**Glove\_Box\_Code.ino TEXT**

/\*

ECO Tech glove box code

4/16/2018

Mary Kate Ellis, with Audrey Peer, Robert Campbell,

Jesse Lindsey, and Ben Crosby

\*/

//Set up relay

#define RELAY1 12

#define RELAY2 13

//Set up sensors

#include "DHT.h"

#define DHTPIN 2 // what digital pin we're connected to

#define DHTTYPE DHT22

DHT dht(DHTPIN, DHTTYPE);

// See guide for details on sensor wiring and usage:

// https://learn.adafruit.com/dht/overview

//INPUT ALL VARIABLES HERE

int humidity = 0; //input desired %relative humidity (0-100)

int temp = 0; //input desired temperature in degreesC (20-70)

int tempTol = 0; //input acceptable bilateral temperature tolerance in degrees C

int humTol = 0; //input acceptable bilateral tolerance in %relative humidity

void setup() {

// Initialise the relay pins as output

pinMode(RELAY1, OUTPUT);

pinMode(RELAY2, OUTPUT);

// Test relay function

digitalWrite(RELAY1, HIGH);

digitalWrite(RELAY2, HIGH);

delay(1000);

digitalWrite(RELAY1,LOW); // Turns ON Relay 1

delay(1000);

digitalWrite(RELAY1,HIGH); // Turns Relay Off

delay(1000);

digitalWrite(RELAY2,LOW); // Turns ON Relay 2

delay(1000);

digitalWrite(RELAY2,HIGH); // Turns Relay Off

//Start sensor, and display sensor information

Serial.begin(9600);

Serial.println("Reading DHT22 data!");

dht.begin();

}

void loop() {

float hum2 = dht.readHumidity() +12;

float temp2 = dht.readTemperature();

//output temperature and humidity data

// Reading temperature or humidity takes about 250 milliseconds!

// Sensor readings may also be up to 2 seconds 'old' (its a very slow sensor)

// Check if any reads failed and exit early (to try again).

float hum1 = dht.readHumidity();

float temp1 = dht.readTemperature();

if (isnan(hum1) || isnan(temp1)) {

Serial.println("Error in reading sensor data!");

while (isnan(hum1) || isnan(temp1)) {

hum1 = dht.readHumidity();

temp1 = dht.readTemperature();

}

}

else {

delay(5000); // Wait a few seconds between measurements.

float hum2 = dht.readHumidity() +12;

float temp2 = dht.readTemperature();

// Display environmental data

Serial.print("Humidity: ");

Serial.print(hum2);

Serial.print(" % ");

Serial.print("Temperature: ");

Serial.print(temp2);

Serial.println(" \*C ");

}

//use sensor data to control humidity

//if humidity is outside of defined limits

if ((hum2 < (humidity - humTol)) || (hum2 > (humidity + humTol))){

digitalWrite(RELAY2,LOW); //Turn ON Relay 2 (air pump)

}

else{ // if humidity is within defined range

digitalWrite(RELAY2,HIGH); // Turn OFF Relay 2 (air pump)

}

//use sensor data to control temperature

while (temp2 < (temp - tempTol)){ //when temperature is low

while (temp2 < (temp + tempTol)){ //run until temperature is high

digitalWrite(RELAY1,LOW); // Turn ON Relay 1 (heat gun)

delay(5000); //Display temperature data ONLY while temperature is being adjusted

temp2 = dht.readTemperature();

hum2 = dht.readHumidity() +12;

Serial.print("Humidity: ");

Serial.print(hum2);

Serial.print(" % ");

Serial.print("Temperature: ");

Serial.print(temp2);

Serial.println(" \*C ");

}

}

//turn off heat gun when goal temperature has been reached

digitalWrite(RELAY1,HIGH); // Turn heat gun off

}