#include <OneWire.h>

#include <DallasTemperature.h>

#include <Wire.h>

#include <Adafruit\_GFX.h>

#include <Adafruit\_SSD1306.h>

#include <Encoder.h>

#define ONE\_WIRE\_BUS 7

#define RELAY\_PIN 8

#define BUZZER\_PIN 9

#define BUTTON\_PIN 4

OneWire oneWire(ONE\_WIRE\_BUS);

DallasTemperature sensors(&oneWire);

Adafruit\_SSD1306 display(128, 64, &Wire, -1);

Encoder myEnc(2, 3); // Rotary Encoder pins

long previousPosition = -999;

int targetTemp = 60;

void setup() {

Serial.begin(9600);

sensors.begin();

pinMode(RELAY\_PIN, OUTPUT);

pinMode(BUZZER\_PIN, OUTPUT);

pinMode(BUTTON\_PIN, INPUT\_PULLUP);

digitalWrite(RELAY\_PIN, LOW);

digitalWrite(BUZZER\_PIN, LOW);

if (!display.begin(SSD1306\_SWITCHCAPVCC, 0x3C)) {

Serial.println("OLED failed");

while (true);

}

display.clearDisplay();

display.setTextSize(1);

display.setTextColor(SSD1306\_WHITE);

}

void loop() {

long newPos = myEnc.read() / 4; // Adjust resolution

if (newPos != previousPosition) {

previousPosition = newPos;

targetTemp = constrain(40 + newPos, 40, 100); // Range 40°C to 100°C

}

sensors.requestTemperatures();

float currentTemp = sensors.getTempCByIndex(0);

display.clearDisplay();

display.setCursor(0, 0);

display.print("Current: ");

display.print(currentTemp, 1);

display.println(" C");

display.print("Target : ");

display.print(targetTemp);

display.println(" C");

display.display();

if (currentTemp < targetTemp - 1) {

digitalWrite(RELAY\_PIN, HIGH); // Turn ON kettle

} else {

digitalWrite(RELAY\_PIN, LOW); // Turn OFF kettle

tone(BUZZER\_PIN, 1000, 500); // Beep when ready

}

delay(500);

}