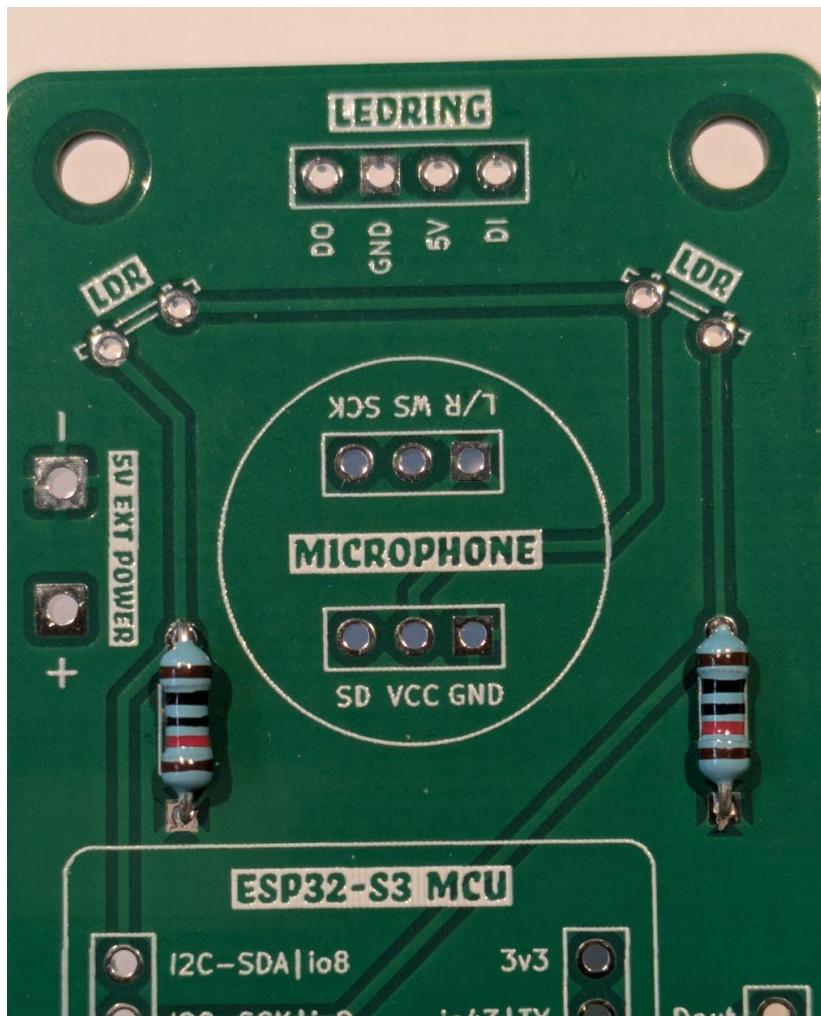
## Resistors

R1: 10K (kilo ohm) - Brown, Black Black, Red, Brown - 1, 0, 0, 2x0, tolerance

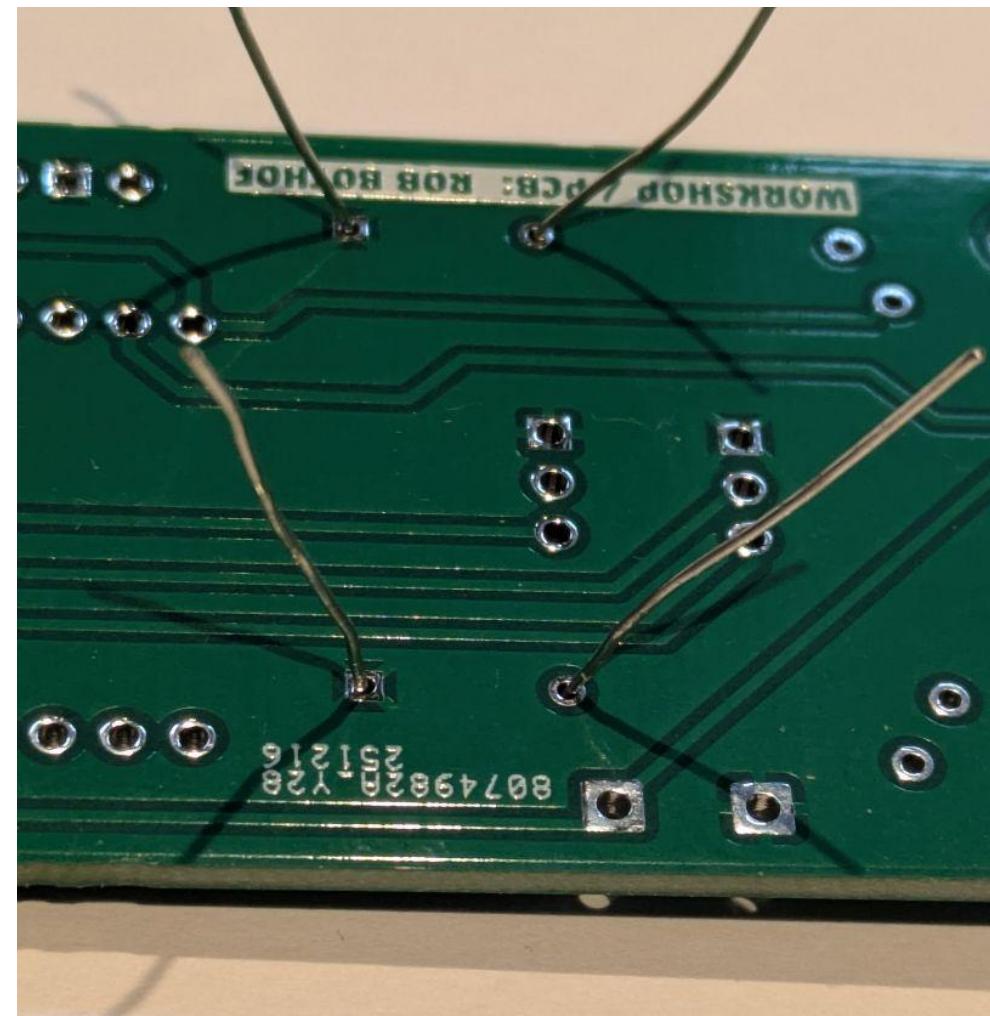
R2: 10K (kilo ohm) - Brown, Black Black, Red, Brown - 1, 0, 0, 2x0, tolerance

R3: 82 ohm - Grey, Red, Black, Silver, Brown - 8, 2, 0, 0x0, tolerance, temperature

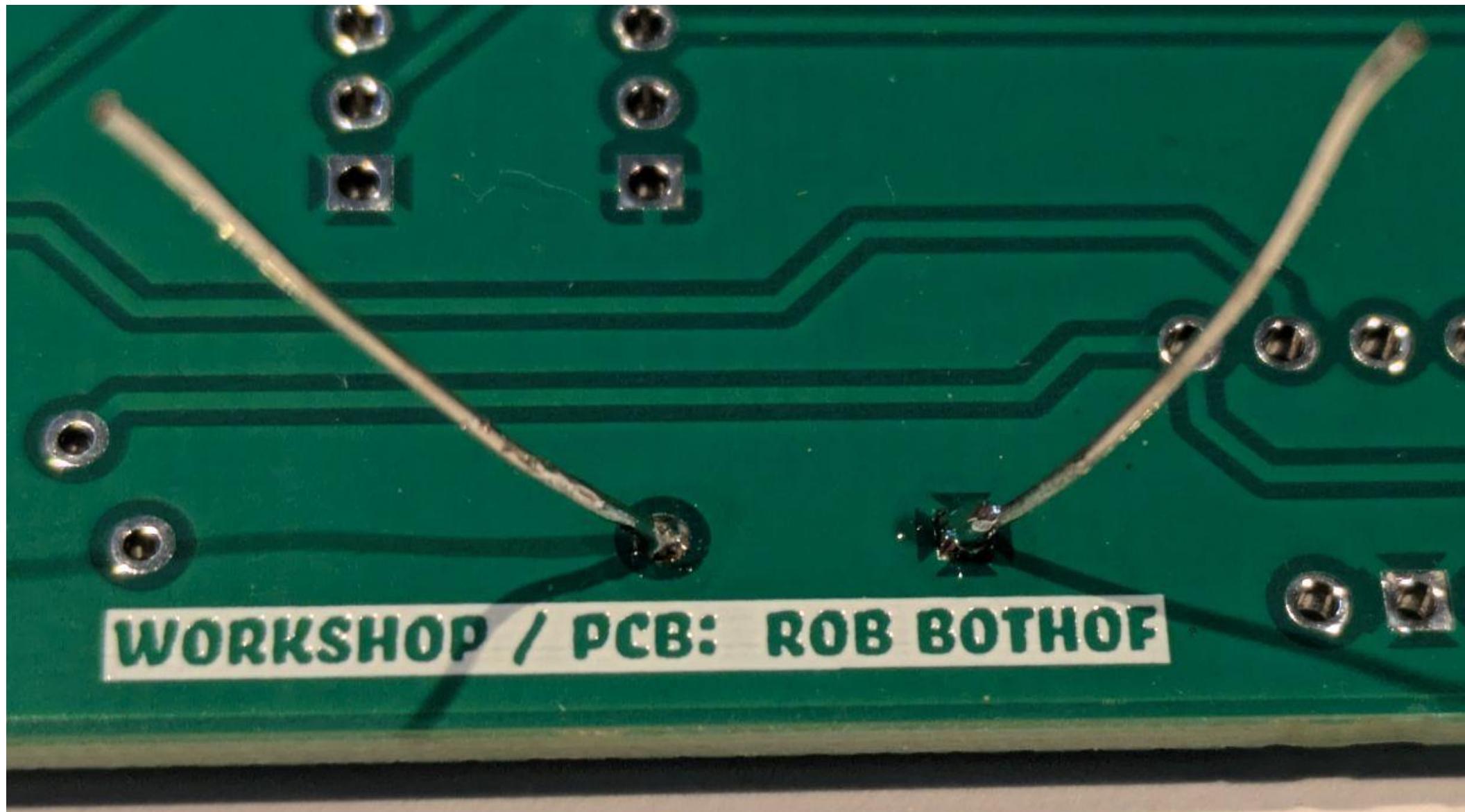
R4: 150 ohm - Brown, Green, Black Black, Brown - 1, 5, 0, 0x0, tolerance



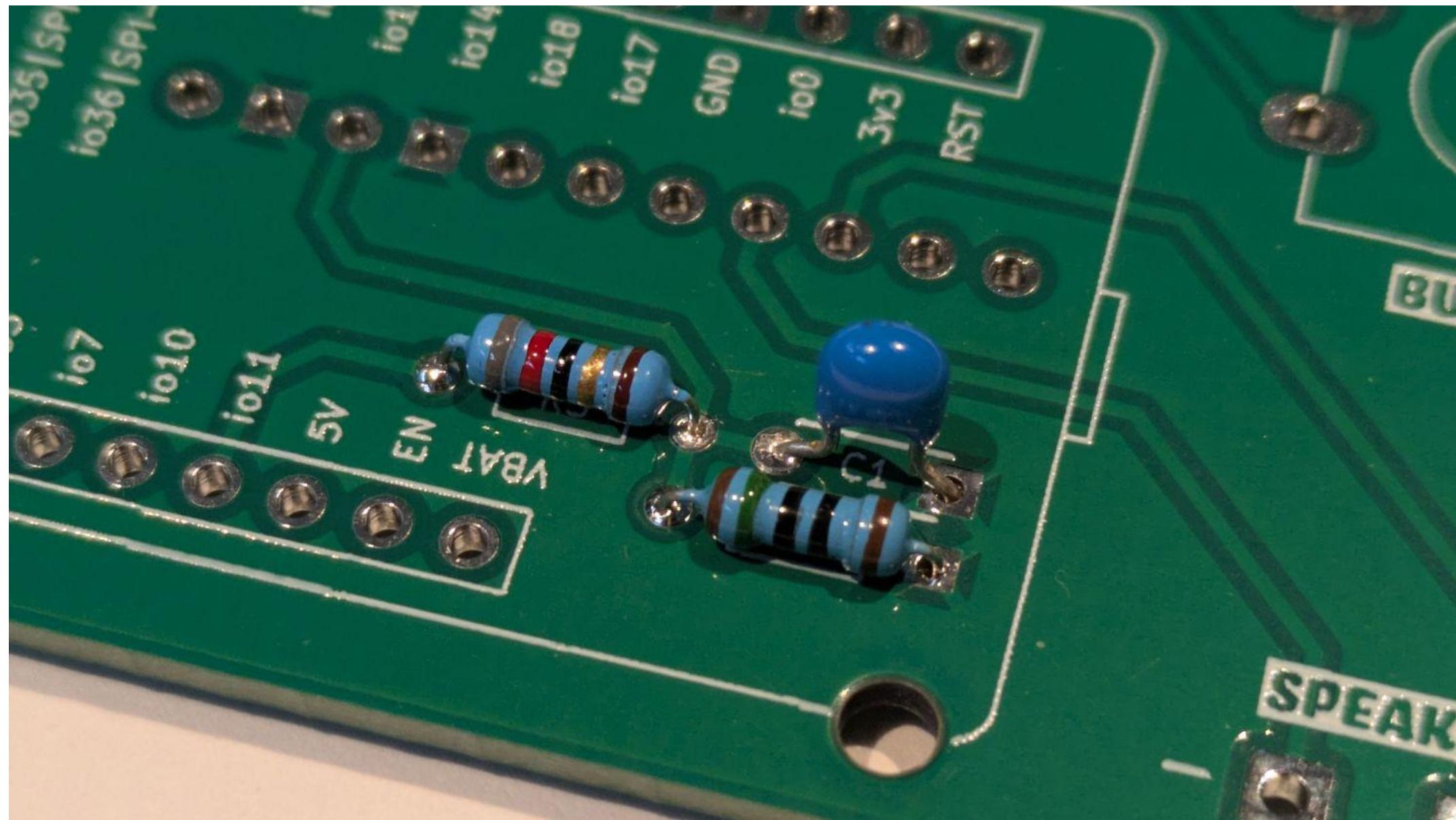
Place resistor R1 and resistor R2



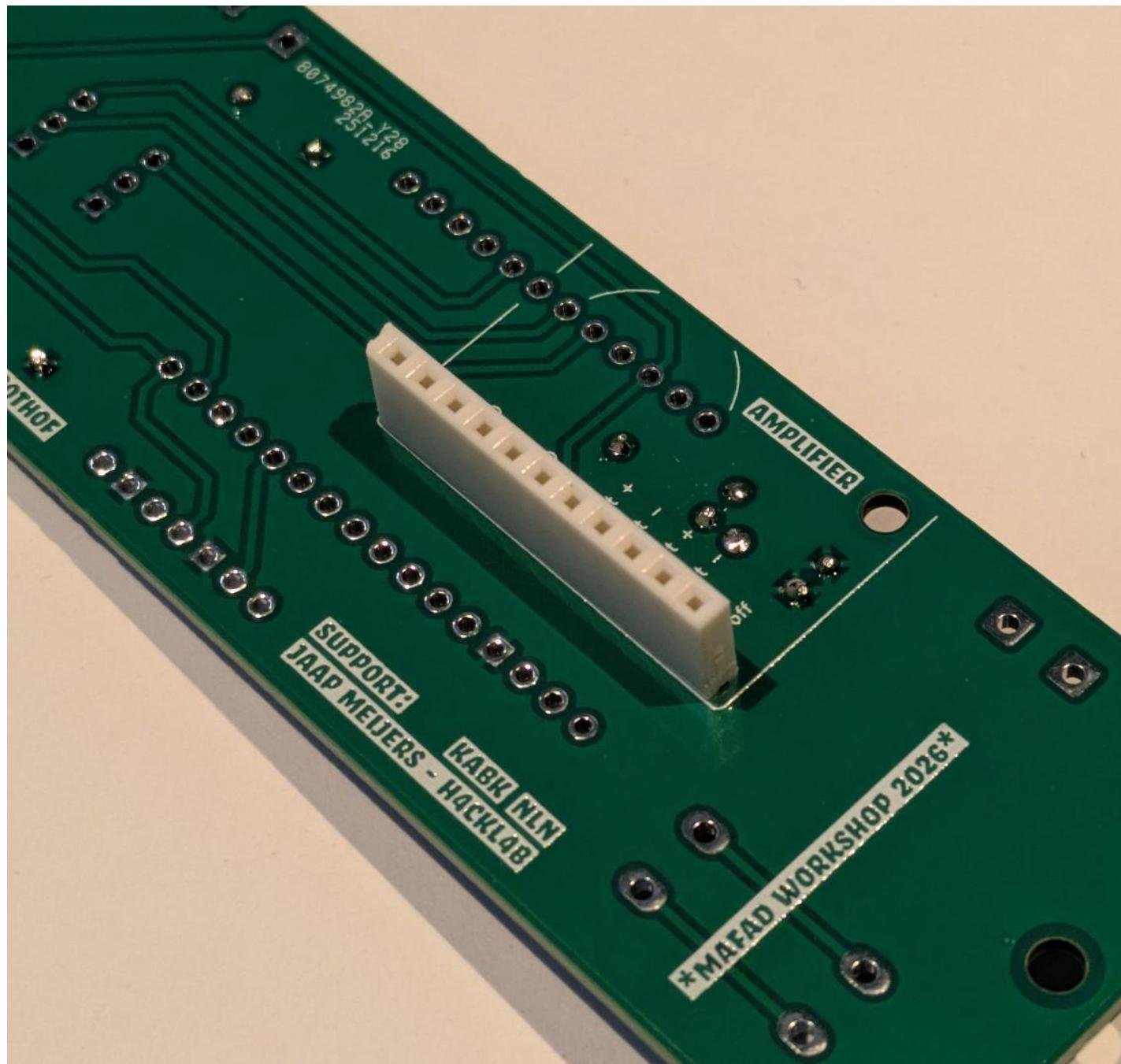
Bending the pins prevents them from falling out



Resistor R2 soldered in place

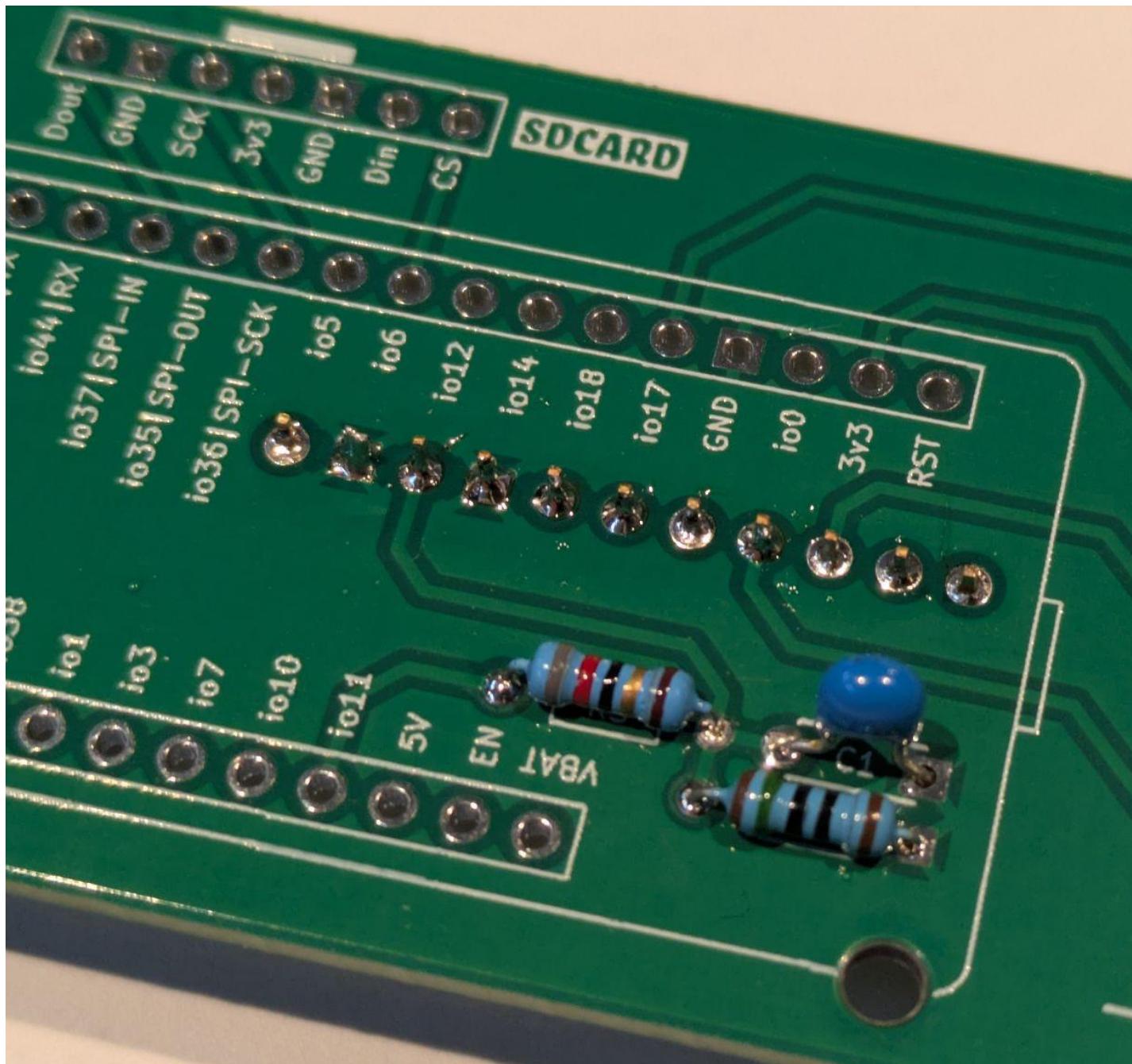


Resistor R3, R4 and Capacitor C1 partly soldered in place.



Place the Header for the Amplifier  
on the bottom of the board

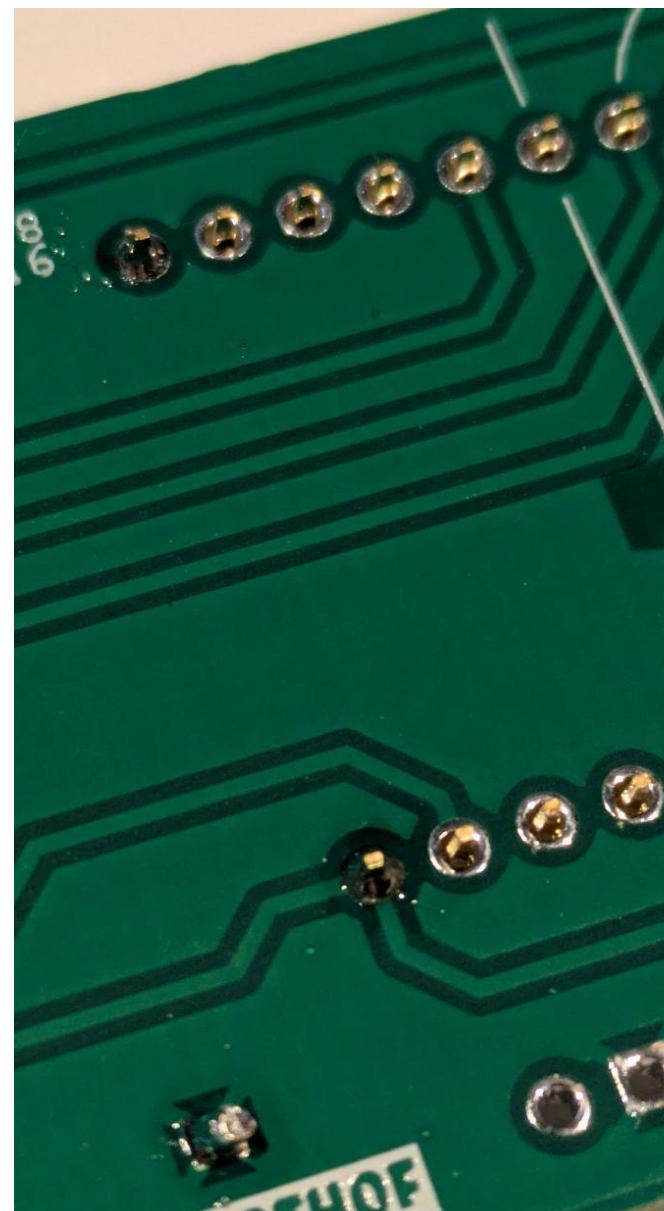
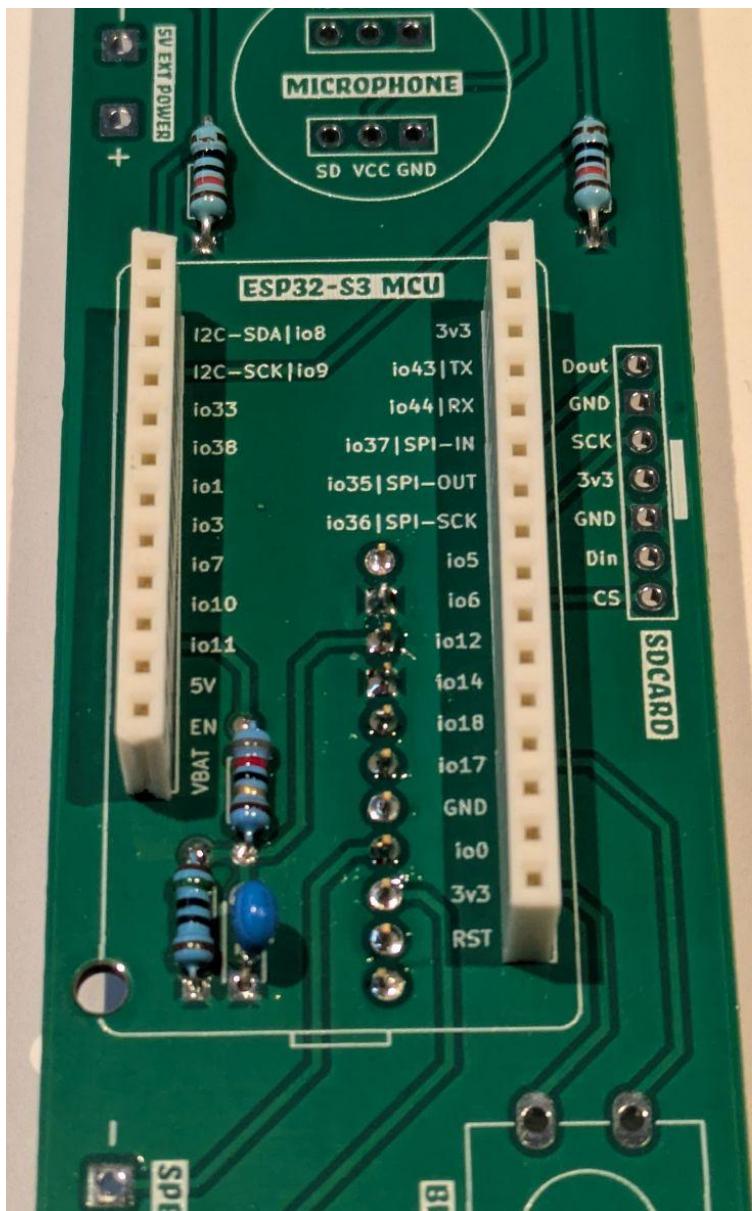
Flip the board over.



Solder only the 1st pin of the header and check if the header sits straight.

Adjust if necessary while heating up the first pin again.

Then solder all the other pins.



Place the 2 headers for the  
ESP32-S3 Microcontroller.

Same procedure, solder only the 1st  
pins of the headers and check if the  
headers are soldered straight up.

Adjust if necessary while heating  
up the first pin again.

Then solder all the other pins.

**Proceed with the headers for the**

**LedRing  
Microphone  
SDCard**

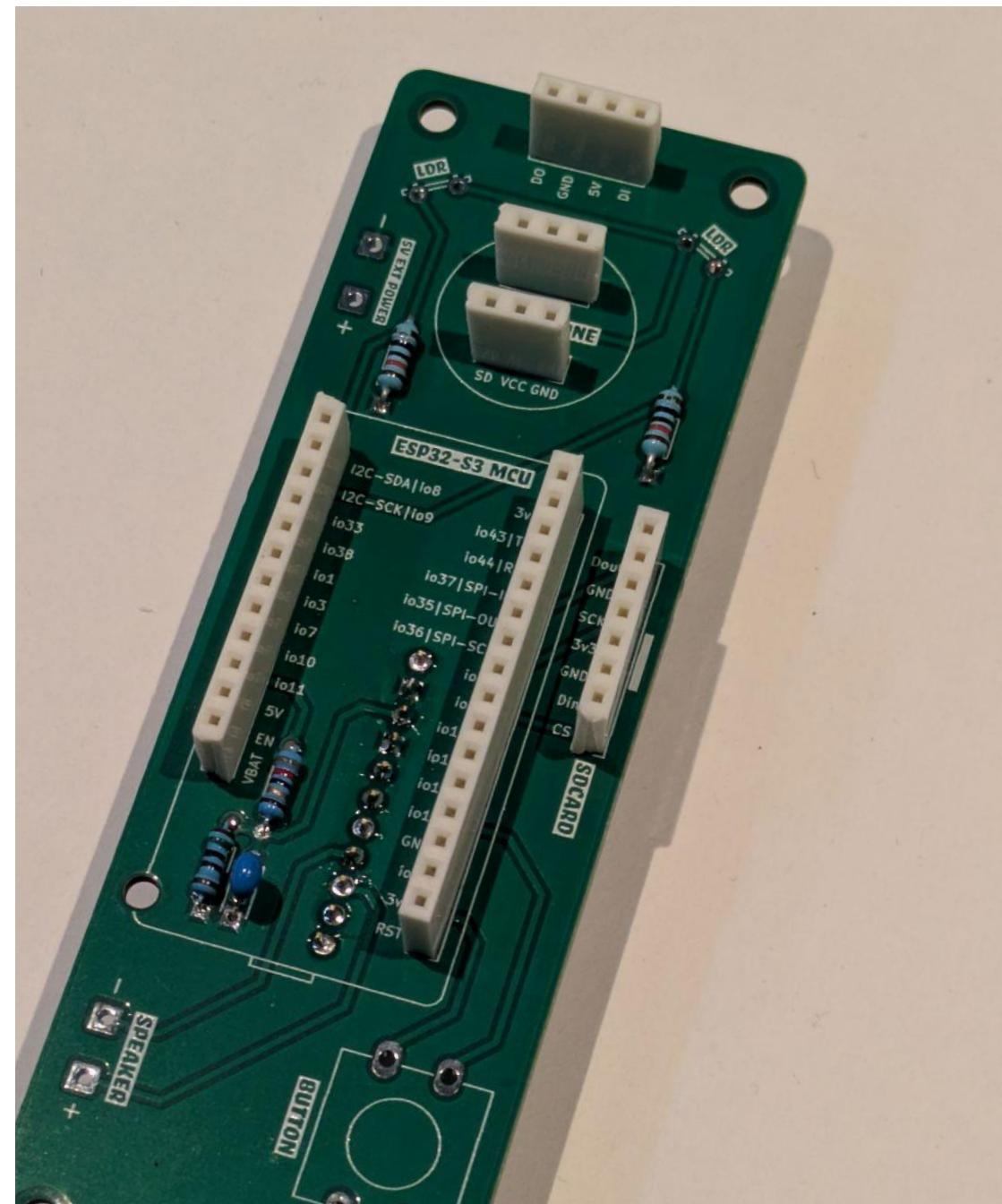
**Same procedure again.**

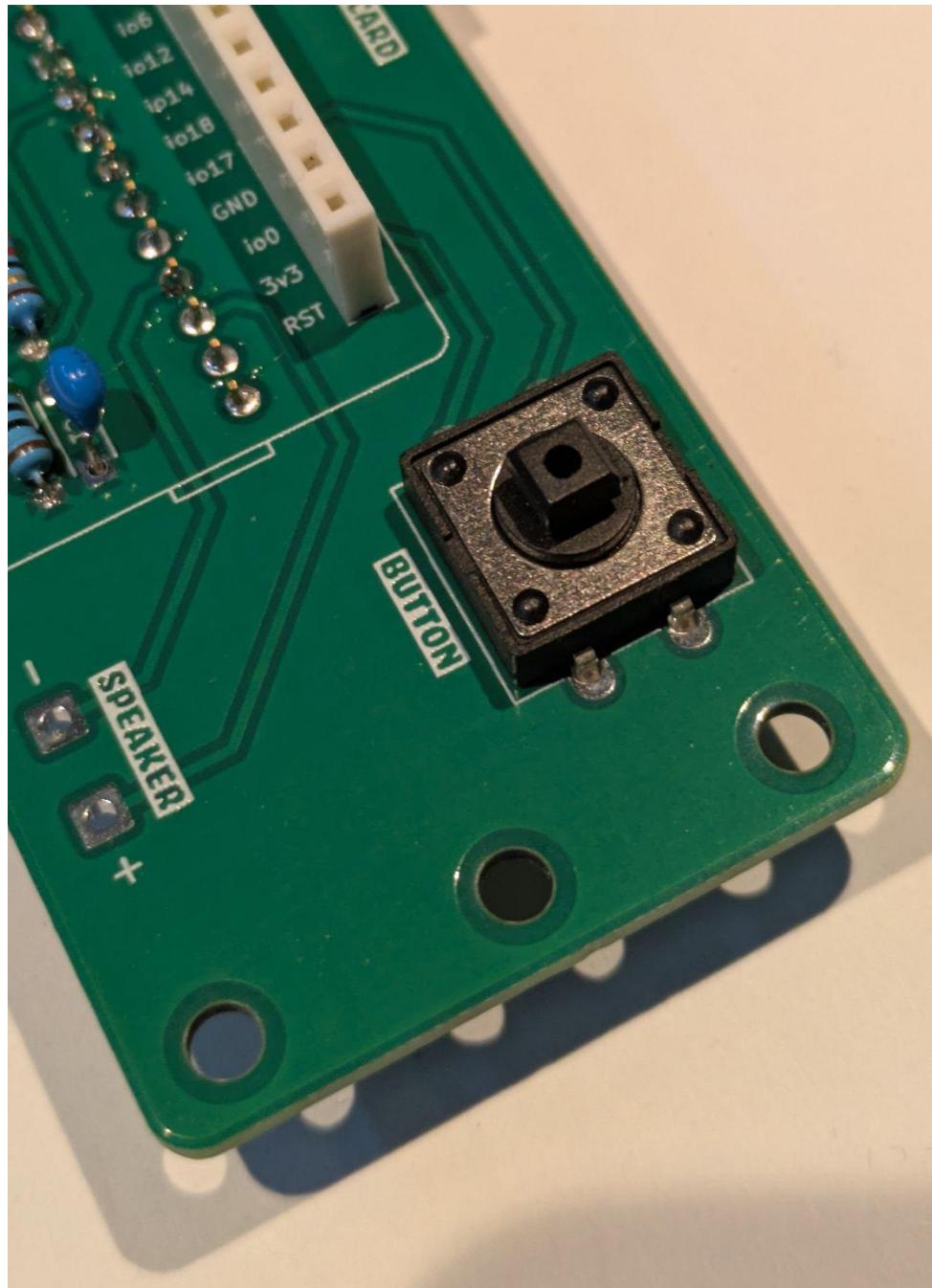
**You can solder all 4 headers at the same time.**

## **First a single pin per header**

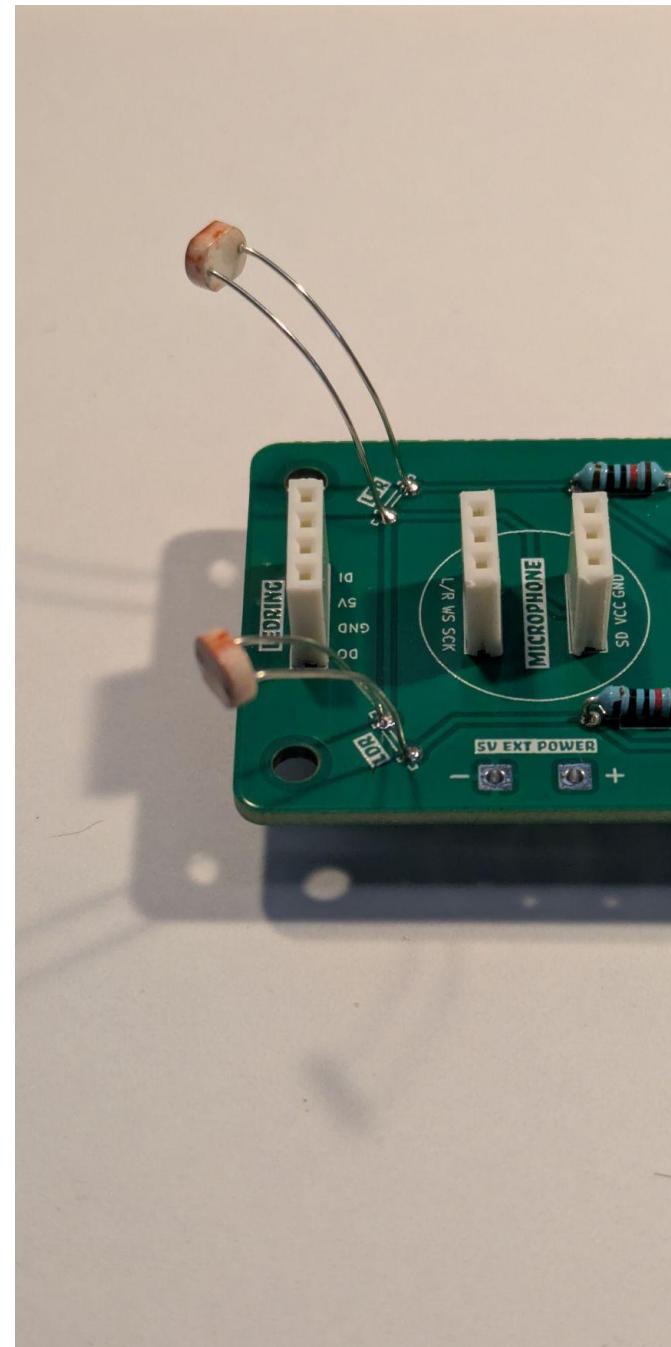
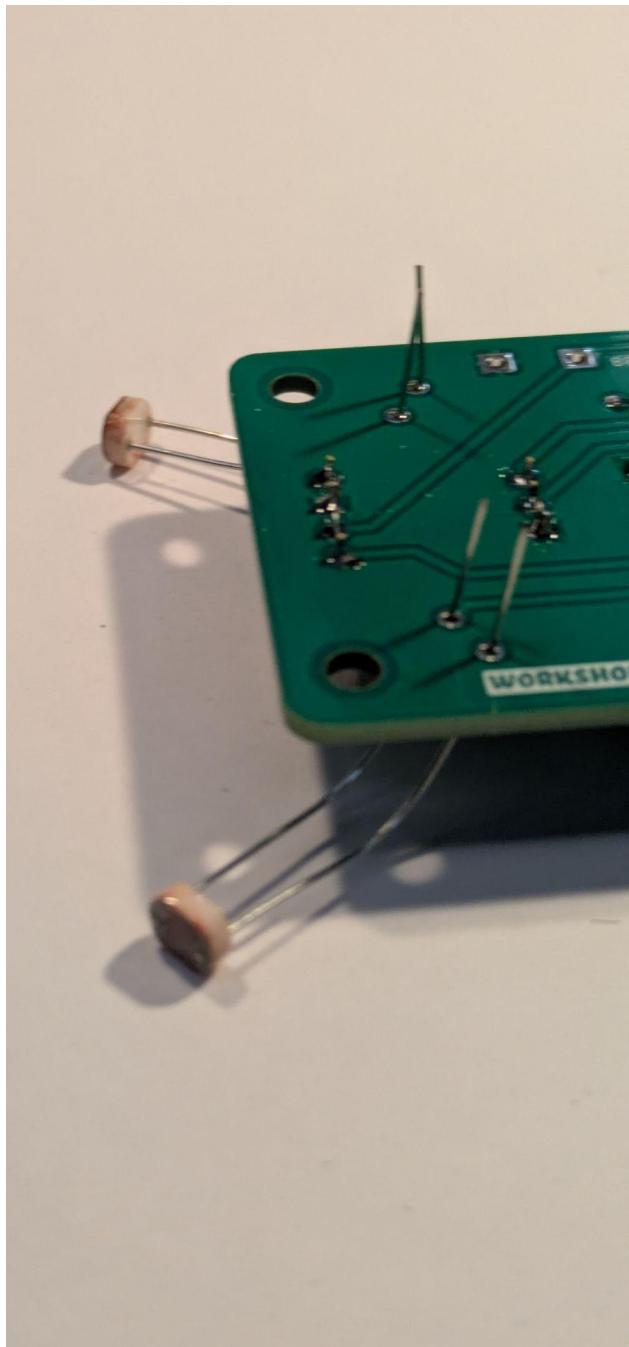
**check,**

**solder the other pins.**

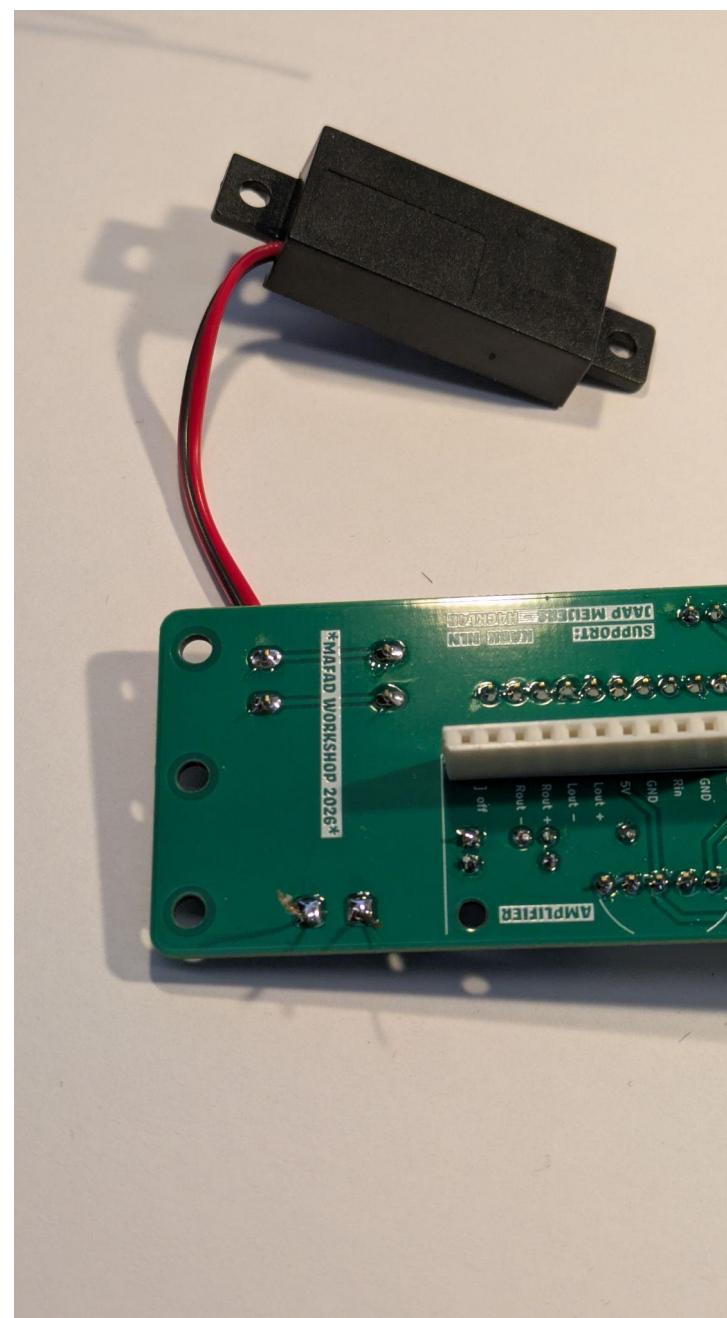
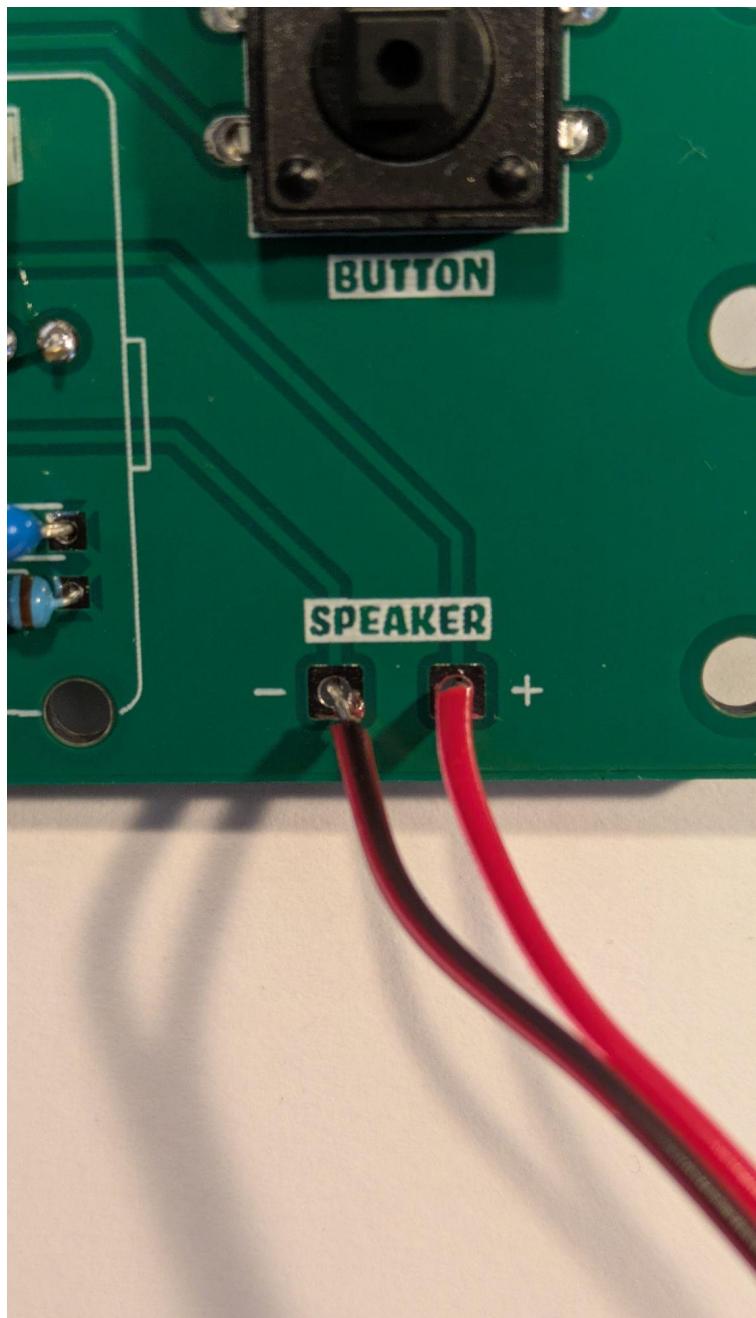




Place the button and solder it in place.



**Place and solder the light sensors.**

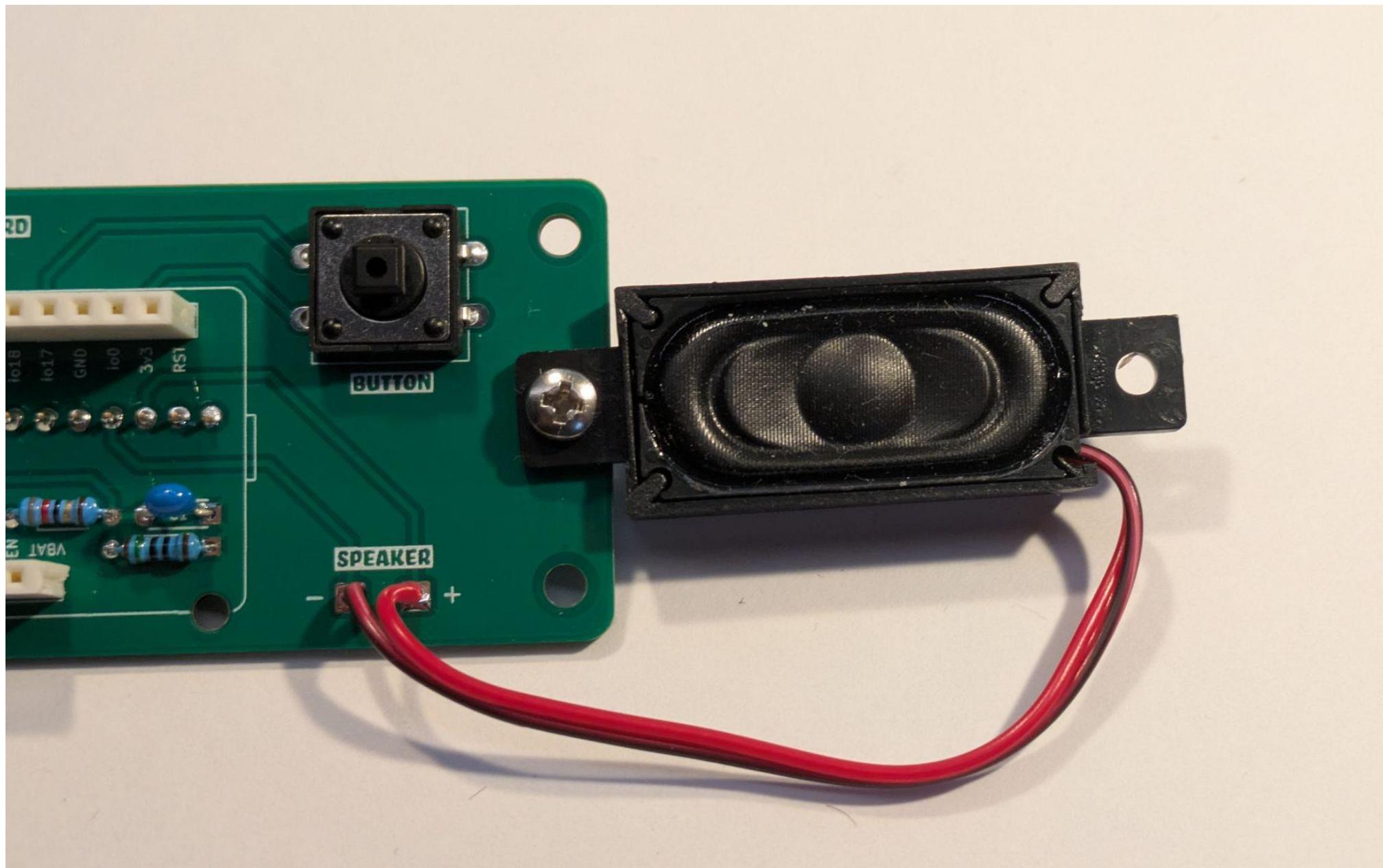


### Soldering the Speaker

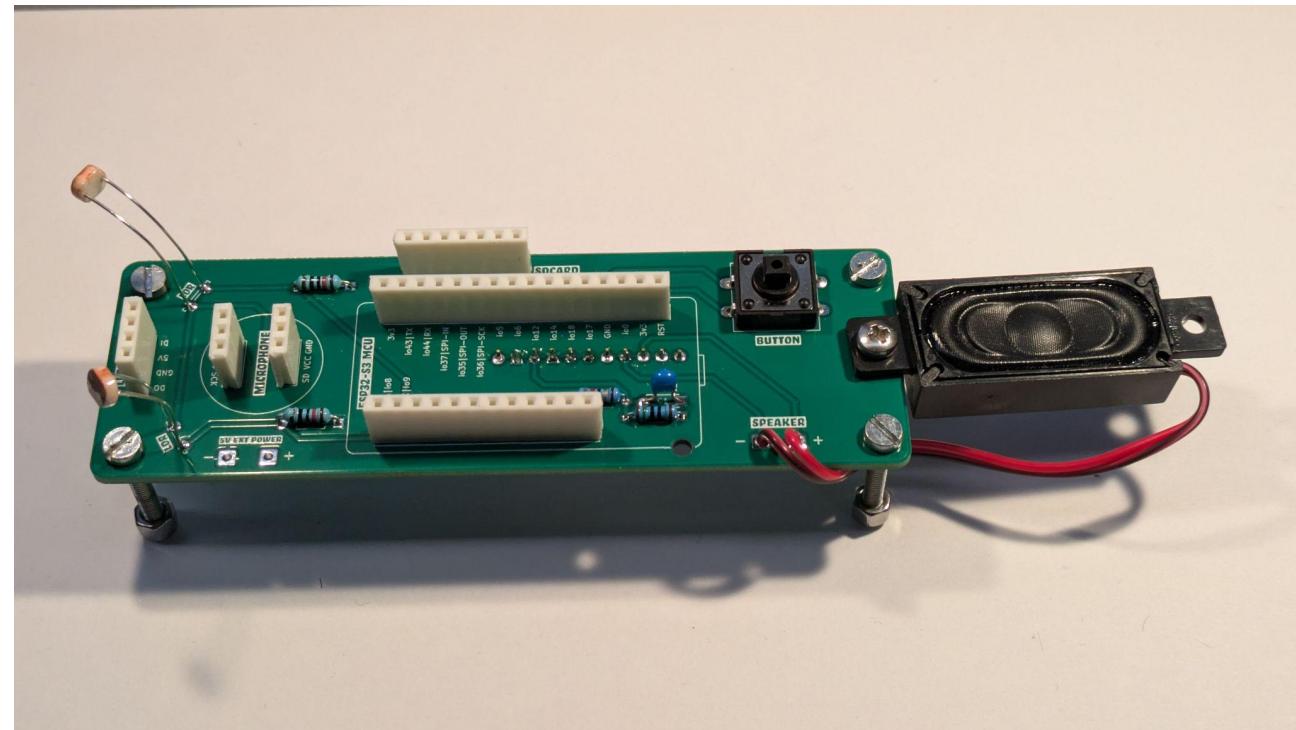
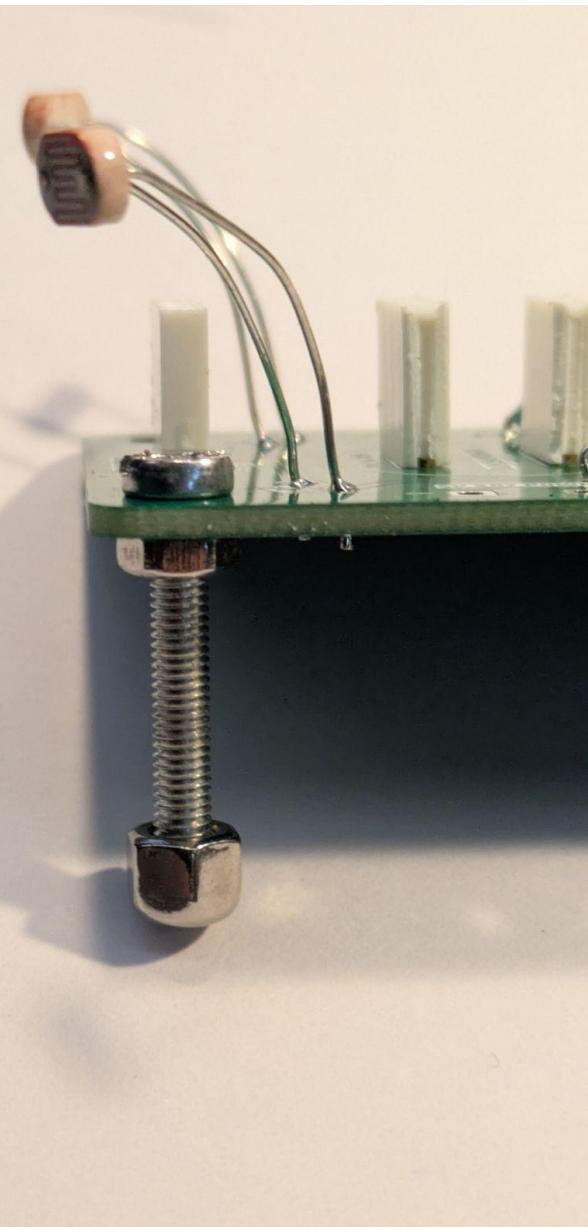
Strip the wires, and place them with the correct polarity.

Red wire +

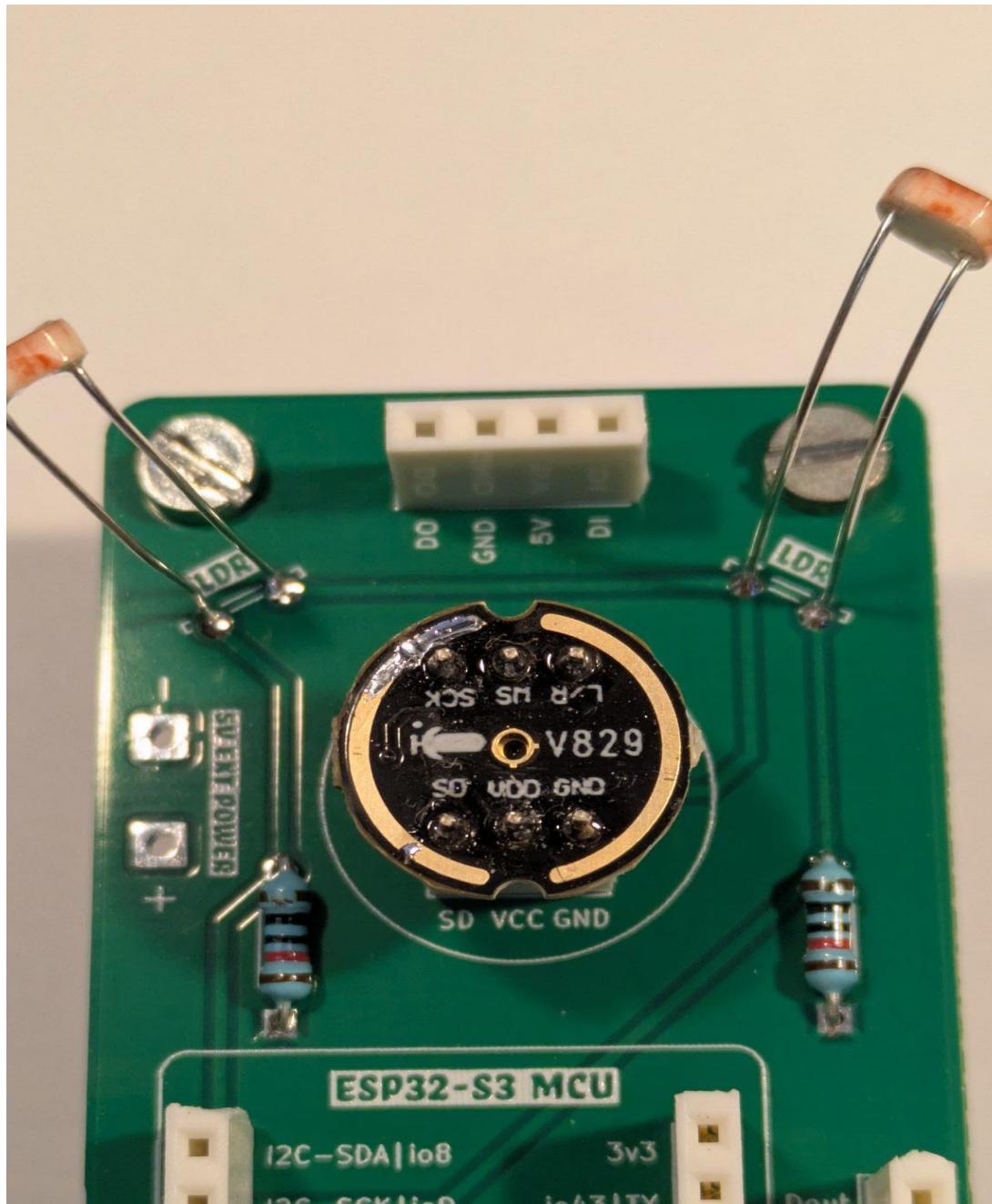
Red/Black wire -



Mount the speaker with the nut and bolt in the center of the PCB

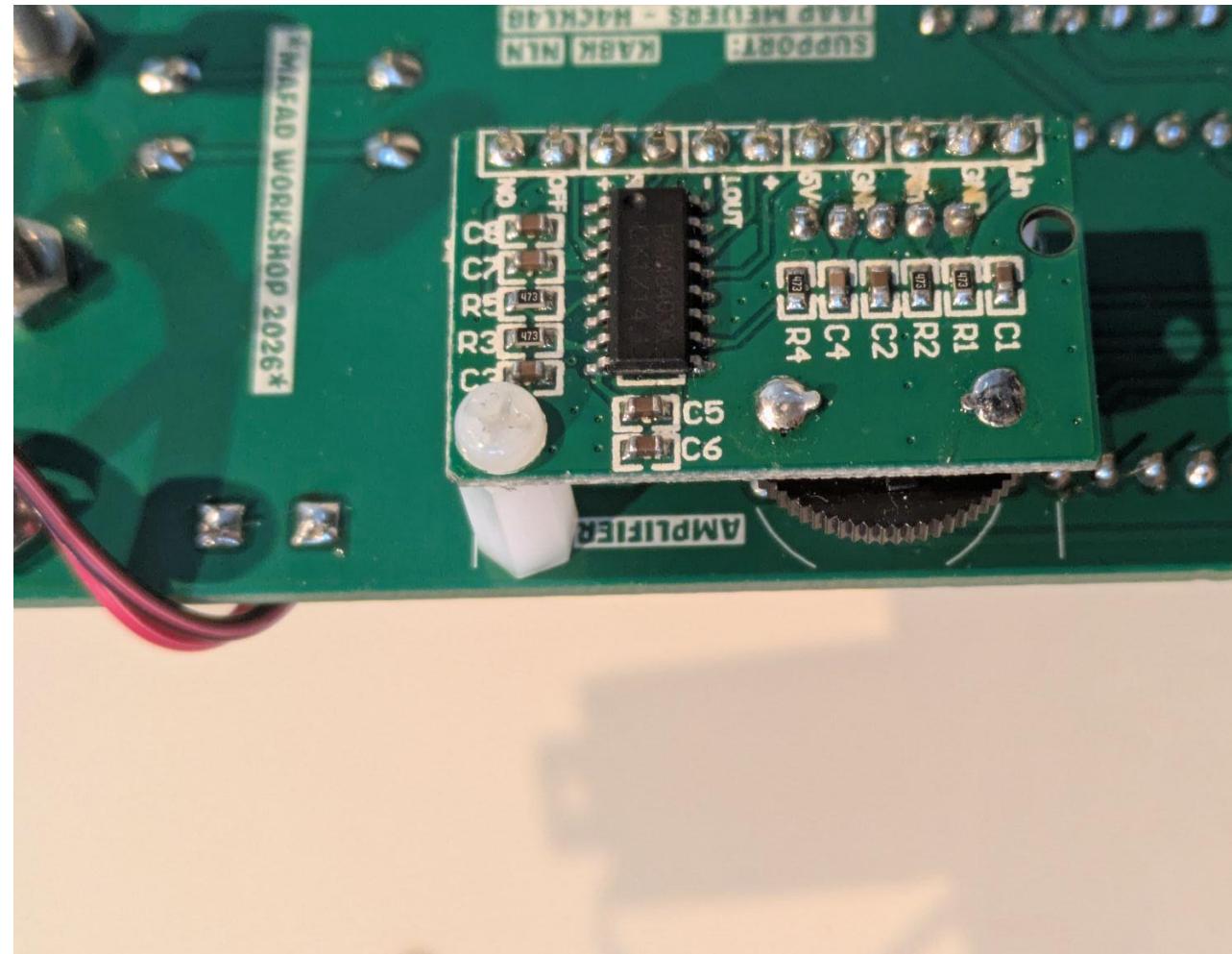
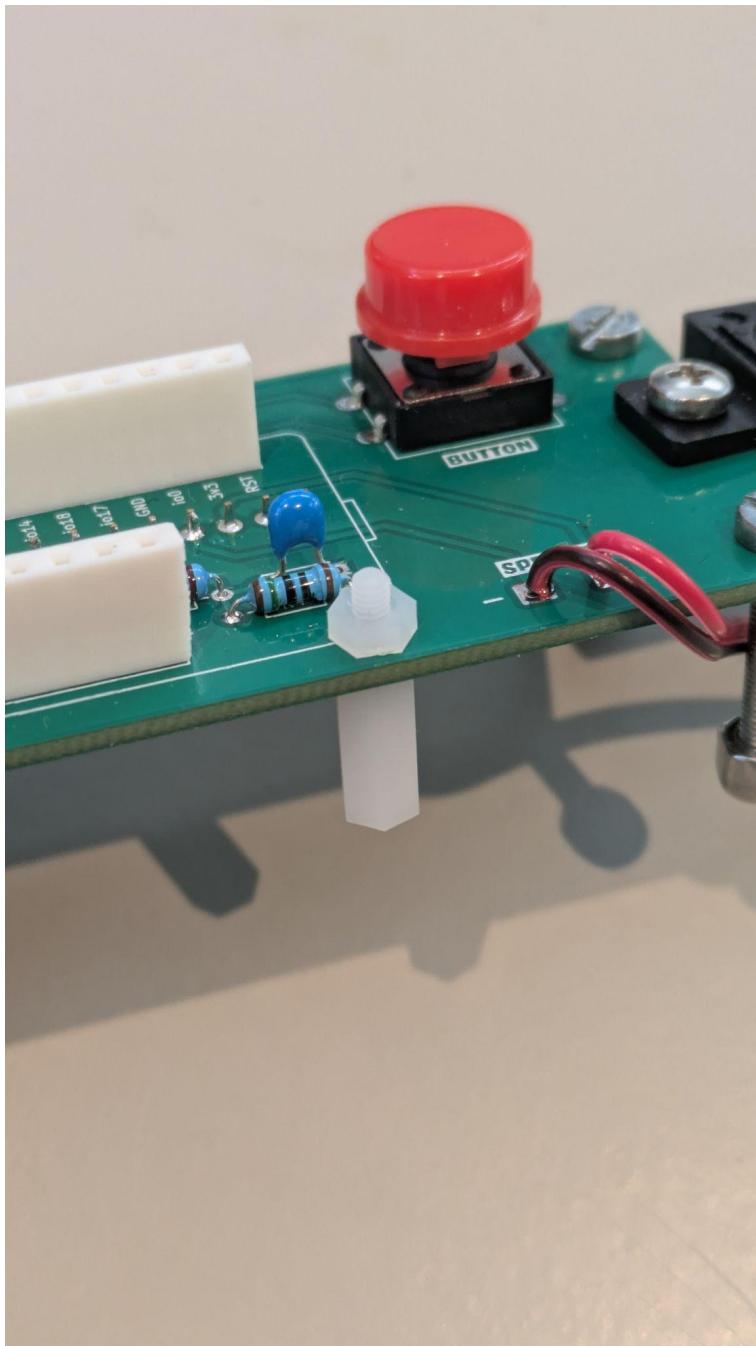


**Secure the legs**



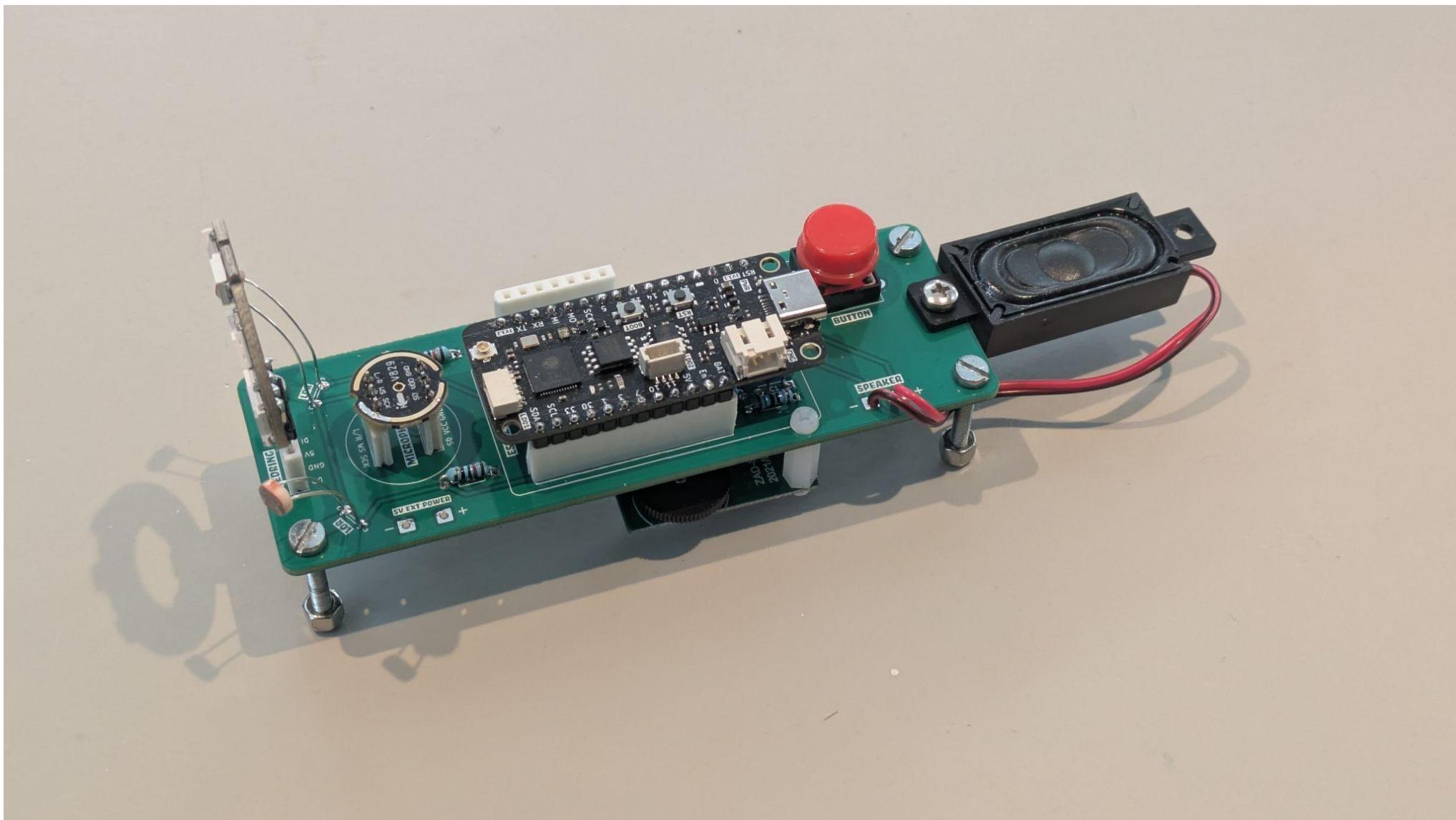
Seat the microphone in its header.

Match with the photo and / or the pinout that is shown on the PCB.

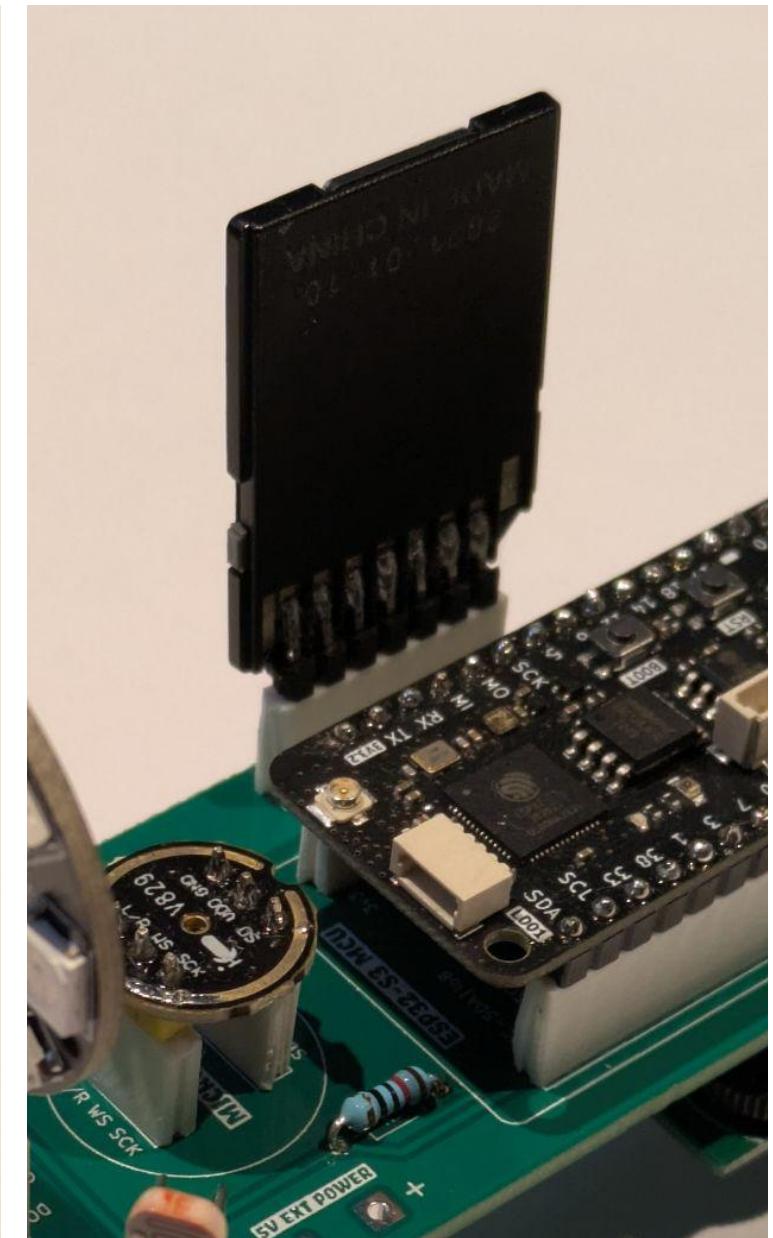
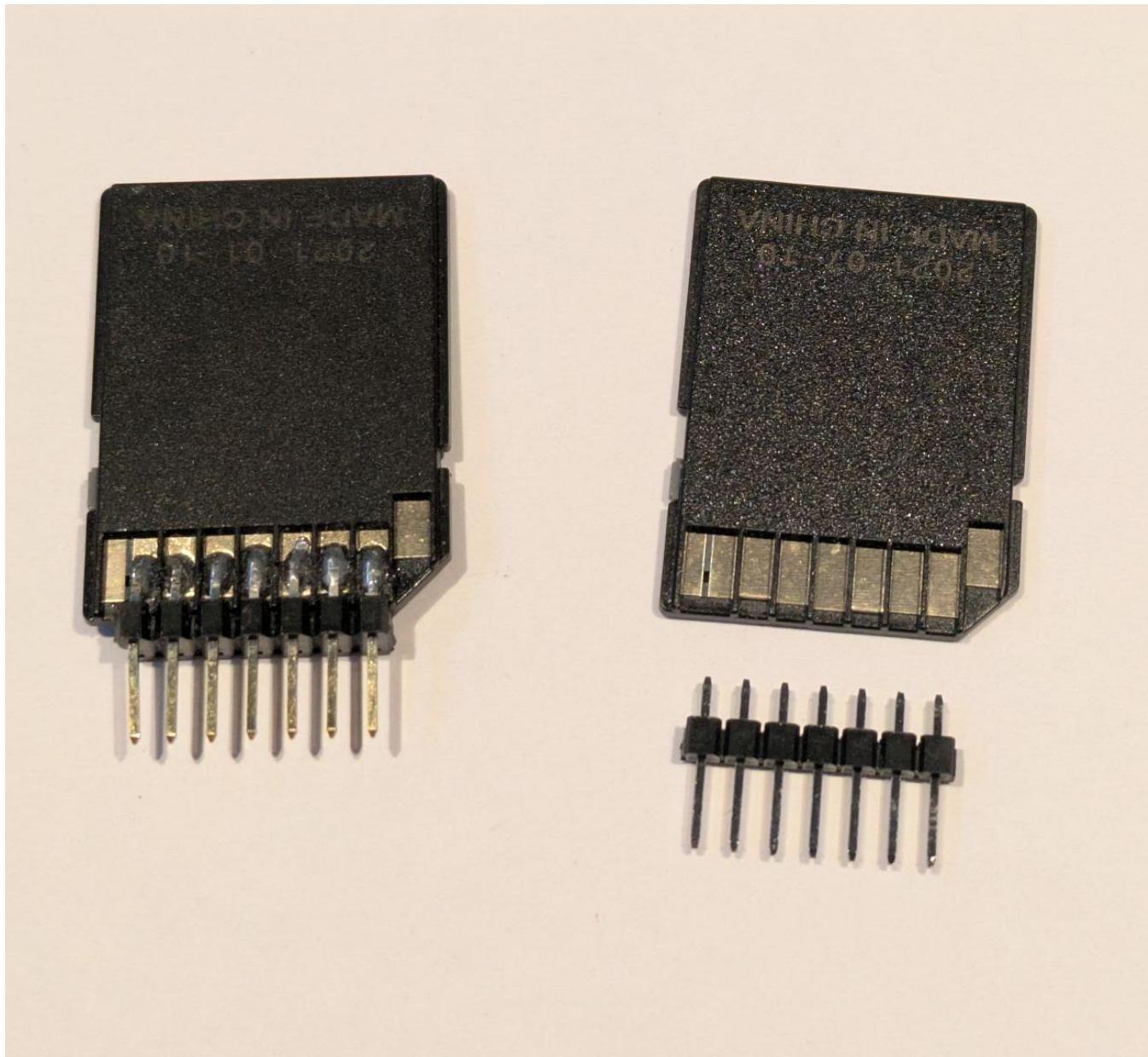


**Place the button cap and add the plastic spacer to the PCB**

**Seat the amplifier board and fix it with the screw**



Now we can place the LedRing and the Microcontroller in their headers.



**DIY SD Card hack! Solder a header as shown and place the holder in the correct orientation.**