ASSIGNMENT – 2

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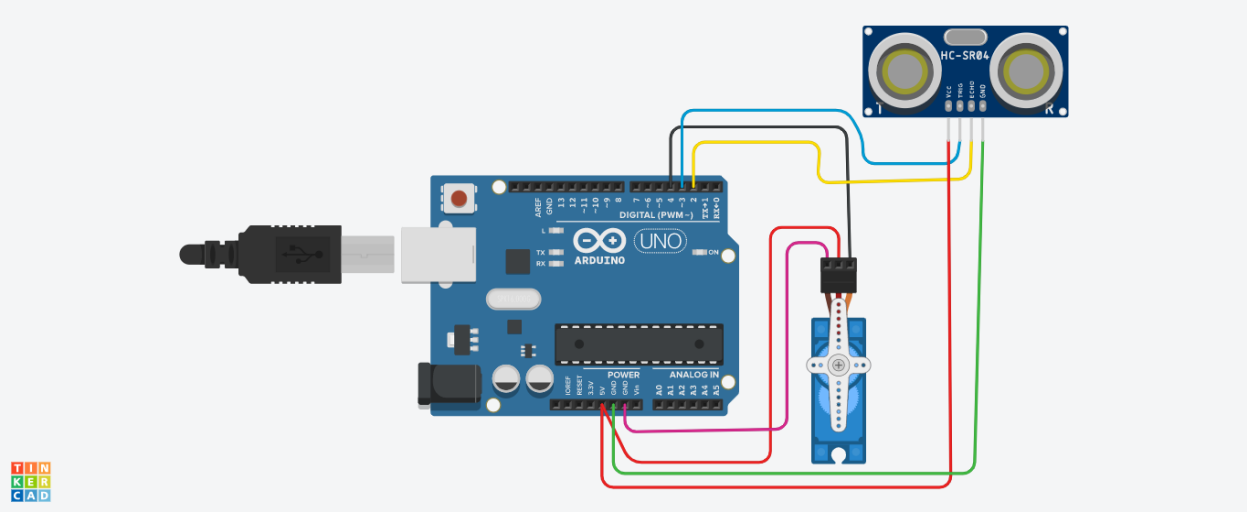
QUESTION

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.

Circuit Diagram:



Code:

```
3  void setup()
4  {
5    pinMode(3, OUTPUT);
6    pinMode(2, INPUT);
7    Serial.begin(9600);
8    s.attach(4); //attaching D3 pin to servo motor
9  }
10
11 void loop()
12 {
13   digitalWrite(3, LOW);
14   digitalWrite(3, HIGH);
15   delayMicroseconds(10);
16   digitalWrite(3, LOW);
17   float dur = pulseIn(2, HIGH);
18   float dis = (dur / 2)/29.1;
19   if(dis < 100){
20   s.write(180);
21   Serial.println("vehicle detected in less than 100 CM,opening the door");
22   Serial.println(dis);
23   delay(1000);
24   }
25
26   else if(dis > 100){
27   s.write(0);
28   Serial.println("Vehicle not detected");
29   Serial.println(dis);
30   delay(1000);
31   }
32
```

Code in Text:

```
#include<Servo.h>

Servo s;

void setup()

{

  pinMode(3, OUTPUT);

  pinMode(2, INPUT);

  Serial.begin(9600);

  s.attach(4); //attaching D3 pin to servo motor

}


void loop()

{

  digitalWrite(3, LOW);
```

```
  digitalWrite(3, HIGH);
  delayMicroseconds(10);
  digitalWrite(3, LOW);
  flo  Serial.println(dis);
  delay(1000);
  }

  else if(dis > 100){
  s.write(0);
  Serial.println("Vehicle not detected");
  Serial.println(dis);
  delay(1000);
  }

}
at dur = pulseIn(2, HIGH);
  float dis = (dur / 2)/29.1;
  if(dis < 100){
  s.write(180);
  Serial.println("vehicle detected in less than 100 CM,opening the door");
```

Output:

Serial Monitor

```
vehicle detected in less than 100 CM,opening the door
92.77
vehicle detected in less than 100 CM,opening the door
93.47
vehicle detected in less than 100 CM,opening the door
93.44
vehicle detected in less than 100 CM,opening the door
92.77
vehicle detected in less than 100 CM,opening the door
93.47
vehicle detected in less than 100 CM,opening the door
92.06
vehicle detected in less than 100 CM,opening the door
93.47
Vehicle not detected
102.35
Vehicle not detected
118.92
Vehicle not detected
119.97
Vehicle not detected
120.91
Vehicle not detected
123.02
Vehicle not detected
121.60
Vehicle not detected
123.02
```