**PSG COLLEGE OF TECHNOLOGY**

**COIMBATORE**

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**19Z604 - Embedded Systems**

**Project Title : Temperature Controlled Fan using Arduino**

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**AUTOMATED TEMPERATURE CONTROLLED EXHAUST FAN SYSTEM USING ARDUINO**

**PROBLEM STATEMENT:**

The project aims to develop an automated fan system using Arduino technology to maintain optimal temperature levels in industrial and machinery settings. It addresses the challenge of manual temperature monitoring by activating an exhaust fan when temperatures exceed a set threshold, preventing overheating and potential damage. Conversely, when temperatures drop below the limit, the fan deactivates to conserve energy.

Key considerations include designing a reliable temperature sensor, precise control logic with Arduino, and seamless integration with existing machinery. The system should be user-friendly, allowing easy configuration of temperature thresholds and parameters.

Automating fan control based on temperature fluctuations enhances efficiency, reduces manual intervention, and safeguards machinery, optimizing performance and longevity.

**CIRCUIT DIAGRAM:**

**A diagram of a circuit

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**CODE:**

#include <DHT.h>

#include <Wire.h>

#include <LiquidCrystal\_I2C.h>

#define DHTPIN 2

#define DHTTYPE DHT11

DHT dht(DHTPIN, DHTTYPE);

const int potPin = A0;

const int fanPin = 3; // Connect the fan to this pin

int s = 0;

LiquidCrystal\_I2C lcd(0x27, 16, 2); // Set the LCD address and dimensions

void setup() {

Serial.begin(9600);

dht.begin();

pinMode(fanPin, OUTPUT);

lcd.init(); // Initialize the LCD

lcd.backlight(); // Turn on the backlight

lcd.setCursor(0, 0);

lcd.print("Temp Fan Control");

lcd.setCursor(0, 1);

lcd.print(" ");

delay(2000);

lcd.clear();

}

void loop() {

int threshold = map(analogRead(potPin), 0, 1023, 20, 40); // Map potentiometer value to temperature range

float temperature = dht.readTemperature();

if (temperature > threshold) {s=1;

digitalWrite(fanPin, HIGH); // Turn on the fan

} else {s=0;

digitalWrite(fanPin, LOW); // Turn off the fan

}

lcd.clear();

lcd.setCursor(0, 0);

lcd.print("Temp: ");

lcd.print(temperature);lcd.print(char(223));

lcd.print("C");

lcd.setCursor(0, 1);

lcd.print("Threshold: ");

lcd.print(threshold);lcd.print(char(223));

lcd.print("C");

Serial.print("T=");

Serial.print(temperature);

Serial.print("C; ");

Serial.print("FAN - ");

if(s==1){

Serial.println("ON");}

else Serial.println("OFF");

delay(2000);

}

**OUTPUT SNAPSHOTS:**

A circuit board with wires and lights

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A green rectangular object with a yellow display

Description automatically generated with medium confidenceA circuit board with wires and a switch

Description automatically generated

A green electronic device with wires

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