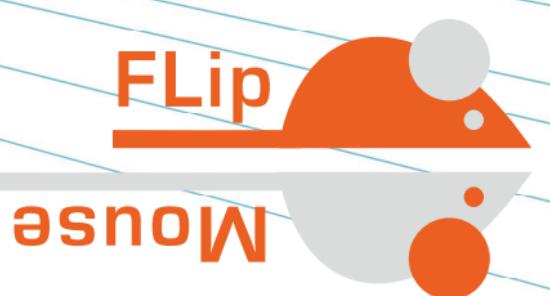
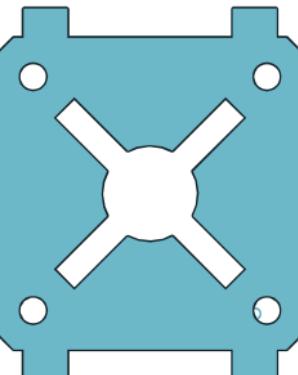
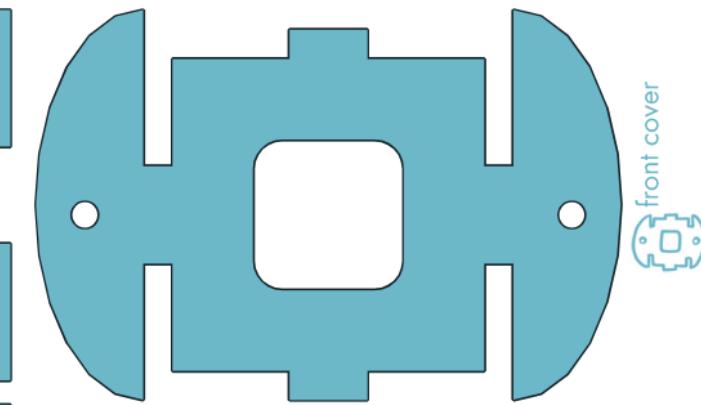
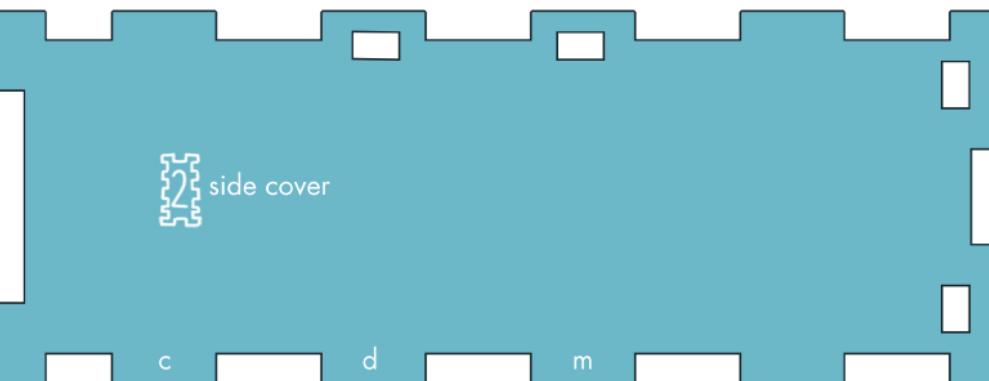
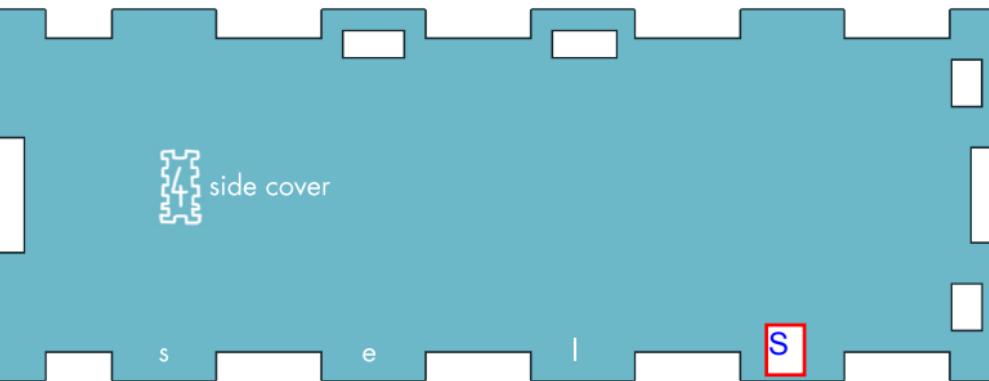
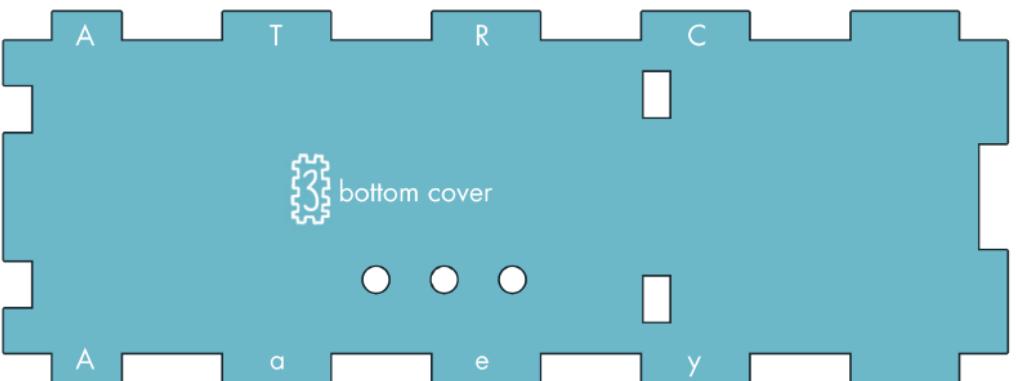
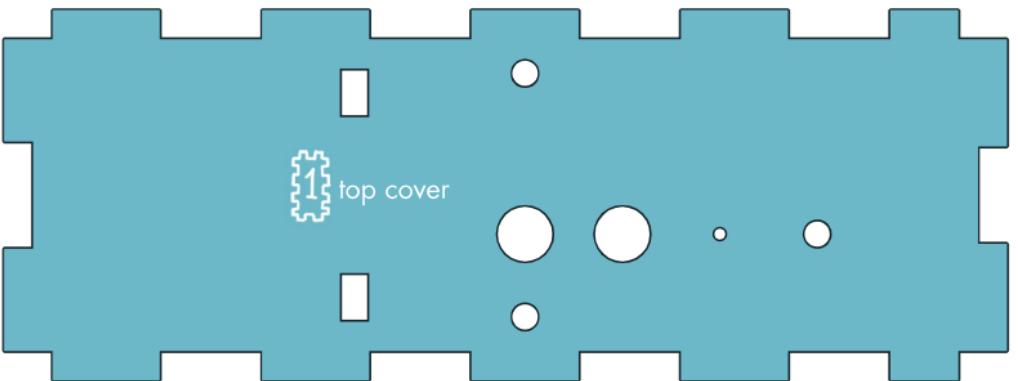


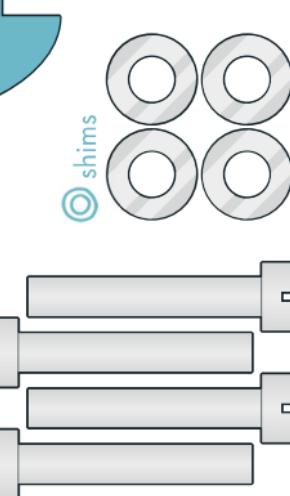
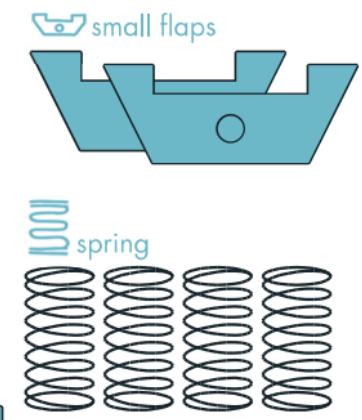
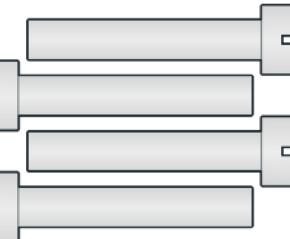
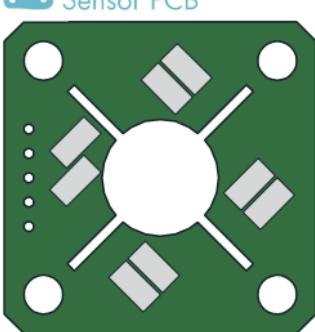
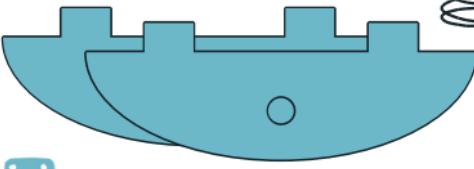
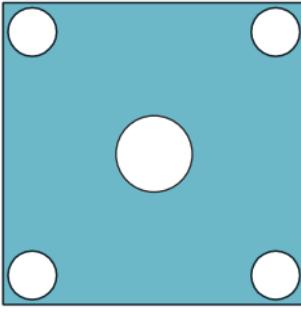
# Construction Manual





This hole is on cover nr 4!

A red arrow points from this text to the central circular hole of the side cover component shown in the middle diagram.

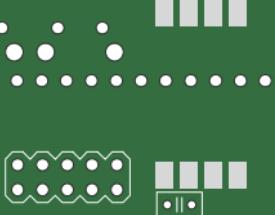


FSR sensors

teensy



shims



# 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](mailto:office@asterics-academy.net)

Have fun building your FlipMouse device !

## Legend



Solder with soldering iron.



Clip with pliers.



Fix with tape.

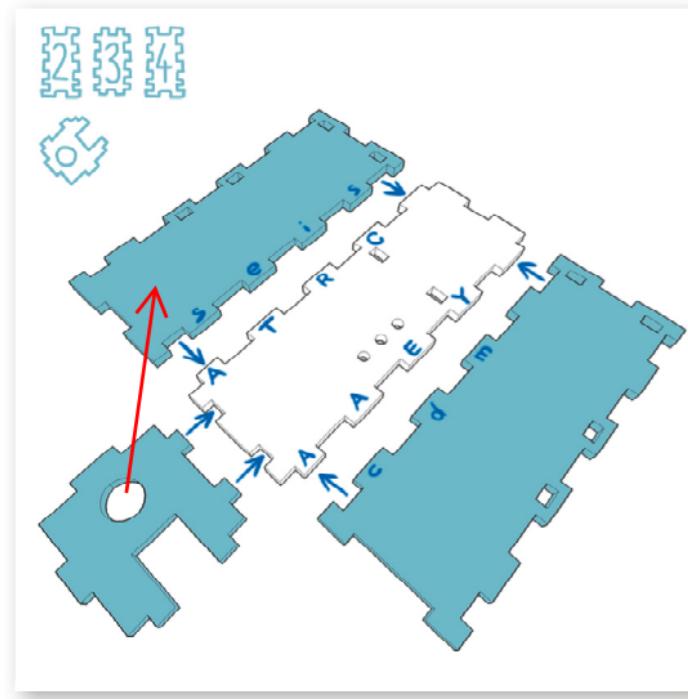
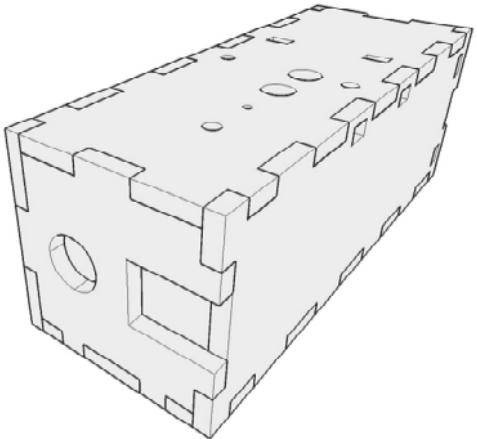


Glue with provided glue.

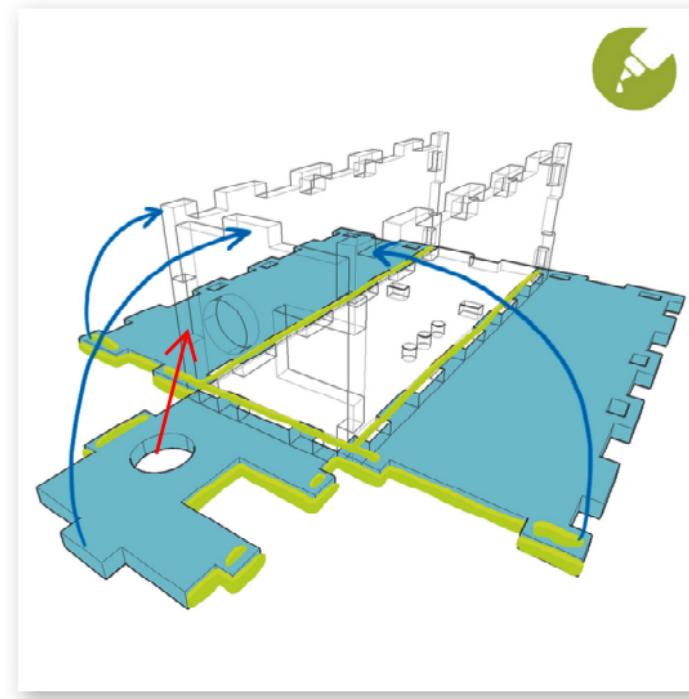


10min

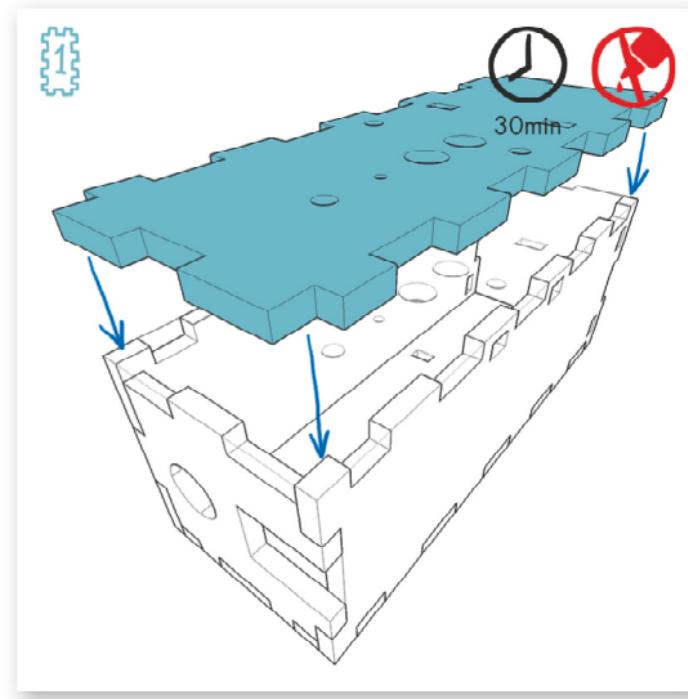
Wait the displayed amount of time.



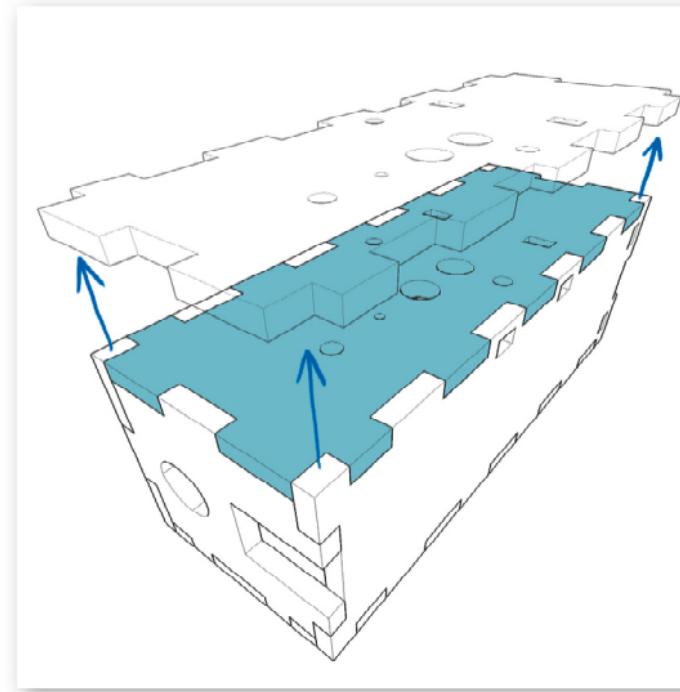
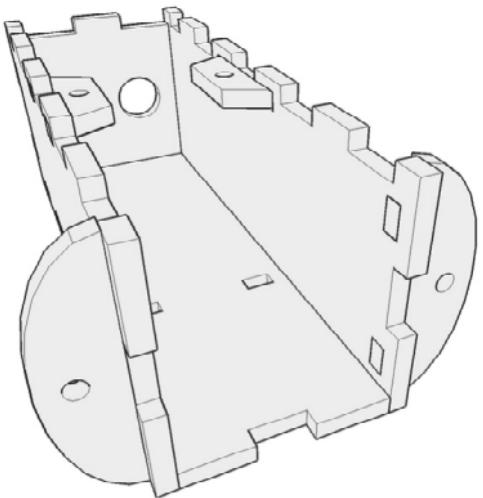
Put the pieces together, so that the words  
AsTeRiCs AcAdEmY are readable.



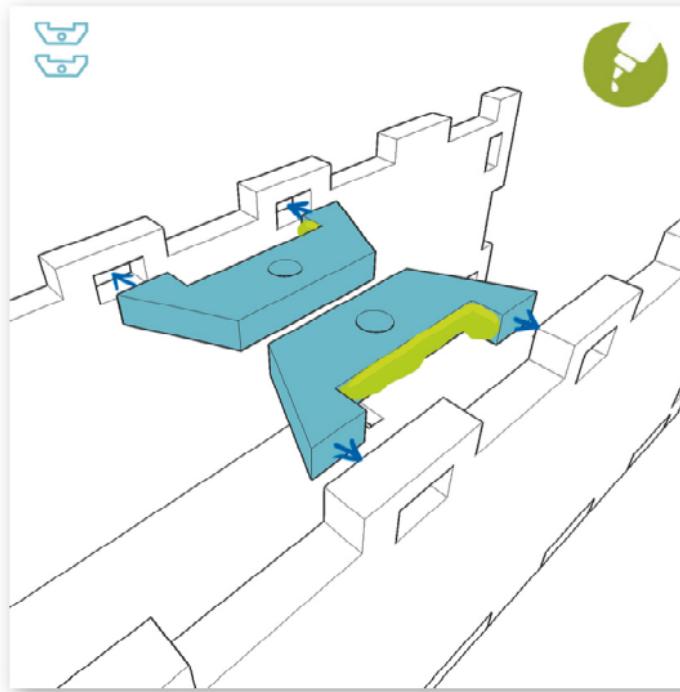
Make sure there is glue on each edge/corner.  
Glue hardens due to light exposure.  
**Attention:** glue residue can hardly be removed  
from acrylic glass!



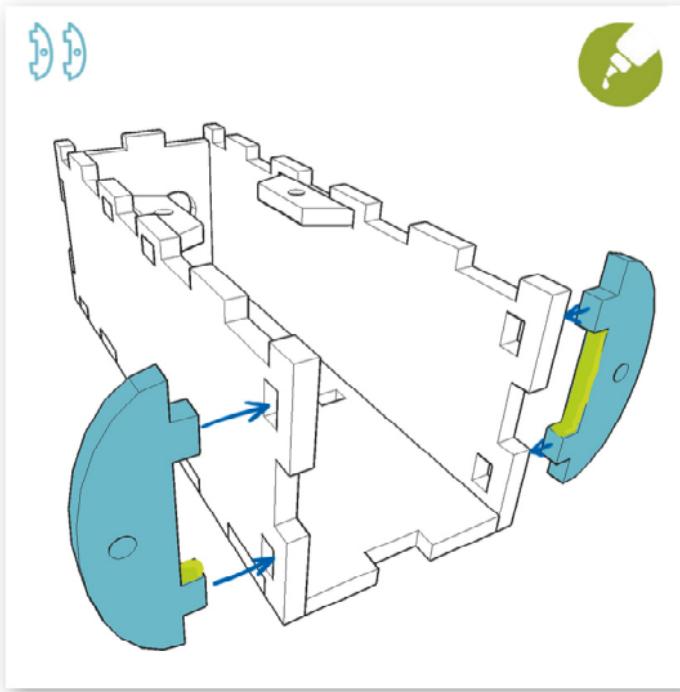
**Do not glue the top cover!** Wait 30 minutes.



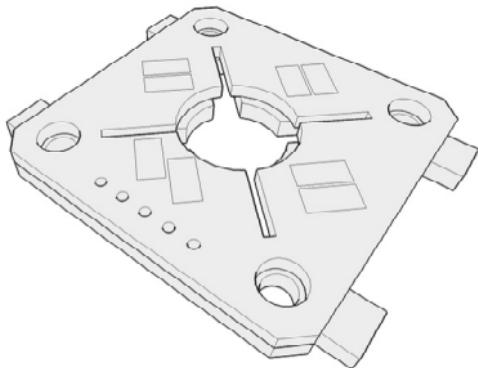
Remove the top cover.



Glue the inside flaps in a straight angle.

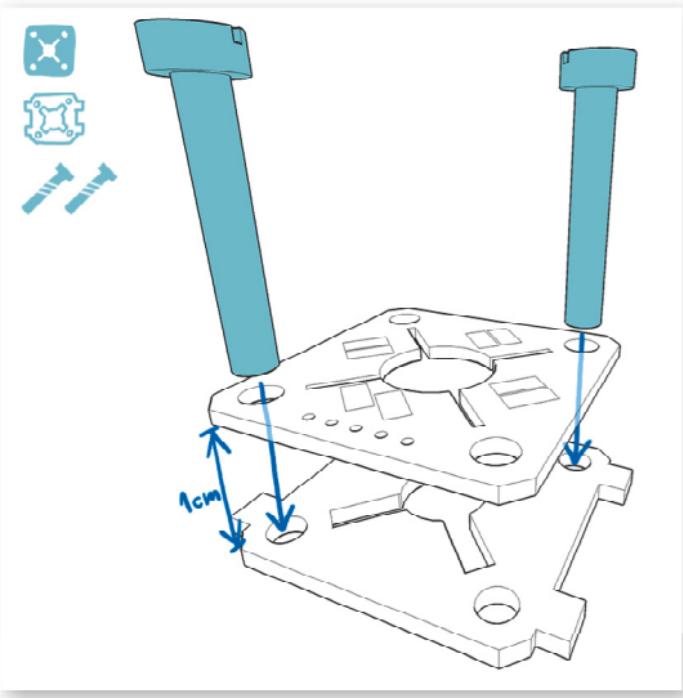


Glue the outside flaps in a straight angle.

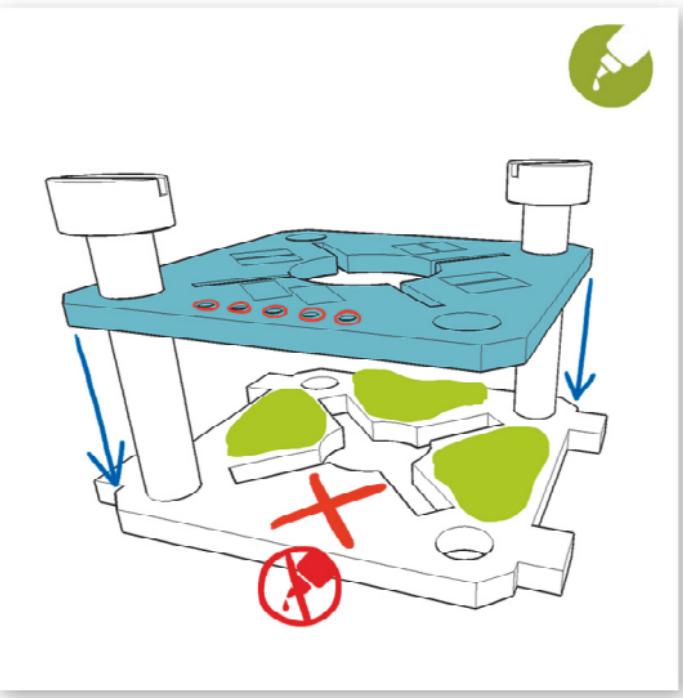


#### ATTENTION:

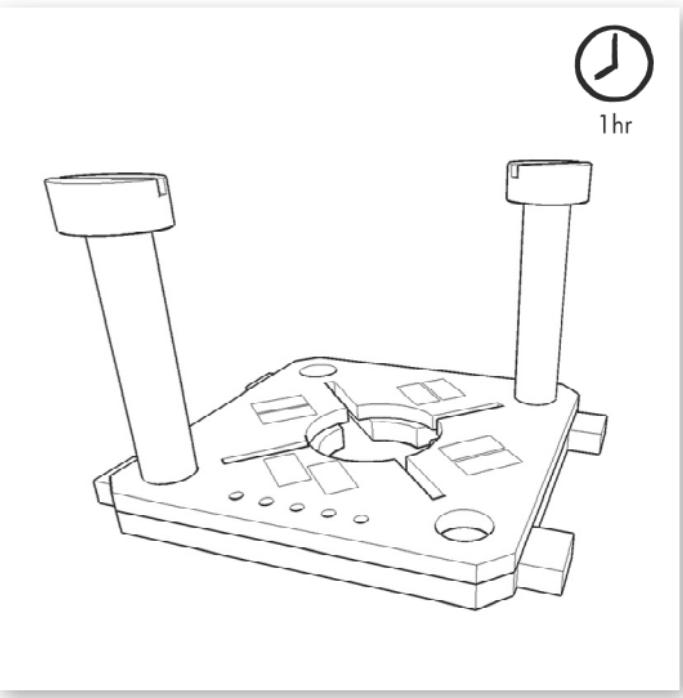
Take care of the orientation, the text of the PCB should be on top, the edge of the PCB with the 5 holes MUST be aligned as shown on the picture.

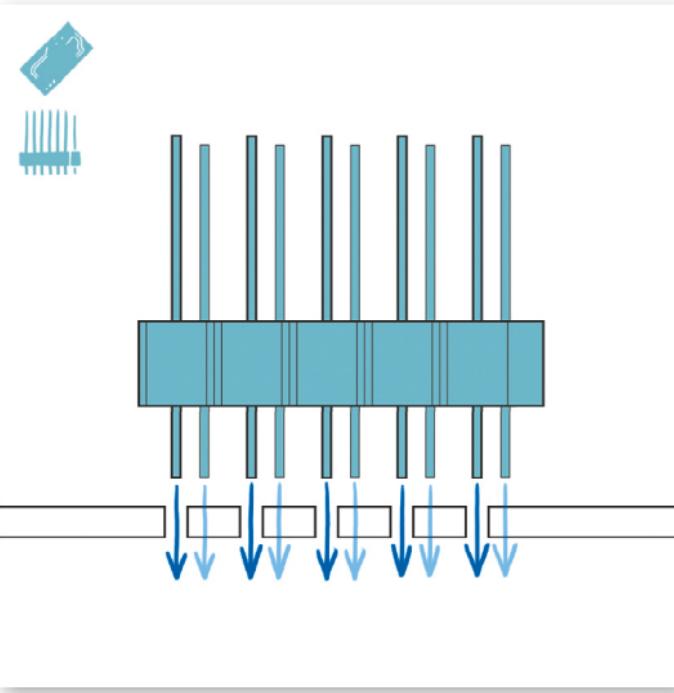
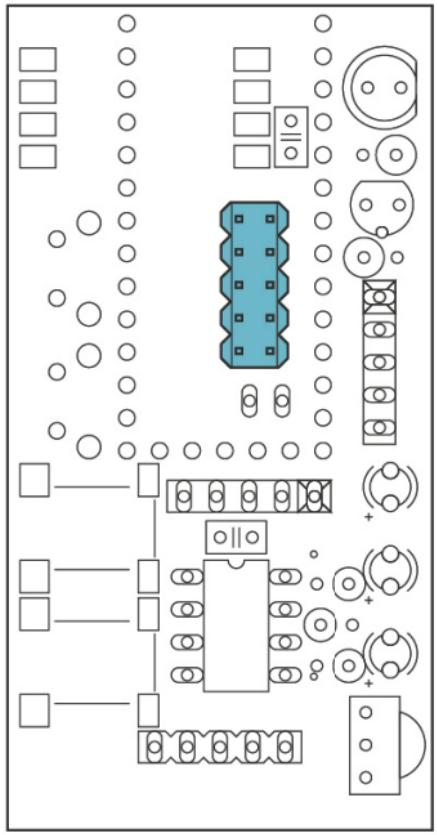


Put the sensor PCB on top of the Sensor Carrier. Use two screws to align these parts. Leave a 1cm gap to put the glue between both parts.

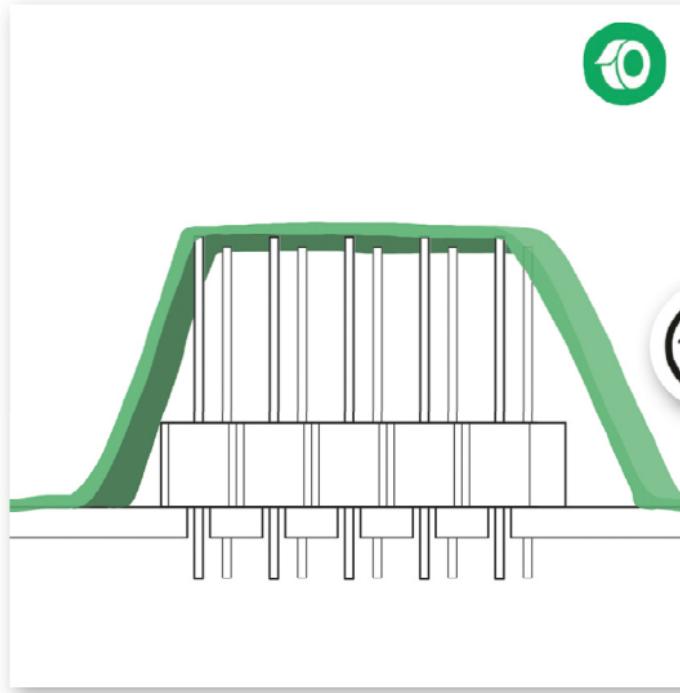


Don't glue the side which is placed to the pin holes!  
Press both parts together.

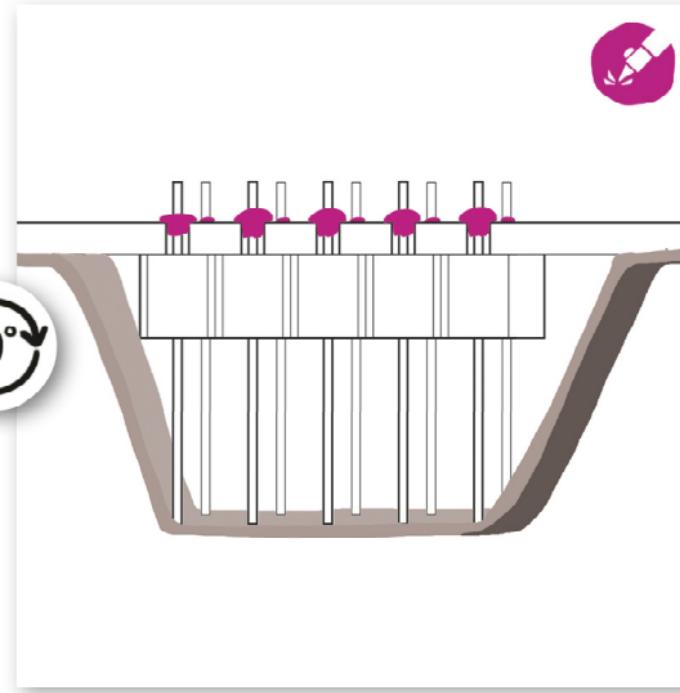




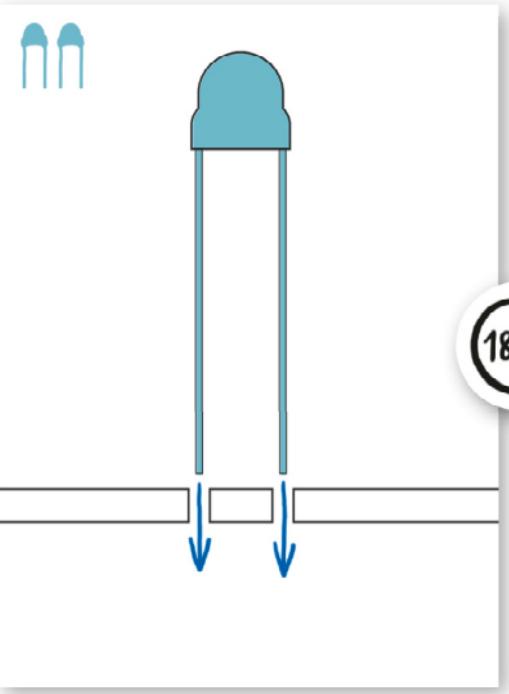
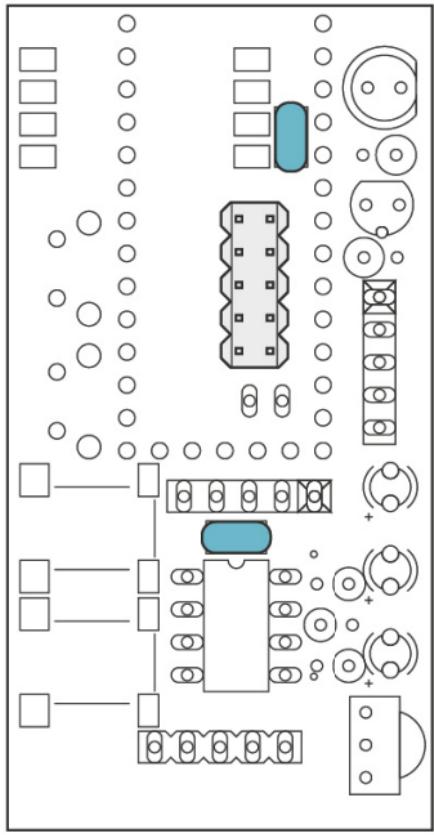
Place the pin header.



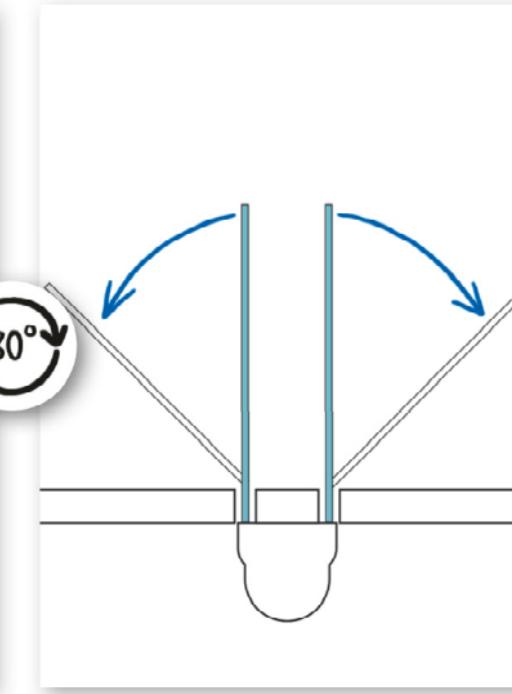
Use tape to fix the part.



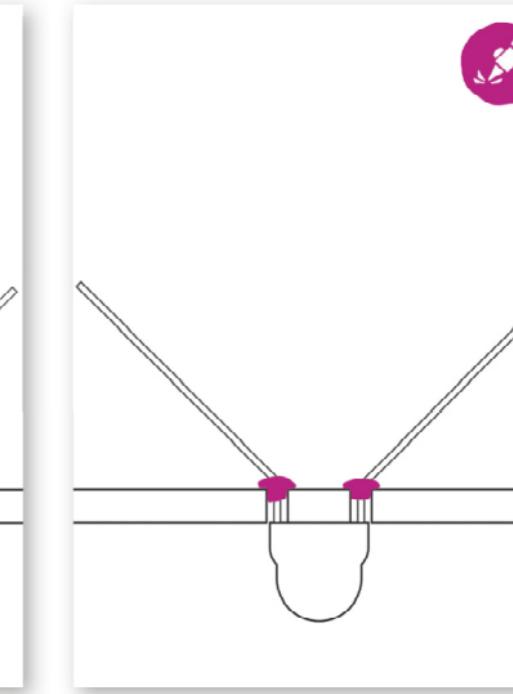
Solder and remove the tape.



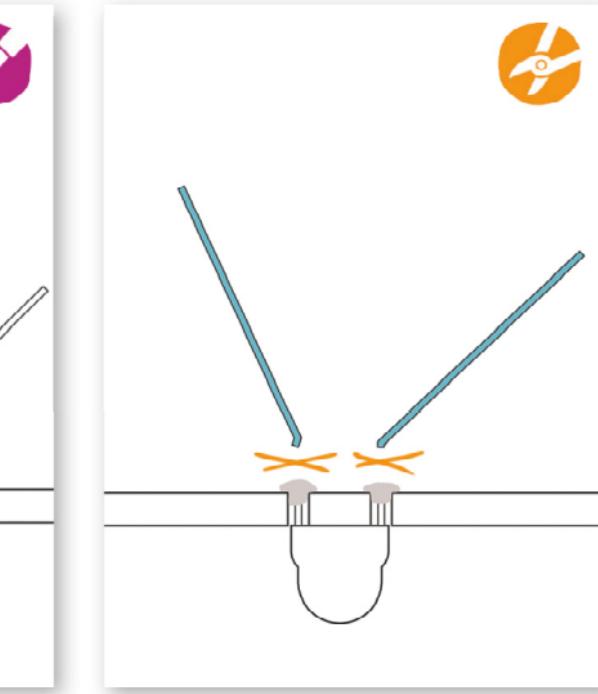
Place the capacitors.



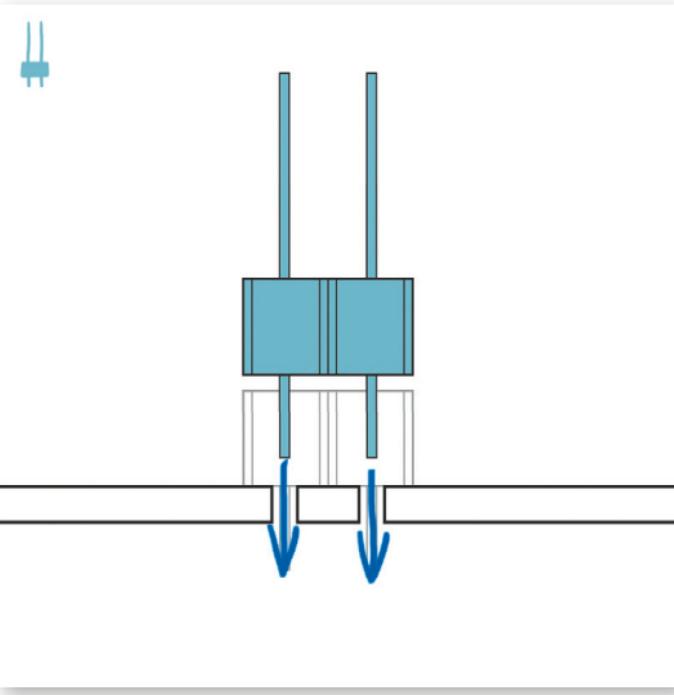
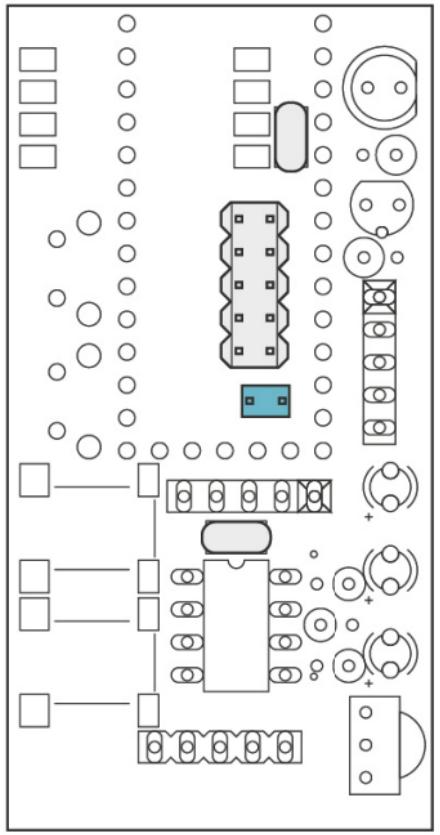
Bend the pins to fix the part.



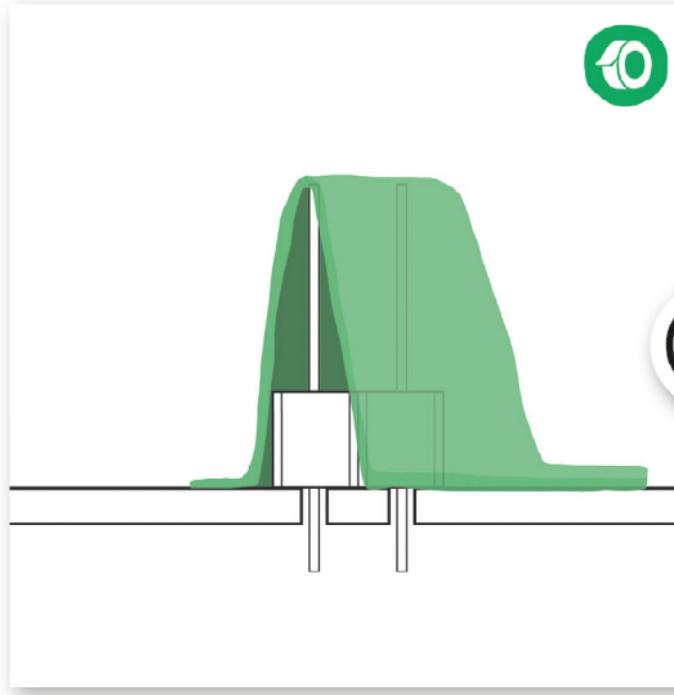
Solder the pins.



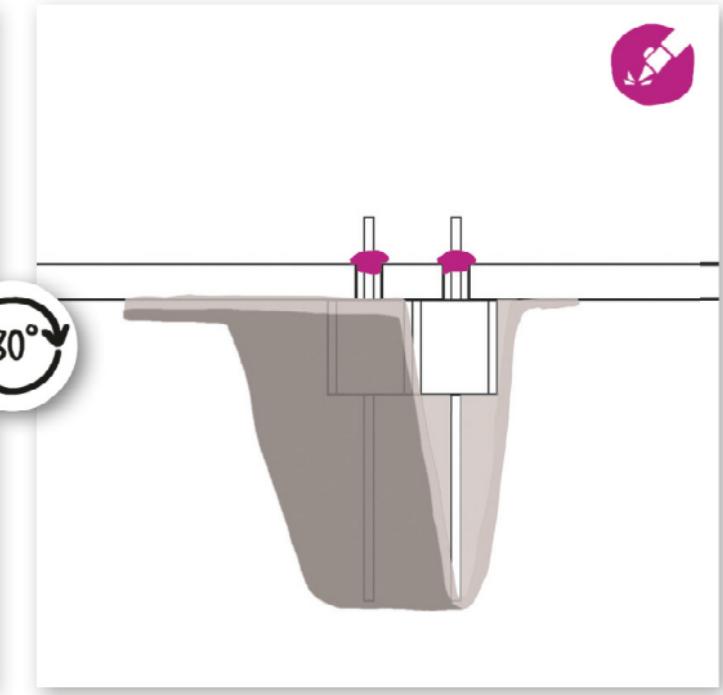
Clip the remaining pins of the capacitors.



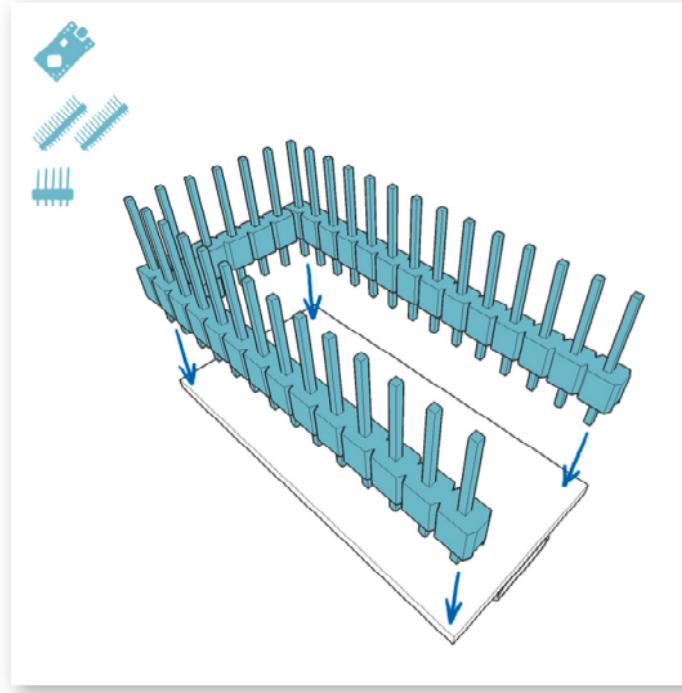
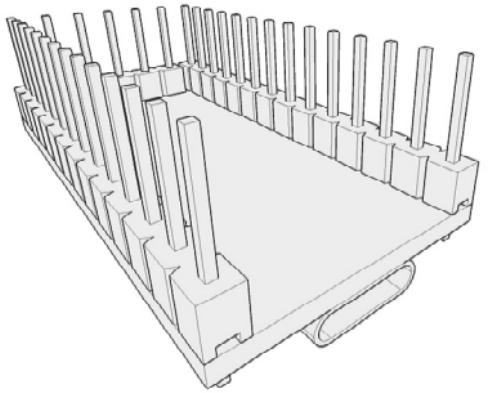
Place the pinheader.



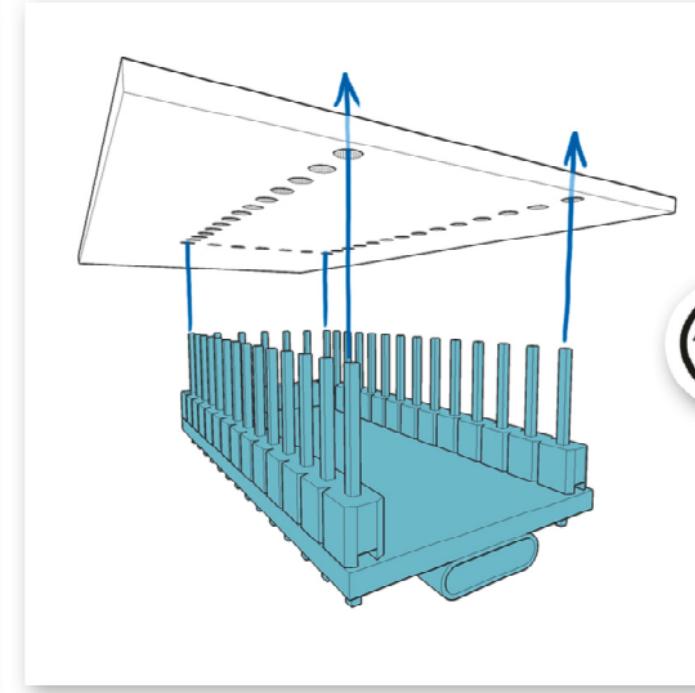
Use tape to fix the part.



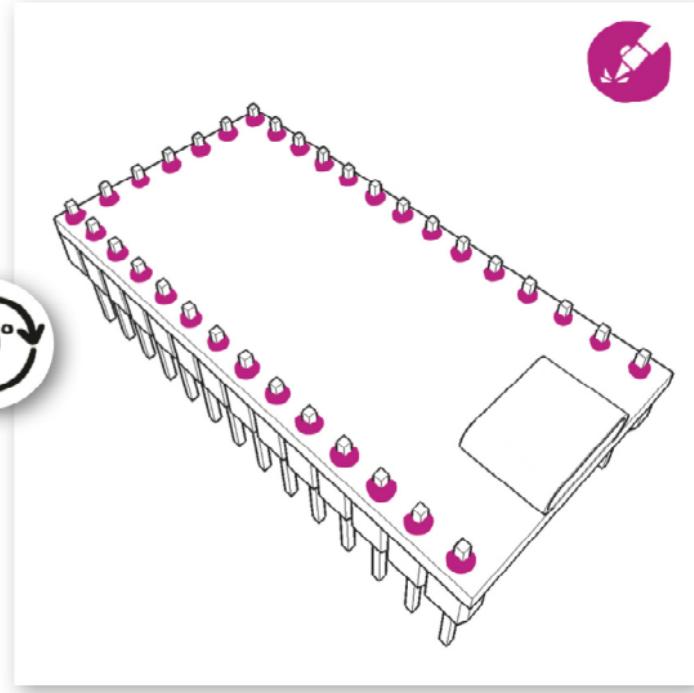
Solder and remove the tape.



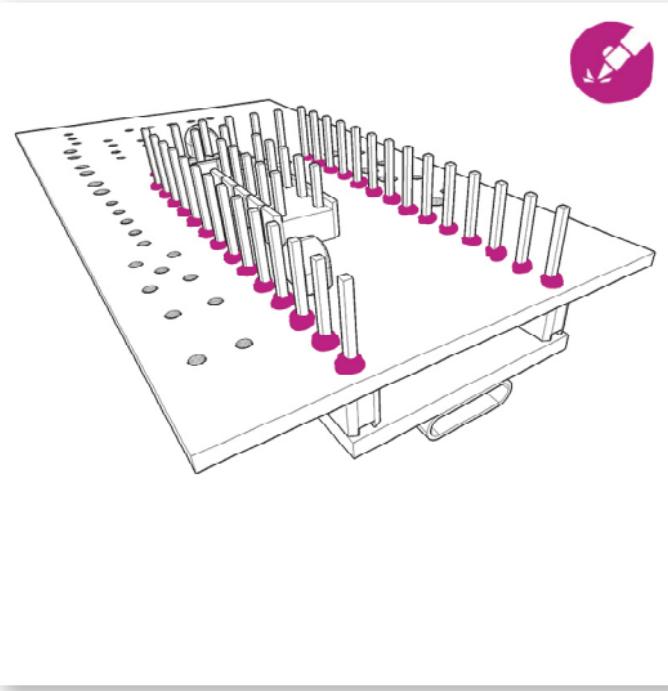
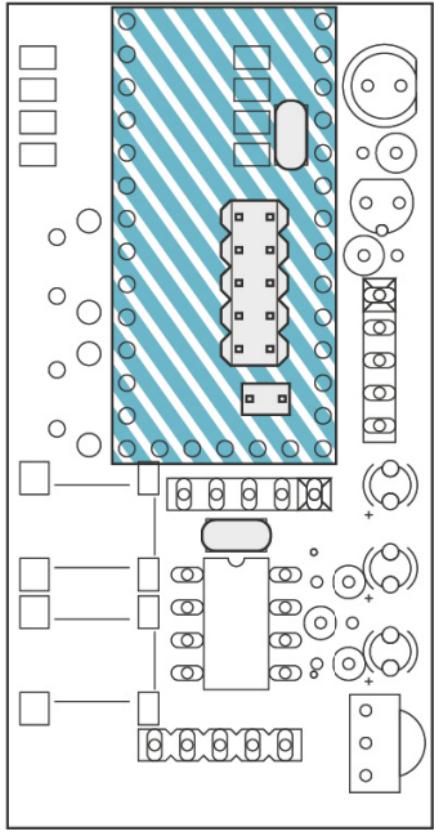
Place the 3 pin headers on the Teensy.



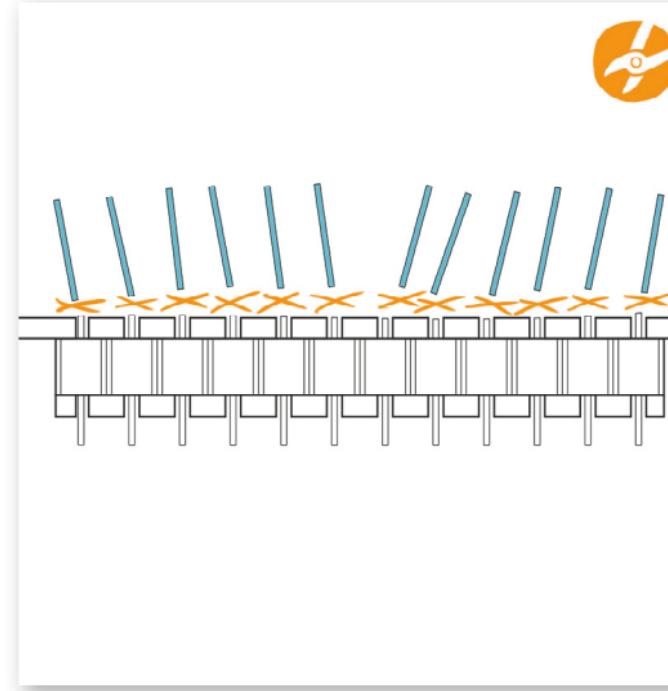
Place the Teensy board with the attached pin headers on the bottom of the PCB (without text). Put the Teensy board straight, as tight as possible.  
**Double-check before soldering!**



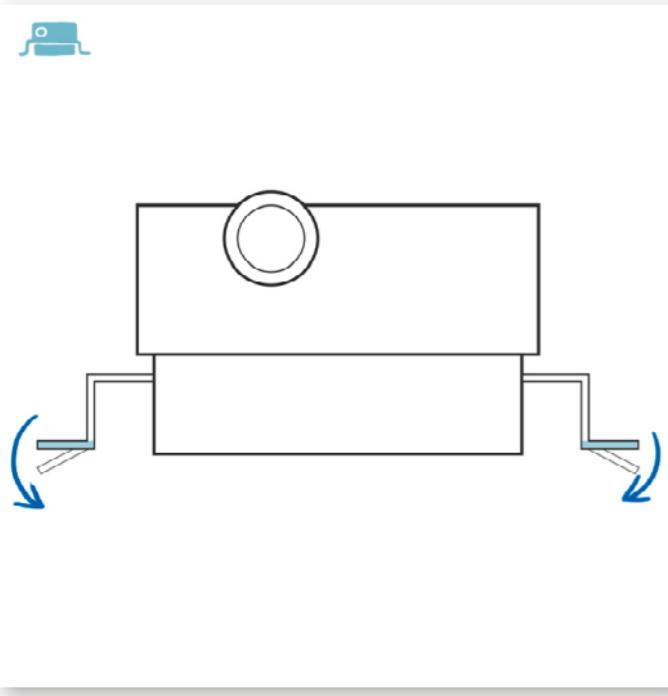
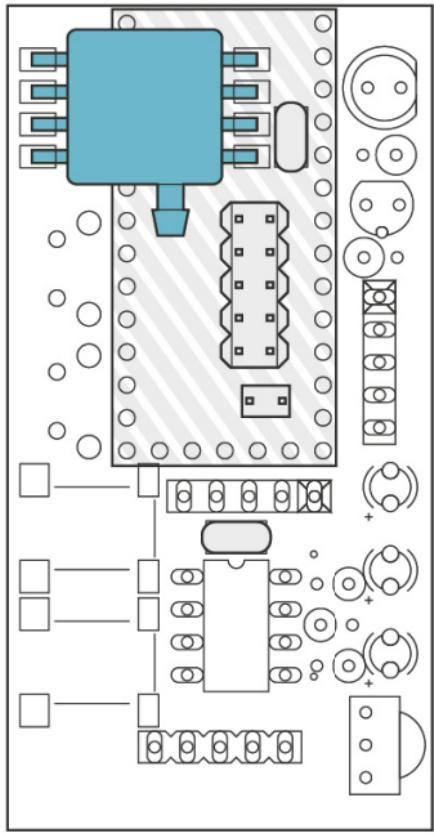
Solder the pins on the Teensy.  
**Don't leave space between Teensy and pin headers.**  
**Leave the Teensy in the PCB, easier to solder!**



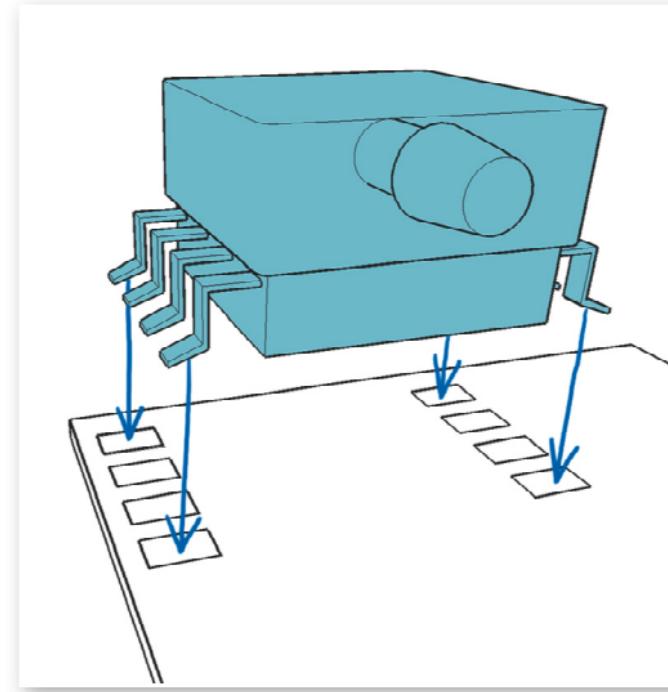
Solder the pins of the Teensy on the PCB.  
Don't leave space between Teensy and PCB.



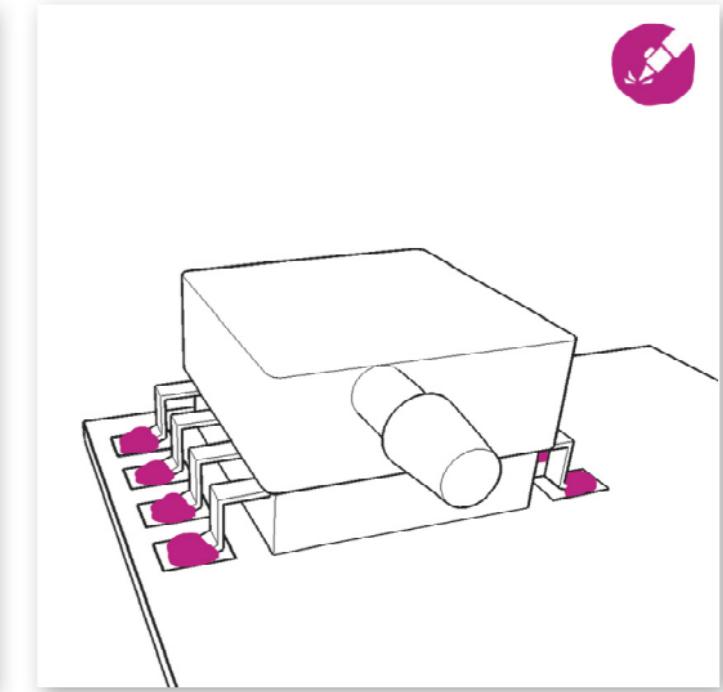
Make sure that the pins are clipped very close  
to the PCB surface



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

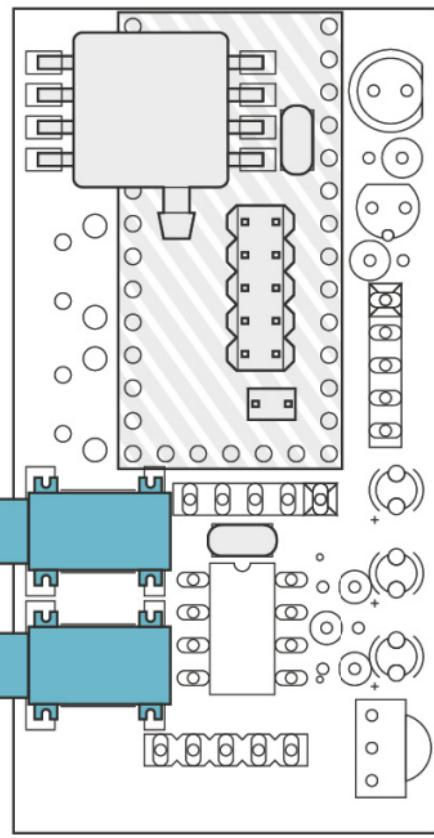


Place it on the PCB.

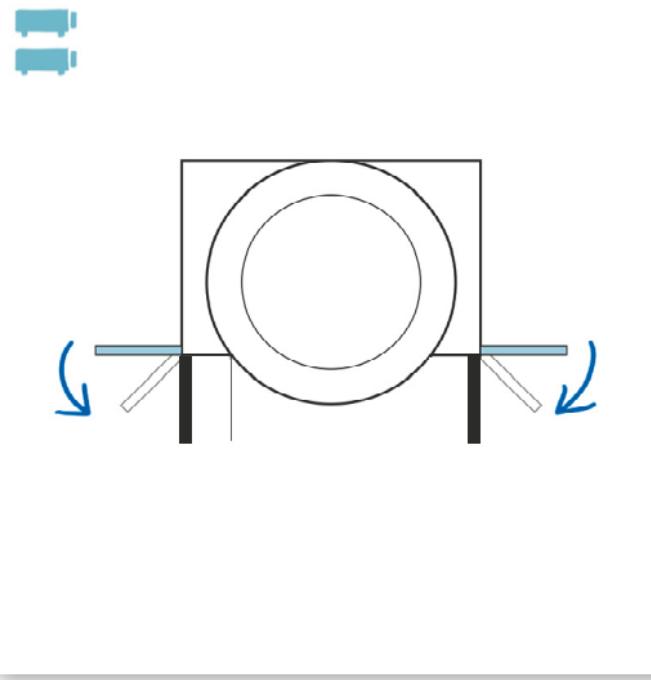


Solder it.

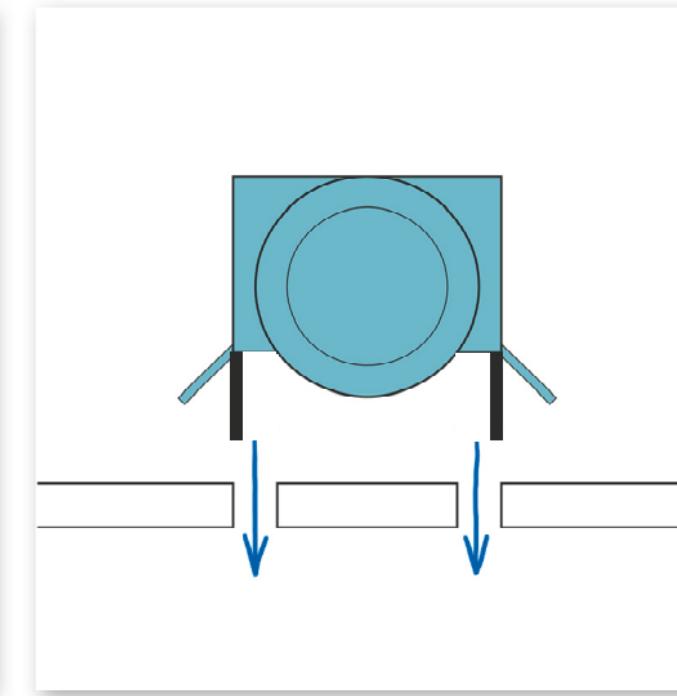




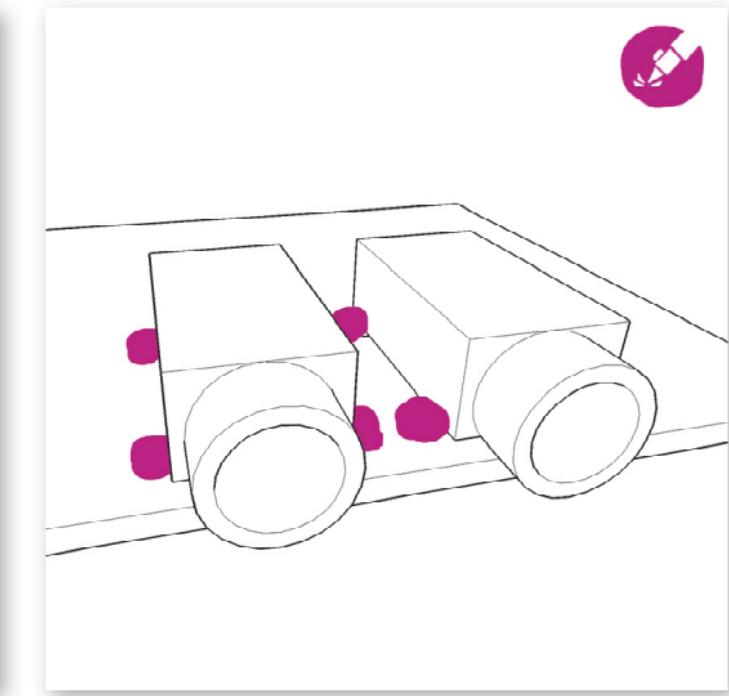
Bend all 4 pins of the jack plugs downwards.

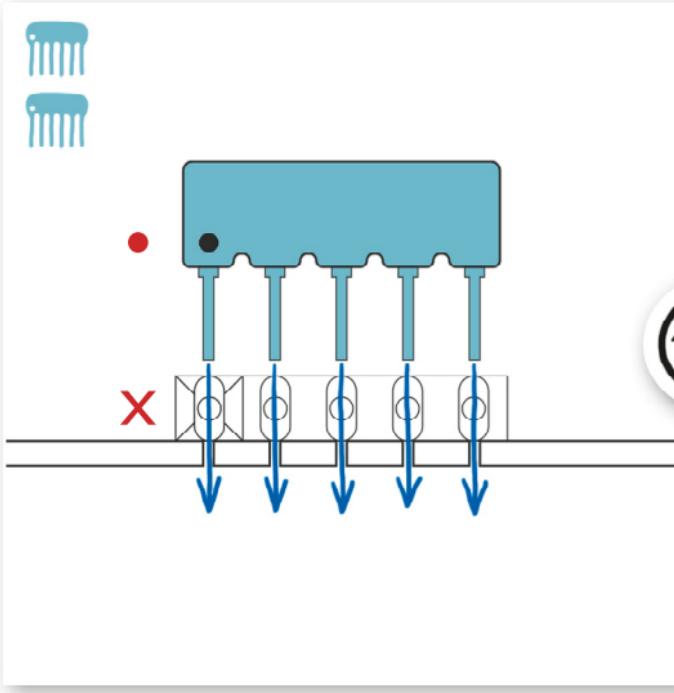
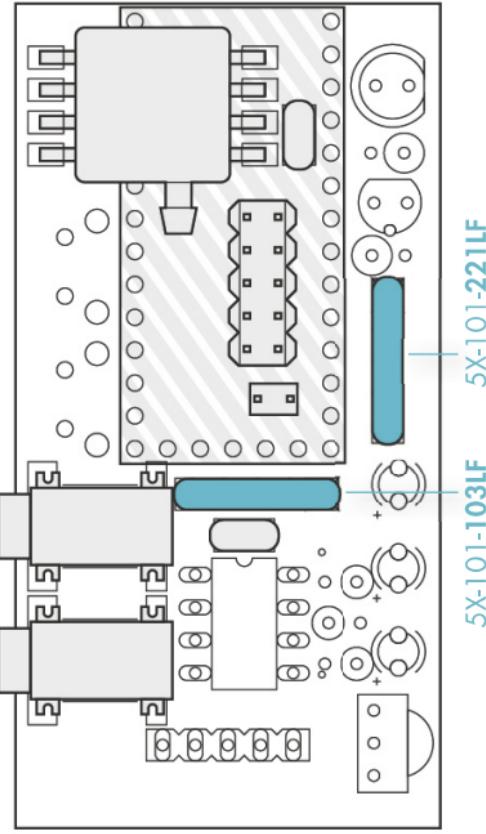


Place them on the PCB.  
Make sure that the jack plugs are adjusted straight.

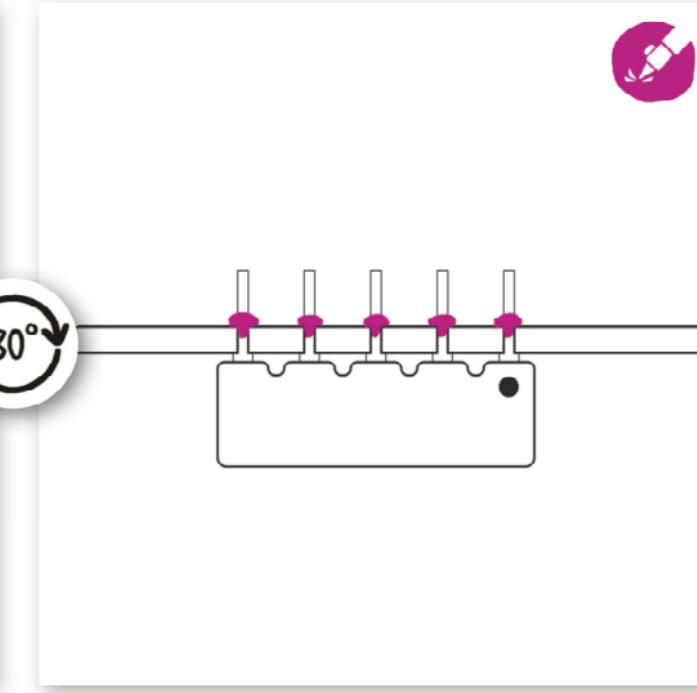


Solder the pins. It's easier if there is a little bit of solder put on the PCB before placing the jack plugs. Make sure that they are connected but avoid short cuts (fine solder tip needed).

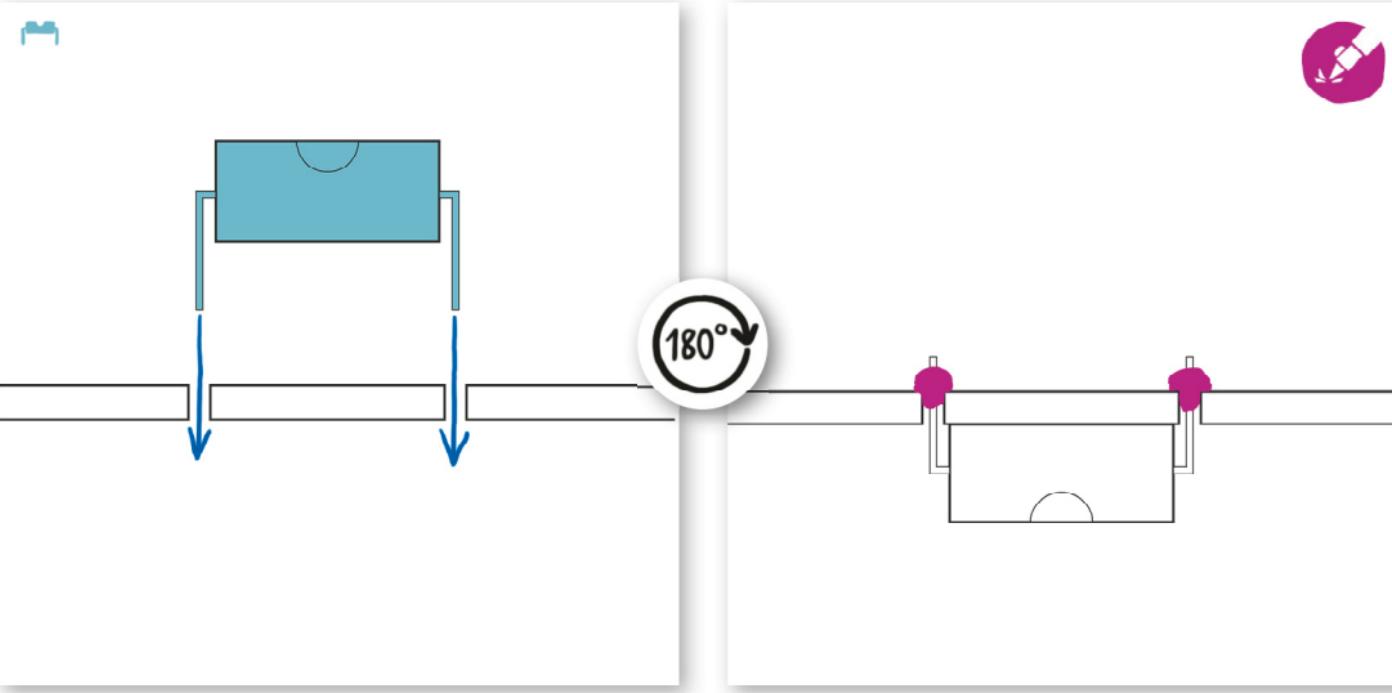
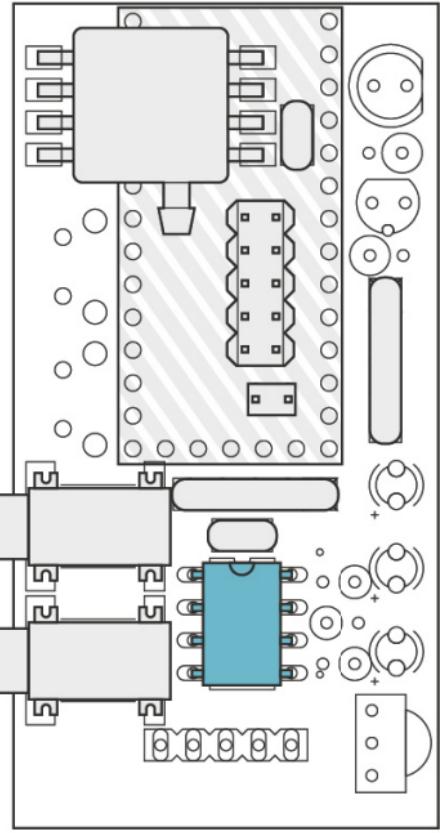




Place the resistor networks. There is a cross on the PCB and a point on the part. Side of point ● and cross X should come together.

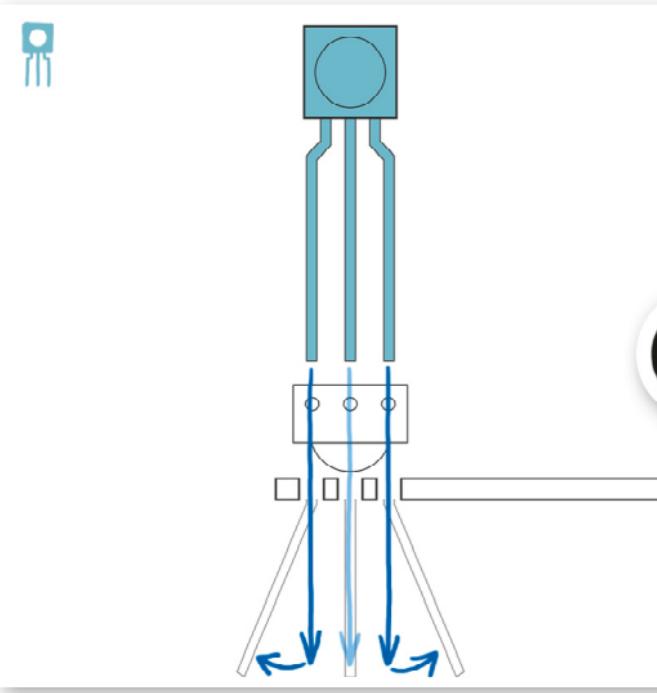
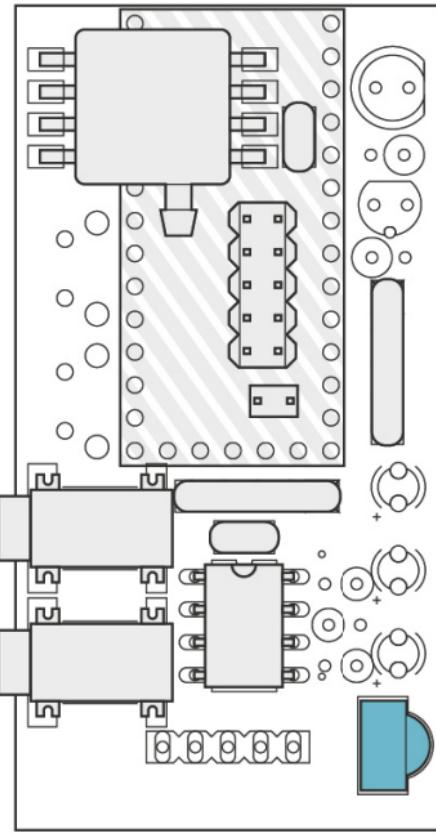


Solder these pins.

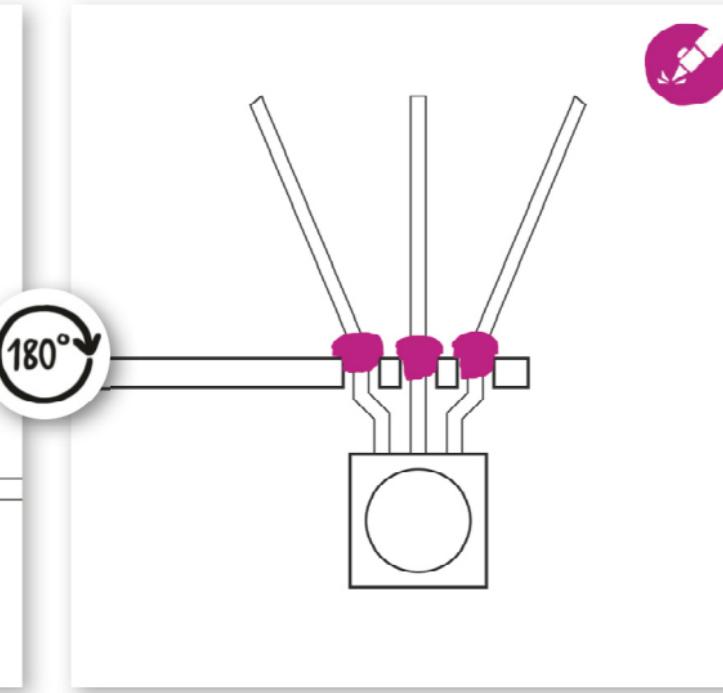


Place the EEPROM.  
Keep care of the direction of the 'semicircular symbol'.

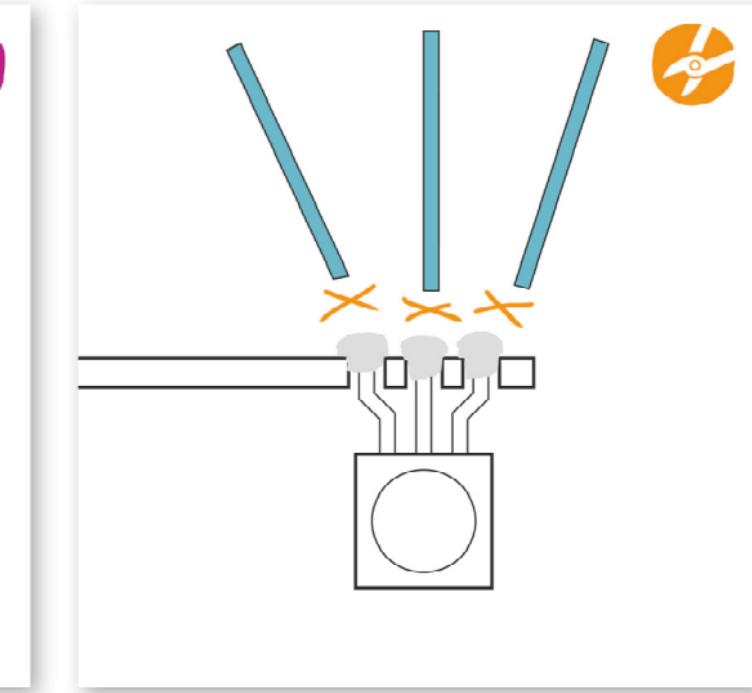
Solder it.



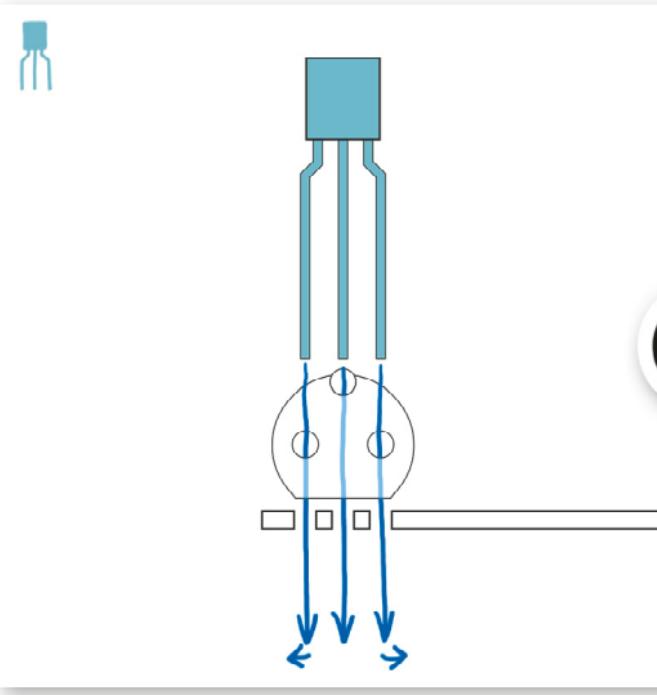
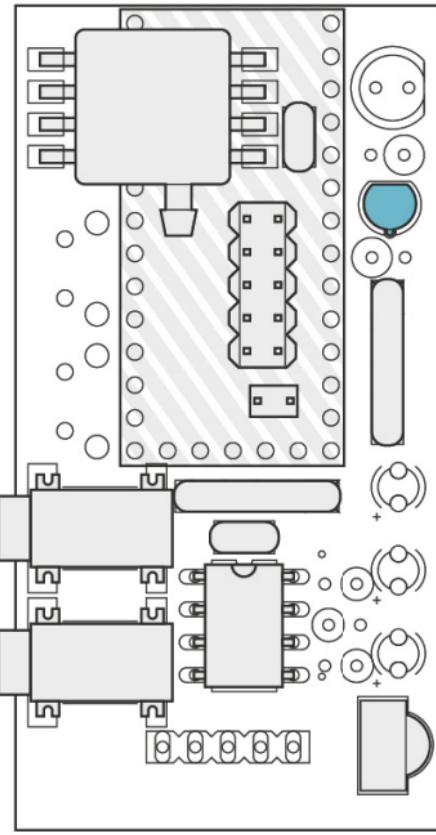
Place the IR receiver and bend pins.



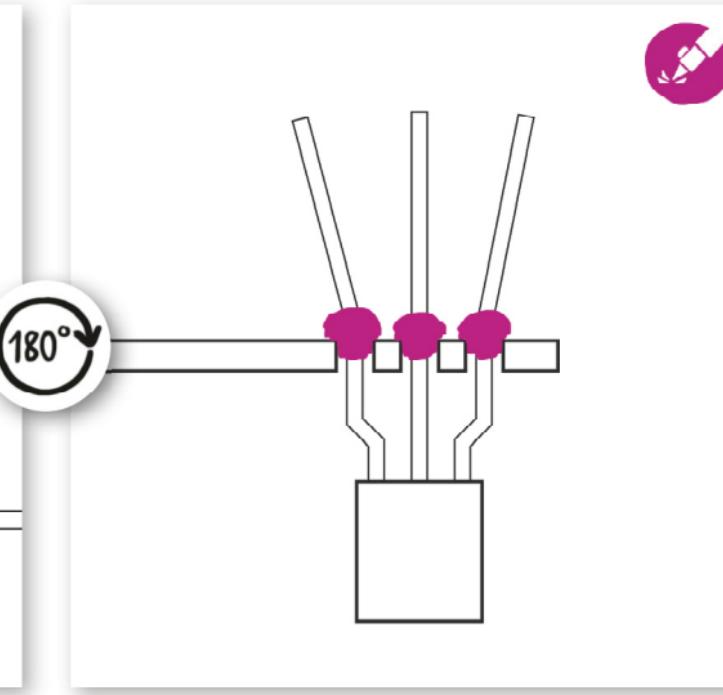
Solder it.



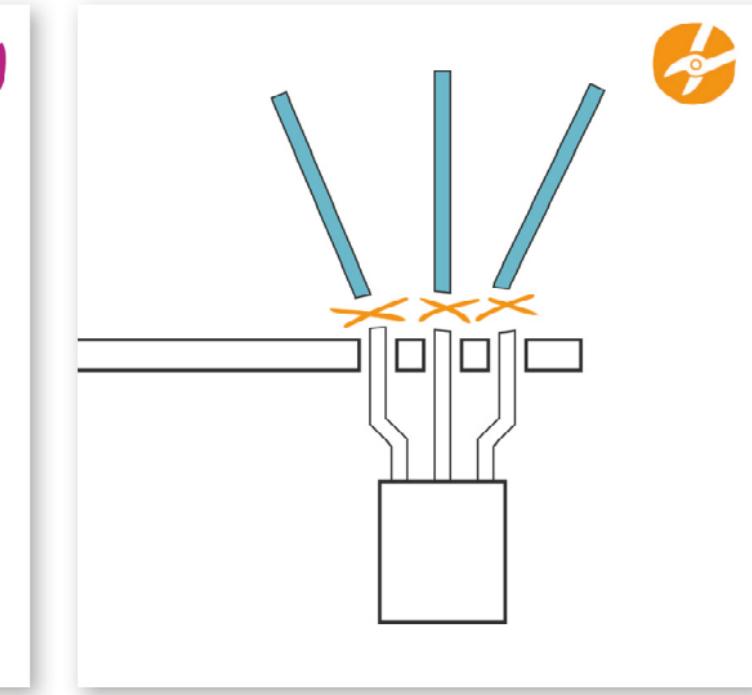
Clip the pins.



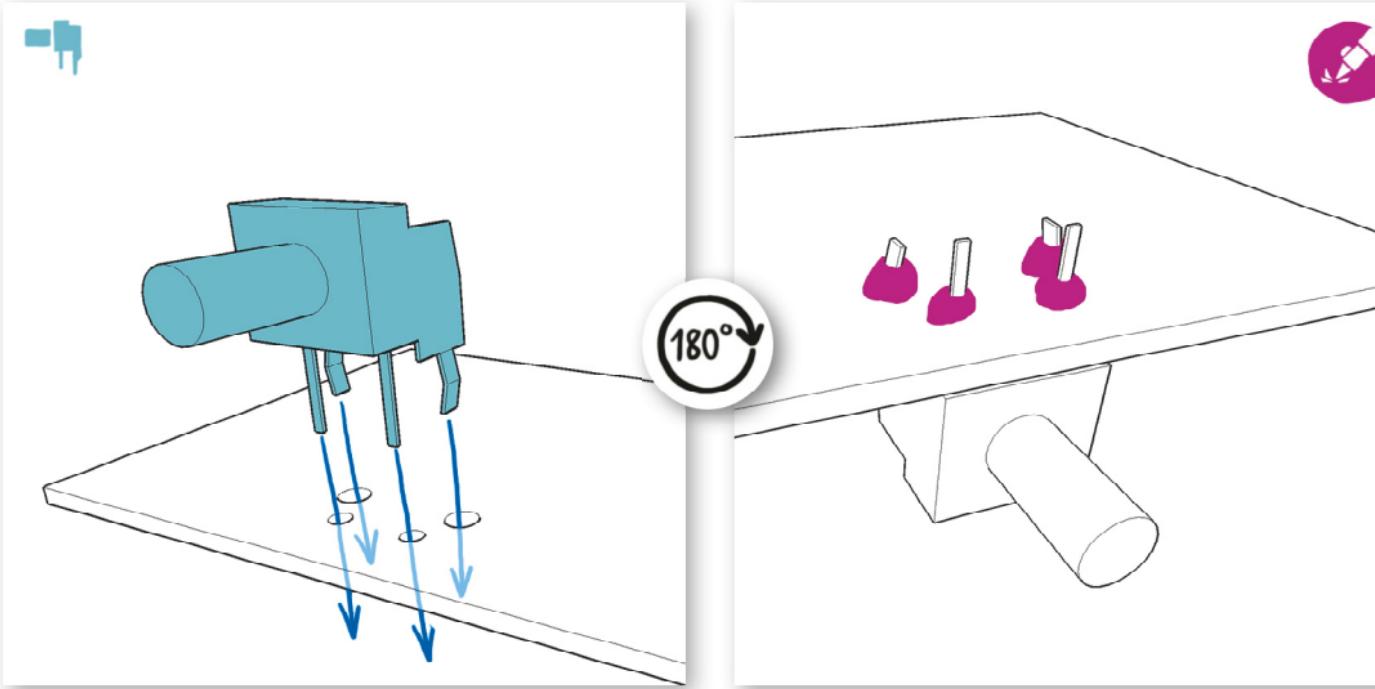
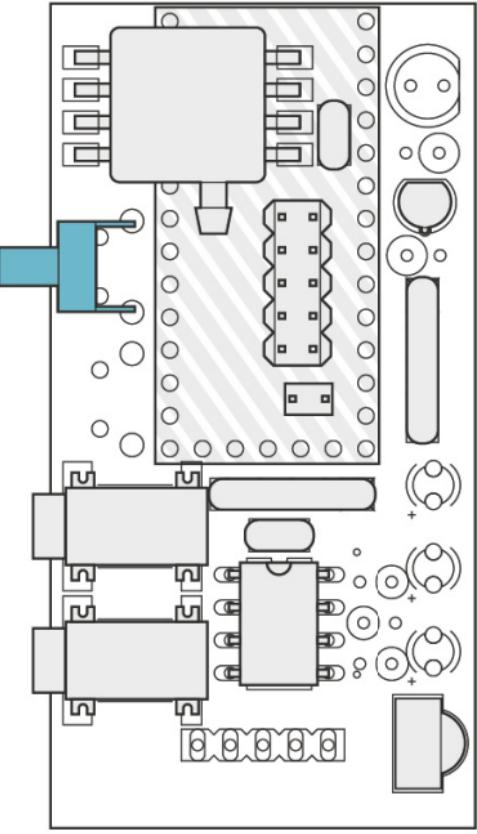
Place the MOSFET,  
bend the pins to fit into the PCB.



Solder it.

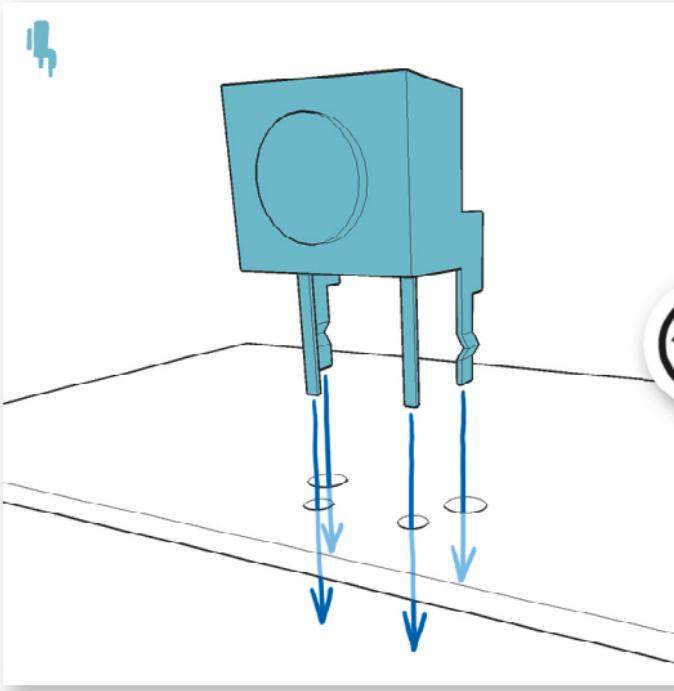
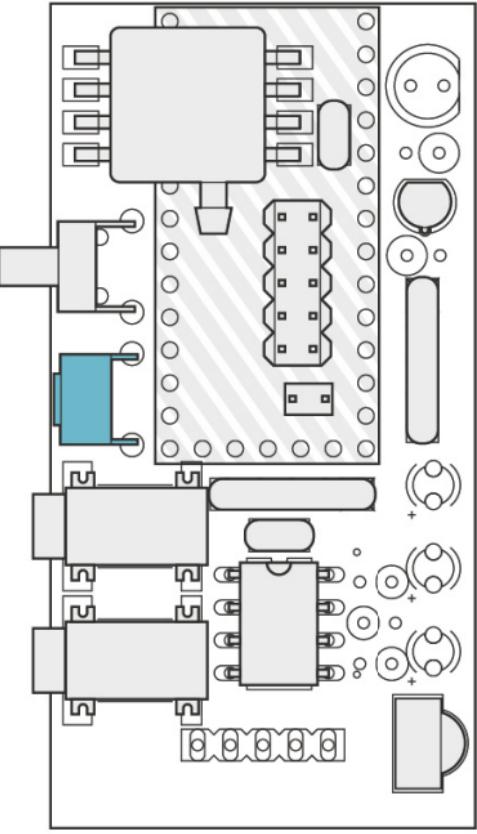


Clip the pins.

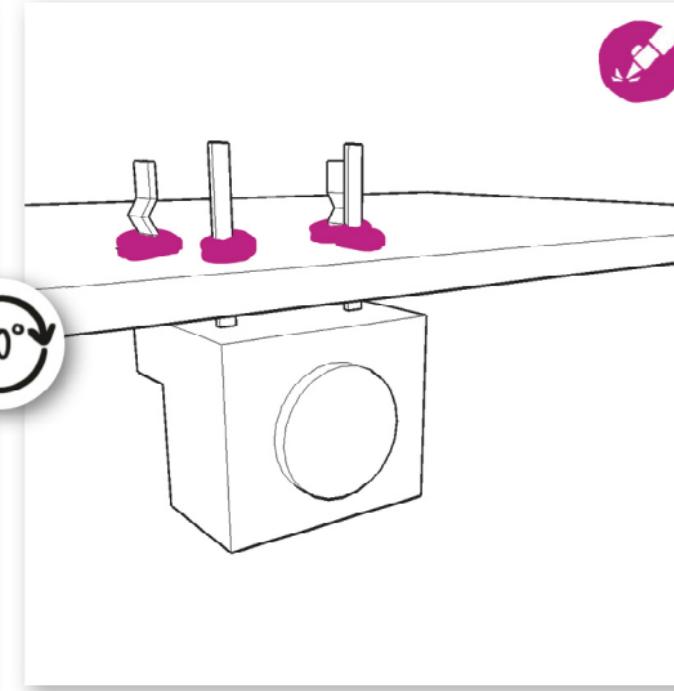


Place the long-nosed button.

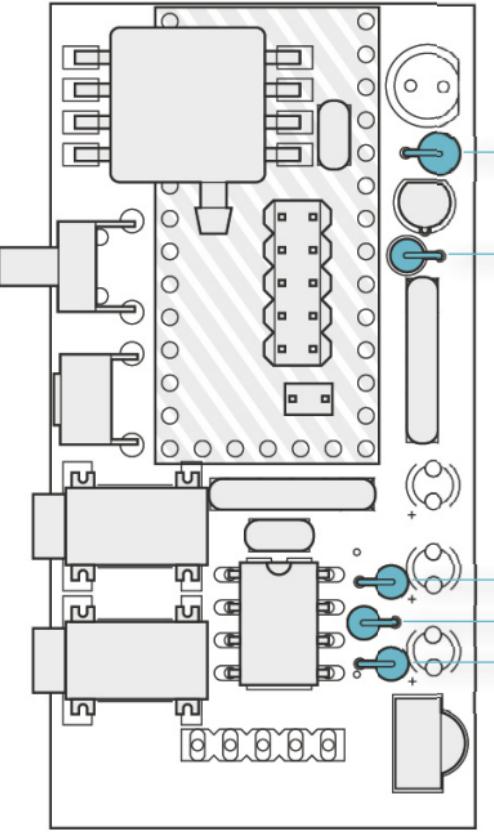
Solder it.



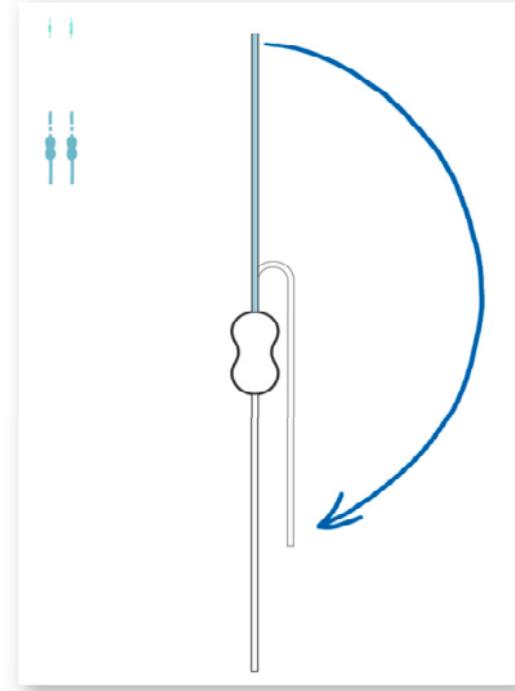
Place the short-nosed button.



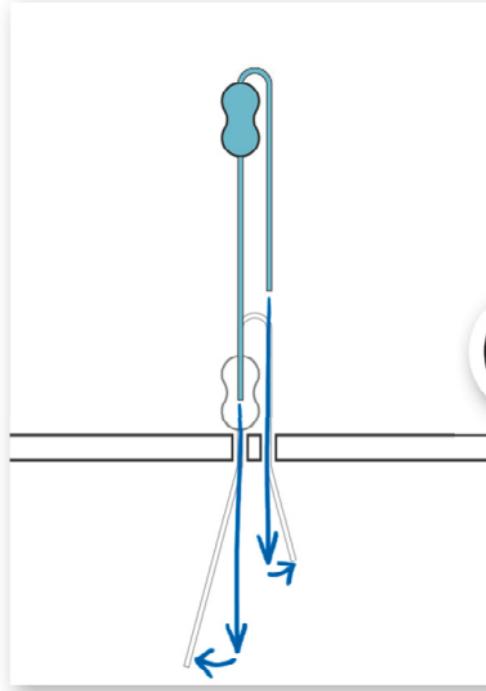
Solder it.



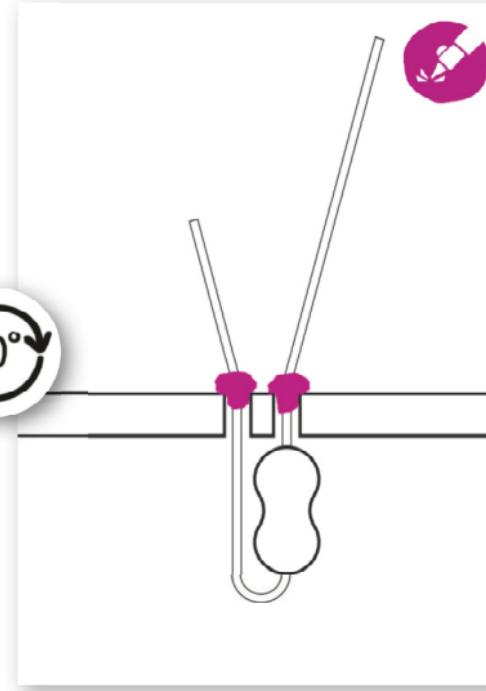
Bend one pin of each resistor as tight as possible to 180°.



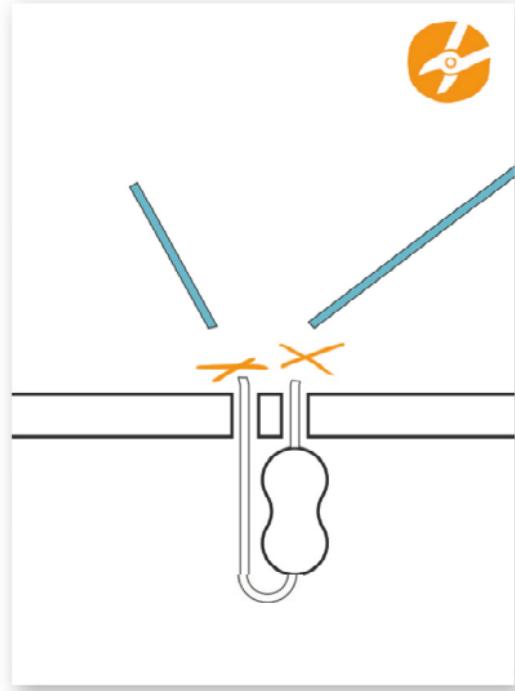
Place the resistor as close as possible to the PCB. Please bend the resistor's pins as tight as possible, otherwise the buzzer won't fit well.

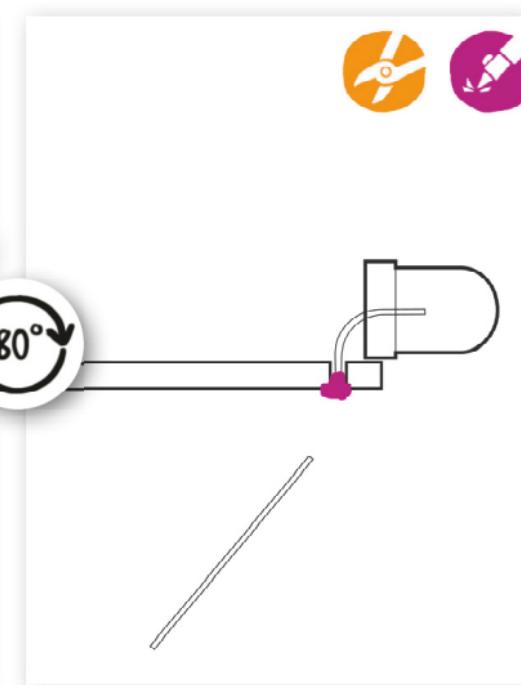
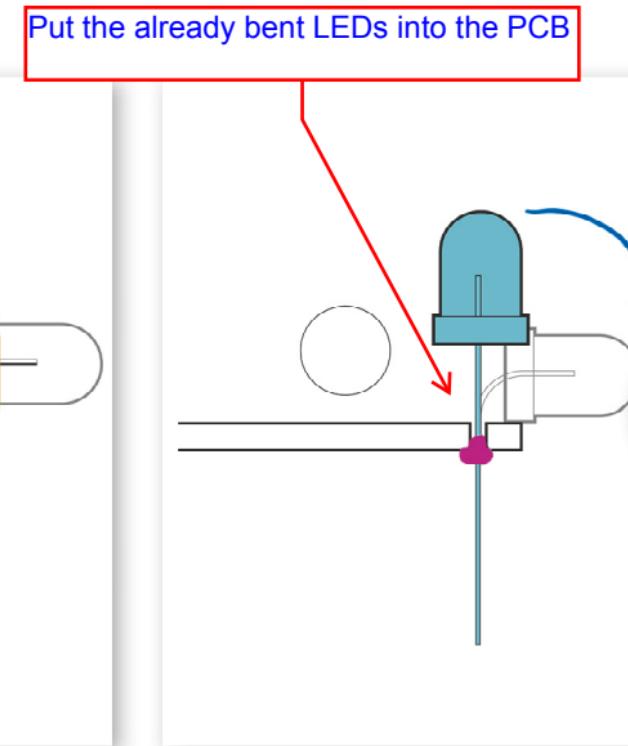
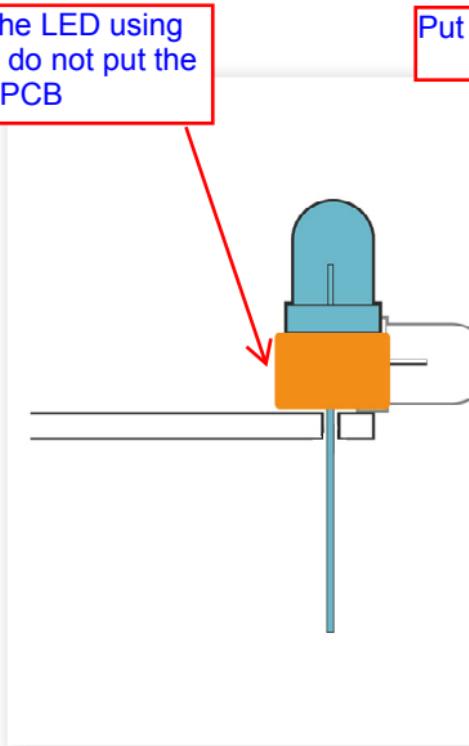
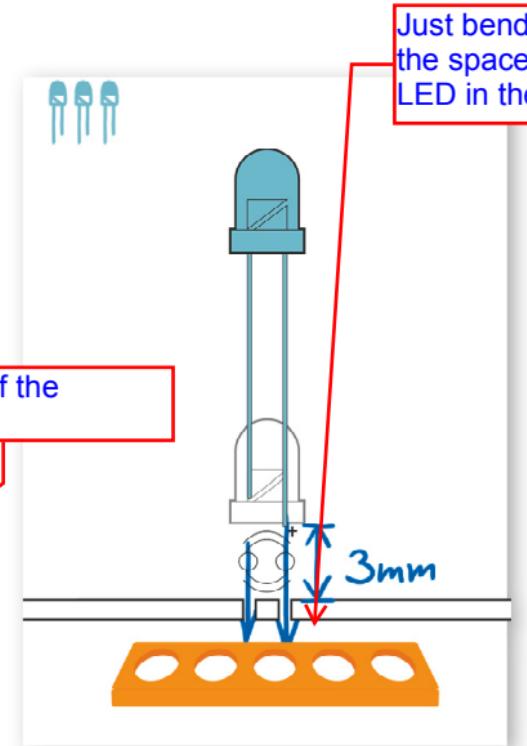
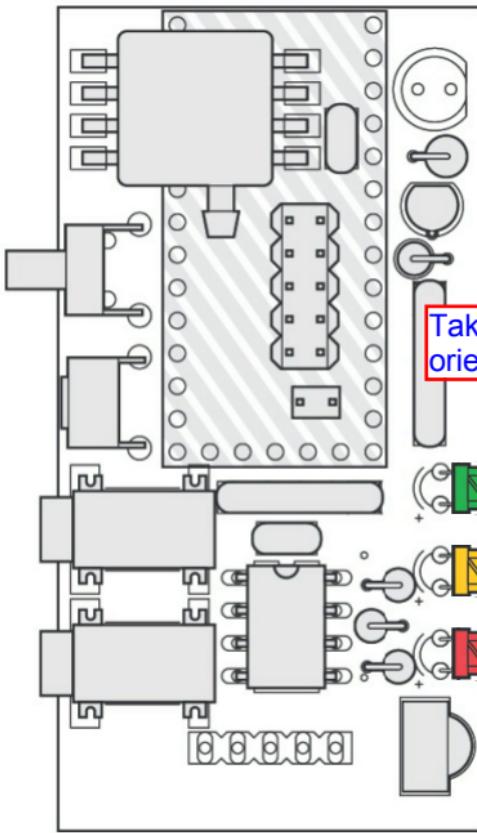


Solder it.



Clip the pins.



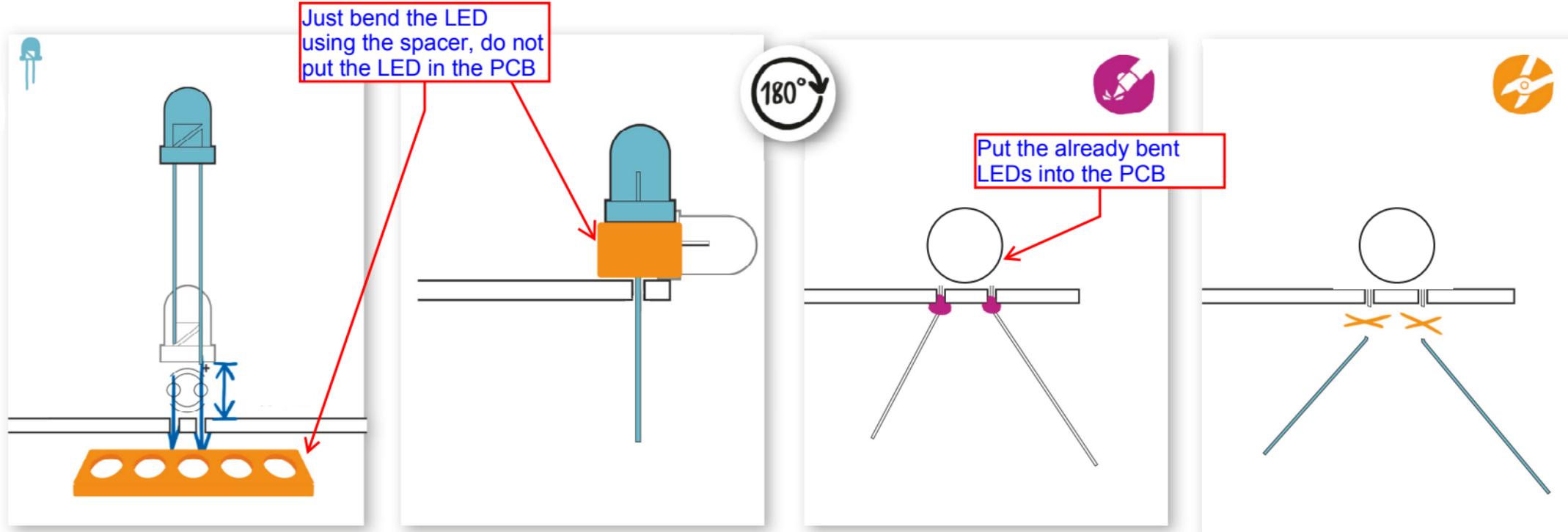
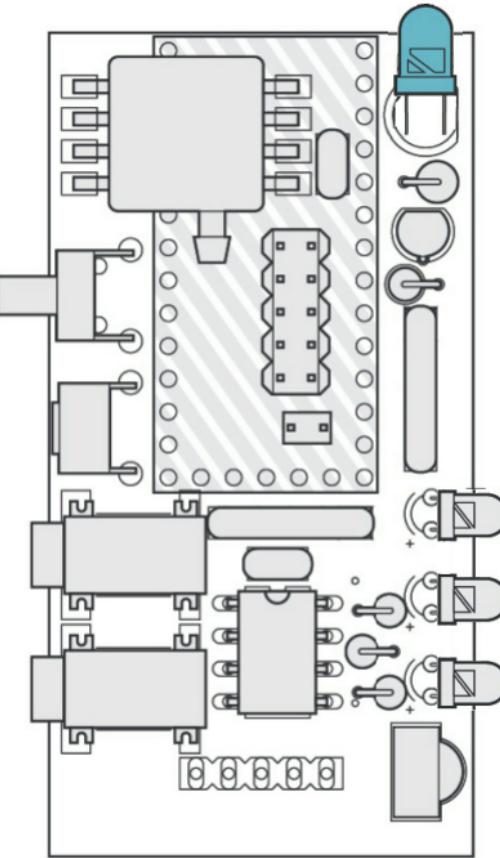


Place the LEDs with 3mm space.  
Please note the position! The smaller part  
inside the LED should be at the '+' sign on  
the PCB!

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.



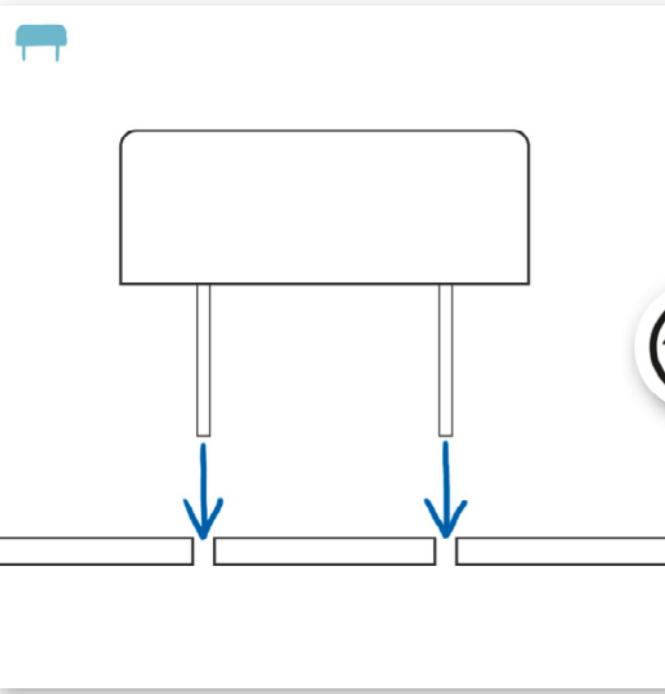
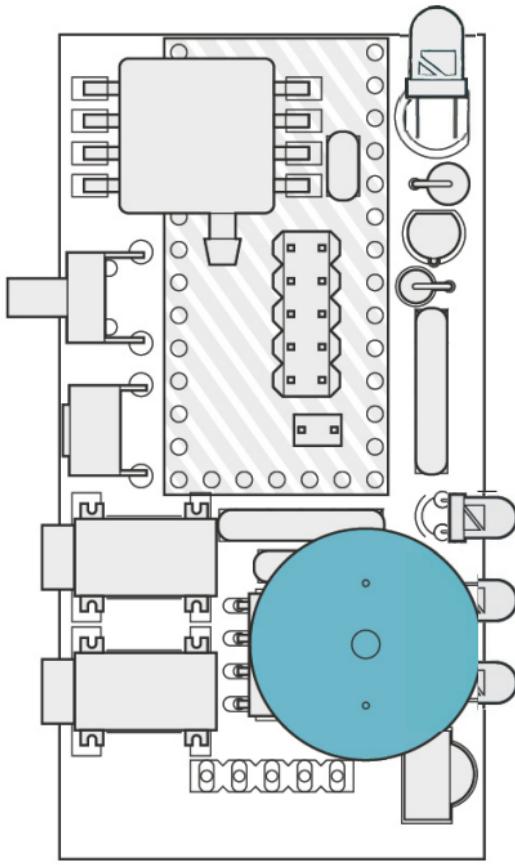
Place the infrared LED with 5mm space.  
There is one side flat on the LED housing  
and the corresponding mark on the PCB.

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

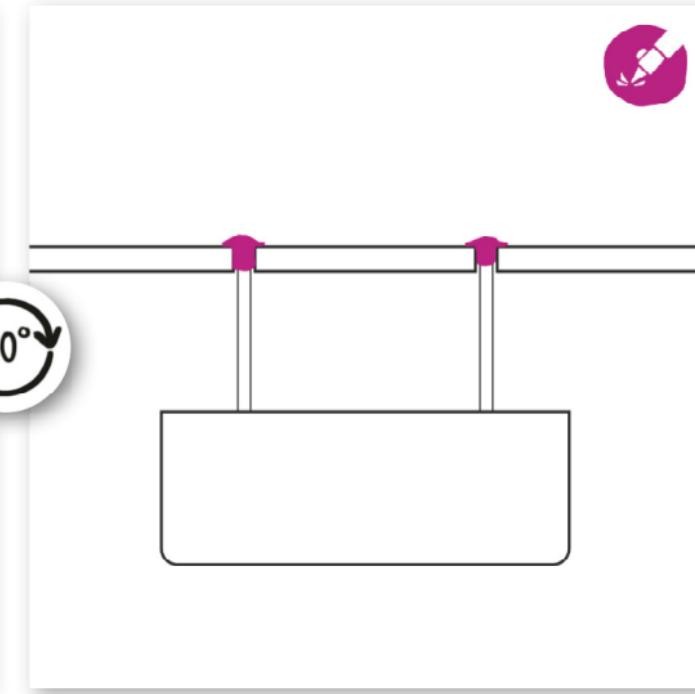
Bend the LED BEFORE soldering.  
Solder the pins.

Clip the pins.

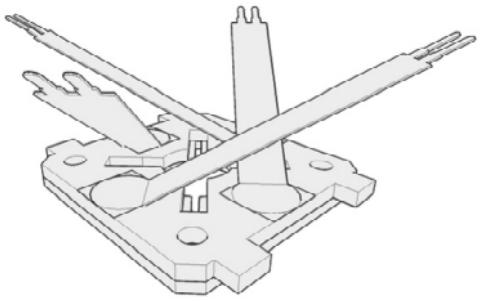




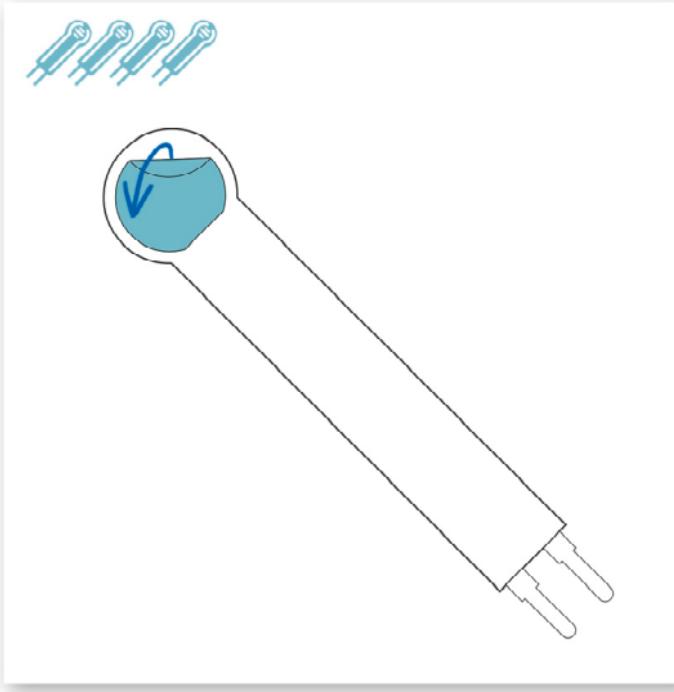
Place the buzzer over the LEDs.



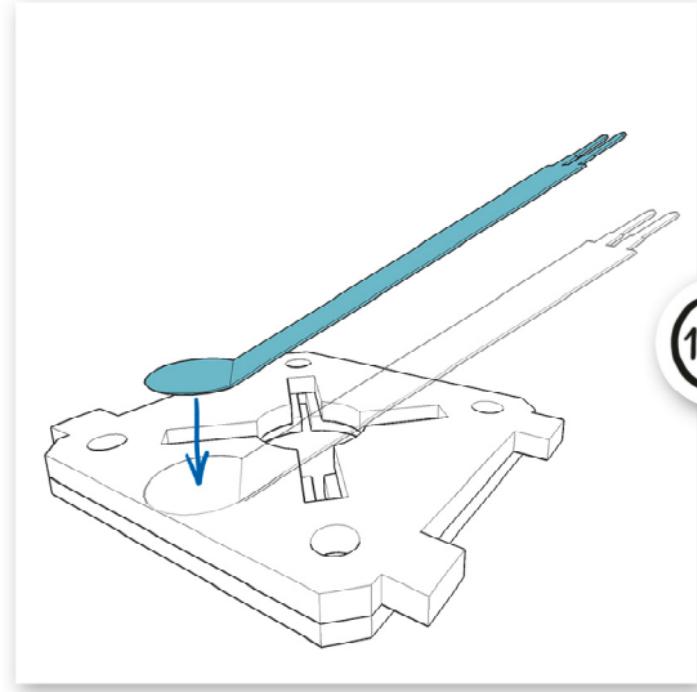
Solder it.



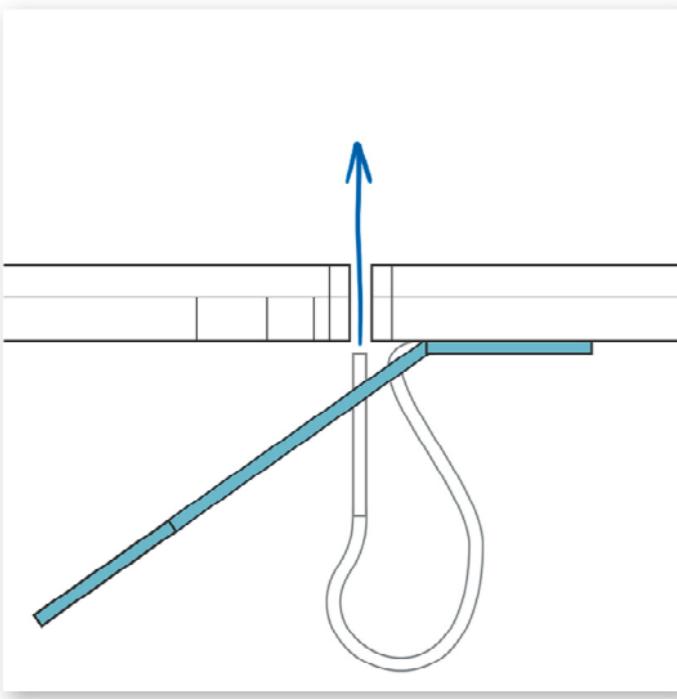
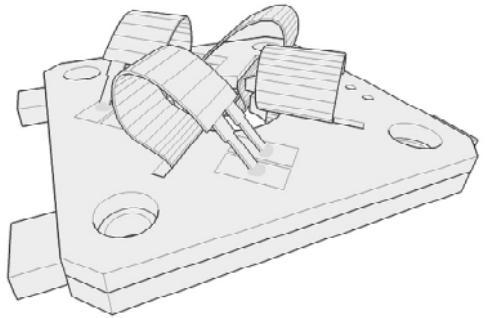
**ATTENTION:**  
please take care of the sensor and  
**DO NOT** remove anything else than  
the transparent foil from the bottom,  
otherwise the sensor is broken.



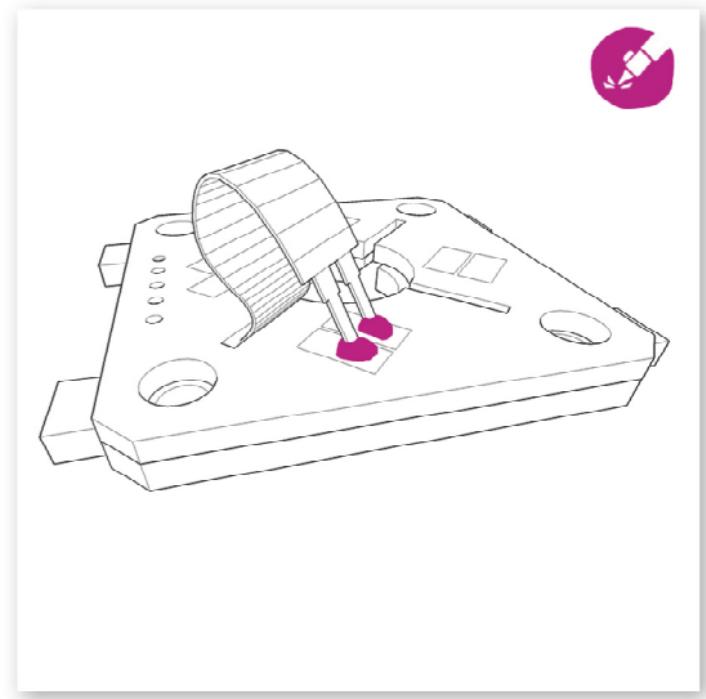
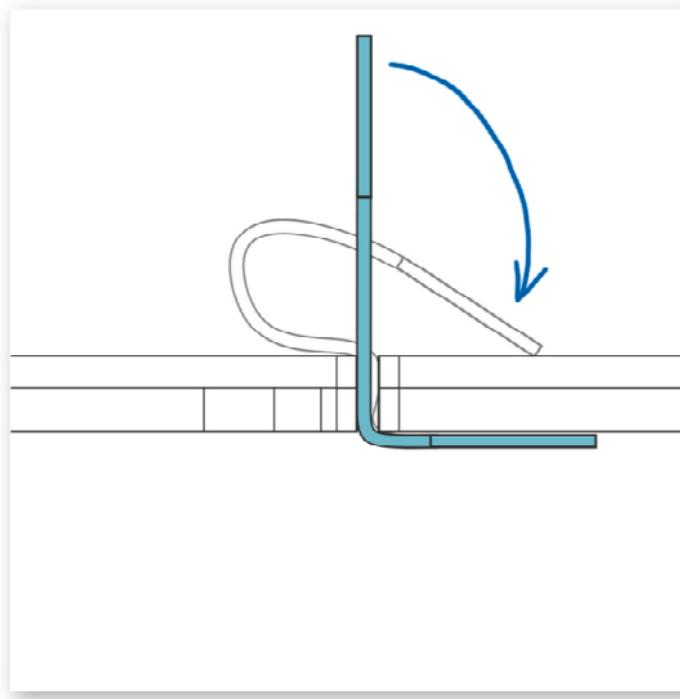
Carefully remove the cover of the 2-side adhesive tape  
on the sensor. Attention: this is a transparent foil.  
**DO NOT** remove the black foil!



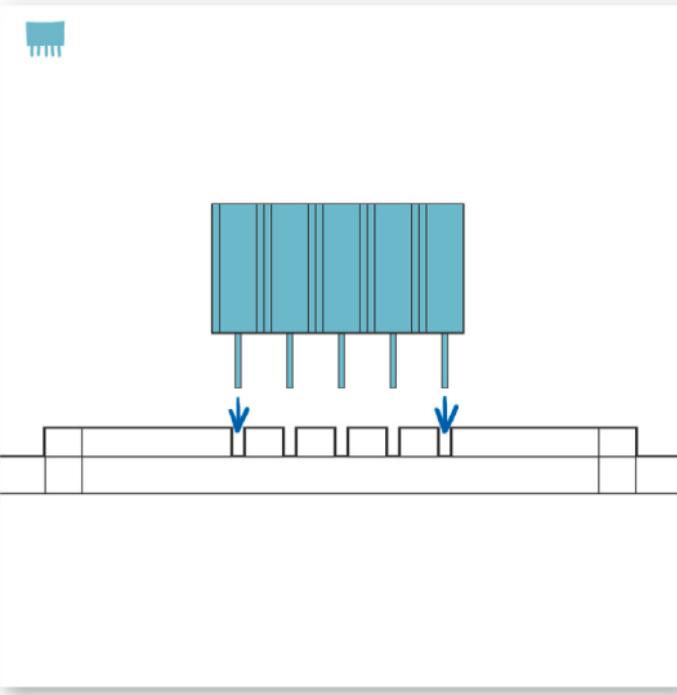
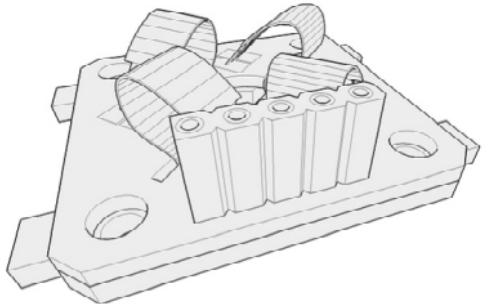
Place the sensor on the acrylic part.



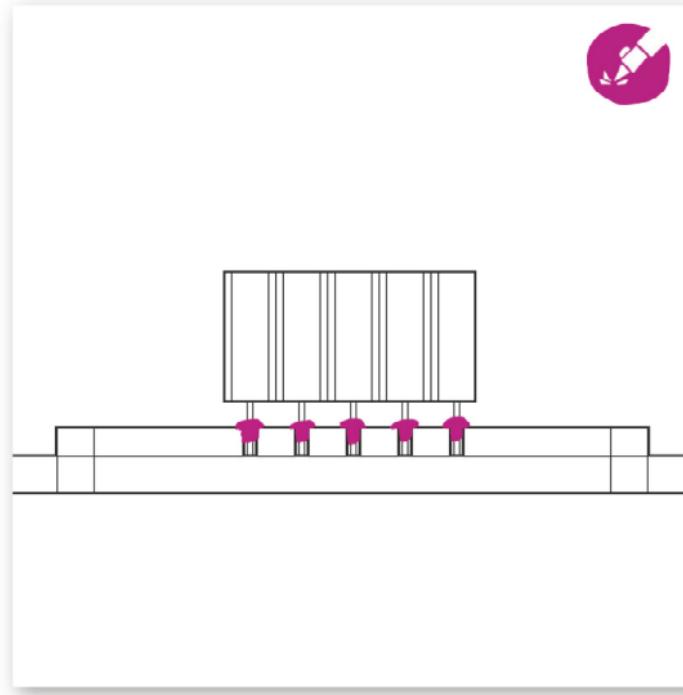
Put the pins through the cuts on the other side.



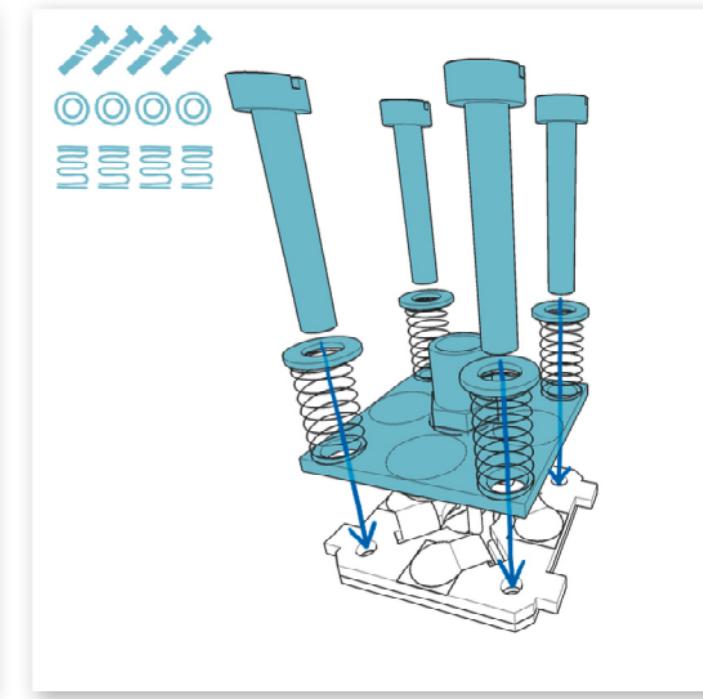
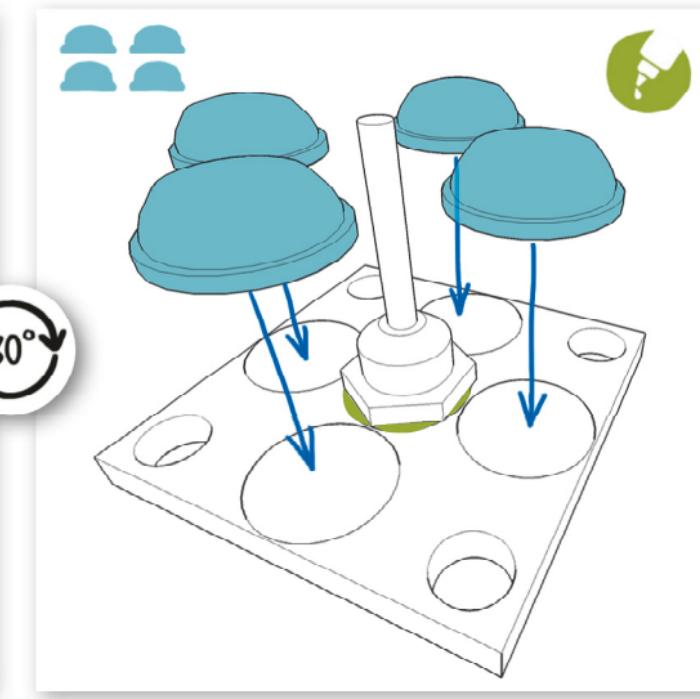
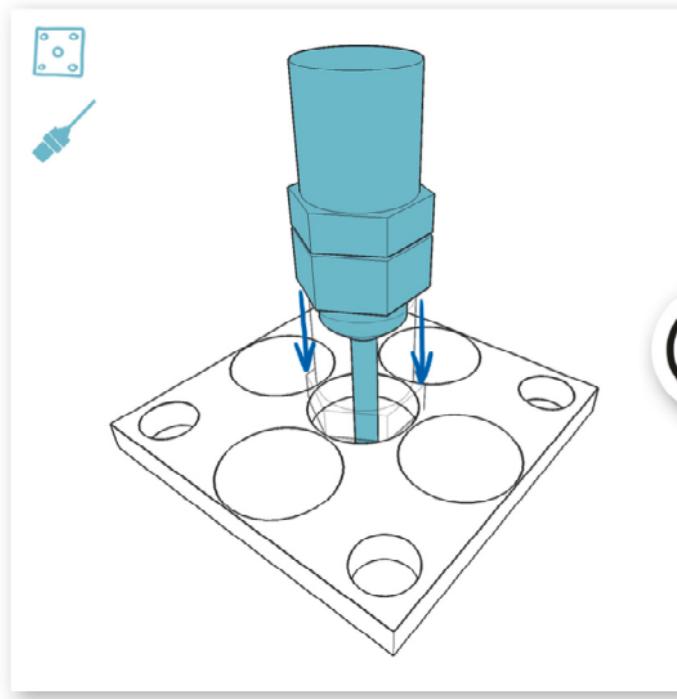
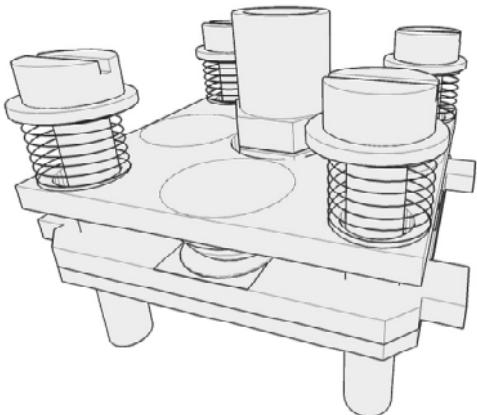
Solder the pins. Please take care of the sensor. Solder for a short time especially if you solder with a high temperature. The sensor is made of plastic. Maybe you cool down the plastics with tweezers.

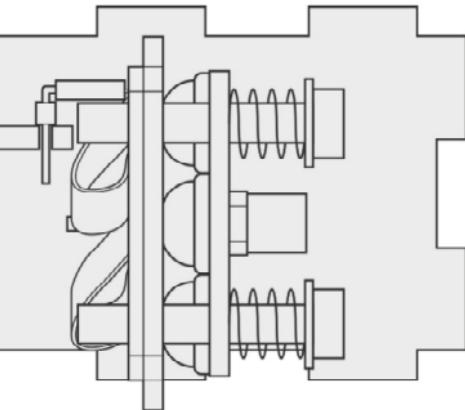


Place the pin header on the sensor carrier.



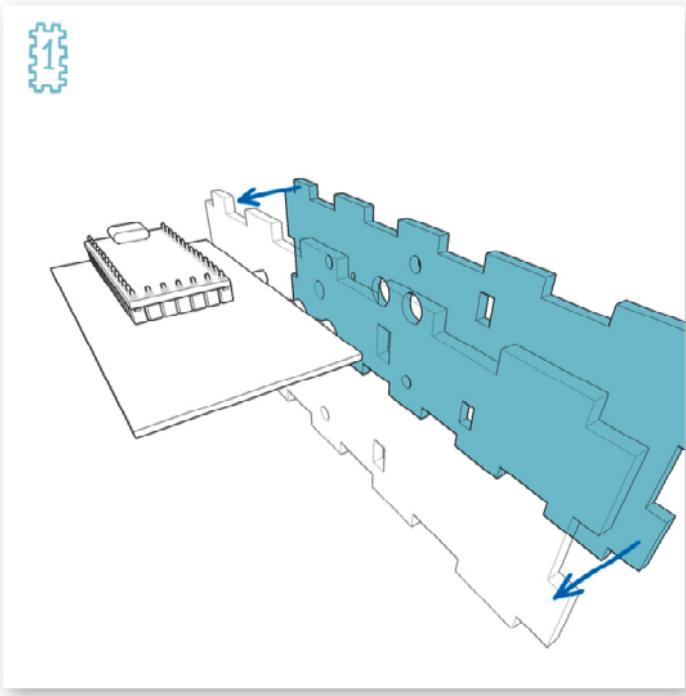
Solder one pin first, bend the pin header to a straight angle and solder the remaining pins.  
This might be tricky, use a fine solder tip.



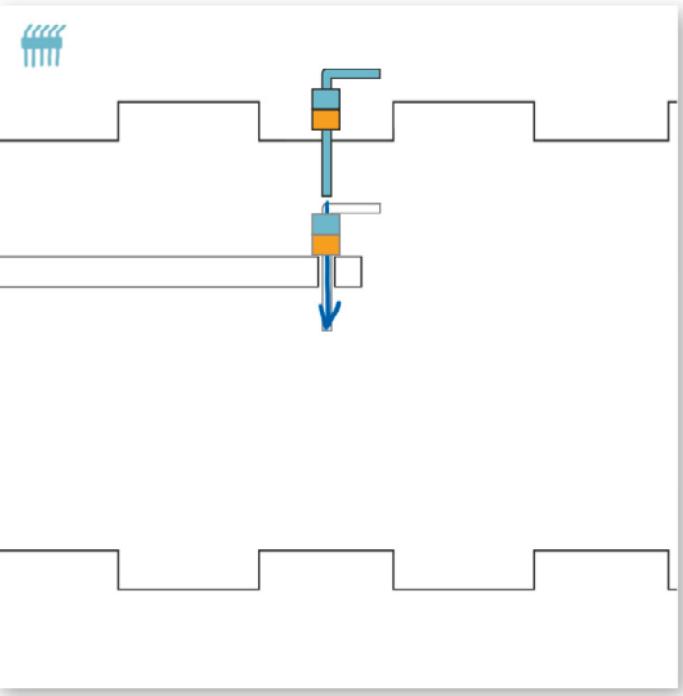


**ATTENTION:**  
the angled pin header is used to adjust the PCB position. So don't solder the connector if you are not 100% if it fits.

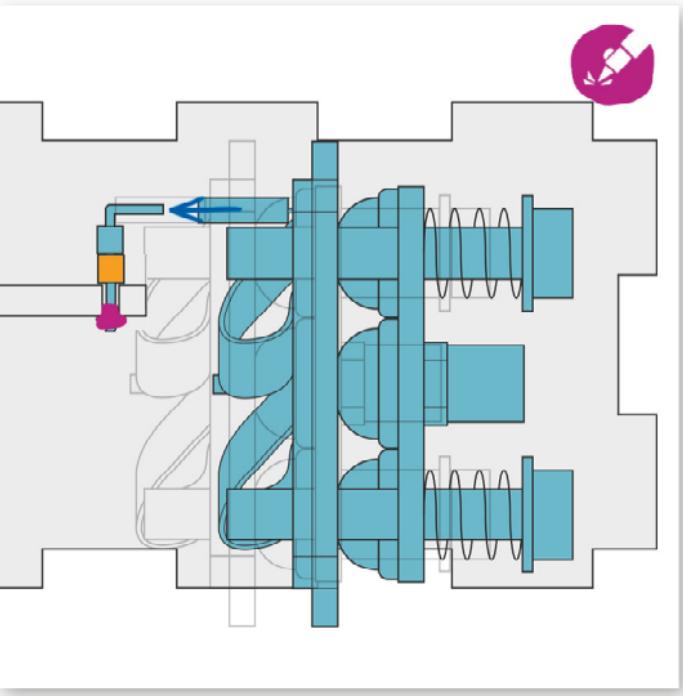
It's better to solder only 1pin out of 5, assemble the FLPIMouse and if it fits, solder the remaining ones. Also take care of the positioning: the longer pins are soldered to the main PCB.



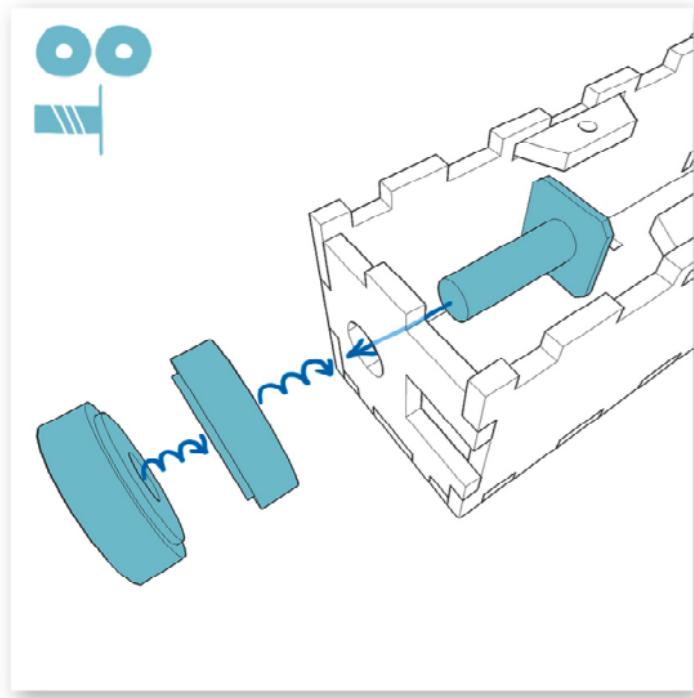
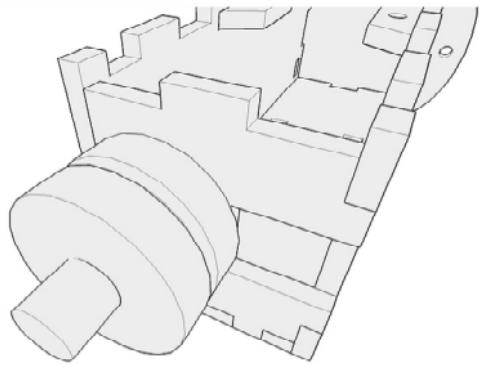
Use the top cover to align the main PCB straight.  
**Attention:** Please make sure all parts fit well and the alignment is straight. There is no possibility to change the positioning after soldering!



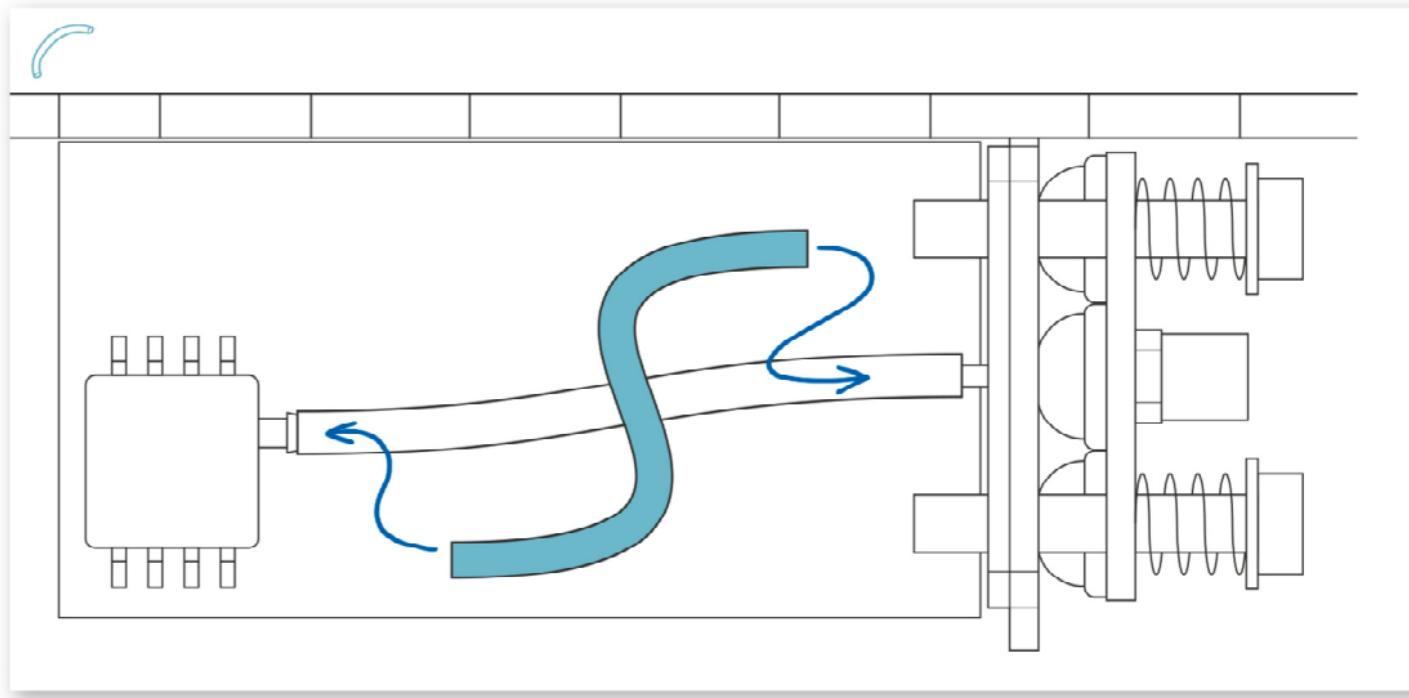
Put the angled pin header to the PCB.

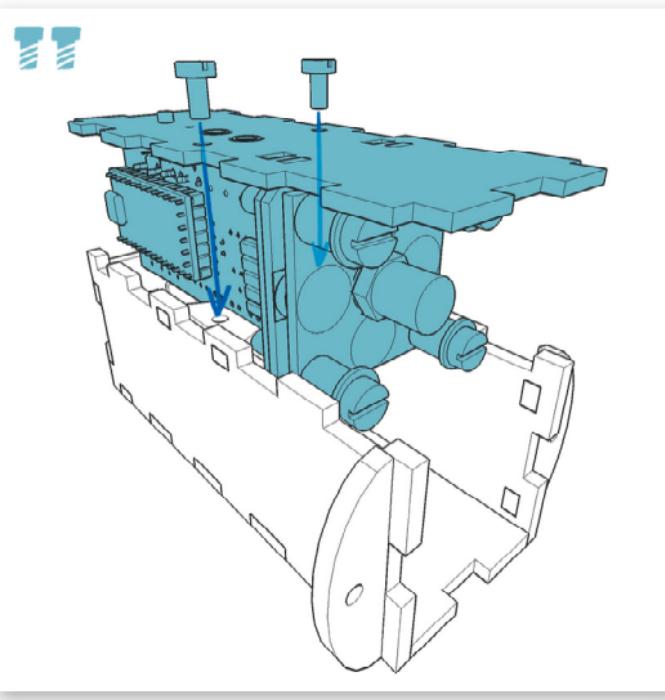
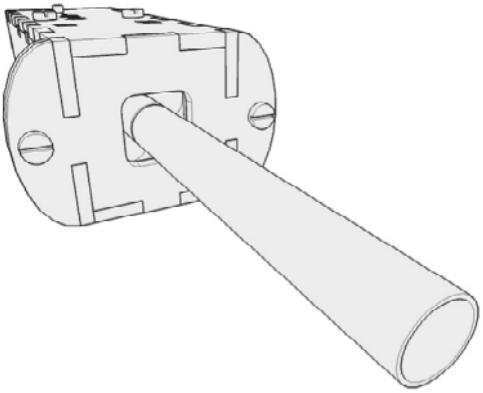


Put both parts together and use the top cover to align them. Solder all 5 pins.

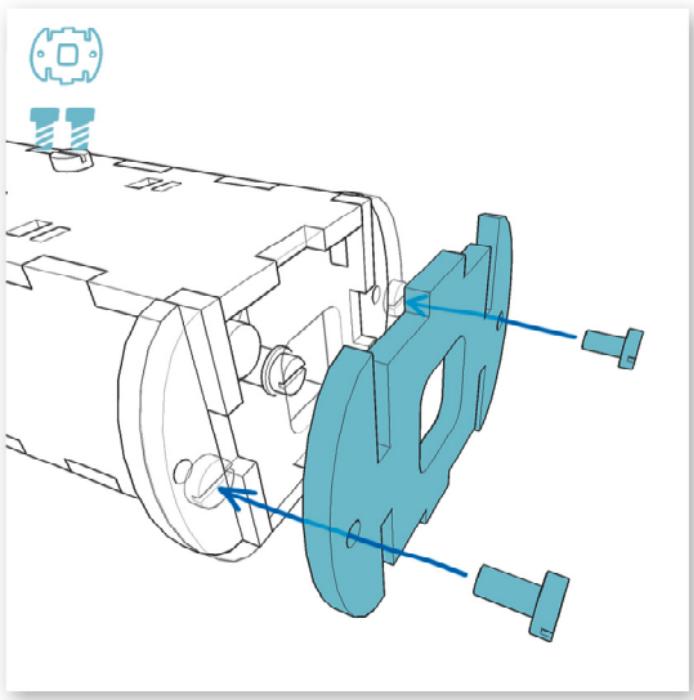


This mount is attached on the side!

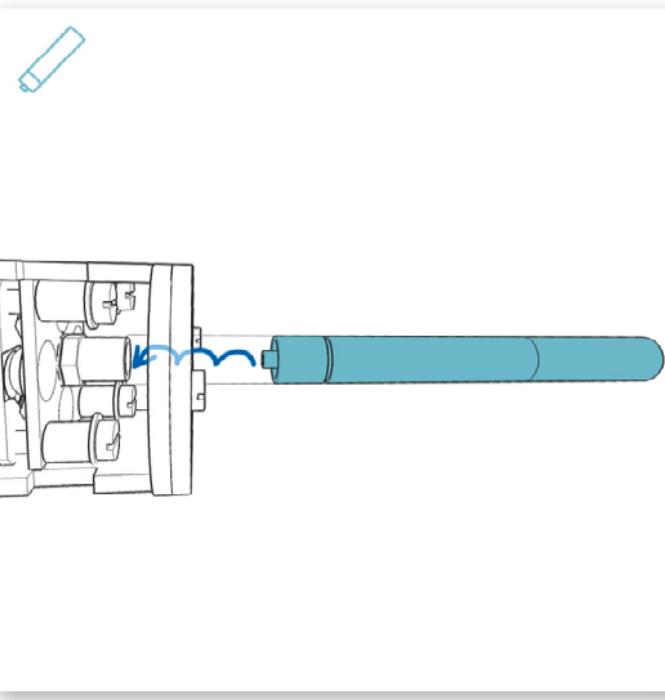




Place both PCBs into the case, put it in from the front.  
Be careful to fit the LEDs to the corresponding holes.  
Mount the top cover.



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



Attach the mouthpiece.

