

Assignment-1

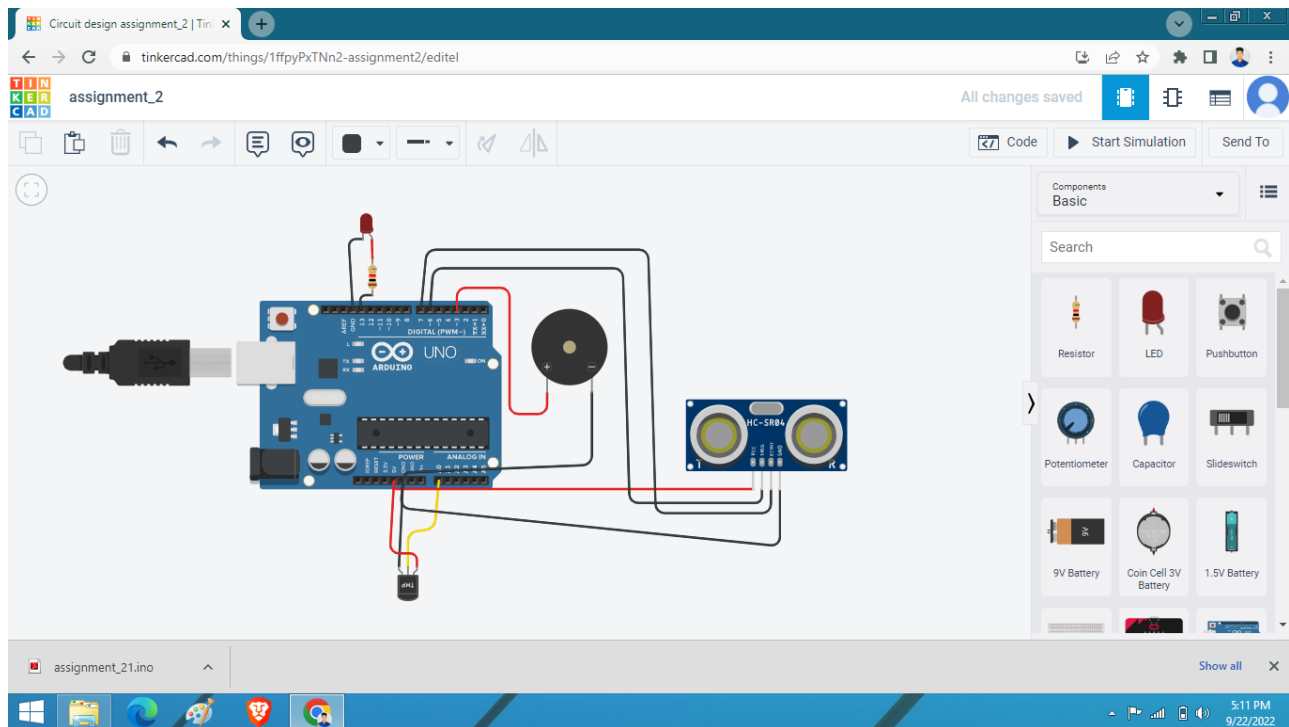
Python Programming

Assignment Date	19 September 2022
Student Name	S.Eashwar Periyakaruppan
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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);
```

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```
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("°C");
    Serial.print(" ~ ");
    Serial.print(tempF);
    Serial.println("°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);

}
```