Lampiran A : List Program

```
// First we include the libraries
#include <OneWire.h>
#include <DallasTemperature.h>
#include <SoftwareSerial.h>

// Data wire is plugged into pin 2 on the Arduino
#define ONE_WIRE_BUS 2

//Set limit temperature is 35 degree in cel
#define LIMIT 35
#define LIMIT2 38
#define LIMIT3 37
bool sistemNormal = true;

// Setup a oneWire instance to communicate with any OneWire devices
// (not just Maxim/Dallas temperature ICs)
OneWire oneWire(ONE_WIRE_BUS);

// Pass our oneWire reference to Dallas Temperature.
DallasTemperature sensors(&oneWire);

//Add LCD
#include <Wire.h>
#include <LiquidCrystal_I2C.h>
LiquidCrystal_I2C lcd(0x27, 2, 1, 0, 4, 5, 6, 7, 3, POSITIVE);
```

```
SoftwareSerial SIM900(7, 8);
char incoming_char=0;
String message;
int getOut = 0;
const byte degreeSymbol = B11011111;
int LEDRED = 3;
int LEDGREEN = 4;
int BUZZER = 5;
const int relay1 = 9;
const int relay2 = 10;

void setup()
{
  pinMode(LEDRED, OUTPUT);
  pinMode(LEDGREEN, OUTPUT);
  pinMode(BUZZER, OUTPUT);
  pinMode(relay1, OUTPUT);
  pinMode(relay2, OUTPUT);

  SIM900.begin(19200);
  delay(25000);
  Serial.begin(19200);
  Serial.println("OK");

  SIM900.println("AT+CNMI=2,2,0,0,0");
  delay(1000);
```

```
pinMode(&oneWire, INPUT);
// Start up the library
sensors.begin();

//LCD
Serial.begin(19200);
lcd.begin(6,2);
lcd.backlight();
delay(250);
lcd.noBacklight();
delay(250);
lcd.backlight();

lcd.setCursor(0,0);
lcd.print(" HELMI RUSLAN ");
lcd.setCursor(0,1);
lcd.print(" 41414320019 ");
delay(3000);
lcd.clear();

//LED&BUZZER
digitalWrite(LEDRED, HIGH);
digitalWrite(LEDGREEN, LOW);
delay(1000);
digitalWrite(LEDRED, LOW);
digitalWrite(BUZZER, HIGH);
```

```
  delay(1000);
  digitalWrite(BUZZER, LOW);
  digitalWrite(LEDGREEN, HIGH);
  delay(1000);
  digitalWrite(LEDGREEN, LOW);

}

void callSomeone() {
  SIM900.println("ATD + +6281314714713;");
  delay(100);
  SIM900.println();
  delay(25000);
  SIM900.println("ATH"); // hang up
}

void to_call()
{
  SIM900.println("ATD 6281314714713;");
  delay(100);
  SIM900.println();
  delay(30000);
  SIM900.println("ATH");
  delay(1000);
}

void SMS_message()
```

```
{
  SIM900.print("AT+CMGF=1\r");
  delay(100);
  SIM900.println("AT+CMGS=\"6281314714713\"");
  delay(100);
  SIM900.println("Temperatur Di Ruang Server Melebihi Batas Minimum! Segera Lakukan Tindakan");
  delay(100);
  SIM900.println((char)26);
  delay(100);
  SIM900.println();
  delay(5000);
  Serial.println("SMS terkirim");
}

void SMS_messagesuhu()
{
  SIM900.print("AT+CMGF=1\r");
  delay(100);
  SIM900.println("AT+CMGS=\"6281314714713\"");
  delay(100);
  SIM900.println(sensors.getTempCByIndex(0));
  delay(100);
  SIM900.println((char)26);
  delay(100);
  SIM900.println();
  delay(5000);
  Serial.println("SMS terkirim");
```

```
}

void wait_message()
{
  getOut = 1;
  while(getOut==1)
  {
    if(SIM900.available()>0)
    {
      incoming_char=SIM900.read();
      Serial.print(incoming_char);
      getOut = 0;
    }
  }
}

void mode_receive_message()
{
  SIM900.print("AT+CMGF=1\r");
  delay(100);
  SIM900.print("AT+CNMI=2,2,0,0,0\r");
  delay(1000);
}

void LED_BLINK()
{
  digitalWrite(LEDRED, HIGH);
```

```
  delay(500);
  digitalWrite(LEDRED, LOW);
  delay(500);
  digitalWrite(LEDRED, HIGH);
  delay(500);
  digitalWrite(LEDRED, LOW);
}

void BEEP_BUZZER()
{
  digitalWrite(BUZZER, HIGH);
  delay(300);
  digitalWrite(BUZZER, LOW);
  delay(300);
  digitalWrite(BUZZER, HIGH);
  delay(300);
  digitalWrite(BUZZER, LOW);
}

void loop()
{
 // call sensors.requestTemperatures() to issue a global temperature
 // request to all devices on the bus
 Serial.print(" Requesting temperatures...");
 sensors.requestTemperatures(); // Send the command to get temperature readings
 Serial.println("DONE");
```

```
Serial.print("Temperature is: ");
Serial.print(sensors.getTempCByIndex(0)); // Why "byIndex"?
  // You can have more than one DS18B20 on the same bus.
  // 0 refers to the first IC on the wire
  delay(1000);
  digitalWrite(LEDGREEN, HIGH);
  digitalWrite(LEDRED, LOW);
  digitalWrite(relay1, LOW);
  digitalWrite(relay2, HIGH);

  if (SIM900.available()>0){
 message = SIM900.readString();
 }
 if(message.indexOf("Status") > -1){
    Serial.println("kirim suhu");
    SMS_messagesuhu();
    delay(1000);
   }
 delay(10);

  if((LIMIT<=sensors.getTempCByIndex(0))&&(sensors.getTempCByIndex(0)<=LIMIT3))
  {
   digitalWrite(relay2, LOW);
   digitalWrite(LEDGREEN, LOW);
   SMS_message();
   SMS_messagesuhu();
   LED_BLINK();BEEP_BUZZER();
```

```
  lcd.clear();
  lcd.setCursor(0,0);
  lcd.print("sendSMS!");
  lcd.clear();
  lcd.print("suhu panas!");
 }

 if(sensors.getTempCByIndex(0)>LIMIT2){
  digitalWrite(relay2, LOW);
  callSomeone();
 }

 if(sensors.getTempCByIndex(0)>LIMIT){
  digitalWrite(relay2, LOW);
  delay(25000);
 }

  lcd.clear();
  lcd.setCursor(0,0);
  lcd.print("suhu :");
  lcd.setCursor(0,2);
  lcd.print(sensors.getTempCByIndex(0));
  lcd.setCursor(6,2);
  lcd.write(degreeSymbol);
  lcd.print("C");
  delay(1000);
}
```