

# VIT SMART BRIDGE IOT EXTERNSHIP PROGRAM

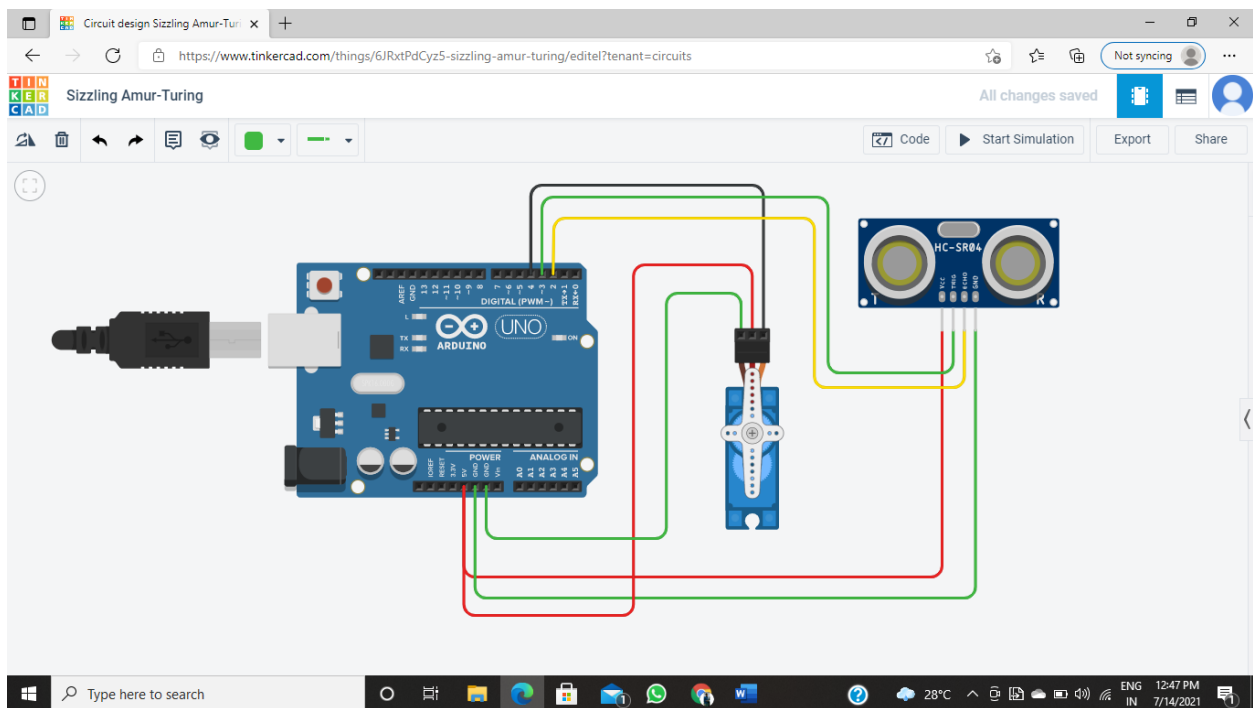
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## Assignment-2:

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:

```
#include<Servo.h>

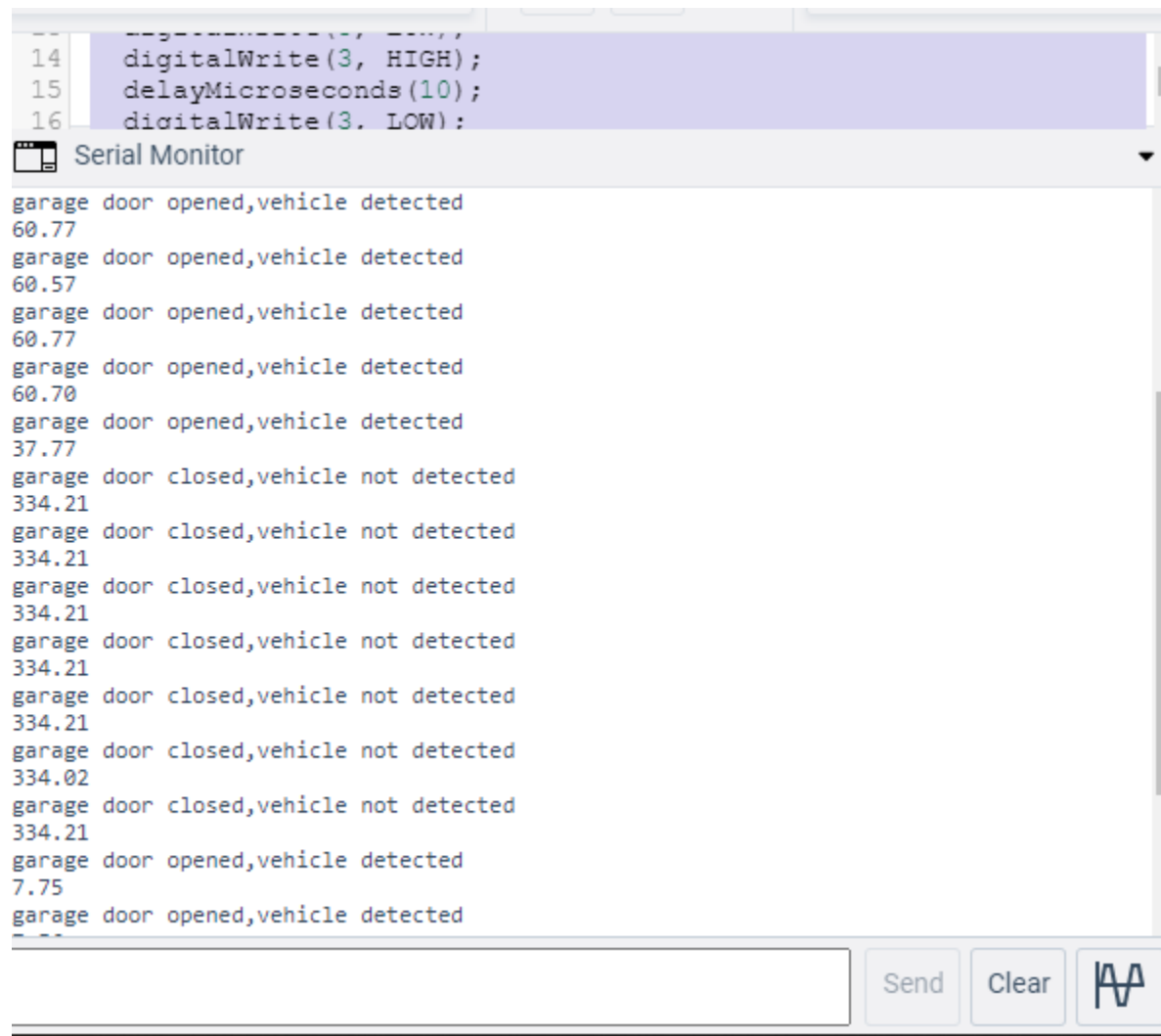
Servo s;

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);
    float dur = pulseIn(2, HIGH);
    float dis = (dur / 2)/29.1;
    if(dis < 100){
        s.write(180);
        Serial.println("garage door opened,vehicle detected");
        Serial.println(dis);
        delay(1000);
    }
    else if(dis > 100){
        s.write(0);
        Serial.println("garage door closed,vehicle not detected");
    }
}
```

```
Serial.println(dis);  
  
delay(1000);  
  
}  
  
}
```

## Output:



The screenshot shows the Arduino IDE interface. The top part displays the code being executed, which is a loop that toggles a digital pin (pin 3) between HIGH and LOW states with a 1-second delay. The code is as follows:

```
digitalWrite(3, HIGH);  
delayMicroseconds(10);  
digitalWrite(3, LOW);
```

Below the code editor is the Serial Monitor window, which is titled "Serial Monitor". It displays the output of the program, showing a sequence of messages indicating the state of the garage door and vehicle detection. The output is as follows:

```
garage door opened,vehicle detected  
60.77  
garage door opened,vehicle detected  
60.57  
garage door opened,vehicle detected  
60.77  
garage door opened,vehicle detected  
60.70  
garage door opened,vehicle detected  
37.77  
garage door closed,vehicle not detected  
334.21  
garage door closed,vehicle not detected  
334.21  
garage door closed,vehicle not detected  
334.21  
garage door closed,vehicle not detected  
334.21  
garage door closed,vehicle not detected  
334.21  
garage door closed,vehicle not detected  
334.02  
garage door closed,vehicle not detected  
334.21  
garage door opened,vehicle detected  
7.75  
garage door opened,vehicle detected
```

The Serial Monitor window also includes a text input field at the bottom for sending data, and buttons for "Send", "Clear", and a waveform icon for toggling between text and hex view.