Mood Barometer

Clone the following repository to your laptop

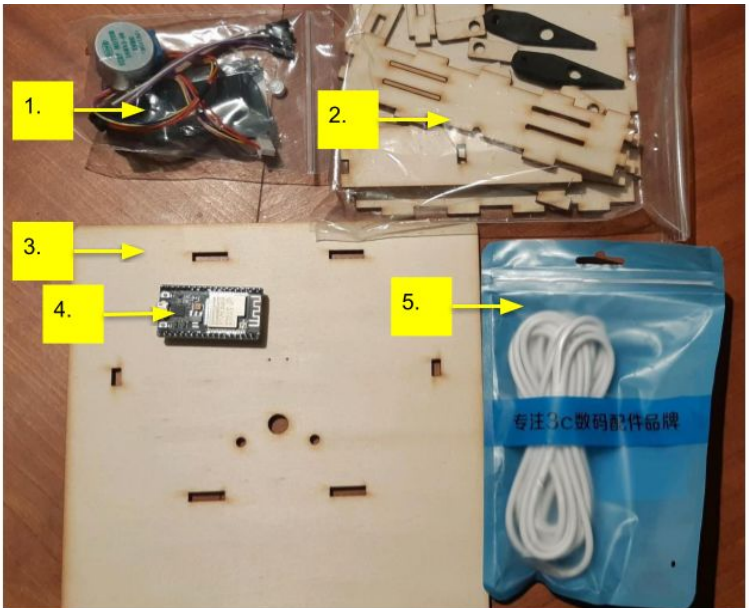
https://github.com/neilspink/mood-barometer

Arduino should be installed. Board manager should be set to “ESP32 Dev Board”. Get setup help here

https://github.com/espressif/arduino-esp32/blob/master/docs/arduino-ide/boards_manager.md

You should have the following gear.

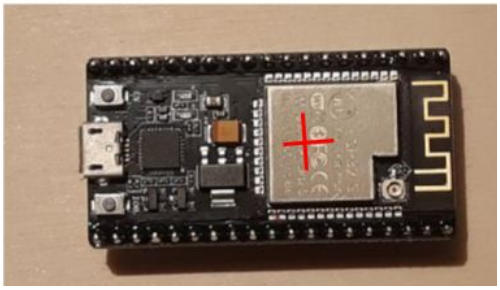
1. Bag containing:
    - ❏ Stepper motor.
    - ❏ Stepper controller.
    - ❏ 6 jumper cables.
    - ❏ Neodym.
2. Bag containing:
    - ❏ 2 Black Arms.
    - ❏ Back of case.
3. Clock face.
4. ESP32.
5. USB Cable.



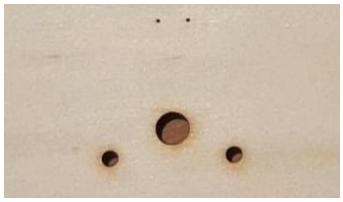
1. Mount the housing on the back.

Do not glue the back housing yet, just mount it in position so you can then place the USB cable, ESP32, stepper motor and controller.

2. Position the ESP32 on the clock face and glue in place.
The ESP32 can detect magnetic fields using an onboard “hall sensor”.



The red X needs to be placed between the 2 dots on the clock face.



A test program is provided in the directory /setup/hall-test

Compile and load the program on the ESP32, it will make the blue onboard led blink.

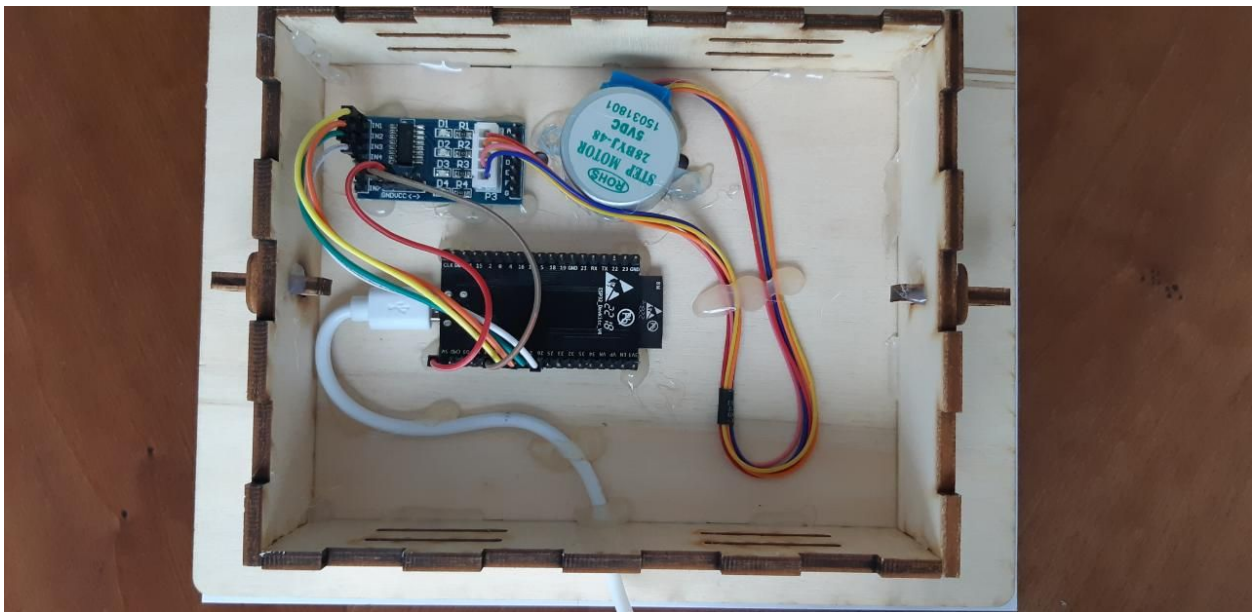
IMPORTANT: The Neodym magnet has a positive and negative side. The positive is more powerful.

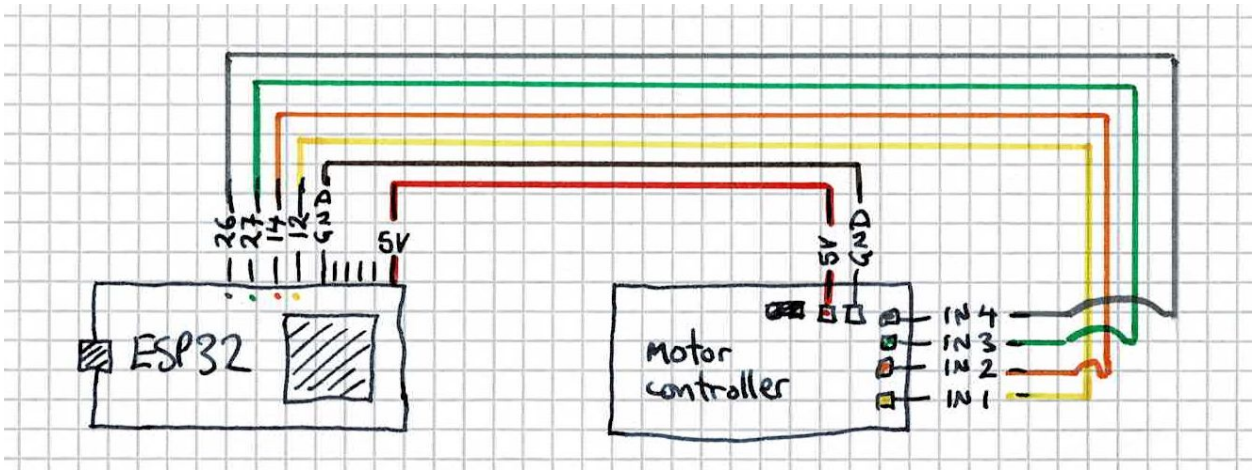
Place the magnet on the ESP32 and check the Serial Monitor in the Arduino IDE, it should show a sensor signal strength showing + or -.

Pritt-stick or sellotape the magnet to the clock face, between the 2 dots.

Now place the ESP32 on the other side, mark the position with the best signal strength. Use the glue gun to fix the ESP32 onto the clock face board.

3. Glue in stepper motor, controller and wire-up





Jumper cable:

5V to 5V	26 to IN 4	14 to IN 2
GND to GND	27 to IN 3	12 to IN 1

Mount the neodym magnet into one of the black arms using a little glue of choice, and, use Pritt-stick to mount onto the stepper motor spindle making sure the powerful side of the magnet is closest to the ESP32.

4. Setup the mood barometer

In the Arduino IDE prepare the main program mood-barometer.ino

- ❏ Enter the wifi connection parameter.
- ❏ Update the MQTT credentials.
- ❏ Set the MQTT topic for your team number.

Compile and load the ESP32.

Open the Arduino IDE Serial Monitor console.

If you only see dots …… appearing, then you probably have the wrong wifi credentials or the hub is out of range.

Something similar to the following output should appear:

```
WiFi connected
IP address:
192.168.43.101
setup complete
Attempting MQTT connection...connected
publishing mood to topic team1/moodometer
subscribing to topic team1/mood
Current Mood 3
Current Mood 3
```

You can change the mood directly in the Setial Monitor by typing a number from 1 to 5 and pressing enter.