VIT-SMARTBRIDGE EXTERNSHIP PROGRAM

INTERNET OF THINGS

ASSIGNMENT-2

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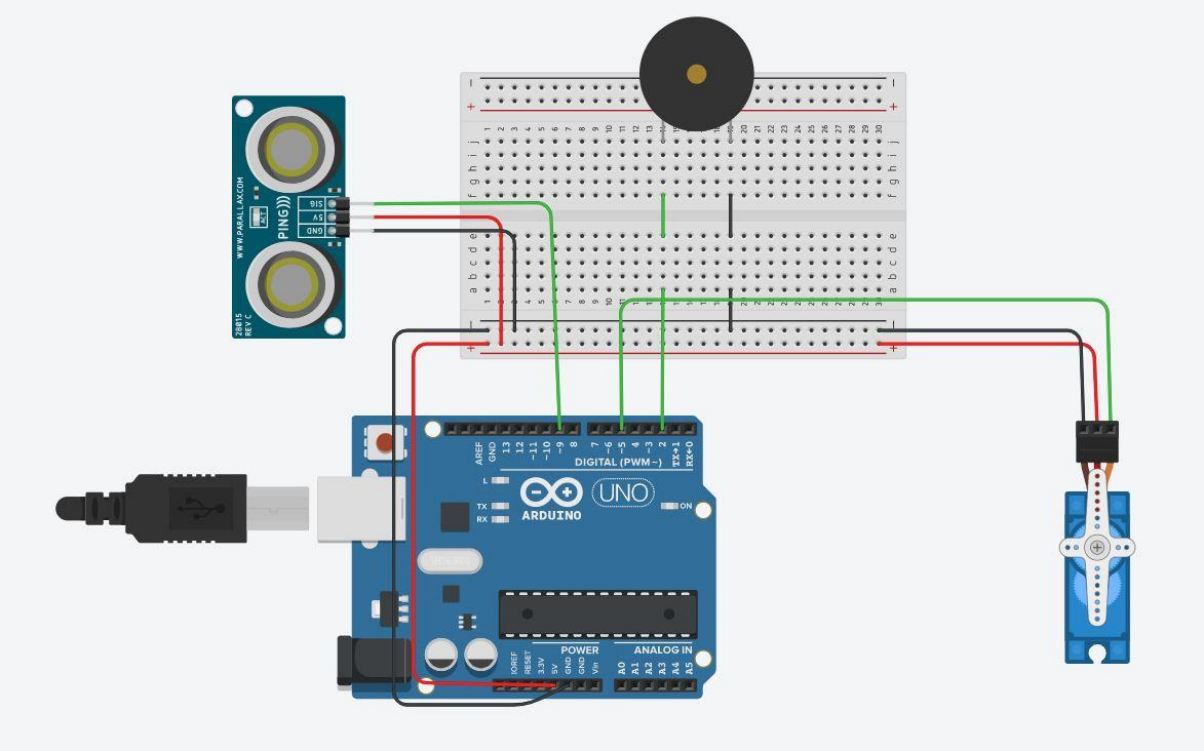
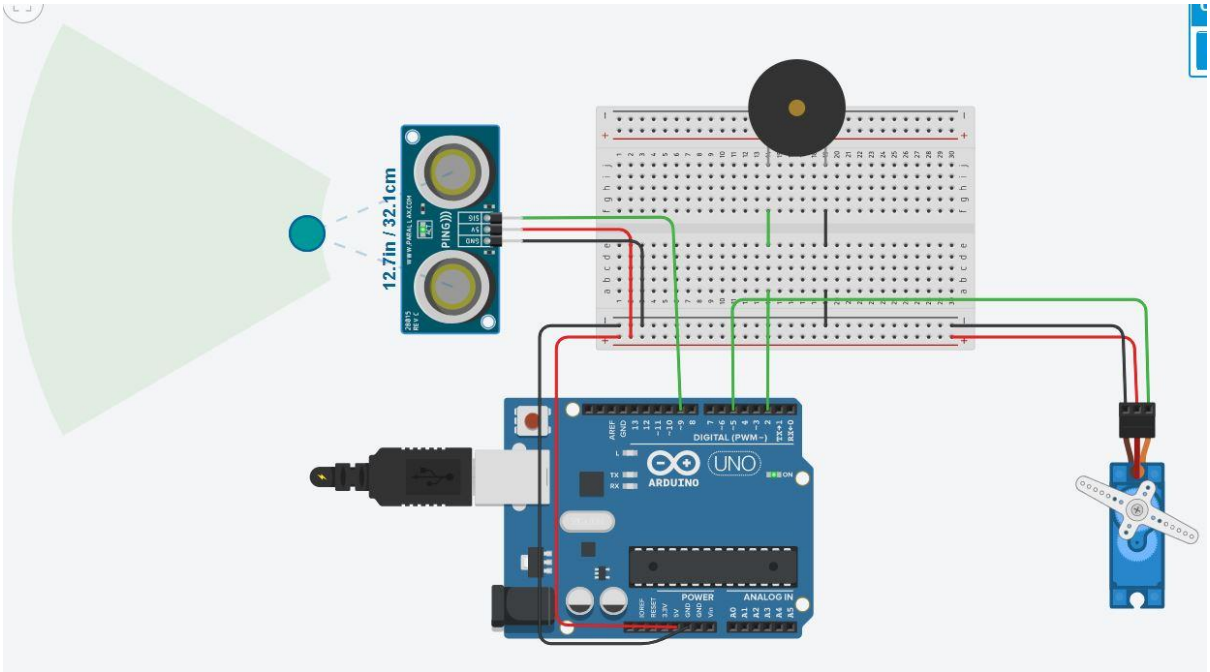
Q. Develop an "Automatic garage door opening system". Use an Ultrasonic sensor to detect if there is a vehicle in front of the garage. if any vehicle is detected open the garage door (rotate the servo motor) for some time and close it.

Circuit Diagram:



When there is a vehicle in proximity, the servo motor rotates as shown below:



Code:

```
#include <Servo.h>

const int buzzer = 2;

Servo servox;

int mapa,graus = 0,cm = 0;

bool tocarmusica = false;

long readUltrasonicDistance(int triggerPin, int echoPin)
```

```
{
  pinMode(triggerPin, OUTPUT);
  digitalWrite(triggerPin, LOW);
  delayMicroseconds(2);
  digitalWrite(triggerPin, HIGH);
  delayMicroseconds(10);
  digitalWrite(triggerPin, LOW);
  pinMode(echoPin, INPUT);
  return pulseIn(echoPin, HIGH);
}

void setup()
{
  Serial.begin(9600);
  servox.attach(5);
  servox.write(0);

}

void loop()
{
  cm = 0.01723 * readUltrasonicDistance(9, 9);
  delay(10);
  if(cm < 20){
    servox.write(90);
    tocarmusica = true;
  }
```

```
  else if(20 < cm && cm < 60){
    mapa = map(cm, 20,60, 0, 90);
    graus = 90 - mapa;
    servox.write(graus);
  }else{
    servox.write(0);
  }
delay(10);
  if(tocarmusica){
    tone(buzzer, 1000, 500);
    tocarmusica = false;
  }

 }
```