Buzz Wire Game

Autor: Pipirigeanu Valentina

Group:1222B

Introduction

This project consists of a game of wire loop through another wire. When the loop and the wire come into contact, the LCD screen displays a message and the buzzer emits a specified sound. The score will also be displayed on the LCD. This game is used in Escape Rooms, in Museums and recently at events to entertain people.

General Description

An Arduino Uno, a Buzzer, and two aluminum wires are utilized in this project. The game status is also displayed on a 1602 LCD with an I2C module. Both ends of the maze wire will be linked to the Arduino's digital pins, which are defined as INPUT_PULLUP pins, and the handle wire will be attached to the Arduino's ground pin. When the handle wire makes contact with the maze wire, the digital pins change to LOW and the Buzzer emits a sound.

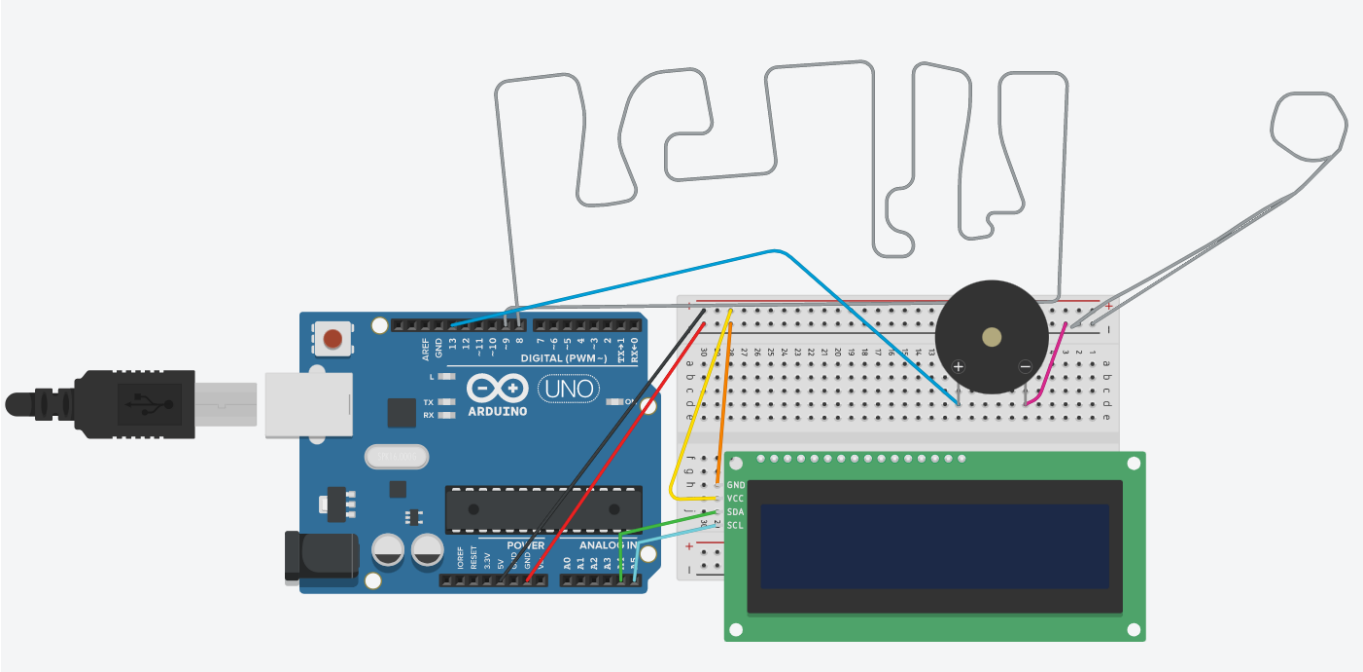
Block Schema

Hardware Design

Component List

- **Arduino Uno R3**
- **LCD 1602**
- **I2C Module**
- **Buzzer**
- **2x 1N4007 Diode**

Circuit Diagram



Software Design

Mediu de dezvoltare: Arduino IDE, TinkerCAD

The **LiquidCrystal_I2C** library is included, which allows the Arduino to communicate with the LCD display using the I2C protocol.

The route's beginning (start) is linked to **pin 8**, while the route's finish/diode (end) is attached to **pin 9**.The wire with which the route is traveled is connected to GND. The buzzer is connected to pin 13.

The variable “contacts” is used to keep track of the number of contacts between the wire and the route.

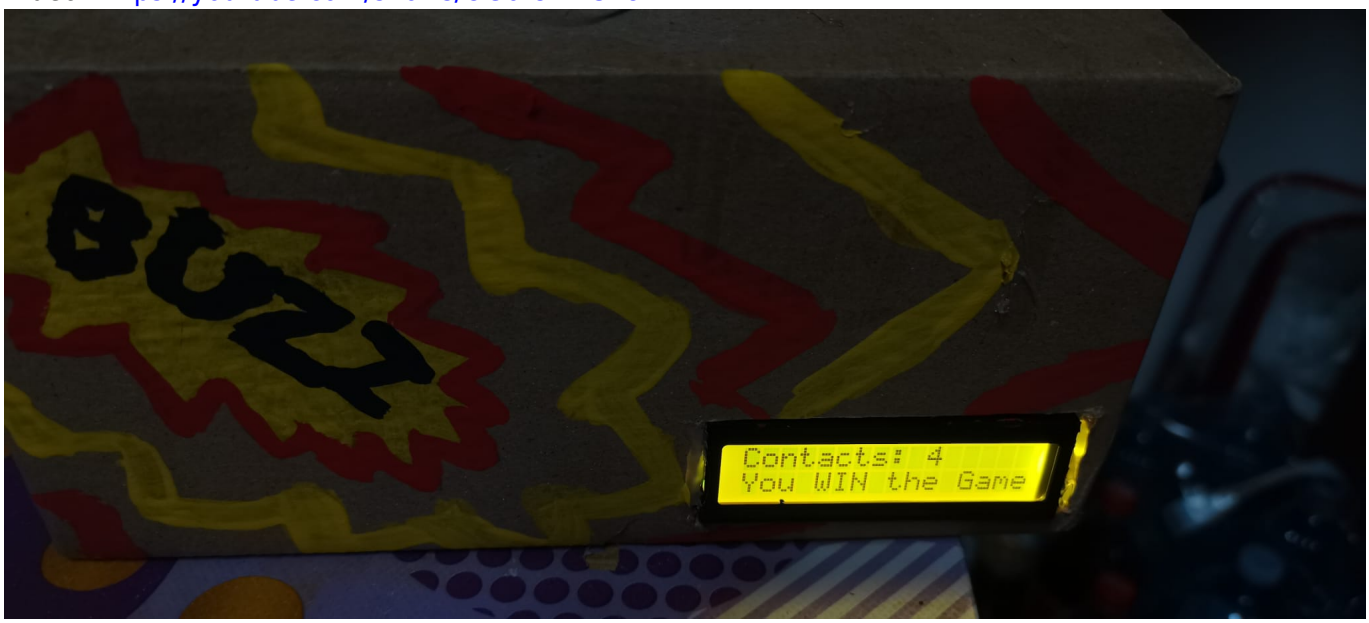
Pins 8 (start) and 9 (end) are both in the HIGH state at the start. When both pins go LOW, it implies that the wire has come into contact with the wire's path. The number of contacts is recorded in this scenario, and a sound is played. The current round's number of touches is always displayed on the LCD and in the Serial Monitor.

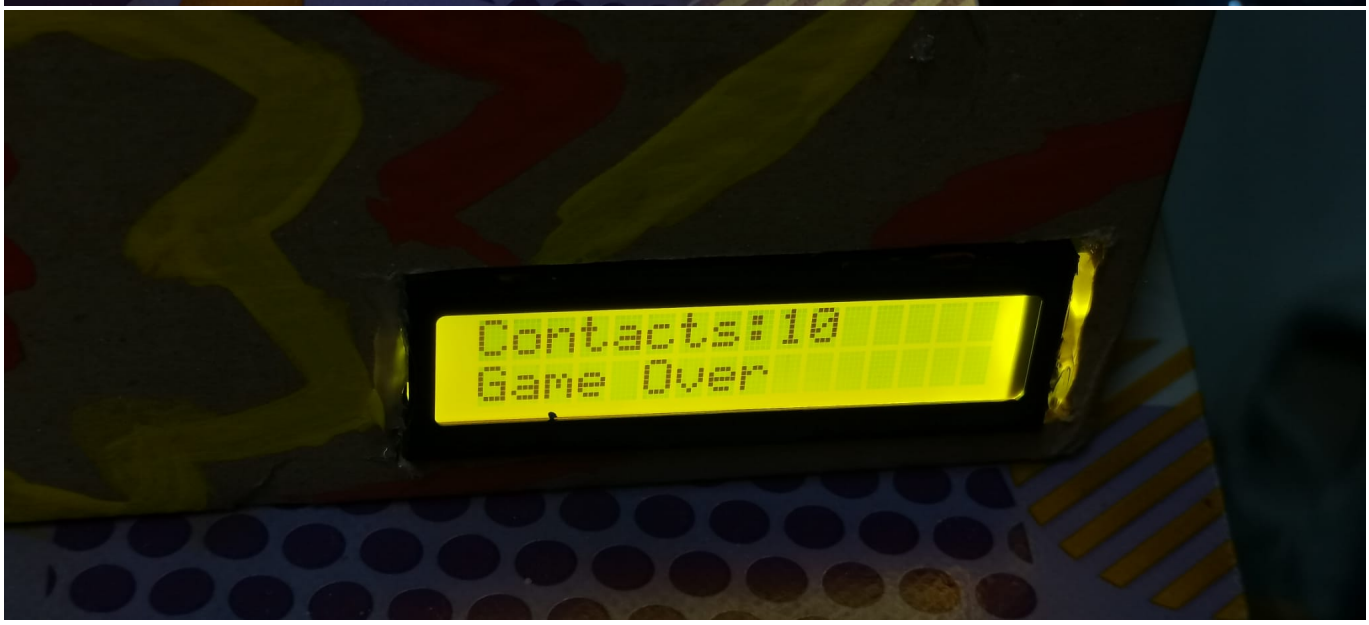
If the wire touches the route 10 times during a round, the game is over and the round is lost. The buzzer emits a sound, and the message “GAME OVER” is shown on the LCD and in the Serial Monitor.

If pin 9 (end) goes to the LOW state while pin 8 (start) stays HIGH, the wire has come into contact with the bottom of the diode and the round is over. A separate sound is played, and the phrase “You Win The Game” is shown on the LCD and in the Serial Monitor.

Obtained Results

Video: https://youtube.com/shorts/OG6t8L-XShc





Conclusions

This was a project that taught me a lot about hardware and software while producing a good outcome.

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CODE: buzzwire.rar

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Journal

- 27.04.2023- Alegerea proiectului
- 5.05.2023-Documentatie initiala
- 18.05.2023-Hardware
- 25.05.2023 - Software
- 28.05.2023-Documentatie finala

Bibliografy/Resources

- https://circuitdigest.com/microcontroller-proejcts/arduino-buzz-wire-game
- https://projecthub.arduino.cc/behrooz66/buzz-wire-with-score-counter-0f5833