**GULU UNIVERSITY**

**P.O BOX 166, GULU**

**Course:** Bachelor of Information and Communication Technology

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**Project Name:** Temperature\_Regulator\_System

**How the System Works**

1. **Initialization**:
   * When the system starts, it initializes the DHT sensor and the relay pin.
   * It ensures that the fan is off at the start.
2. **Continuous Operation**:
   * The system enters a loop where it continuously reads the temperature from the DHT sensor.
   * If the temperature reading is valid, it prints the temperature to the Serial Monitor.
   * Based on the temperature, it decides whether to turn the fan on or off:
     + If the temperature is 30°C or higher, it turns on the fan.
     + If the temperature is 25°C or lower, it turns off the fan.
   * It prints the status of the fan to the Serial Monitor.
   * The system waits for 5 seconds before repeating the process

**This how I can illustrate how the code will run**

#include <DFRobot\_DHT11.h> // *Define DHT sensor type and pin*

#define DHTPIN 33 // *Initialize DHT sensor*

DFRobot\_DHT11 dht(DHTPIN); // *Define relay pin*

#define RELAY\_PIN 32 // Define temperature thresholds

const float TEMP\_THRESHOLD\_ON = 30.0; *// Turn on the fan (in Celsius)*

const float TEMP\_THRESHOLD\_OFF = 25.0; // *Turn off the fan (in Celsius)*

void setup() {

*// Start serial communication for debugging*

Serial.begin(9600);

*// Initialize DHT sensor*

dht.begin(); // *Initialize relay pin*

pinMode(RELAY\_PIN, OUTPUT); // *Ensure the fan is off at the start*

digitalWrite(RELAY\_PIN, LOW);

}

**void loop() {**

*// This is repeated process for temperature from DHT sensor*

float temperature = dht.readTemperature(); // *Check if reading was successful*

if (isnan(temperature)) {

Serial.println("Failed to read from DHT sensor!");

return;

}

Serial.print("Temperature score is ");

Serial.println(temperature);

*// Print the temperature to the Serial Monitor*

Serial.print("Temperature: ");

Serial.print(temperature);

Serial.println(" \*C");

*// Control the relay based on temperature thresholds*

if (temperature >= TEMP\_THRESHOLD\_ON) {

digitalWrite(RELAY\_PIN, HIGH); // *Turn on the fan*

Serial.println("Fan ON");

} else if (temperature <= TEMP\_THRESHOLD\_OFF) {

digitalWrite(RELAY\_PIN, LOW); // *Turn off the fan*

Serial.println("Fan OFF");

}

// *Wait for 5 seconds before the next reading*

delay(5000);

}