Assignment-1

Python Programming

Assignment Date	19 September 2022
Student Name	E.Karthik
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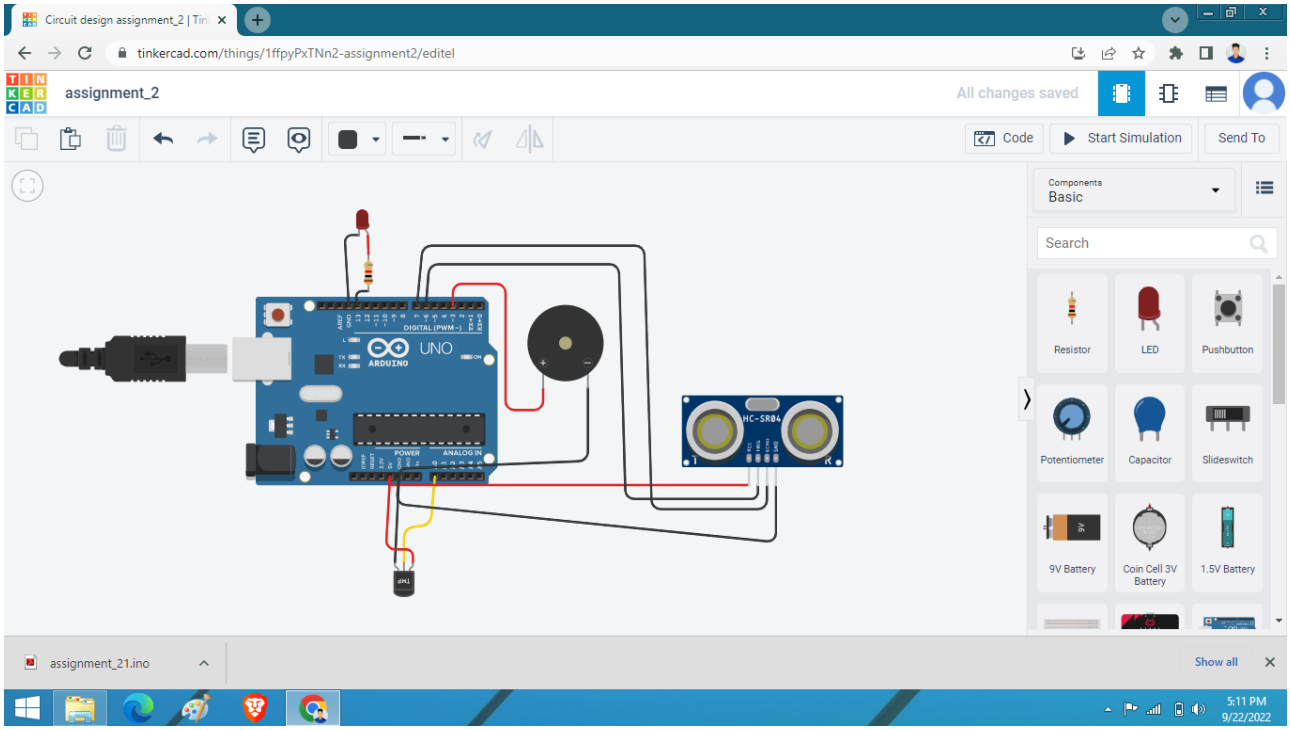
Marks	2 Marks

Question :

Home Automation with sensors,button and LED

Solution :



Code :

```
#define ADC_VREF_mV    1100.0
#define ADC_RESOLUTION 1024.0
#define PIN_LM35       A0

const int TRIG_PIN    = 6;
const int ECHO_PIN    = 7;
const int BUZZER_PIN = 3;
const int DISTANCE_THRESHOLD = 50;
float duration_us, distance_cm;


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

```
  pinMode(TRIG_PIN, OUTPUT);
  pinMode(ECHO_PIN, INPUT);
  pinMode(BUZZER_PIN, OUTPUT);
  analogReference(INTERNAL);
  pinMode(LED_BUILTIN, OUTPUT);
}

void loop() {

  int adcVal = analogRead(PIN_LM35);

  float milliVolt = adcVal * (ADC_VREF_mV / ADC_RESOLUTION);

  float tempC = milliVolt / 10;

  float tempF = tempC * 9 / 5 + 32;


  Serial.print("Temperature: ");
  Serial.print(tempC);
  Serial.print("Â°C");
  Serial.print("  ~  ");
  Serial.print(tempF);
  Serial.println("Â°F");
  digitalWrite(LED_BUILTIN, HIGH);
  delay(1000);
  digitalWrite(LED_BUILTIN, LOW);
  delay(1000);

  delay(1000);
  digitalWrite(TRIG_PIN, HIGH);
  delayMicroseconds(10);
  digitalWrite(TRIG_PIN, LOW);


  duration_us = pulseIn(ECHO_PIN, HIGH);

  distance_cm = 0.017 * duration_us;

  if(distance_cm < DISTANCE_THRESHOLD)
    digitalWrite(BUZZER_PIN, HIGH);
  else
    digitalWrite(BUZZER_PIN, LOW);


  Serial.print("distance: ");
  Serial.print(distance_cm);
  Serial.println(" cm");

  delay(500);


}
```