

Microprocessor and Computer Architecture Laboratory

UE19CS256

4th Semester, Academic Year 2020-21

Date:29/03/2021

Name: R SHARMILA	SRN: PES2UG19CS309	Section E
------------------	-----------------------	--------------

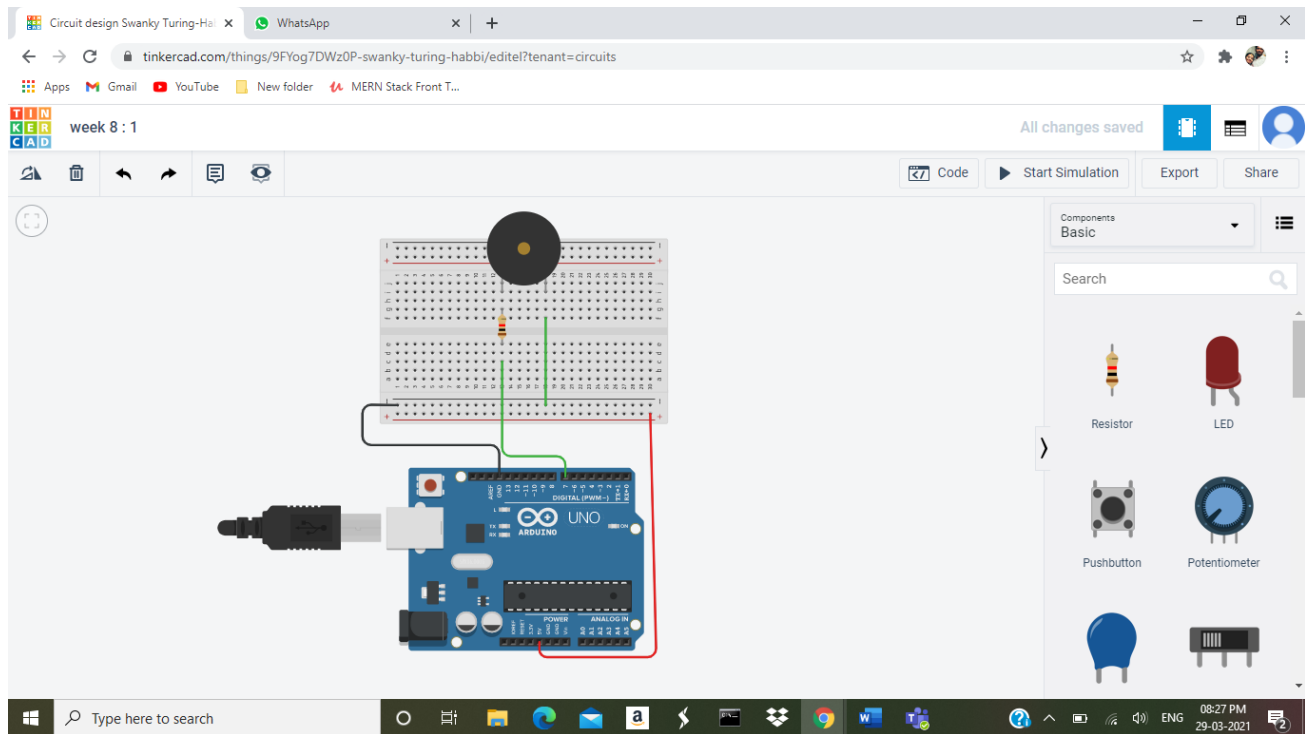
Week# ____8____ Program Number: ____1__

1. Implement a Buzzer with Arduino Simulation in Tinkercad

Arduino Code (1).

```
Text
1  int buzzer=7;
2  void setup()
3  {
4      pinMode(buzzer, OUTPUT);
5  }
6
7  void loop()
8  {
9      tone(buzzer, 220, 100);
10     delay(200);
11 }
```

Output Screen Shot (1)



Microprocessor and Computer Architecture Laboratory

UE19CS256

4th Semester, Academic Year 2020-21

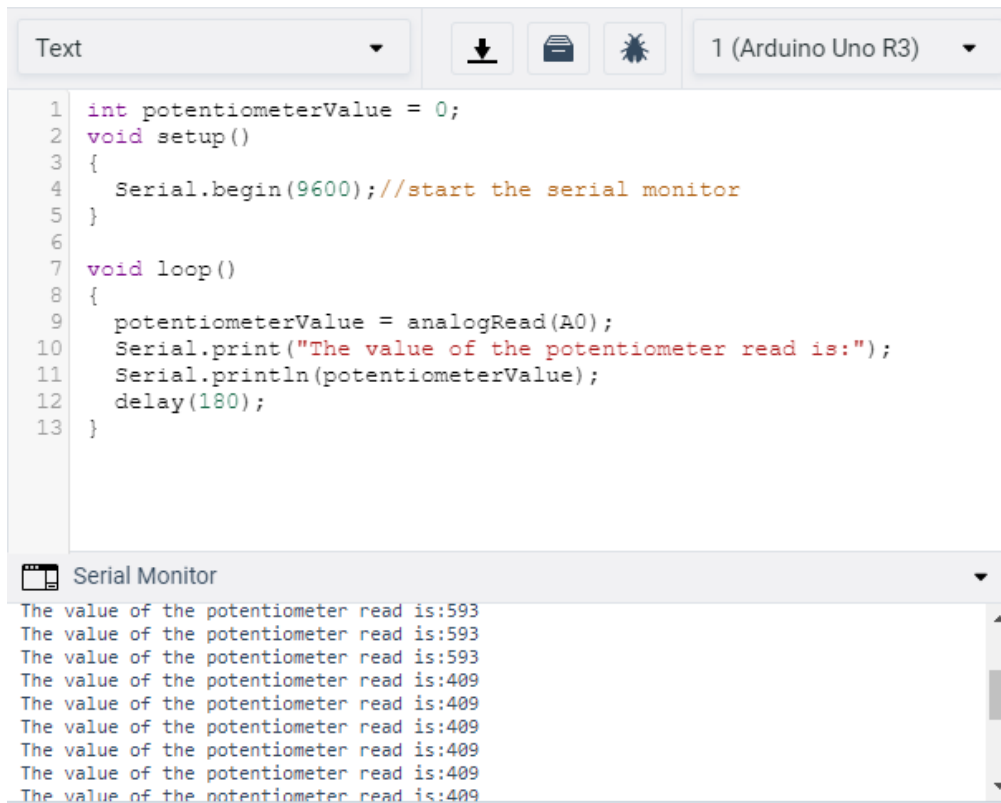
Date: 29/03/2021

Name: R SHARMILA	SRN: PES2UG19CS309	Section E
------------------	-----------------------	--------------

Week# ____8____ Program Number: ____2____

Implement a Tinkercad simulation that will read the value of a potentiometer and display it in serial monitor.

Arduino Code (1).

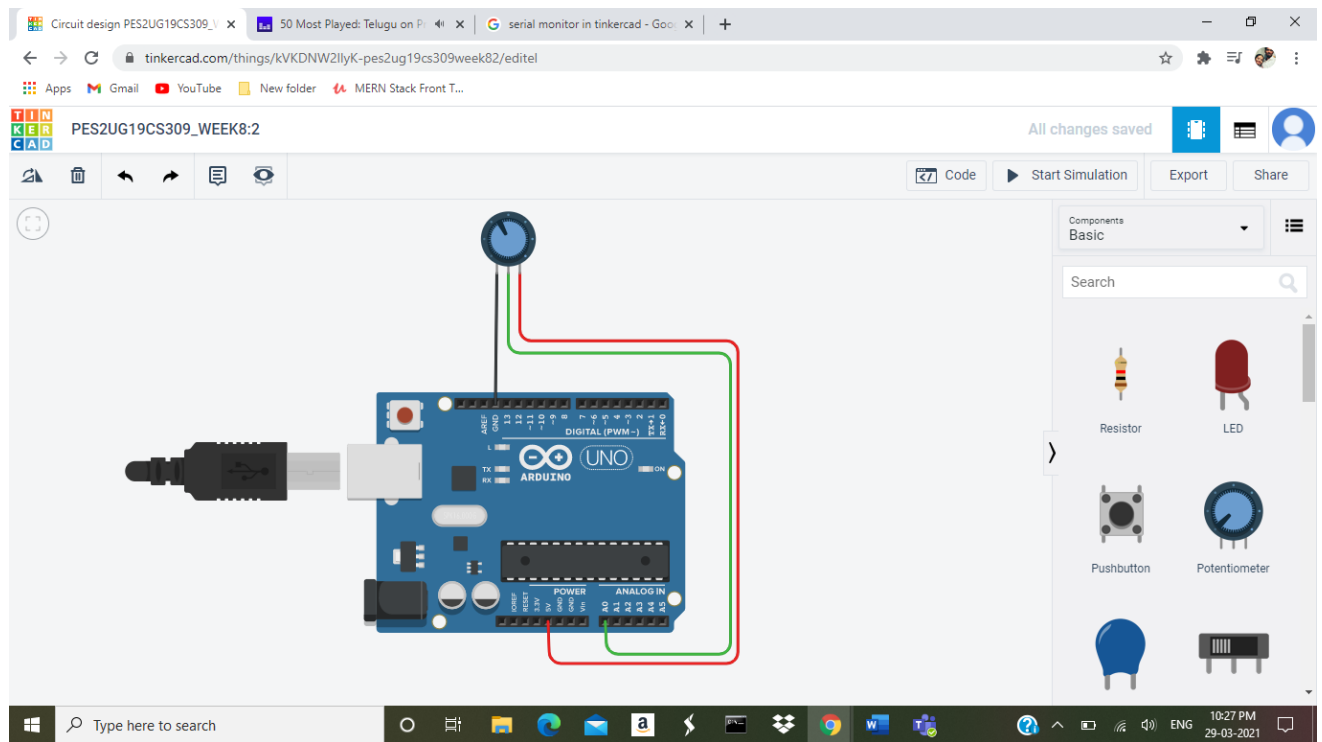


The screenshot shows the Arduino IDE interface. At the top, there's a toolbar with icons for saving, opening, and running code, along with a dropdown menu set to 'Text' and a board selector set to '1 (Arduino Uno R3)'. The main code area contains the following C++ code:

```
1 int potentiometerValue = 0;
2 void setup()
3 {
4   Serial.begin(9600); //start the serial monitor
5 }
6
7 void loop()
8 {
9   potentiometerValue = analogRead(A0);
10  Serial.print("The value of the potentiometer read is:");
11  Serial.println(potentiometerValue);
12  delay(180);
13 }
```

Below the code area is the 'Serial Monitor' window, which displays the output of the code. It shows a sequence of values: 593, 593, 593, 409, 409, 409, 409, 409, and 409. The text is color-coded: 'The value of the potentiometer read is:' is in red, and the numerical values are in blue.

Output Screen Shot (1)



Microprocessor and Computer Architecture Laboratory

UE19CS256

4th Semester, Academic Year 2020-21

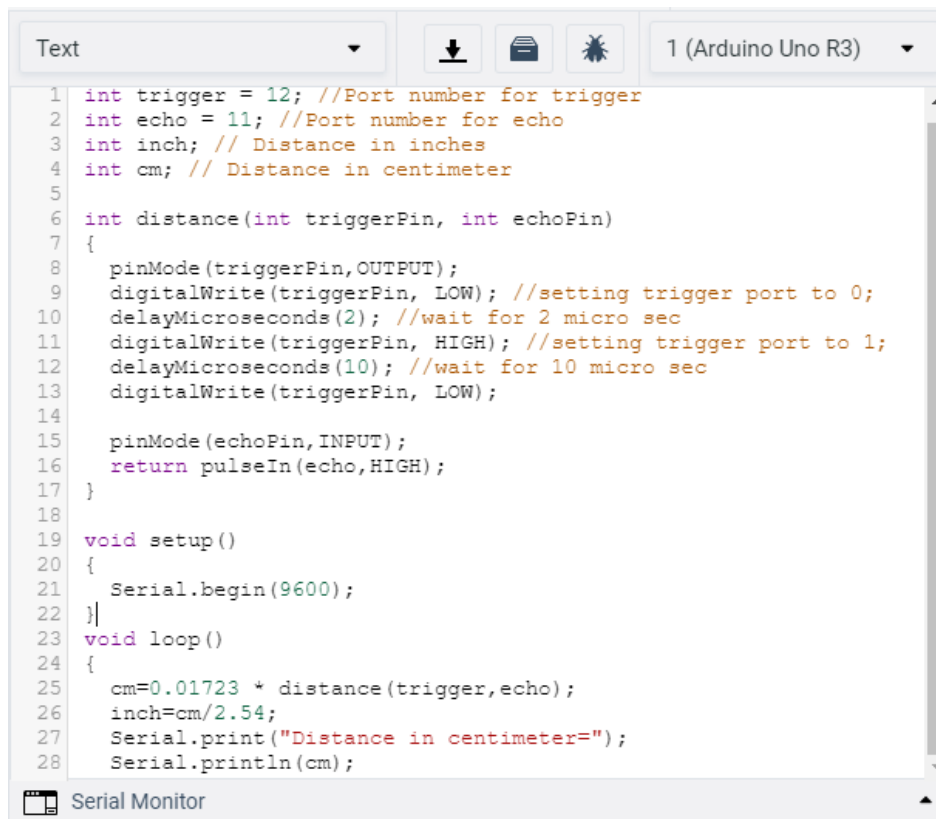
Date: 29/03/2021

Name: R SHARMILA	SRN: PES2UG19CS309	Section E
------------------	-----------------------	--------------

Week# 8 Program Number: 3

Implement a Tinkercad simulation to measure a distance with the HC-SR04 ultrasonic sensor and show the result on the serial monitor.

Arduino Code (1).



```
1 int trigger = 12; //Port number for trigger
2 int echo = 11; //Port number for echo
3 int inch; // Distance in inches
4 int cm; // Distance in centimeter
5
6 int distance(int triggerPin, int echoPin)
7 {
8     pinMode(triggerPin,OUTPUT);
9     digitalWrite(triggerPin, LOW); //setting trigger port to 0;
10    delayMicroseconds(2); //wait for 2 micro sec
11    digitalWrite(triggerPin, HIGH); //setting trigger port to 1;
12    delayMicroseconds(10); //wait for 10 micro sec
13    digitalWrite(triggerPin, LOW);
14
15    pinMode(echoPin,INPUT);
16    return pulseIn(echo,HIGH);
17 }
18
19 void setup()
20 {
21     Serial.begin(9600);
22 }
23 void loop()
24 {
25     cm=0.01723 * distance(trigger,echo);
26     inch=cm/2.54;
27     Serial.print("Distance in centimeter=");
28     Serial.println(cm);
```

Output Screen Shot (1)

Circuit design Incredible Vihelmo x Assignment 1 - Google Drive x Dashboard | Tinkercad x New Tab

tinkercad.com/things/k6wPsTmey4e-incredible-vihelmo-jaiks/editel?tenant=circuits

Apps Gmail YouTube New folder MERN Stack Front T...

TINKERCAD PES2UG19CS309_WEEK 8:3 All changes saved

Code Start Simulation Export Share

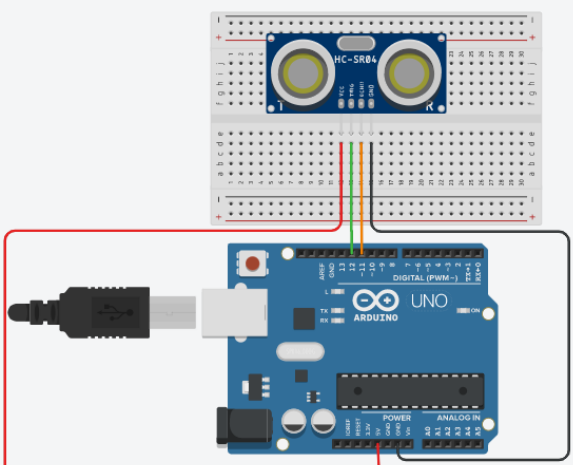
Text 1 (Arduino Uno R3)

```
1 int trigger = 12; //Port number for trigger
2 int echo = 11; //Port number for echo
3 int inch; // Distance in inches
4 int cm; // Distance in centimeter
5 int distance(int triggerPin, int echoPin)
6 {
7   pinMode(triggerPin, OUTPUT);
8   digitalWrite(triggerPin, LOW); //setting trigger port to 0;
9   delayMicroseconds(2); //wait for 2 micro sec
10  digitalWrite(triggerPin, HIGH); //setting trigger port to 1;
11  delayMicroseconds(10); //wait for 10 micro sec
12  digitalWrite(triggerPin, LOW);
13
14  pinMode(echoPin, INPUT);
15  return pulseIn(echo, HIGH);
16 }
17
```

Serial Monitor

Distance in centimeter=49
Distance in centimeter=47
Distance in centimeter=66
Distance in centimeter=55
Distance in centimeter=49
Distance in centimeter=49
Distance in centimeter=66
Distance in centimeter=60
Distance in centimeter=52

Send Clear



The screenshot shows the Tinkercad web interface. On the left, there is a breadboard with an HC-SR04 ultrasonic sensor. The sensor's VCC pin is connected to the 5V pin of an Arduino Uno R3, and its GND pin is connected to the GND pin of the Arduino. The trigger pin of the sensor is connected to digital pin 12 of the Arduino, and the echo pin is connected to digital pin 11. The Arduino is connected to a USB cable. On the right, the code editor shows a C++ program for measuring distance using the ultrasonic sensor. The serial monitor displays the output of the program, showing distance measurements in centimeters.

Microprocessor and Computer Architecture Laboratory

UE19CS256

4th Semester, Academic Year 2020-21

Date: 29/03/2021

Name: R SHARMILA	SRN: PES2UG19CS309	Section E
------------------	-----------------------	--------------

Week# 8 Program Number: 4

Implement a Tinkercad simulation to sense movement in a room with a PIR motion sensor and Arduino's digital input.

Arduino Code (1).

```
Text 1 (Arduino Uno R3)
1  int sensorState = 0;
2
3  void setup()
4  {
5      pinMode(2, INPUT);
6      pinMode(13, OUTPUT);
7      Serial.begin(9600);
8
9  }
10
11 void loop()
12 {
13     // read the state of the sensor/digital input
14     sensorState = digitalRead(2);
15     // check if sensor pin is HIGH. if it is, set the
16     // LED on.
17     if (sensorState == HIGH) {
18         digitalWrite(13, HIGH);
19         Serial.println("Sensor activated!");
20     } else {
21         digitalWrite(13, LOW);
22     }
23     delay(10); // Delay a little bit to improve simulation performanc
24 }
```

Output Screen Shot (1)

Circuit design Spectacular Rottis- x 50 Most Played: Telugu on P x serial monitor in tinkercad - Goo x WhatsApp x +

tinkercad.com/things/dhVzeOVlapi-spectacular-rottis-amberis/editel

Apps Gmail YouTube New folder MERN Stack Front T...

TINKERCAD Spectacular Rottis-Amberis All changes saved

Simulator time: 00:00:09 Code Stop Simulation Export Share

PIR Sensor
Name 1

```
1 int sensorState = 0;
2
3 void setup()
4 {
5   pinMode(2, INPUT);
6   pinMode(13, OUTPUT);
7   Serial.begin(9600);
8 }
9
10
11 void loop()
12 {
13   // read the state of the sensor/digital input
14   sensorState = digitalRead(2);
15   // check if sensor pin is HIGH. if it is, set the
16   // LED on.
17 }
```

Serial Monitor

Sensor activated!
Sensor activated!
Sensor activated!
Sensor activated!
Sensor activated!
Sensor activated!
Sensor activated!
Sensor activated!

Send Clear

Type here to search

11:05 PM
29-03-2021

Microprocessor and Computer Architecture Laboratory

UE19CS256

4th Semester, Academic Year 2020-21

Date: 29/03/2021

Name: R SHARMILA	SRN: PES2UG19CS309	Section E
------------------	-----------------------	--------------

Week# ____8____

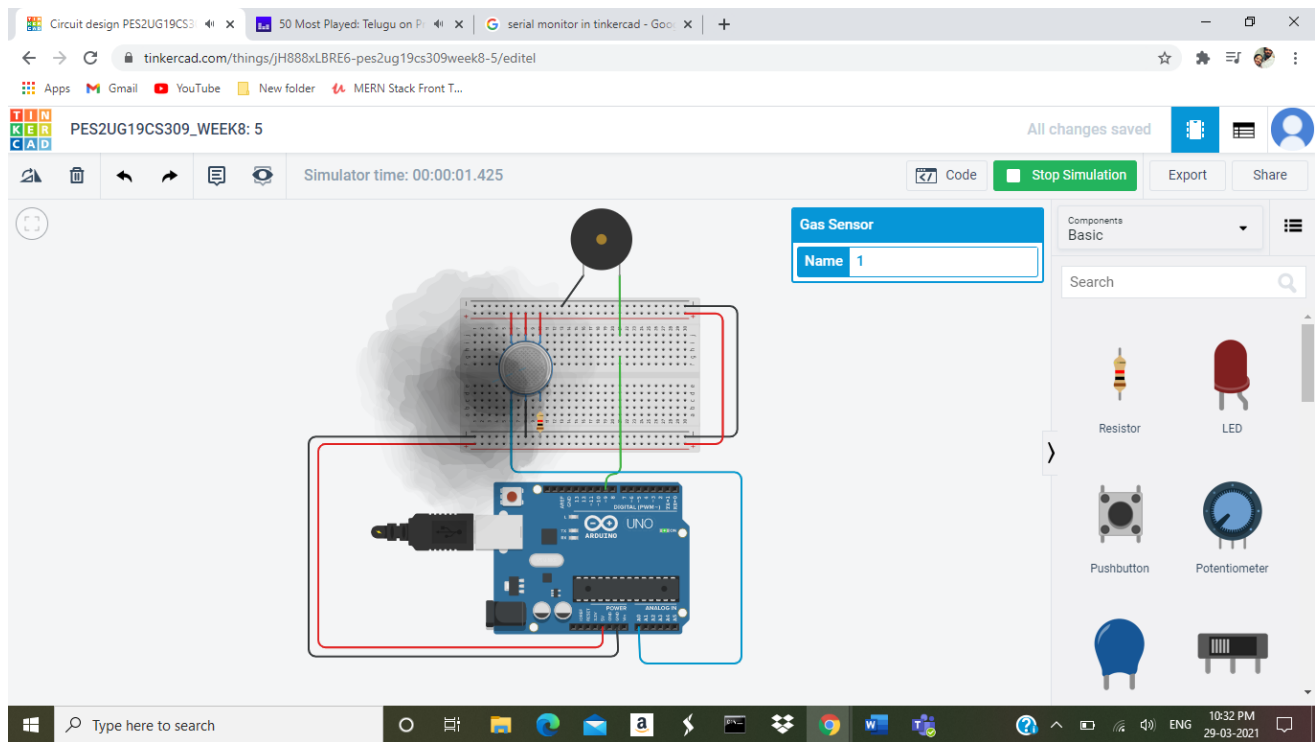
Program Number: ____5____

Implement a Tinkercad simulation for gas leakage detection with buzzer system using Arduino

Arduino Code (1).

```
Text [v] [Download] [Save] [Run] 1 (Arduino)
1  int value = A0;
2  void setup()
3  {
4      pinMode (9,OUTPUT);
5      pinMode (A0,INPUT);
6      Serial.begin(9600);
7  }
8
9  void loop()
10 {
11     value = analogRead (A0);
12     if (value <500 )
13     {
14         digitalWrite (9, LOW);
15     }
16     else
17     {
18         digitalWrite(9, HIGH);
19     }
20 }
```

Output Screen Shot (1)



Disclaimer:

- The programs and output submitted is duly written, verified and executed by me.
- I have not copied from any of my peers nor from the external resource such as internet.
- If found plagiarized, I will abide with the disciplinary action of the University.

Signature: R SHARMILA

Name: R SHARMILA

SRN: PES2UG19CS309

Section: E

Date: 29/03/2021