

ZaBoteru Hardware System Connection Guide

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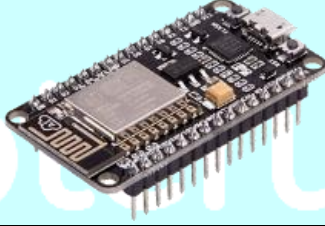
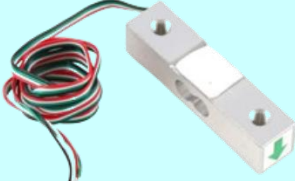
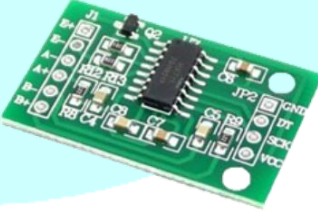

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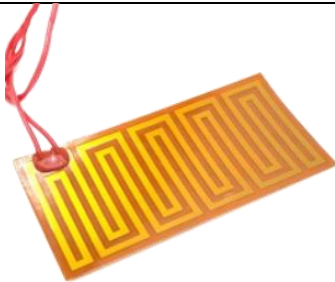
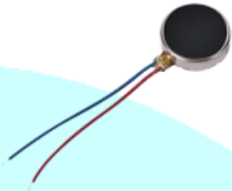

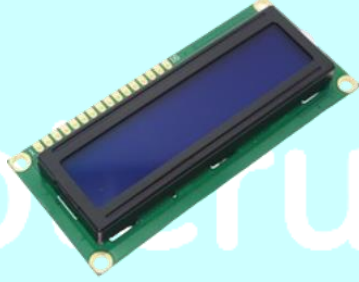
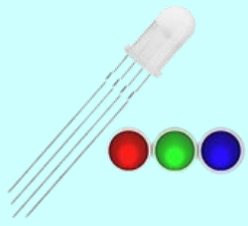

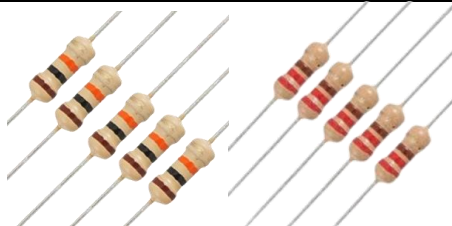
Overview

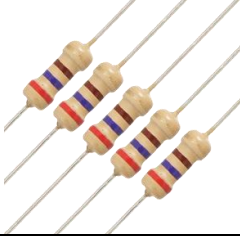

This guide provides an overview of the hardware connections for the project without detailing the pinouts for each component. If you're unsure about the pinout or wiring of any component, you can take a look in on the provided hyperlinks or easily find this information online by searching for the specific component's pinout and connection diagrams.

If you run into any issues or need more details on a component's wiring, feel free to reach out to us, and we'll be happy to help.

Hardware Components

Name	Quantity	View
Plastic Bottle: Made of PET and PP for durability, safety, and recyclability.	1	PET Plastic  
ESP8266 NodeMCU	1	
5kg Load Cell	1	
HX711 Load Cell Amplifier	1	
DS18B20 Temperature Sensor	1	

5V Heating pad	1	
Disc Vibration Motor	1	
UV LED	1	
LiquidCrystal I2C (16x2 LCD Display)	1	
RGB LED (common cathode)	1	
5V Relay module	1	
Resistors (220Ω, 330Ω)	3	

Resistors (4.7k Ω)	1	
Jumper wires	-	

Hardware Connections

Load Cell to HX711 Load Cell Amplifier

- Red (VCC) → E+
- Black (Ground) → E-
- White → A-
- Green → A+

HX711 Load Cell Amplifier to ESP8266

- Dout → ESP8266 Pin D6 (GPIO12)
- Sck → ESP8266 Pin D7 (GPIO13)

DS18B20 Temperature Sensor to ESP8266

- DQ (Data Pin) → ESP8266 Pin A0 (GPIO0)
- VCC → ESP8266 3.3V
- GND → ESP8266 GND

Note: Add 4.7k Ω pull-up resistor between the DQ pin and VCC.

LiquidCrystal I2C (16x2 LCD Display) to ESP8266

- SDA → ESP8266 D2 (GPIO4)
- SCL → ESP8266 D1 (GPIO5)
- VCC → ESP8266 3.3V
- GND → ESP8266 GND

UV LED to ESP8266

- Anode (+) → ESP8266 Pin D5 (GPIO14)
- Cathode (-) → GND (use a suitable current-limiting resistor, typically 220 Ω to 330 Ω)

Relay to ESP8266

- VCC → ESP8266 3.3V
- GND → ESP8266 GND

- IN → ESP8266 Pin D0 (GPIO16)

Note: The IN pin controls the relay, turning the heating pad ON or OFF.

Relay to Heating Pad and Power Supply

Note: The Heating Pad is powered by an external 5V power supply.

- COM (Common) pin on relay → Positive terminal of the Heating Pad
- NO (Normally Open) pin on relay → Positive terminal of the Power Supply
- Negative terminal of the Heating Pad → Negative terminal of the Power Supply

Vibration Motor to ESP8266

- VCC/Signal → ESP8266 Pin D4 (GPIO2)
- GND → ESP8266 GND

RGB LED (common cathode) to ESP8266

- Green Pin of RGB LED (Always ON) → One End of Resistor → 3.3v of ESP8266
- Red Pin of RGB LED → One End of Resistor → ESP8266 Pin D8 (GPIO15)
- Cathode → ESP8266 GND

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