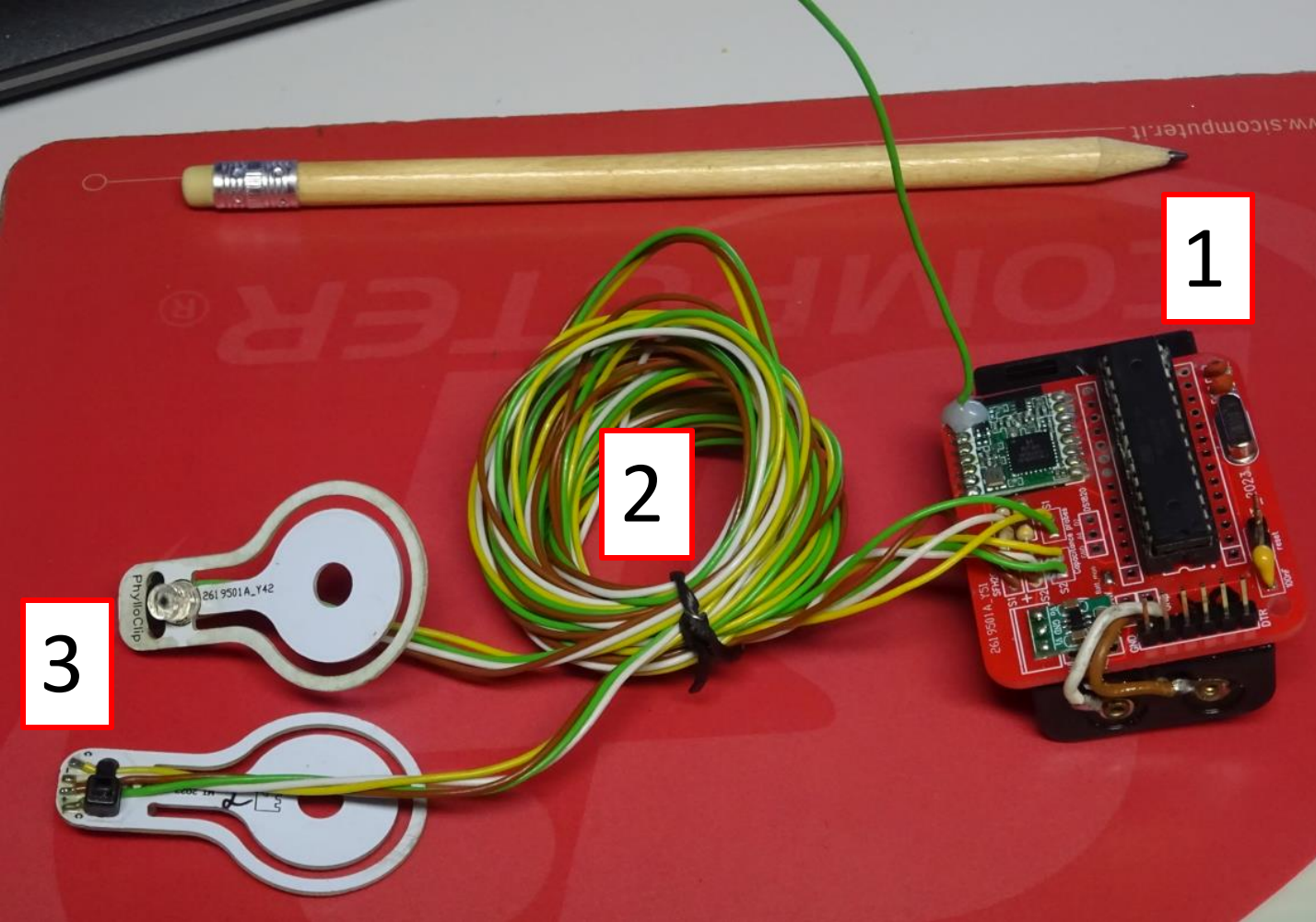


# FylloClip

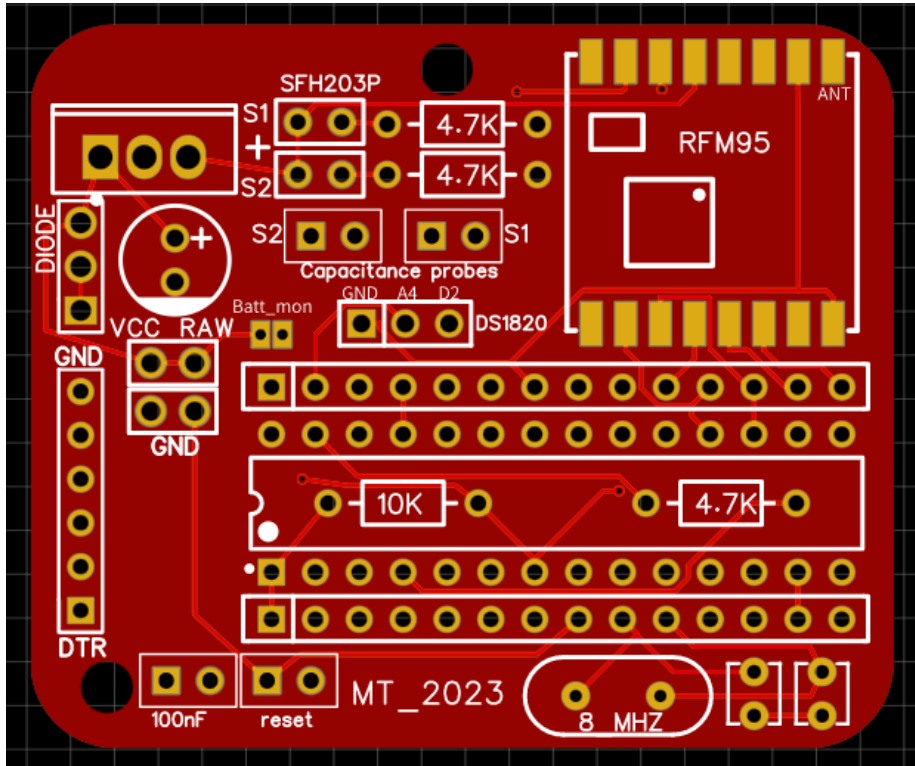
## hardware overview

# the main components



1. circuit board with microcontroller, radio module and battery holder at the back
2. connecting wires
3. foliar sensors

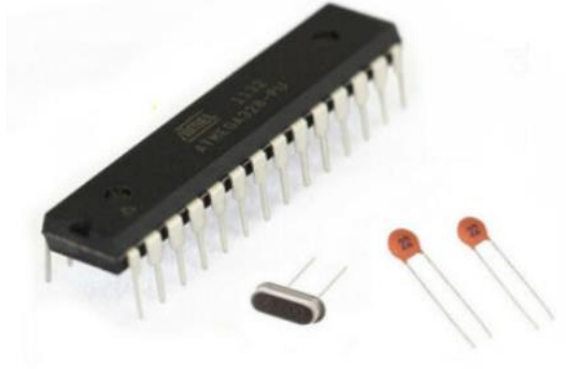
# The printed circuit board (PCB)



It holds and connects the various electronic parts of the system:

- voltage regulator
- the ATMEGA328P-PU microcontroller
- the RFM95 LoRa module
- a few other peripheral components (crystal, resistors, capacitors, connectors, antenna...

# The main components of the circuit board



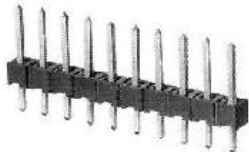
Atmega328P-PU with 8 Mhz crystal and 2 capacitors (22pF)



RFM95w LoRa module (868 Mhz Europe, 915 Mhz Australia)



Voltage regulator (boost DC-DC converter)

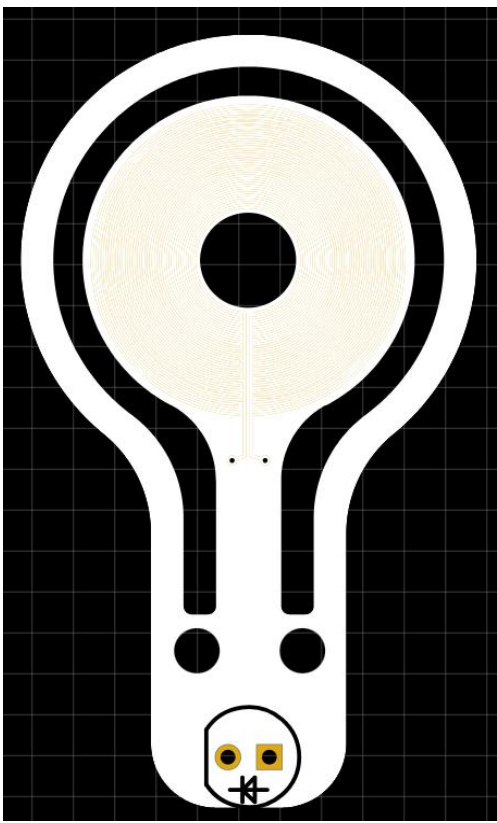


a few resistors, capacitors, connectors

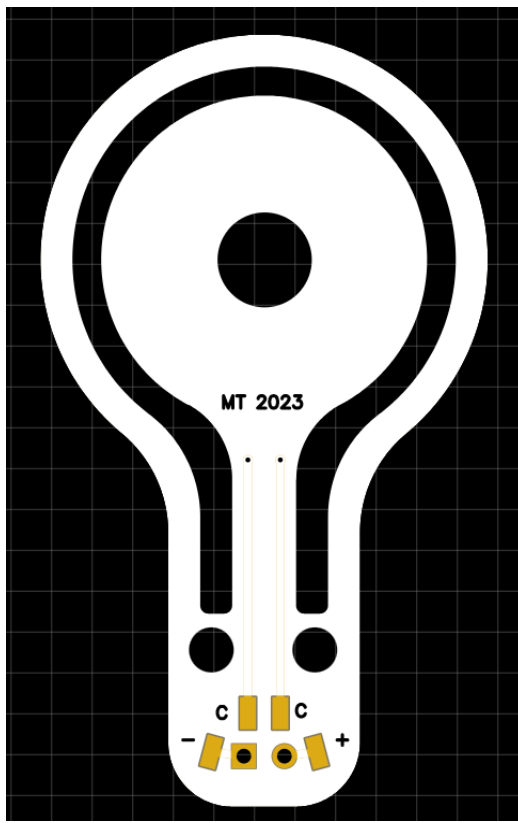
# The foliar sensor

PCB with concentric copper traces acting as planar capacitor

This part can easily be designed and manufactured in different sizes or shapes



top



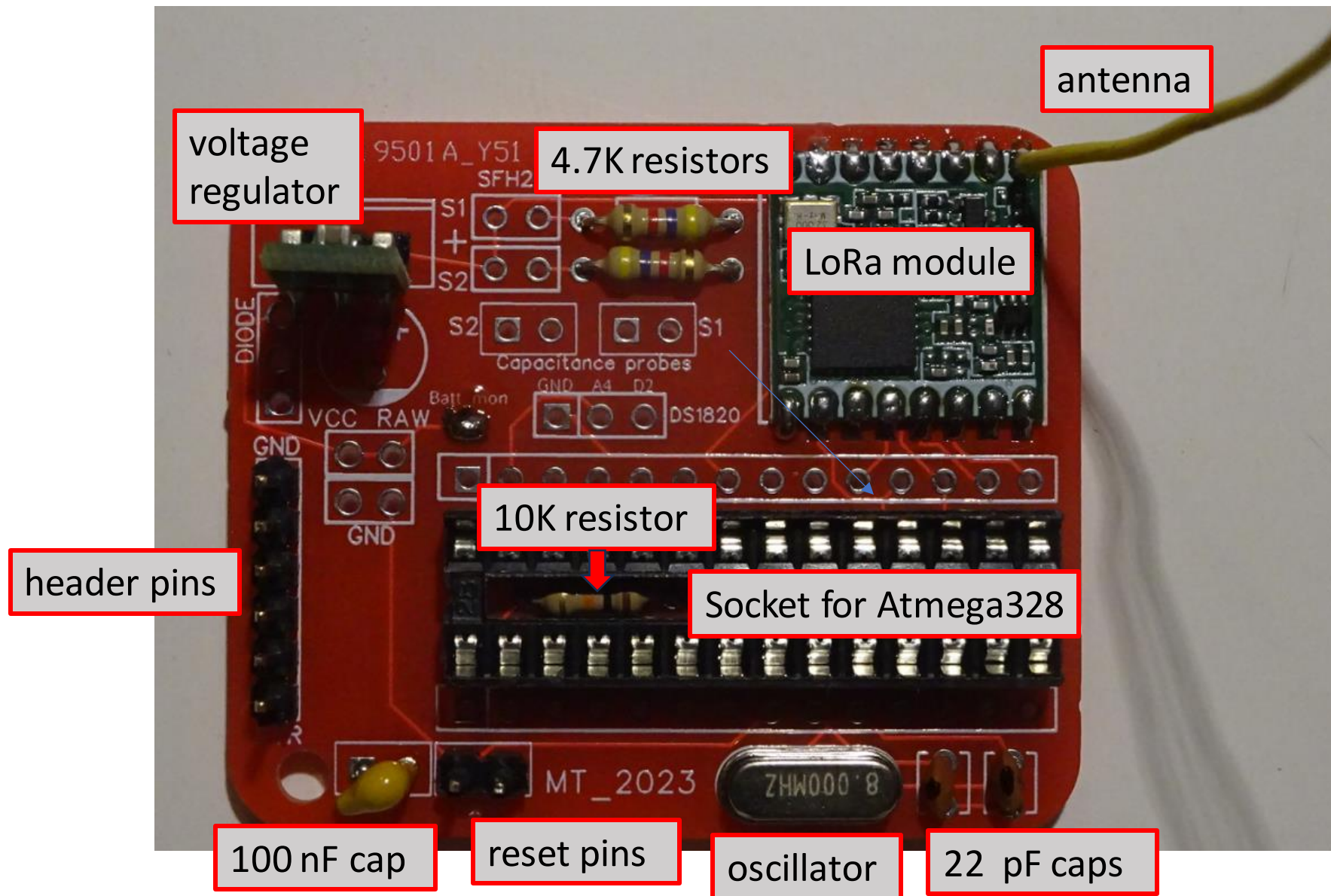
bottom



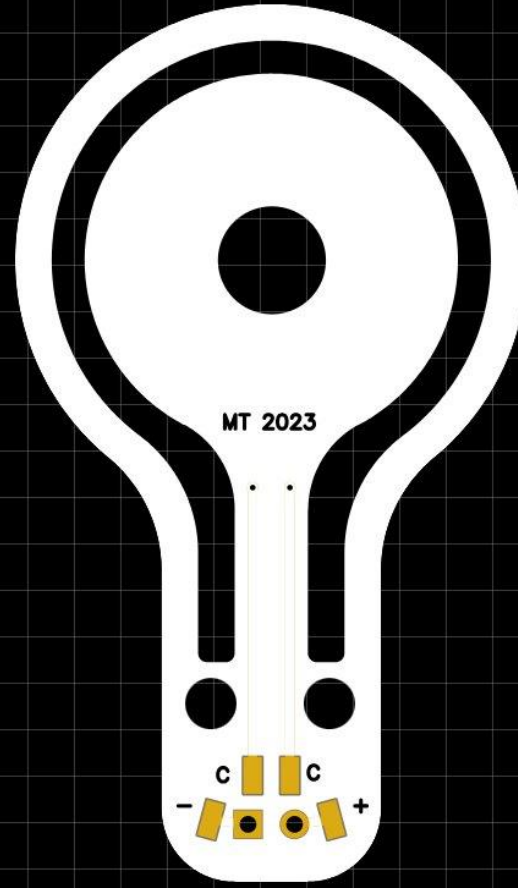
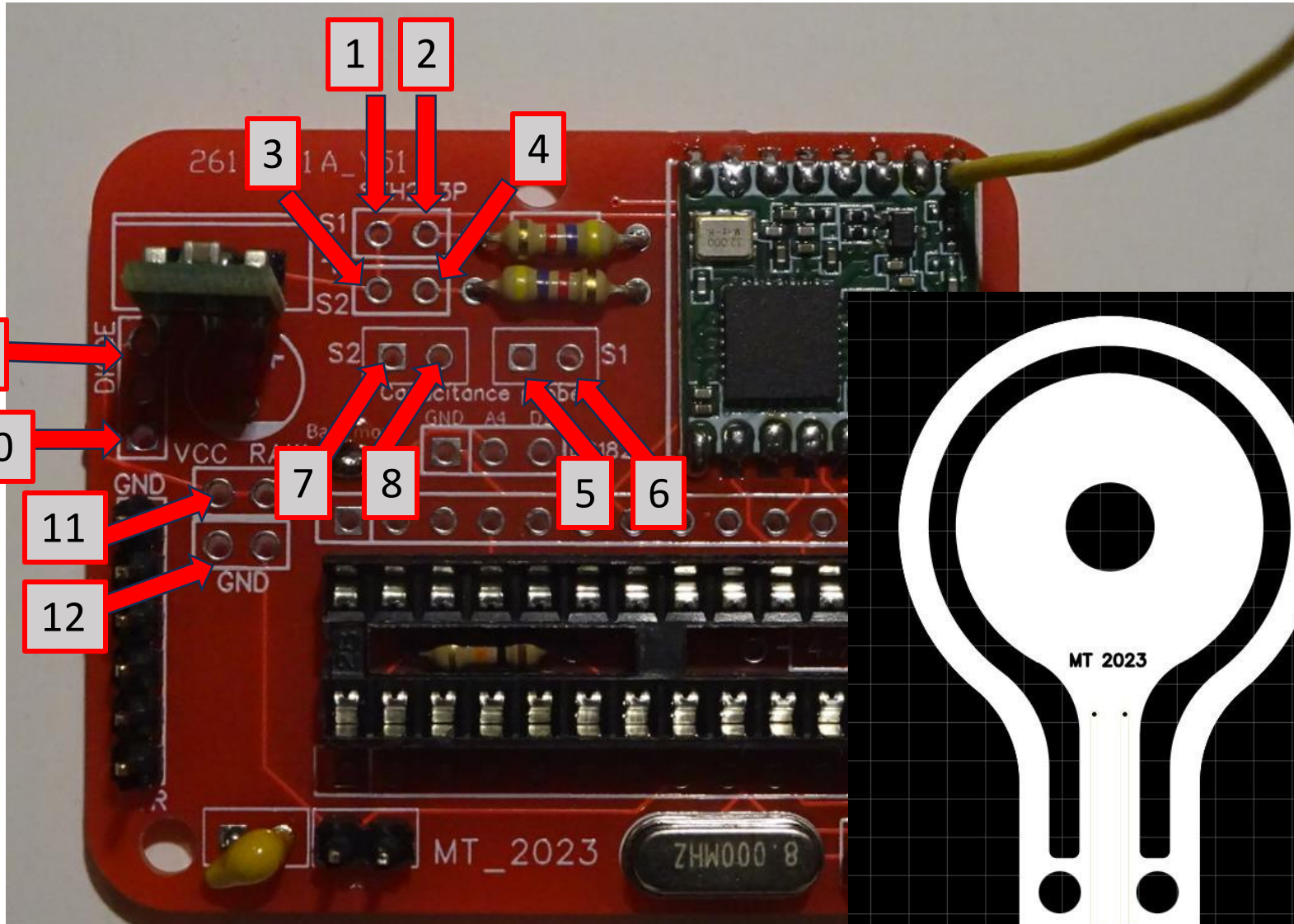
SFH203P photodiode acting as light sensor

component	link
photodiode	<a href="https://www.reichelt.com">https://www.reichelt.com</a>
microcontroller atmega328 with bootloader for Arduino Pro Mini 3.3V	<a href="https://www.reichelt.com">https://www.reichelt.com</a> (you need to burn the bootloader onto the chip by yourself)
battery holder	<a href="https://www.reichelt.com">https://www.reichelt.com</a>
Crystal 8 Mhz	<a href="https://www.reichelt.com">https://www.reichelt.com</a>
LoRa module RFM95w	<a href="https://www.soselectronic.com">https://www.soselectronic.com</a>
Socket for microcontroller	<a href="https://www.reichelt.com">https://www.reichelt.com</a>
Male header pins	<a href="https://www.reichelt.com">https://www.reichelt.com</a>
Female header pins	<a href="https://www.reichelt.com/it/de/buchsenleiste-2-54mm-1x20-trennbar-verzinnt-fis-bl1-20-z-p283794.html?&amp;trstct=pol_1&amp;nbc=1">https://www.reichelt.com/it/de/buchsenleiste-2-54mm-1x20-trennbar-verzinnt-fis-bl1-20-z-p283794.html?&amp;trstct=pol_1&amp;nbc=1</a> (only in case you want to use female headers for the serial port)
Resistor 4.7K	<a href="https://www.reichelt.com">https://www.reichelt.com</a>
Resistor 10K	<a href="https://www.reichelt.com">https://www.reichelt.com</a>
Capacitor 100nF	<a href="https://www.reichelt.com">https://www.reichelt.com</a>
Capacitor 22pF	<a href="https://www.reichelt.com">https://www.reichelt.com</a>
Step-up voltage regulator	<a href="https://www.aliexpress.com">https://www.aliexpress.com</a>





# Wiring connections



1	Sensor 1, +
2	Sensor 1, -
3	Sensor 2, +
4	Sensor 2, -
5	Sensor 1, C
6	Sensor 1, C
7	Sensor 2, C
8	Sensor 2, C
9	optional safety diode
10	VCC (battery) in case of safety diode (2-5V)
11	GND
12	VCC (battery) in case of no safety diode (2-5V)



# Wiring diagram

