Installation Guide for Rc robot

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Introduction

Provide a brief introduction to the device, its purpose, and any background information necessary for the user.

Safety Precautions

- Always disconnect the device from the power source before assembling or disassembling.
- Be cautious of sharp edges on the metal or plastic parts.
- ...

Components List

- Raspberry Pi 5 8gb ram - Available at KiwiElectronics
- ESP32-WROOM-32 module (Refer to the datasheet at Espressif)

- 3D printed parts from Thingiverse (hc-sr04, top plate + alternative for the robot kit)
- Motor Driver - available at DFRobot
- 2WD robot kit - available at DFRobot
- Mini OlED screen - available at Amazon
- Sensors - available at Amazon
- Battery For RPI 5 - available at Amazon
- Battery Holder For ESP 32 - available at Amazon
- Other miscellaneous components (screws, wires, etc.)

Tools Required

- Screwdriver
- Wire cutter/stripper
- ...

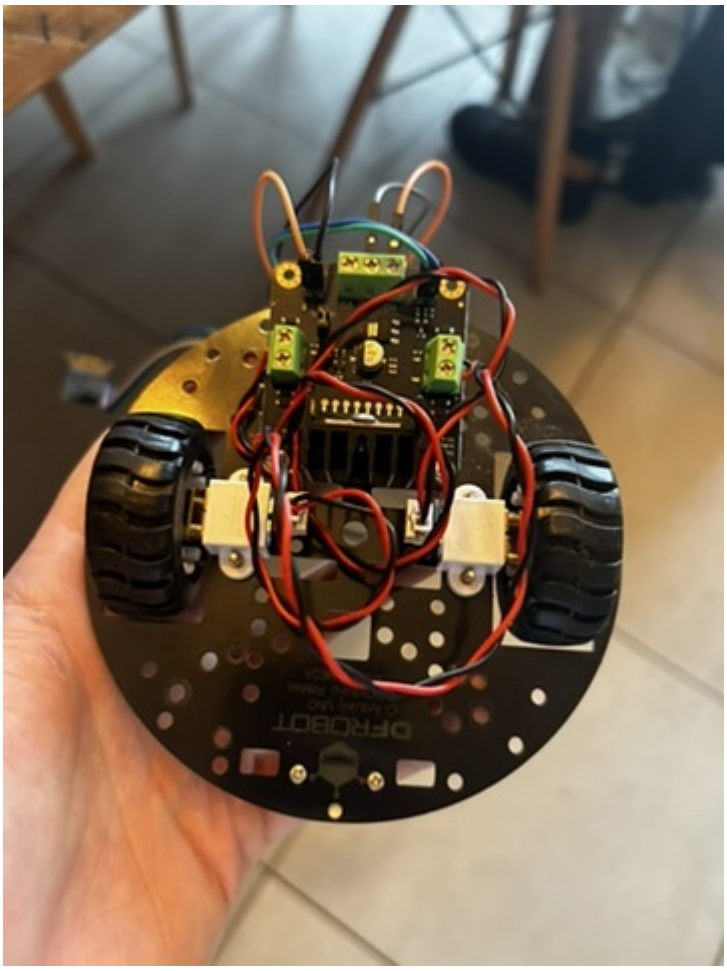
Assembly Instructions

Step 1: Base Assembly

To assemble the base, you can follow this youtube video from the makers themselves:

Step 2: Attach Motor Driver

Attach the motor driver to the base using 2 screws that came with the kit. Just so that it barely fits on the base.



Step 3: Attach ESP32-WROOM-32 module to the motor driver

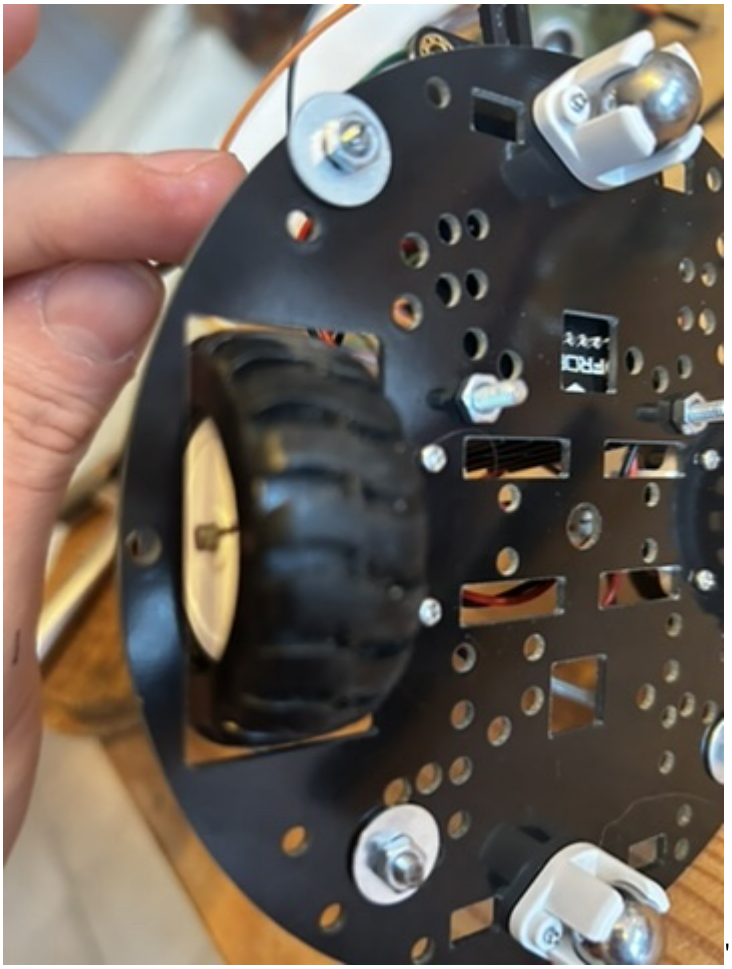
Connect the Wires of the motor driver to the ESP32-WROOM-32 as shown in the electrical schematic below.

Base Assembly

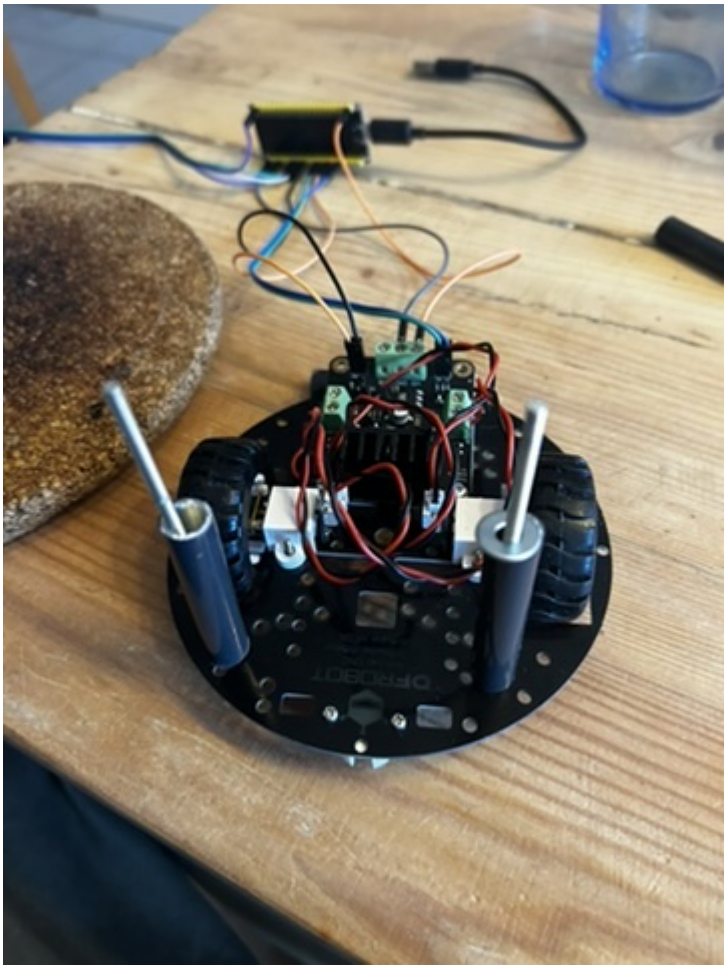
Step 4: Cut the support beams

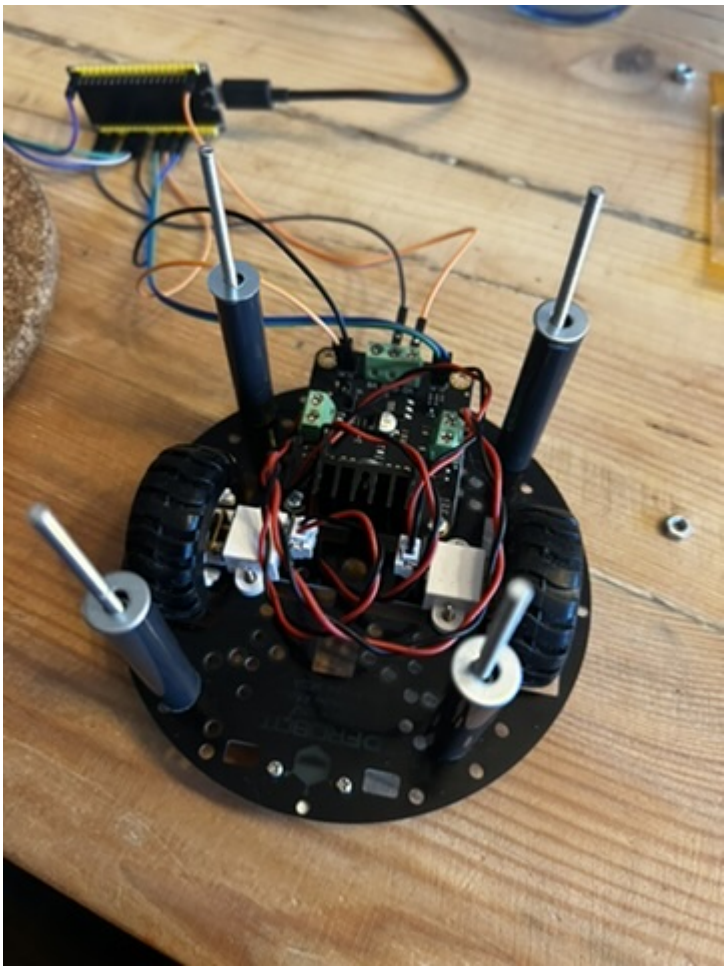
Cut the support beams so that we can securely attach the top plate to the base. I cut them to ~7cm.

Step 5: Screw in the supports on the bottom of the bottom plate

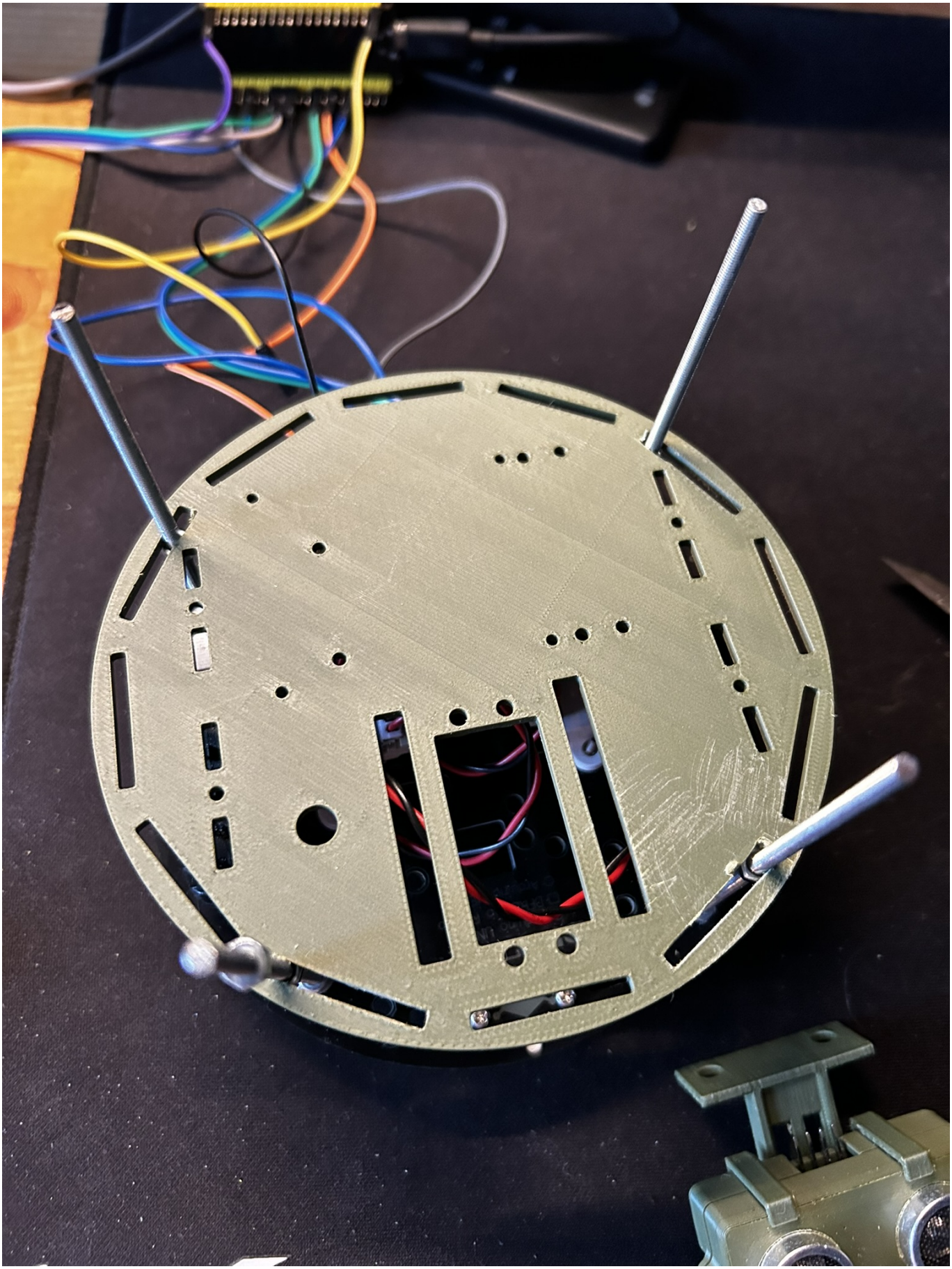


Step 6: Mount all the supports on the bottom plate





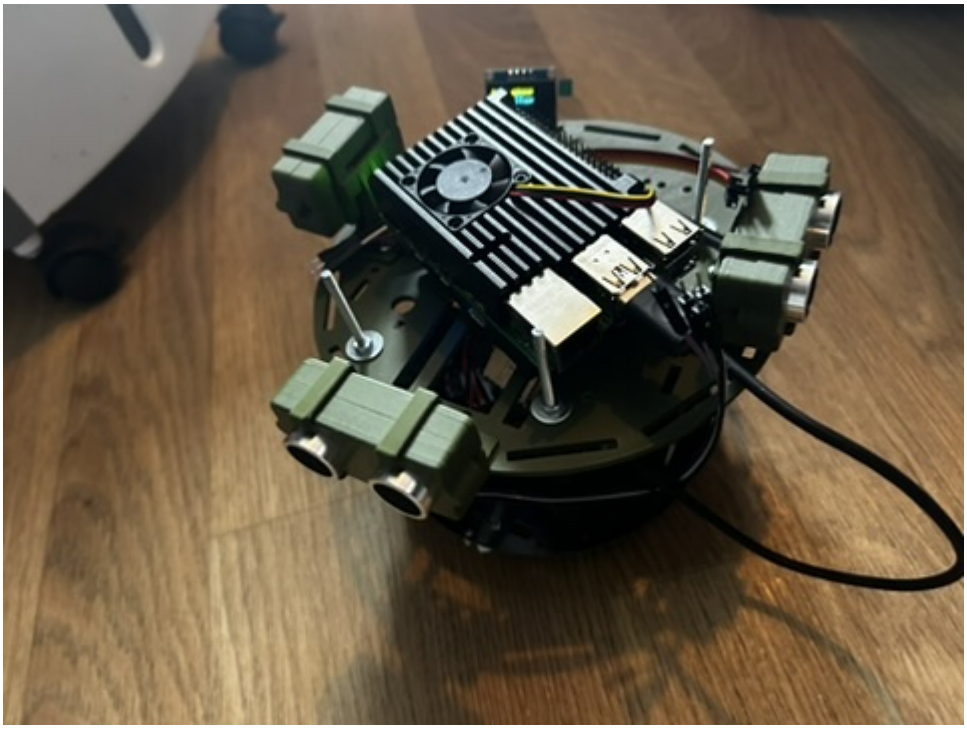
Step 7: Attach the top plate (you will need to drill holes so that the supports can fit through the top plate)



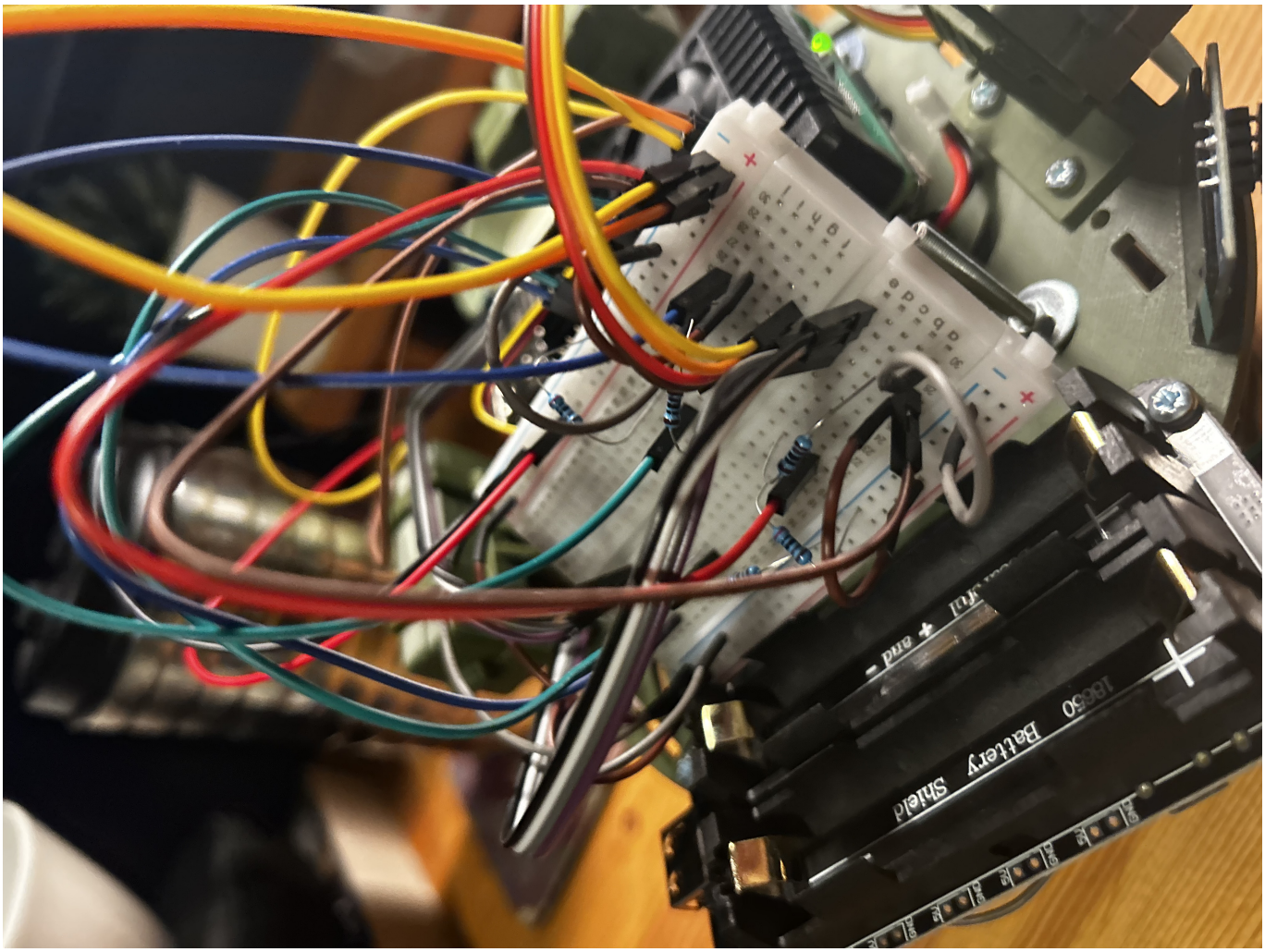
Step 8: Attach the ultrasonic sensor to the top plate

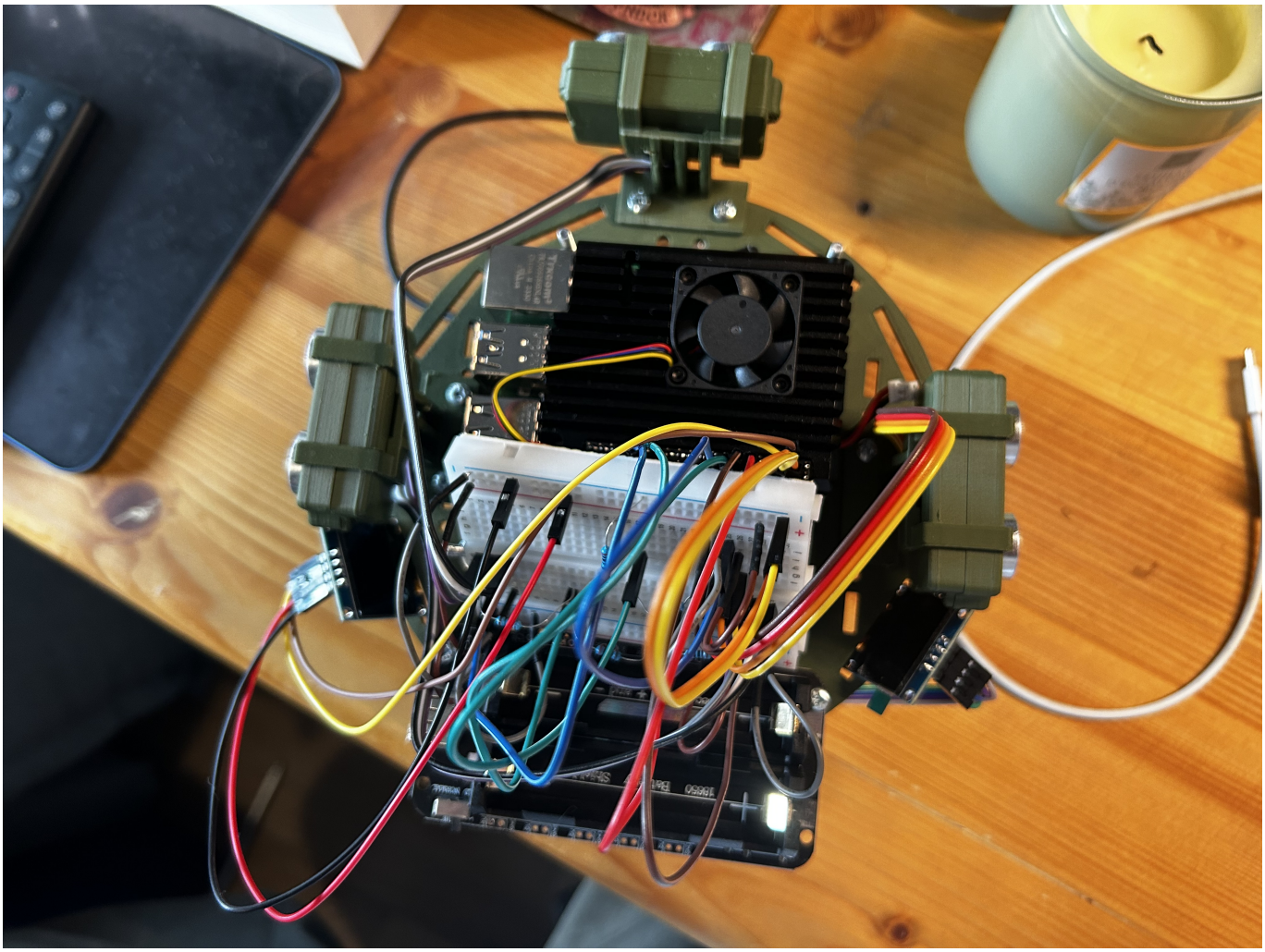
Step 9: Attatch the battery pack to the RPI 5

Step 9.5: Place RPI 5 on top of the top plate



Step 10: Connect the hc-sr04 sensor to the RPI 5 and try to fit them on the top plate, togheter with the battery holder for the ESP32 and the mini oled screen(s)


18650 Battery Shield



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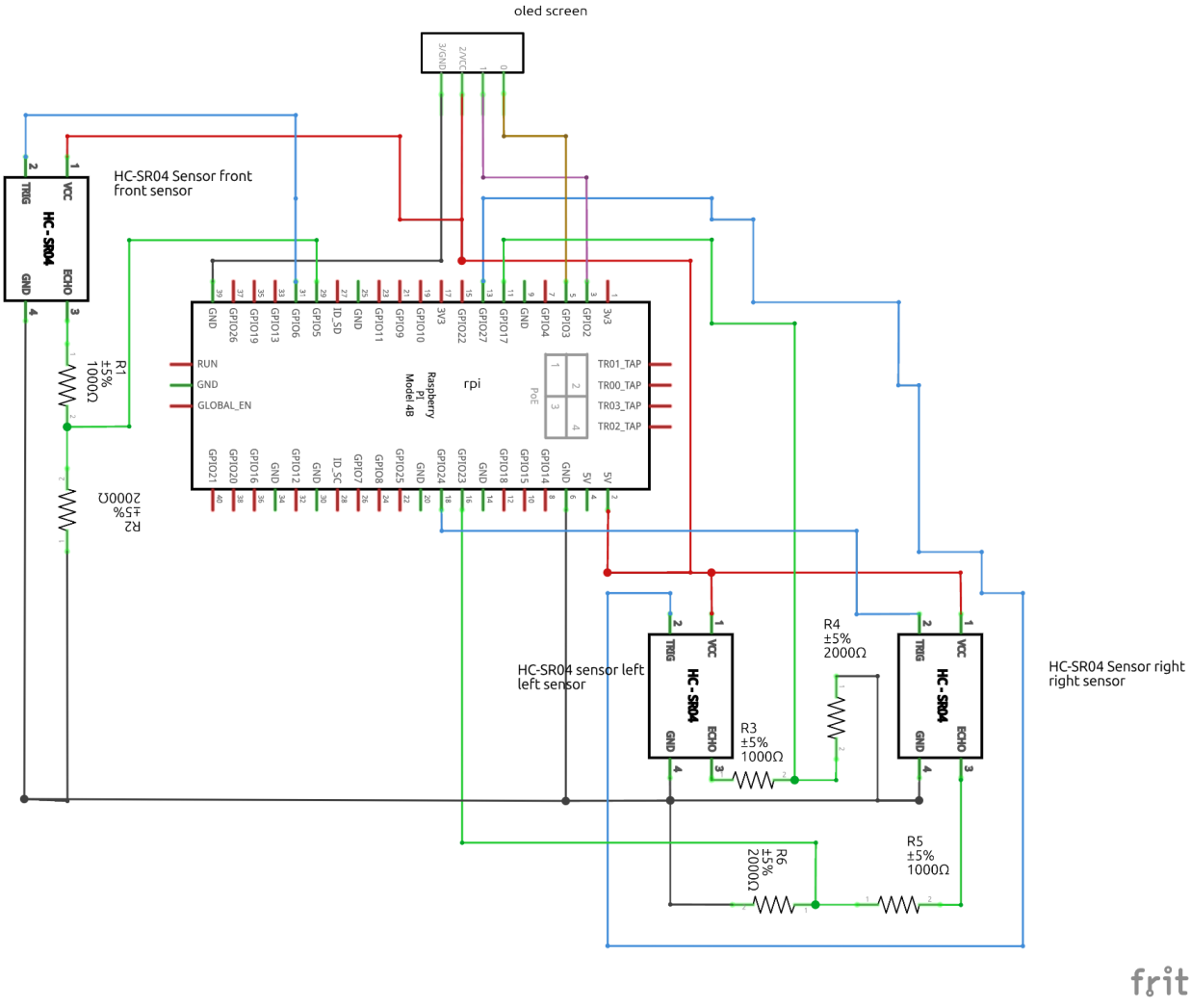
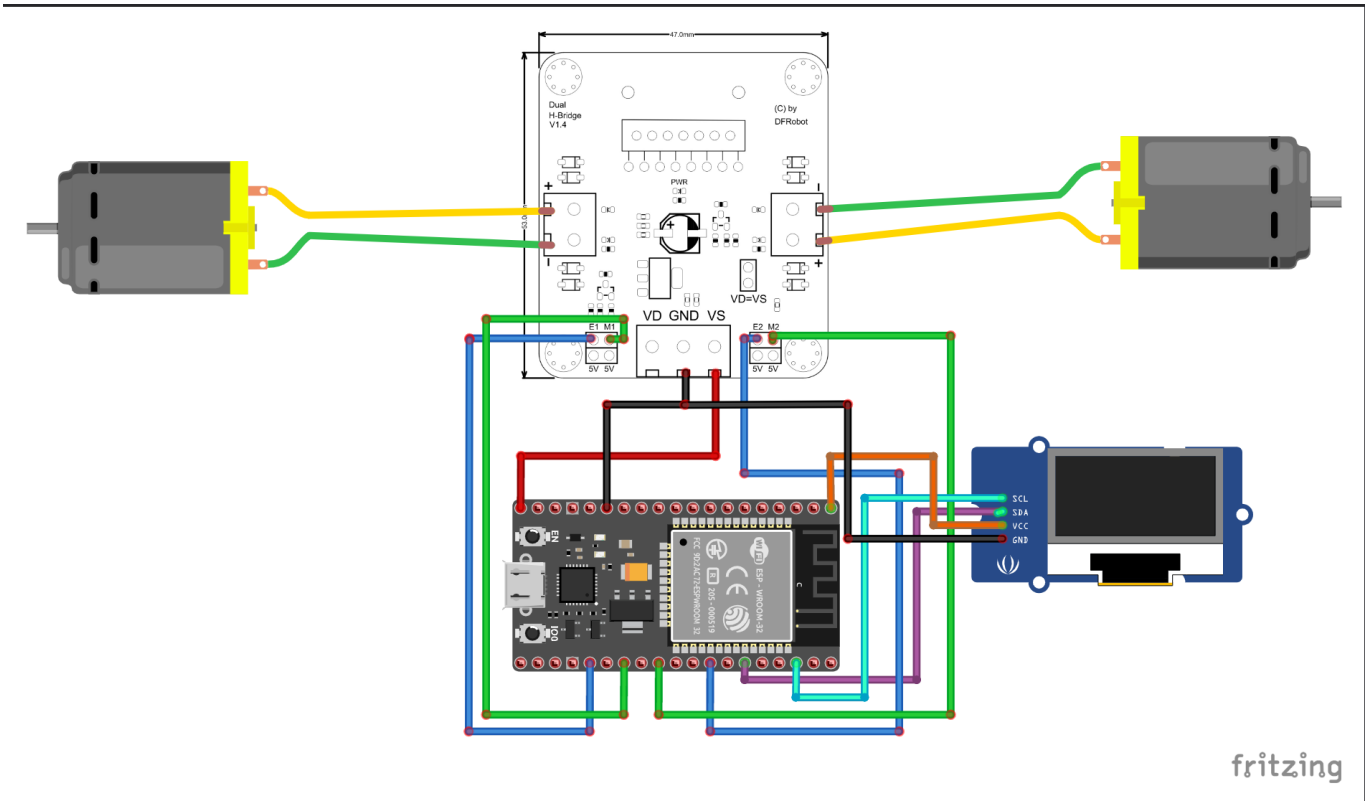
Wiring Guide

RPI5 Wiring



Detail the wiring for the motors, referencing the motor driver documentation.

ESP32 Wiring



Explain how to wire the sensors to the main board.

esp32 Motor pins

```
int E1 = 2;
int M1 = 17;
int E2 = 19;
int M2 = 4;
```

...

Software Configuration

.... to be added