

EMBEDDED SYSTEMS

Assignment 2

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Arduino-based Text Adventure Game with LCD Display Manual

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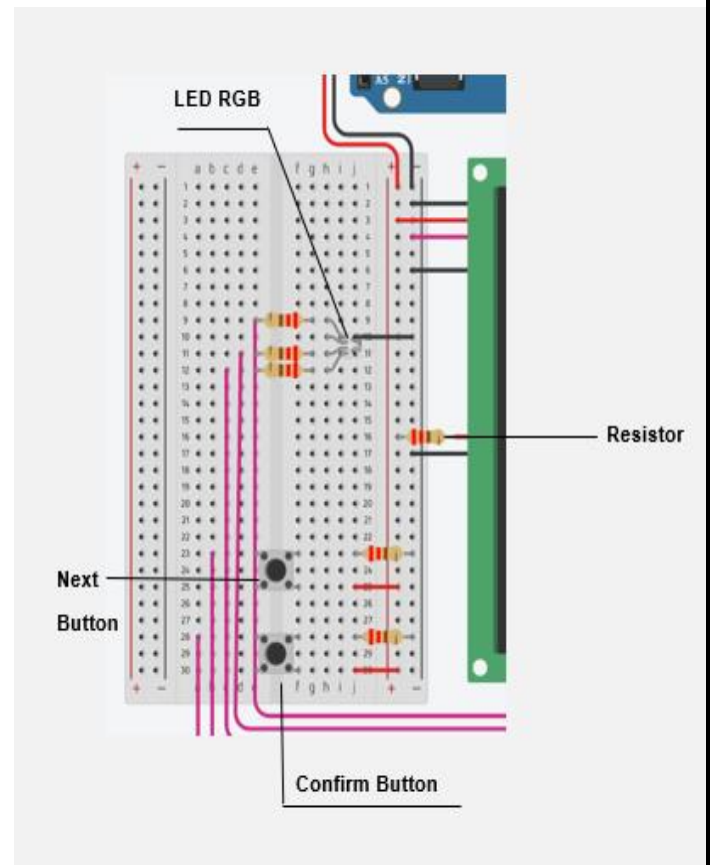
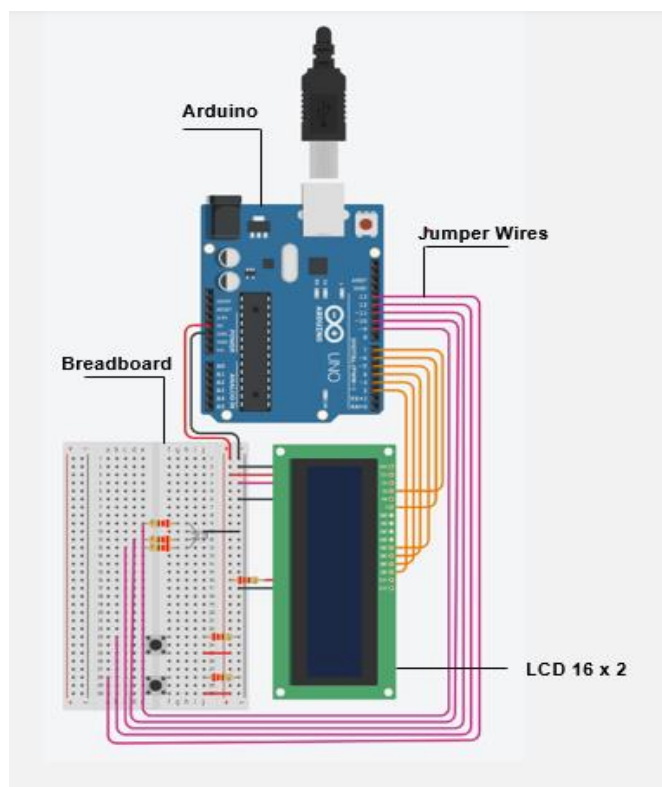
1. TEXT ADVENTURE GAME

An exciting world of the Arduino-based Text Adventure Game with LCD Display! This user manual is your guide to embarking on a unique gaming experience where you have the opportunity to combine your Arduino programming skills with your creativity to build an interactive text adventure.

It introduces you to the fusion of electronics and storytelling, providing an engaging platform to enhance your understanding of both hardware and software components.

This manual is designed to provide users with a comprehensive guide on operating the Arduino-based Text Adventure Game Console. It aims to ensure a seamless and enjoyable gaming experience for users.

1.1 FEATURES



Arduino

Responsible for processing user inputs, managing game logic, and controlling the interaction between different components. It executes the programmed code that governs the flow of the game.

Breadboard

Platform for connecting and organizing various electronic components. It simplifies the prototyping process, allowing for easy experimentation and modification of the circuit without the need for soldering.

LCD 16 x 2

It displays text-based information, story narratives, and prompts for user interactions.

Jumper Wires

Establish electrical connections between different components on the breadboard.

Resistors

It limits the current flowing through components like the LED to prevent damage and helps to create stable voltage divisions.

LED RGB

It provides visual feedback or ambiance within the gaming environment. It can be programmed to change colors based on in-game events, enhancing the atmosphere and immersing the player in the narrative.

Next Button

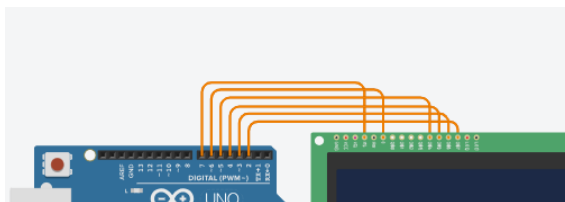
The "Next" button is used to advance the story.

Confirm Button

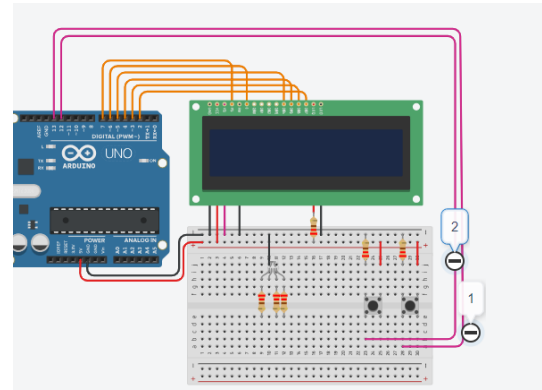
The "Confirm" button is used to make choices or select options presented on the LCD.

1.2 USER INSTRUCTIONS

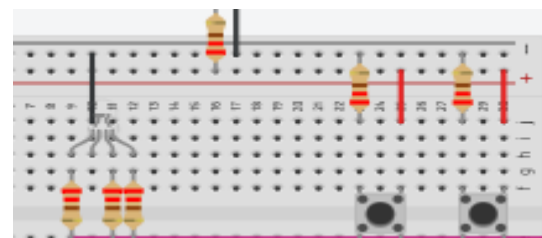
1. Connect A LCD screen pins RS, E, DB4, DB5, DB6, DB7 to Arduino pins 7, 6, 5, 4, 3, 2 respectively.



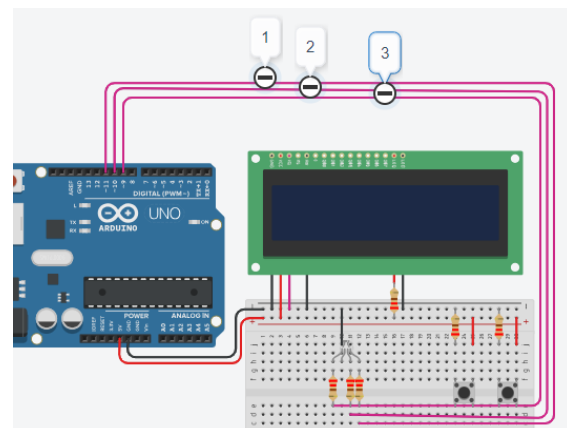
2. Connect two push buttons to Arduino pins 12 and 13.



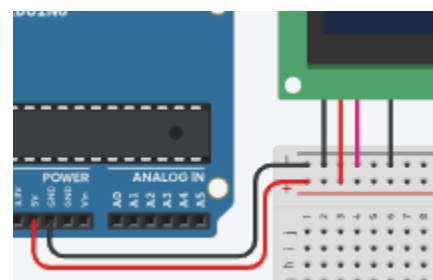
3. Five 220 ohm resistors with RGB LED and push buttons.



4. Connect RGB LED to pins 9, 10, 11.



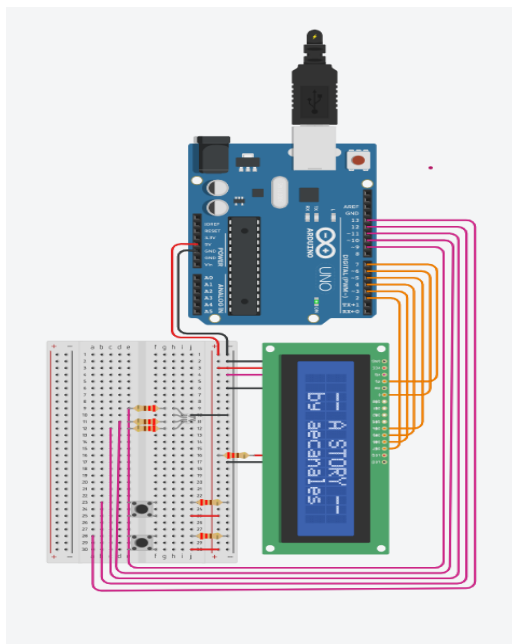
5. Ground the components and give 5 voltage.



6. Check the wiring and implement the code.

1.3 OPERATION INSTRUCTION

1. Start the Simulation.
2. The story starts displaying on LCD.
3. Press “Next” button to continue the story.
4. Press “Confirm” button to make the choice, so the story continues according to decision made.
5. Story ends, Stop Simulation.



1.4 TROUBLESHOOT

1. *LCD Display is Blank:*
 - Check the contrast adjustment on the LCD. Use a small

screwdriver to adjust if necessary.

- Inspect the wiring connections between the Arduino and the LCD.
- Verify that the code uploaded to the Arduino is correct and compatible with your LCD.

2. *Buttons Not Responding:*

- Check for any obstructions around the buttons that might impede their movement.
- Ensure proper connections between the buttons and the Arduino.
- Examine the wiring for loose connections or damaged jumper wires.

3. *LED Not Changing Colors:*

- Confirm that the RGB LED is correctly connected to the Arduino.
- Check the code to ensure that RGB LED commands are correctly implemented.

1.5 PRECAUTIONS

1. Incorrect voltage or current may damage the console.
2. Keep the console away from extreme temperatures, both hot and cold, as it may affect the performance of electronic components.
3. Treat the console and associated components with care to prevent physical damage.
4. Press buttons with a moderate force; excessive force may damage the buttons or the underlying mechanism.
5. Keep liquids away from the buttons to prevent liquid damage and button malfunction.
6. Clean the LCD screen with a soft, dry cloth to avoid scratching.

7. Do not use abrasive materials or chemical cleaners.
8. While the RGB LED is designed for visual feedback, excessive usage may impact its lifespan.
9. Regularly inspect wiring connections to ensure they are secure and not frayed.

1.6 WARNING

1. Do not open the console or attempt to modify its internal components.
2. Avoid touching exposed wires or connections when the console is powered on.
3. Avoid dropping or subjecting the console to impact, as this may cause damage.

4. Use protective cases or covers to minimize the risk of scratches or dents.
5. If the console malfunctions or behaves unexpectedly, turn it off immediately and seek assistance from the manufacturer's support.
6. Do not attempt to repair the console yourself.
7. Seek assistance from authorized service providers for any repairs or maintenance.

1.7 GUARANTEE

We guarantee that your Arduino-based Text Adventure Game Console is free from defects in materials and workmanship for a period of 12 months from the date of purchase. This guarantee is applicable to the original purchaser and is non-transferable.

1. Coverage:

The guarantee covers:

- Defective components or manufacturing faults that affect the functionality of the console.
- Compliance with safety and quality standards specified for electronic devices.

2. Exclusions:

The guarantee does not cover:

- Damage resulting from misuse, neglect, or accidents.
- Modification or attempted repair by unauthorized personnel.
- Normal wear and tear.
- Incompatibility with unauthorized accessories or software modifications.