Built instructions

1. Parts and tools needed

- Assembled PCB according to the provided Gerber and Part list
- Housing (Mainbody and Cap) according to the provided .stl file
- Sticker according to the provided .png file
- USB-C-PD supply with ability to provide 9V/3A and cable
- Weller RT-tip
- Programming unit:
  - NUCLEO-F072RB
  - FFC 8p 0.5mm adapter: https://www.ebay.com/p/15004023448
  - FFC cable 8p 0.5mm same side contacts: https://www.digikey.in/short/p2vctm
  - USB-Cable (A to B mini), Jumper cables, PC for programming

2. Setup of programming unit

Connections from FFC adapter to NUCLEO-F072RB

FFC-Adapter	NUCLEO-F072RB
PIN 1 – GND	CN10 PIN 9
PIN 2 – SDA STUSB4500	CN10 PIN 5
PIN 3 – SCL STUSB4500	CN10 PIN 3
PIN 4 – TX (38400, 8, 1, N)	to additional serial converter
PIN 5 – RX (38400, 8, 1, N)	to additional serial converter
PIN 6 – SWDIO (ST-Link)	CN4 PIN 4
PIN 7 – SWCLK (ST-Link)	CN4 PIN 2
PIN 8 – VCC to ST-Link	CN4 PIN 1

Program the onboard MCU on the NUCLEO with the latest provided software from ST (STSW-STUSB002). After the chip is programmed disconnect the Jumpers on CN2 to connect the ST-Link to the interface on CN4.

3. Programming the chips

Connect the FFC Cable with same side contacts to the Soldering Pen PCB and power them up with USB-C. If no voltage is set the STUSB4500 negotiate 5V. After connecting and powering up, open the STUSB4500 GUI and open the provided "Config file for STUSB4500" and load it into the NVM. After reset the controller should negotiate 9V with the maximum provided current.

Then open a programming tool for STM32 eg. STM32 ST-LINK Utility, load the provided RTPD-SW .hex file and program it into the STM32. After a reset the orange LED should blink and the button near the USB-C should change the LED (temperature profile). The other button does only work (starts and stops the heating) when a RT-tip is connected.
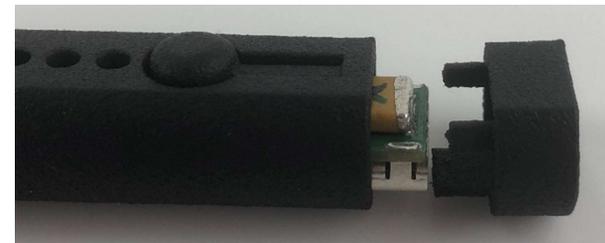
4. Preparing the housing

Use a small electronic cutter to separate the Cap from the Mainbody. Than use a small flat screwdriver to "cut" the remaining holders by pushing them inside.
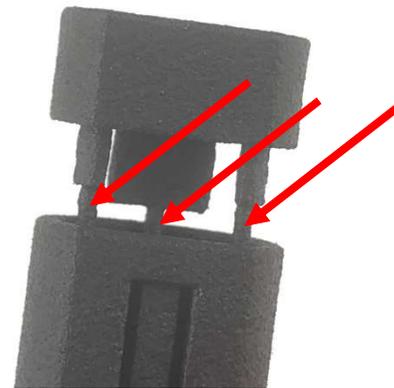
5. Insert PCB

Insert the PCB according to the picture. Buttons and LED faced to the Flat side. Than close the cap.

6. Placement of the Sticker

Print the Sticker on a Label-printer of normal Printer on a strong adhesive paper/label. Cut it and place it according to the photos.
Make sure that the PCB is full functional before, because the sticker holds the cap in place.

Connect power supply and RT-tip and you're ready to solder!