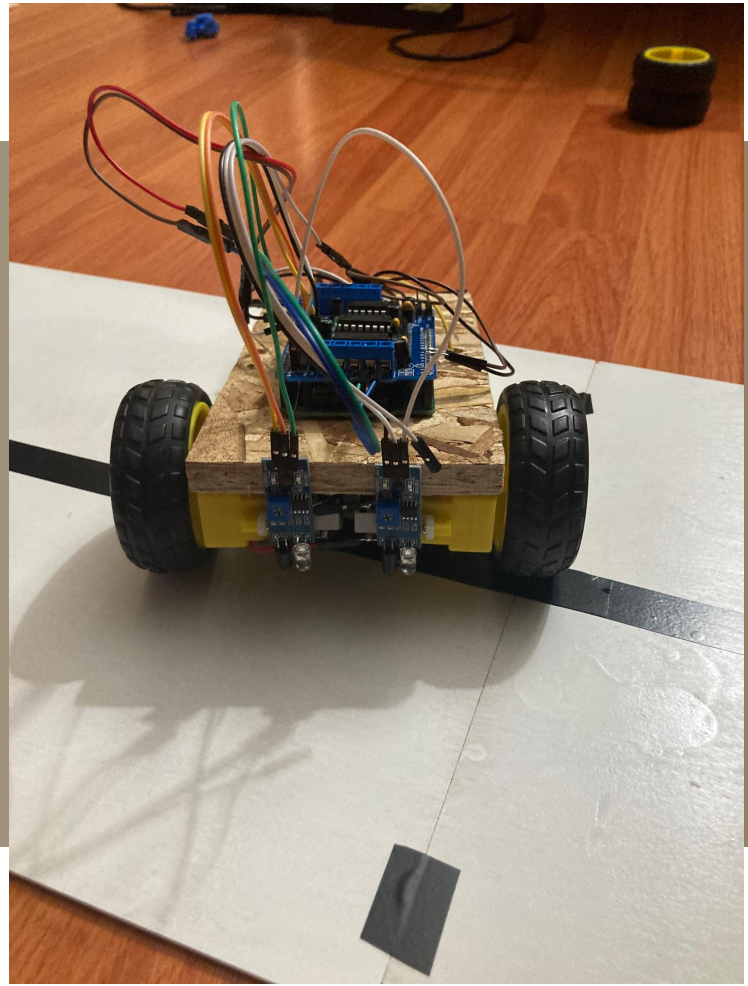
Maker Faire Line Bot

By: Patrick and Eric



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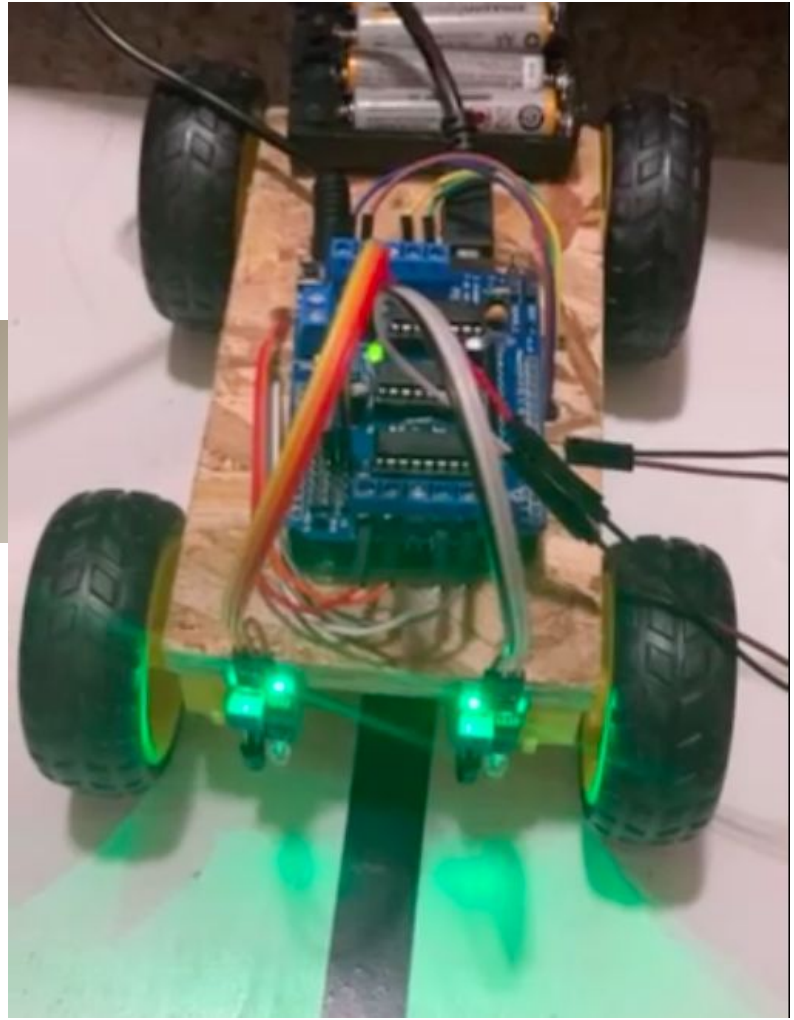
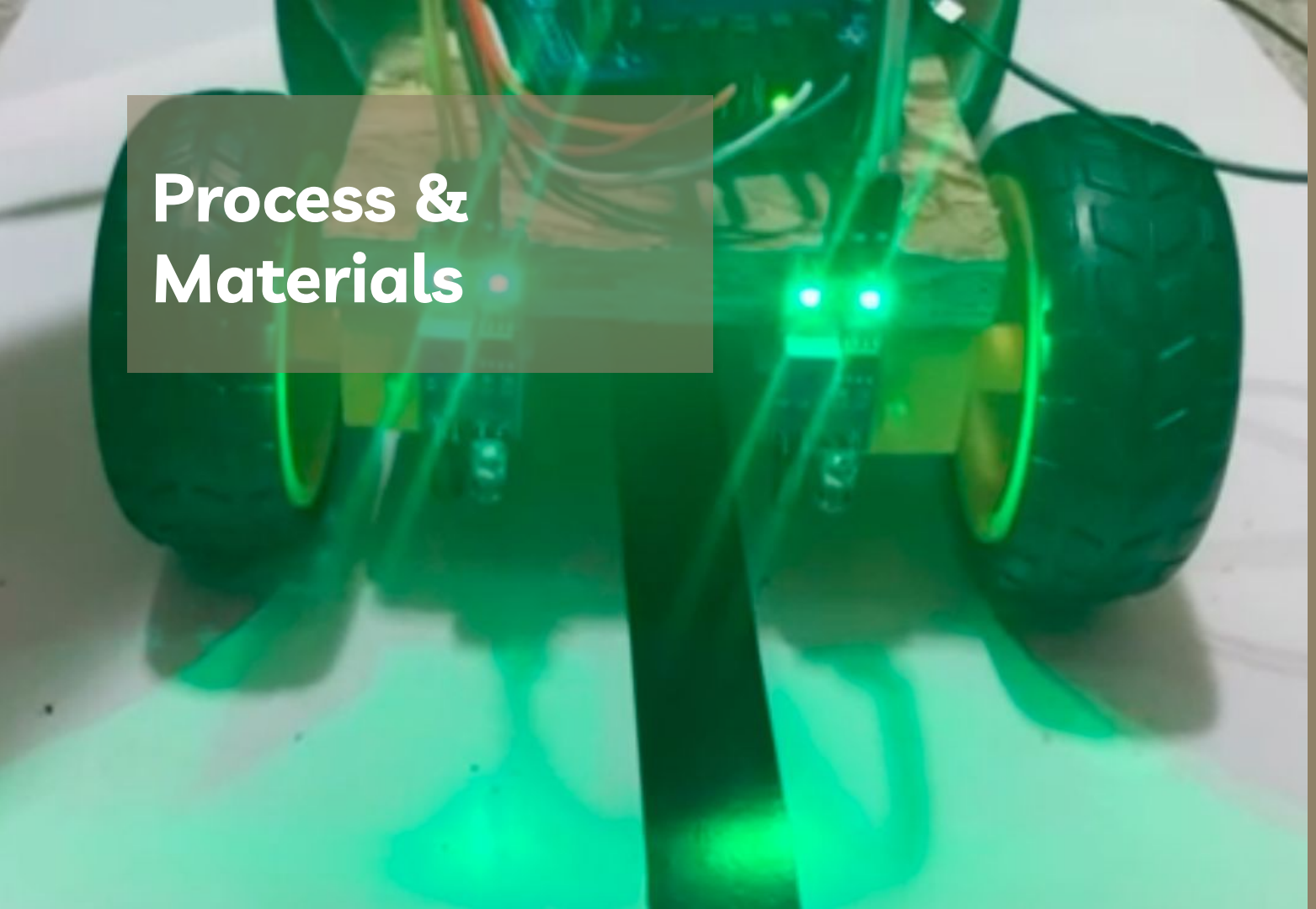


ABOUT THE PROJECT

We initially hoped to build a self driving car. However, due to setbacks we were not able to.

Why this Project?
We choose this project because of the rising popularity in self driving cars.



Process & Materials

02

Process & Materials

Materials

- Arduino
- Motor driver shield
- 2 DC Gear Motors
- Wood Frame
- Hot Glue
- 2 IR Sensors
- Several Jumper wires

Process

1. Build and assemble the frame
2. Wire the components
3. Code!
4. Test

Process

Our robot works through taking analogue output from the IR sensors which are mounted on both sides of the car. The IR sensor works by by emitting infrared (IR) light and detecting the light levels that return to the sensor. Because black is less refractive and white is more refractive the IR sensor is able to distinguish black and white. From this the robot either turns right, left, stops, or continues straight. When the robot's left sensor detects the line the robot turns right to go straight and vice versa.

Challenges

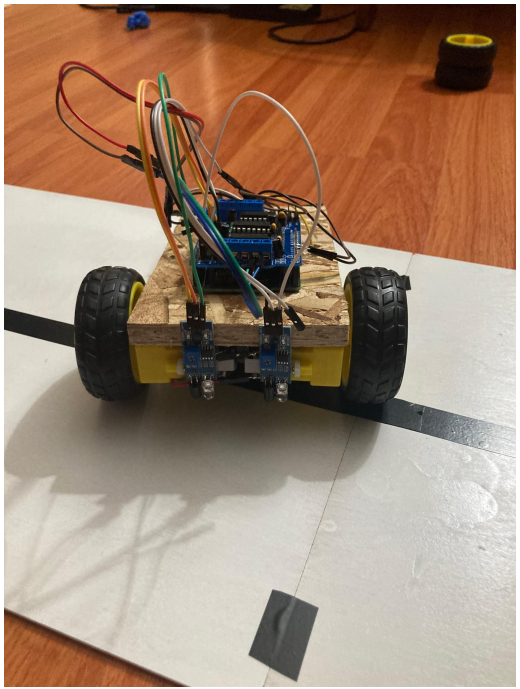
We encountered several challenges while building our robot. Some of our challenges were power issues, IR sensor calibration, and motor issues. We had difficulties with our motors, not being able to rotate properly due to insufficient power and damage. This lead to our car awkwardly turning and frequent stalls and stops. Through testing we were able to determine that our motors were damaged and replaced them. After locating replacement motors we faced problems with power. Our robot was only able to move slowly due to the lack of power.

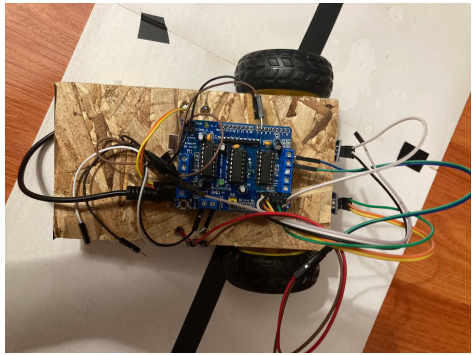
Improvements and Changes

We initially started with four motors, however, when we faced difficulties our motors being weak, we determined that there was not enough power to power the four motor which lead us to using two motors instead. Due to these issues, we could have improved on and look into a stronger power supply so that we would be able to use 4 motors. Another thing that could be improved is the way the car design. Currently our car is only on two wheels only, so that we can eliminate the extraneous weight, however, the back of the car is being dragged..

Improvements/ Changes

Video and photos:





Video and photos