Microprocessor and Computer Architecture Laboratory

UE19CS256

4th Semester, Academic Year 2020-21
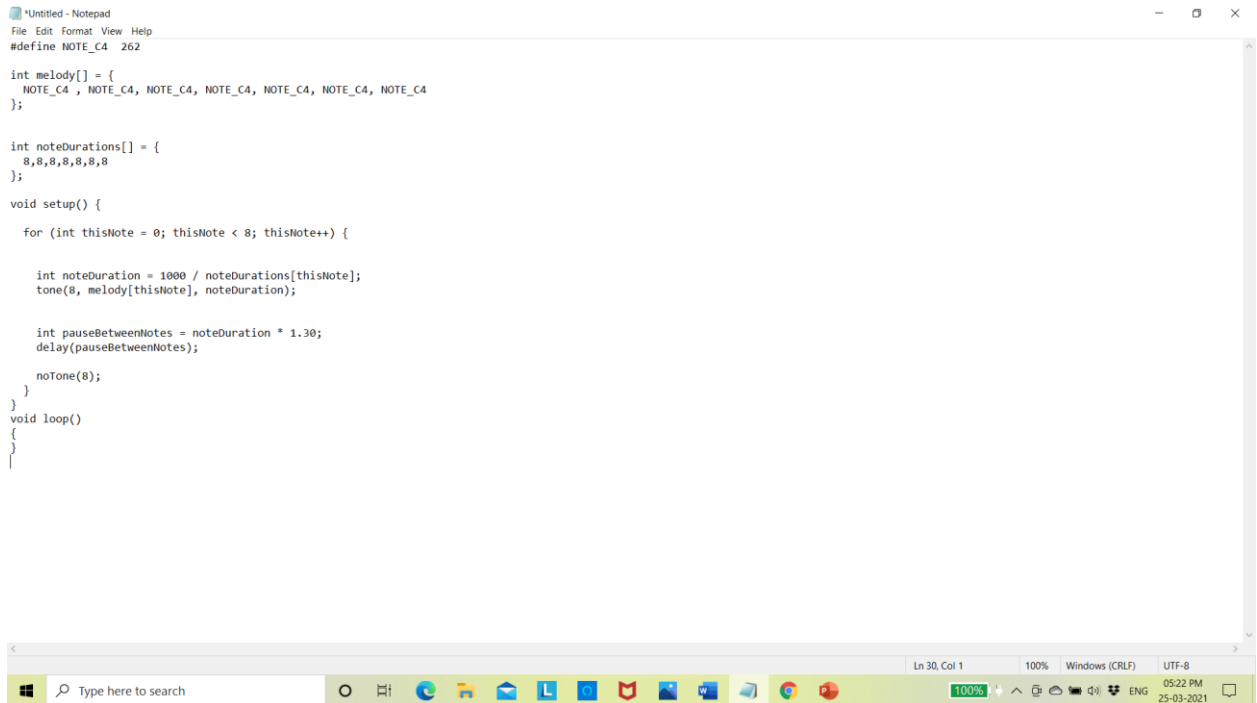
Date:25/01/2021

Name: T.LOHITH SRINIVAS	SRN:PES2UG19CS203	Section D

Week#____8_____   Program Number: ____1__

1. **Implement a Buzzer with Arduino Simulation in Tinkercad**
   Arduino Code (1).


```
*Untitled - Notepad
File Edit Format View Help
#define NOTE_C4   262

int melody[] = {
  NOTE_C4 , NOTE_C4, NOTE_C4, NOTE_C4, NOTE_C4, NOTE_C4, NOTE_C4
};

int noteDurations[] = {
  8,8,8,8,8,8,8
};

void setup() {

  for (int thisNote = 0; thisNote < 8; thisNote++) {

    int noteDuration = 1000 / noteDurations[thisNote];
    tone(8, melody[thisNote], noteDuration);

    int pauseBetweenNotes = noteDuration * 1.30;
    delay(pauseBetweenNotes);

    noTone(8);
  }
}
void loop()
{
}
```
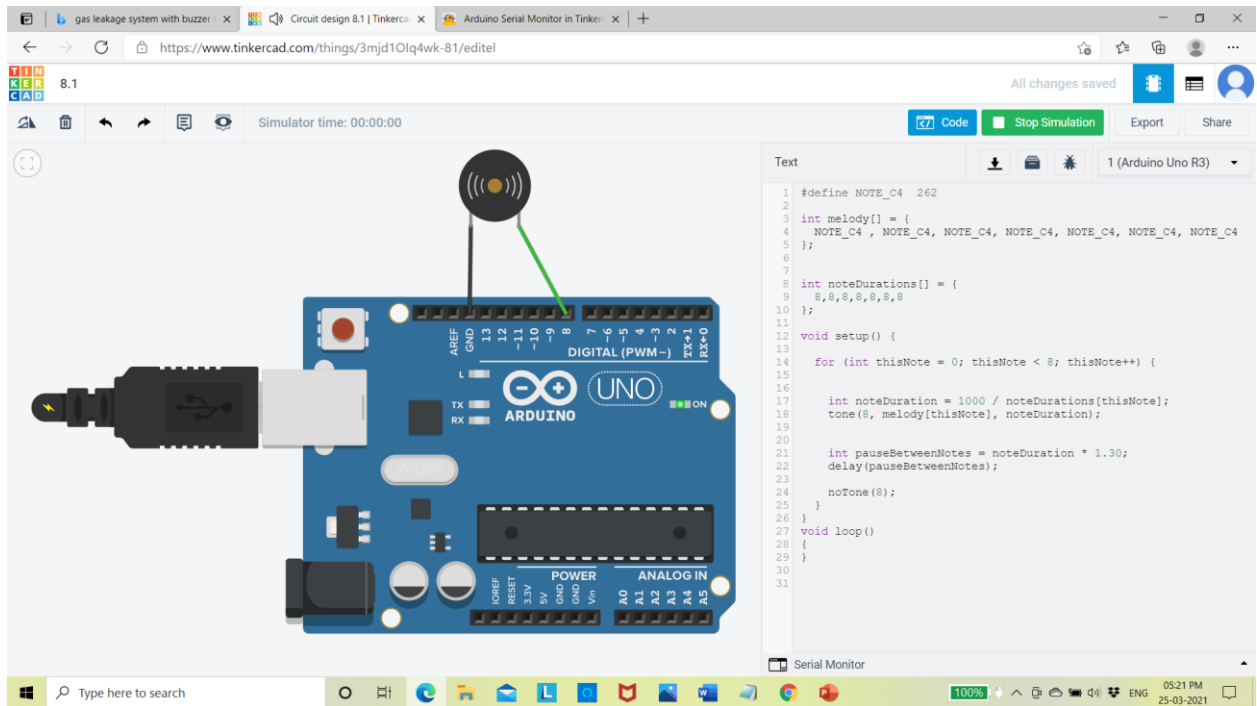
Output Screen Shot (1)

```
1  #define NOTE_C4  262
2
3  int melody[] = {
4    NOTE_C4 , NOTE_C4, NOTE_C4, NOTE_C4, NOTE_C4, NOTE_C4, NOTE_C4
5  };
6
7
8  int noteDurations[] = {
9    8,8,8,8,8,8,8
10 };
11
12 void setup() {
13
14   for (int thisNote = 0; thisNote < 8; thisNote++) {
15
16
17     int noteDuration = 1000 / noteDurations[thisNote];
18     tone(8, melody[thisNote], noteDuration);
19
20
21     int pauseBetweenNotes = noteDuration * 1.30;
22     delay(pauseBetweenNotes);
23
24     noTone(8);
25   }
26 }
27 void loop()
28 {
29 }
30
31
```

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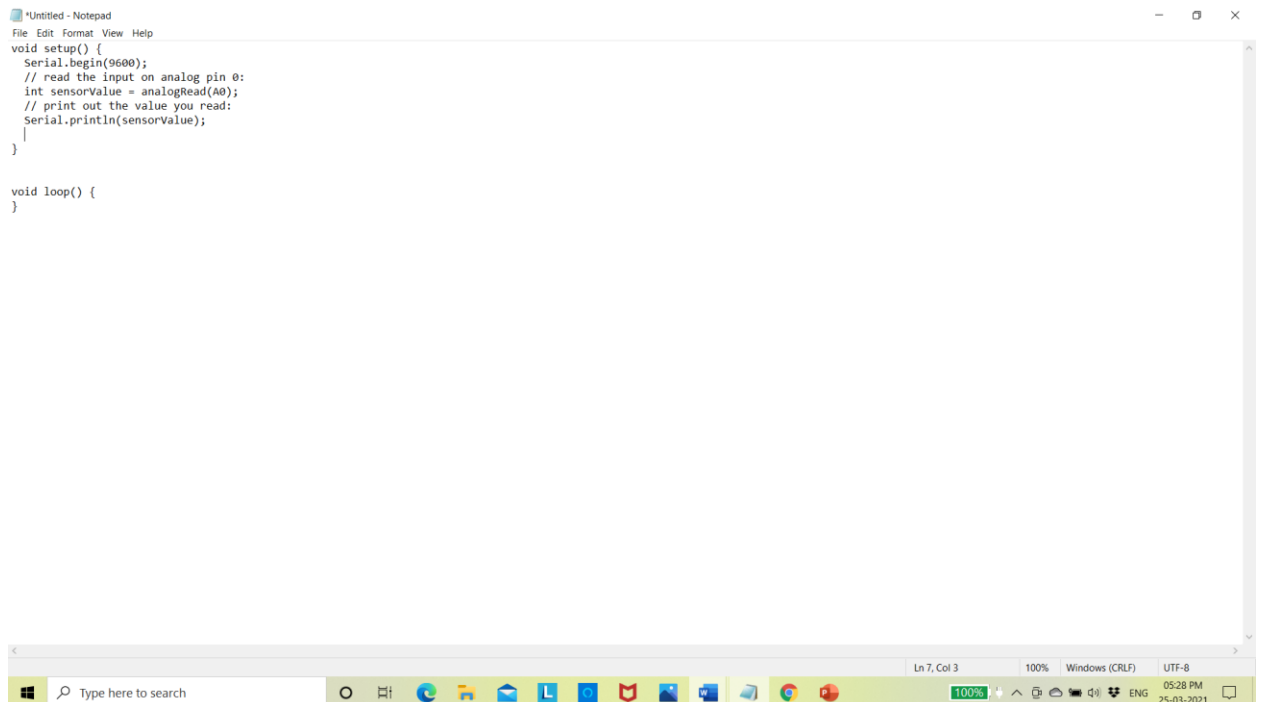
Date:25/03/2021

Name: T.LOHITH SRINIVAS	SRN:PES2UG19CS203	Section D

Week#_____8_____   Program Number: _____2__

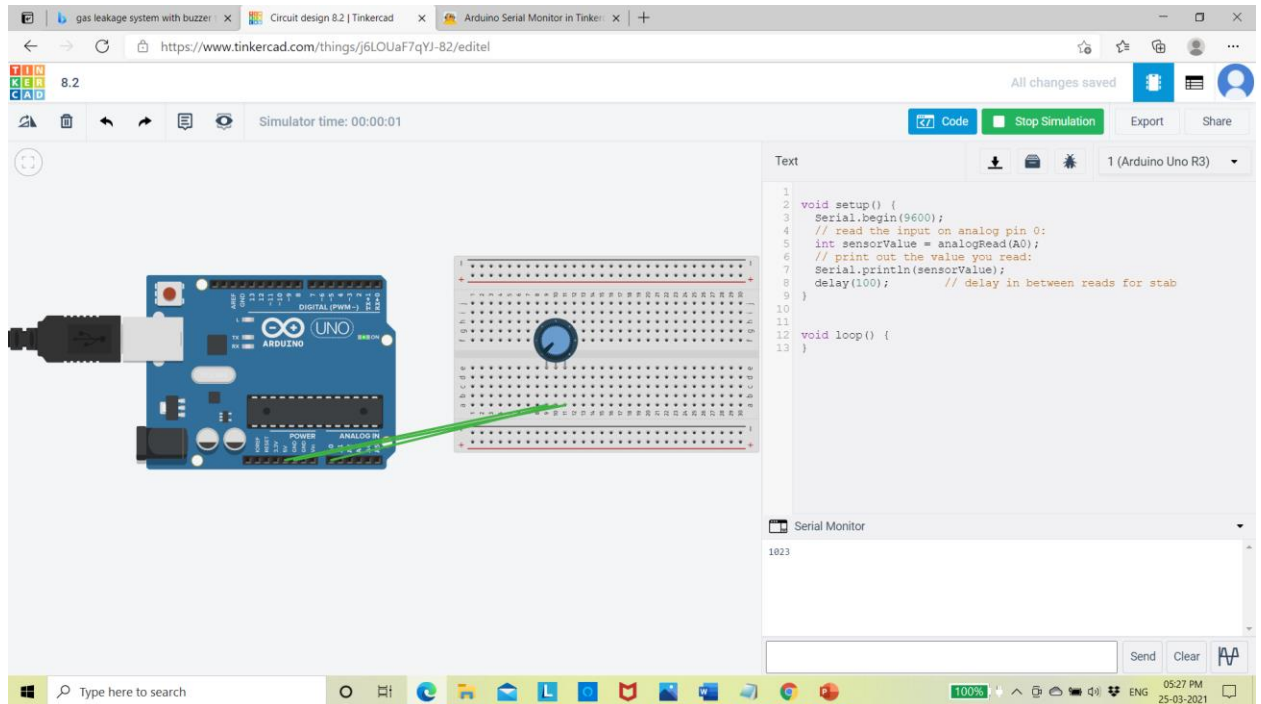**Implement a Tinkercad simulation that will read the value of a potentiometer and display it in serial monitor.**

Arduino Code (1).

```
*Untitled - Notepad
File Edit Format View Help
void setup() {
  Serial.begin(9600);
  // read the input on analog pin 0:
  int sensorValue = analogRead(A0);
  // print out the value you read:
  Serial.println(sensorValue);
  |
}

void loop() {
}
```

Output Screen Shot (1)

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Name: T.LOHITH SRINIVAS	SRN:PES2UG19CS203	Section D

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).


```
int triggerPin =8;

int echoPin = 7;


long readUltrasonicDistance(int triggerPin, int echoPin)
{
  pinMode(triggerPin, OUTPUT);  // Clear the trigger
  digitalWrite(triggerPin, LOW);
  delayMicroseconds(2);
  // Sets the trigger pin to HIGH state for 10 microseconds
  digitalWrite(triggerPin, HIGH);
  delayMicroseconds(10);
  digitalWrite(triggerPin, LOW);
  pinMode(echoPin, INPUT);
  // Reads the echo pin, and returns the sound wave travel time in microseconds
  return 0.01723 * pulseIn(echoPin, HIGH);
}


void setup()
{
      Serial.begin(9600);
}

void loop()
{
  Serial.println(readUltrasonicDistance(triggerPin,echoPin));
  delay(1000); // Delay a little bit to improve simulation performance
}
```

Output Screen Shot (1)

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4th Semester, Academic Year 2020-21

Date:25/03/2021

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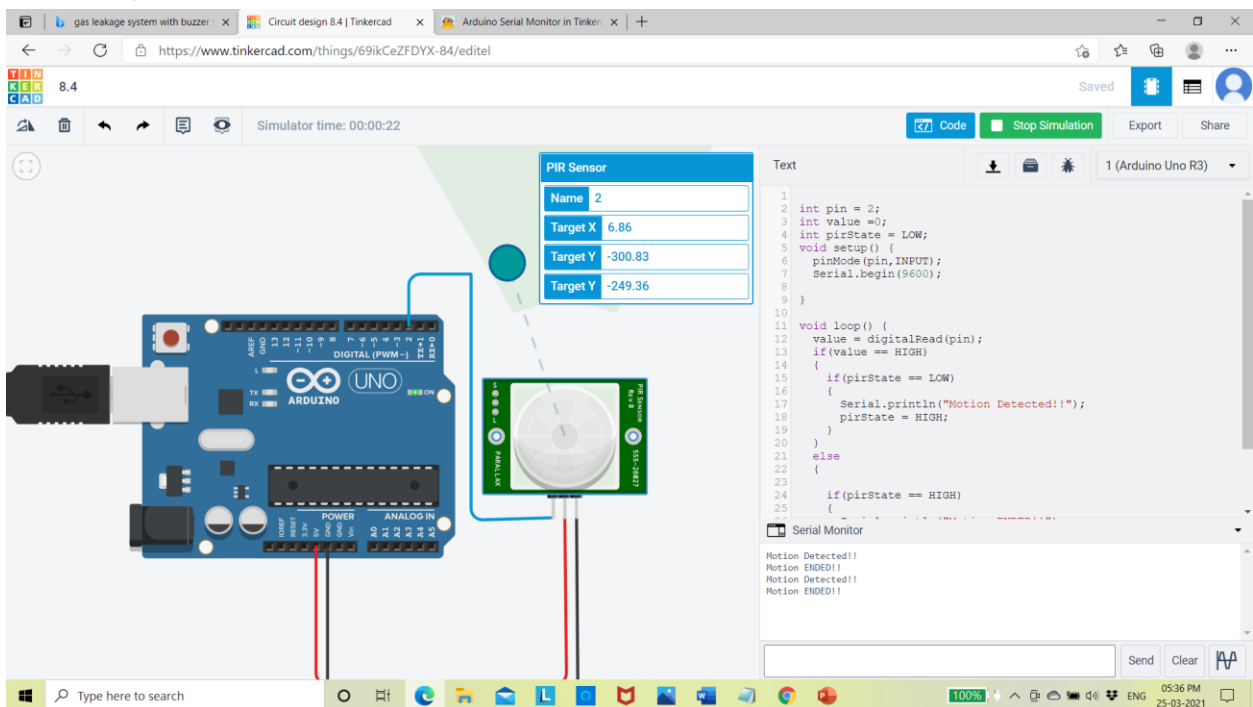Week#_____8_____   Program Number: ___4__

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

Arduino Code (1).

```
int pin = 2;
int value =0;
int pirState = LOW;
void setup() {
  pinMode(pin,INPUT);
  Serial.begin(9600);

}

void loop() {
  value = digitalRead(pin);
  if(value == HIGH)
  {
    if(pirState == LOW)
    {
      Serial.println("Motion Detected!!");
      pirState = HIGH;
    }
  }
  else
  {

    if(pirState == HIGH)
    {
      Serial.println("Motion ENDED!!");
      pirState = LOW;
    }
  }
}
```

Output Screen Shot (1)

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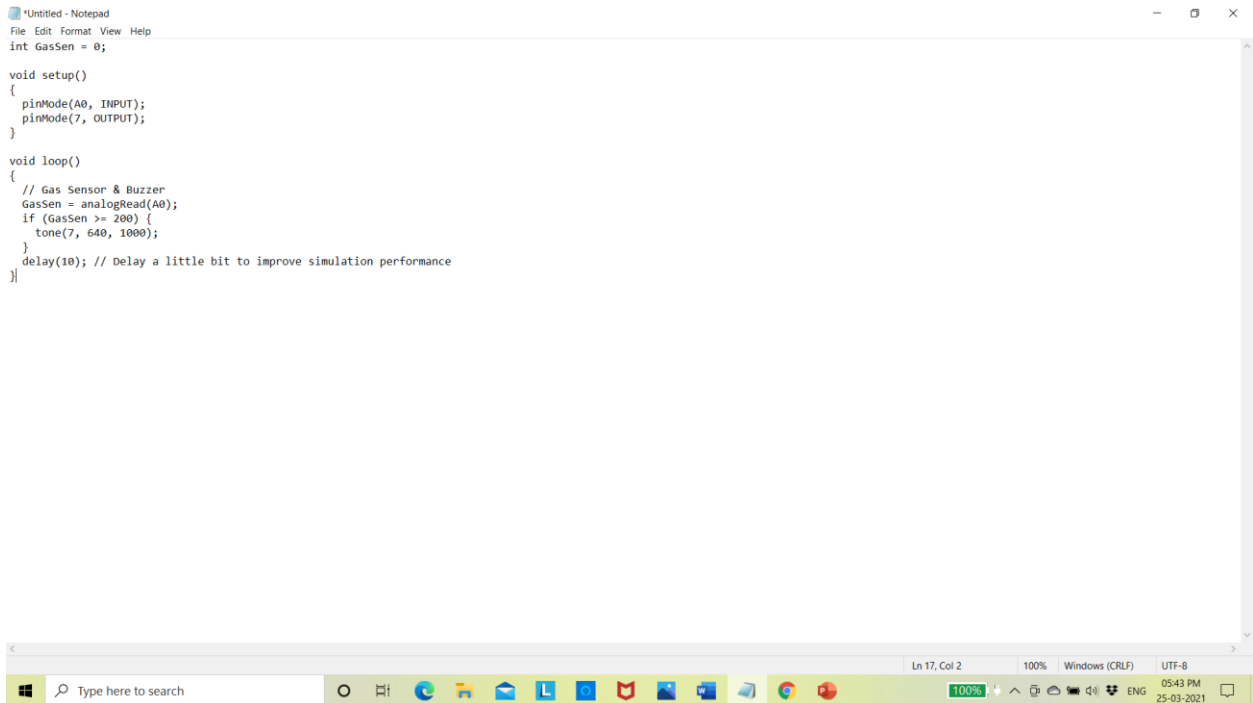## 4th Semester, Academic Year 2020-21

Date:25/03/2021

Name: T.LOHITH SRINIVAS	SRN:PES2UG19CS203	Section D

Week#_____8_____   Program Number: ____5__

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

Arduino Code (1).

```
*Untitled - Notepad
File Edit Format View Help
int GasSen = 0;

void setup()
{
  pinMode(A0, INPUT);
  pinMode(7, OUTPUT);
}

void loop()
{
  // Gas Sensor & Buzzer
  GasSen = analogRead(A0);
  if (GasSen >= 200) {
    tone(7, 640, 1000);
  }
  delay(10); // Delay a little bit to improve simulation performance
}|
```

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.

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