2 CH SENSOR SUHU DS1820 & LM35

Sistem Kerja Alat:

Arduino akan membaca nilai temperatur linkungan dengan 2 sensor suhu jenis DS1820/22 dan LM35. Hasil pembacaan kedua sensor ditampilkan ke LCD 2x16.

Kebutuhan Hardware :

- Arduino UNO Board
- Modul sensor temperatur DS1820/22
- Modul sensor LM35
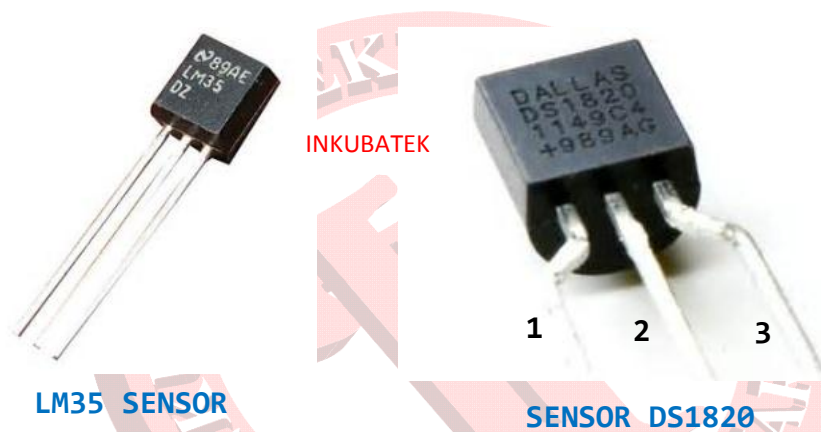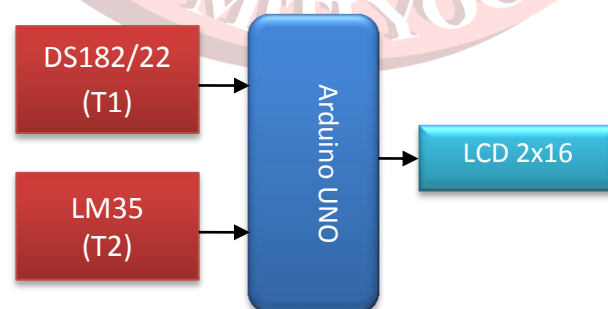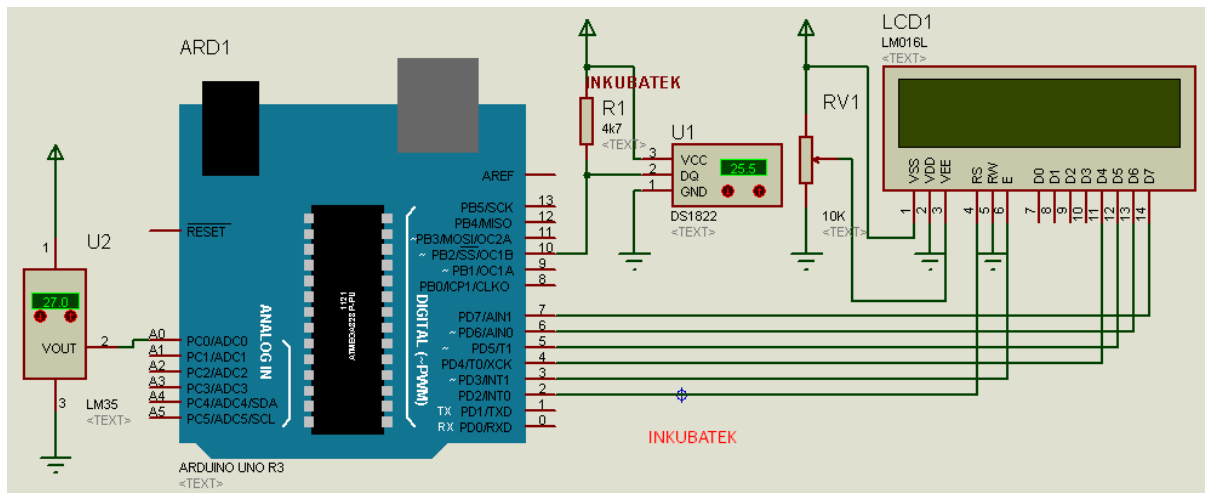- Modul LCD 2x16
- Power Supply 7-9 Vdc

LM35 SENSOR

SENSOR DS1820

Diagram Blok:

Schematics

Koneksi Arduino UNO dengan LCD:

Pin ARDUINO	LCD
2	RS
3	EN
4	D4
5	D5
6	D6
7	D7

Koneksi Sensor LM35:

Pin Sensor LM35	Pin ARDUINO
1 (VCC)	+5V
2 (Output)	Pin A0
3 (GND)	GND

Koneksi Sensor DS1820/22:

Pin Sensor	Pin ARDUINO
1 (GND)	GND
2 (DQ)	Pin 10
3 (VCC)	+5V

Source Code/Sketch :

```
/********************************
 * Program : Project 1 2 CH SENSOR SUHU DS1820 & LM35
 * Input   : LM35 di A0
 *           DS1820 di 10
 * Output  : LCD 2x16
 * 125 PROYEK ARDUINO
 * www.tokotronik.com
 * ********************************/
#include <OneWire.h>
#include <Wire.h>
#include <LiquidCrystal.h>


LiquidCrystal lcd(2, 3, 4, 5, 6, 7);
OneWire  ds(10);  // on pin 10 --DS1820


unsigned int adc,tempDS,tempLM;


//=====================================
void setup(void) {
  lcd.begin(16, 2);
  lcd.print("2Ch Sensor Suhu");
  lcd.setCursor(0,1);
  delay(1000);
}
//=====================================
void loop(void) {

  byte i;
```

```
byte present = 0;

byte type_s;

byte data[12];

byte addr[8];

float celsius, fahrenheit;

//================================


if ( !ds.search(addr)) {

  ds.reset_search();

  delay(250);

  return;

}

// the first ROM byte indicates which chip

switch (addr[0]) {

case 0x10: //  Chip = DS18S20 or old DS1820

  type_s = 1;

  break;

case 0x28: //  Chip = DS18B20

  type_s = 0;

  break;

case 0x22: //  Chip = DS1822

  type_s = 0;

  break;

default:  //Device is not a DS18x20 family device.

  return;

}


ds.reset();

ds.select(addr);

ds.write(0x44, 1);     // start conversion, with parasite power on at the end
```

```
delay(1000);    // maybe 750ms is enough, maybe not

// we might do a ds.depower() here, but the reset will take care of it.


present = ds.reset();

ds.select(addr);

ds.write(0xBE);        // Read Scratchpad


for ( i = 0; i < 9; i++) {        // we need 9 bytes

  data[i] = ds.read();

}

int16_t raw = (data[1] << 8) | data[0];

if (type_s) {

  raw = raw << 3; // 9 bit resolution default

  if (data[7] == 0x10) {

    raw = (raw & 0xFFF0) + 12 - data[6];

  }

}

else {

  byte cfg = (data[4] & 0x60);

  if (cfg == 0x00) raw = raw & ~7;  // 9 bit resolution, 93.75 ms

  else if (cfg == 0x20) raw = raw & ~3; // 10 bit res, 187.5 ms

  else if (cfg == 0x40) raw = raw & ~1; // 11 bit res, 375 ms

}

celsius = (float)raw / 16.0;

fahrenheit = celsius * 1.8 + 32.0;

tempDS=celsius;

//===================

adc = analogRead(0);

tempLM=(adc*5)/10;
```

```
lcd.setCursor(0,1);

lcd.print("T1:");

lcd.print(tempDS);

lcd.write(0xDF);

lcd.print("C, T2:");

lcd.print(tempLM);

lcd.write(0xDF);

lcd.print("C");

}
```
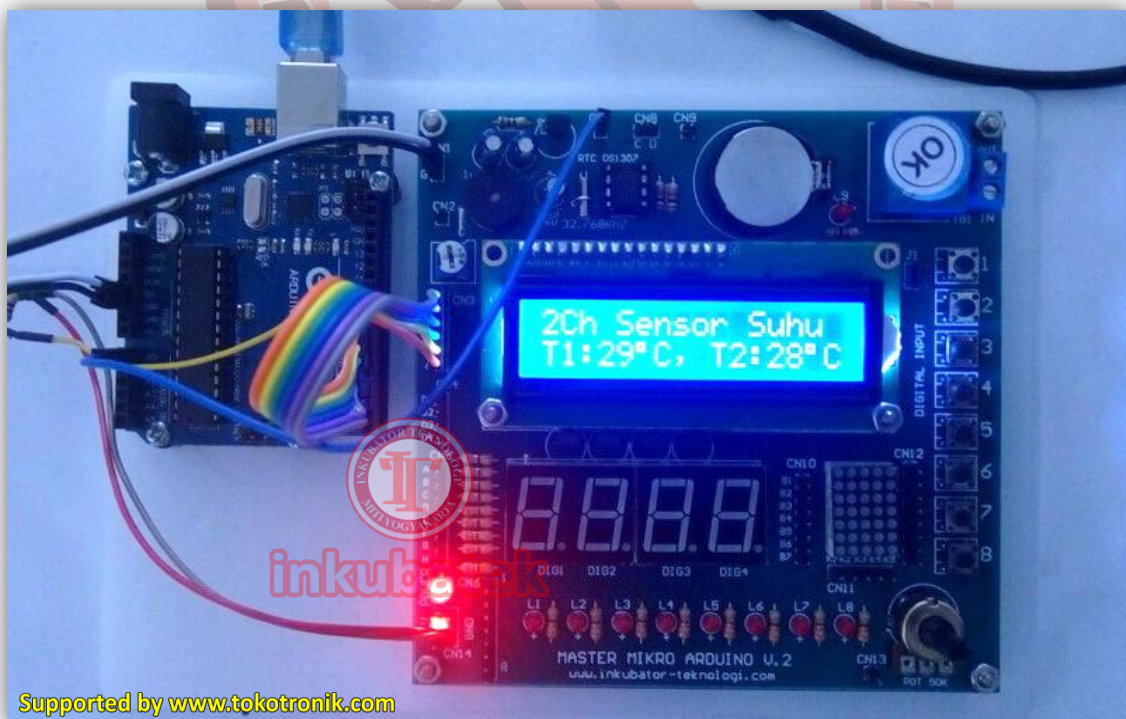
Jalannya Alat :

Pada LCD akan tampil nilai temperature yang dibaca oleh Arduino dengan sensor suhu DS1820 dan LM35. T1 merupakan hasil pembacaan DS1820 , T2 merupakan hasil pembacaan LM35. Jika temperatur berubah, tampilan di LCD akan mengikutinya.

[Uji coba memakai hardware "Master Mikro ARDUINO V2" :
http://tokotronik.com/master-mikro-arduino-v2/]