Assignment-2

NAME - AYUSH KUMAR AGARWAL

REG NO - 19BEE0175

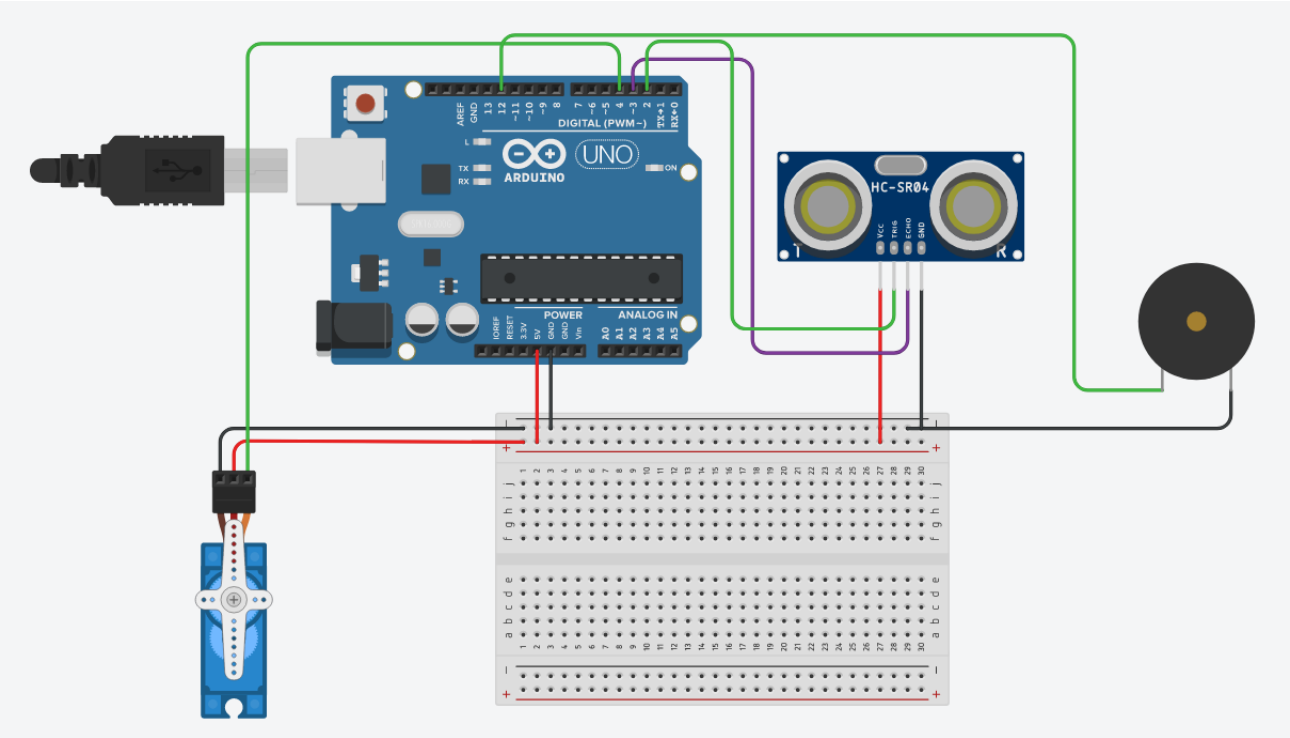
APPLICATION ID - SPS_APL_20210012611

Aim - 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.

Components Required –
1. Arduino uno
2. Ultrasonic Distance Sensor
3. Micro Servo Motor
4. Piezo
5. Breadboard
6. Jumper Wires

Working - We use an ultrasonic sensor to detect the distance to vehicle from the garage. Based on the distance if the vehicle is 170cm = 1.7 m from the ultrasonic sensor the servo motor will rotate for 90 degrees and the piezo will start buzzing. The door will be opened for 8 seconds and then automatically close.

Circuit diagram:



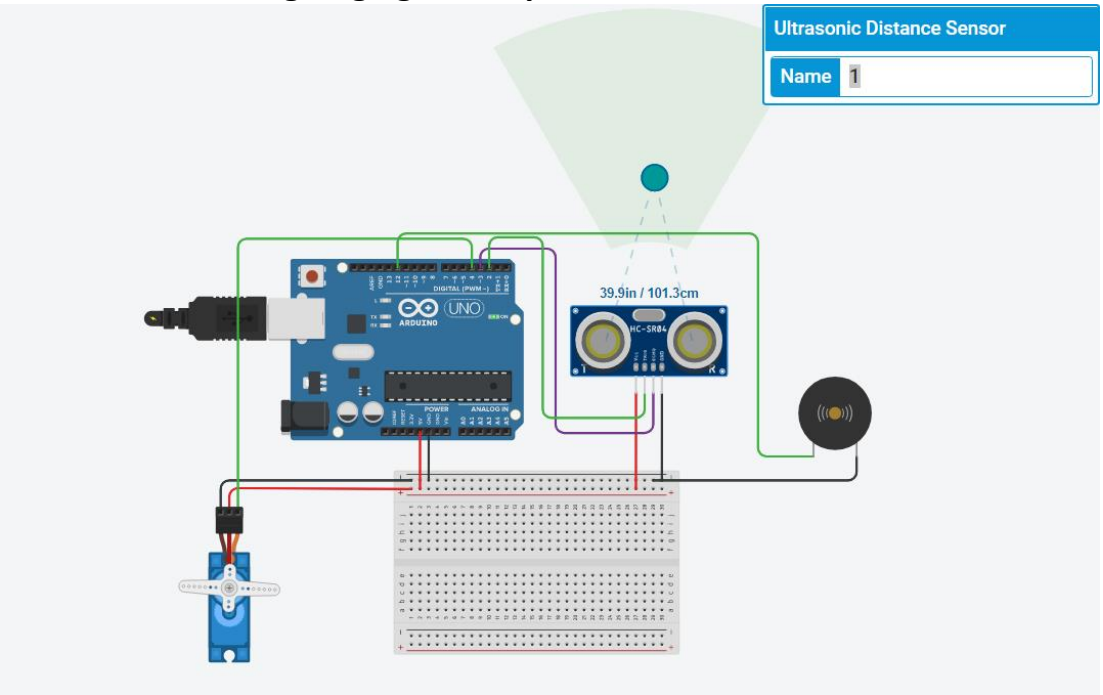
Arduino Code:

```
#include<Servo.h>
Servo s;

void setup()
{
  s.attach(4);
  pinMode(2,OUTPUT);
  pinMode(3,INPUT);
  pinMode(12,OUTPUT);


}

void loop()
{
  float dist = motor();
  buzzersys(dist);
```

```
}

float motor()
{
  digitalWrite(2,LOW);
  digitalWrite(2,HIGH);
  delayMicroseconds(10);
  digitalWrite(2, LOW);
  float dur = pulseIn(3, HIGH);
  float dist = (dur * 0.0343)/2;
  return dist;
}

void buzzersys(float dis)
{
  if(dis<=170)
  {
    s.write(90);
    tone(12,400);
    delay(8000);
    noTone(12);
    delay(1000);
  }


  s.write(0);
  delay(1000);
  noTone(12);

}
```

Output:

Distance<=170cm,garage gate is open and buzzer is ON



Distance >170cm,garage gate is close and buzzer is OFF