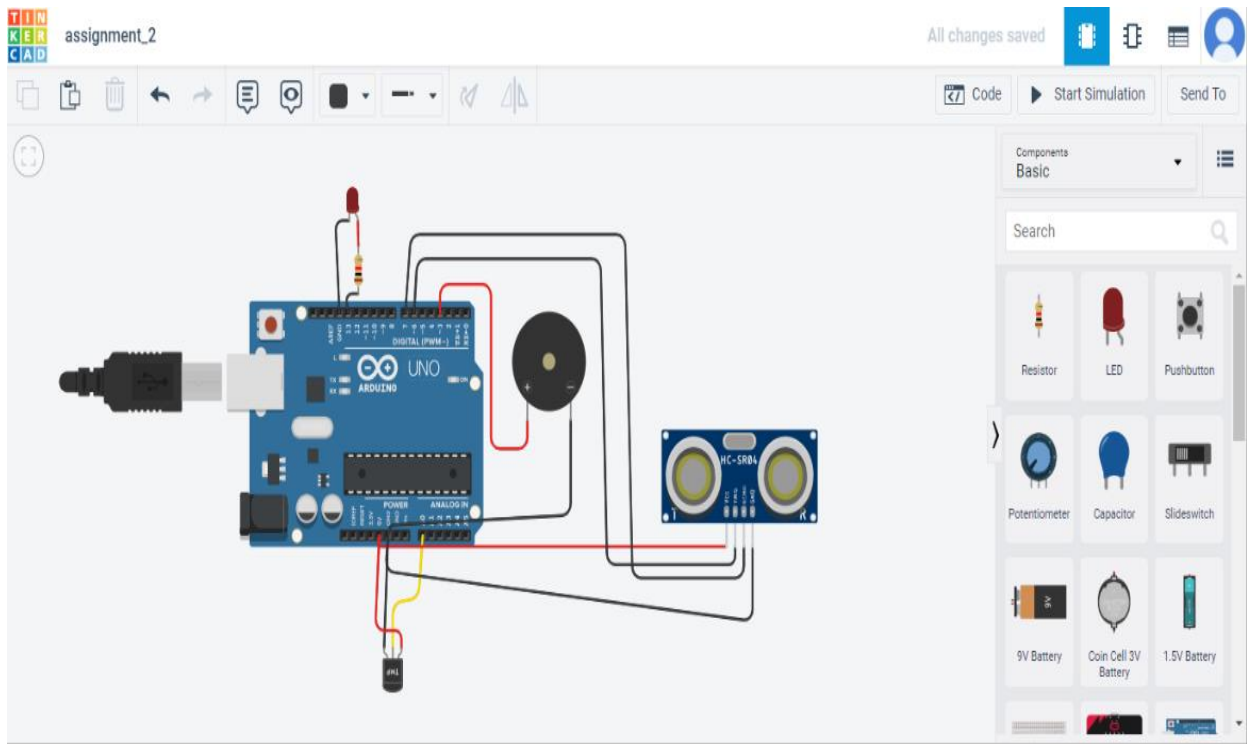


ASSIGNMENT –2

Assignment date	28 September 2022
Student name	Hariharasudhan M
Student Roll number	815119106014
Maximum marks	2 marks

Circuit Diagram:



Code:

```
#define ADC_VREF_mV 1100.0 // in millivolt
#define ADC_RESOLUTION 1024.0
#define PIN_LM35 A0

const int TRIG_PIN = 6; // Arduino pin connected to Ultrasonic Sensor's TRIG pin
const int ECHO_PIN = 7; // Arduino pin connected to Ultrasonic Sensor's ECHO pin
const int BUZZER_PIN = 3; // Arduino pin connected to Piezo Buzzer's pin
const int DISTANCE_THRESHOLD = 50; // centimeters

float duration_us, distance_cm;

void setup() {
```

```

Serial.begin(9600);

// switch to Internal 1.1V Reference

pinMode(TRIG_PIN, OUTPUT); // set arduino pin to output mode
pinMode(ECHO_PIN, INPUT); // set arduino pin to input mode
pinMode(BUZZER_PIN, OUTPUT); // set arduino pin to output mode
analogReference(INTERNAL);

pinMode(LED_BUILTIN, OUTPUT);
}

void loop() {

    // get the ADC value from the temperature sensor
    int adcVal = analogRead(PIN_LM35);

    // convert the ADC value to voltage in millivolt
    float milliVolt = adcVal * (ADC_VREF_mV / ADC_RESOLUTION); // ADC_VREF_mV = 1100
    mV

    // convert the voltage to the temperature in Celsius
    float tempC = milliVolt / 10;

    // convert the Celsius to Fahrenheit
    float tempF = tempC * 9 / 5 + 32;

    // print the temperature in the Serial Monitor:
    Serial.print("Temperature: ");

    Serial.print(tempC); // print the temperature in Celsius
    Serial.print("°C");

    Serial.print(" ~ "); // separator between Celsius and Fahrenheit
    Serial.print(tempF); // print the temperature in Fahrenheit
    Serial.println("°F");

    digitalWrite(LED_BUILTIN, HIGH); // turn the LED on (HIGH is the voltage level)
    delay(1000); // wait for a second
    digitalWrite(LED_BUILTIN, LOW); // turn the LED off by making the voltage LOW
    delay(1000);
    delay(1000);
}

```

```
digitalWrite(TRIG_PIN, HIGH);  
delayMicroseconds(10);  
digitalWrite(TRIG_PIN, LOW);  
// measure duration of pulse from ECHO pin  
duration_us = pulseIn(ECHO_PIN, HIGH);  
// calculate the distance  
distance_cm = 0.017 * duration_us;  
if(distance_cm < DISTANCE_THRESHOLD)  
    digitalWrite(BUZZER_PIN, HIGH); // turn on Piezo Buzzer  
else  
    digitalWrite(BUZZER_PIN, LOW); // turn off Piezo Buzzer  
// print the value to Serial Monitor  
Serial.print("distance: ");  
Serial.print(distance_cm);  
Serial.println(" cm");  
delay(500);  
}
```