Assignment -1
Home Automation

Assignment Date	15 September 2022
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Maximum Marks	2 Marks

Question-1:

Home Automation using TinkerCAD (Minimum 2 sensors)

Solution:

```
#include <LiquidCrystal.h>


LiquidCrystal lcd(12, 11, 5, 4, 3, 2);


float temp;

int tempPin = A1;

int relayPin = 8;

int ledPin = 13;

int pirPin = 7;

int pirStat = 0;

#define fan 9


void setup(){

    pinMode(ledPin, OUTPUT);

    pinMode(pirPin, INPUT);

    Serial.begin(9600);

    pinMode(fan, OUTPUT);

    pinMode(relayPin, OUTPUT);


    lcd.begin(16, 3);


    lcd.setCursor(1, 1);

    lcd.print("The Fantastic Four");
```

```
    delay(1000);

    lcd.clear();

    lcd.setCursor(3,0);

    lcd.print("Smart Power saving iot");

    delay(1000);

    lcd.clear();

    lcd.print("Lets Get Started");

    delay(2000);

    lcd.clear();

    lcd.print("AUTO TEMPERATURE");

    delay(2000);

    lcd.clear();


}
void poweronRelay()
  {

    digitalWrite(relayPin, HIGH);

    lcd.print("Fan ON");

    delay(2000);

    lcd.clear();

  }


void poweroffRelay()
  {

    digitalWrite(relayPin, LOW);

    analogWrite(fan,0);

    lcd.print("Fan OFF");

    delay(2000);

    lcd.clear();

  }
//only after signal is detected form pir sensor,
//the temp sensor will detect the temp and turn on the motor(fan)
```

```
void loop()
{
  pirStat = digitalRead(pirPin);
  if (pirStat == HIGH) {

    digitalWrite(ledPin, HIGH);
    Serial.println("person moved in");
    lcd.setCursor(3,0);
    lcd.print("Recording");
    lcd.setCursor(2, 1);
    lcd.print("Temperature..");
    delay(3000);
    lcd.clear();
    lcd.setCursor(0,2);
    temp = analogRead(tempPin);

    float voltage = temp * 5.0;
      voltage /= 1024.0;


      lcd.print(voltage); lcd.println(" volts");


      float temperatureC = (voltage - 0.5) * 100 ;

    lcd.setCursor(0, 0);
    lcd.print("Temperature = ");
    lcd.setCursor(2,1);
    //lcd.print(temp);
    lcd.print(temperatureC); lcd.println(" degrees C");
    delay(3000);
```

```
lcd.clear();

if(temperatureC >= 20)
{
  poweronRelay();
  if(temperatureC >= 20 && temperatureC <= 25)
  {
    analogWrite(fan,51);
    lcd.print("Fan Speed: 20% ");
    delay(2000);
    lcd.clear();
  }
  else if(temperatureC <= 35)
  {
    analogWrite(fan,102);
    lcd.print("Fan Speed: 40% ");
    delay(2000);
    lcd.clear();
  }
  else if(temperatureC <= 40)
  {
    analogWrite(fan,153);
    lcd.print("Fan Speed: 60% ");
    delay(2000);
    lcd.clear();
  }
  else if(temperatureC <= 44)
  {
    analogWrite(fan,200);
    lcd.print("Fan Speed: 80% ");
    delay(2000);
    lcd.clear();
```

```
      }
    else if(temperatureC >= 45)

    {

      analogWrite(fan,255);

      lcd.print("Fan Speed: 100% ");

      delay(2000);

      lcd.clear();

    }

    }

    else if(temperatureC < 20)

    {

      poweroffRelay();

    }



    }

  else {

  digitalWrite(ledPin, LOW);

  Serial.println("person moved out");

  poweroffRelay();

 }


}
```