VIT EXTERNSHIP GUIDED PROJECTS

Name: Masetti Anil Kumar

Email: anil.18bcd7141@vitap.ac.in

Mobile no: 6300366825

Assignment No: 2

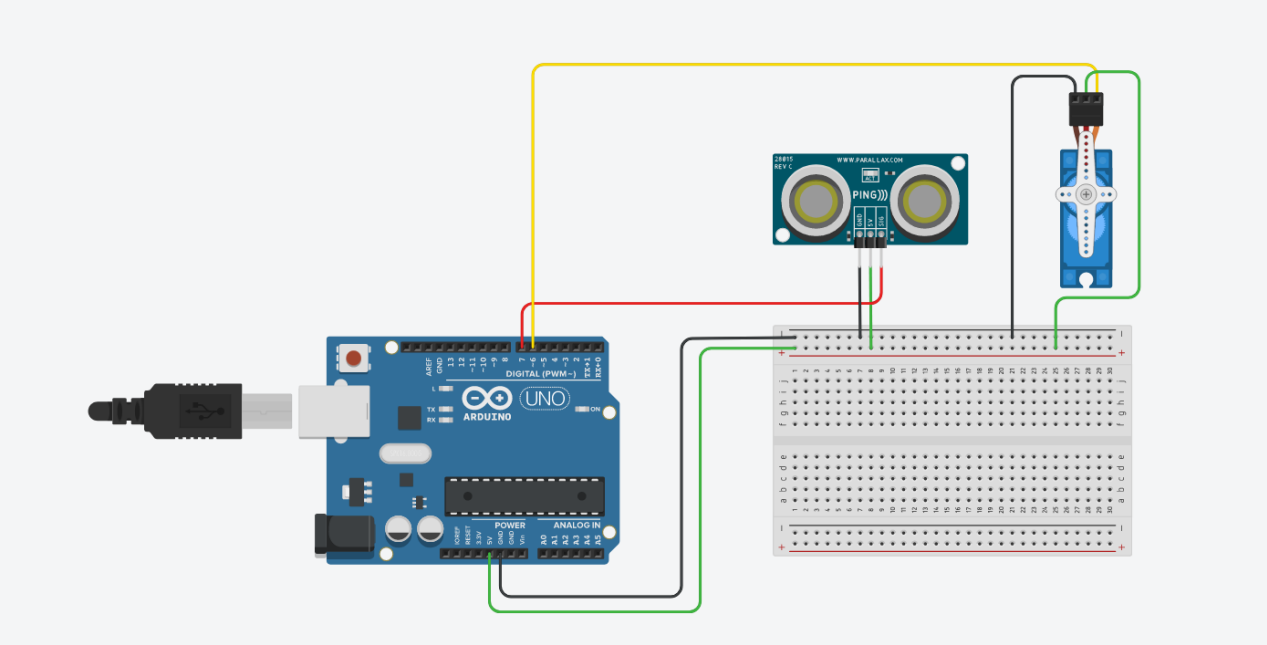
Question: Develop an "Automatic garage door opening system". Use an Ultrasonic sensor to detect if there is a vehicle in front of the garage. if any vehicle is detected open the garage door (rotate the servo motor) for some time and close it.

Answer:

Components Used:

1. **Arduino UNO**
2. **Small Bread Board**
3. **Ultrasonic Distance Sensor**
4. **Micro Servo Motor**

Circuit Diagram:

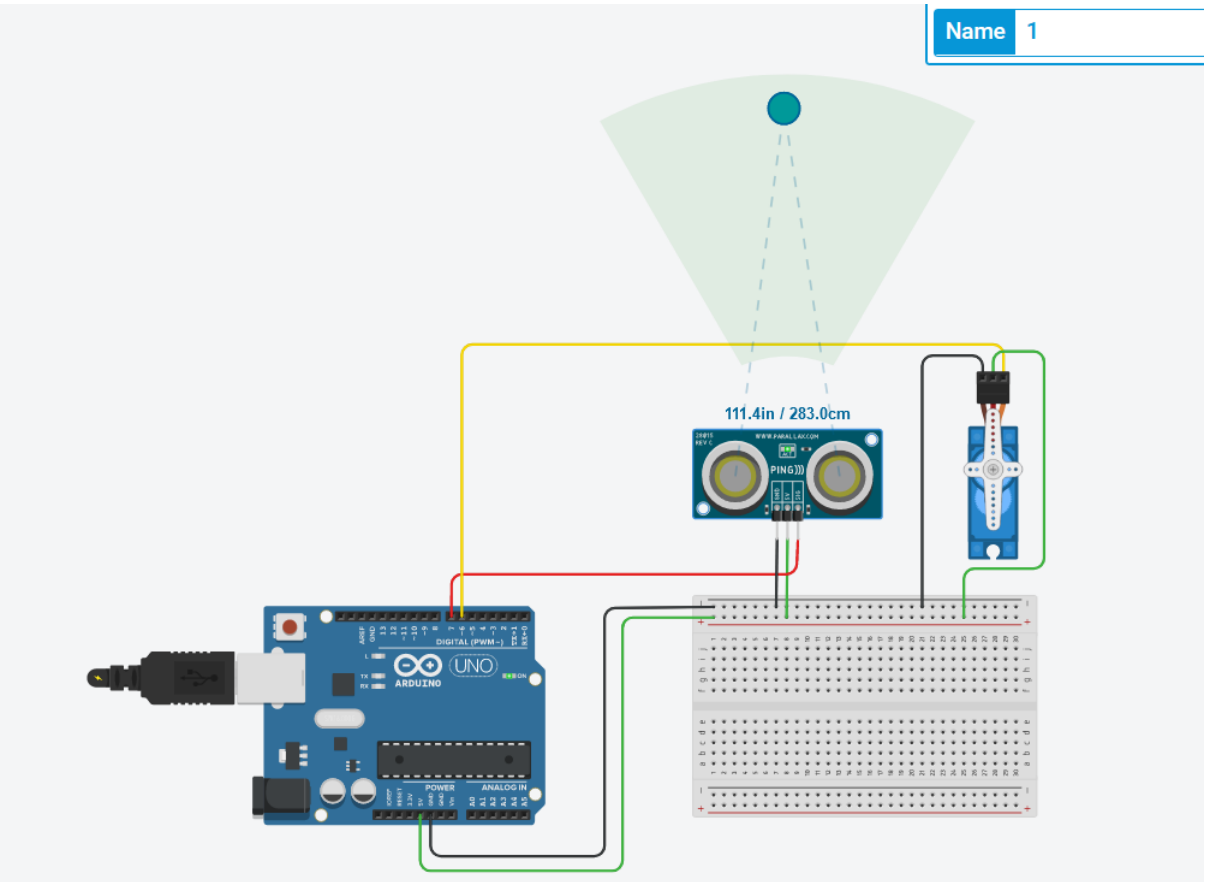


Code:

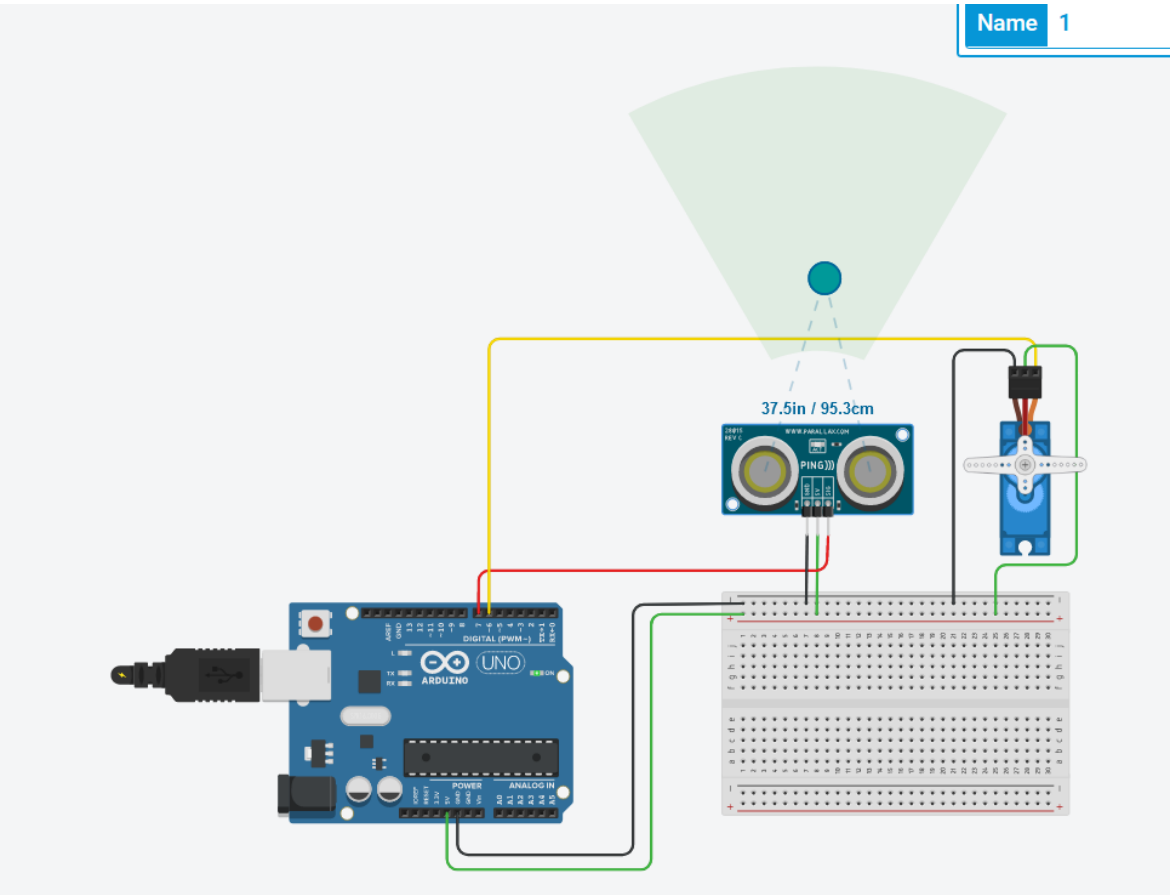
```
#include <Servo.h>
int distance = 0;
Servo servo_6;
long readUltrasonicDistance(int triggerPin, int echoPin)
{
  pinMode(triggerPin, OUTPUT);  // Clear the trigger
  digitalWrite(triggerPin, LOW);
  delayMicroseconds(2);
  // Sets the trigger pin to HIGH state for 10 microseconds
  digitalWrite(triggerPin, HIGH);
  delayMicroseconds(10);
  digitalWrite(triggerPin, LOW);
  pinMode(echoPin, INPUT);
  // Reads the echo pin, and returns the sound wave travel time in microseconds
  return pulseIn(echoPin, HIGH);
}
void setup()
{
  servo_6.attach(6, 500, 2500);
  Serial.begin(9600);
}
void loop()
{
  servo_6.write(0);
  distance = 0.01723 * readUltrasonicDistance(7, 7);
  if (distance <= 100) {
    Serial.println("Gate Opening....");
    servo_6.write(90);
    Serial.println("Gate Opened");
    delay(3000); // Wait for 3 Seconds
    Serial.println("Gate Closing....");
    servo_6.write(0);
    Serial.println("Gate Closed");
   }
```

Output:

When the sensor detects car, which is in 100 cm then Servo Motor rotates to 90 degrees which means the gate is opened and after 3 seconds the servo motor again rotates to 0 degrees which means gate closed.



The servo motor angle is not rotating to 90 degrees as the point is >100cm



Since the object distance is <100cm gate is opened.

Status in Serial Monitor