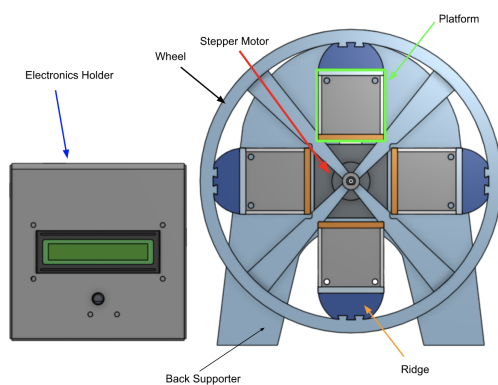# Hotwheel Carousel

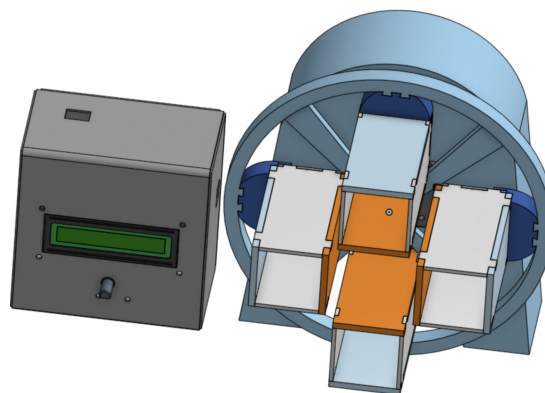By: Natasha Sieh & Samuel Thai

Robotics 2

January 11, 2023

The goal of this project was to build a carousel for holding and rotating hotwheel cars by using the electronics that we have learned in Robotics 2 including: an LCD, a rotary encoder, and a stepper motor.
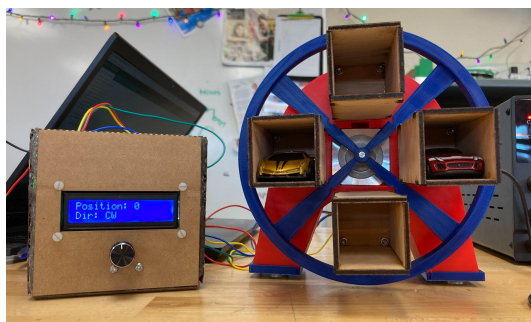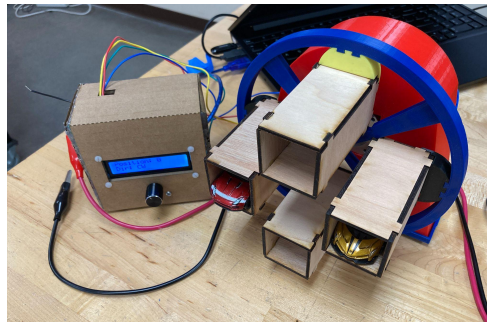
CAD Images

Front View

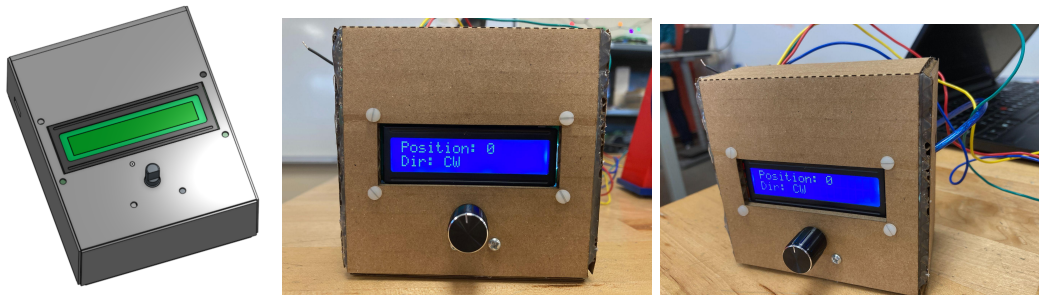### Side View

Final Design Images

Front View

Side View

How to operate the device:

Rotary Encoder

You can turn the rotary encoder clockwise or counterclockwise to change the direction of the stepper motor. Every rotation of the rotary encoder makes the stepper motor turn 90 degrees, so that there is a platform on the top, sides, and bottom. When you rotate the rotary encoder, it will display its position and the direction that it is being turned in (CW or CCW). You can press the rotary encoder button to home the stepper motor to its starting position.

Stepper Motor

The stepper motor will move every time the rotary encoder is rotated. In this project, we have decided not to change the speed of the stepper motor, all we are changing is the direction in which it turns.

LCD

The LCD will display the current position of the rotary encoder and the whether it is being turned clockwise (CW) or counterclockwise (CCW).

Future Improvements

- Making the back structure a little bit taller because we had to use the sticky feet under our part to prevent the wheel from experiencing friction with the table.

- Making the weight in the back of the structure heavier because when the cars tilt forward, the whole structure falls forward (more weight in the back)

- Build something within the platform that prevents the car from rolling forward and out of the platform.

- Attach the platform to a hook so that whatever position the platform is at, the car does not flip over in the platform while the stepper motor turns the wheel.