

Simple Spectrophotometer Assembly Guide (Ver2)

Material List

Quantity	Item	Description
Electronic Components		
1	ESP32	A powerful microcontroller with Wi-Fi & Bluetooth capabilities for more advanced applications.
1	LCD 1602 12C (LCD Screen)	For displaying information.
1	RGB LED	Multi-color LED used as a light source.
1	BH1750	A digital light sensor that provides accurate and consistent illuminance readings.
2	Button	For user input and control.
Wires		
12	Dupont Wire (Male-Female)	For connecting various components.
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	Miscellaneous	
1	Cardboard Box	To package and protect the components.
1	Tape	For insulation and protection of connections.

Assembly Steps:

1. Connect the LCD Screen:

- Connect the LCD with I2C interface to the SDA and SCL pins of your ESP32 board.
- VCC to ESP32 5V
- GND to ESP32 GND
- SDA to appropriate SDA pin (depends on the ESP32 board model)
- SCL to appropriate SCL pin (depends on the ESP32 board model)

2. Connect the BH1750 Light Sensor:

- Attach the BH1750 light sensor to the same SDA and SCL pins as the LCD for I2C communication.

3. Connect the RGB LED:

- Connect the RGB LED to the defined digital pins (PIN_RED, PIN_GREEN, and PIN_BLUE).

4. Set Up the Buttons:

- Attach the buttons or switches to BUTTON_PIN1 and BUTTON_PIN2 on the ESP32.

5. Wi-Fi Connectivity:

- Ensure the ESP32 is connected to your Wi-Fi network using the provided SSID and password.

Special Notes:

- Ensure you use pull-up resistors for the I2C connection if your module doesn't come with them.
 - Carefully check power connections to avoid damaging any components.
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Associated Files:

- STL and Solidworks files for the cuvette slot and lid have been provided to ensure compatibility with the new components.
 - The Arduino code is essential for the proper functioning of this hardware version. It's designed to interact with software for a more integrated and comprehensive user experience. Ensure that you upload the provided code to the ESP32 using the Arduino IDE or a similar platform.
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