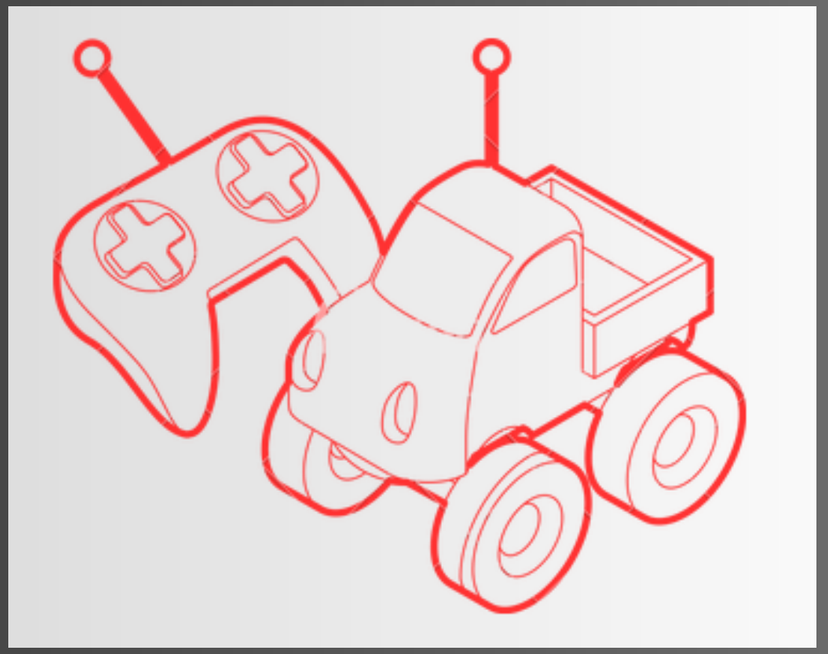
Graduation Project 2

KA-CHOW

Self driven car

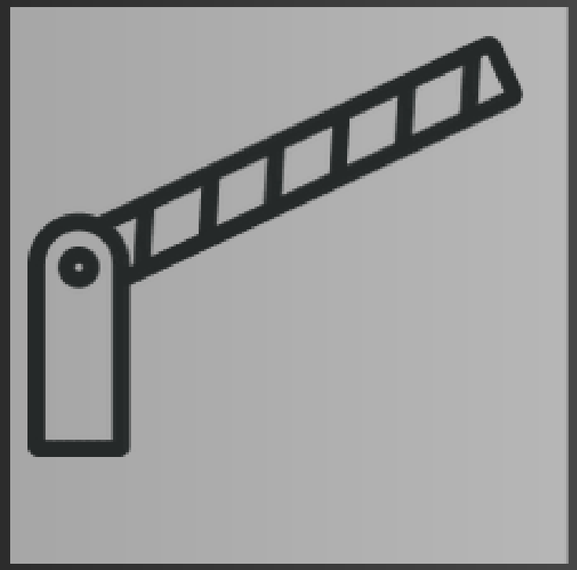
Introduction

The project presents the car in two modes: the first is a self-driving car and the second is controlled by a remote control inside a track full of exciting challenges.

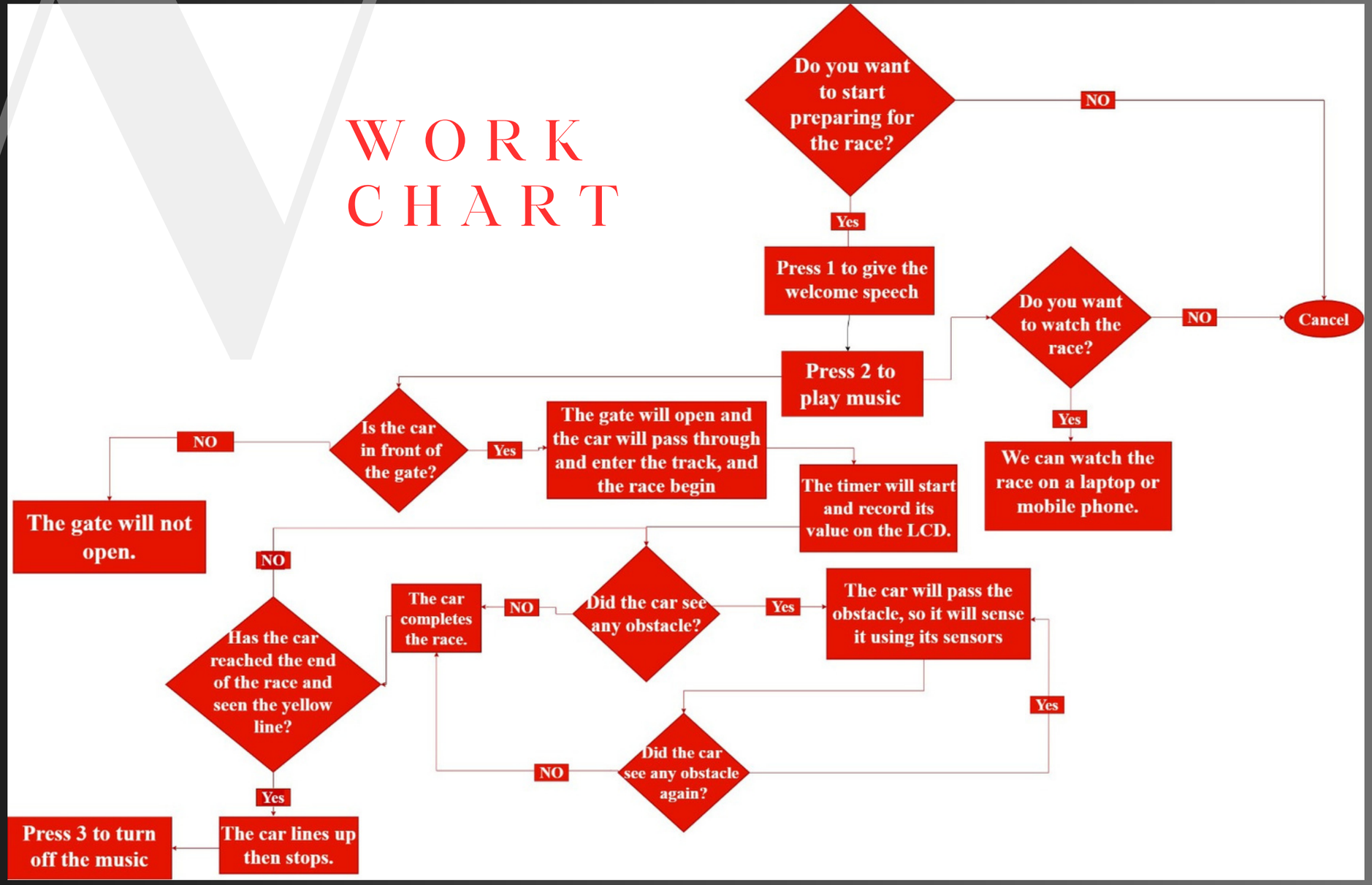


Features

Self-driven Car

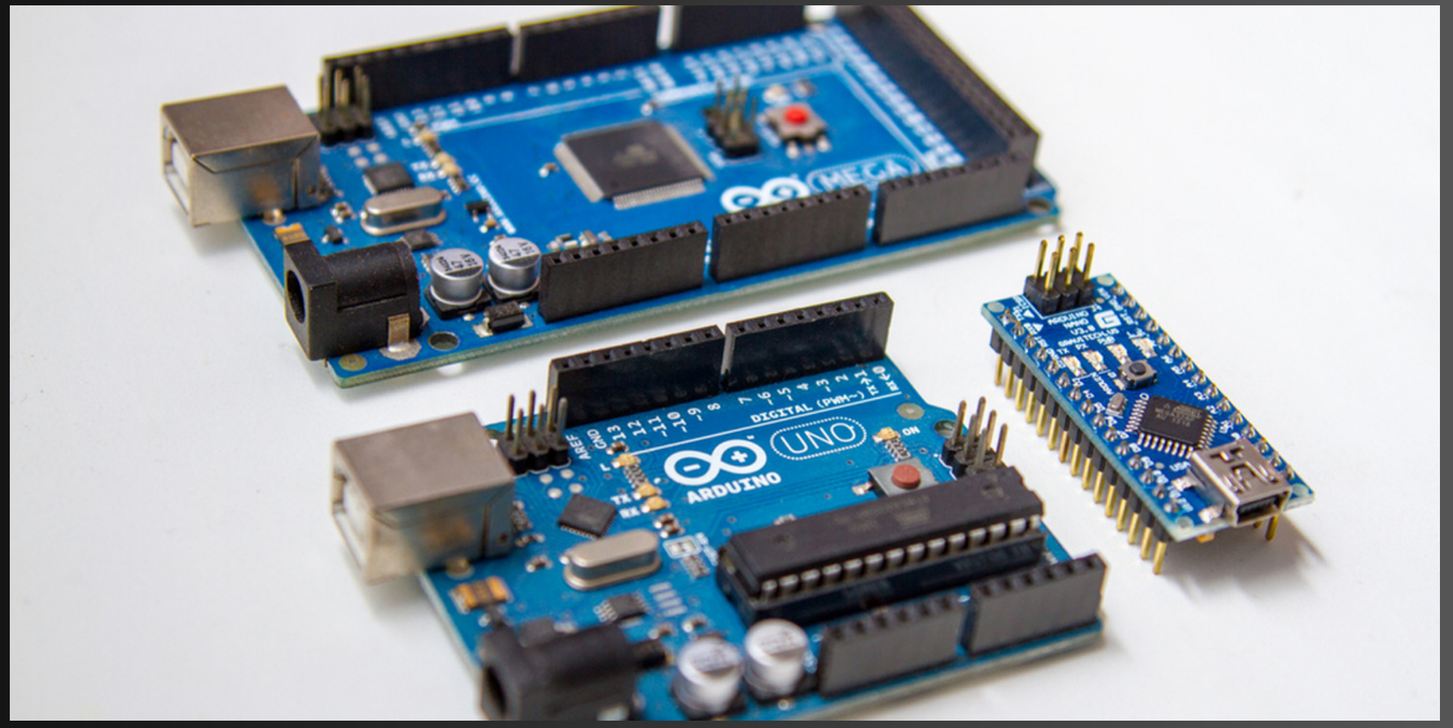


WORK CHART

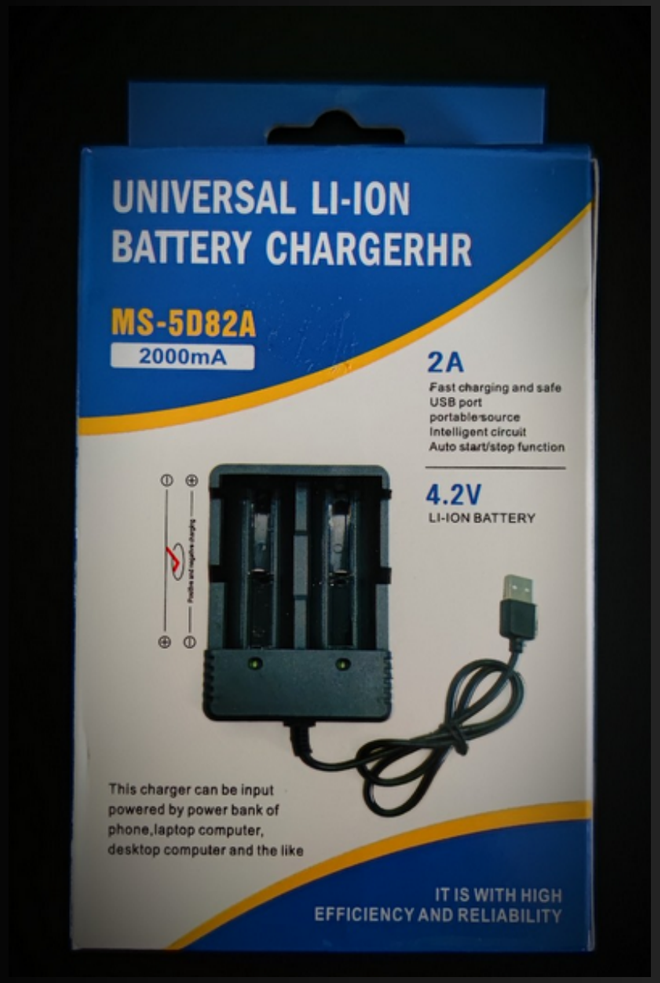

Do you want to start preparing for the race?
NO
Cancel
Yes
Press 1 to give the welcome speech
Do you want to watch the race?
NO
Yes
We can watch the race on a laptop or mobile phone.
Press 2 to play music
Is the car in front of the gate?
NO
The gate will not open.
Yes
The gate will open and the car will pass through and enter the track, and the race begin
The timer will start and record its value on the LCD.
NO
Has the car reached the end of the race and seen the yellow line?
Yes
Press 3 to turn off the music
The car lines up then stops.
The car completes the race.
NO
Did the car see any obstacle?
Yes
The car will pass the obstacle, so it will sense it using its sensors
Yes
NO
Did the car see any obstacle again?

Technical Choices

Microcontrollers



Power Sources



Battery Charger

Battery Holder+switch

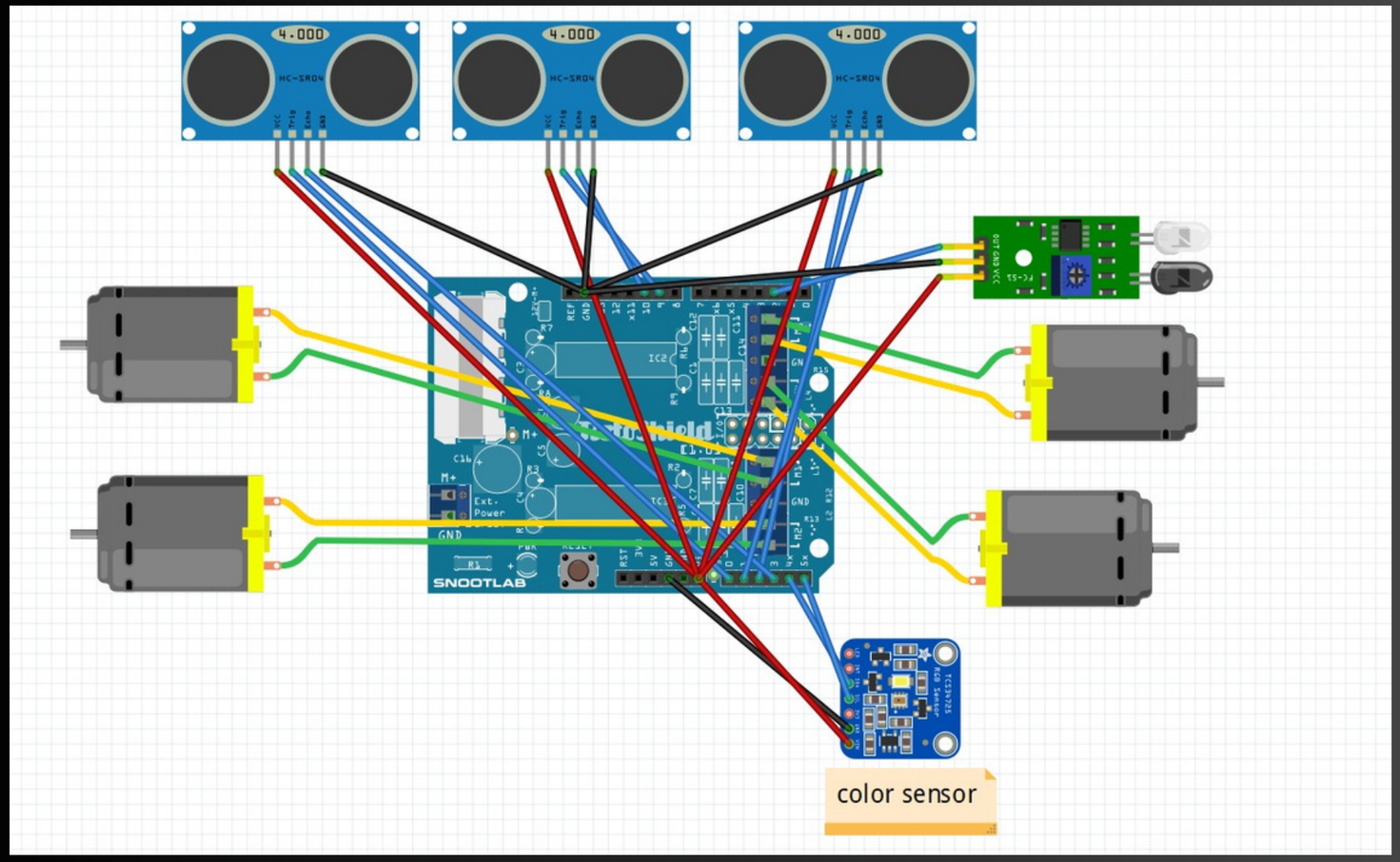
qoop batteries

Libraries

Library	Used For
<AFMotor.h>	to control motors with the Adafruit Motor Shield.
<Wire.h>	for general I2C communication.
<Adafruit_TCS34725.h>	to interface with the TCS34725 color sensor.
<Servo.h>	Controls servo motors in Arduino projects.
<LiquidCrystal.h>	Interacts with Liquid Crystal Displays (LCDs) in Arduino projects.
<PS4Controller.h>	Allows communication with a PS4 controller in Arduino projects.

ICs

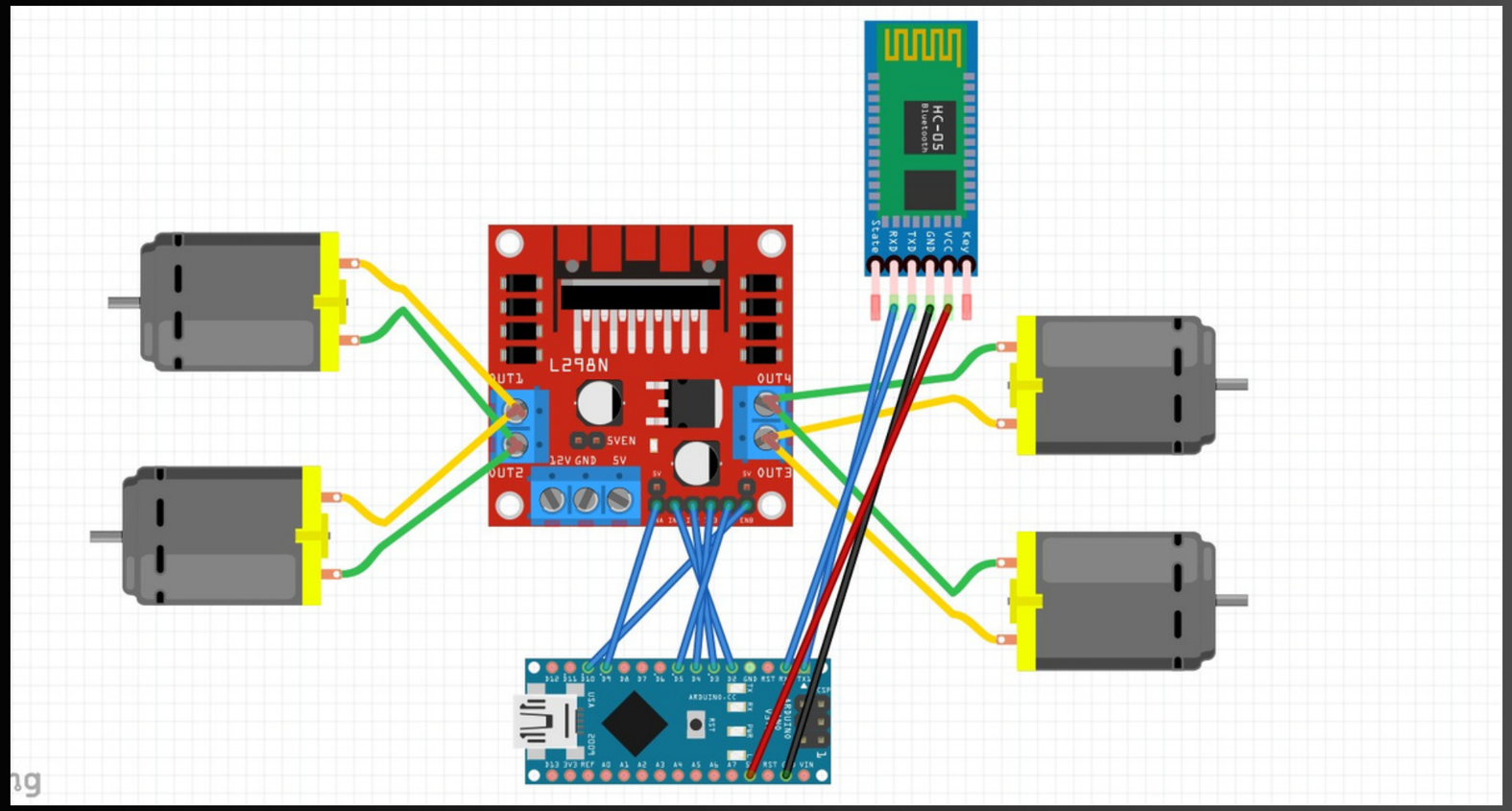
First the CAR
Mode 1



L293D motor driver
4 Wheels
4 dc-motor
3 ultrasonic Sensor
Ir Sensor
Color Sensor

ICs

First the CAR
Mode 2



L298N motor driver
4 Wheels
4 dc-motor
HC-05

ICs

Second, the REMOTE

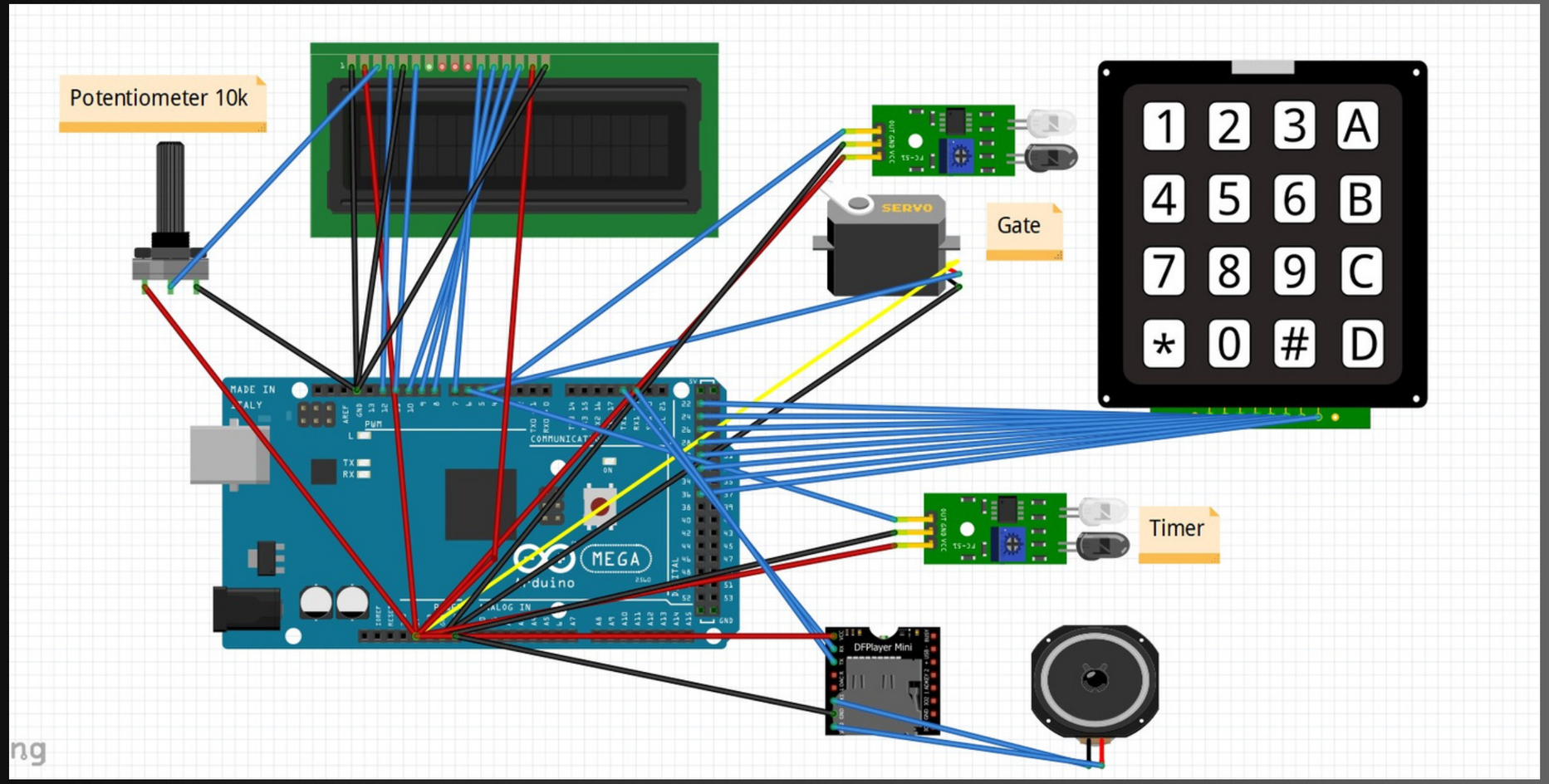
Esp32

+

We used a PlayStation remote and programmed it to give us the desired performance. We did this by taking the MAC address of the ESP32 and giving it to the remote using the ”sixaxispairtool” program.

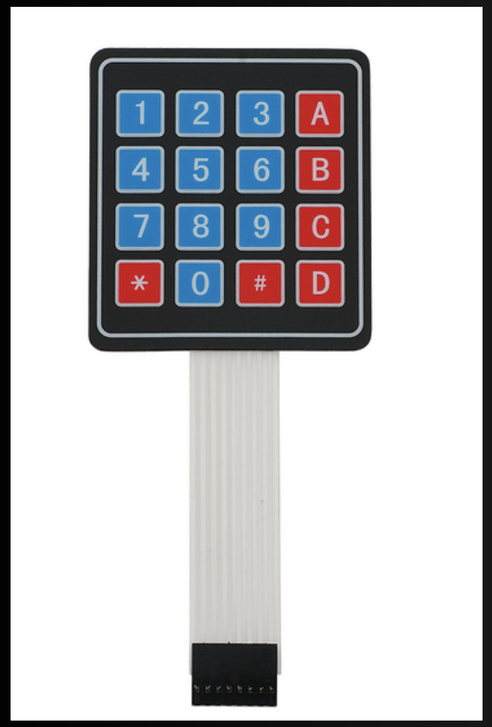
ICs

The last part, which is the TRACK



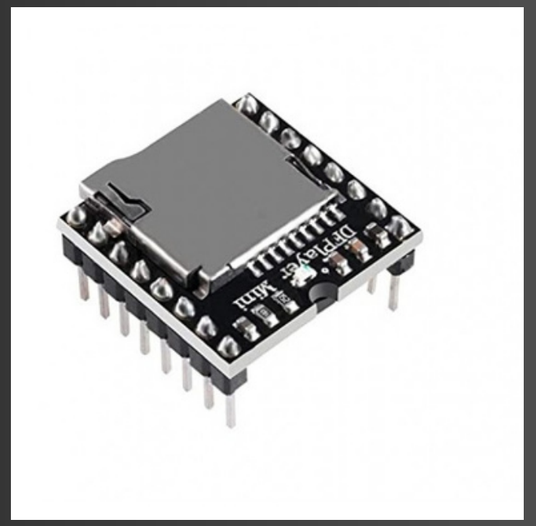
ICs

We also used a sound system, lighting line, and a camera for the track to add a contextual atmosphere to the game.



keyPad

aux cable



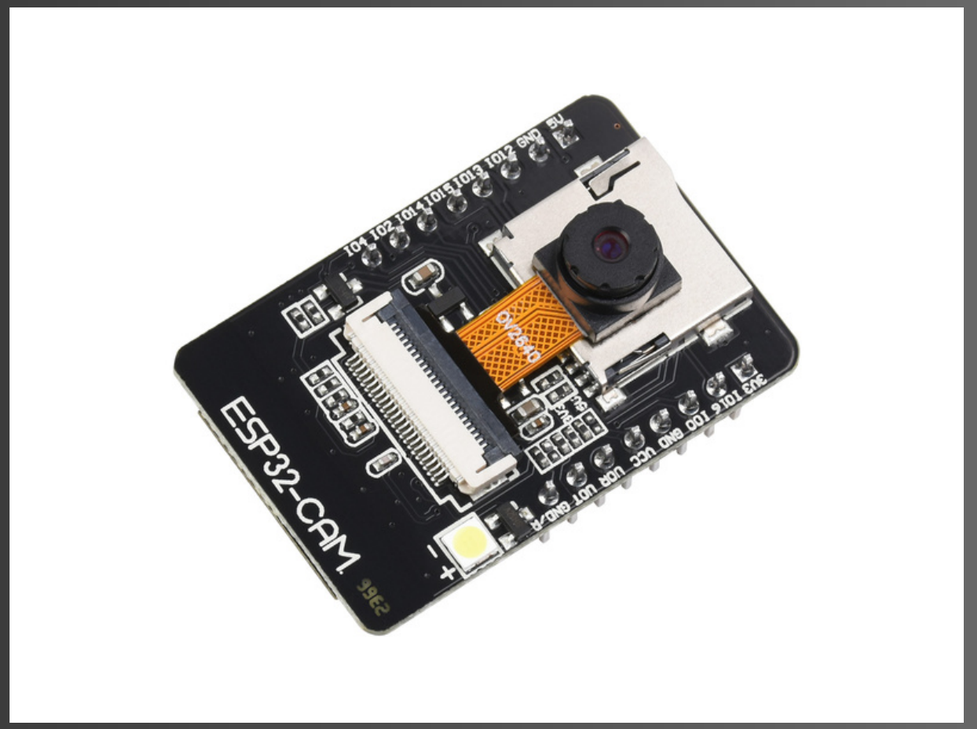
Dfplayer mini mp3

LED

ICs

We also used a sound system, lighting line, and a camera for the track to add a contextual atmosphere to the game.

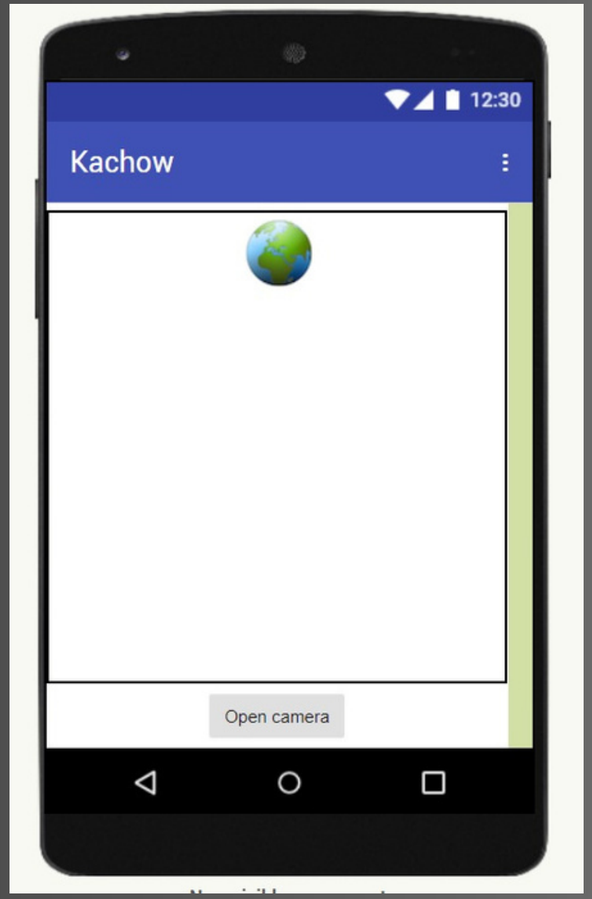
esp32-cam-usb



esp32-cam

Apps

Were designed using the "MIT App Inventor" program.



CONSTRAINTS

Conclusion and Future Work

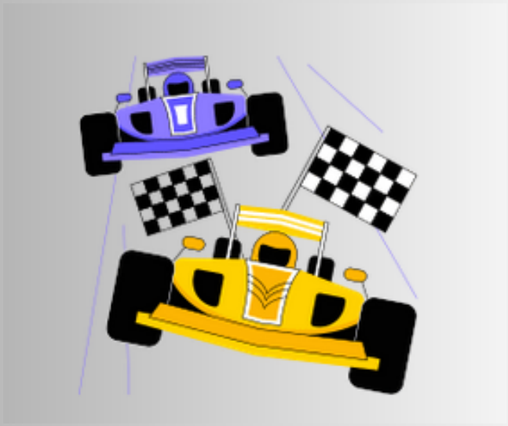
it lays the groundwork for a complete racing system brimming with excitement and competition.

1. Imagine a larger racetrack

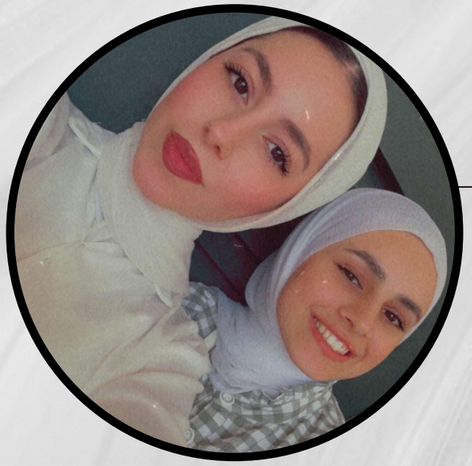
2.Envision sleek, life-sized vehicles inspired by the iconic ”Ka-chow”

3.Advanced technology

4.It’s a vision for the future of interactive racing, drawing inspiration from beloved sporting events like the World Cup



dream of a vibrant raceway where passion ignites, rivalries unfold, and the spirit of speed takes center stage.



TEAM WORK

Amna Othman

Hadeel Darawsha

DEMO

ENJOY