Arduino Maze Game

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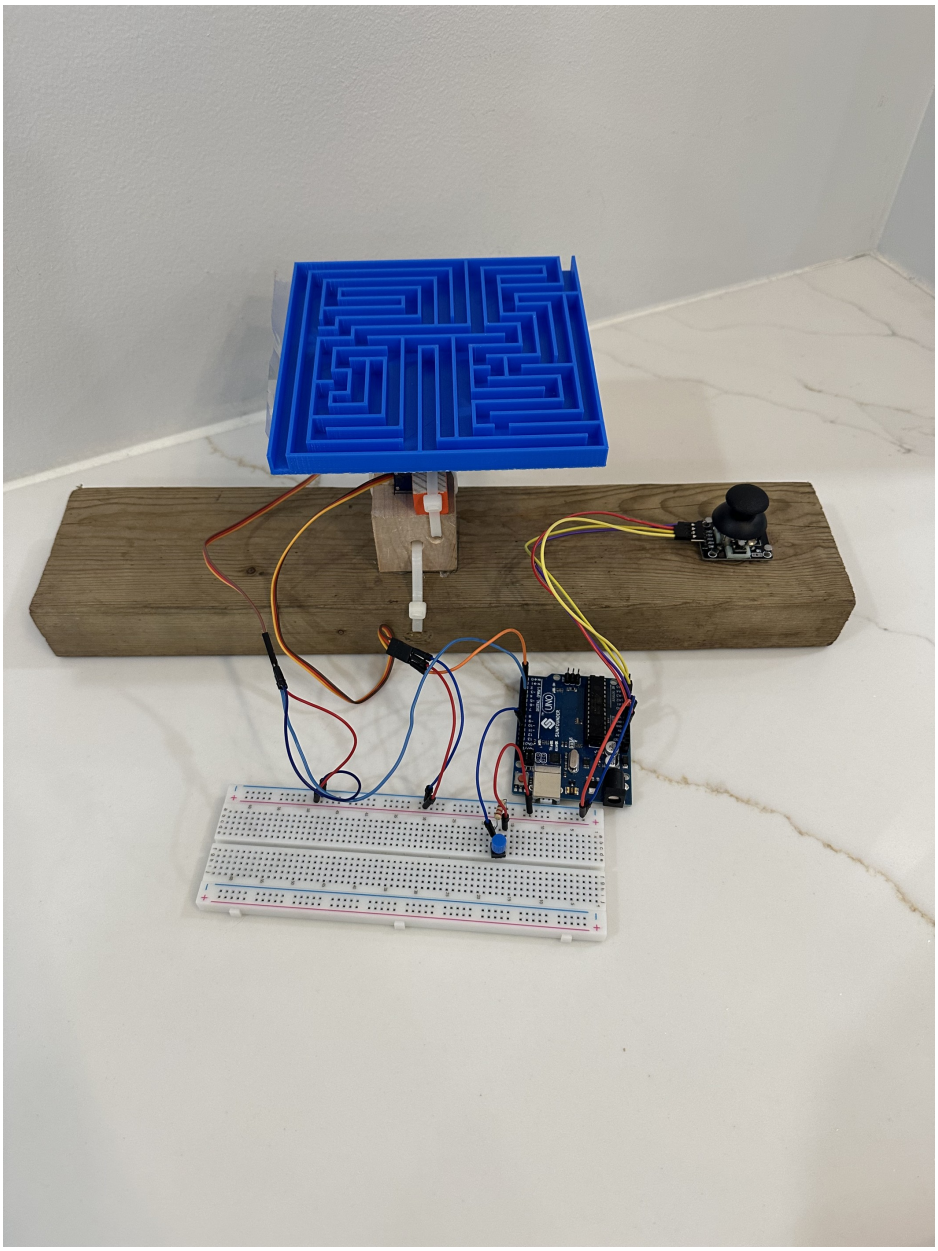

Figure 1: Final Product

Description:

The Arduino Maze game is an engaging game which allows individuals to practice and develop their fine motor skills in an entertaining manner. The inspiration of making this project was to create a product which would assist patients in their development/rehabilitation of fine motor skills. The applications of creating this product is one which allows patients of all demographics to utilize this game for their well-being. For example healthcare providers are able to use the principles of my game in order to test patients fine motor skills over time and use it for analysis and diagnosis purposes of coordination affected disorders such as Parkinson's Disease. Overall, the Arduino Maze game can be used both in a fun manner to test your skills and for training of fine motor skills.

How to play:

Use the joystick to control the movement of the maze. Maneuver the ball throughout the maze and solve it. For more of a challenge press and hold the blue button to increase the sensitivity of the joystick controlling the maze.

Process:

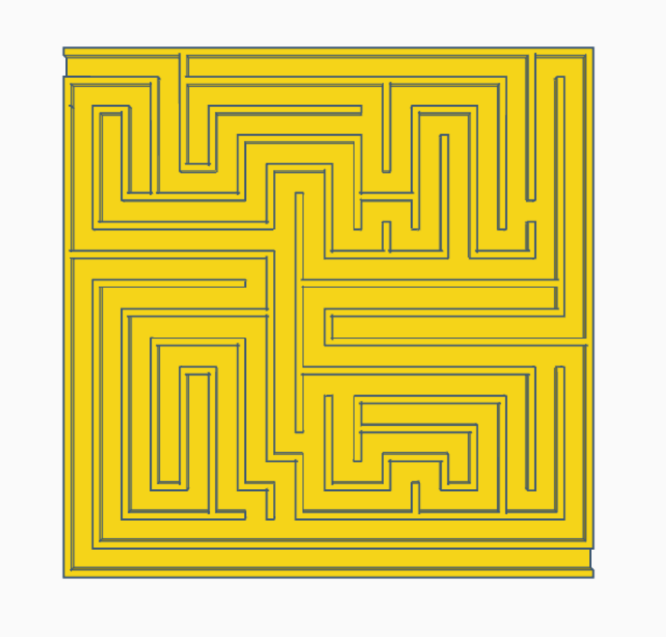

Figure 2: TinkerCAD Maze

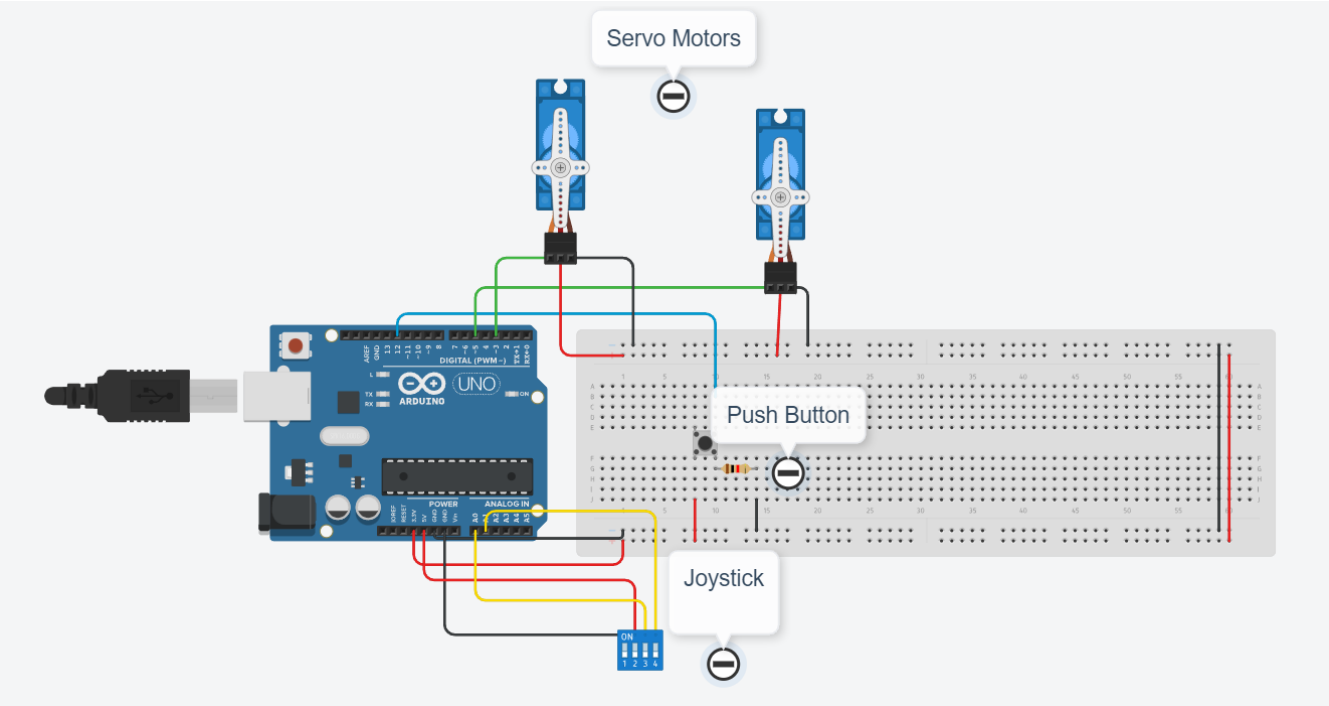

Figure 3: TinkerCAD Circuit

- First step was to design the components/maze using TinkerCAD
- One servo motor controls the x-axis movement and one servo for the y-axis movement

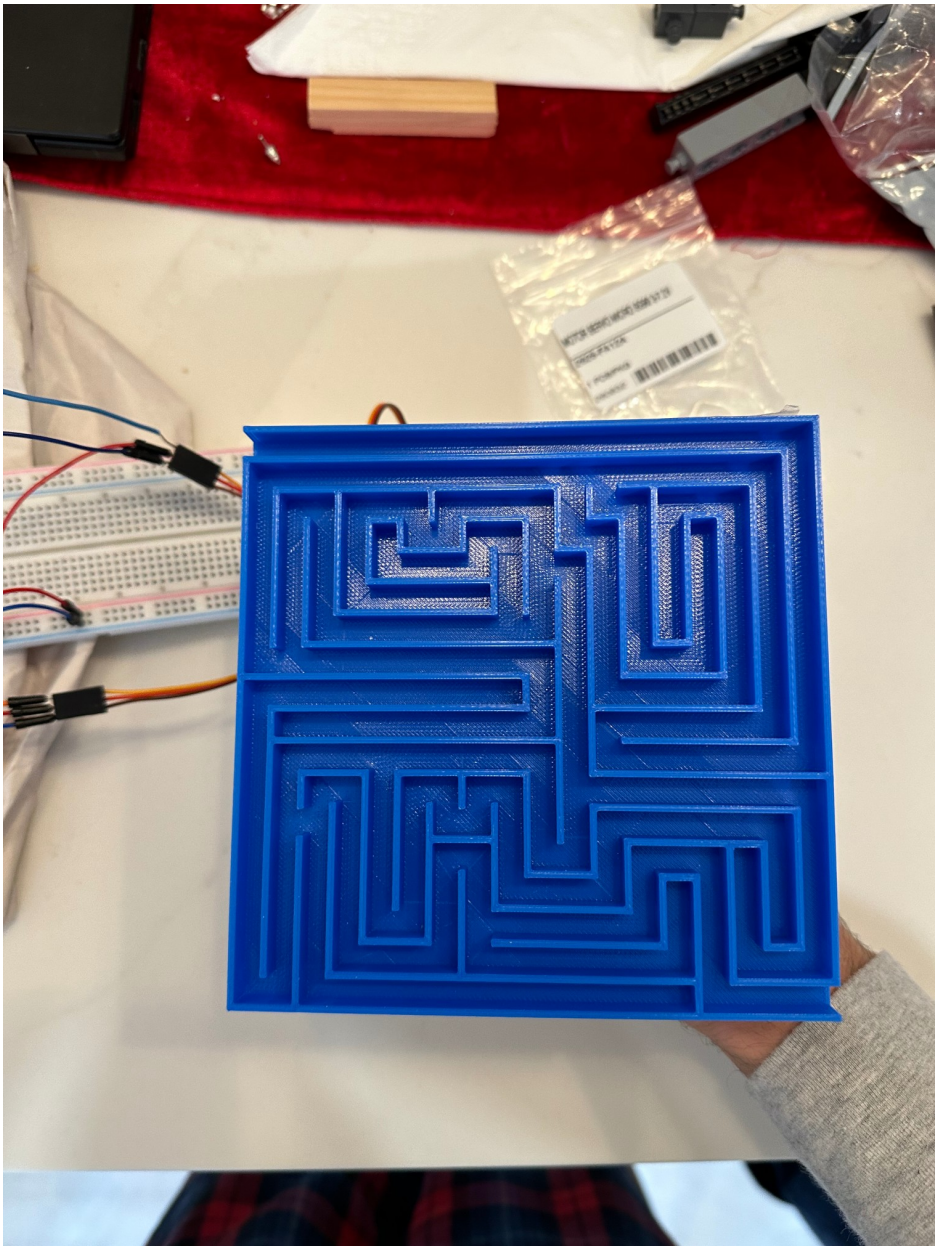

Figure 4: 3d printed maze

- The final 3d printed maze

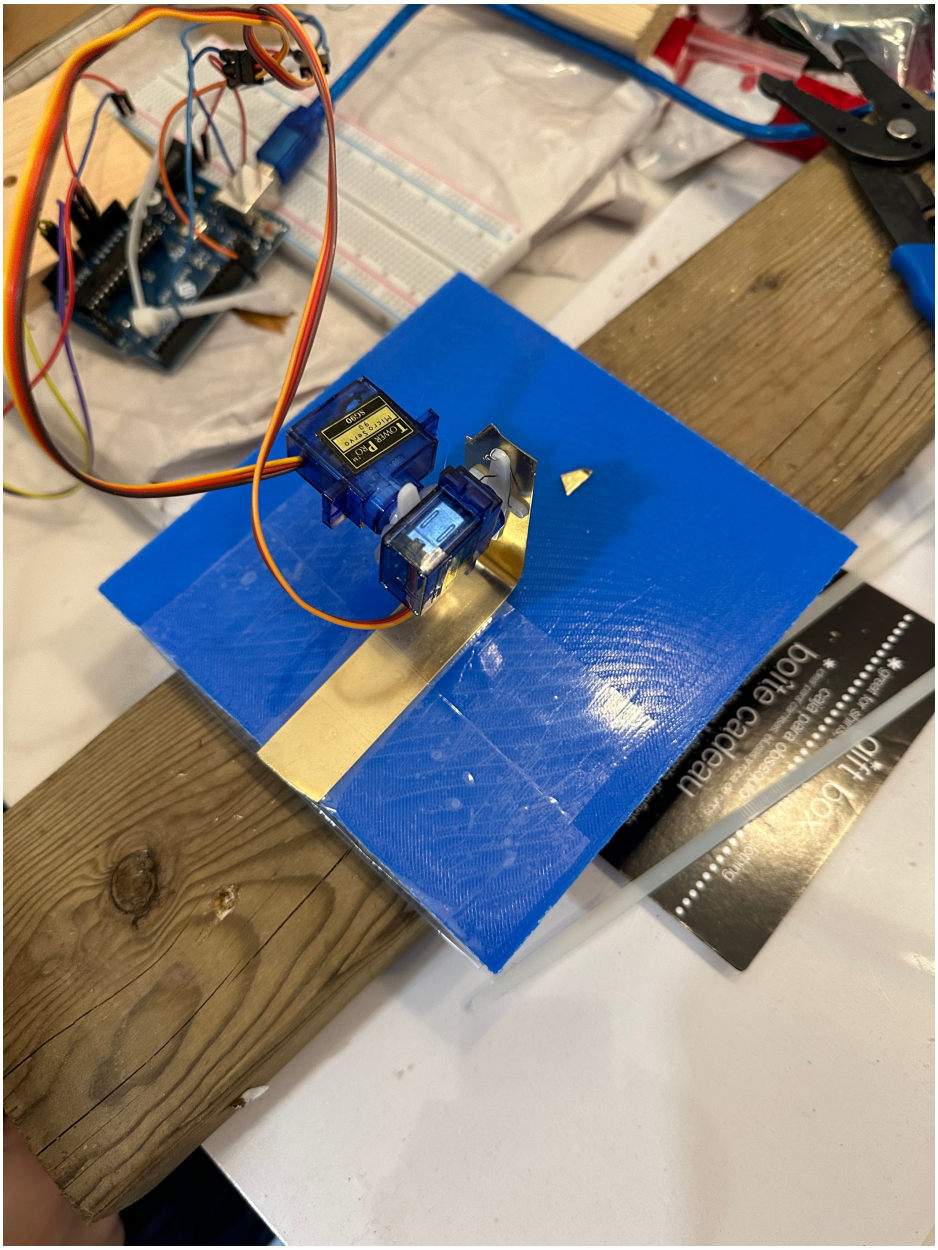

Figure 5: Servo Motor Attachment

- The installation of the two servo motors onto the maze
- Used a malleable metal to bend it in an L-shape
- Attached one servo with wires on the metal and the other superglued onto the servo
- Tested the movement to make sure it covers the entire x and y plane with the joystick

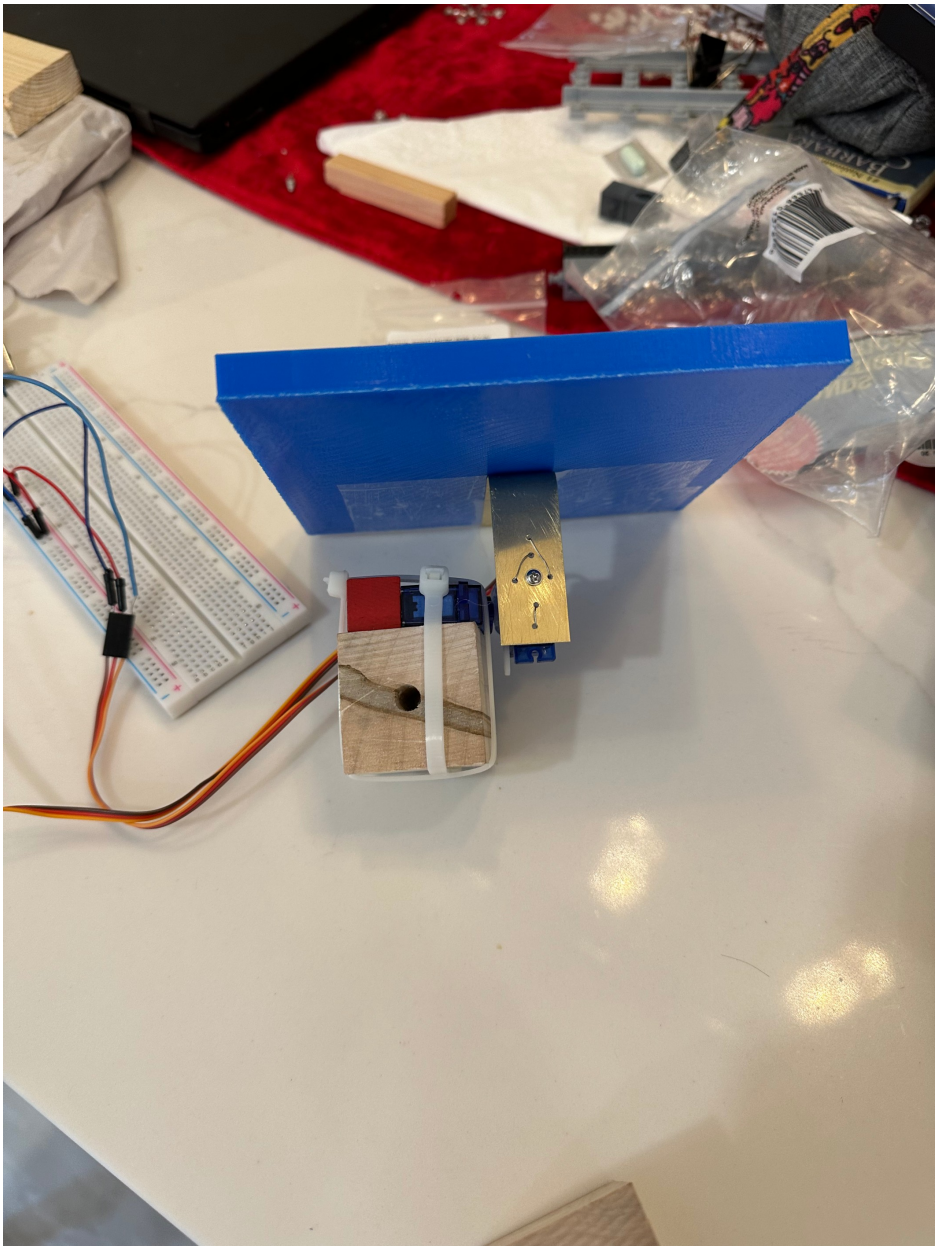

Figure 6: Maze Foundation Assembly

- Added a wooden block to secure the servo structures firmly
- Used 2 zip ties to firmly secure the servo motors

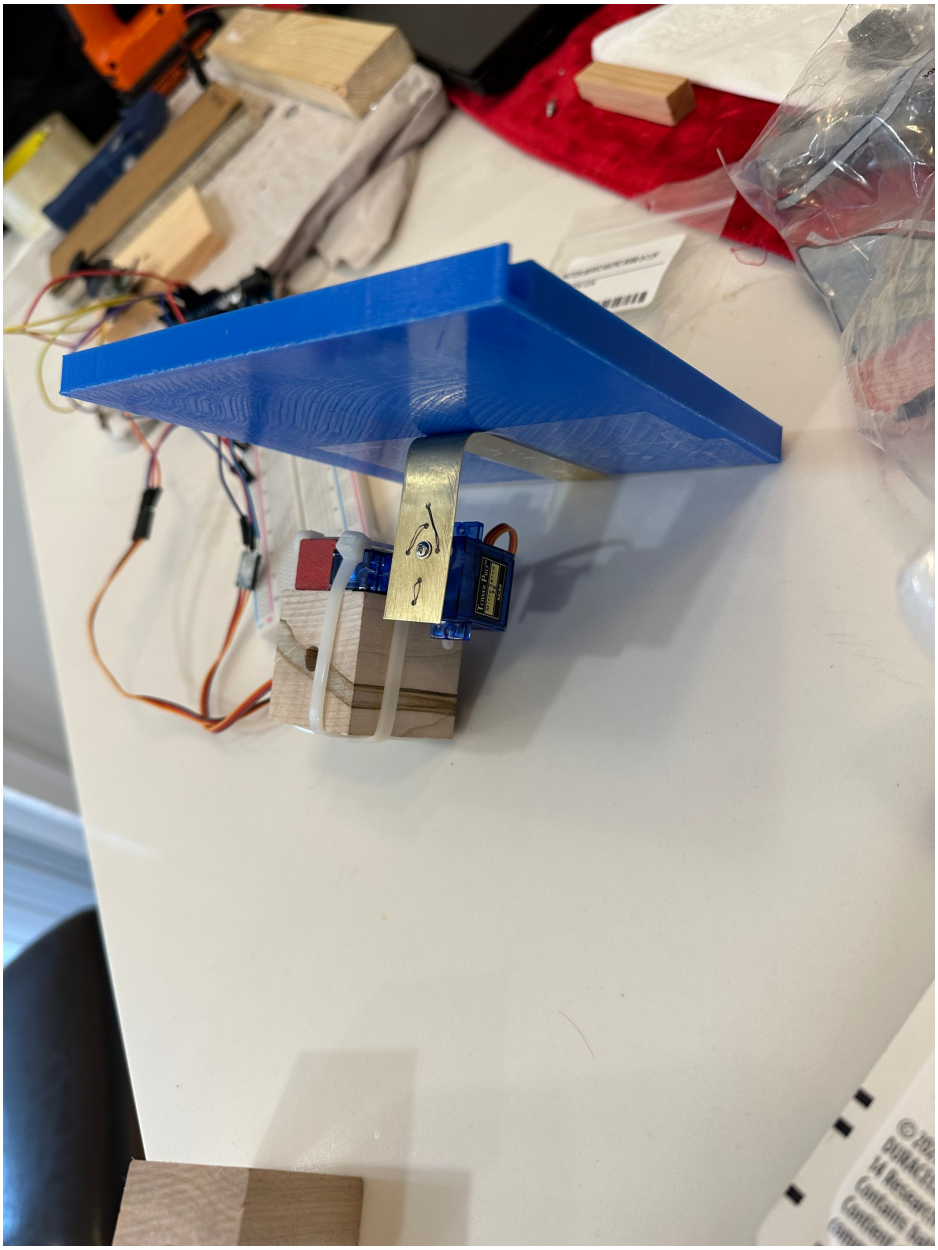

Figure 7: Maze Foundation Assembly Side View

- Side view of the wooden block supported structure

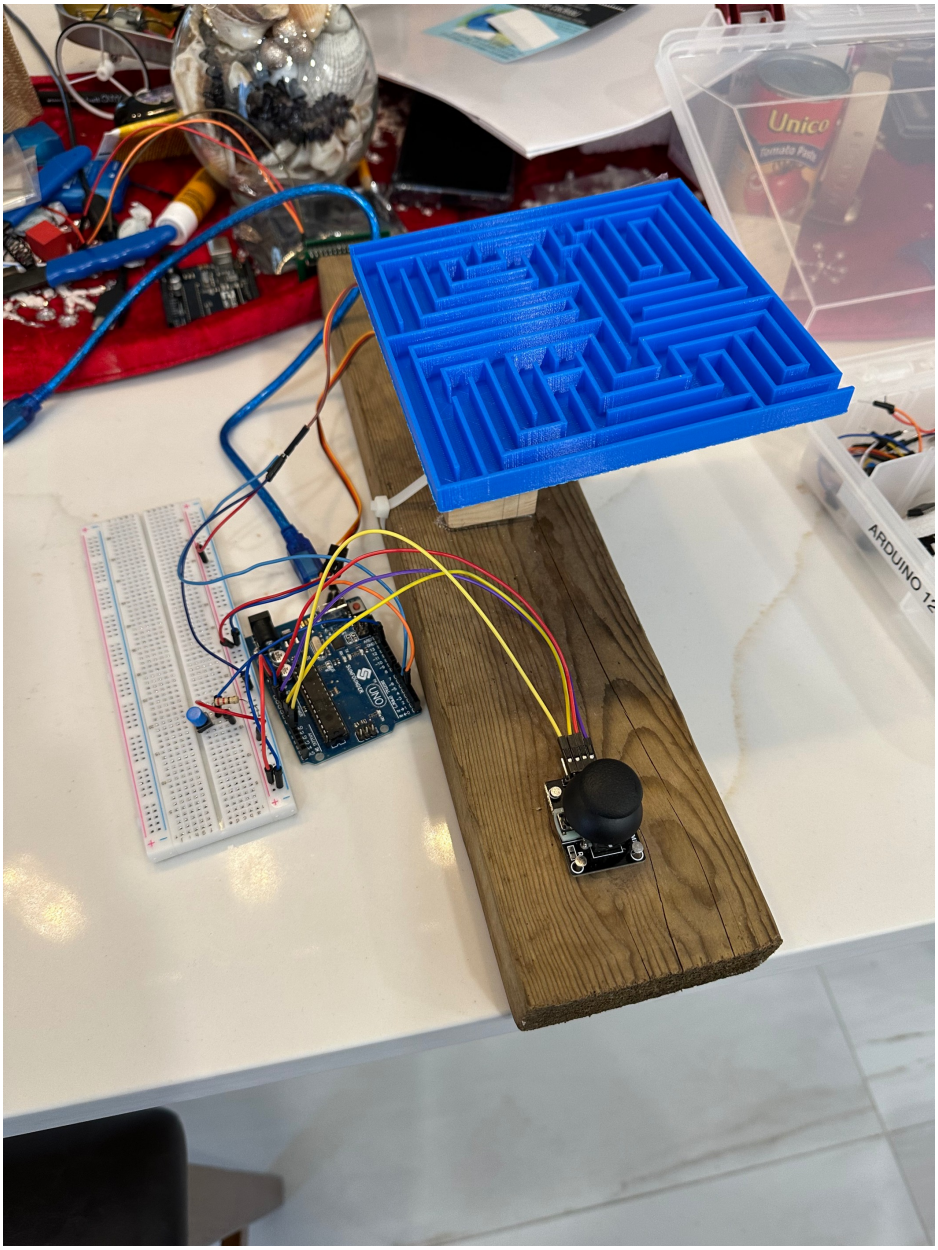

Figure 8: Final Product

- Attached the maze structure and joystick to a large wooden plank
- Added an additional zip tie through the middle of the small block for added support