ECE 1000 Final Report: Memorization Game

Hayston Maples, Brodi Remick

The ECE dept.

ECE

Cookeville, USA

[hbmaples42@tntech.edu](mailto:hbmaples42@tntech.edu), [bkremick42@tntech.edu](mailto:bkremick42@tntech.edu)

Abstract-The name of our project is The Memorization Game/Simon Says. We chose this project because we grew up playing games kind of like this one, for example Bop It. Our game displays a series of colors with LEDs, and you must remember them and press the button of the same color in the same order as the colors were shown.

1. Introduction

Hayston Maples Electrical Engineering major and Brodi Remick Computer Engineering and the project that we have been working on is a memorization game where you must memorize the order of the color that the LEDs show. We chose this project because growing up their games that we used to play that had similar concepts. We thought this project had importance because of the times that we were kids playing with games that had similar concepts to ours.

1. Background

While designing our project we had a couple of sources help us along the way. One source was a website called tom’sHARDWARE. This website had a project similar to ours and it helped us formulate the code and just helped us get started as well. We also used Chat GPT to help form some of our code as well.

III. Project Description and Formulation

This project works by having the user memorize the order of the colors shown and press the colored buttons in that same order. The NeoPixel stick are the LED’s and it connected to the Raspberry PI Pico on GPIO 28, the 5V pin, and any of the GND pins. For the buttons, the red button is connected to GPIO 27 and GND. The green button is connected to GPIO 26 and GND.

The blue button is connected to GPIO 22 and GND. The yellow button is connected to GPIO 21 and GND. The code works by enabling the NeoPixel to show four colors in a row and then corresponding them to a certain button. The code needs the right buttons pressed in order or the NeoPixel will flash red. If the buttons are pressed in the right order, then the NeoPixel will give a rainbow type animation.

A circuit board with many wires and a computer

Description automatically generated

VI. Discussion and Results

The result of a project was a memorization game that shows a pattern of lights that the user must remember and then correctly press the buttons of the corresponding colors in order. If we were to continue working on this project, we would have liked to have an actual starting button instead of the green button being the starting button. Thing we enjoyed most about the project is just seeing it all come together at the end. Hayston completed the building of the circuit and the lab report and Brodi did the coding and created the GitHub.

V. Conclusion

The purpose of this project is to gain knowledge and skills in the ECE department. The skills that we seemed to gain the most is teamwork and effective research and implementation skills.

References

[1] tom’sHARDWARE website [How To Build a Simon Game with Raspberry Pi Pico | Tom's Hardware (tomshardware.com)](https://www.tomshardware.com/how-to/make-simon-game-with-raspberry-pi-pico)

[2] Chat GPT [ChatGPT (openai.com)](https://chat.openai.com/)