

Simple Spectrophotometer Assembly Guide (Ver1)

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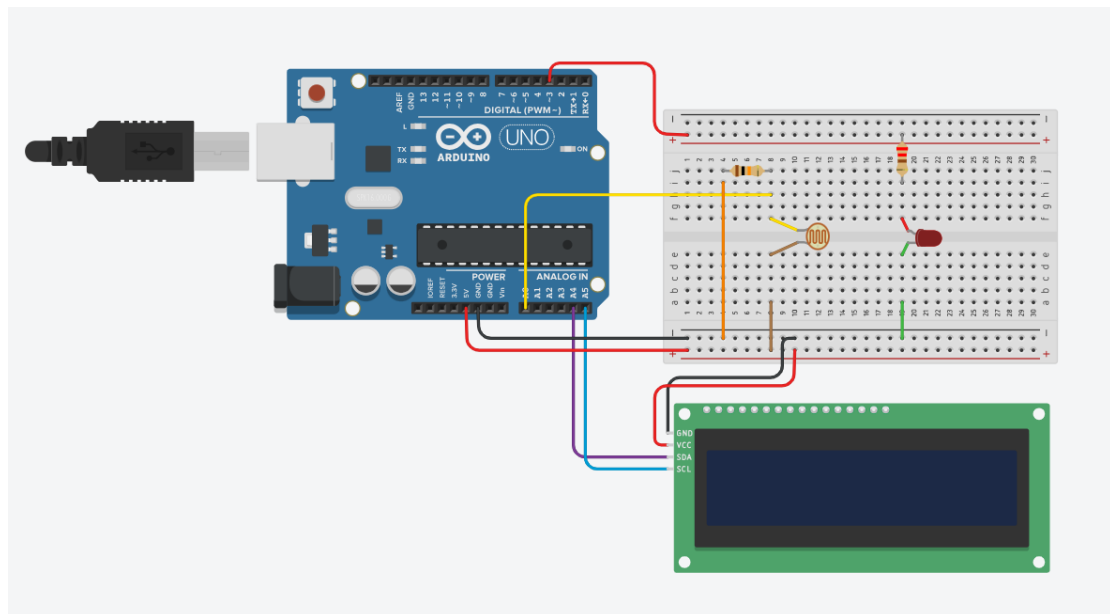
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Material List

Quantity	Item	Description
1	Uno R3 Board	Arduino UNO R3 development board used for programming and controlling connected components.
1	Uno R3 USB Cable	For connecting the Uno R3 board to a computer and uploading the code.
1	LCD 1602 12C (Liquid Crystal Display)	For displaying information.
4	Dupont Cable Male-Female	For connecting various components.
7	Dupont Cable Male-Male	For connecting various components.
1	220 Ohm Resistor	Resistor used to limit current, protecting the LED.
1	10,000 Ohm Resistor	Resistor used to limit current.
1	LED	Used as a light source.
1	Photoresistor	A resistor that senses light intensity.
1	3D-printed cuvette Slot Ver1	To secure the LED, photoresistor, and cuvette.
1	3D-printed cuvette Lid	Acts as a lid for the slot, reducing the effect of external light on the photoresistor's readings.
1	Cardboard Box	To package and protect the components.
1	Electric Tape	For insulation and protection of connections.
1	Clay	To fix or fill the components.

Assembly Steps

1. Install LED and Photoresistor into the 3D Slot: Ensure you're clear about the correct orientation and position of the 3D slot, and that the LED and photoresistor are placed correctly and securely.
2. Mount the Breadboard: Attach the 3D slot to the breadboard, ensuring it is stable and aligned perfectly with the slot.
3. Connect Wires, Resistors, and Attach to the Board:
 - Use Dupont cables to connect the Uno R3 board to the LCD 1602 liquid crystal display.
 - Attach the 220 Ohm and 10,000 Ohm resistors to their appropriate positions.
 - Ensure the LED and photoresistor are also connected to the breadboard.



4. Upload Code & Ensure Functionality:
 - Connect the Uno R3 board to a computer using the USB cable.
 - Upload the appropriate code to the Uno R3 board.
 - Ensure the LCD, LED, and photoresistor are functioning as intended.
5. Cut the Box: Based on the dimensions and shape of the 3D slot and other components, cut the cardboard box to ensure they fit properly.
6. Handle with Electric Tape: Wrap all exposed connections and wires with electric tape to prevent any risk of short-circuiting.

7. Place in Box & Secure with Clay:

- Place all the components and the 3D slot into the cut cardboard box.
- Use clay to secure the components, ensuring they remain stable inside the box.

Upon completing the above steps, your simple spectrophotometer should be assembled successfully and ready for operation. Ensure safety during use, and avoid any short-circuits or potential hazards.

Additional Information:

- The STL and Solidworks files for the cuvette slot and lid have been provided.
- The Arduino code necessary for the operation of the spectrophotometer has also been provided. Ensure that you upload the code to the Uno R3 board using the Arduino IDE or a similar platform.

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