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#include <DHT.h>

#include <LiquidCrystal.h>

#define DHTPIN 2 #define DHTTYPE DHT11 DHT dht(DHTPIN, DHTTYPE);

LiquidCrystal lcd(7, 6, 5, 4, 3, 8);

#define FAN_LOW 9 #define FAN_MED 10 #define FAN_HIGH 11

#define BTN_MODE 12 #define BTN_SPEED 13

int mode = 0; int fanSpeed = 0;

void setup() { Serial.begin(9600); dht.begin(); lcd.begin(16, 2); lcd.print("Smart Fan System"); delay(2000);

pinMode(FAN_LOW, OUTPUT); pinMode(FAN_MED, OUTPUT); pinMode(FAN_HIGH, OUTPUT);

pinMode(BTN_MODE, INPUT_PULLUP); pinMode(BTN_SPEED, INPUT_PULLUP); }

void loop() { if (!digitalRead(BTN_MODE)) { mode = !mode; delay(300); }

if (mode == 1 && !digitalRead(BTN_SPEED)) { fanSpeed++; if (fanSpeed > 3) fanSpeed = 0; delay(300); }

float temp = dht.readTemperature();

if (isnan(temp)) { lcd.clear(); lcd.print("Sensor Error!"); fanOff(); return; }

if (mode == 0) { if (temp < 25) fanSpeed = 0; else if (temp < 28) fanSpeed = 1; else if (temp < 32) fanSpeed = 2; else
fanSpeed = 3; }

applyFanSpeed(fanSpeed);

lcd.clear(); lcd.setCursor(0, 0); lcd.print("Temp:"); lcd.print(temp); lcd.print("C");

lcd.setCursor(0,1); if(mode==0) lcd.print("Mode:Auto "); else lcd.print("Mode:Manual "); lcd.print("S:"); lcd.print(fanSpeed

delay(800); }

void applyFanSpeed(int speed) { switch (speed) { case 0: fanOff(); break; case 1: fanLow(); break; case 2: fanMed(); break;
case 3: fanHigh(); break; } }

void fanOff() { digitalWrite(FAN_LOW, LOW); digitalWrite(FAN_MED, LOW); digitalWrite(FAN_HIGH, LOW); }

void fanLow() { digitalWrite(FAN_LOW, HIGH); digitalWrite(FAN_MED, LOW); digitalWrite(FAN_HIGH, LOW); }

void fanMed() { digitalWrite(FAN_LOW, LOW); digitalWrite(FAN_MED, HIGH); digitalWrite(FAN_HIGH, LOW); }

void fanHigh() { digitalWrite(FAN_LOW, LOW); digitalWrite(FAN_MED, LOW); digitalWrite(FAN_HIGH, HIGH); }
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