

**LAMP IRAN**

## Listing Program

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/*****
This program was produced by the
CodeWizardAVR V2.05.0 Evaluation
Automatic Program Generator
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Project :
Version :
Date    : 07/08/2016
Author  : Freeware, for evaluation and non-commercial use only
Company :
Comments:

Chip type           : ATmega16
Program type        : Application
AVR Core Clock frequency: 1,000000 MHz
Memory model        : Small
External RAM size   : 0
Data Stack size     : 256
*****/

#include <mega16.h>
#include <delay.h>
#include <stdlib.h>

float data=0,adc,P;
unsigned char temp[6],temp2[6];
unsigned char i=0;

// Alphanumeric LCD Module functions
#include <alcd.h>

#define ADC_VREF_TYPE 0x00

// Read the AD conversion result
unsigned int read_adc(unsigned char adc_input)
{
    ADMUX=adc_input | (ADC_VREF_TYPE & 0xff);
    // Delay needed for the stabilization of the ADC input voltage
    delay_us(10);
    // Start the AD conversion
    ADCSRA|=0x40;
    // Wait for the AD conversion to complete
    while ((ADCSRA & 0x10)==0);
    ADCSRA|=0x10;
    return ADCW;
}

// Declare your global variables here

void main(void)
{
    // Declare your local variables here

    // Input/Output Ports initialization
    // Port A initialization

```

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// Func7=In Func6=In Func5=In Func4=In Func3=In Func2=In Func1=In
Func0=In
// State7=T State6=T State5=T State4=T State3=T State2=T State1=T
State0=T
PORTA=0x01;
DDRA=0xFE;

// Port B initialization
// Func7=In Func6=In Func5=In Func4=In Func3=In Func2=In Func1=In
Func0=In
// State7=T State6=T State5=T State4=T State3=T State2=T State1=T
State0=T
PORTB=0x00;
DDRB=0x00;

// Port C initialization
// Func7=In Func6=In Func5=In Func4=In Func3=In Func2=In Func1=In
Func0=In
// State7=T State6=T State5=T State4=T State3=T State2=T State1=T
State0=T
PORTC=0x00;
DDRC=0x00;

// Port D initialization
// Func7=In Func6=In Func5=In Func4=In Func3=In Func2=In Func1=In
Func0=In
// State7=T State6=T State5=T State4=T State3=T State2=T State1=T
State0=T
PORTD=0x00;
DDRD=0x00;

// ADC initialization
// ADC Clock frequency: 7,813 kHz
// ADC Voltage Reference: AREF pin
// ADC Auto Trigger Source: Free Running
ADMUX=ADC_VREF_TYPE & 0xff;
ADCSRA=0xA7;
SFIOR&=0x1F;

// Alphanumeric LCD initialization
// Connections specified in the
// Project|Configure|C Compiler|Libraries|Alphanumeric LCD menu:
// RS - PORTC Bit 0
// RD - PORTC Bit 1
// EN - PORTC Bit 2
// D4 - PORTC Bit 4
// D5 - PORTC Bit 5
// D6 - PORTC Bit 6
// D7 - PORTC Bit 7
// Characters/line: 16
lcd_init(16);
lcd_clear();
lcd_gotoxy(2,0);
lcd_puts("TUGAS AKHIR");
lcd_gotoxy(1,1);
lcd_puts("INNES DYAH IKA P.");
delay_ms(2000);
lcd_clear();

while (1)
{
    lcd_gotoxy(0,0);
}

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lcd_putsf("Kal. SuctionPump");
adc=0;
for(i=0;i<150;i++)
{
    data=read_adc(0);
    data=data*4.25/1024;
    adc=adc+data;
}
adc=adc/150;
//    P=(adc/5)-0.92;
//    P=P/0.007652;
//    P=(P*7.5);

if(adc<=4.242&&adc>3.74467)
{P=(-201.07*adc)+852.95;}
if(adc<=3.74467&&adc>3.51567)
{P=(-218.34*adc)+917.61;}
if(adc<=3.51567&&adc>3.28767)
{P=(-219.3*adc)+920.98;}
if(adc<=3.28767&&adc>3.060)
{P=(-219.62*adc)+922.03;}
if(adc<=3.060&&adc>2.8313)
{P=(-218.63*adc)+919;}
if(adc<=2.8313&&adc>2.6033)
{P=(-219.3*adc)+920.9;}
if(adc<=2.6033&&adc>2.3753)
{P=(-219.3*adc)+920.9;}
if(adc<=2.3753&&adc>2.14733)
{P=(-219.33*adc)+920.97;}
if(adc<=2.14733&&adc>1.924)
{P=(-223.88*adc)+930.75;}
if(adc<=1.924&&adc>1.699)
{P=(-222.22*adc)+927.56;}
if(adc<=1.699&&adc>1.47533)
{P=(-223.54*adc)+929.8;}
if(adc<=1.47533&&adc>1.252)
{P=(-223.88*adc)+930.3;}
if(P<=250)
{
P=P+4;
}
//    else
//    {P=(adc/5)-0.92;
//    P=P/0.007652;
//    P=(P*7.5);}
//if(adc > -10)
if(adc>4.245){P=0;}
if(P<=0)
{
P=0;
lcd_gotoxy(0,1);
ftoa(P,1,temp);
lcd_puts(temp);
lcd_gotoxy(1,1);
lcd_putsf("      ");
}
else if(P<10 && P>0)
{
lcd_gotoxy(0,1);
lcd_putsf("-");
lcd_gotoxy(1,1);
ftoa(P,1,temp);
}

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    lcd_puts(temp);
    lcd_gotoxy(5,1);
    lcd_printf("      ");
}
else if(P >= 10 && P < 100)
{
    lcd_gotoxy(0,1);
    lcd_printf("-");
    lcd_gotoxy(1,1);
    ftoa(P,1,temp);
    lcd_puts(temp);
    lcd_gotoxy(6,1);
    lcd_printf("      ");
}else
{
    lcd_gotoxy(0,1);
    lcd_printf("-");
    lcd_gotoxy(1,1);
    ftoa(P,1,temp);
    lcd_puts(temp);
}
//    lcd_gotoxy(0,1);
//    ftoa(P,1,temp);
//    lcd_puts(temp);
    lcd_gotoxy(11,1);
    ftoa(adc,3,temp2);
    lcd_puts(temp2);
    delay_ms(750);
}
}

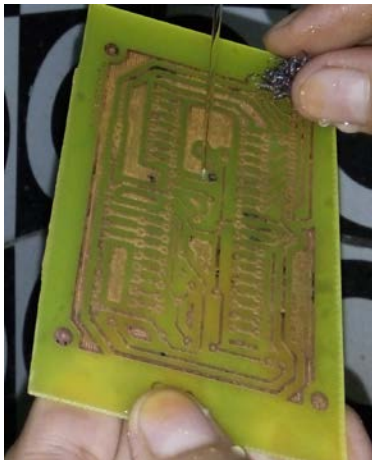
```

## Langkah Pengerjaan Alat:

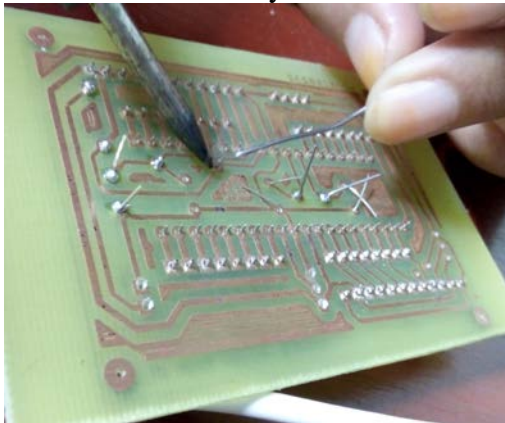
1. Lay out pada PC dilarutkan dengan feriklorit



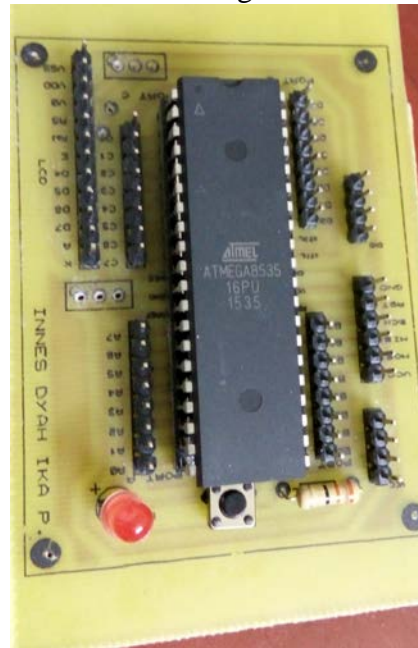
2. Setelah pelarutan selesai kemudian di amplas sampai bersih



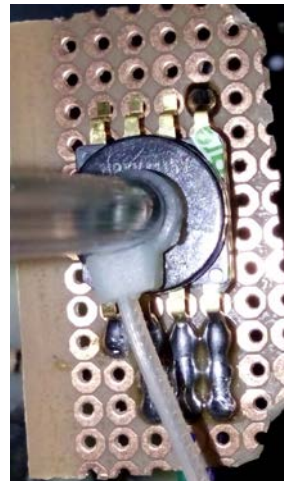
3. Lakukan Penyolderan



4. Penyolderan dengan komponen selesai maka jadi modul rangkaian Minsis



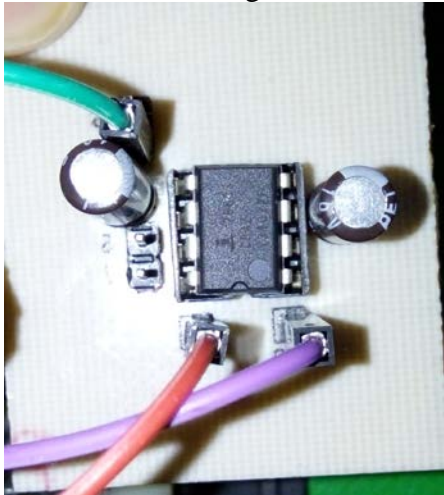
5. Sensor tekanan



6. Modul Rangkaian Sensor pendukung



7. Modul Rangkaian ICL7660



8. Rangkaian sudah disatukan didalam box



9. Alat sudah jadi sebelum diberi stiker



10. Alat sudah jadi setelah diberi stiker



11. DPM4 Parameter tester sebagai pembanding alat penulis



12. Saat dilakukan pengukuran antara *DPM* dengan Modul penulis

