Marble Cake - Group 8 Final

Marble labyrinth with on-screen leaderboard

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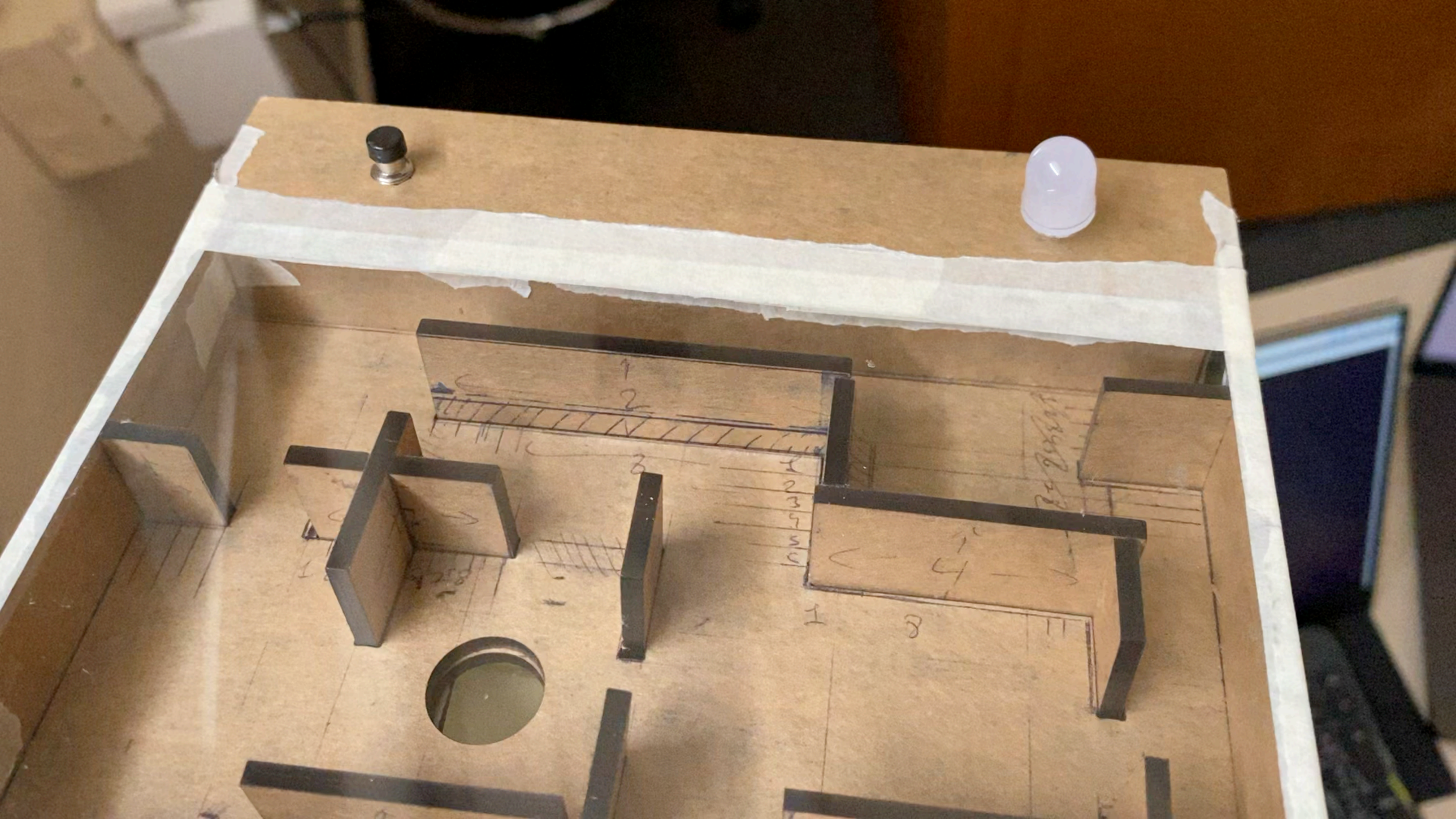
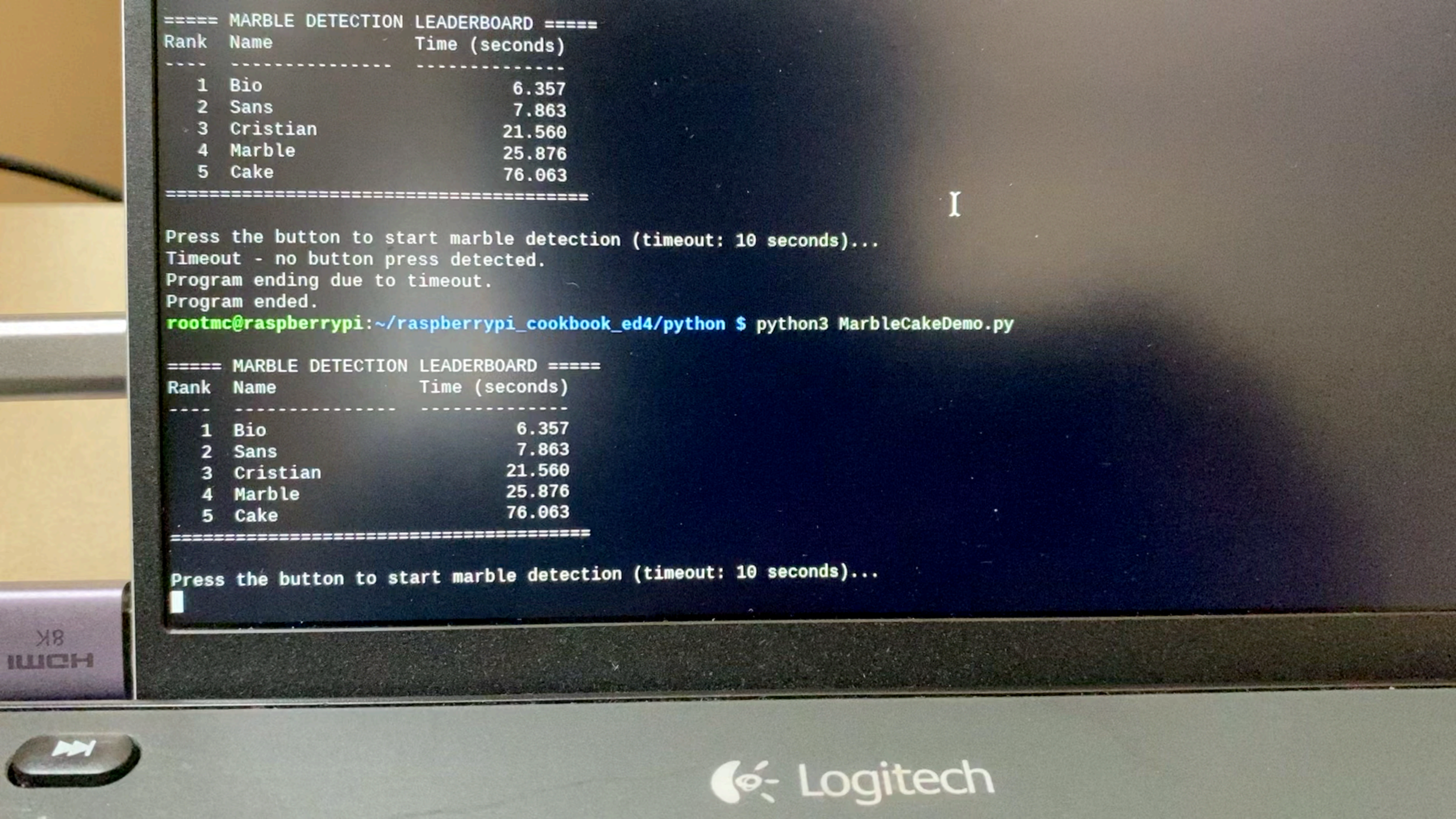
Project Contents

What is in this maze?

- RGB LED
- Wired Button
- LDR Sensor
- Acrylic
- Lots of tape
- Python File



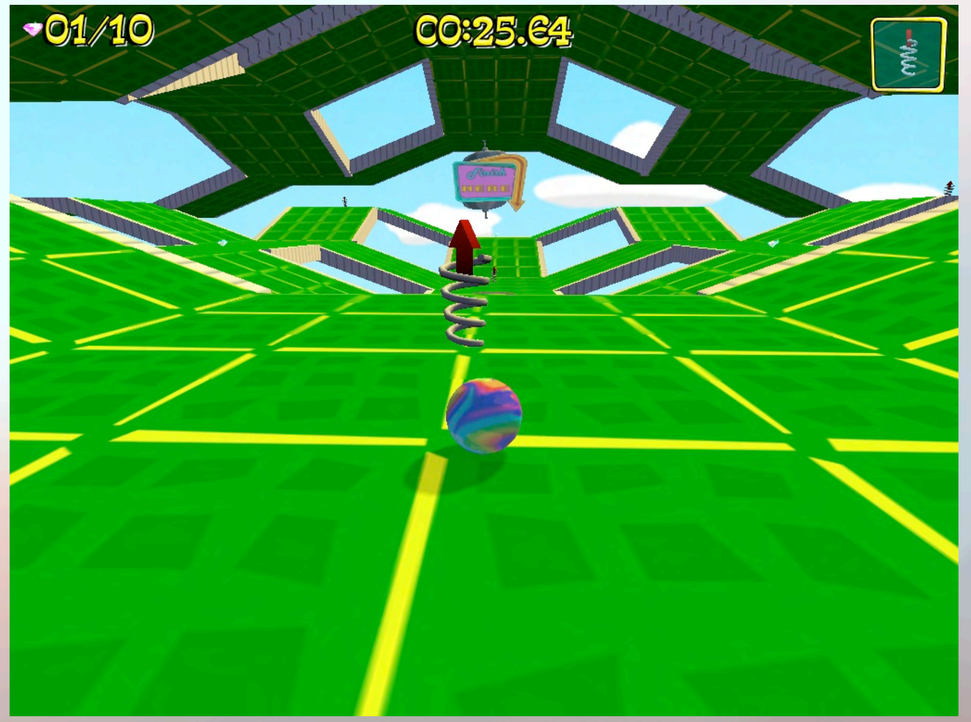

===== MARBLE DETECTION LEADERBOARD =====
Rank Name Time (seconds)
1 Bio 6.357
2 Sans 7.863
3 Cristian 21.560
4 Marble 25.876
5 Cake 76.063
Press the button to start marble detection (timeout: 10 seconds)...
Timeout - no button press detected.
Program ending due to timeout.
Program ended.
rootmc@raspberrypi:~/raspberrypi_cookbook_ed4/python $ python3 MarbleCakeDemo.py
===== MARBLE DETECTION LEADERBOARD =====
Rank Name Time (seconds)
1 Bio 6.357
2 Sans 7.863
3 Cristian 21.560
4 Marble 25.876
5 Cake 76.063
Press the button to start marble detection (timeout: 10 seconds)...
Logitech

Project Actions

How to play once you run the python file?

- Click button to start new game
- Countdown: Red light -> Yellow light -> Green Light LED
- On Green light, timer starts; Place your marble in the maze
- When marble falls down the goal, timer ends
- Reach the goal
- The marble is channeled to a collection area; Photo resistor is blocked -> Game ends
- Player sets their name; Name appears on the leaderboard with their completion time.
- Player can start another game by pressing the start button
- Player can quit out by either using ^C or by waiting

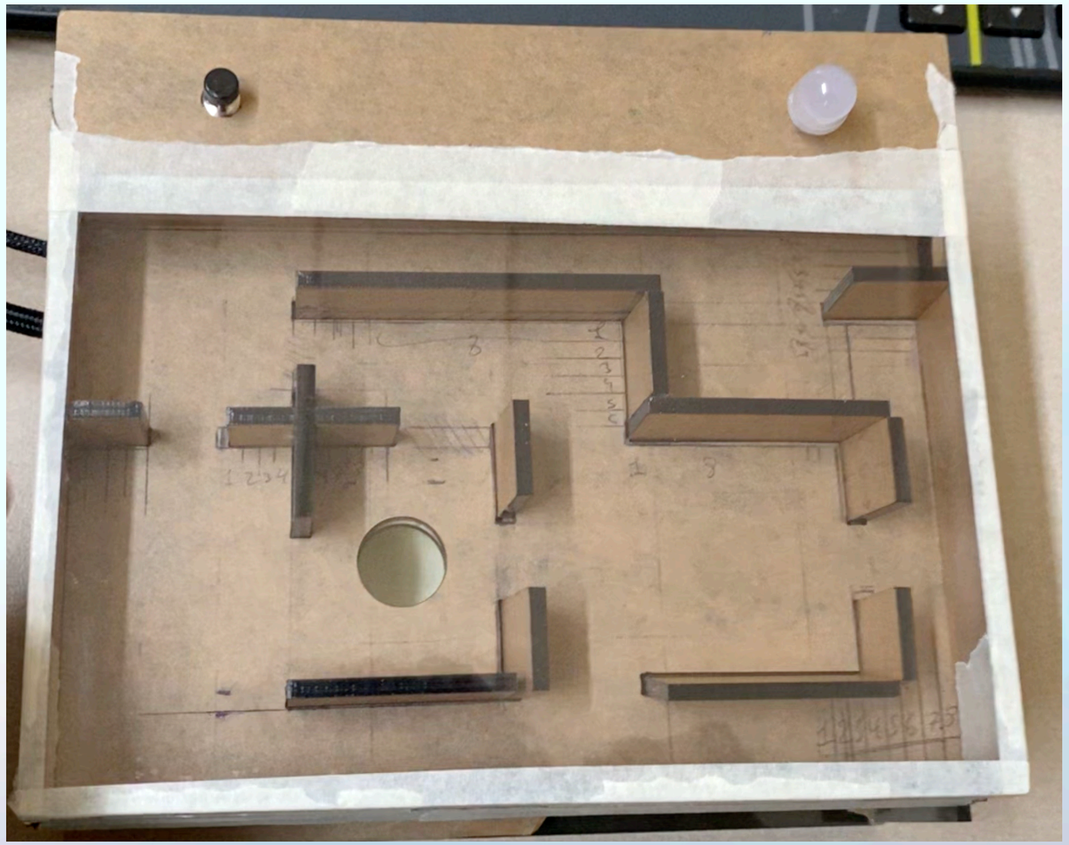
Project Inspirations



Project Objectives

Who is this designed for?

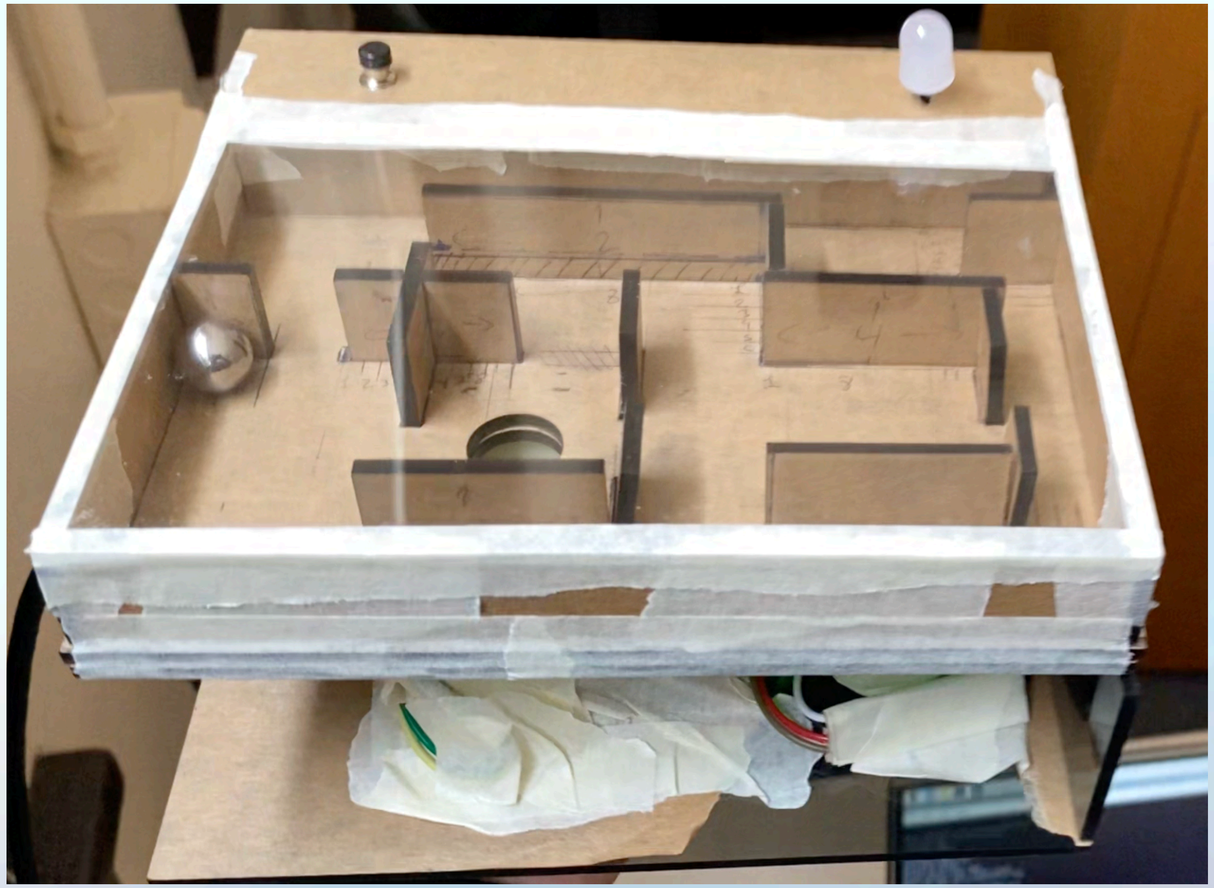
- Designed to have multiple paths
- All take similar time
- Player skill makes the difference
- For those people that remember marbles games from their youth
- For those people that want a quick game to play and get better at



Project Implementation

How was this built? From idea to creation - The Top/Maze

- Started with a dream
- Dreamed too big
- Made a small cardboard prototype
- Cut acrylic and annotated measurements
- Cut holes for maze walls and wiring
- Taped the enclosure



Project Implementation

How was this built? From idea to creation - The Bottom/Wiring

- Reconstructed Recipes (ch11, 13, 14)
- Asked for help
- Wrote a test program for each component
- Synced up the button and LDR sensor
- Added LED and timer functionality
- Added Leaderboard.
- Taped hardware into place

Parting Thoughts

What went wrong (A lot)

- Next time, I would’ve started with calming myself down. I panicked a lot which made it harder to get started.
- I found a method for cutting acrylic that worked best for me. I like having instant feedback that what I’m doing actually fits properly.
- What stands to remain is peeling off the acrylic protection tape, and getting a full GUI leaderboard up and running instead of only a terminal. Polishing and cleaning.