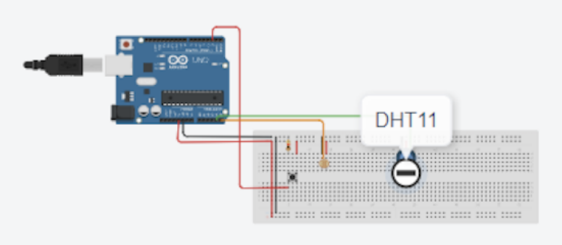
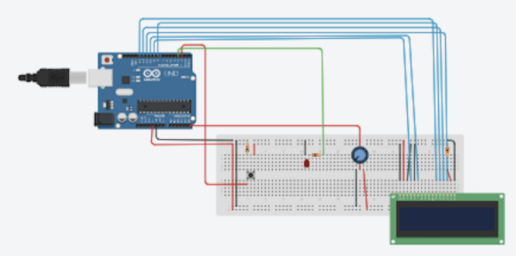
Steps to Build the Multi-Room Communication System

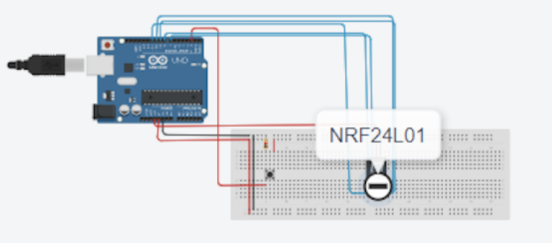
1. Gather all the necessary components required for this project, including the Arduinos, photoresistor, DHT11, potentiometer, transceivers, buttons, 220 ohm and 10k ohm resistors, LED, and LCD displays.
2. Set up the sensor subsystem first. This includes connecting the light, temperature, and humidity sensors to the Arduino, and making sure they are able to obtain input. Test the sensors to ensure that they are working correctly by checking if the values change when exposed to different environmental conditions.



3. Next, we will complete the LCD and button control subsystem. This will include connecting the LCD and setting up buttons and a potentiometer that can allow the user to choose one of the pre-set codes and display the sender's name.



4. Assemble the communication subsystem, which is one of the most complex parts of the project. We will connect the NRF24L01+ transceiver to the Arduino and configure it to establish communication between the Arduino.



5. Integrate all three subsystems by connecting the Arduinos together through the transceiver and ensuring that messages can be transmitted and displayed accurately and reliably.

6. Optimize the project for efficiency, making any necessary adjustments to improve the performance and accuracy of the system.
7. Test the final product thoroughly to ensure that it is working as intended and meets all of the project requirements.

By following these steps, we can ensure that we have a systematic and organized approach to building the project and that we are able to complete each subsystem and integrate them together in a smooth and efficient manner.