How to assemble the fluorometer step by step

Parts needed (BOM – Bill Of Materials)

Components

- Lasercut part set
- NodeMCU → Aliexpress 3.20 $
- Light sensor TSL2561 → Aliexpress 1.20 $
- 56 Ohm resistor
- LED B-470-513/C
- Pass filter: 515FCS → Knight Optical
- Jumpers 6x → Aliexpress 1 $
- Screws M2.5 x 1.6mm & nuts + washers(gasket)

Tools

- Tape
- (Optional) Glass cutter
- (Optional) Soldering iron & tin

Sampling spot assembly

1) Build the sensor holder
Cut a filter pass rectangle a little bit bigger of its hole (4.5x6 mm). Recommended (5x9 mm).
On piece 4, insert 2 screws in the round holes, and insert two washers(gasket?) on the other sides. Insert the sensor module on the screws with the sensor facing the rectangular hole. Stabilise it with the nuts. Tape the filter pass on the other side of the rectangular hole, so that it filters all the incoming light.
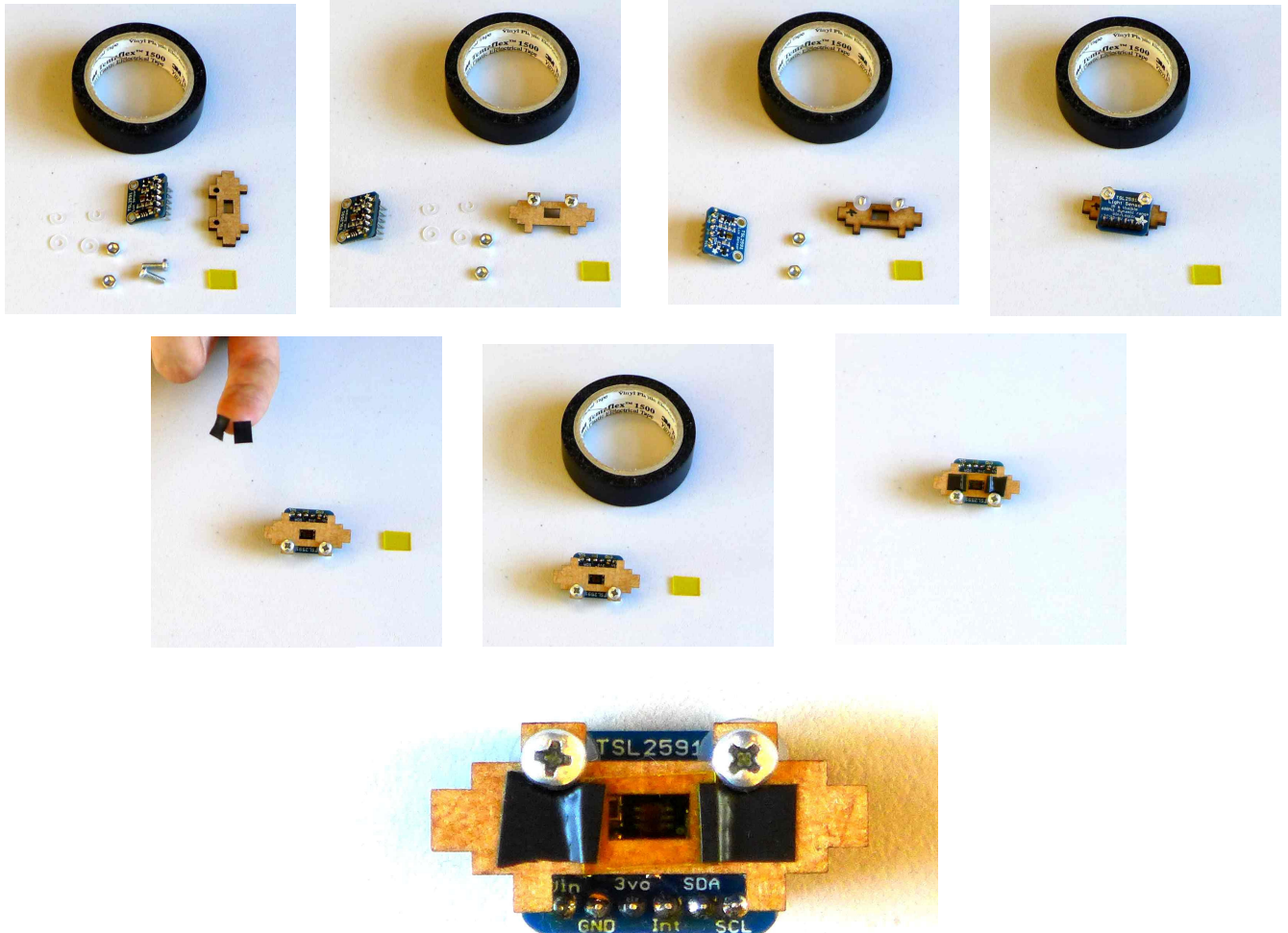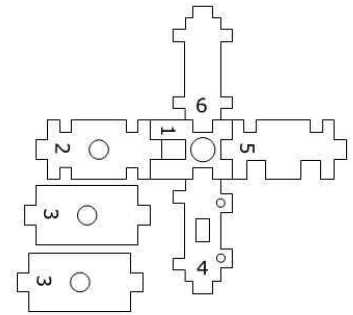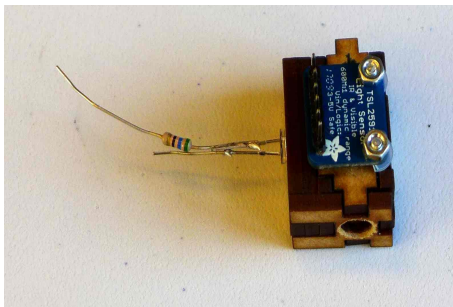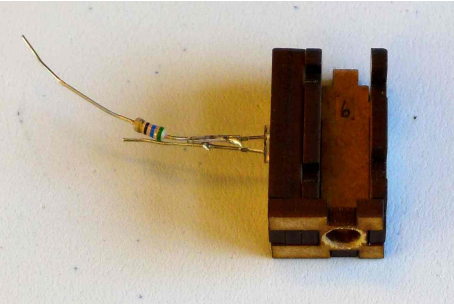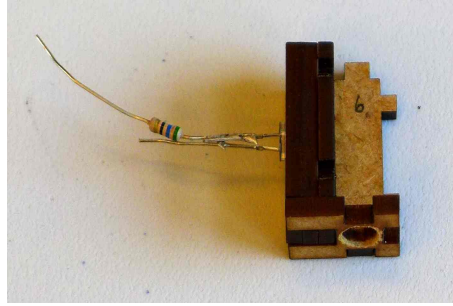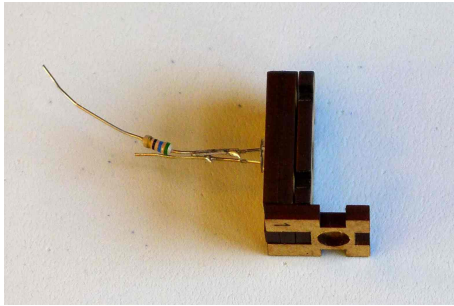

2) Build the LED's holder.
Solder the 56 Ohm resistor to one pin of the LED, or wrap firmly one pin of the LED and one pin of the resistor. For this application it doesn't matter which pin is picked. Then insert the LED's head into pieces
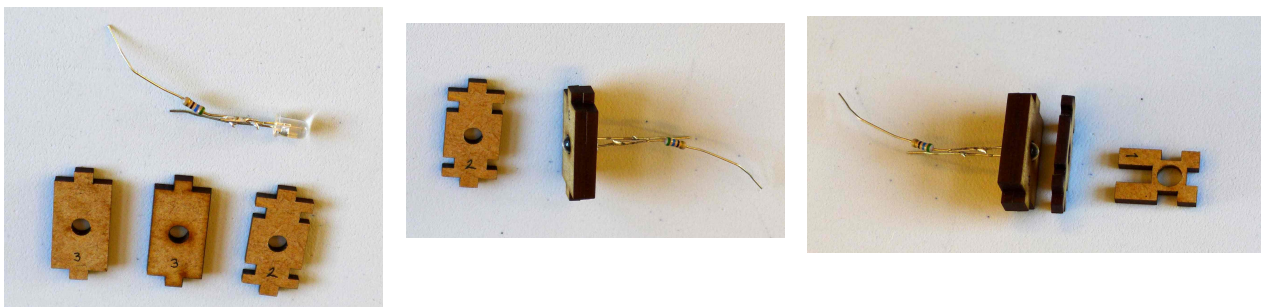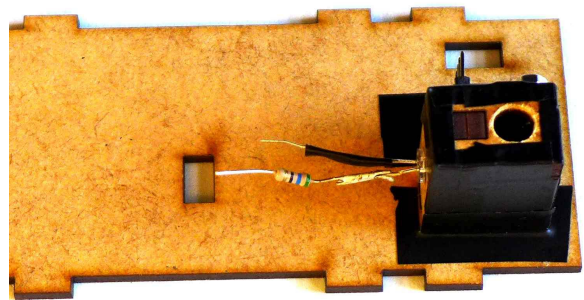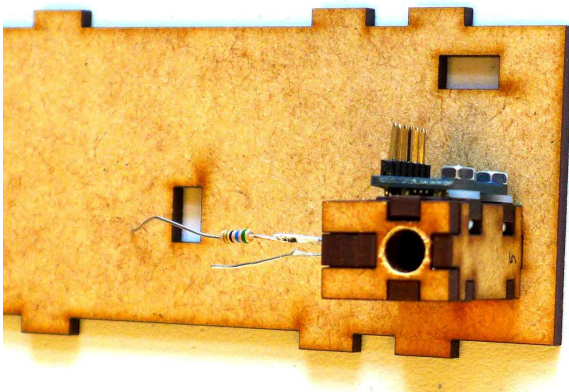
3) Assemble the small case of the sapling spot. Note which is the + / - poles of the LED


x)
Insert the sampling spot in piece 7. Make sure that the pins of LED and sensor point to a hole through the board, to comfortably reach the NodeMCU on the other side.
Then tape the mini case tightly, to be really solid

6) Electronics assembly
Connect the jumpers and let the wires run through the holes in piece 7.
It is recommended to couple the jumpers with the hole their pin is pointing at.
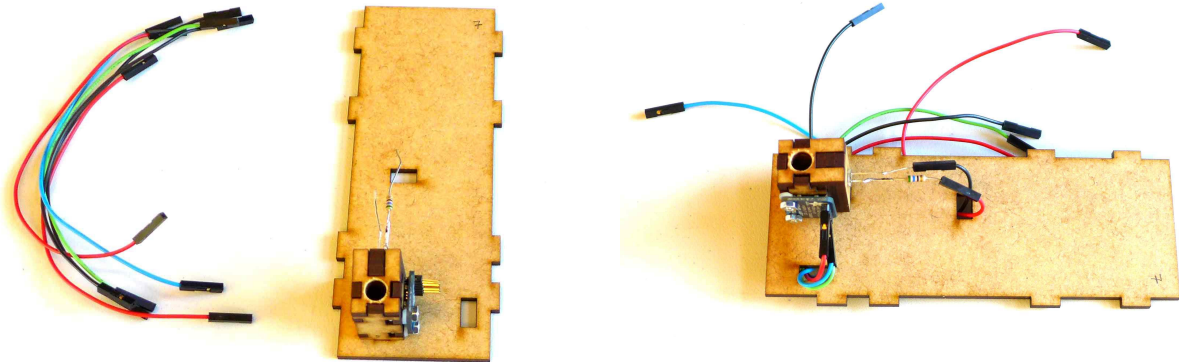
x) Connecting the sensor and the LED to the MCU (MicroController Unit)

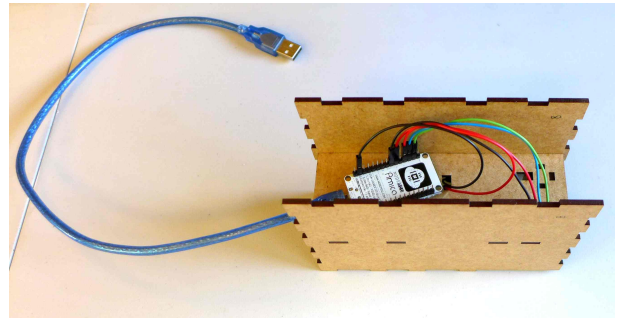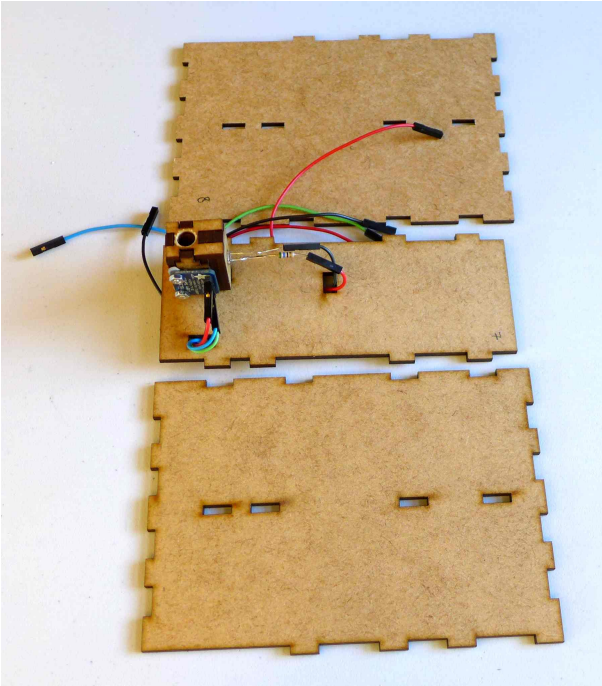| NodeMCU	Sensor	LED
3.3v	Vin	
GND	GND	
Not connected	3vo	
Not connected	int	
D2	SDA	
D1	SCL	
D3		+ pole
GND		- pole
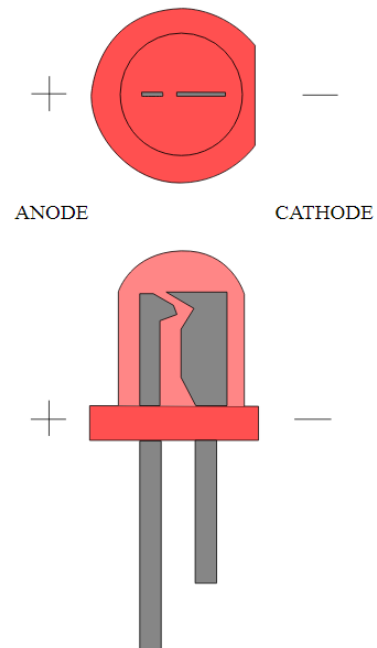
By w:en:user:Adam850 (w:en:Image:Led2.PNG) [Public domain], via Wikimedia Commons
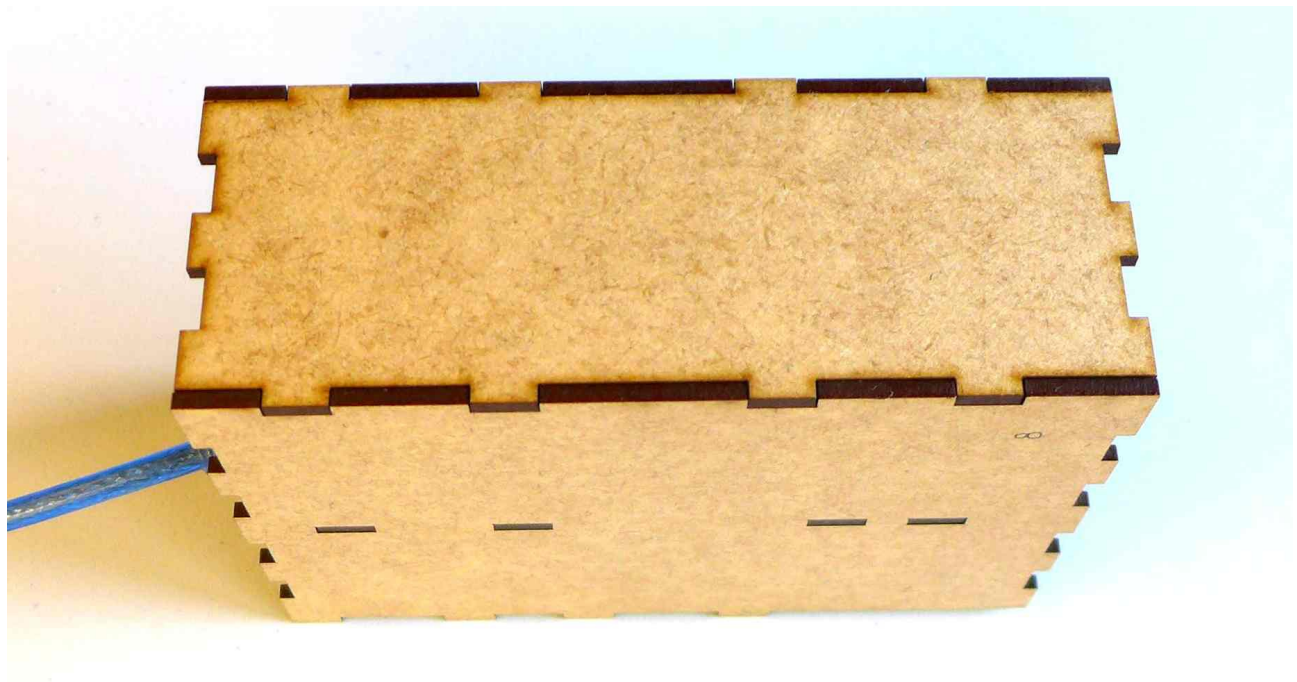
Case assembly

7)
Add the 2 pieces 8 on each side. The board with the sensor is the middle layer.
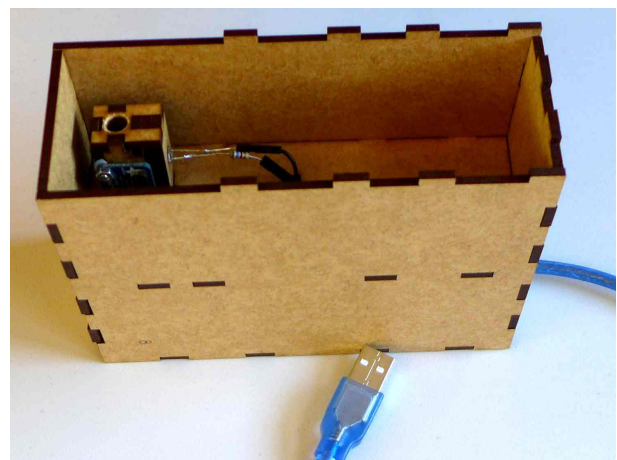

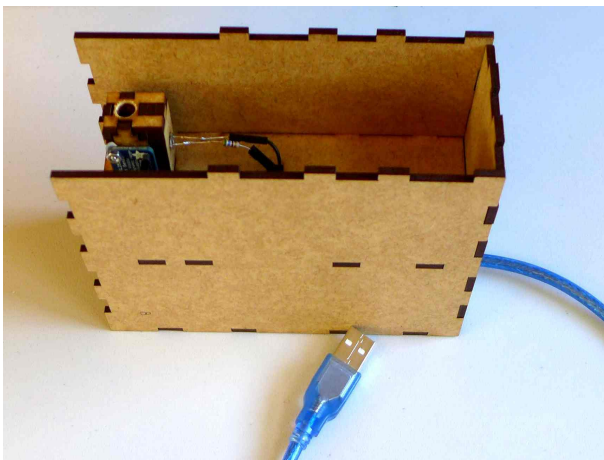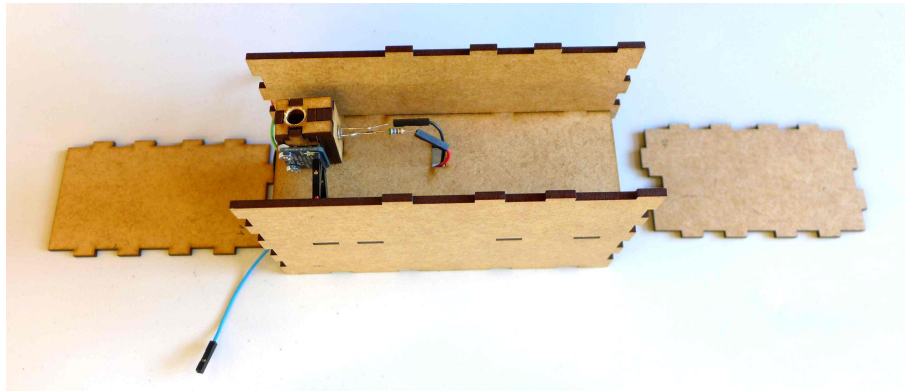9)
Close the bottom, which is piece 9

10)

Close the sides, which are piece 10 and 11.

Piece 10 has to be assembled with the hole for the power supply cable on the lower side.

Piece 11 has one flat side, which is the top side.

x)

Paint black one side of the piece 12b. That side will be the internal face of the lid, Having it black will help reduce the noise of the light in jthe box. Align piece 12a and 12b on the flat side. Tape them together to make a lid that flips. Tape them together to make a lid that can be flipped open.
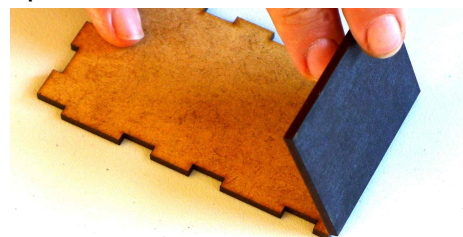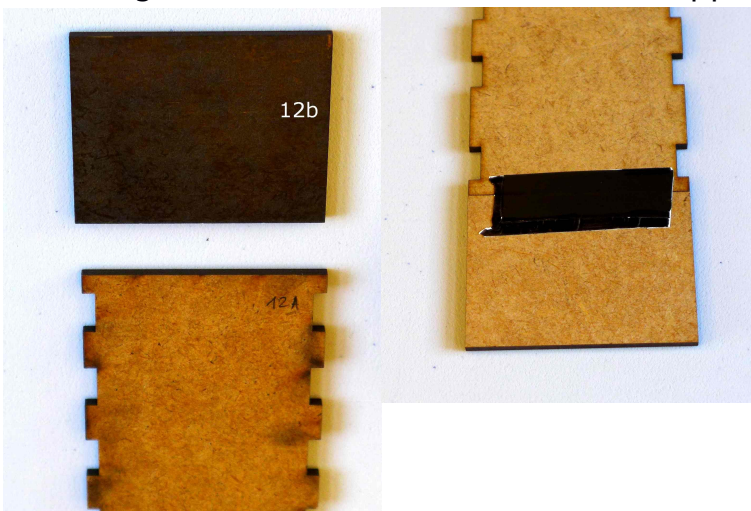
x) Finishing
Put the lid on top and you are finished.
Now you are ready for testing