Ping Pong Game

Group Members:

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Description

The Arduino UNO Ping Pong Game is a simple and fun game where users control paddles on both sides (Red and Blue) of the screen to prevent a ball from going out of bounds. The game is played using push buttons to move the paddles up and down, with each paddle corresponding to a side of the screen. When a push button is clicked, the corresponding LED on the Tinker cad simulation lights up, providing visual feedback to the user.

The objective of the game is to prevent the ball from going out of bounds while simultaneously trying to score points by hitting the ball with the paddles. Each time the ball hits a paddle, the respective player's score increases. Additionally, the game features multiple levels, each with its own specific ball speed and score limit to get promoted.

Upon reaching a specific score threshold in each level, the player is promoted to the next level and rewarded with three additional points. This progression system adds an engaging element to the game, motivating players to improve their skills and reach higher levels.

In the provided code, the score limit for each level can be easily adjusted to suit the user's preferences and desired level of challenge, allowing for customization and flexibility in gameplay.

Components

Arduino Uno R3

A blue circuit board with black and white buttons

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LCD 16x2 Breadboard Small

A screenshot of a computer screen

Description automatically generated A white board with black dots and red and green circles

Description automatically generated

13xResistor 7xLED 5xPushbuttons

A black circle with a yellow center

Description automatically generated A blue circular object with black text

Description automatically generated A close up of a resistor

Description automatically generated A red led with text

Description automatically generated A close up of a button

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Functions Created

The main functions created for the project include:

* Void runMenu(): For calling this function
* paddle1Up (): Function to move the paddle1 upward.
* paddle1Down (): Function to move the paddle1 downward.
* paddle2Up (): Function to move the paddle2 upward.
* paddle2Down (): Function to move the paddle2 downward.
* ballLeftDown\_Level2(): Function to move the ball left and down in Level 2.
* ballLeftUp\_Level2(): Function to move the ball left and up in Level 2.
* ballRightDown\_Level2(): Function to move the ball right and down in Level 2.
* ballRightUp\_Level2(): Function to move the ball right and up in Level 2.
* ballLeftDown\_Level3(): Function to move the ball left and down in Level 3.
* ballLeftUp\_Level3(): Function to move the ball left and up in Level 3.
* ballRightDown\_Level3(): Function to move the ball right and down in Level 3.
* ballRightUp\_Level3(): Function to move the ball right and up in Level 3.
* ballRight(): Function to move the ball to the right.
* ballLeft(): Function to move the ball to the left.

piezoSound(int d): Function to generate sound feedback using the piezo electric crystal.

Responsibilities:

Group Members' Responsibilities

Delmish Deon: Responsible for designing and programming the game logic, including paddle movement, ball trajectory, and scoring system.

Rojin and Akhilesh: Handled the hardware integration, including connecting push buttons, LEDs, and the piezo electric crystal to the Arduino UNO board.

Akhilesh and Rojin: Assisted with debugging, testing, and documentation of the project.

Screenshot of Project

A circuit board with wires

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Code:

A computer screen shot of a person

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A white paper with text on it

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A white page with red and black text

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A white screen with text

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A computer screen shot of a computer code

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A screenshot of a computer program

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