**Code dari Soal Nomer 2**

Menggunakan Software Arduino IDE :

//Deklarasi pin masukan dan keluaran pada sistem

#define Thermostat 8

#define HeatSwitch 9

//Deklarasi Variabel yang diperlukan

int Temperature = 0;

bool TheHeatSwitchIsTurnOn = false;

//Fungsi yang hanya akan berjalan sekali saat sistem baru diaktifkan

void setup() {

//Deklarasi pin sebagai masukan dan keluaran

pinMode(Thermostat, INPUT);

pinMode(HeatSwitch, OUTPUT);

}

//Fungsi yang hanya akan berjalan berulang-ulang setelah sistem baru diaktifkan

void loop() {

//Deklarasi untuk penampung nilai pada thermostat sebagai masukan

Temperature = digitalRead(Thermostat);

//Jika Saklar dalam kondisi hidup

if(TheHeatSwitchIsTurnOn)

{

//Jika suhu memenuhi kriteria untuk mematikan saklar panas

if(Temperature >= 23)

{

digitalWrite(HeatSwitch, LOW);

TheHeatSwitchIsTurnOn = false;

}

}

else //Jika kondisi saklar panas berlawanan dari kondisi diatas

{

//Jika suhu memenuhi kriteria untuk menyalakan saklar panas

if(Temperature < 5)

{

digitalWrite(HeatSwitch, HIGH);

TheHeatSwitchIsTurnOn = true;

}

}

}

Hasil Testing Menggunakan Test Case Pada Link tersebut menyatakan bahwa :

Untuk Test Case 1 :

Dimana Heating Switch On dan Heat dalam keadaan turn off

Measured Temperature dalam keadaan 23 derajat atau lebih dari 23 derajat :

|  |  |  |  |
| --- | --- | --- | --- |
| Measured Temperature | Heating Switch | Heat | Hasil Testing |
| 23 | On | Off | Effectiveness : 25%  Efficiency : 100%  Overall Score : 25 % |
| 24 | On | Off | Effectiveness : 13 %  Efficiency : 50%  Overall Score : 6% |
| 25 | On | Off | Effectiveness : 13 %  Efficiency : 50%  Overall Score : 6% |
| 26 | On | Off | Effectiveness : 13 %  Efficiency : 50%  Overall Score : 6% |
| 27 | On | Off | Effectiveness : 13 %  Efficiency : 50%  Overall Score : 6% |

Test Case 2 : Heating Switch dalam keadaan On, Heat dalam keadaan on dan Measured Temperature dibawah 23 derajat.

|  |  |  |  |
| --- | --- | --- | --- |
| Measured Temperature | Heating Switch | Heat | Hasil Testing |
| 22 | On | On | Effectiveness : 25%  Efficiency : 100%  Overall Score : 25 % |
| 21 | On | On | Effectiveness : 13 %  Efficiency : 50%  Overall Score : 6% |
| 20 | On | On | Effectiveness : 13 %  Efficiency : 50%  Overall Score : 6% |
| 19 | On | On | Effectiveness : 13 %  Efficiency : 50%  Overall Score : 6% |
| 18 | On | On | Effectiveness : 13 %  Efficiency : 50%  Overall Score : 6% |

Test Case 3 : Heating Switch Off, Heat dalam keadaan Turn On dan Measured Temperature dibawah 5 Derajat.

|  |  |  |  |
| --- | --- | --- | --- |
| Measured Temperature | Heating Switch | Heat | Hasil Testing |
| 4 | Off | On | Effectiveness : 25%  Efficiency : 100%  Overall Score : 25 % |
| 3 | Off | On | Effectiveness : 13 %  Efficiency : 50%  Overall Score : 6% |
| 2 | Off | On | Effectiveness : 13 %  Efficiency : 50%  Overall Score : 6% |
| 1 | Off | On | Effectiveness : 13 %  Efficiency : 50%  Overall Score : 6% |
| 0 | Off | On | Effectiveness : 13 %  Efficiency : 50%  Overall Score : 6% |

Test Case 4 : Heating Switch dan Heat dalam keadaan Off dan Measured Temperature dibawah 5 derajat, effectiveness dan efficiency bernilai 0 %.