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Install v1.2

MNESIA 1.0

Installation instructions

1 Introduction

First of all, thank you so much for being part of this adventure! I really hope you are going to enjoy riding with AMNESIA on board ;)

Now let's be serious for a while. Installing the modchip is not an easy operation and must be done by an experienced technician. Read this manual at least once before installation.

DISCLAMER: DO IT AT YOUR OWN RISK, these batteries can become extremely dangerous in case of fault. They can self ignite, explode and kill. Before starting, you must prepare your working area, make sure you can easily move the battery to a safe zone in the case things are really going wrong. **Make sure you understand characteristics of lithium cells before attempting any repair.**

Do always watch your battery while charging as stated in its user manual.

The modchip has been extensively tested and validated on multiple batteries with firmwares 2.1.7 and 2.5.1.

If you have questions or if anything is unclear in this document, please write me: pro@jonataubert.com

2 Bill Of Materials

- [AMNESIA modchip v1.0](#)
- B2XR battery
- [Electronic grade silicone](#)
- [Araldite epoxy fast cure](#)
- [Cyanoacrylate super glue](#)
- [KYNAR wrapping wire AWG 30](#)
- Soldering station for SMD components
- Duct tape
- Wire cutters / pliers / tweezers ...
- Screwdrivers (to open the battery)
- Silicone sealant (to close and seal the battery)

3 Disassemble the battery

Please refer to this [video](#).

4 Install the modchip

4.1 Wiring diagram
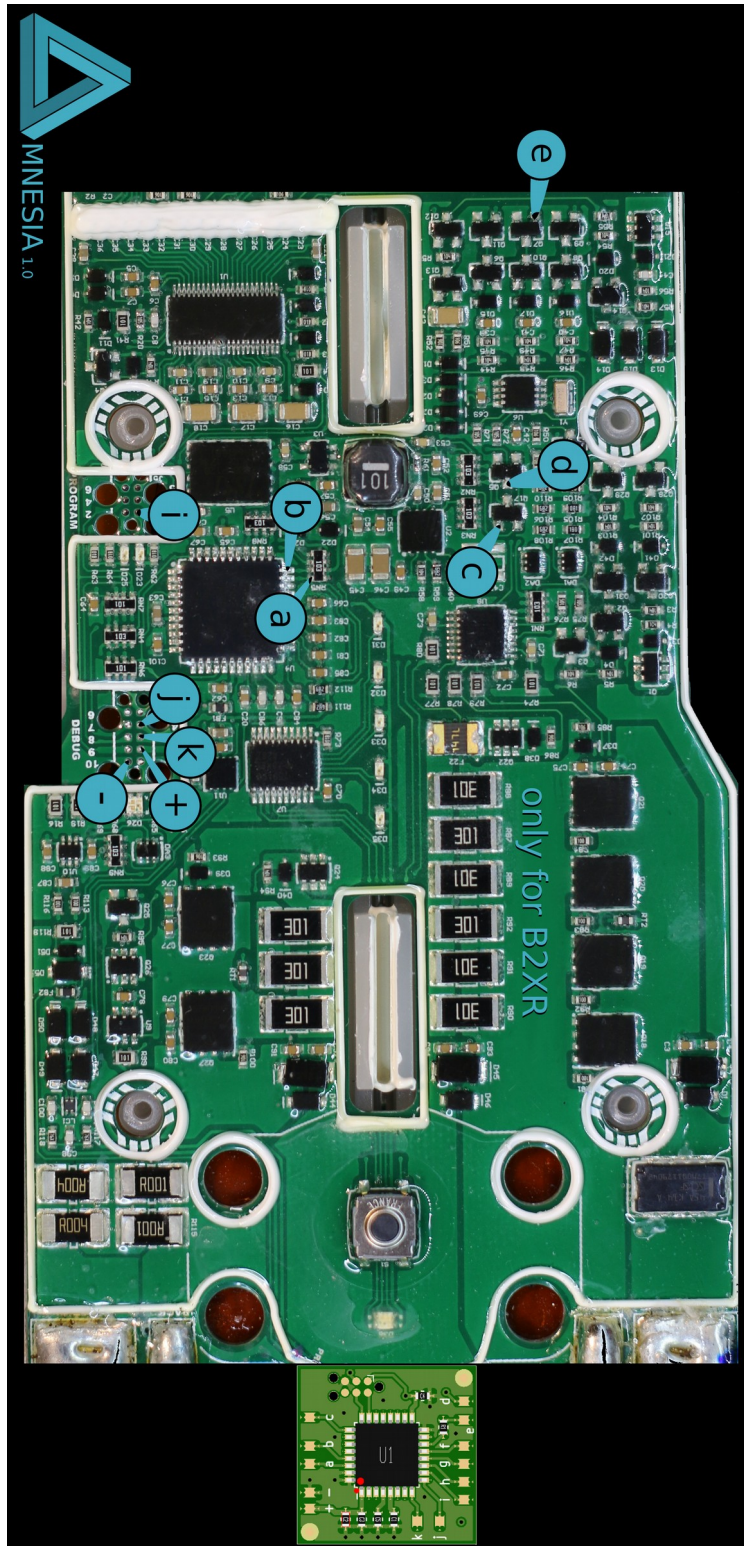
Wires sorted by order of assembly:

Symbol	Length end to end in [mm]	Length end to end in [inch]
-	105	4.13
+	110	4.33
k	120	4.72
j	120	4.72
i	140	5.51
b	115	4.52
a	115	4.52
e	170	6.69
d	140	5.51
c	125	4.92

4.2 Prepare the wires

4.2.1 Cut and strip all the wires to the lengths defined in the above table.

Make sure to use the same type of wire. Its diameter including insulation must be <= 0.52 [mm] or 0.0205["].

4.2.2 Add duct tape on the side that will be soldered on the B2XR

Expected result:
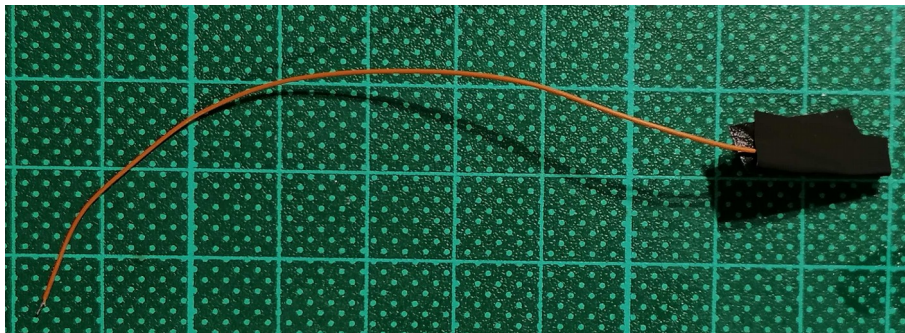
4.3 Prepare the B2XR

4.3.1 Remove the conformal coating inside the following zone:
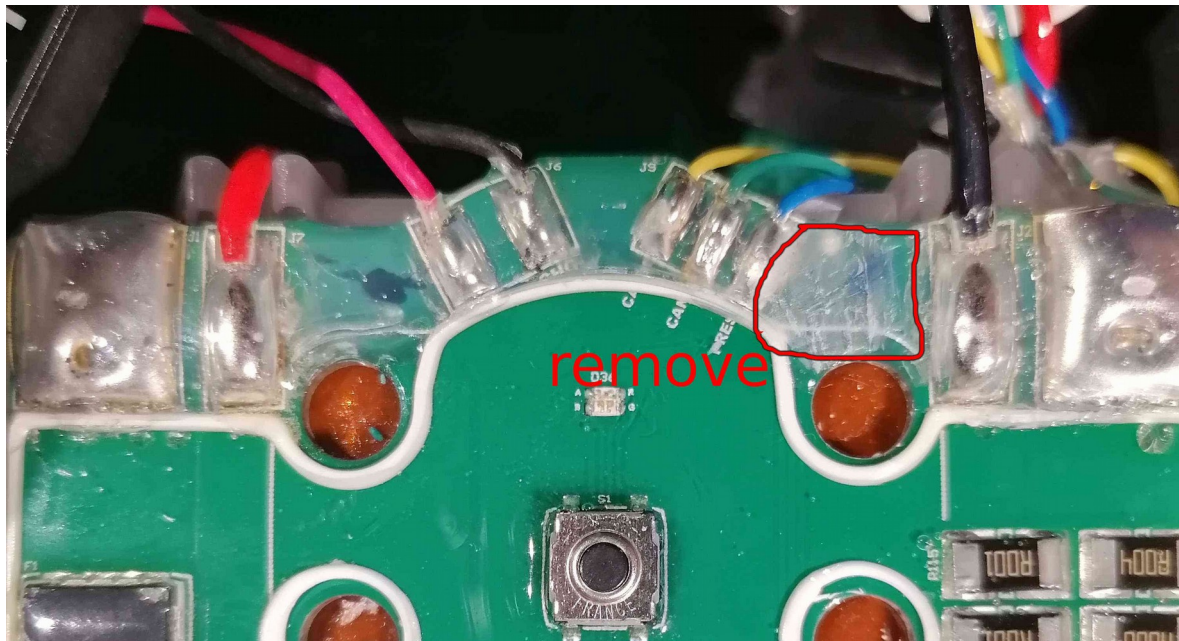
You don't need to remove it all but you must make sure the 10 wires we are going to add will be located below the left and right neighboring conformal coating:
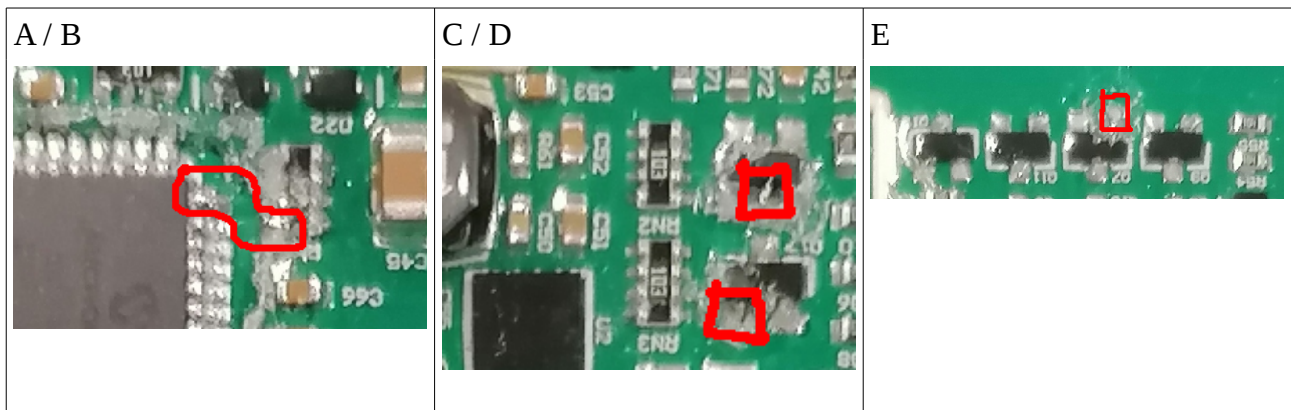

See the preview with the wires:
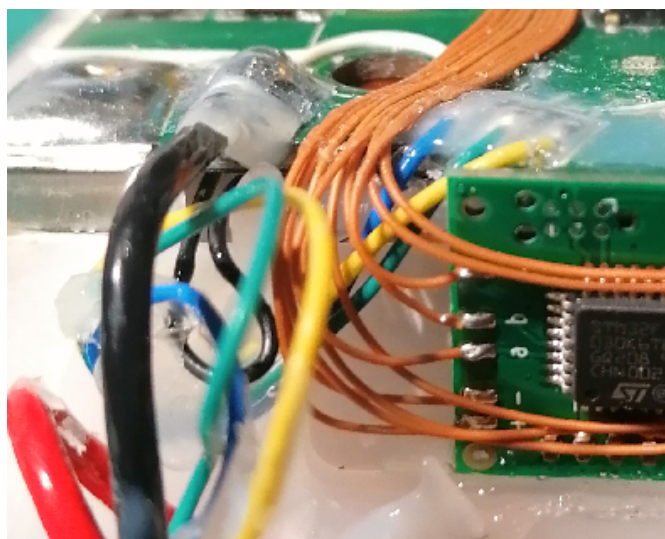
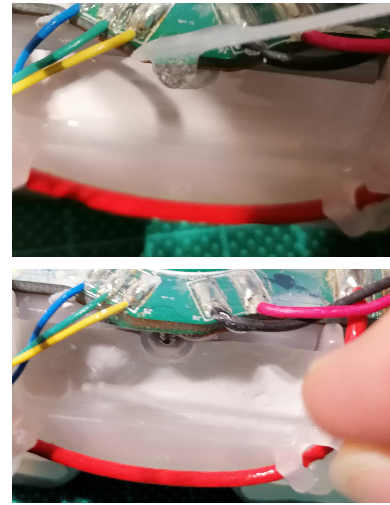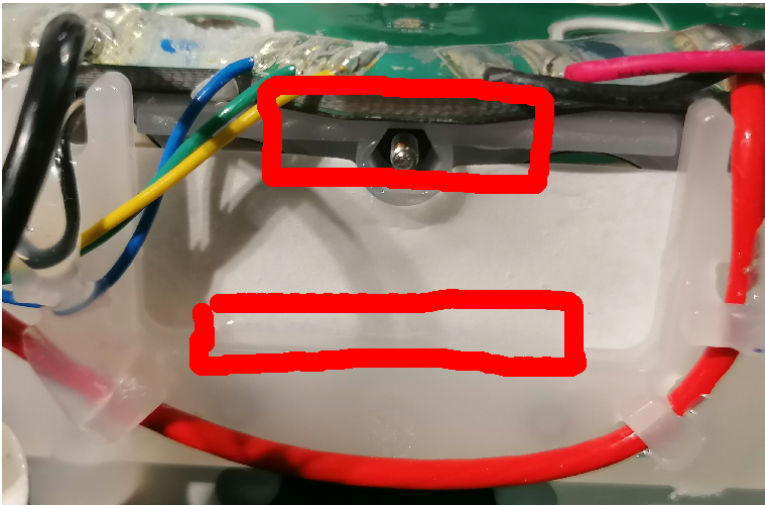### 4.3.2 Remove the conformal coating in the following zones
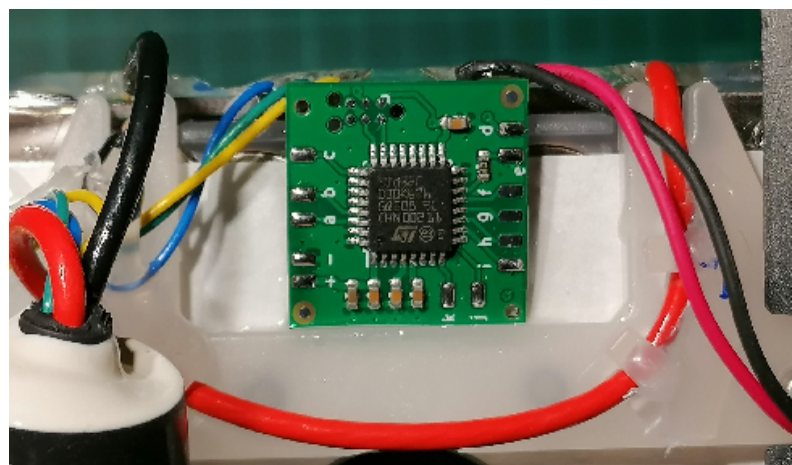
Important: Use a non-conductive tool!

A / B	C / D	E

4.3.3 Vertically rotate the battery

4.3.4 Apply Epoxy and glue the modchip

Add and center the modchip as on this picture, notice its down most edge is in contact with the protective paper and the plastic frame previously spread with glue.
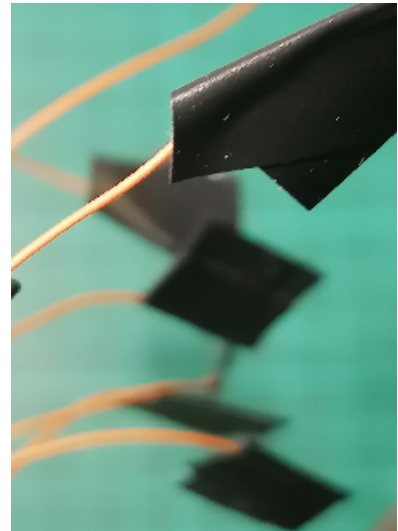

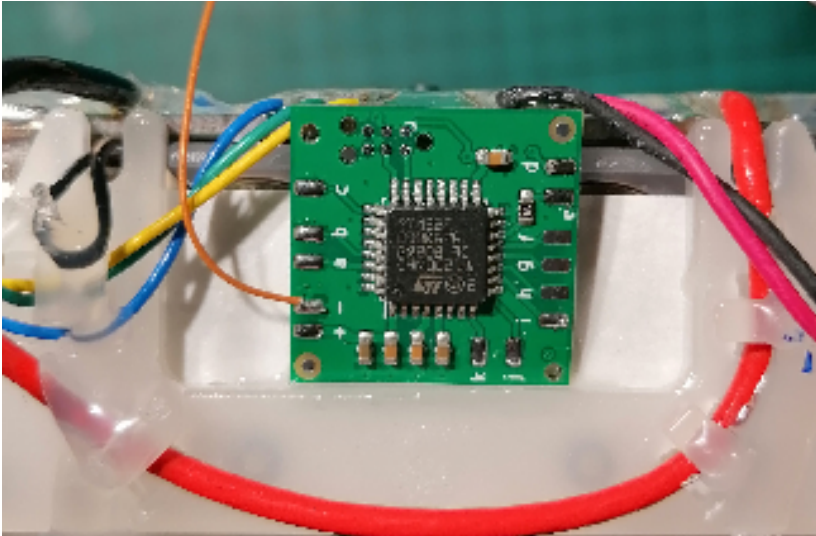Apply pressure and wait until the glue is cured.
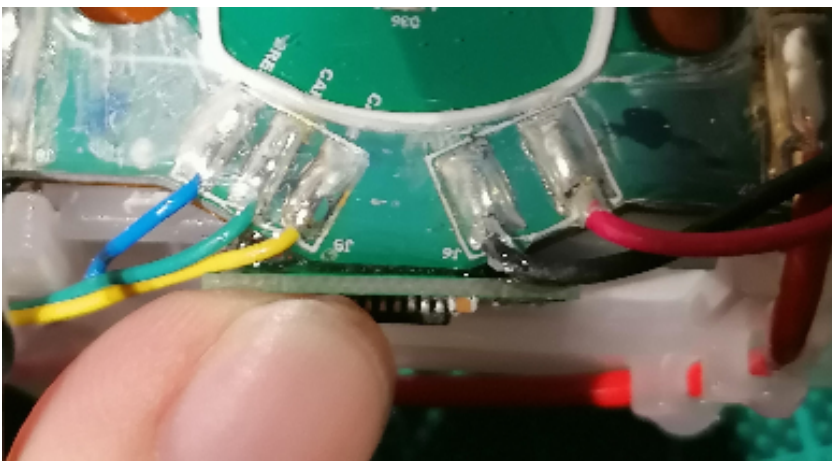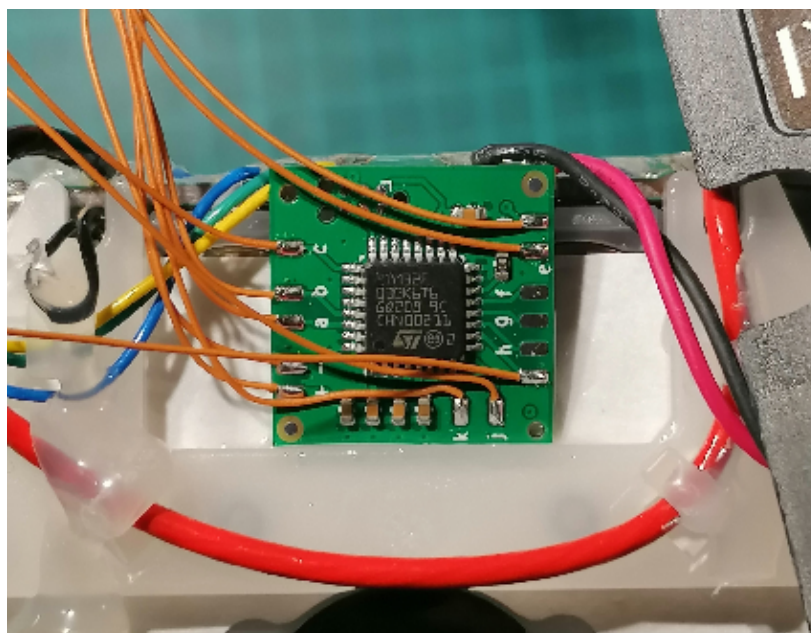
4.4 Solder the wires Test and Tidy

4.4.1 On the modchip

Warning: Make sure the duct tape is effective on the hanging end!!! You don't want any short with the battery!!!

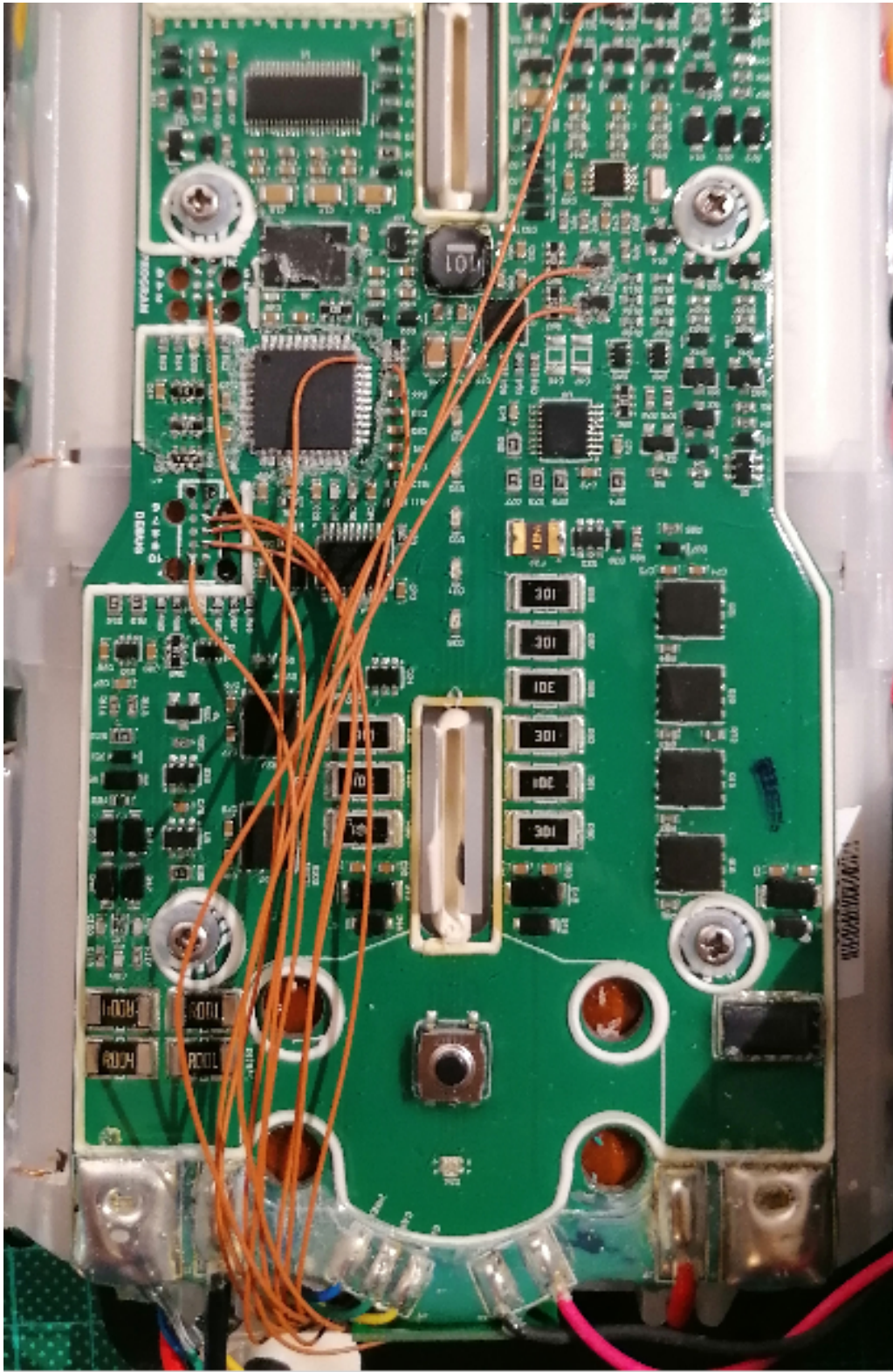**Remark**: older the wires on the modchip only, following the order defined in table page 3 (from '-' to 'c').


Expected result:

4.4.2 On the B2XR

Important: Solder the wires following the order defined in table page 3 (from '-' to 'c'). Make sure they are not tangled. The next step will consist in testing and tidying the mess.

4.5 Functional test

Verify your wiring!!!!! Once you are sure, keep pressing the push button for > 5 [s] until you see the new blinking animation. Verify the displayed balance voltage is different than 9999 [mV]. Otherwise, check the wiring again!

If you cells are unbalanced, I recommend you manually balance them as the integrated BMS is very slow (about 25 [mV] per day).
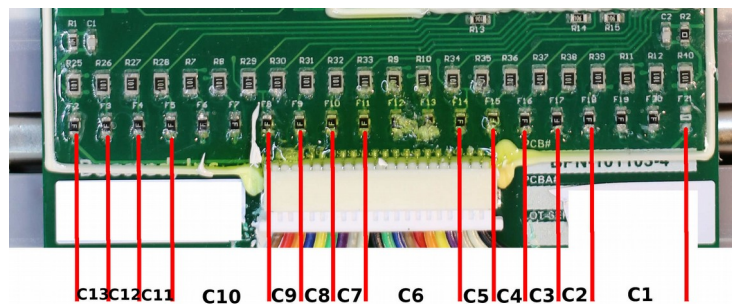

Important: If the condition that provoked the RLOD is still present after the activation of the modchip, the battery will go back in RLOD. Example: Connector issue / dead thermistors / dead cell or too heavily unbalanced (rare cases). **If the cell is dead (voltage too low), replace it, can be extremely dangerous to use it!**
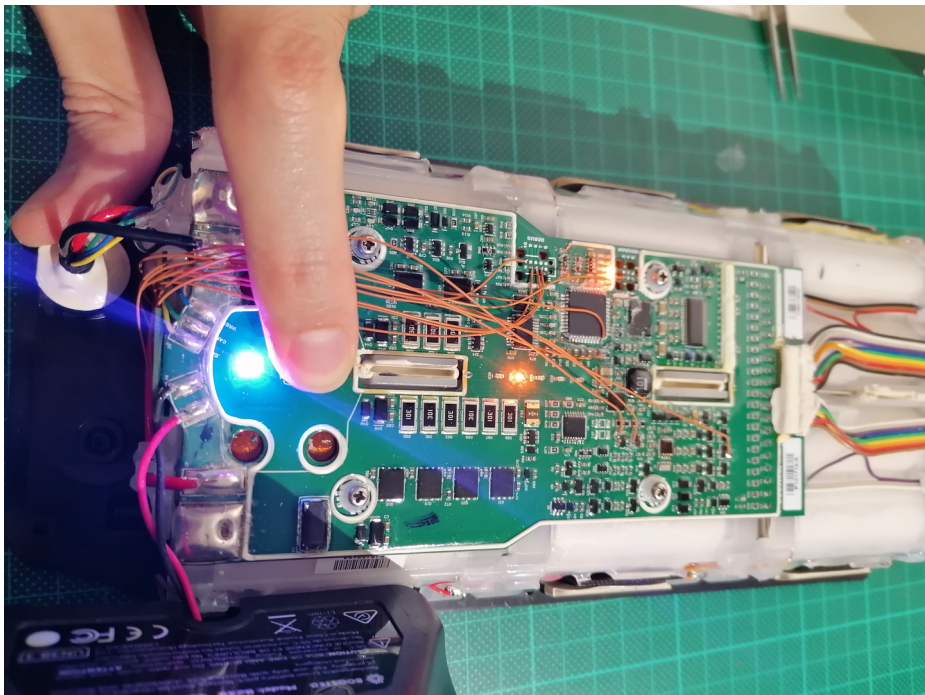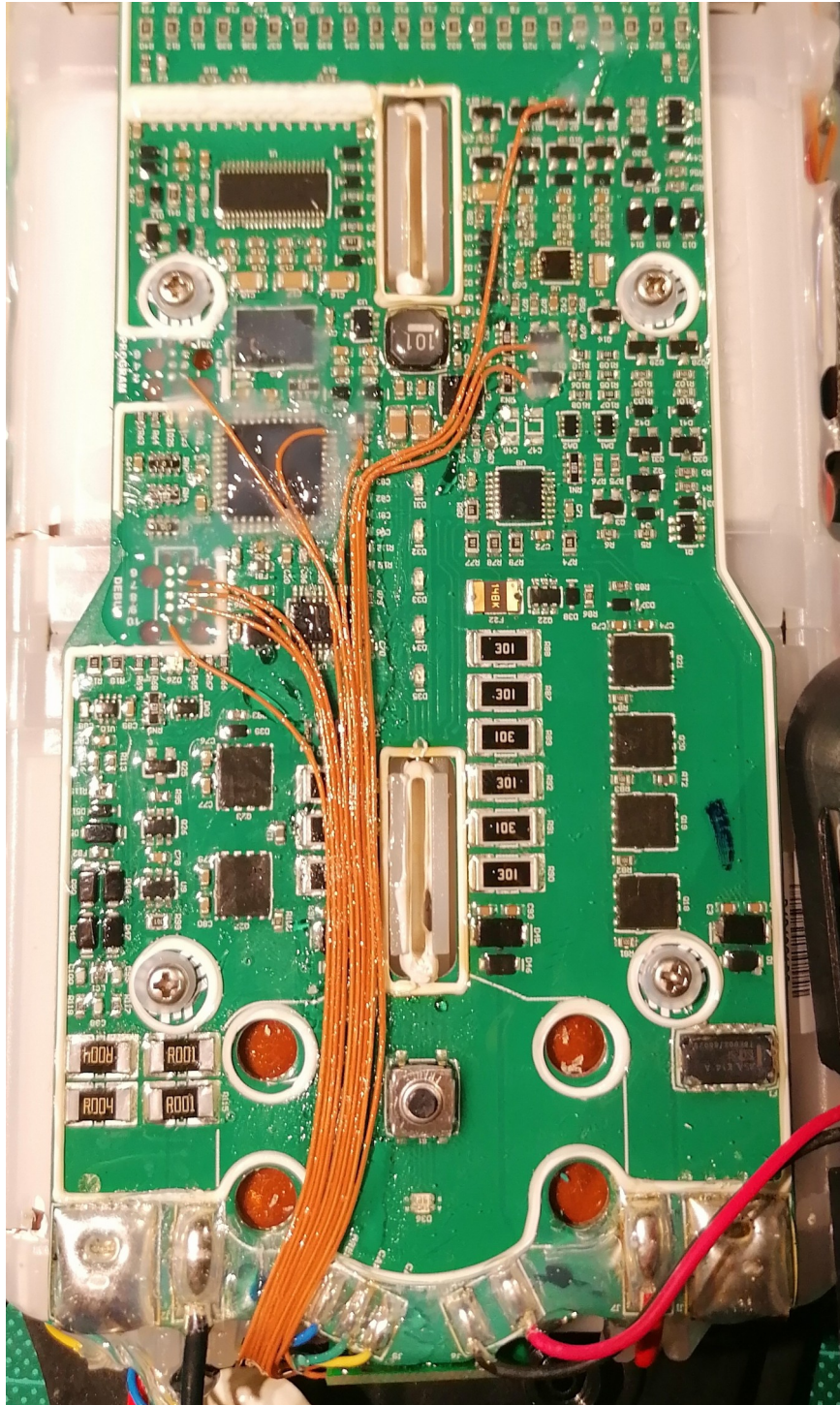
4.6 Tidy and glue wires

Start from the top, add duct tape over the wires so they are nicely bound.
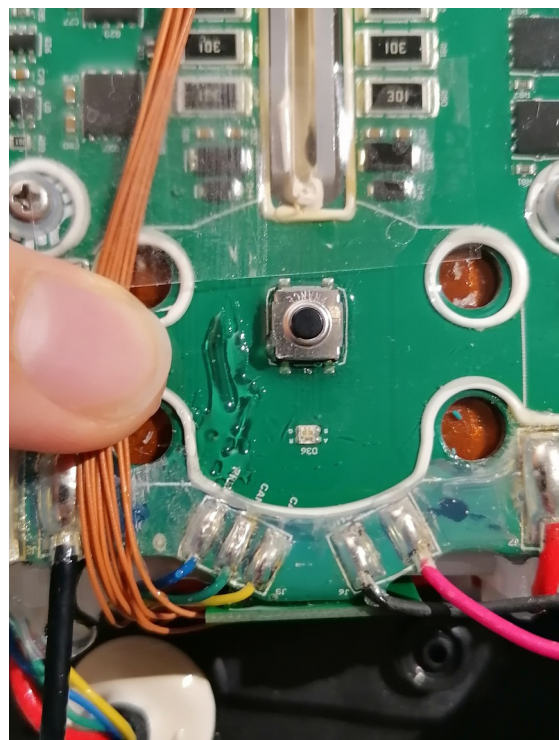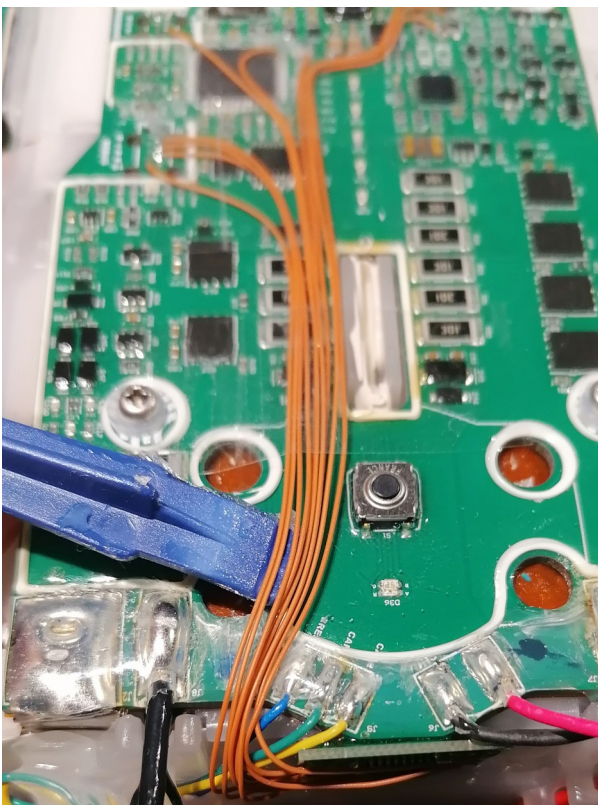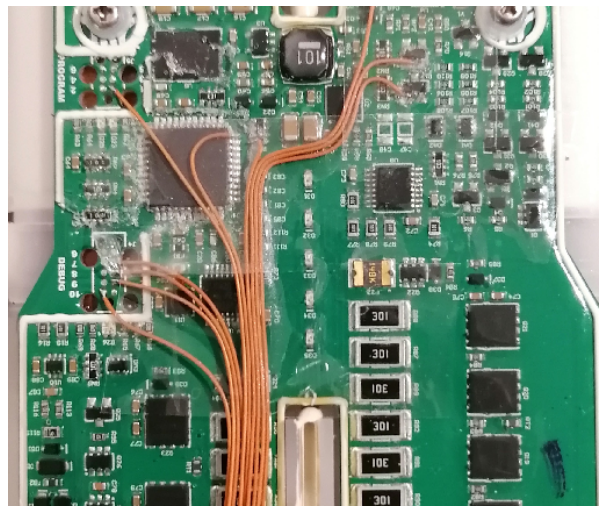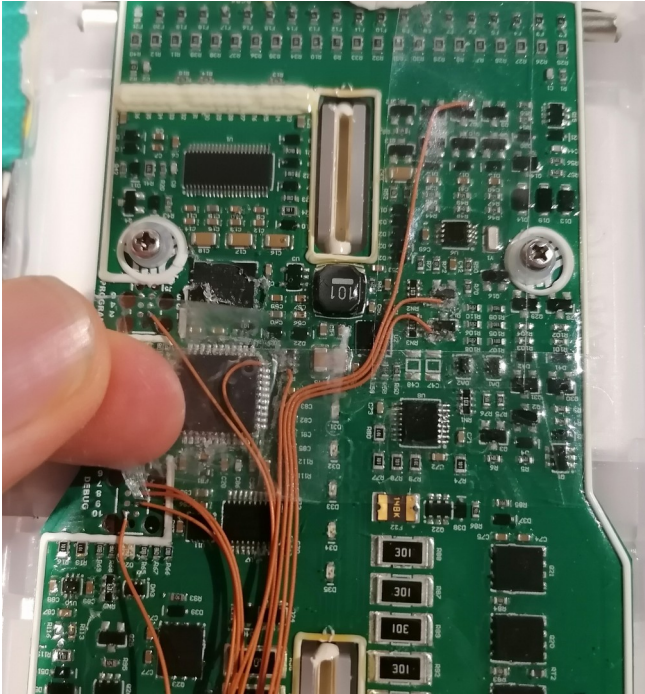
Once tidy, have a look at the expected result below and on the next page. Apply cyanoacrylate glue from the bottom, wait until cured. Re-execute these operations: partially remove duct tape → glue → wait.
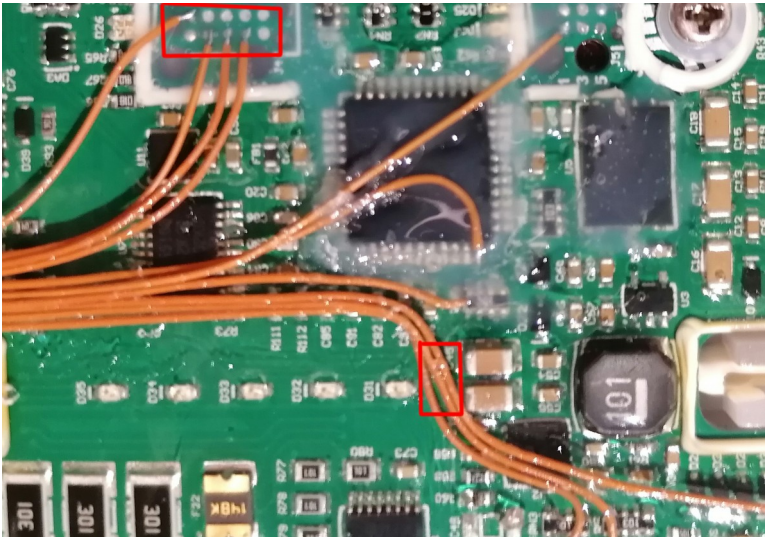
Expected result:

As you can see all the **solder points are covered with electronic grade silicone**. You must do the same!
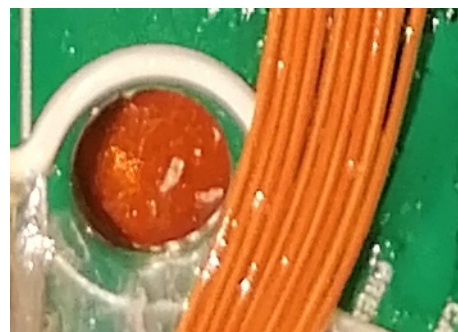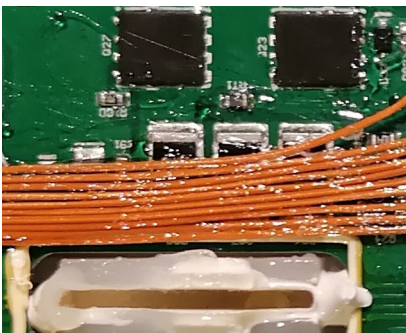
Important:

- Make sure wires are following the path shown on the above image. Pay attention:
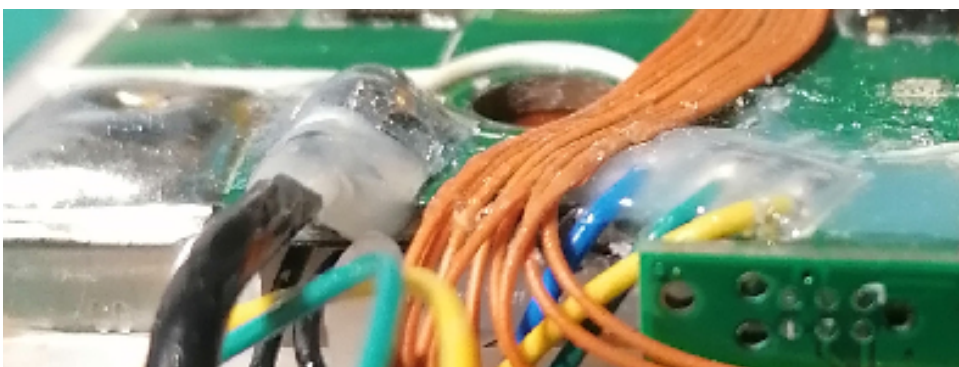
    They Should not overlap the two capacitors (right next to the down most red rectangle)!

    ○ They should not cover Q22 and Q23 and not overlap the hole next to the push button:


    ○ Make sure the wires are located below the left and right neighboring conformal coating:


- After having glued the wires with cyanoacrylate, you must cover them with a really thin Epoxy layer ensuring they won't move in case of shock.

- **Cover all the soldered spots on the B2XR with electronic grade silicone.**

4.6.1 Glue the modchip (once more)

Verify the wires are not covering any components:
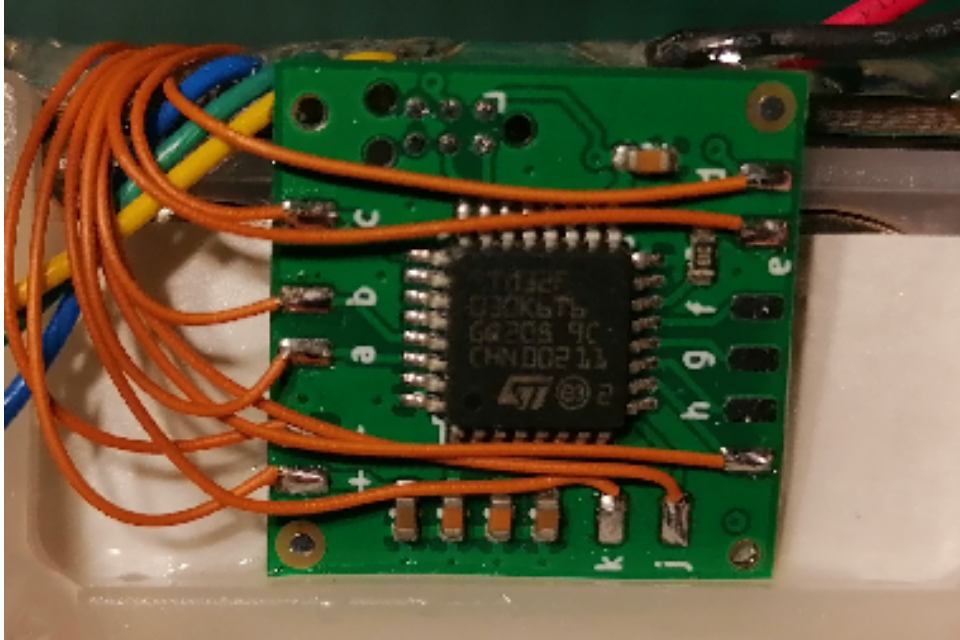
Apply <u>Epoxy</u> glue on the wires, the pads and the components. You must also apply on the legs of the black chip, but **DO NOT APPLY DIRECTLY ON THE BLACK CHIP! : you must avoid extra thickness here.**
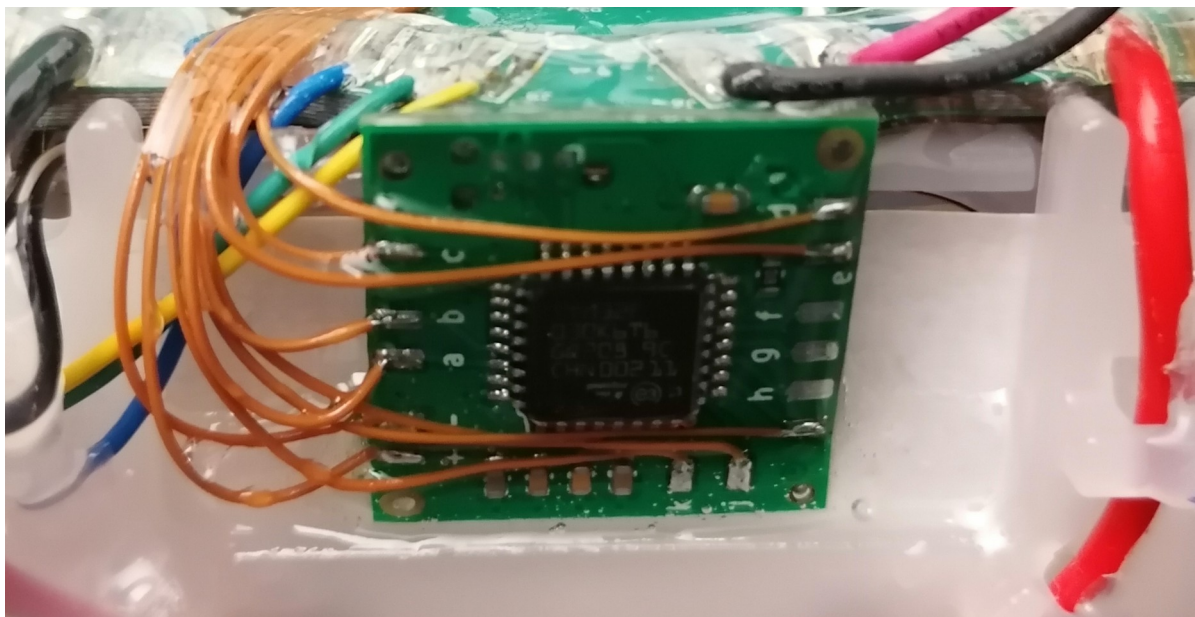
Now add as much epoxy as you want below and on the sides of the modchip making sure it won't move with shocks:
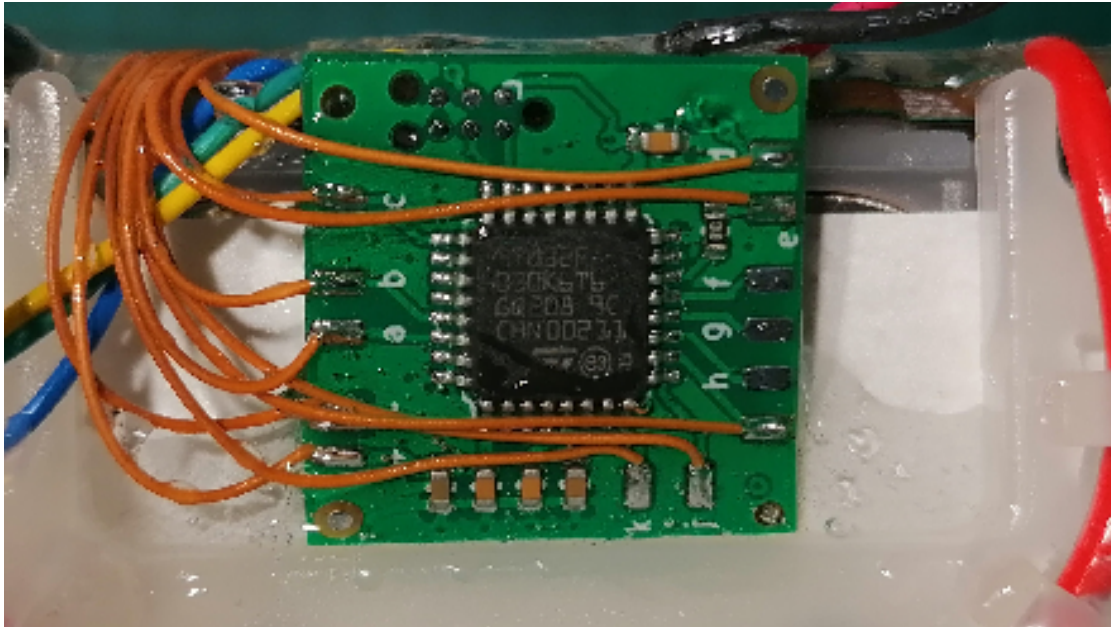
Wait until the glue is cured and close the battery, don't forget to seal it with silicone.

Congrats :-)