DIGITAL THERMOMETER TAMPILAN LCD BARGRAPH

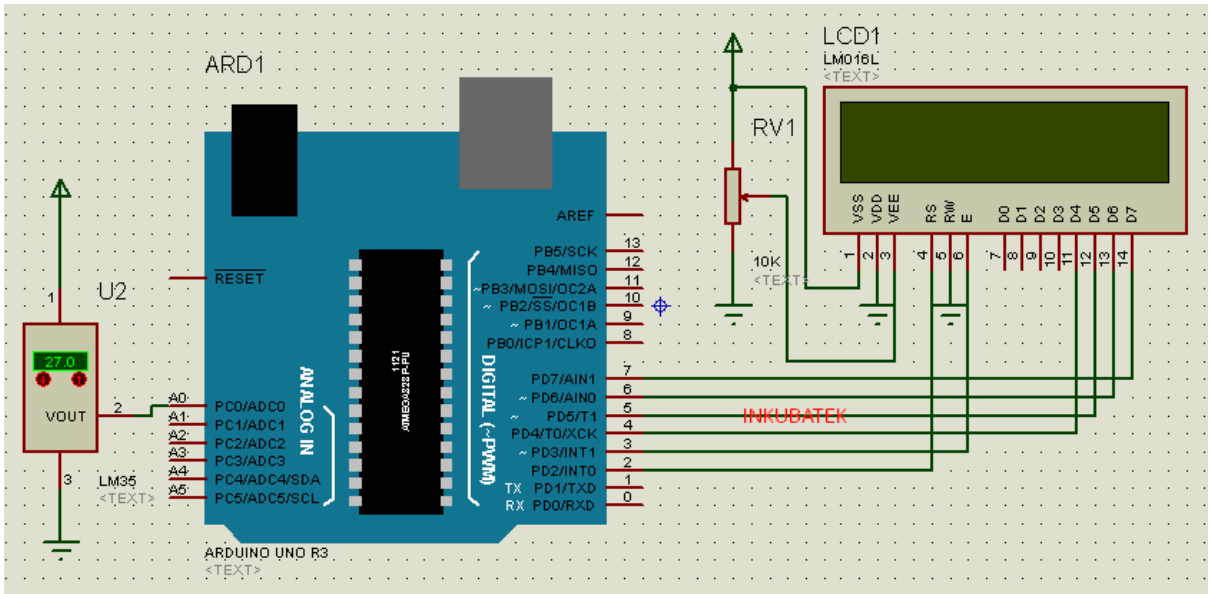
Sistem Kerja Alat:

Membaca nilai temperatur dengan sensor LM35 kemudian hasilnya ditampilkan dalam bentuk bargraph di LCD 2x16 dengan Arduino UNO sebagai pengolah datanya.

Kebutuhan Hardware :

- Arduino UNO Board
- Modul sensor LM35
- Modul LCD 2x16
- Power Supply 7-9 Vdc

Schematics



Source Code/Sketch :

```
/***********************************
 * Program : Project 20. Digital Thermometer Tampilan Bargraph
 * Input   : Sensor LM35
 * Output  : LCD 2x16
 * 125 Proyek Arduino Inkubatek
 * www.tokotronik.com
 * ***********************************/
#include <LiquidCrystal.h>

LiquidCrystal lcd(2, 3, 4, 5, 6, 7);

unsigned int adc,tempLM,a,b,i;

byte bargraph1[8] = {
  0b10000,
  0b10000,
  0b10000,
  0b10000,
  0b10000,
  0b10000,
  0b10000,
  0b10000
};
byte bargraph2[8] = {
  0b11000,
  0b11000,
  0b11000,
  0b11000,
```

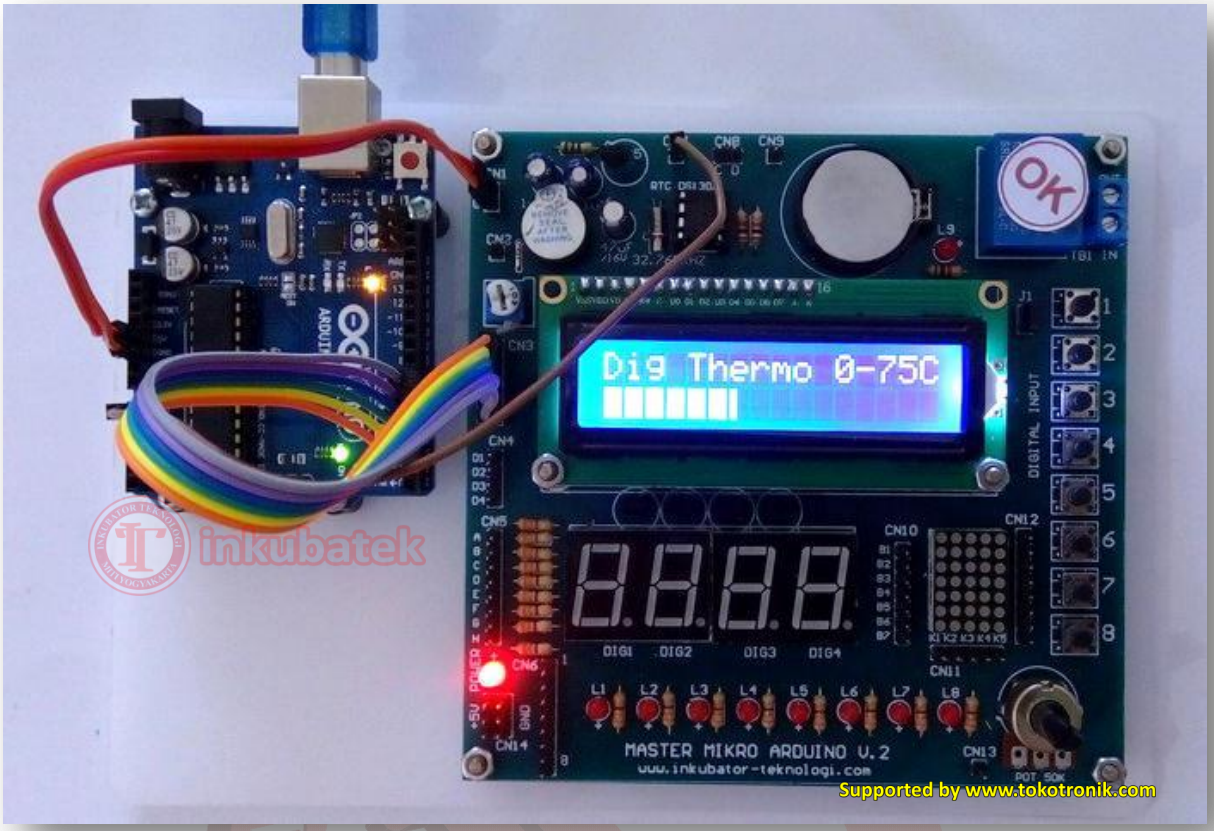
```
  0b11000,
  0b11000,
  0b11000,
  0b11000
};
byte bargraph3[8] = {
  0b11100,
  0b11100,
  0b11100,
  0b11100,
  0b11100,
  0b11100,
  0b11100,
  0b11100
};
byte bargraph4[8] = {
  0b11110,
  0b11110,
  0b11110,
  0b11110,
  0b11110,
  0b11110,
  0b11110,
  0b11110
};
byte bargraph5[8] = {
  0b11111,
  0b11111,
  0b11111,
  0b11111,
```

```
  0b11111,
  0b11111,
  0b11111,
  0b11111
};
// suhu : 0 - 100
// bar : 15x5 = 50

//=========================================
void setup(void) {
  lcd.begin(16, 2);
  lcd.createChar(1, bargraph1);
  lcd.createChar(2, bargraph2);
  lcd.createChar(3, bargraph3);
  lcd.createChar(4, bargraph4);
  lcd.createChar(5, bargraph5);

  lcd.print("Digital Therm");
  lcd.setCursor(0,1);
  lcd.write(byte(1));
  delay(1000);
  lcd.clear();
  lcd.print("Dig Thermo 0-75C");
}
//=========================================
void loop(void) {
  adc = analogRead(0);
  tempLM=(adc*5)/10;
  lcd.setCursor(0,1);
```

```
 if(tempLM>5){
  a=tempLM/5;
  b=tempLM%5;
  for(i=0;i<a;i++){
   lcd.write(5);
  }
  if(b==1){
   lcd.write(1);
  }
  else if(b==2){
   lcd.write(2);
  }
  else if(b==3){
   lcd.write(3);
  }
  else if(b==4){
   lcd.write(4);
  }
 }
 delay(2000);
}
```


Jalannya Alat :

Pada LCD akan tampil nilai temperature yang dibaca oleh Arduino dengan sensor suhu LM35 dengan tampilan bargraph. Jika temperatur berubah, tampilan di LCD (panjang – pendek bargraph) akan mengikutinya. Nilai 1 kolom = 1 ^{0}C, jadi jika 1 kotak penuh (5 kolom) berarti 5^{0}C.



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