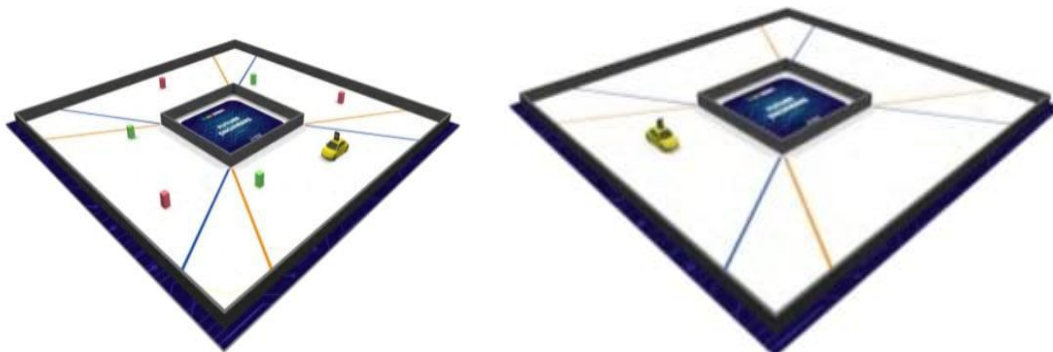


The Strategy

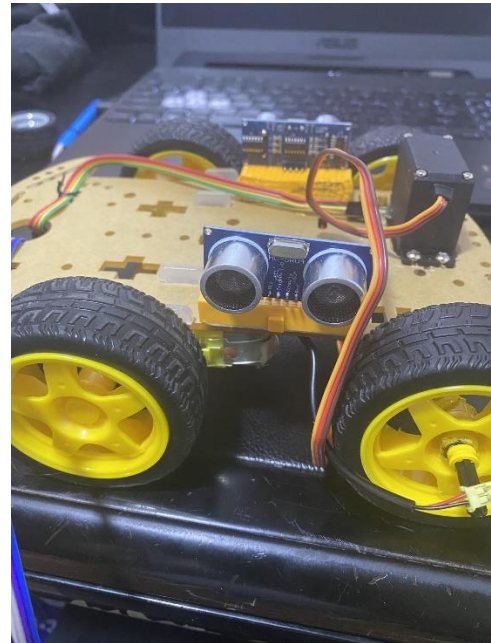


We, as the Future Savors team, have built and programmed a self-driving car capable of completing two stages. In the first stage, it starts driving from a specific location, completes three laps, and stops at the same point where it started. We achieved this by using a color sensor, which we programmed. Based on the track, which has blue lines, the car completes three full laps after crossing 12 blue lines.

As for the second stage, the car also completes three laps, but there are cubes with red and green colors on the track. The car must pass the green cube on the left and the red one on the right. We utilized a camera sensor and programmed it using computer vision. Additionally, we used software libraries and algorithms to support these functionalities. In both stages, the robot needs to avoid obstacles, and to achieve this, we used an ultrasonic sensor



Ultrasonic sensor:



We used an ultrasonic sensor of the type HC-SR04 and connected it to the Raspberry Pi using the bread board .

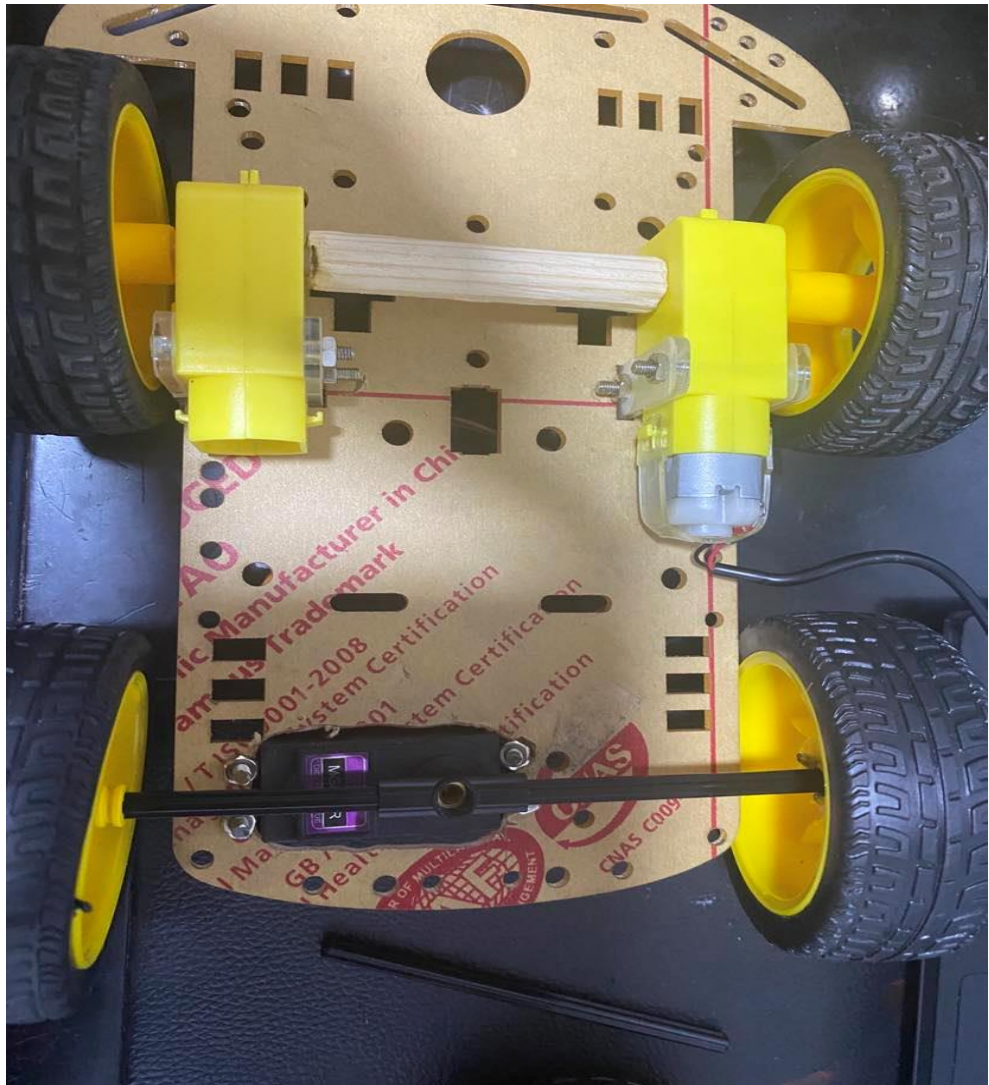
We connected the sensors to the GPIO pins.

The controller used:



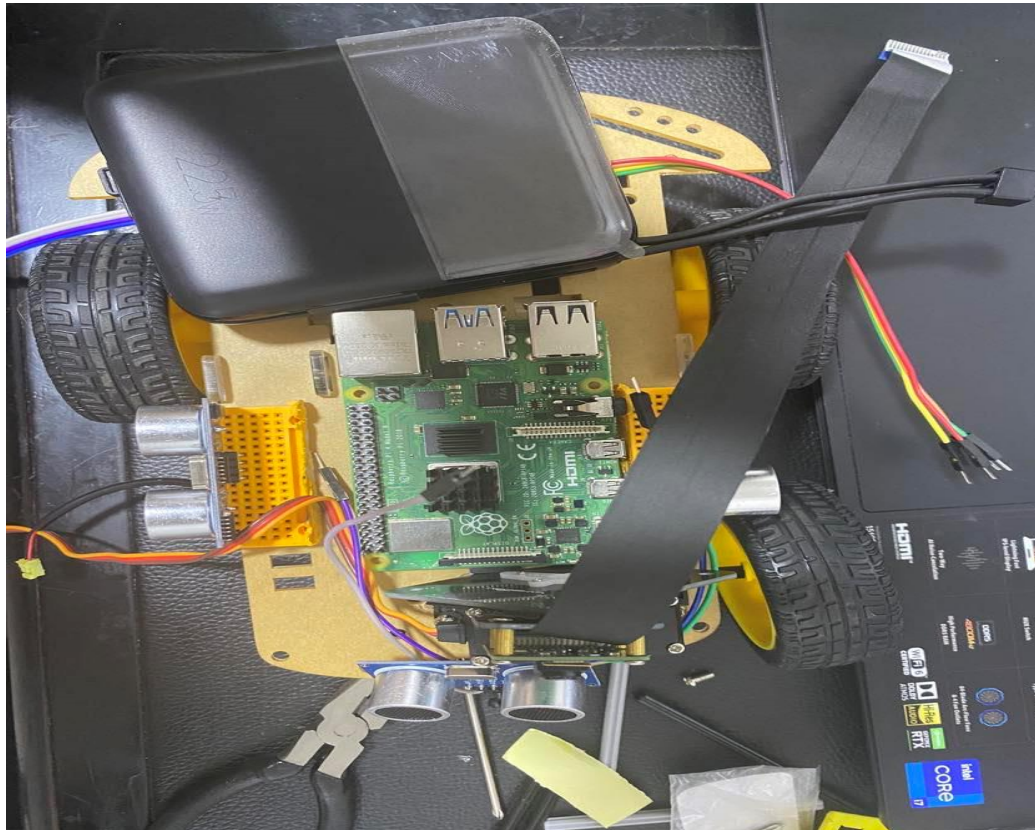
We used a Raspberry Pi controller and connected it to the power bank and took a voltage of 5 volts from it.

The motor used:



We used one DC motor.

Baseus opow power Bank:



It has a small design, weighing 190 grams, and its battery capacity is very high and it charges quickly

The exterior is made of a composite material of ABS and PC and its wire is hidden inside the battery and is made of durable plastic

It has 4 charging ports, which helps charge 4 different devices at the same time

(2) usb-1

c (port) -2

c (wire)-3

lightning (wire)-4

It has an LED indicator that shows the percentage of remaining battery, and there is a smart charging chip and a temperature reducer when charging, which extends the life of the battery and maintains the safety of the user

The current value is high, equivalent to 3 A, and it contains a 2-in-1 charging cable

It has a large capacity equivalent to 10,000 mAh, and it has a digital display screen to show t
the remaining charge percentage