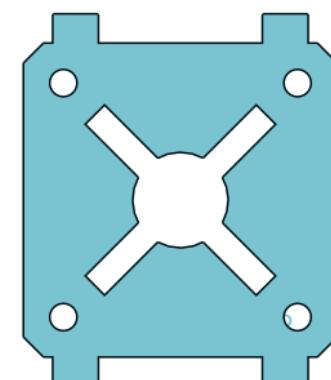
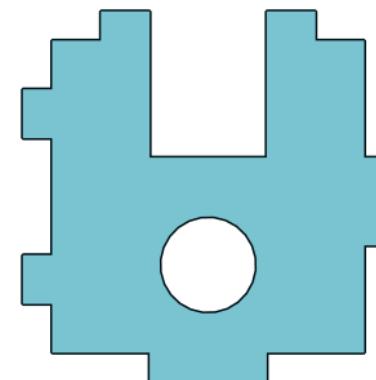
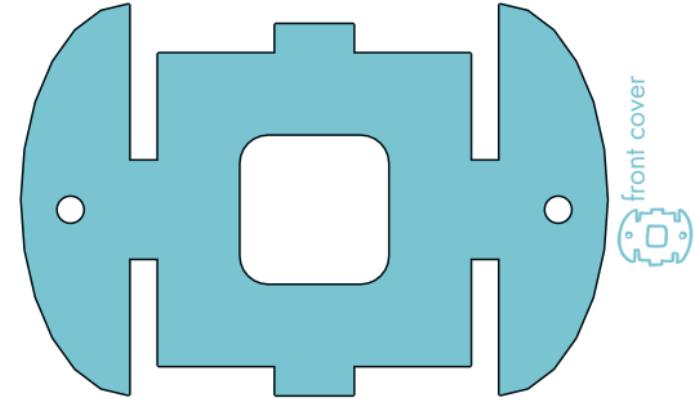
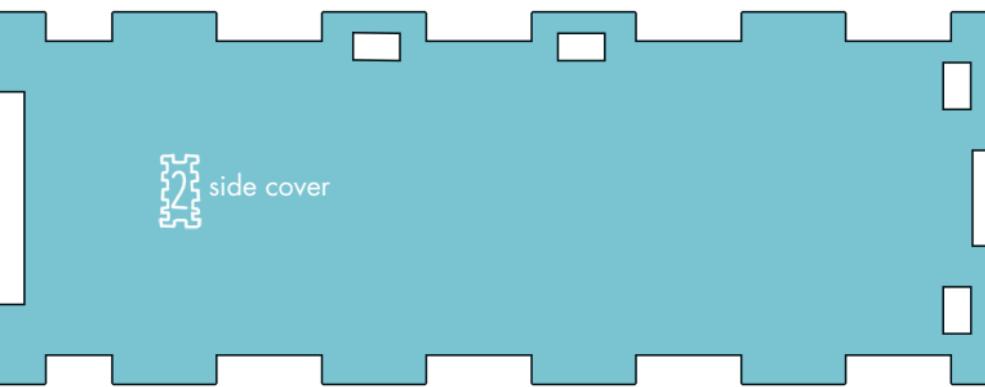
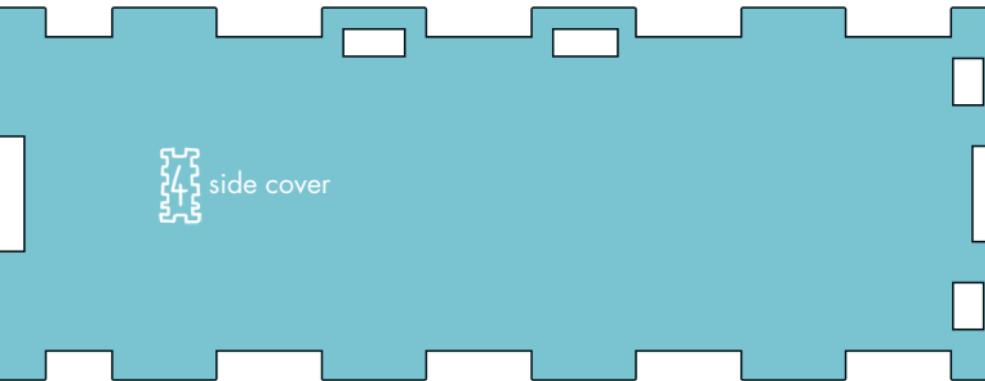
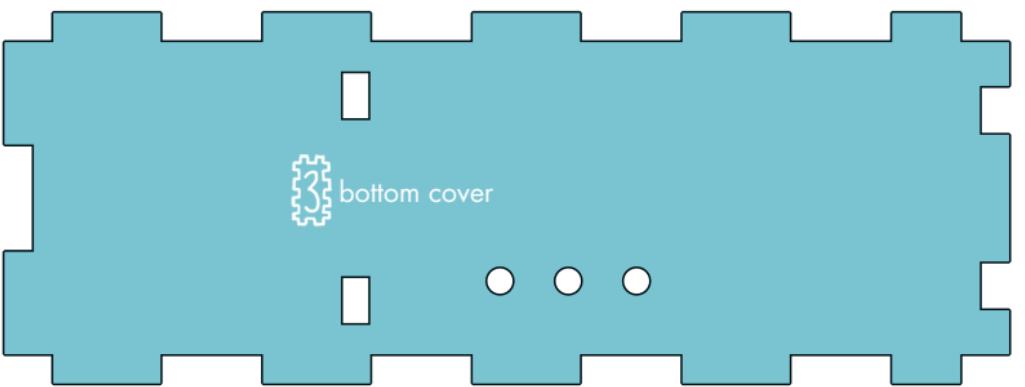
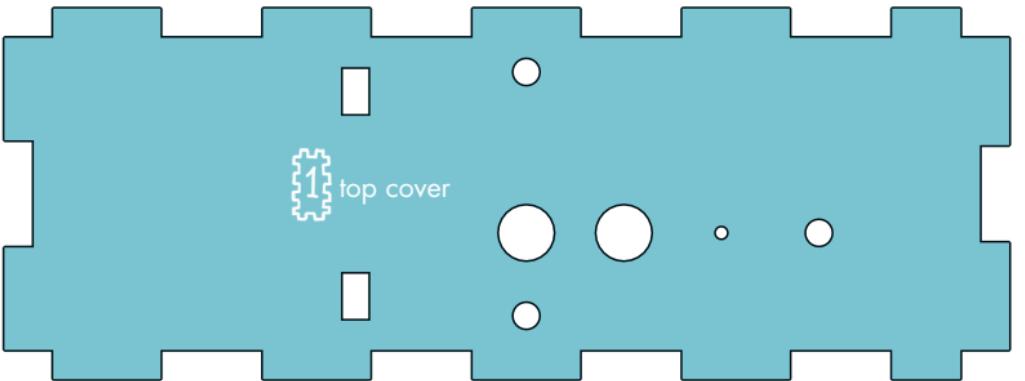
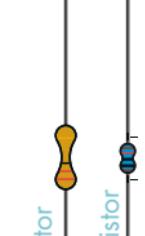
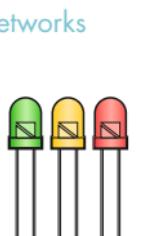
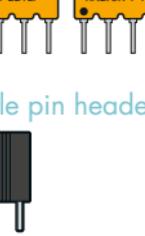
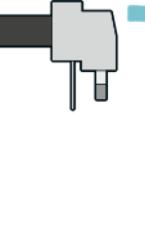
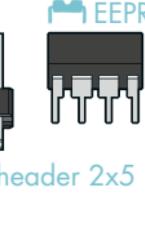
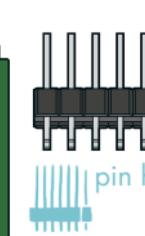
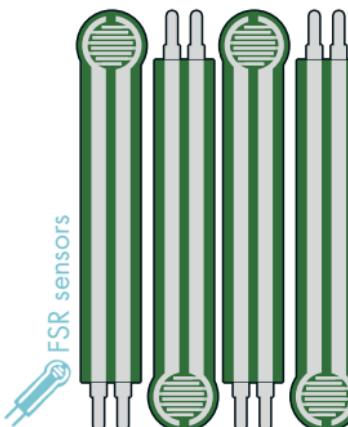
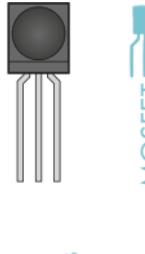
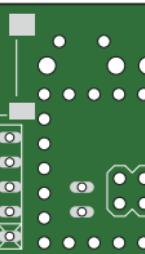
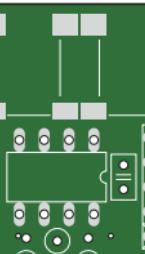
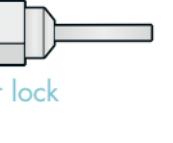
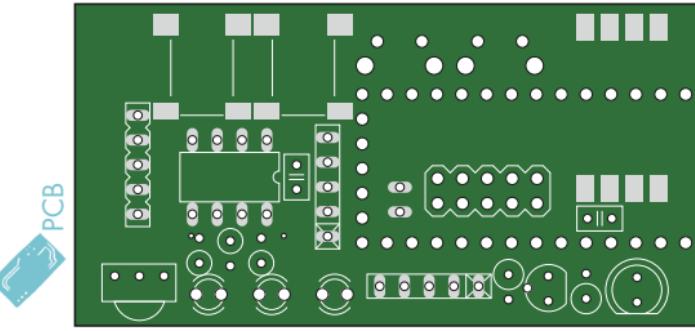
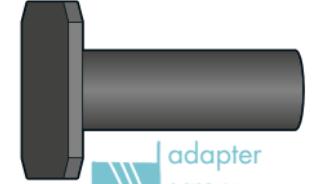
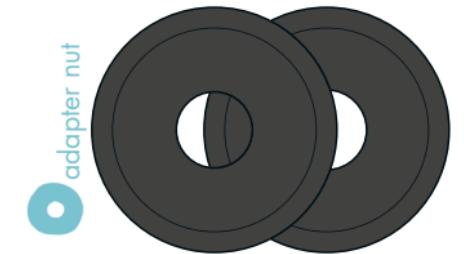
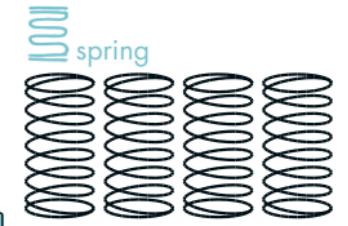
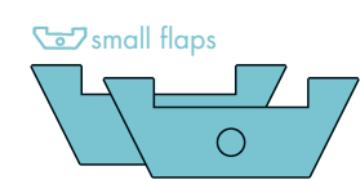
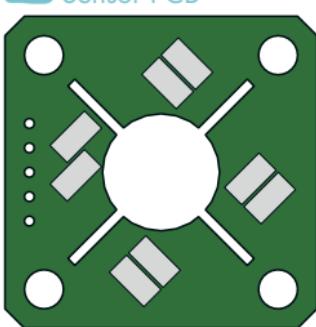
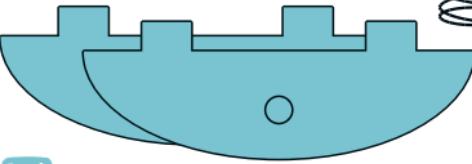
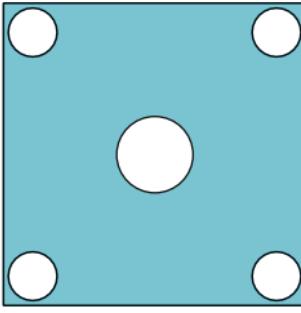


Construction Manual







FlipMouse Manual

Welcome!

This manual covers detailed step-by-step instructions for building the FlipMouse alternative input system. As additional tools you will need a soldering iron with a fine tip, sharp side-cutting pliers, a slotted screwdriver and optionally a PCB holder. The required materials are tin-solder (small diameter) and adhesive tape (Scotch tape).

You can find additional information including a video of the construction process and software downloads at our homepage <http://www.asterics-academy.net/flip>. If you experience problems or need replacement part, contact us at: office@asterics-academy.net

Have fun building your FlipMouse device !

Legend



Solder with soldering iron.



Clip with pliers.



Fix with tape.

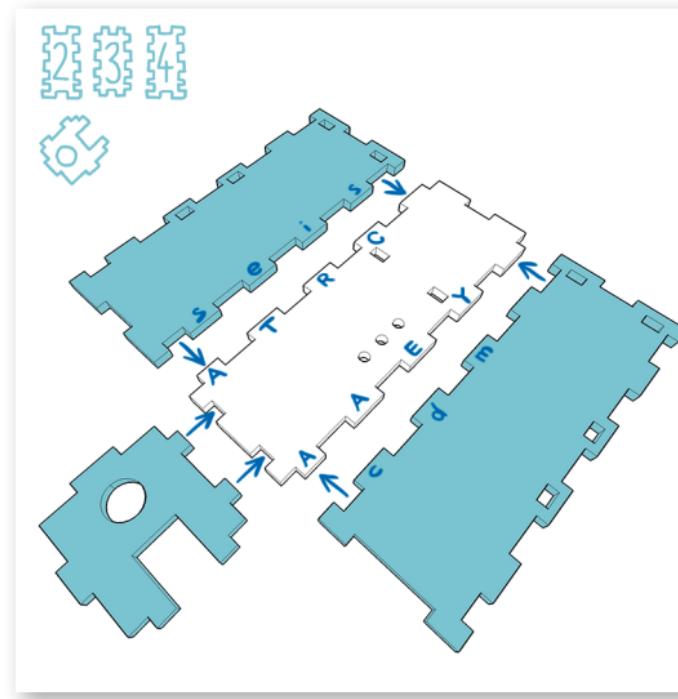
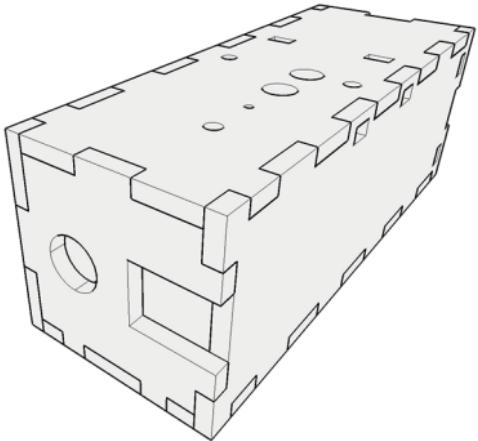


Glue with provided glue.

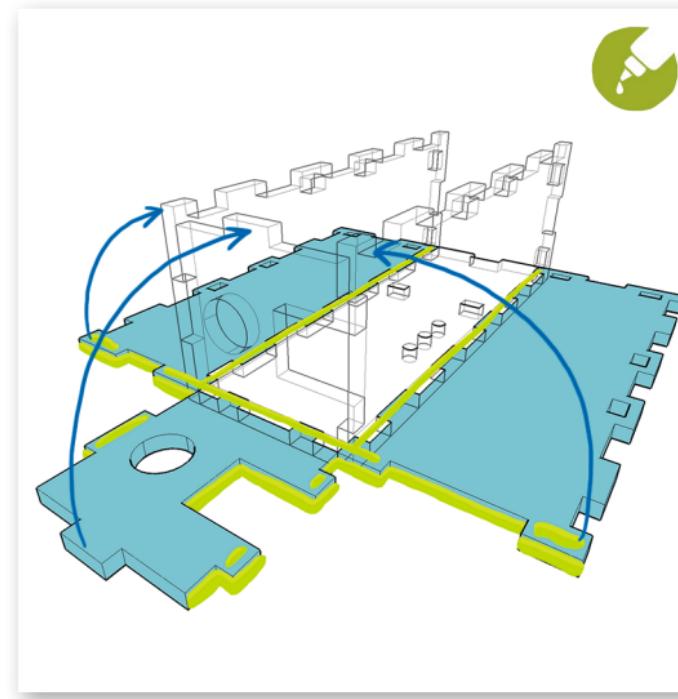


10min

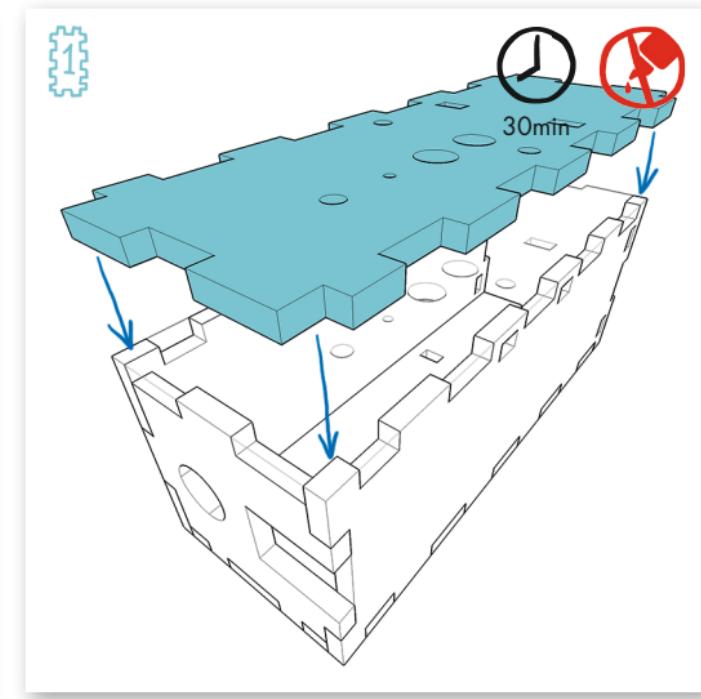
Wait the displayed amount of time.



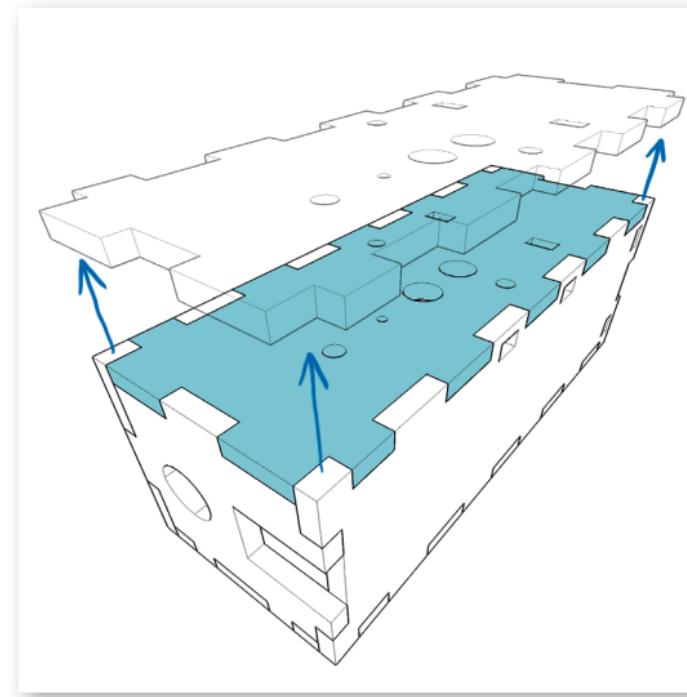
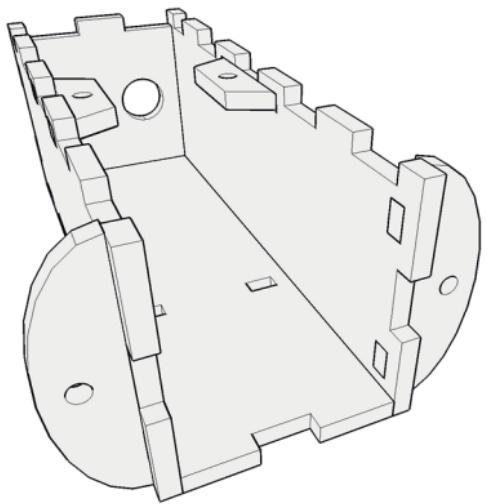
Put the pieces together, so that the words AsTeRiCs AcAdEmY are readable.



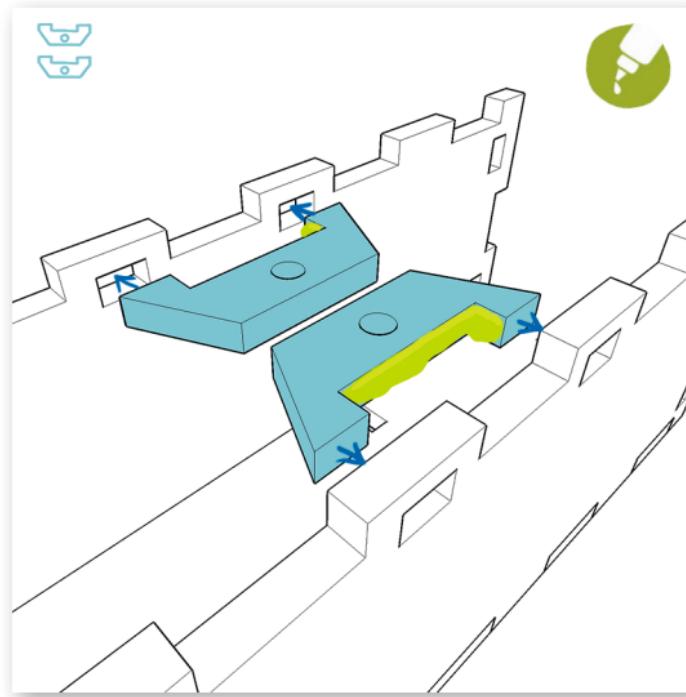
Make sure there is glue on each edge/corner.
Glue hardens due to light exposure.
Attention: glue residue can hardly be removed
from acrylic glass!



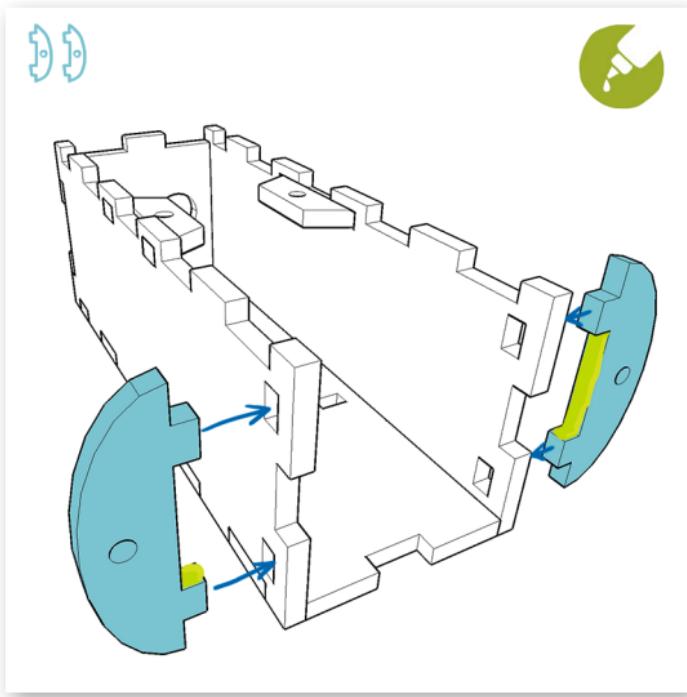
Do not glue the top cover! Wait 30 minutes.



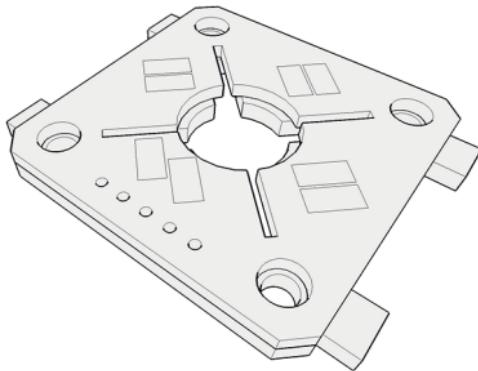
Remove the top cover.



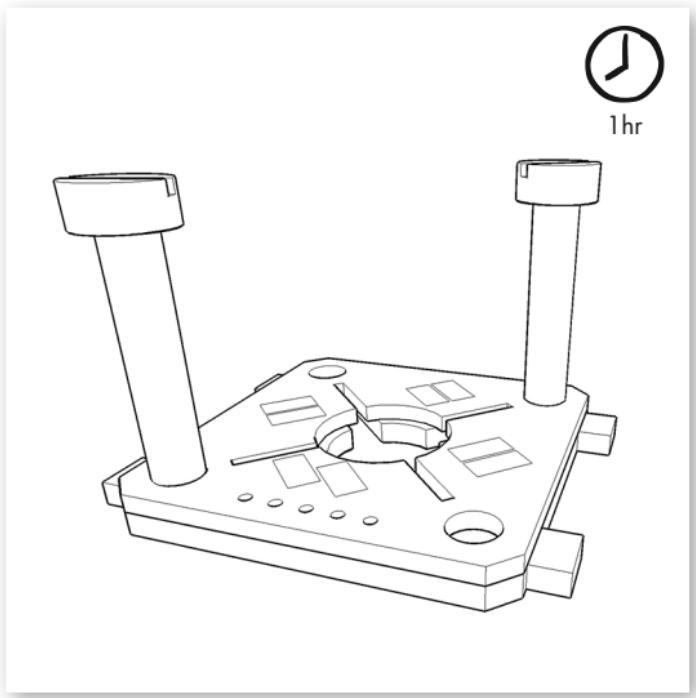
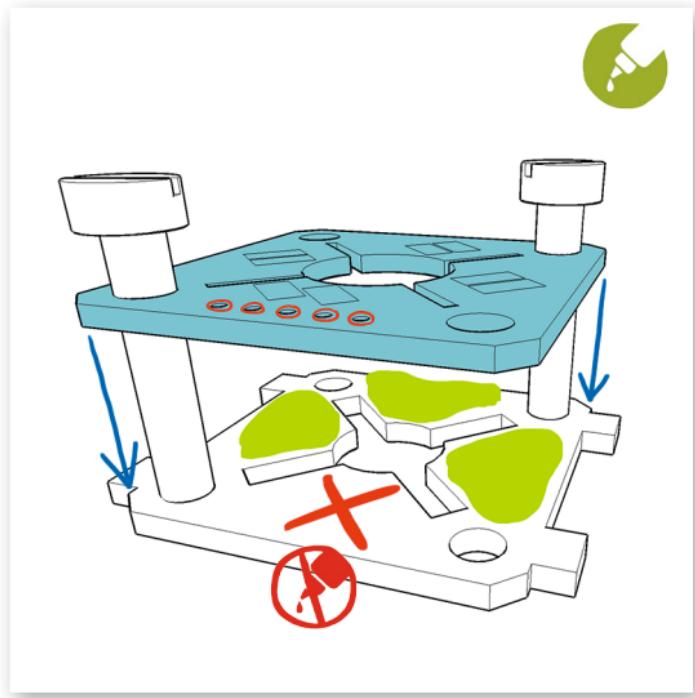
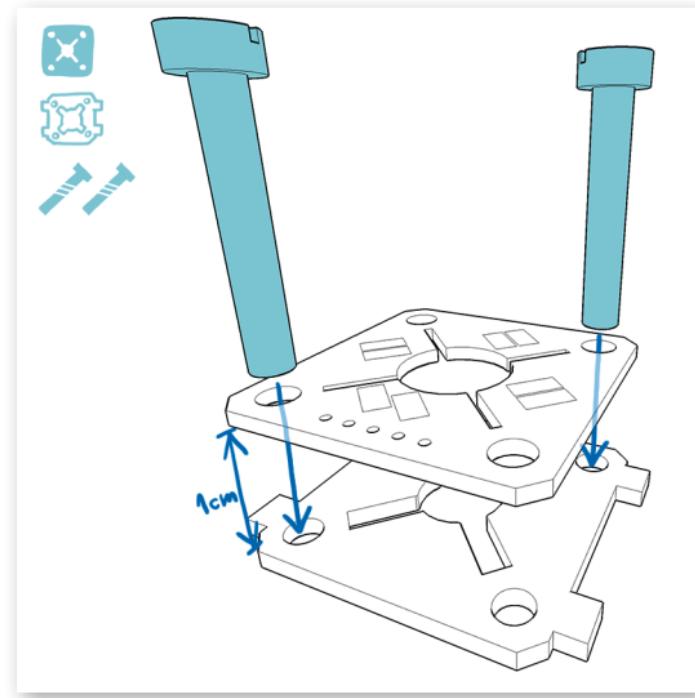
Glue the inside flaps in a straight angle.



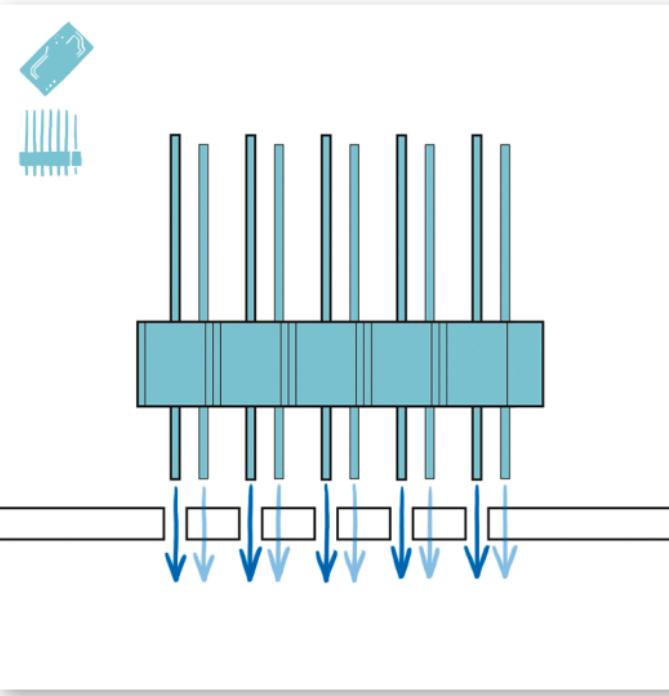
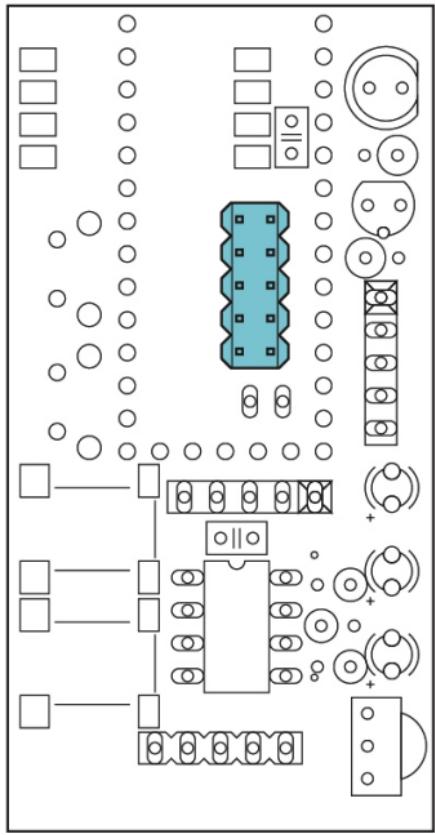
Glue the outside flaps in a straight angle.



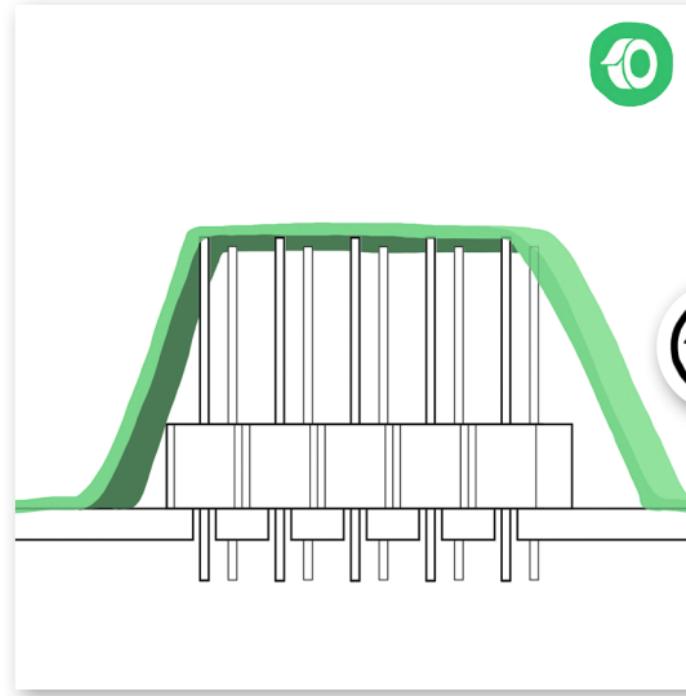
ATTENTION:
please take care of the orientation
of the sensor PCB!
The correct orientation is shown on
the picture (5-pin holes on the PCB
vs. bulges on the acrylic part).



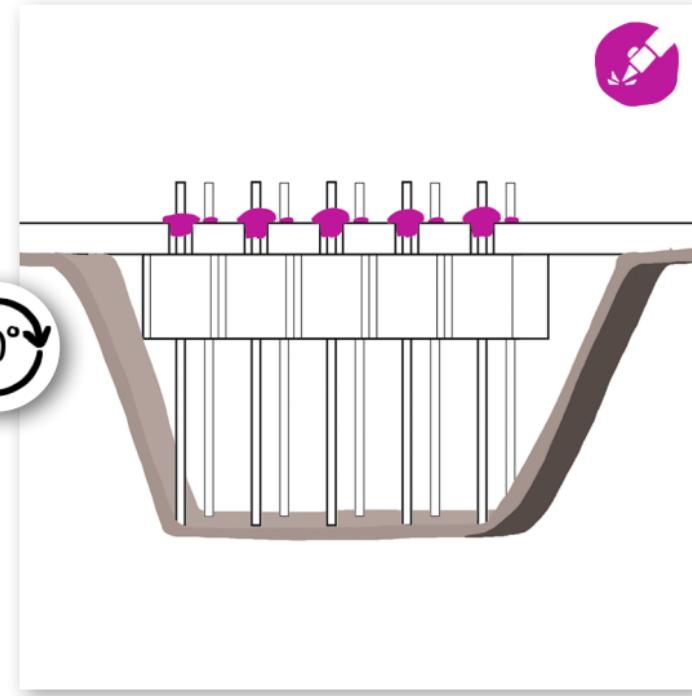
1hr



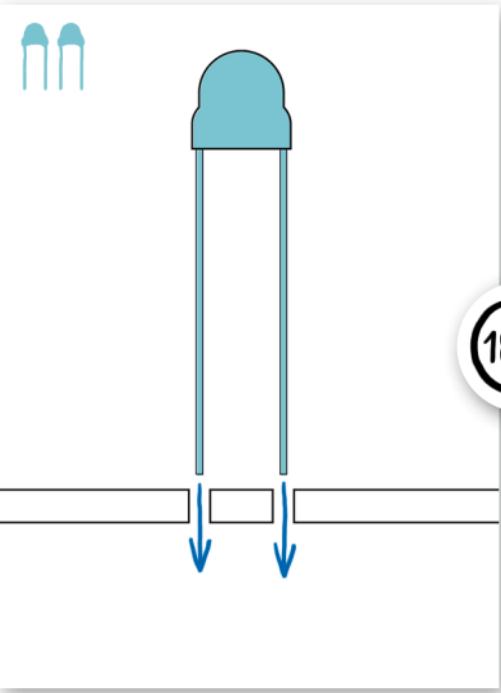
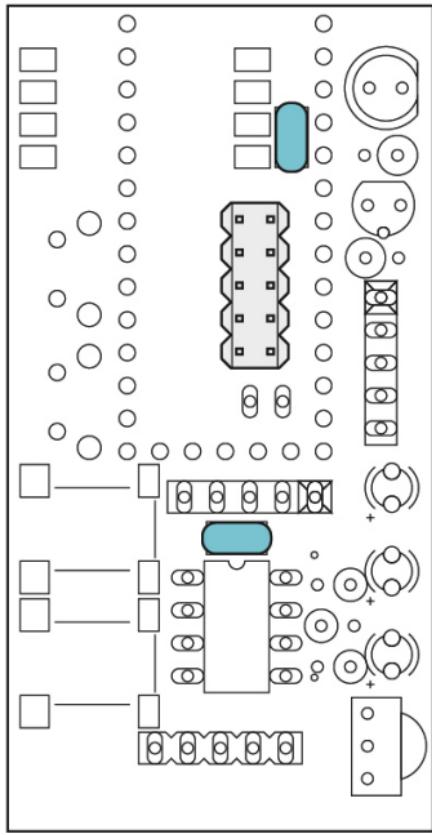
Place the pin header.



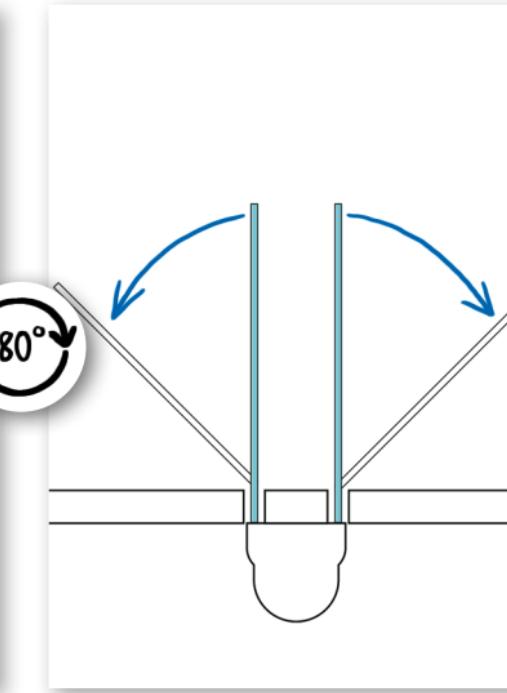
Use tape to fix the part.



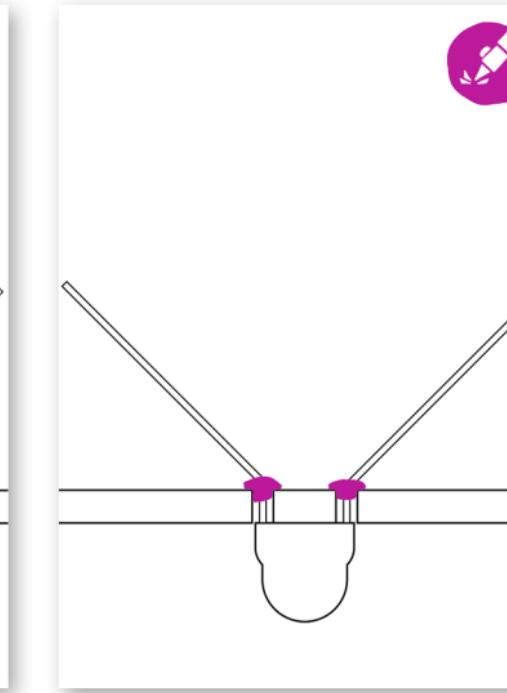
Solder and remove the tape.



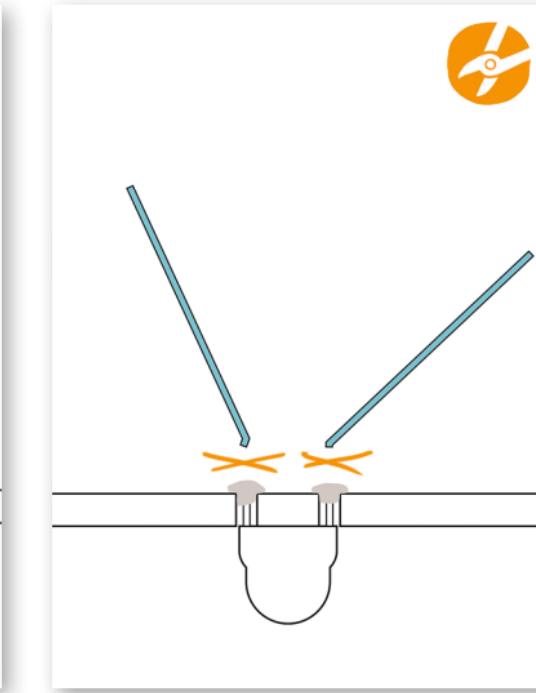
Place the capacitors.



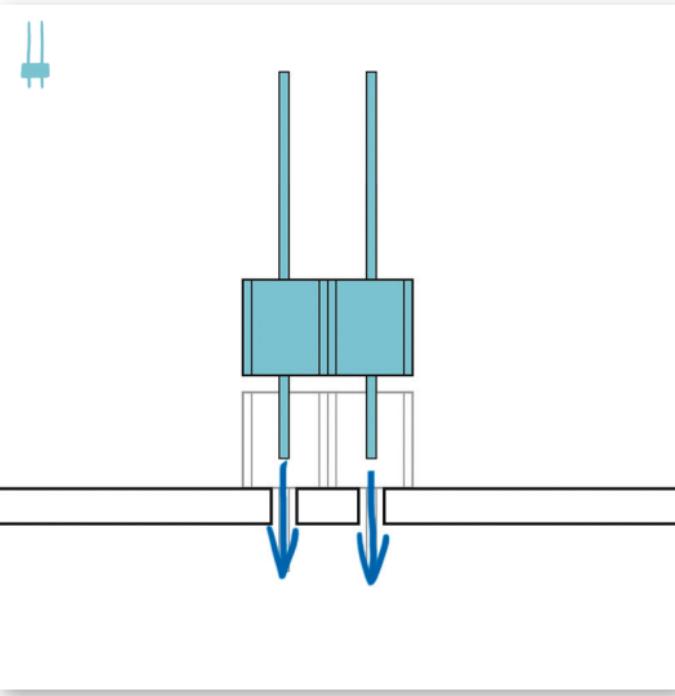
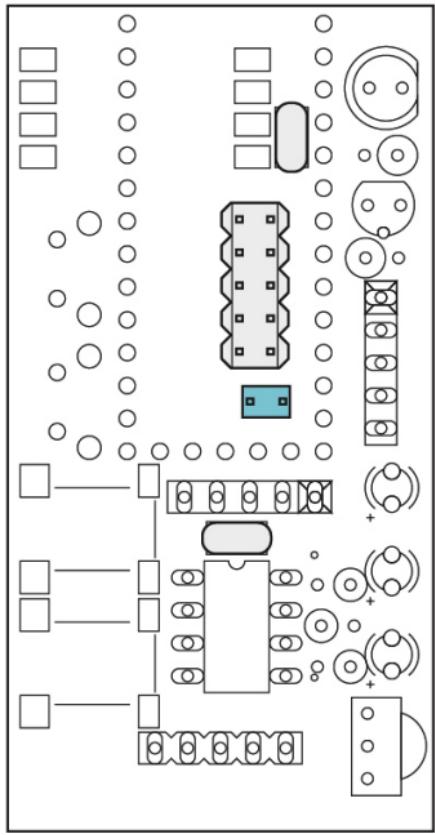
Bend the pins to fix the part.



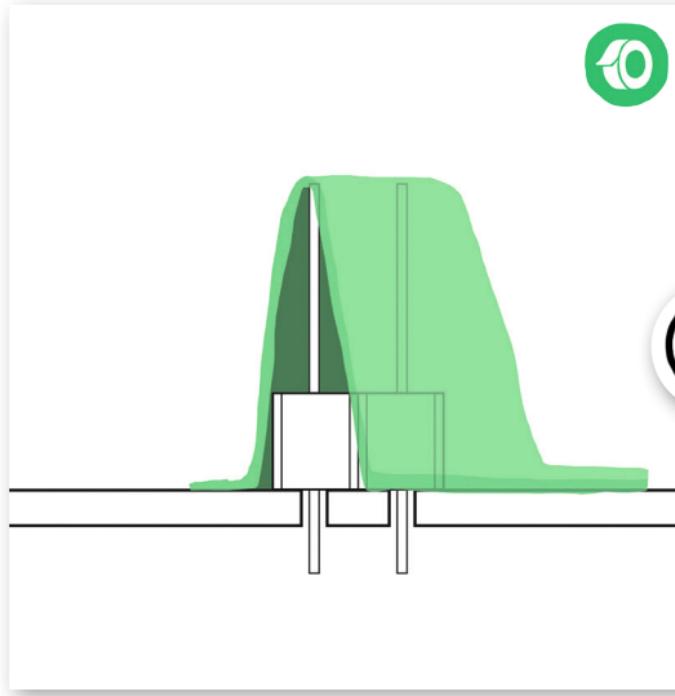
Solder the pins.



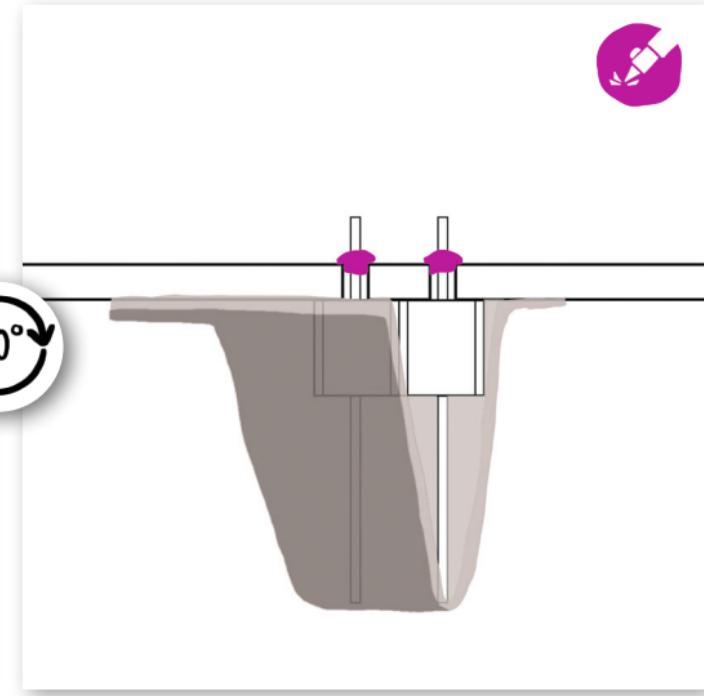
Clip the remaining pins of the capacitors.



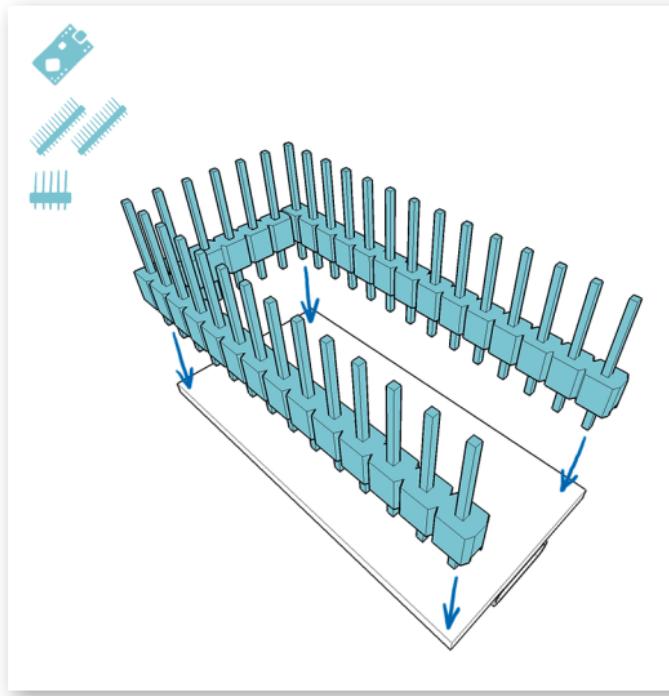
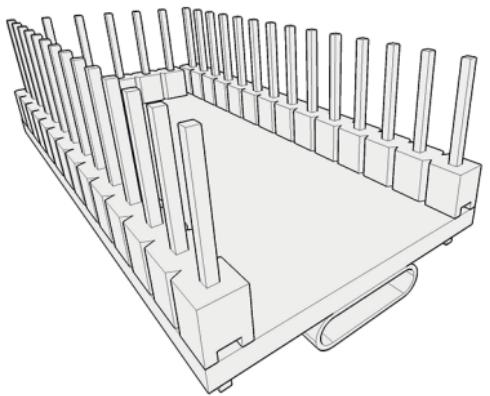
Place the pinheader.



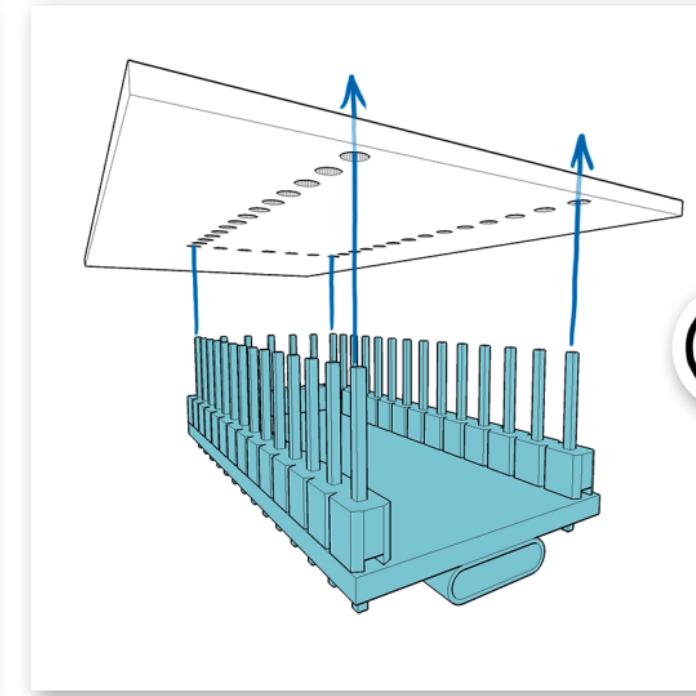
Use tape to fix the part.



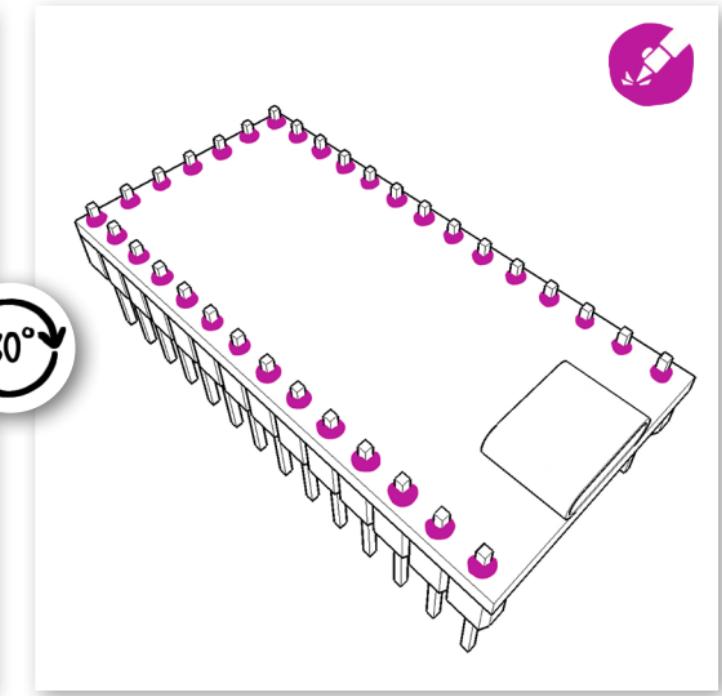
Solder and remove the tape.



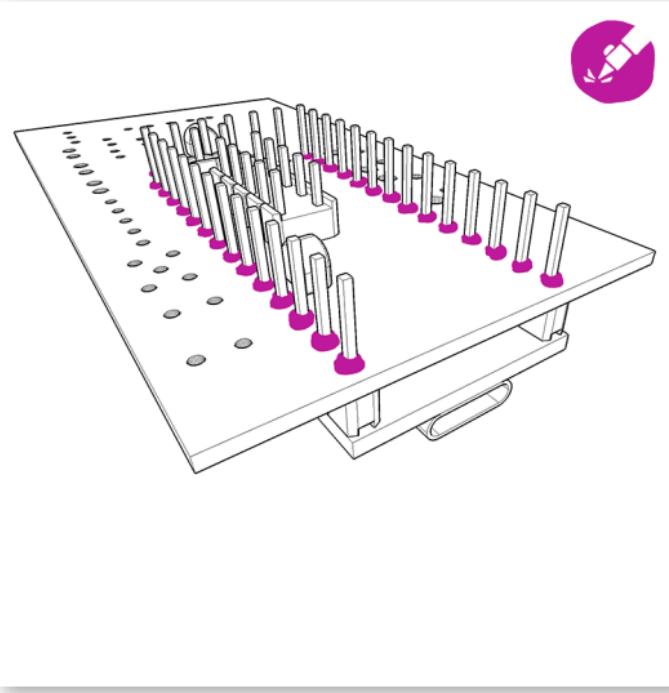
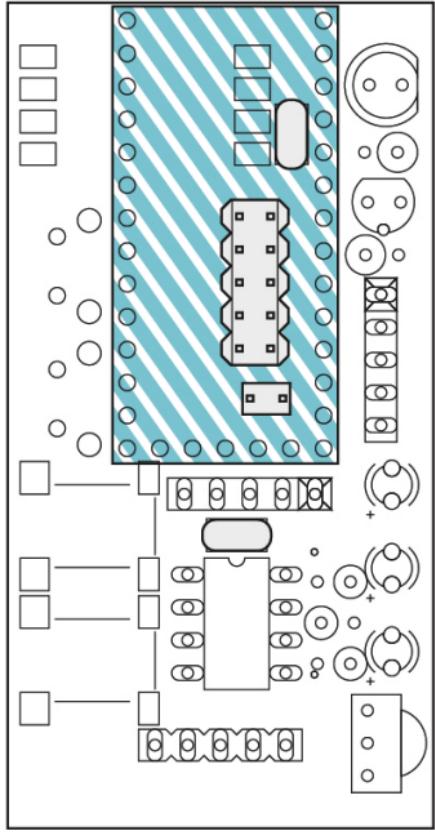
Place the 3 pin headers on the Teensy.



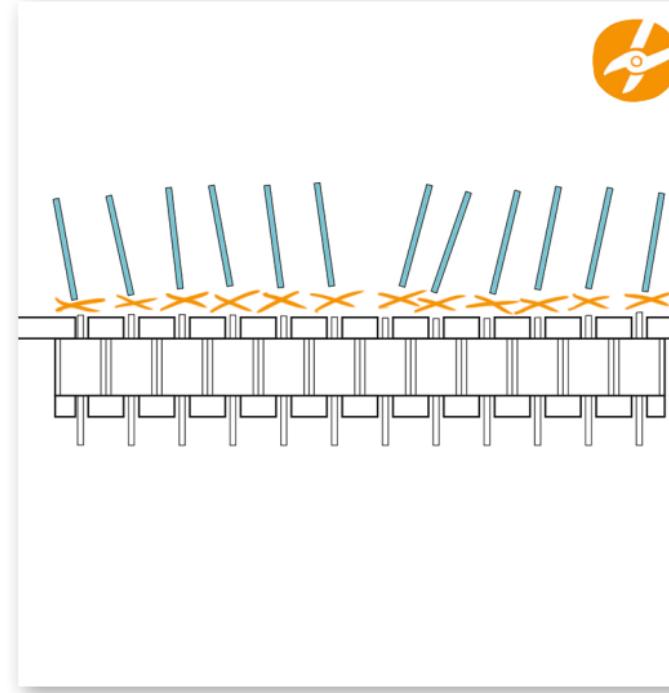
Place the Teensy board on the PCB.



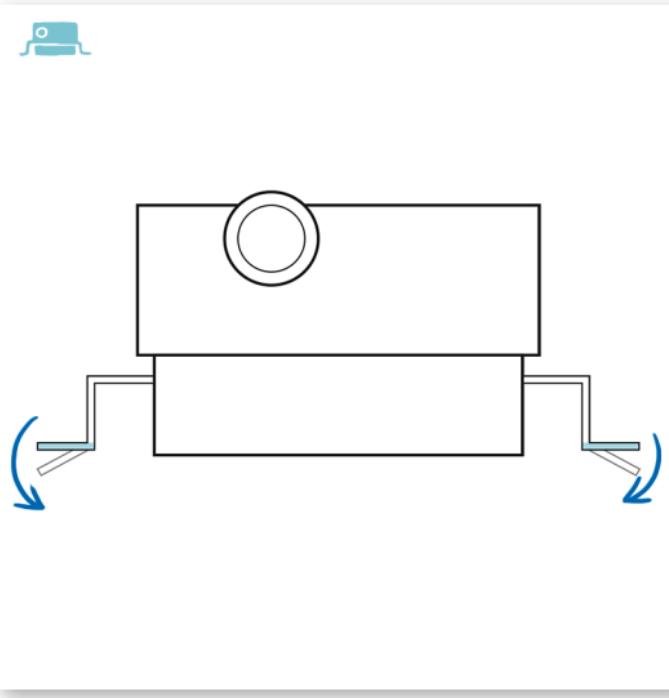
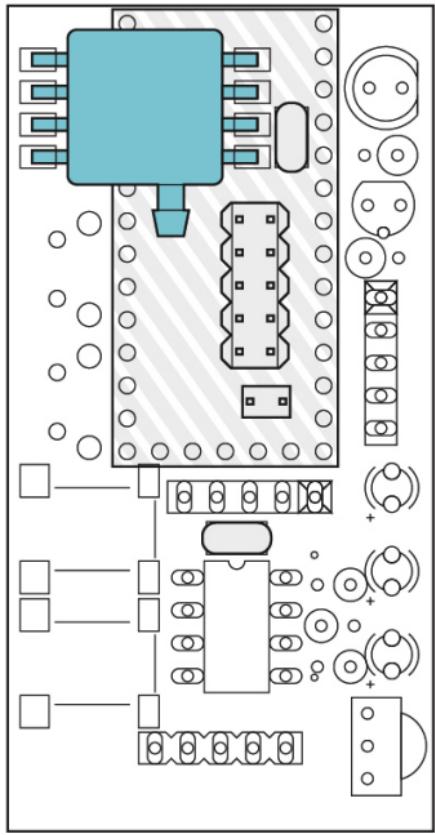
Solder the pins on the Teensy.
Don't leave space between Teensy and pin headers.



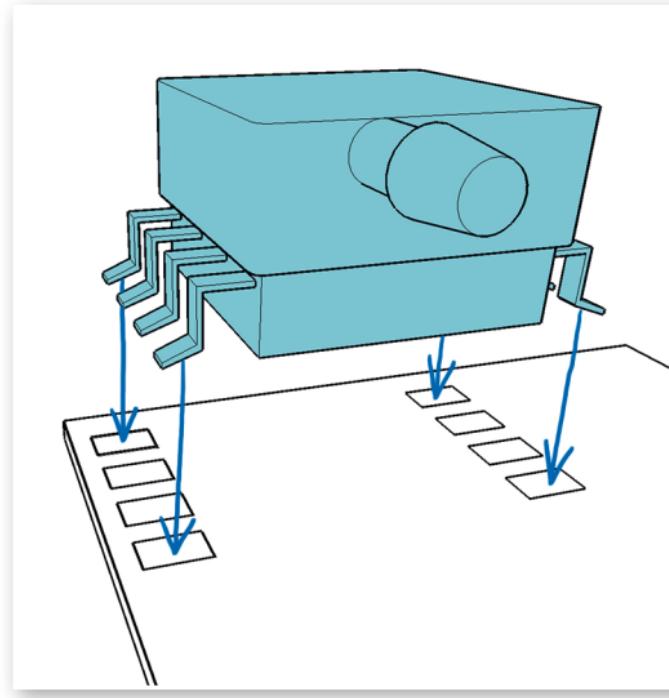
Solder the pins of the Teensy on the PCB.
Don't leave space between Teensy and PCB.



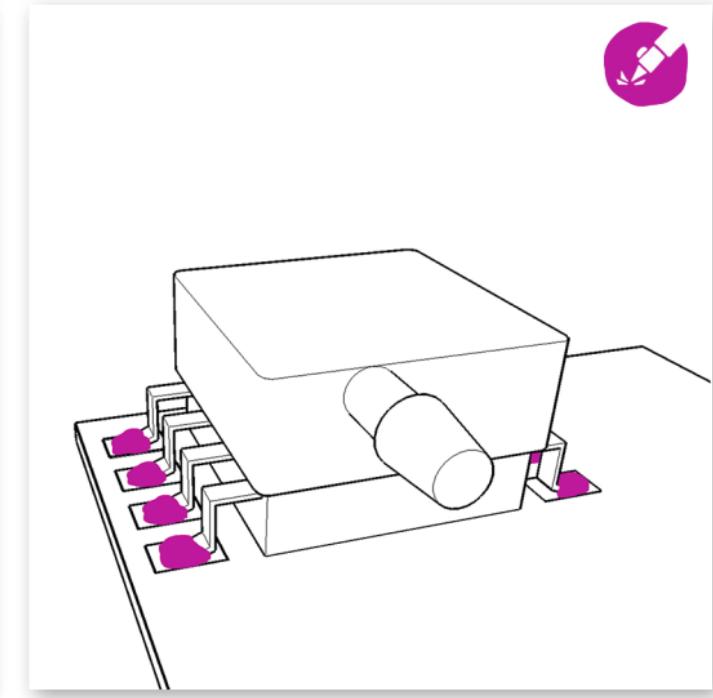
Make sure that the pins are clipped very close
to the PCB surface



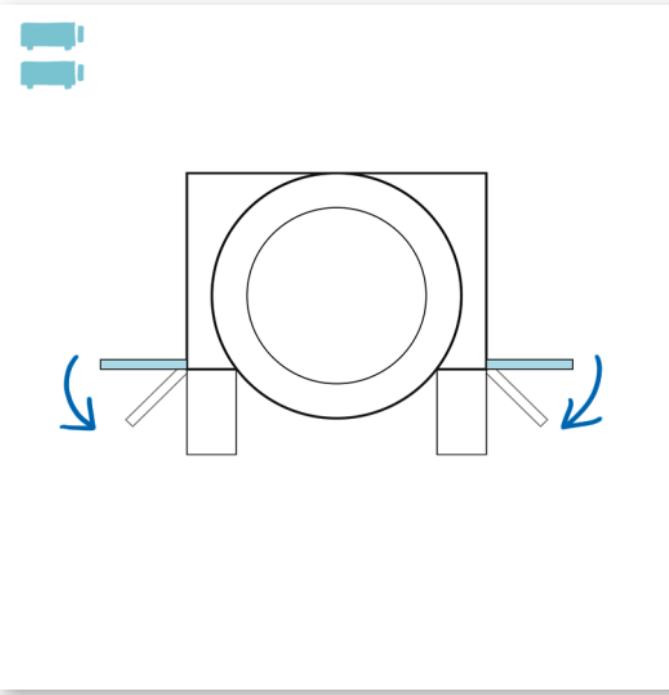
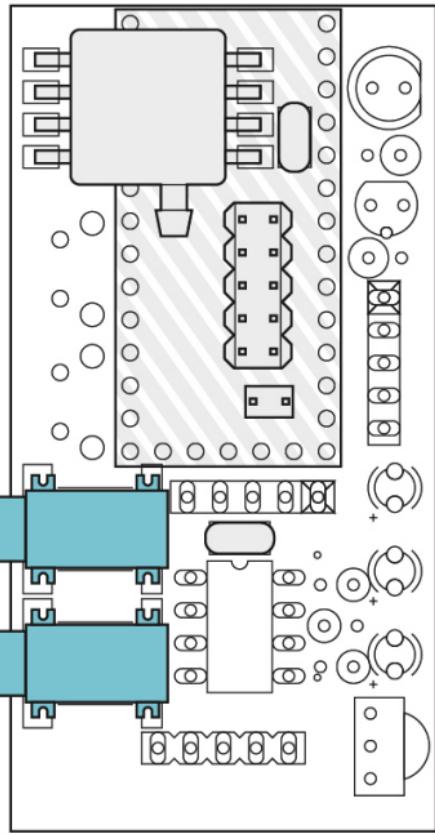
Bend the pins of the pressure sensor downwards, as much as it is necessary to have a narrow space between PCB and sensor.



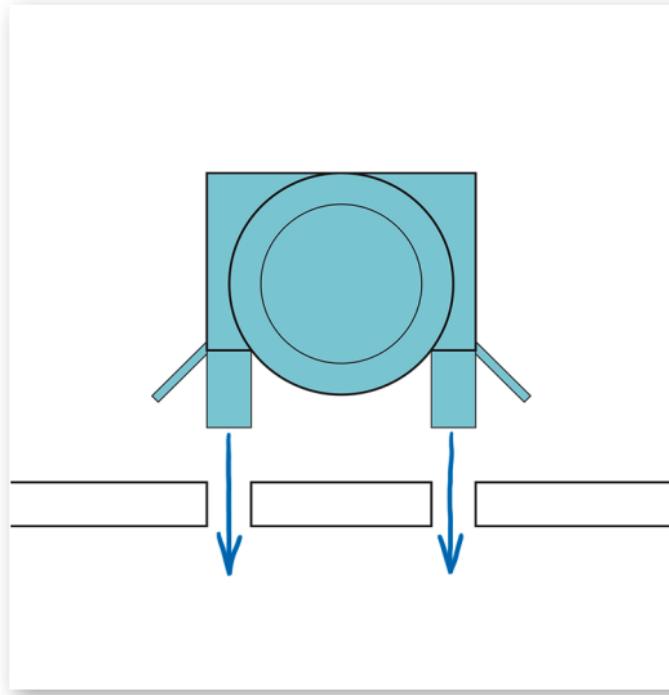
Place it on the PCB.



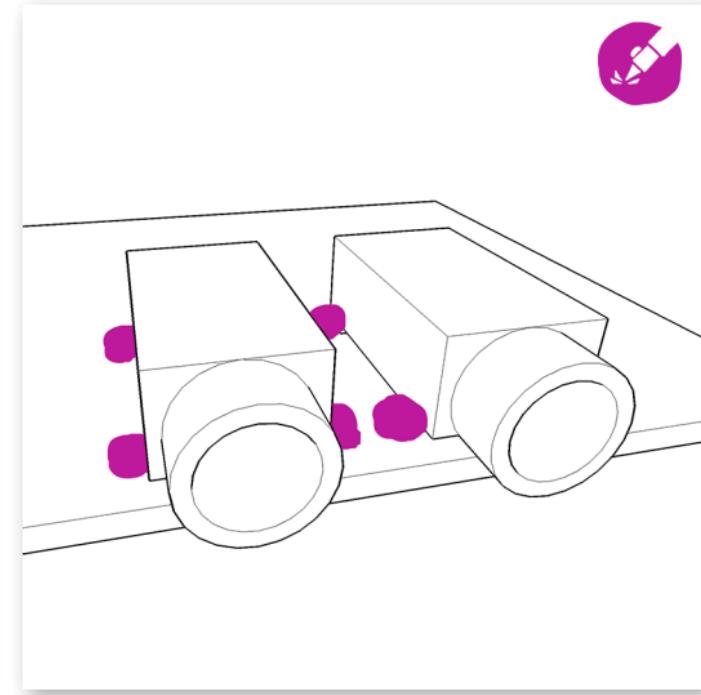
Solder it.



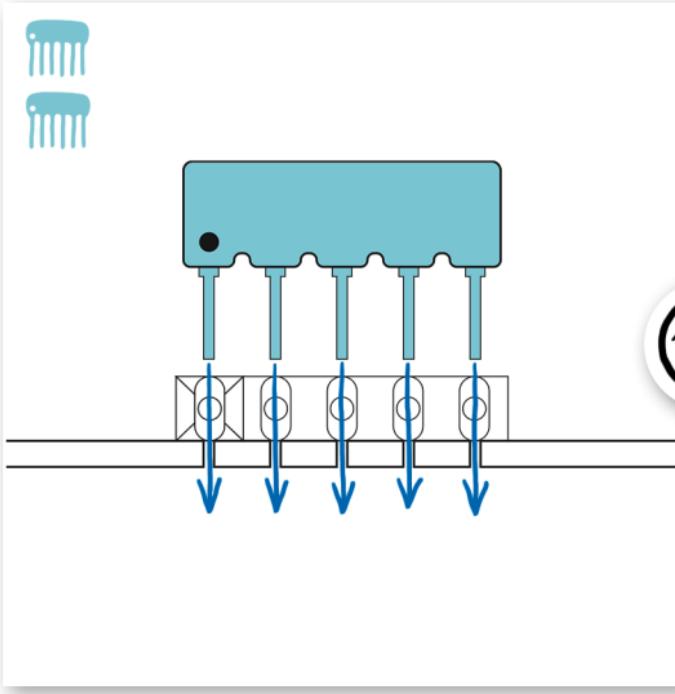
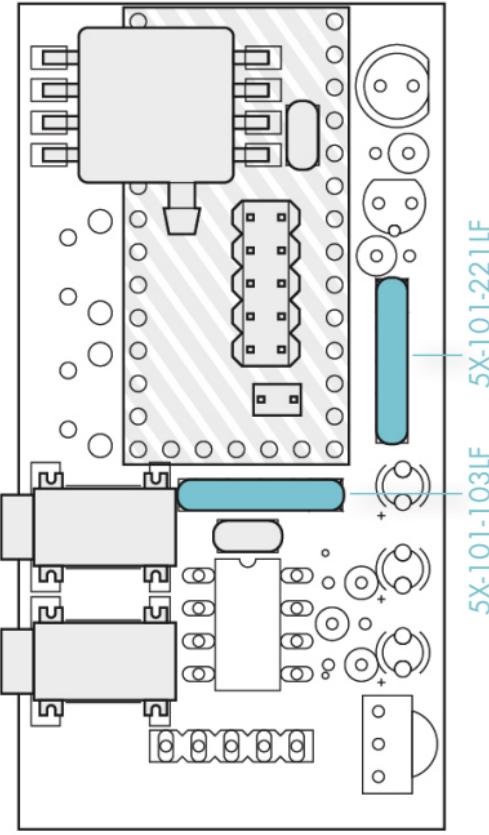
Bend all 4 pins of the jack plugs downwards.



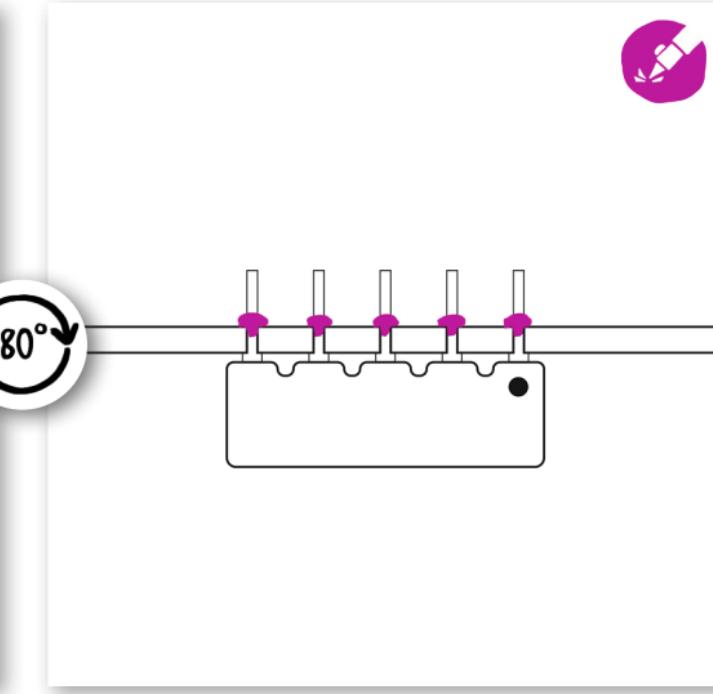
Place them on the PCB.



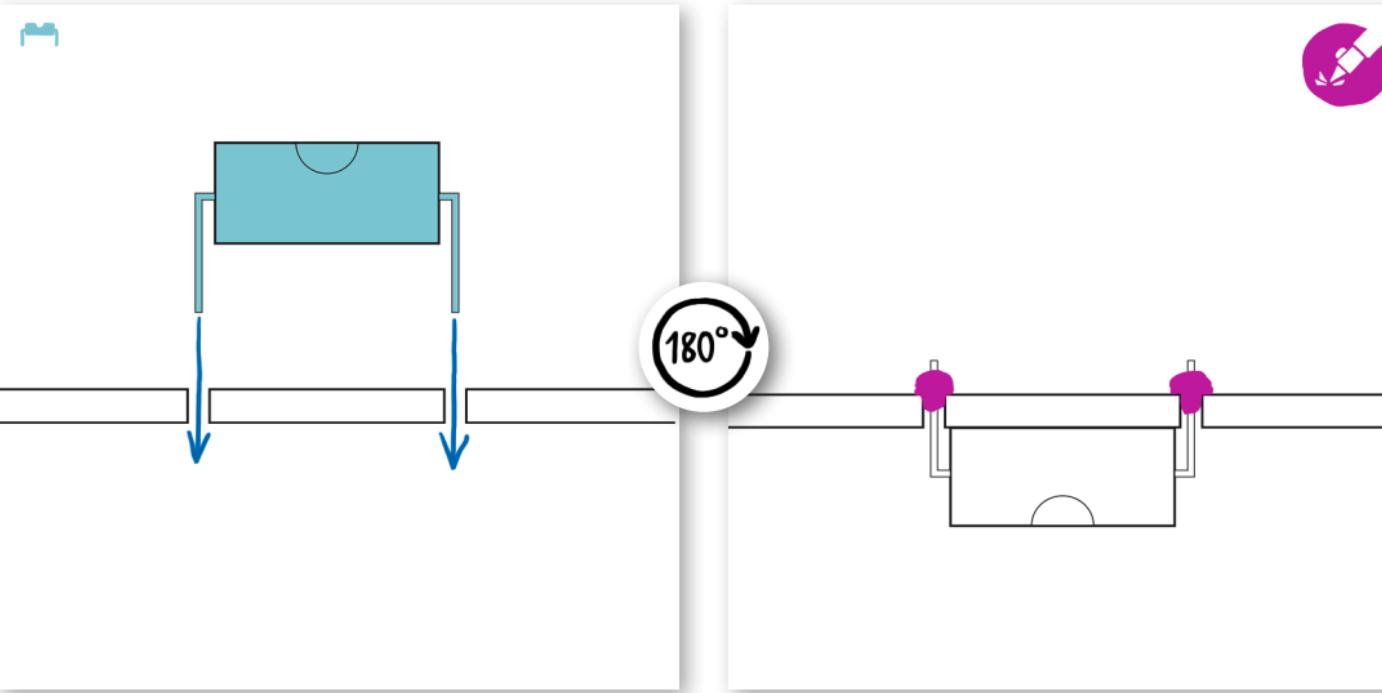
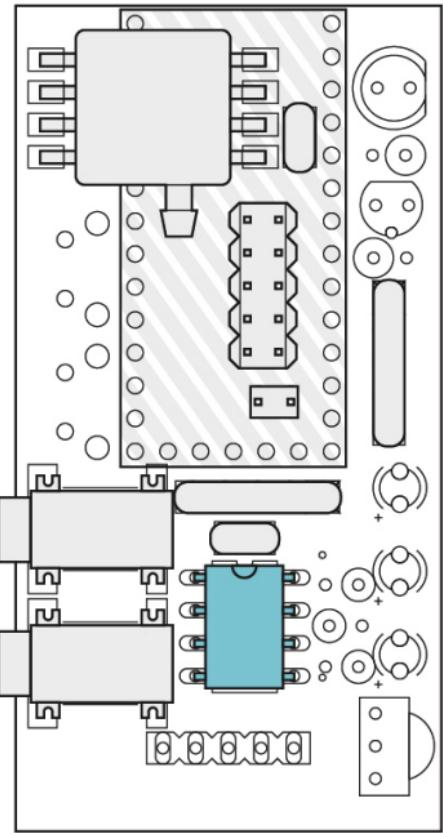
Solder the pins. Make sure that they are connected but avoid short cuts (fine solder tip needed)



Place the resistor networks. There is a cross on the PCB and a point on the part.

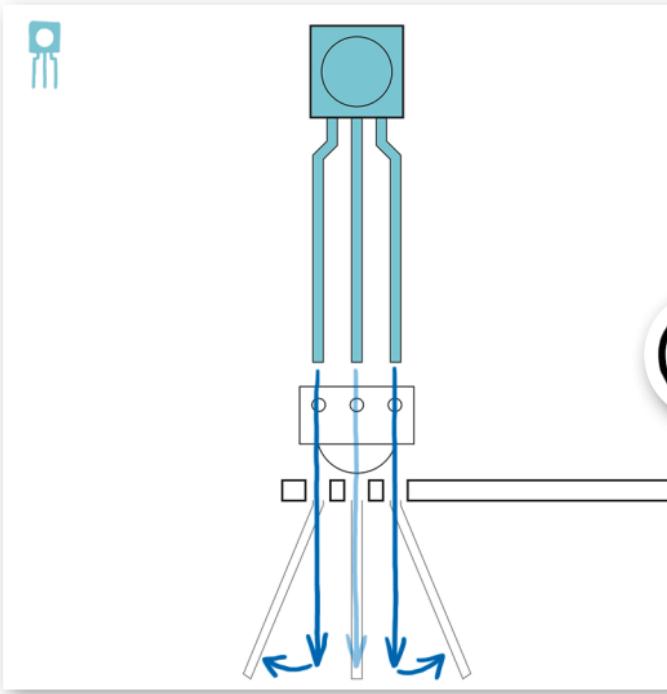
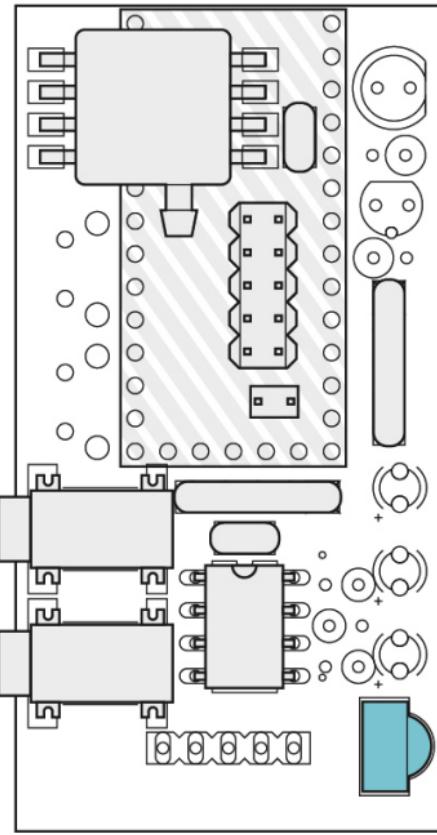


Solder these pins.

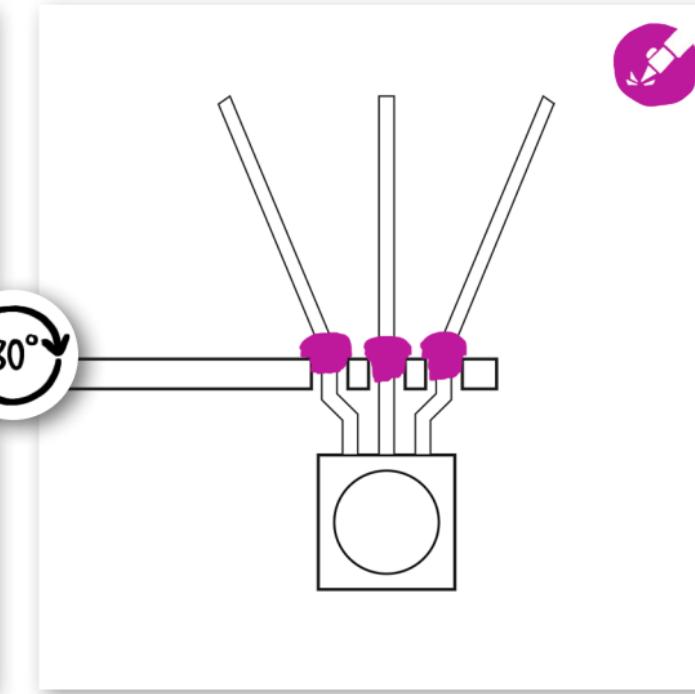


Place the EEPROM.

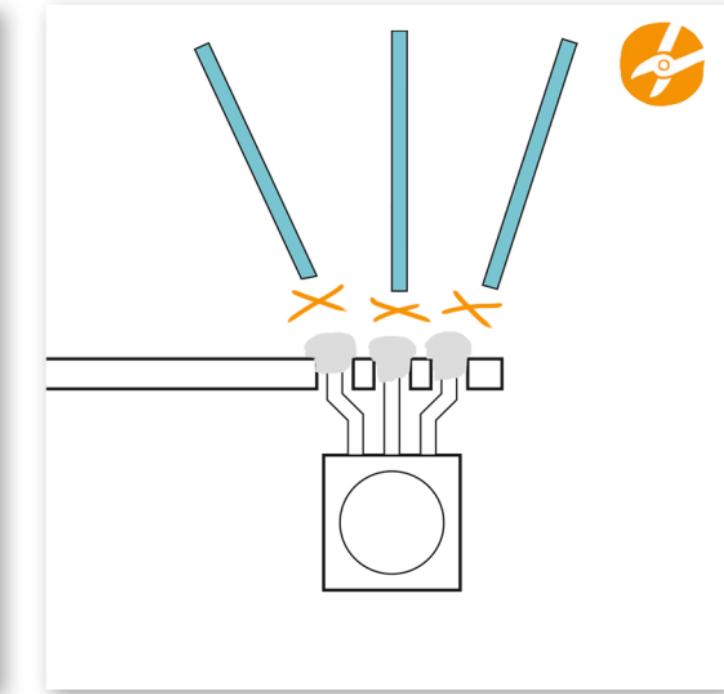
Solder it.



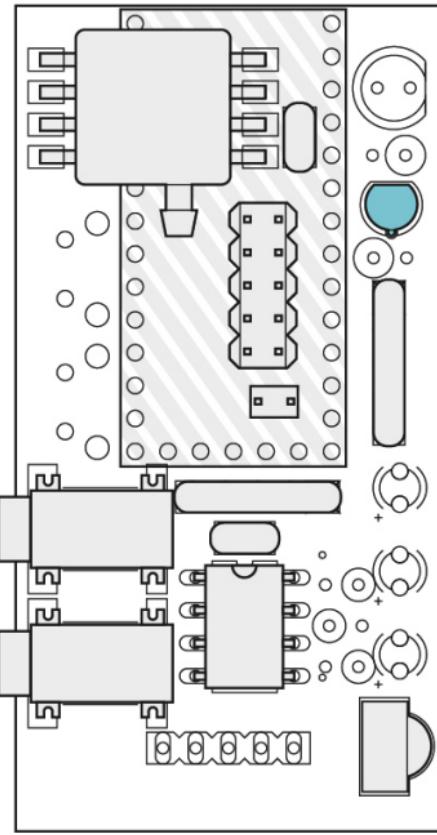
Place the IR receiver and bend pins.



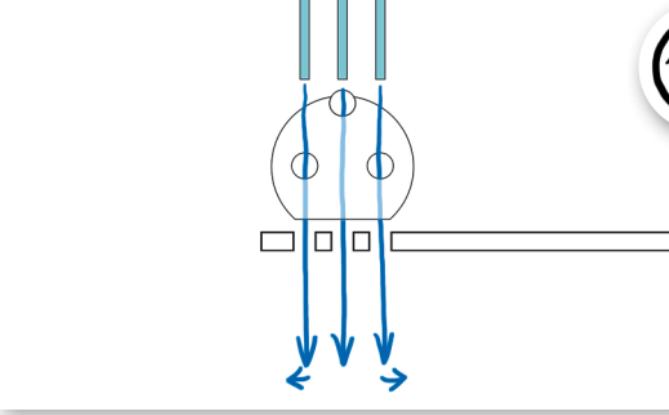
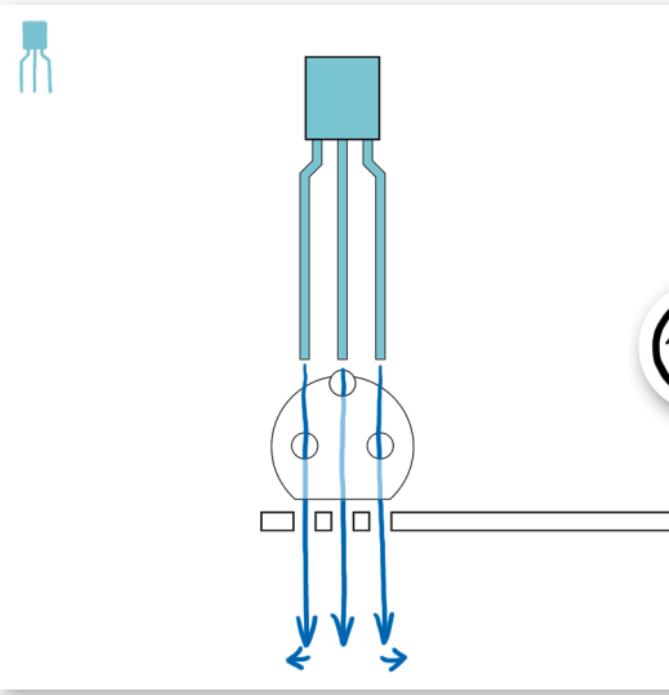
Solder it.



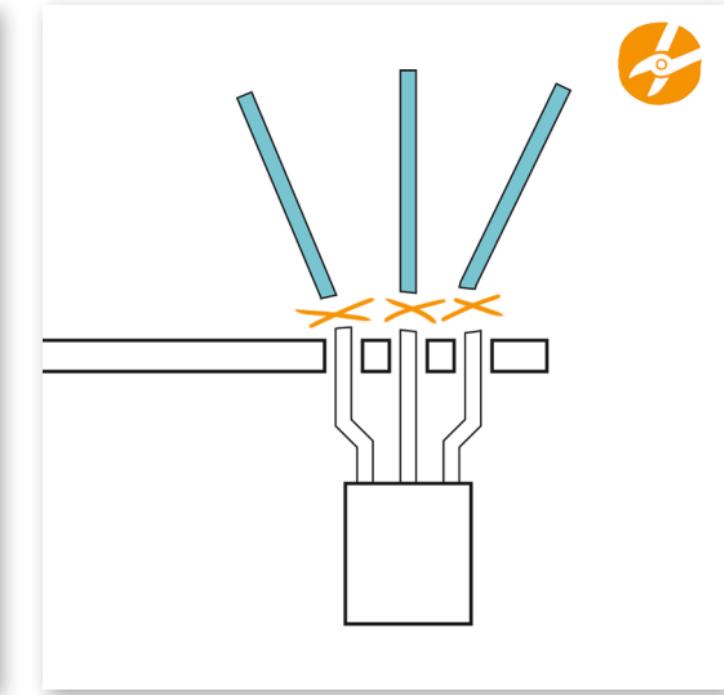
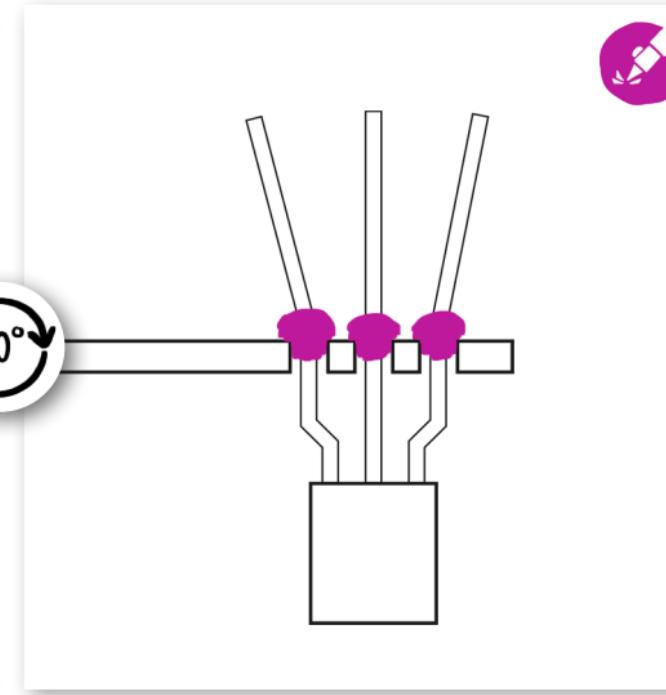
Clip the pins.

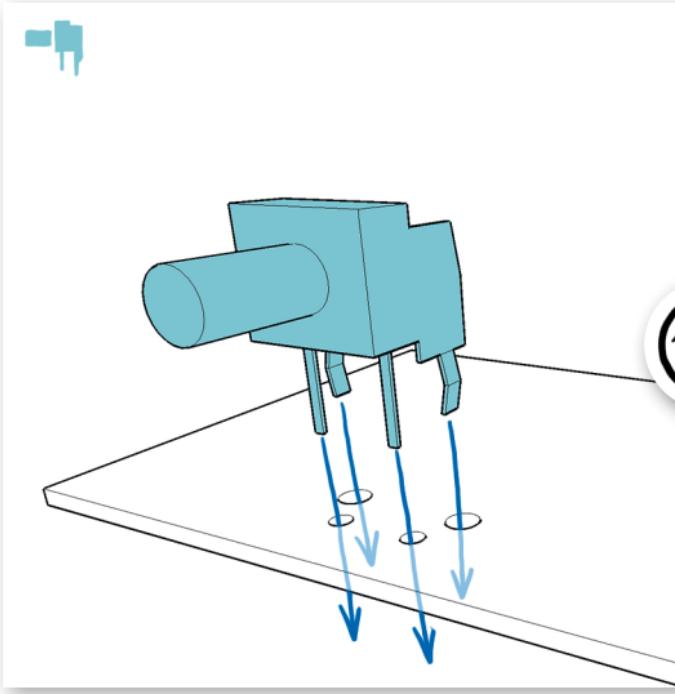
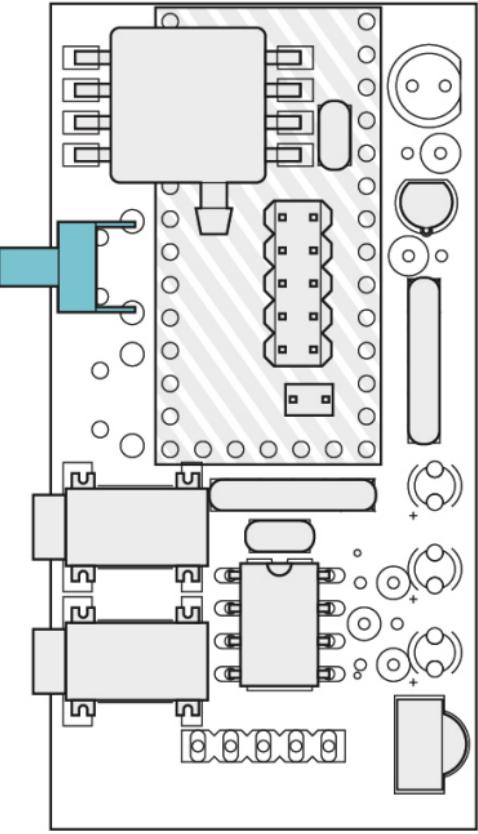


Place the MOSFET,
bend the pins to fit into the PCB.

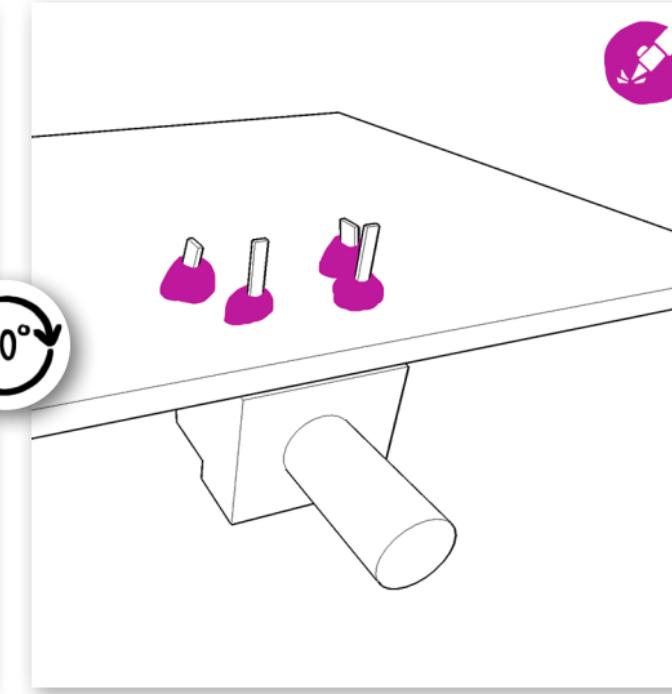


Solder it.

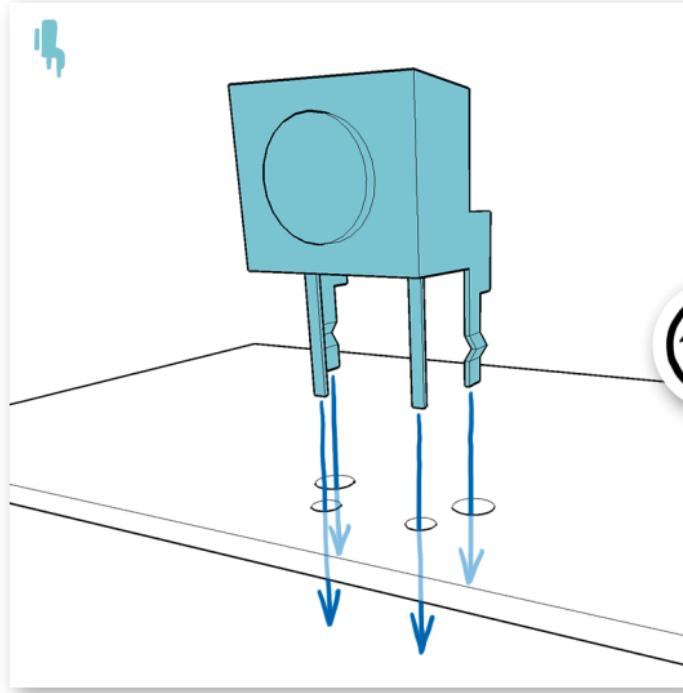
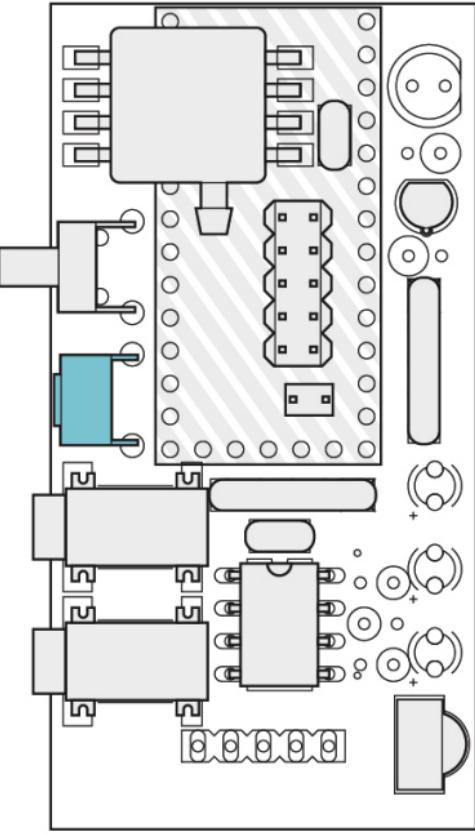




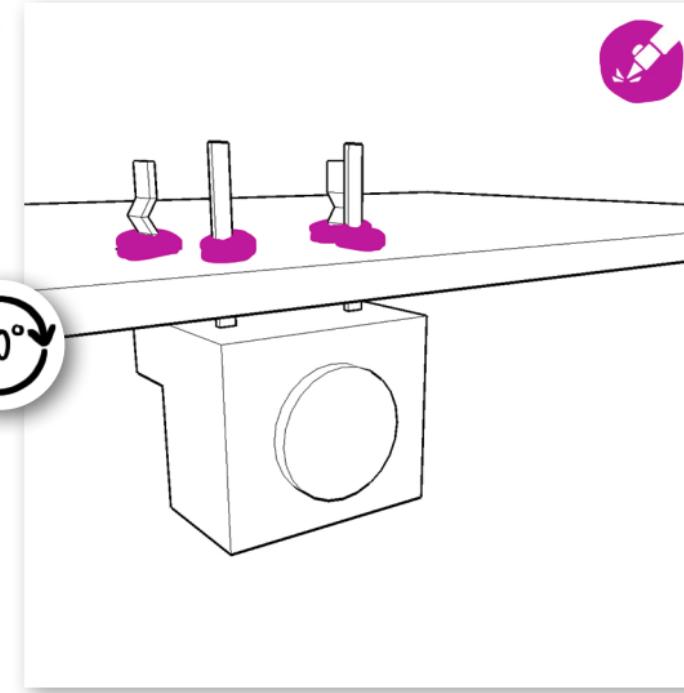
Place the long-nosed button.



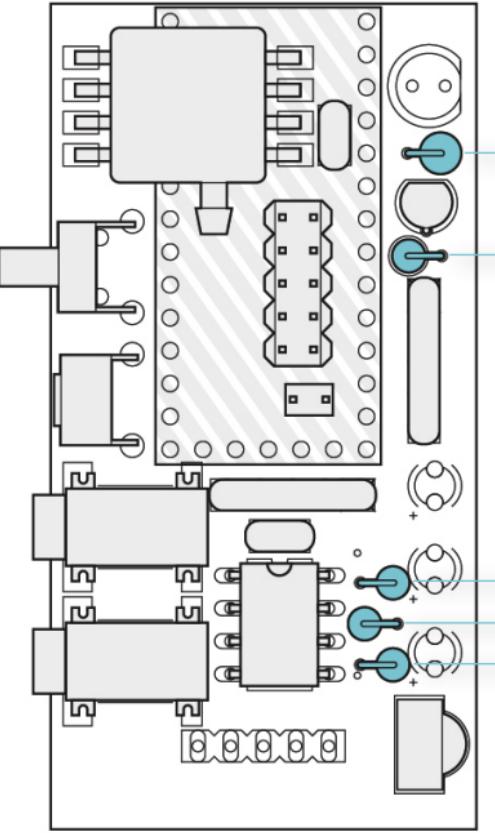
Solder it.



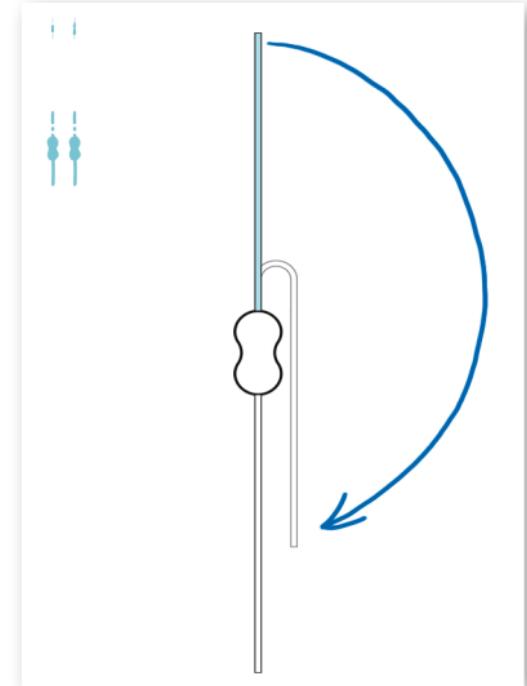
Place the short-nosed button.



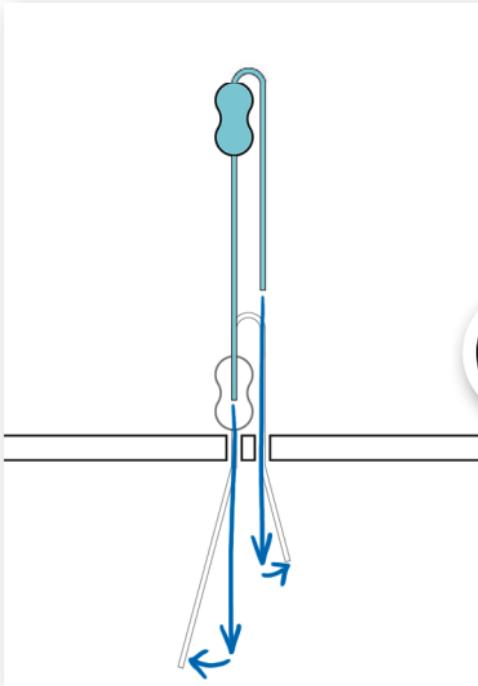
Solder it.



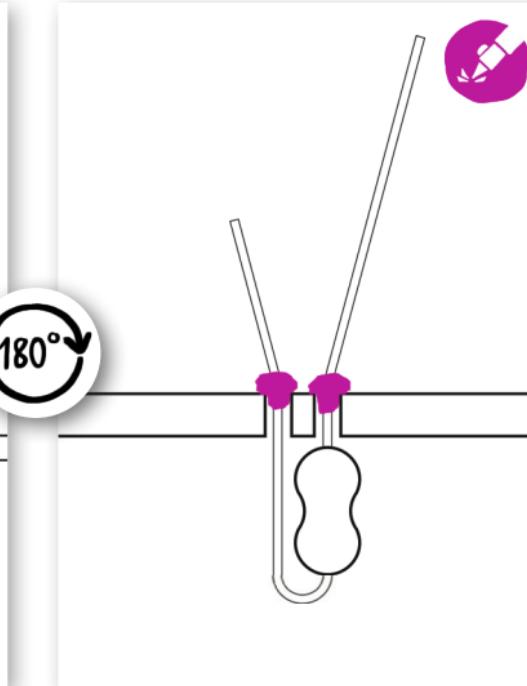
Bend one pin of each resistor as tight as possible to 180°.



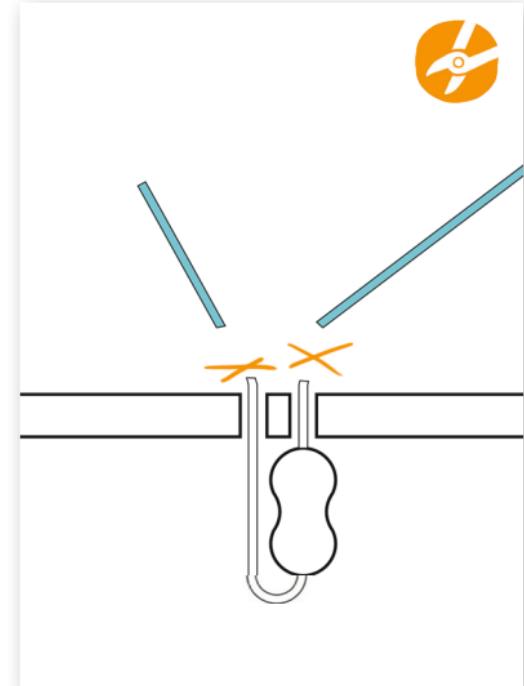
Place the resistor as close as possible to the PCB. Please bend the resistor's pins as tight as possible, otherwise the buzzer won't fit well.

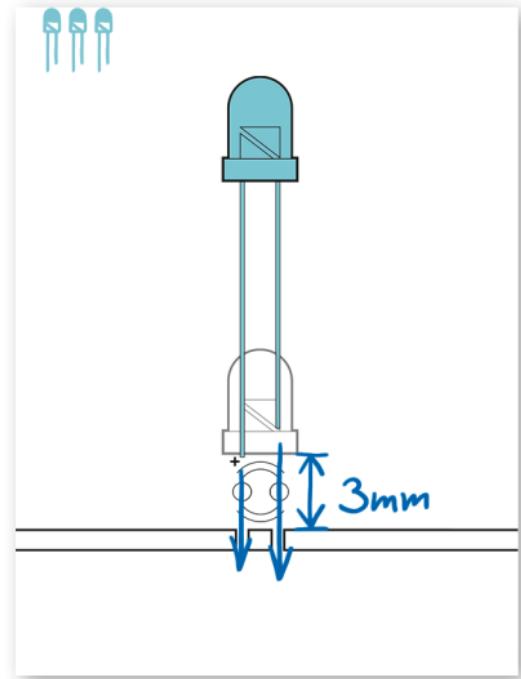
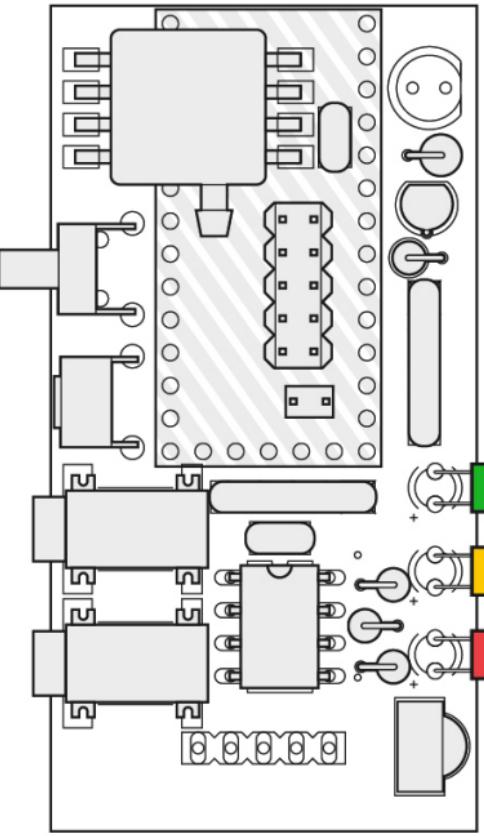


Solder it.

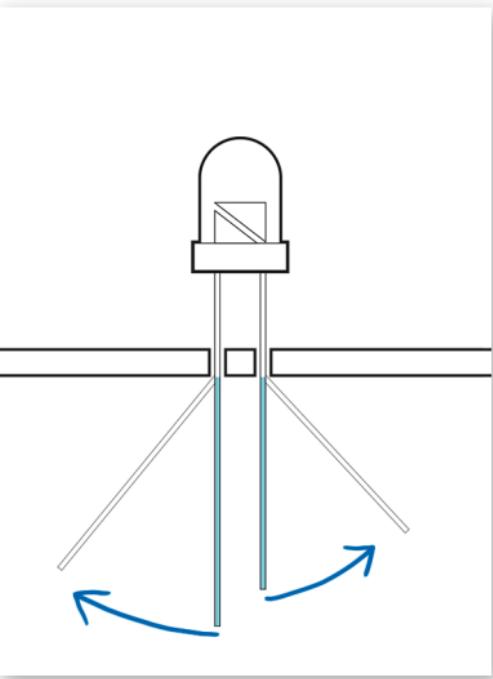


Clip the pins.

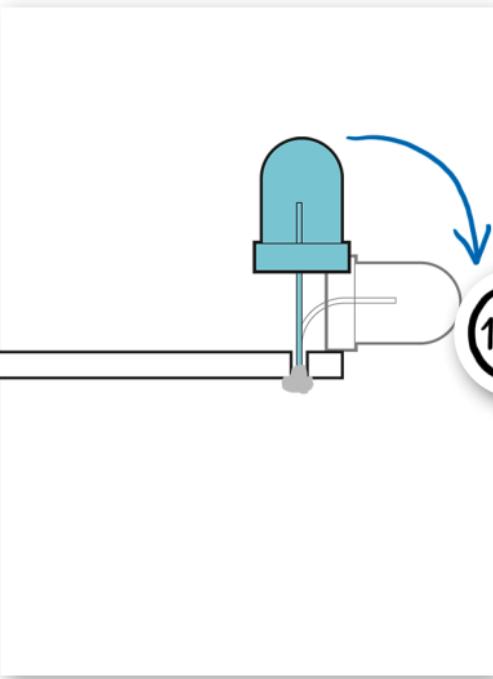




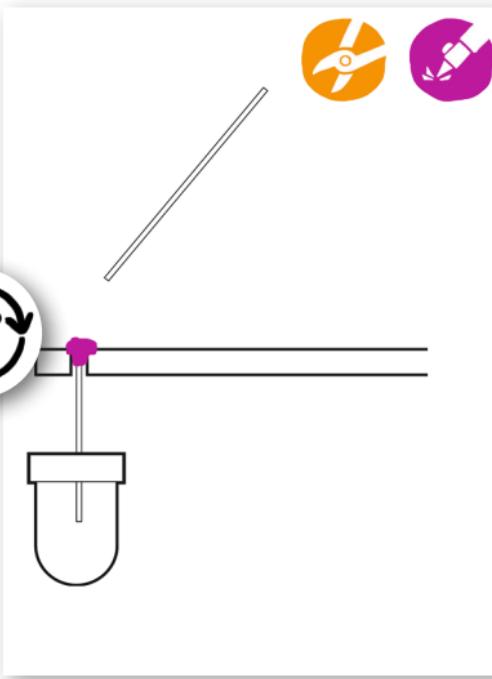
Place the LEDs with 3mm space.
Please note the position! The smaller part
inside the LED should be at the '+' sign on
the PCB!



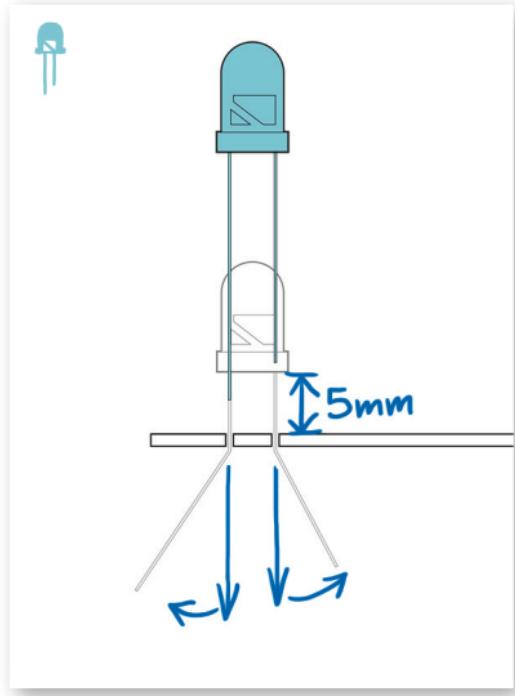
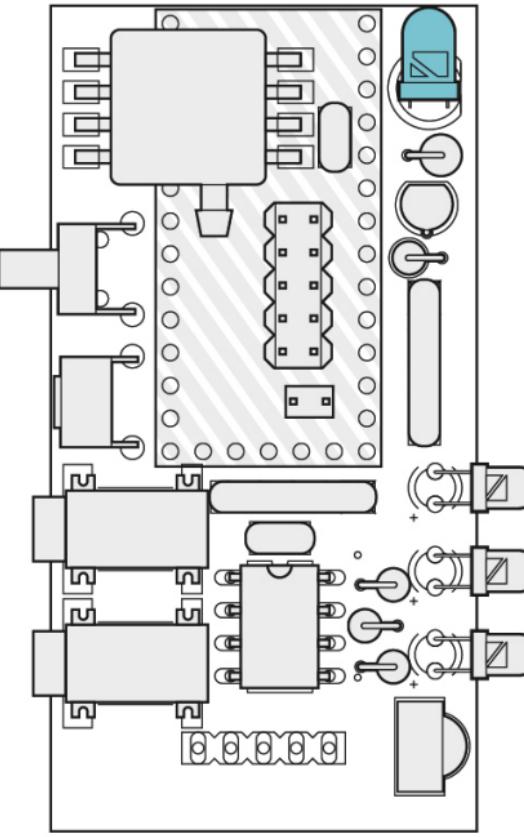
Adjust the distance, bend the pins to fix
the LEDs



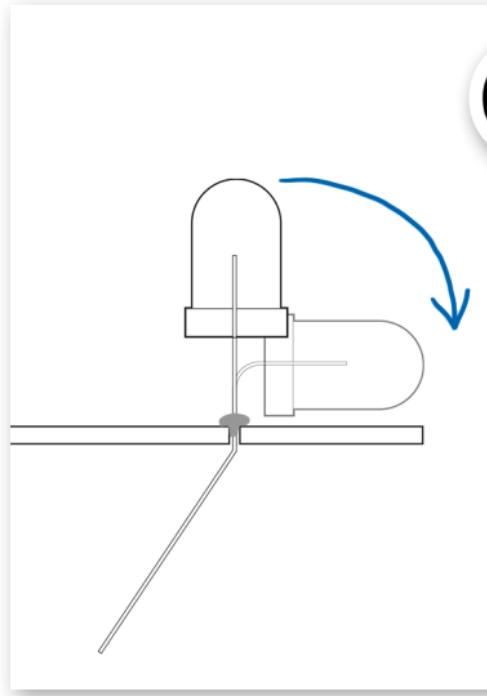
Bend the LEDs to 90°.



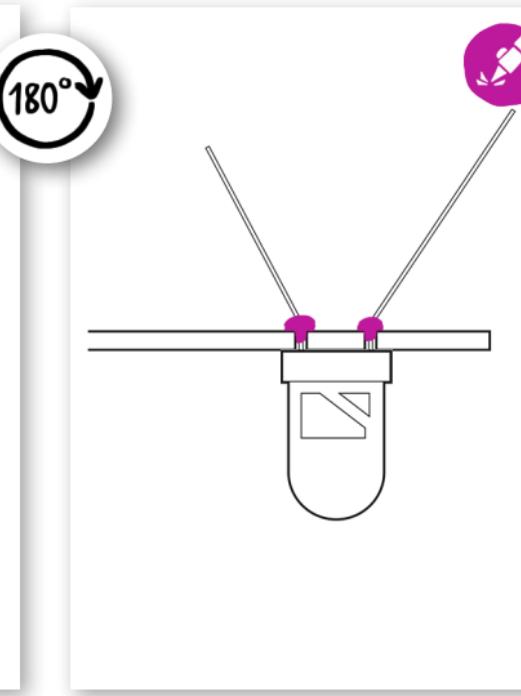
The adjustment will be easier then. Solder
the LEDs & clip the pins.



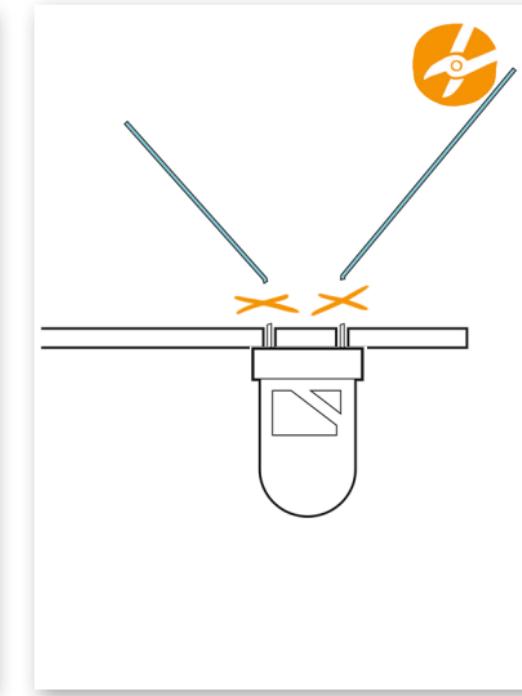
Place the infrared LED with 5mm space.
There is one side flat on the LED housing
and the corresponding mark on the PCB.



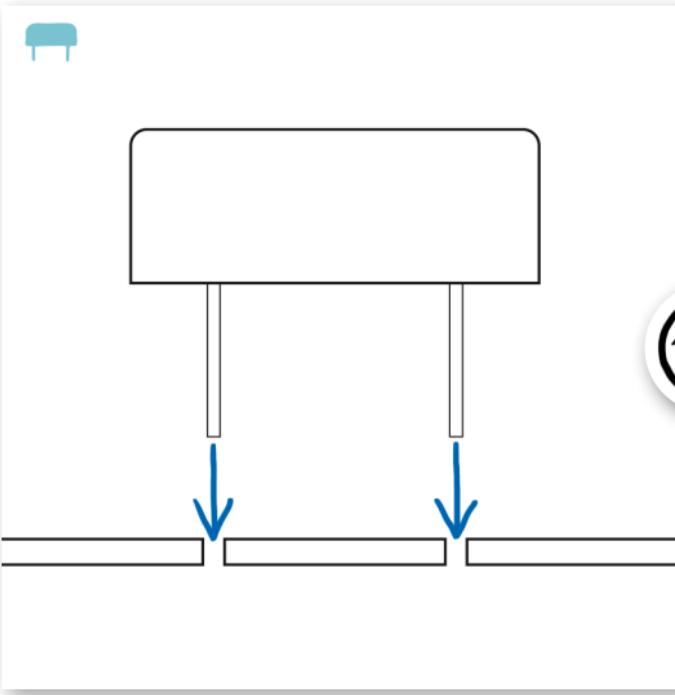
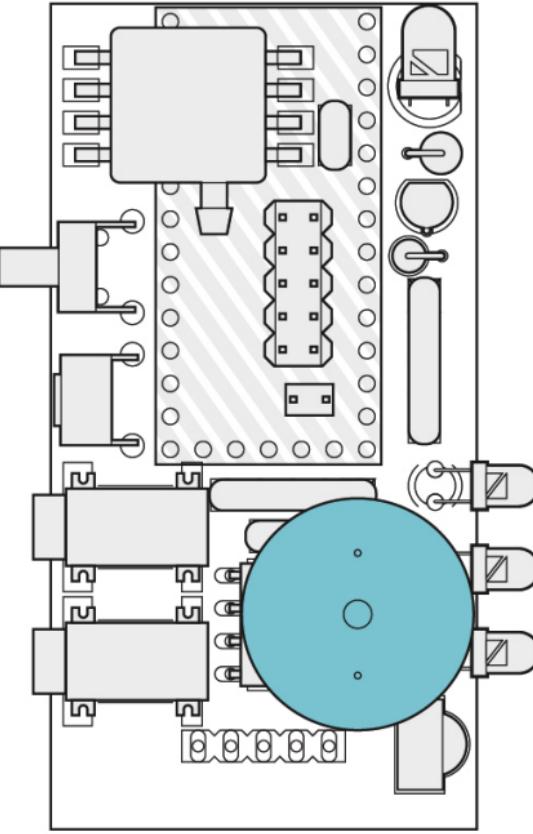
Bend the LED to 90°, pointing upwards
in this drawing.



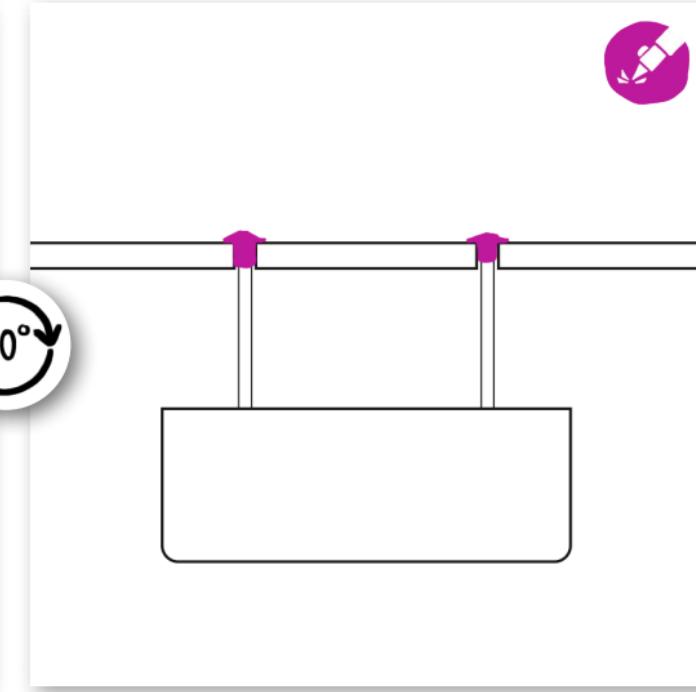
Bend the LED BEFORE soldering.
Solder the pins.



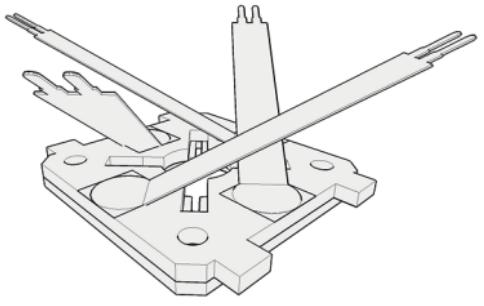
Clip the pins.



Place the buzzer over the LEDs.



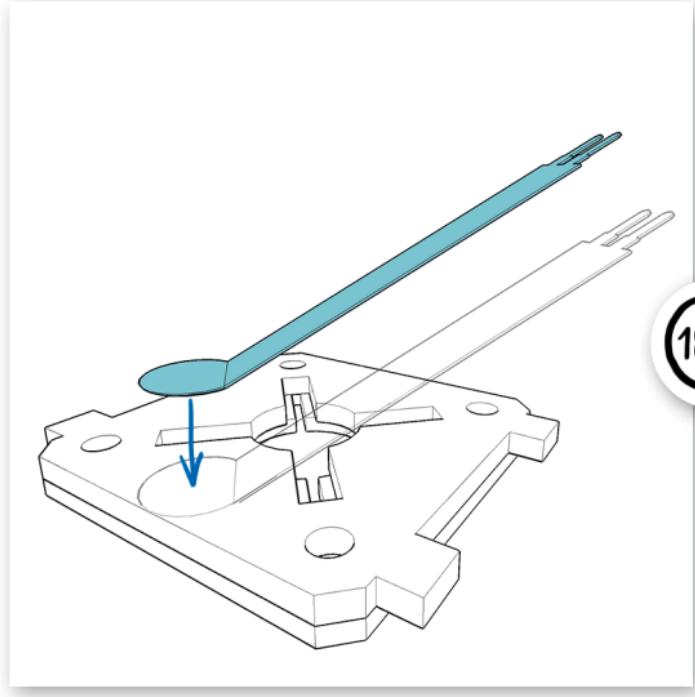
Solder it.



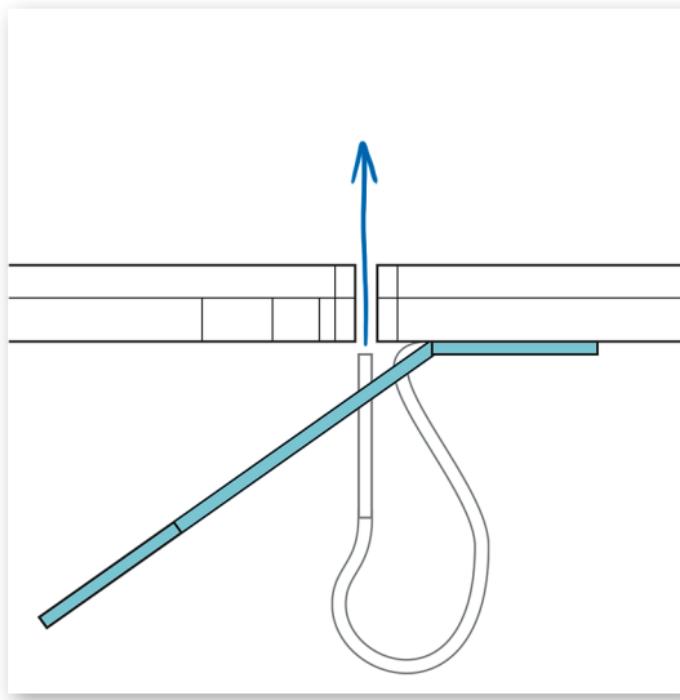
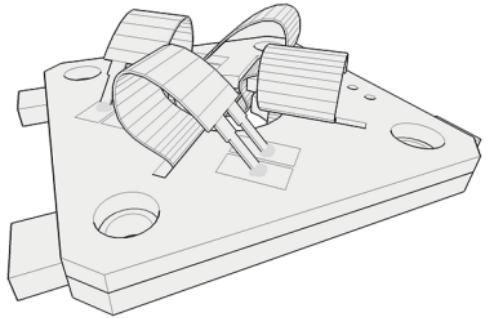
ATTENTION:
please take care of the sensor and
DO NOT remove anything else than
the transparent foil from the bottom,
otherwise the sensor is broken.



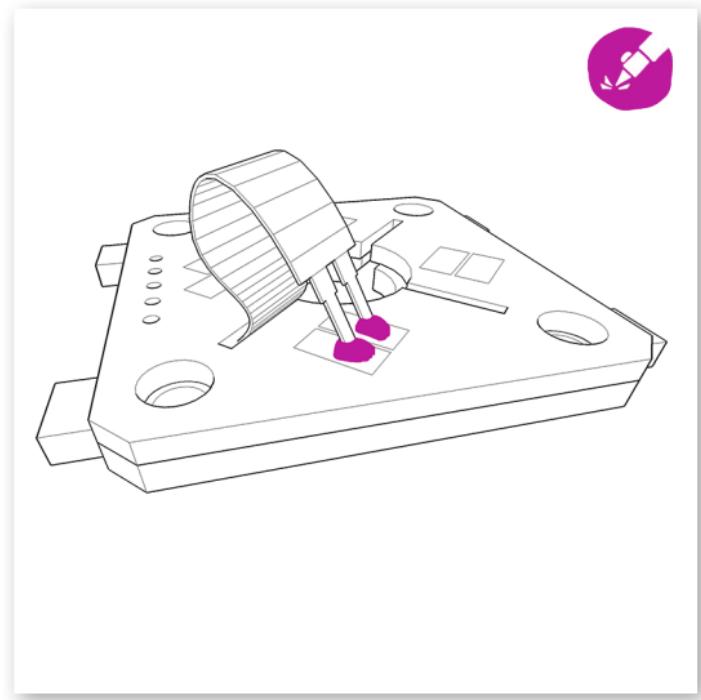
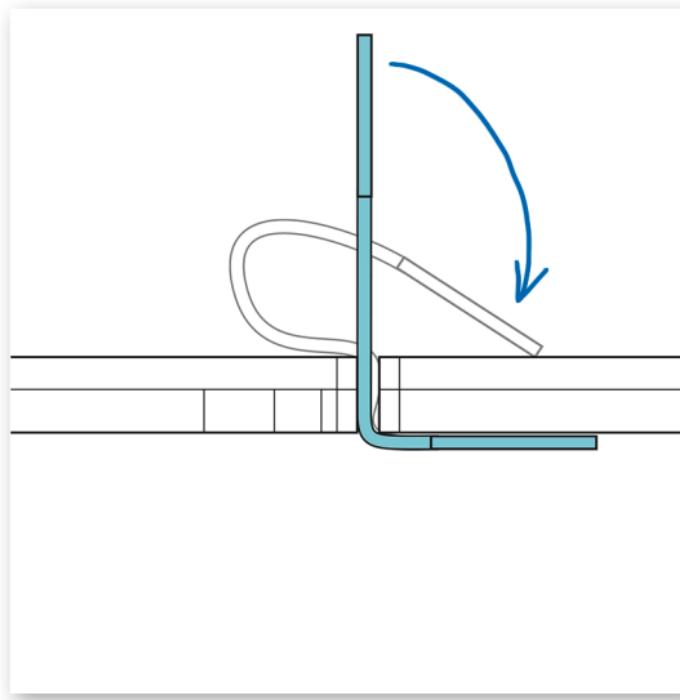
Carefully remove the cover of the 2-side adhesive tape
on the sensor. Attention: this is a transparent foil.
DO NOT remove the black foil!



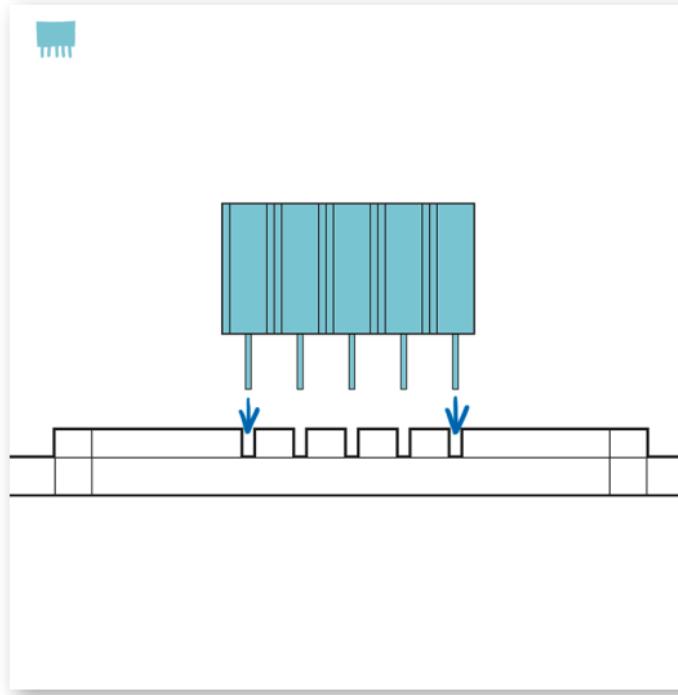
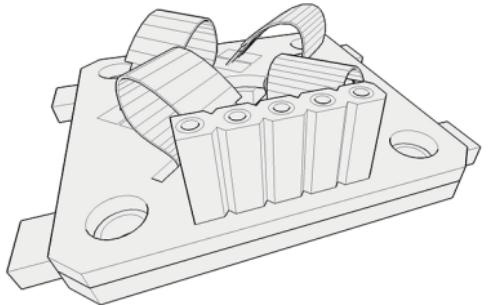
Place the sensor on the acrylic part.



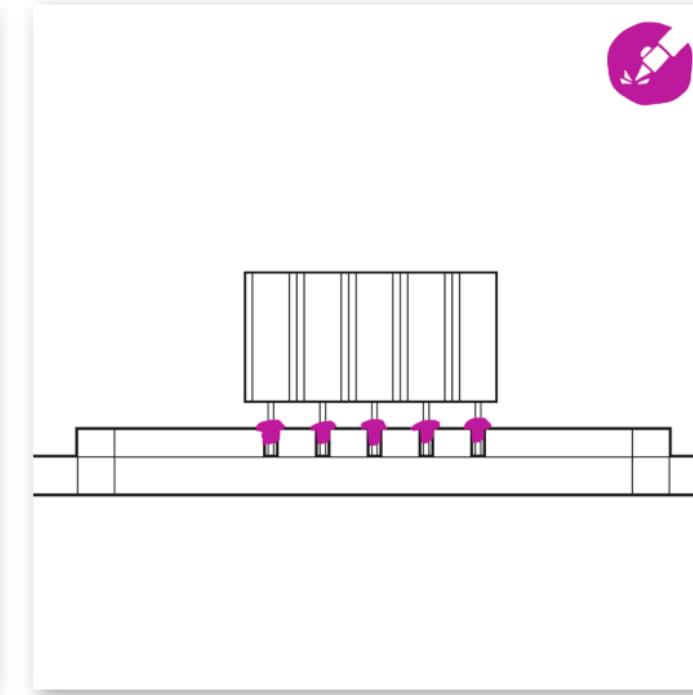
Put the pins through the cuts on the other side.



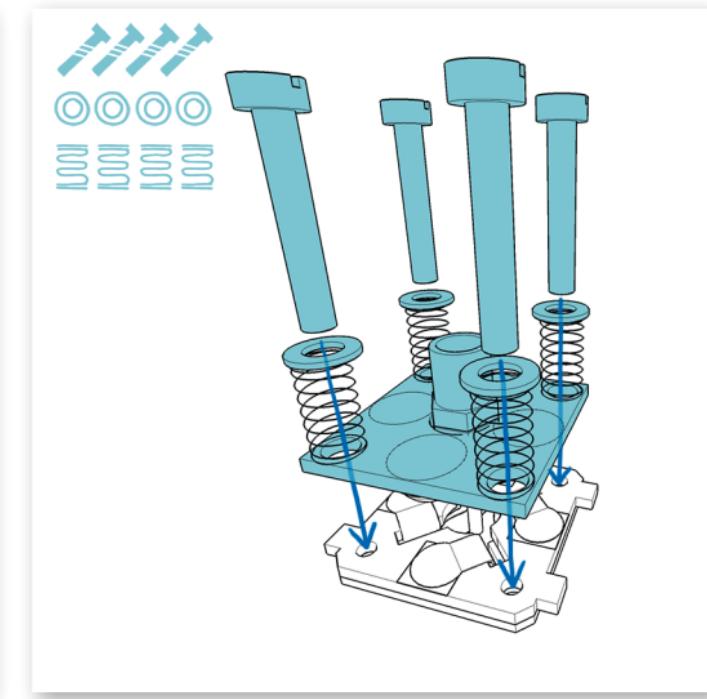
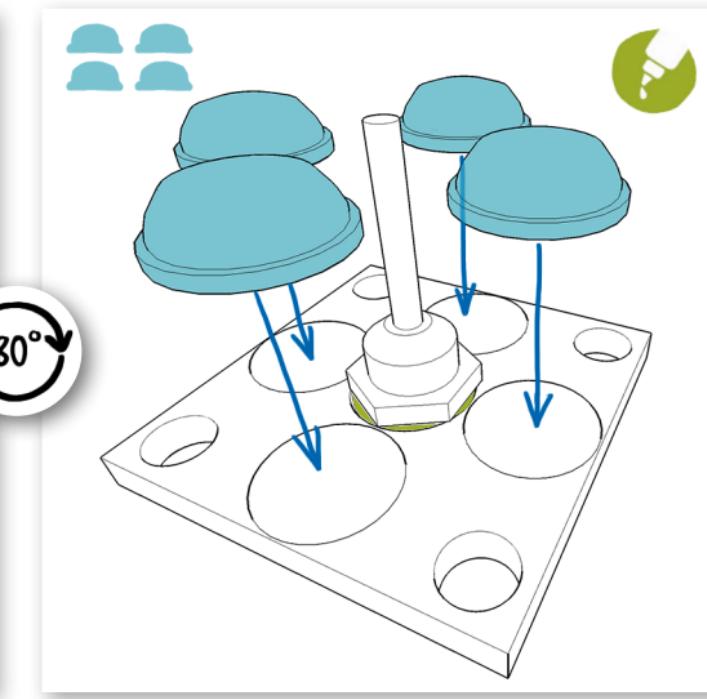
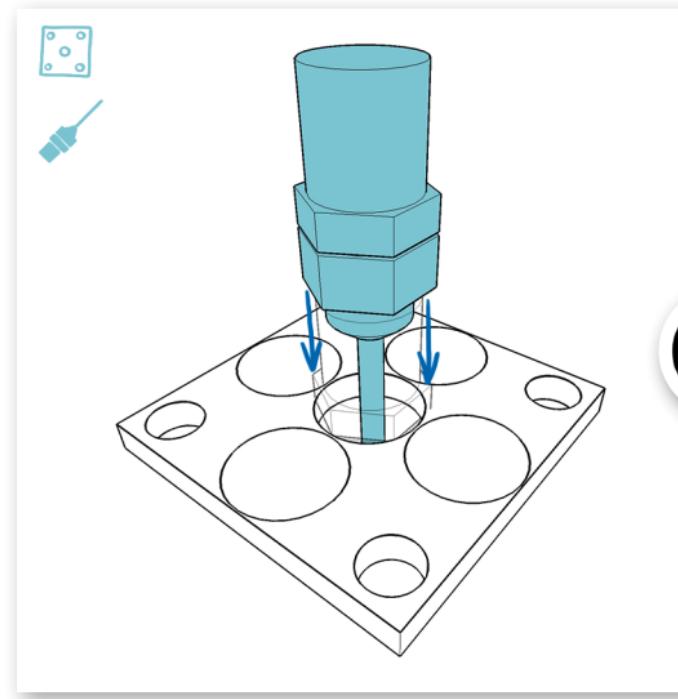
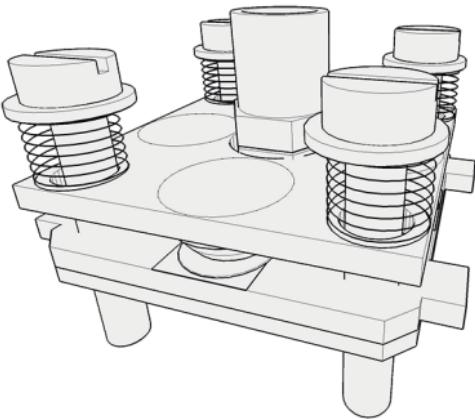
Solder the pins. Please take care of the sensor. Solder for a short time especially if you solder with a high temperature. The sensor is made of plastic. Maybe you cool down the plastics with tweezers.

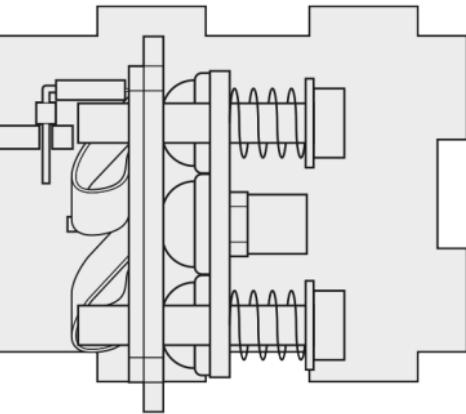


Place the pin header on the sensor carrier.

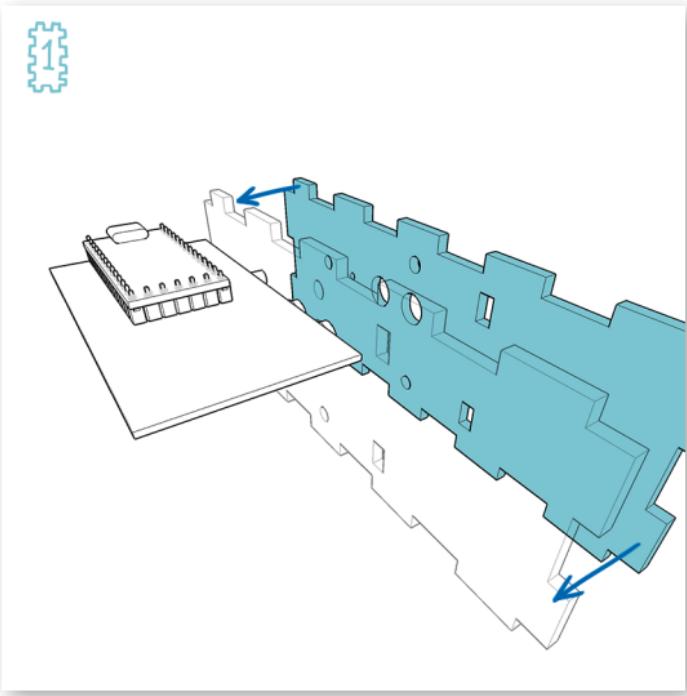


Solder one pin first, bend the pin header to a straight angle and solder the remaining pins.
This might be tricky, use a fine solder tip.

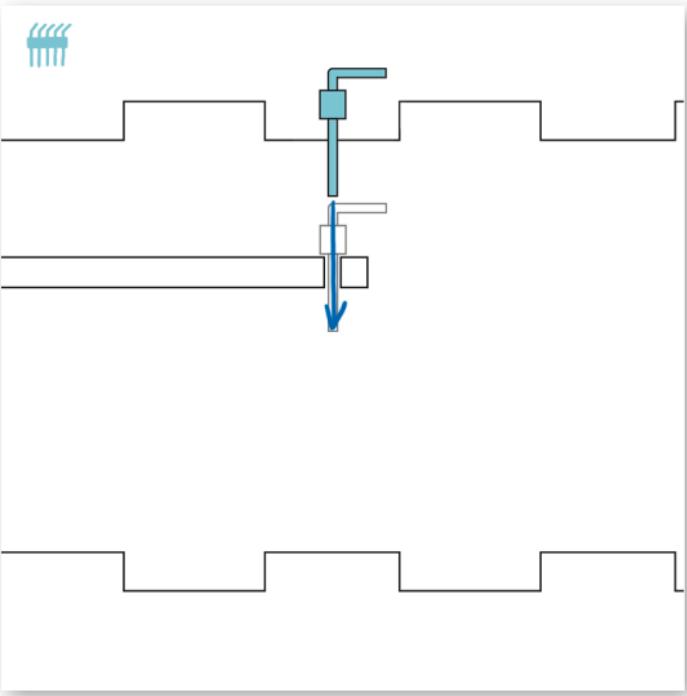




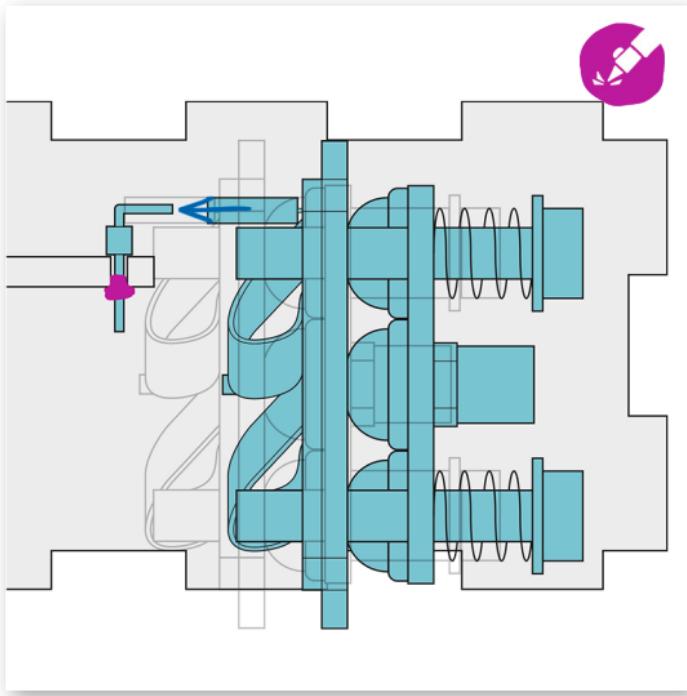
ATTENTION:
the angled pin header is used to adjust the PCB position. So don't solder the connector if you are not 100% if it fits.
It's better to solder only 1pin out of 5, assemble the FLMouse and if it fits, solder the remaining ones. Also take care of the positioning: the longer pins are soldered to the main PCB.



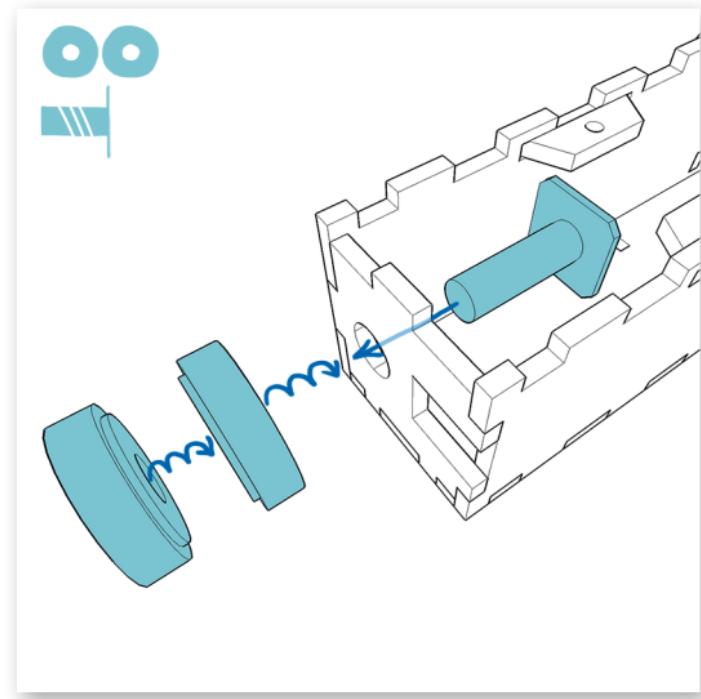
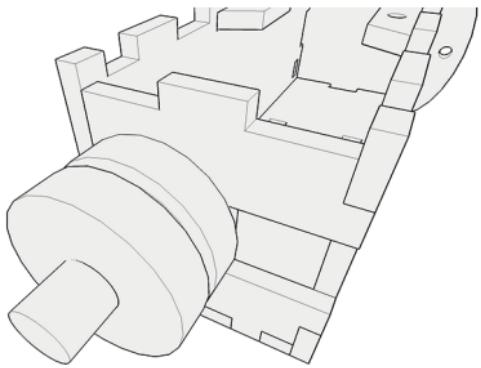
Use the top cover to align the main PCB straight.
Attention: Please make sure all parts fit well and the alignment is straight. There is no possibility to change the positioning after soldering!



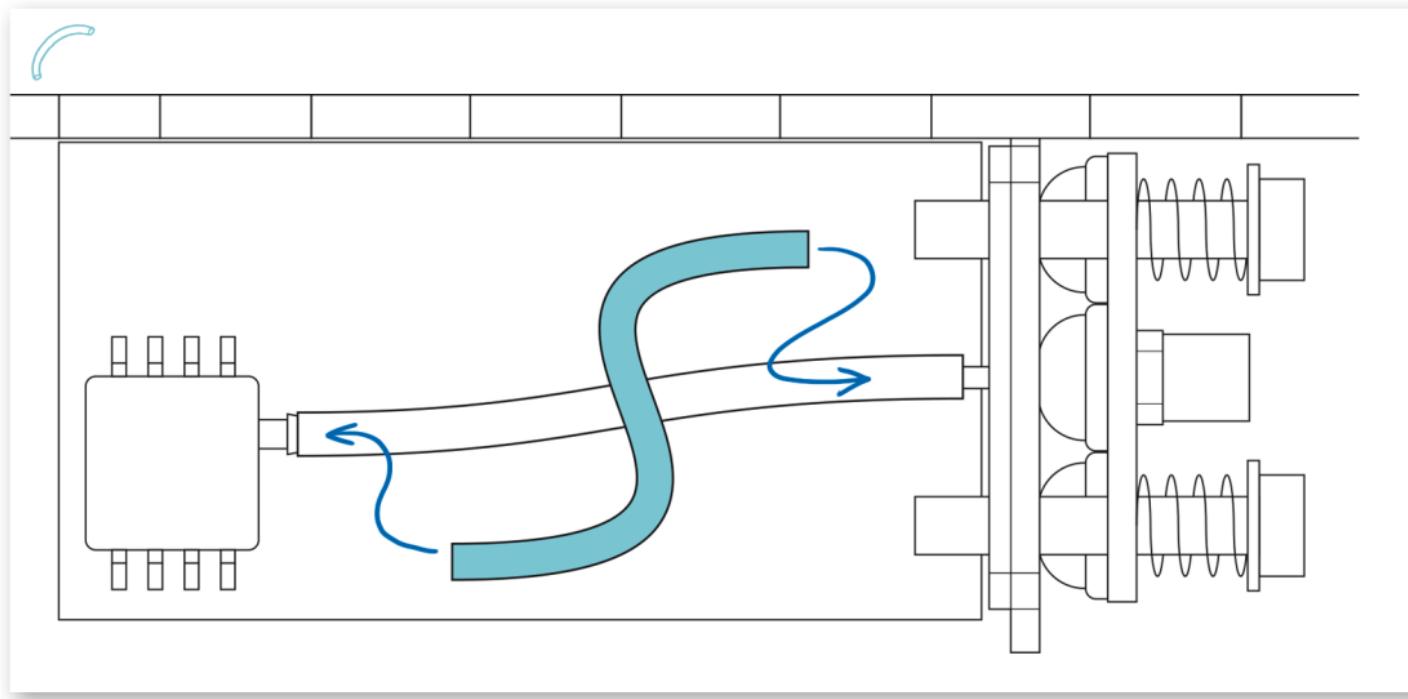
Put the angled pin header to the PCB.



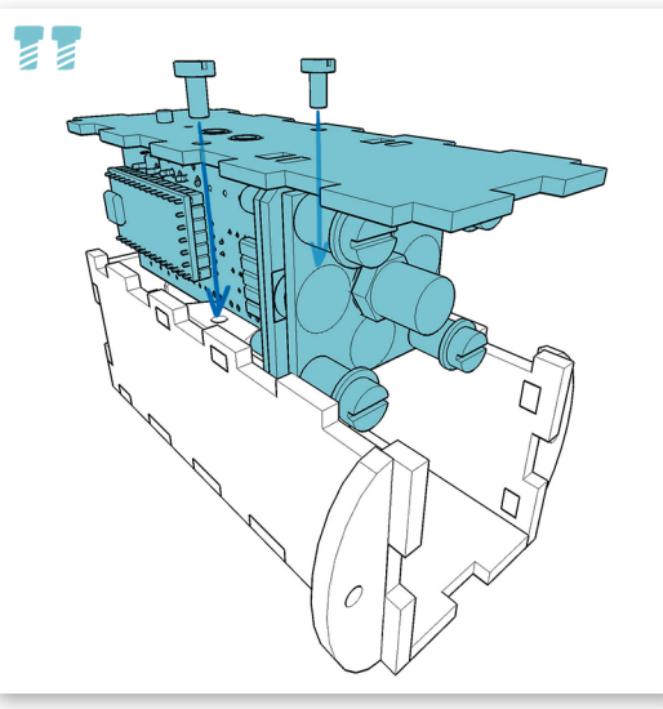
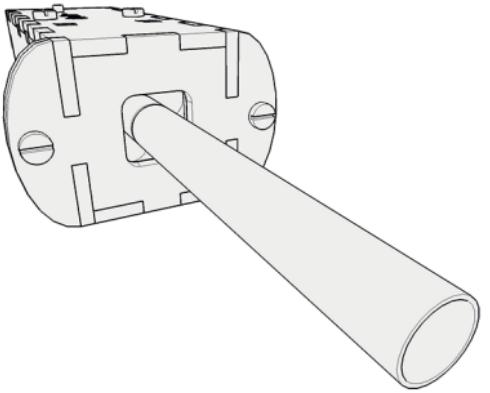
Put both parts together and use the top cover to align them. Solder all 5 pins.



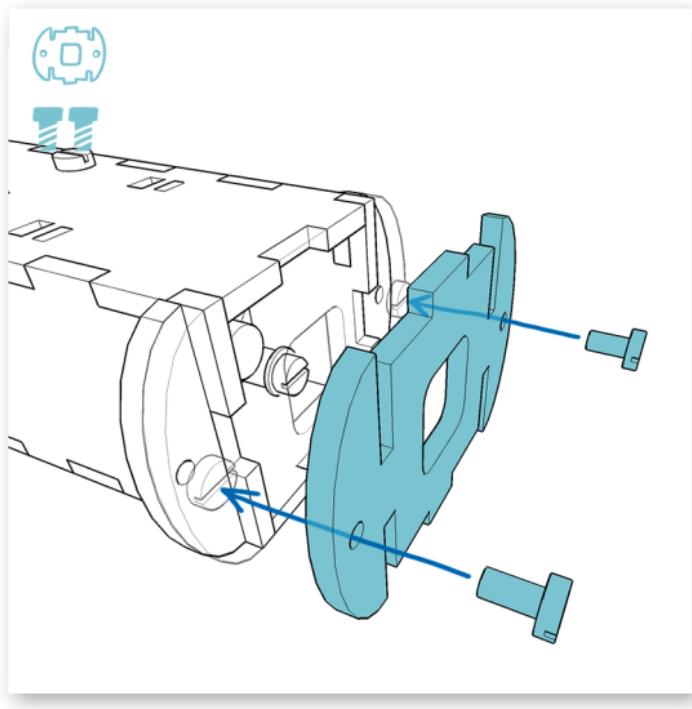
Mount the adapter.



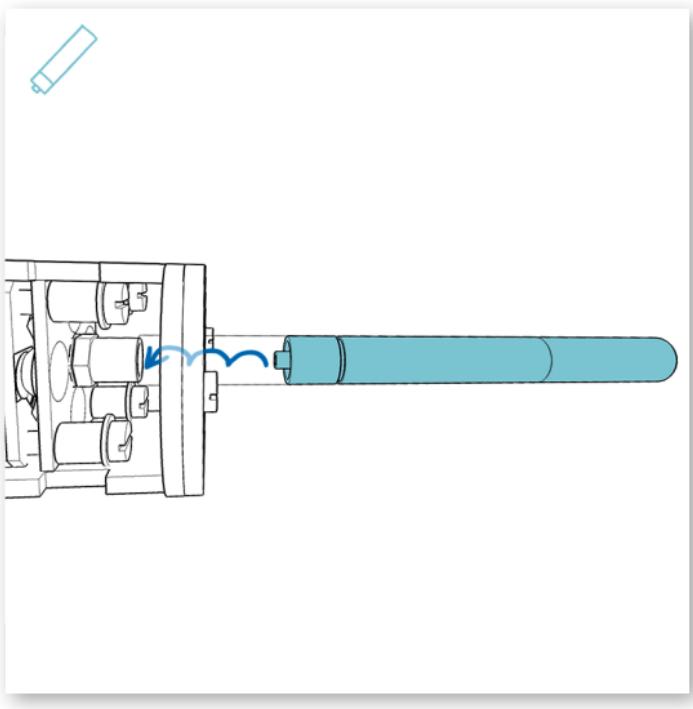
Put the tube on the pressure sensor and the sensor carrier.



Place both PCBs into the case, put it in from the front.
Be careful to fit the LEDs to the corresponding holes.
Mount the top cover.



Mount the front cover. Optionally remove sharp edges
and corners using fine sandpaper.



Attach the mouthpiece.

