**Slip 17: To write a program to get temperature notification using**

Arduino.

Below is a simple Arduino program that uses a temperature sensor (like the

DHT11 or DHT22) to monitor the temperature and send notifications via the Serial

Monitor when the temperature exceeds a specified threshold.

Components Needed:

- Arduino (e.g., Arduino Uno)

- DHT11 or DHT22 temperature and humidity sensor

Circuit Connections :

1. DHT Sensor:

- Connect the VCC pin of the DHT sensor to the 5V pin on the Arduino.

- Connect the GND pin of the DHT sensor to the GND pin on the Arduino.

- Connect the DATA pin of the DHT sensor to a digital pin IO2 on the Arduino.

2. Add buzzer and connect one end to pin IO3 and other end to ground

3. Add a virtual terminal to the schematic capture and connect the RX of virtual

terminal to the TXD of Arduino component and TX of virtual terminal to RXD of

Arduino component.

STEP 1: Write this code in main.py

#include <DHT.h>

// Define the pins

#define DHTPIN 2 // Pin where the DHT11 is connected

#define BUZZER\_PIN 3 // Pin where the buzzer is connected

// Initialize DHT sensor

DHT dht(DHTPIN, DHT11);

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void setup() {

Serial.begin(9600);

dht.begin();

pinMode(BUZZER\_PIN, OUTPUT);

}

void loop() {

// Wait a few seconds between measurements

delay(2000);

// Read temperature as Celsius

float temperature = dht.readTemperature();

// Check if the reading failed

if (isnan(temperature)) {

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

return;

}

// Print the temperature to the Serial Monitor

Serial.print("Temperature: ");

Serial.print(temperature);

Serial.println(" °C");

// Temperature threshold for notification

if (temperature > 30) { // Change this threshold as needed

Serial.println("Temperature is high! Activating buzzer...");

digitalWrite(BUZZER\_PIN, HIGH); // Activate buzzer

} else {

digitalWrite(BUZZER\_PIN, LOW); // Deactivate buzzer

}

}

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STEP 2: Copy the same code in Arduino ide.

STEP 3: Make sure the dht library is installed.

STEP 4: Save the sketch and compile it.

STEP 5: Then, go to Sketch > Export Compiled Binary to save the compiled .hex

file.

STEP 6: Go to proteus and double click on the Arduino component.

STEP 7: Find the field for the program file or hex file, and browse to select the

.hex file you exported from the Arduino IDE.

STEP 9: Run the simulation.

Explanation:

1. Library Inclusion: The code includes the DHT library to interface with the DHT

sensor.

2. Pin Configuration: You define the pin connected to the DHT sensor and specify

its type (DHT11 or

DHT22).

3. Setup: Initializes serial communication and the DHT sensor.

4. Loop:

- Reads the temperature every 2 seconds.

- Checks if the reading is valid.

- Compares the temperature against a predefined threshold.

- Sends a notification to the Serial Monitor if the temperature exceeds the

threshold.

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Connections: