

# PogodaAI weather station electronics guide

Author: Kamil Gruszczyński  
Team: Krasiniak TechWorks

Tools and equipment needed for assembly:

- ~1m 24AWG power cables (red and black)
- one set of jumper wires (male-male) or (male-female)<sup>1</sup>
- All of the sensors and other components stated in BOM
- Two M3 screws for wood/plastic
- Philips screwdriver
- ~5cm of velcro
- Hot glue
- Soldering iron, short solid wire cables, male headers, double sided universal board - only if you are making DIY PCB

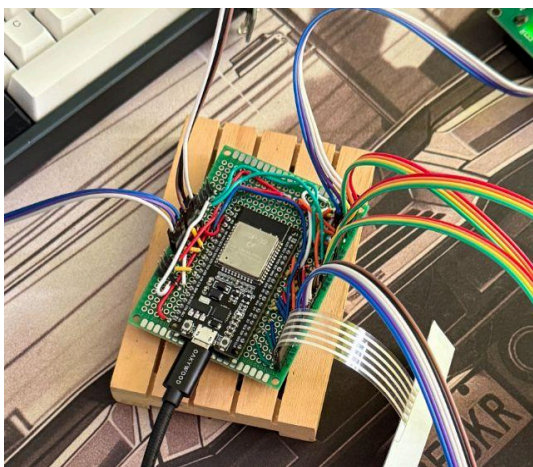
The whole weather station assembly guide is in the same directory. Look for: *PogodaAI assembly guide*

Electronics diagram can be found under *circuit\_image.png*.

Note: If you want to make a more clear project it is recommended to solder your own DIY PCB. In that case you should solder the ESP32 board directly to the universal board. Remain even spacing from all sides of the board. The project will work the best if you make male headers for jumper cables with spacing of one free hole. Always try to route ground wires away from the PCB antenna on MCU board. We recommend:

- One 6-pin header for SD card reader
- Five 4-pin headers for all I2C devices (Caution! Check for SDA and SCL order. May differ between modules)
- One 4-pin header for UART communication with PMSA003 sensor
- Three 3-pin headers for raindrop/light/wind speed sensors
- One 5-pin header for keypad

You can also add a PCB switch before VCC connection with MCU.



Example PCB

---

<sup>1</sup> male-male wires in case of making DIY 2 sided PCB, male-female in case of connecting sensors straight to MCU

## Pinout

Pinout that has been used in our code is specified below:

Keypad

| | | | |  
2 15 nc 4 gnd

All I2C devices:

SDA - 21

SCL - 22

For PMSA003:

PMS RX - 17

PMS TX - 16

For SD card reader:

CS - 5

Miso - 23

Mosi - 19

SCK - 18

Raindrop sensor:

Signal - 33 (Analog)

Light sensor:

Signal - 32 (Analog)

Anemometer:

Signal - 27 (Digital)

All of them can be changed to your liking. Remember to use accessible pins and only those which are capable of carrying the signal going through them.

The latest release code along with tester can be found in the */code* folder.

!!! Always check for reversed VCC and GND pins !!!

## Assembly tips

Most of the assembly is straightforward and doesn't require professional knowledge and experience. Some tips for the build:

- The LCD display should be mounted with four M3 bolts on the front plate of the main housing. Use 1-2 washers to distance the screen from 3D print (some pins are slightly higher than the PCB itself) *Photo 1*
- The 4-digit keypad can be mounted on the housing with tape on the back of the keypad. *Photo 1*
- The SD card reader should be mounted with two M2 bolts on the back of the module. It can be glued in as well.
- PMSA003 should be glued on the side of environmental sensors' housing with the fan facing outside of the frame. BME680 should be glued on any side of the same housing with the sensor just having any airflow. *Photo 2*
- For the gap sensor of an anemometer there isn't any pre-cut hole, because those modules can vary in size. You can glue yours to the side of the housing (making sure it works for rotation) or drill M3 holes for screws with washers. Both solutions are reliable and will work perfectly. *Photo 3*
- A light sensor is mounted on the top cover. It is recommended to use longer cables for this sensor. *Photo 4*
- Li-pol batteries can be mounted with velcro in any part of the build. *Photo 5*
- We recommend screwing in the PCB with at least 2 screws so it doesn't interfere with moving parts.

*Photo 1*



*Photo 2*





Photo 3

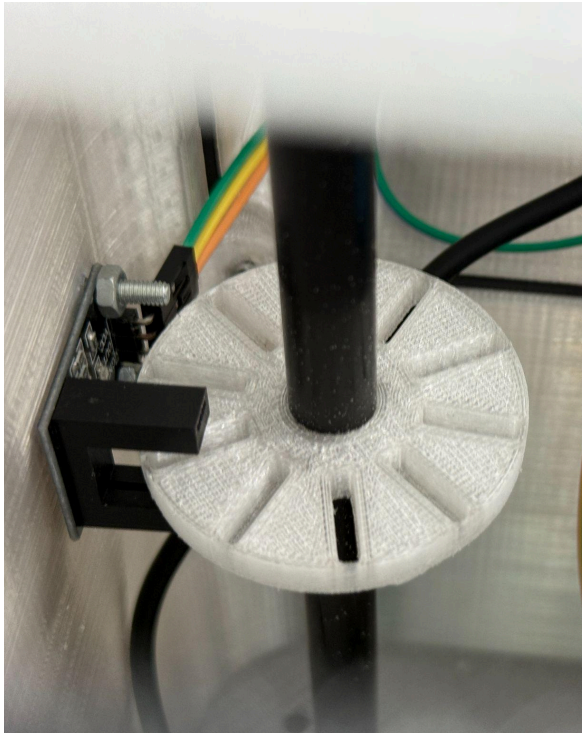


Photo 4

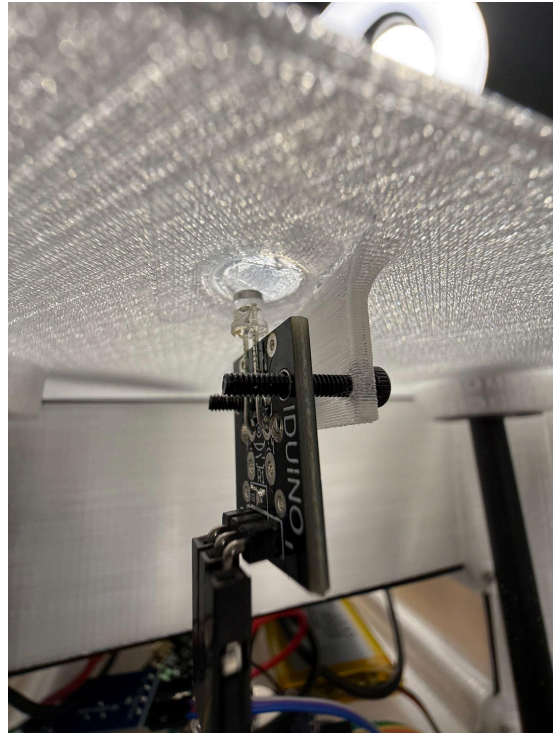
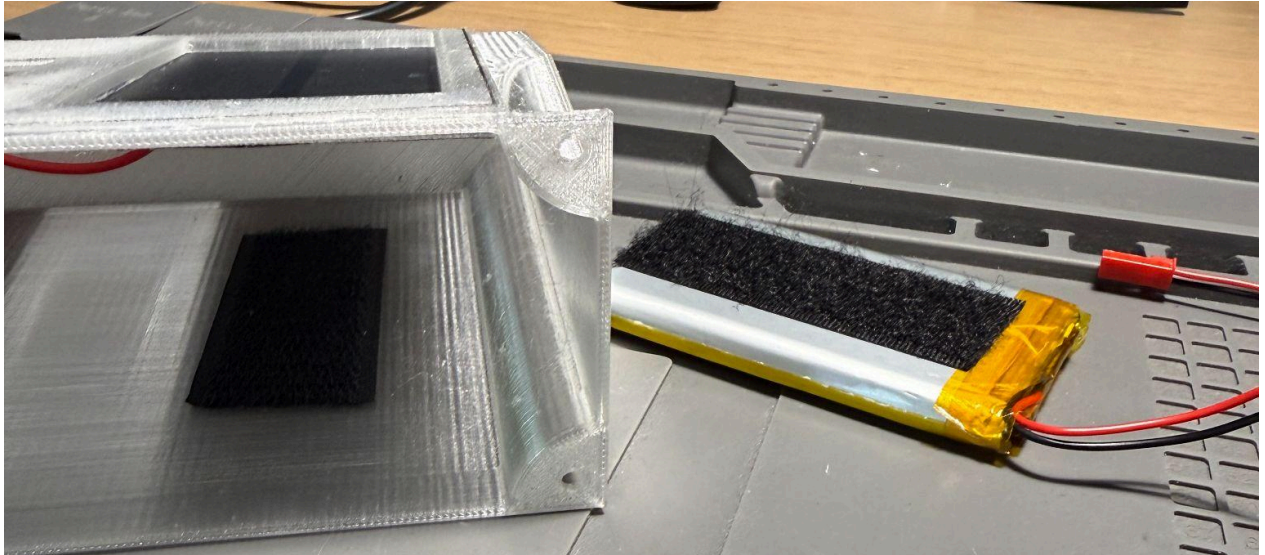
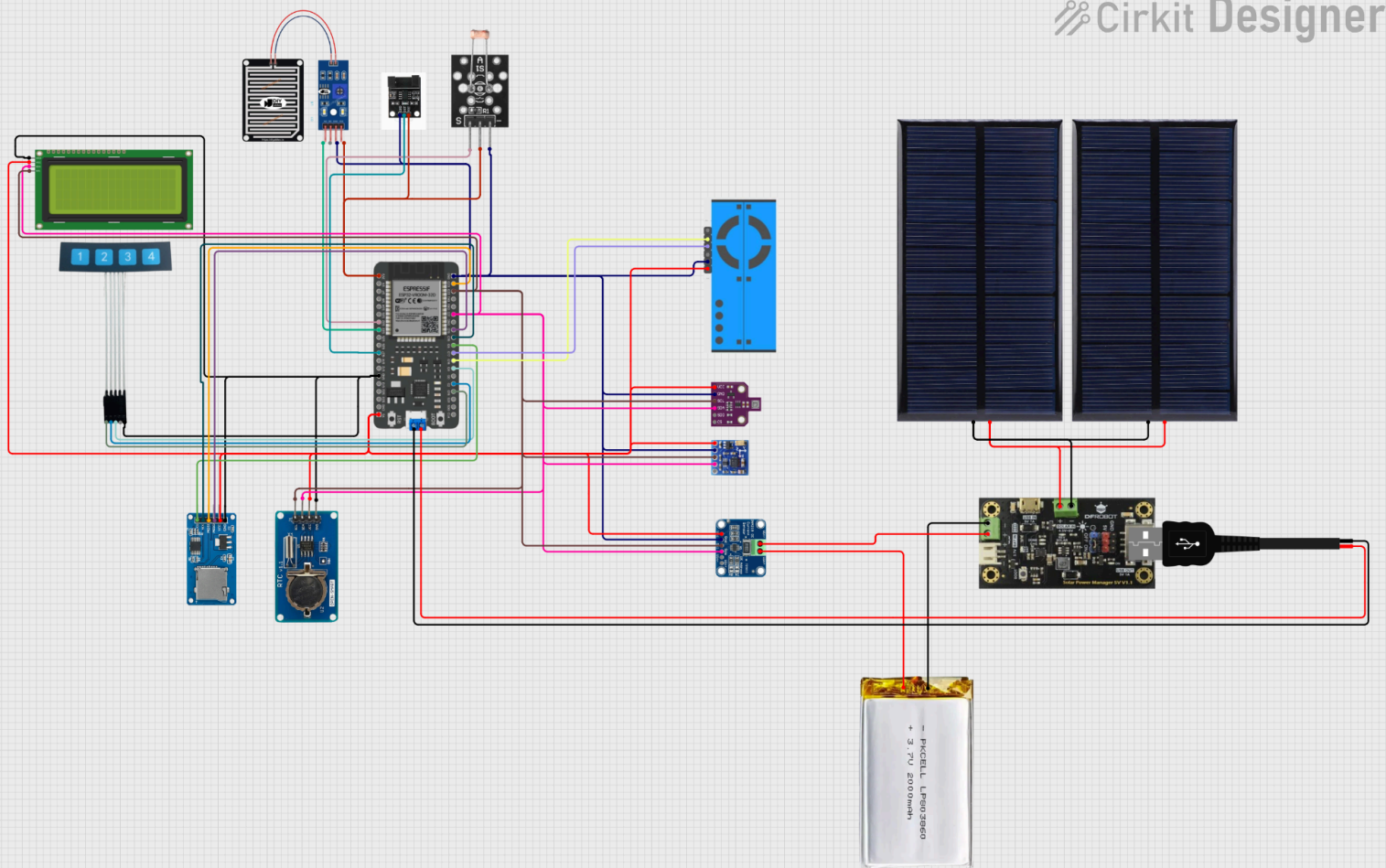


Photo 5



## Circuit diagram



Made by: Kamil Gruszczyński  
Designed in: Cirkuit Designer