Microprocessor and Computer Architecture Laboratory

UE19CS256
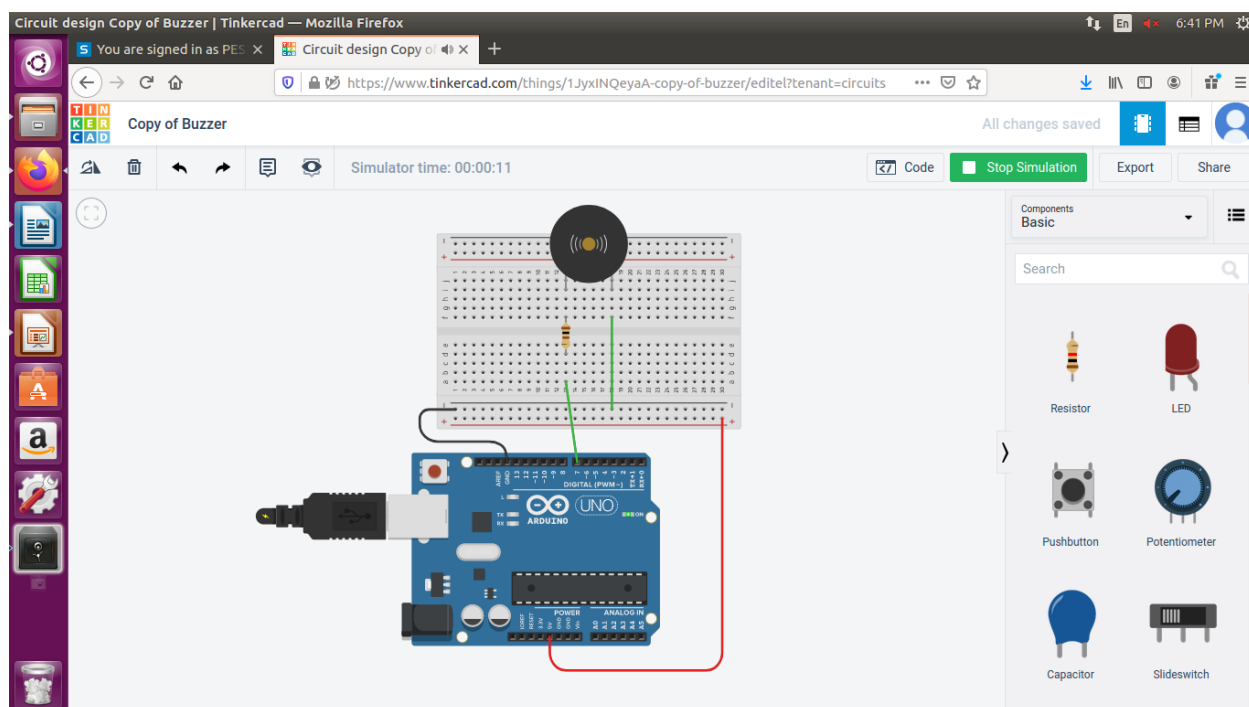
4th Semester, Academic Year 2020-21

Date:26/03/21

Name: Achyut Jagini	SRN:PES2UG19CS013	Section A

Week#_____8_____   Program Number: _____1__

1. Implement a Buzzer with Arduino Simulation in Tinkercad

You are signed in as PES ×   Circuit design Copy of ×   +

https://www.tinkercad.com/things/1JyxINQeyaA-copy-of-buzzer/editel?tenant=circuits

Copy of Buzzer

All changes saved

Simulator time: 00:00:30

Code   Stop Simulation   Export   Share

Text

1 (Arduino Uno R3)

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

ARDUINO UNO

DIGITAL (PWM~)

POWER   ANALOG IN

Serial Monitor

Microprocessor and Computer Architecture Laboratory

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4th Semester, Academic Year 2020-21

Date:

Name: Achyut	SRN: PES2UG19CS013	Section

Week#_____8_____   Program Number: _____2__

Implement a Tinkercad simulation that will read the value of a potentiometer and display it in serial monitor.
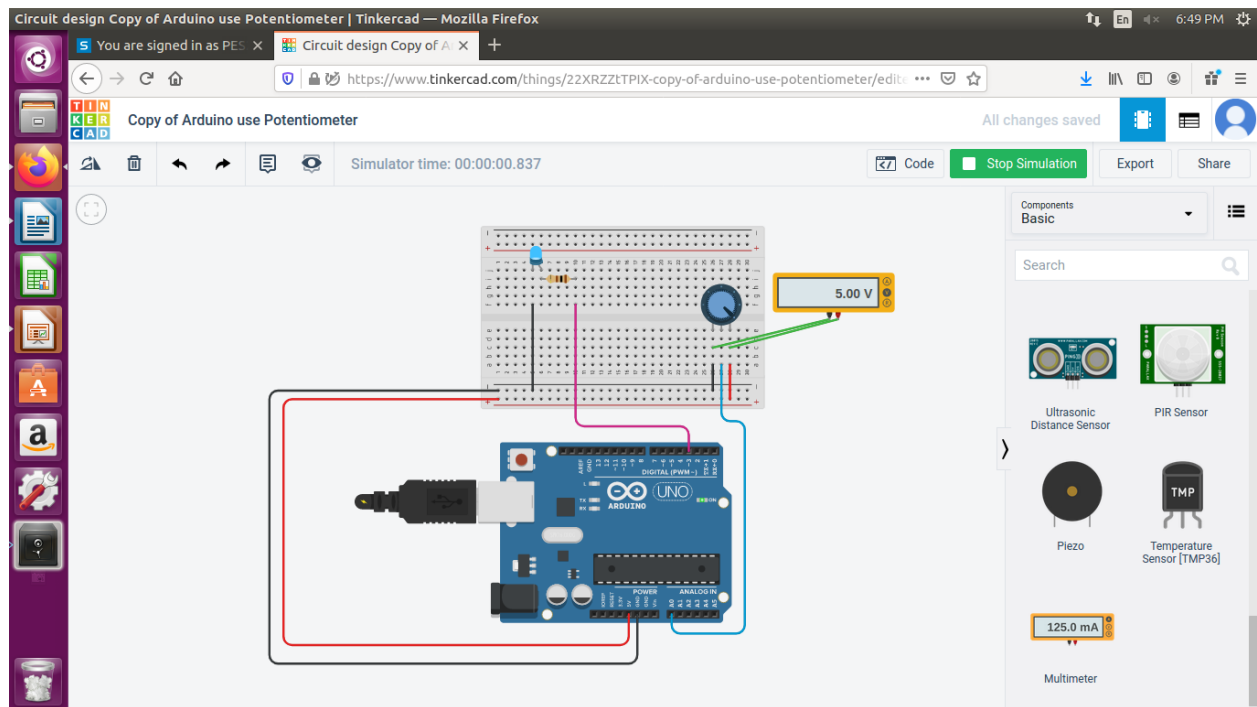
```
1   #include <SoftwareSerial.h>
2
3   #define LED 3
4   #define KNOB 0
5
6   void setup() {
7     pinMode(LED, OUTPUT);
8     Serial.begin(9600);
9   }
10
11  void loop() {
12    int val = analogRead(KNOB);
13    int ledPower = map(val, 1, 1024, 1, 255);
14
15    String stringOne = "Sensor value: ";
16    Serial.println(stringOne + ledPower);
17    analogWrite(LED, ledPower);
18  }
```

Serial Monitor

Microprocessor and Computer Architecture Laboratory

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4th Semester, Academic Year 2020-21

Date:

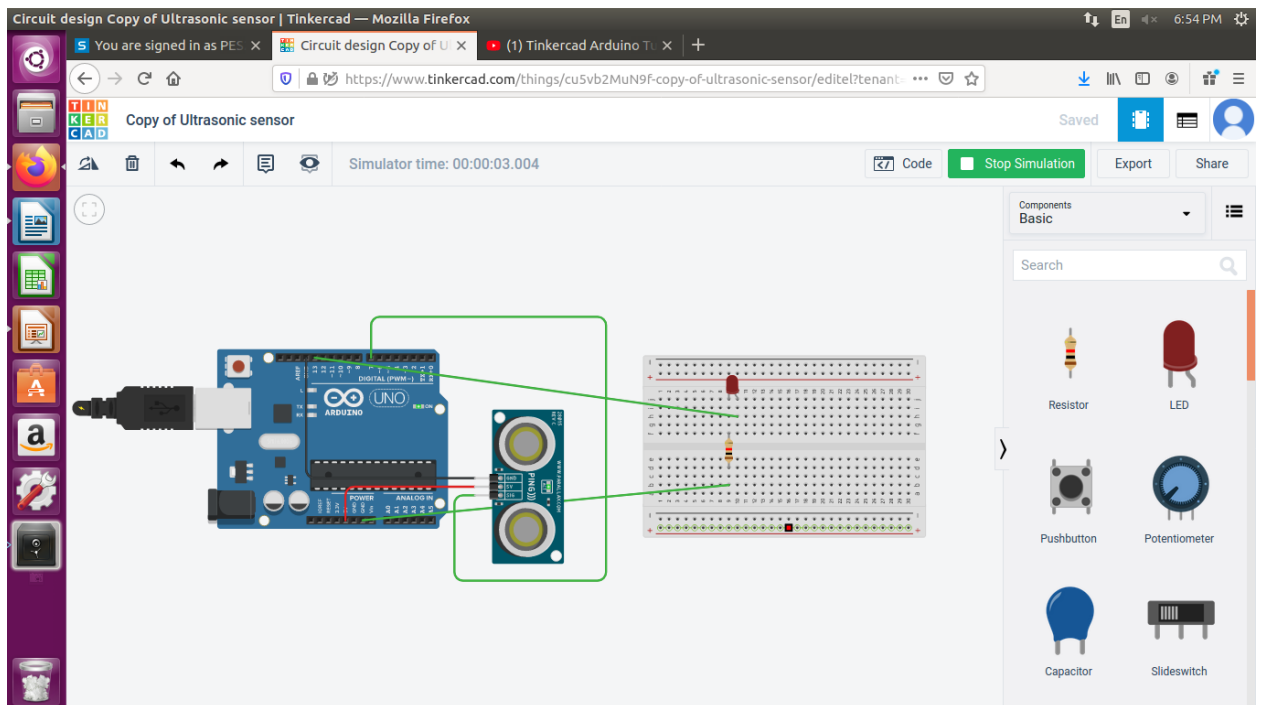| Name: Achyut	SRN: PES2UG19CS013	Section

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.

1.

```
1
2   const int pingPin = 7;
3   const int ledPin = 13;
4
5   void setup() {
6
7     Serial.begin(9600);
8     pinMode(ledPin, OUTPUT);
9   }
10
11  void loop() {
12
13    long duration, cm;
14
15
16    pinMode(pingPin, OUTPUT);
17    digitalWrite(pingPin, LOW);
18    delayMicroseconds(2);
19    digitalWrite(pingPin, HIGH);
20    delayMicroseconds(5);
```

Serial Monitor
Distance: 240cm
Distance: 240cm
Distance: 240cm
Distance: 240cm
Distance: 240cm
Distance: 240cm
Distance: 240cm
Distance: 240cm


```
19    digitalWrite(pingPin, HIGH);
20    delayMicroseconds(5);
21    digitalWrite(pingPin, LOW);
22
23
24    pinMode(pingPin, INPUT);
25    duration = pulseIn(pingPin, HIGH);
26
27    cm = microsecondsToCentimeters(duration);
28
29    Serial.print("Distance: ");
30    Serial.print(cm);
31    Serial.print("cm");
32    Serial.println();
33
34
35    if(cm < 100) {
36      digitalWrite(ledPin, HIGH);
37    }
38    else {
```

Serial Monitor
Distance: 240cm
Distance: 240cm
Distance: 240cm
Distance: 240cm
Distance: 240cm
Distance: 240cm
Distance: 240cm
Distance: 240cm

Microprocessor and Computer Architecture Laboratory

UE19CS256

4th Semester, Academic Year 2020-21

Date:

Name: Achyut	SRN: PES2UG19CS013	Section

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.

You are signed in as PES ×   (1) PIR Sensor Arduino P ×   Circuit design Copy of PI ×   +

https://www.tinkercad.com/things/lKi1FNA32RV-copy-of-pir-motion-sensor-with-arduino-b

Copy of PIR Motion Sensor with Arduino (Blocks)   Saved

Simulator time: 00:01:12   Code   Stop Simulation   Export   Share

PIR Sensor
Name   1
Target X   -3.60
Target Y   -294.30
Target Y   -194.68

Components
Basic

Search

Resistor   LED
Pushbutton   Potentiometer
Capacitor   Slideswitch

Simulator time: 00:00:56   Code   Stop Simulation   Export   Share

Breadboard Small
Name   2

Blocks   1 (Arduino Uno R3)

Output   Control
Input   Math
Notation   Variables

set built-in LED to HIGH
set pin 0 to HIGH
set pin 3 to 0
rotate servo on pin 0 to 0 degree
play speaker on pin 0 with tone 60

comment   read the state of the sensor/digital input
set sensorState to read digital pin 2
comment   check if sensor pin is HIGH. if it is, set the...
if sensorState = HIGH then
set built-in LED to HIGH
print to serial monitor Sensor activated! with ne...
else
set built-in LED to LOW

Serial Monitor
Sensor activated!
Sensor activated!
Sensor activated!
Sensor activated!
Sensor activated!
Sensor activated!
Sensor activated!
Sensor activated!

Send   Clear