

## *Listing Program*

```
/*
 *
 * This program was created by the CodeWizardAVR V3.24
 * Automatic Program Generator
 * © Copyright 1998-2015 Pavel Haiduc, HP InfoTech s.r.l.
 * http://www.hpinfotech.com
 * Project :
 * Version :
 * Date : 08/05/2017
 * Author : Mahfudin Aditya Noor
 * Company :
 * Comments:
 * Chip type : ATmega16
 * Program type : Application
 * AVR Core Clock frequency: 12,000000 MHz
 * Memory model : Small
 * External RAM size : 0
 * Data Stack size : 256
 */
#include <mega16.h>
#include <stdio.h>
#include <delay.h>
#include <stdlib.h>
// Alphanumeric LCD functions
#include <alcd.h>

#define Sensor_LM35 PINA.0
#define Sensor_IR1 PINA.1
#define Sensor_IR2 PINA.2
#define Blower PORTB.0
#define Lampu PORTB.1

unsigned char kata[16];
int data_suhu,x;
float suhu_celcius;
// Declare your global variables here
```

```

void Blower_on ()
{
Blower=1;
}

void Blower_off ()
{
Blower=0;
}

void Lampu_on ()
{
Lampu=1;
}

void Lampu_off ()
{
Lampu=0;
}

void main(void)
{
// Declare your local variables here
// Input/Output Ports initialization

// Port A initialization
// Function: Bit7=In Bit6=In Bit5=In Bit4=In Bit3=In
Bit2=In Bit1=In Bit0=In
DDRA=(0<<DDA7) | (0<<DDA6) | (0<<DDA5) | (0<<DDA4) |
(0<<DDA3) | (0<<DDA2) | (0<<DDA1) | (0<<DDA0);
// State: Bit7=T Bit6=T Bit5=T Bit4=T Bit3=T Bit2=P
Bit1=P Bit0=P
PORTA=(0<<PORTA7) | (0<<PORTA6) | (0<<PORTA5) |
(0<<PORTA4) | (0<<PORTA3) | (1<<PORTA2) | (1<<PORTA1) |
(1<<PORTA0);

// Port B initialization
// Function: Bit7=In Bit6=In Bit5=In Bit4=In Bit3=In
Bit2=In Bit1=Out Bit0=Out

```

```

DDRB=(0<<DDB7) | (0<<DDB6) | (0<<DDB5) | (0<<DDB4) |
(0<<DDB3) | (0<<DDB2) | (1<<DDB1) | (1<<DDB0);
// State: Bit7=T Bit6=T Bit5=T Bit4=T Bit3=T Bit2=T
Bit1=0 Bit0=0
PORTB=(0<<PORTB7) | (0<<PORTB6) | (0<<PORTB5) |
(0<<PORTB4) | (0<<PORTB3) | (0<<PORTB2) | (0<<PORTB1) |
(0<<PORTB0);

// Port C initialization
// Function: Bit7=In Bit6=In Bit5=In Bit4=In Bit3=In
Bit2=In Bit1=In Bit0=In
DDRC=(0<<DDC7) | (0<<DDC6) | (0<<DDC5) | (0<<DDC4) |
(0<<DDC3) | (0<<DDC2) | (0<<DDC1) | (0<<DDC0);
// State: Bit7=T Bit6=T Bit5=T Bit4=T Bit3=T Bit2=T
Bit1=T Bit0=T
PORTC=(0<<PORTC7) | (0<<PORTC6) | (0<<PORTC5) |
(0<<PORTC4) | (0<<PORTC3) | (0<<PORTC2) | (0<<PORTC1) |
(0<<PORTC0);

// Port D initialization
// Function: Bit7=In Bit6=In Bit5=In Bit4=In Bit3=In
Bit2=In Bit1=In Bit0=In
DDRD=(0<<DDD7) | (0<<DDD6) | (0<<DDD5) | (0<<DDD4) |
(0<<DDD3) | (0<<DDD2) | (0<<DDD1) | (0<<DDD0);
File: D:\6cb\Proposal LA\LA\program LA\baru\main.c,
Date: 09/06/2017, Time: - 2 -
// State: Bit7=T Bit6=T Bit5=T Bit4=T Bit3=T Bit2=T
Bit1=T Bit0=T
PORTD=(0<<PORTD7) | (0<<PORTD6) | (0<<PORTD5) |
(0<<PORTD4) | (0<<PORTD3) | (0<<PORTD2) | (0<<PORTD1) |
(0<<PORTD0);

// Timer/Counter 0 initialization
// Clock source: System Clock
// Clock value: Timer 0 Stopped
// Mode: Normal top=0xFF
// OC0 output: Disconnected
TCCR0=(0<<WGM00) | (0<<COM01) | (0<<COM00) | (0<<WGM01)
| (0<<CS02) | (0<<CS01) | (0<<CS00);
TCNT0=0x00;
OCR0=0x00;

```

```

// Timer/Counter 1 initialization
// Clock source: System Clock
// Clock value: Timer1 Stopped
// Mode: Normal top=0xFFFF
// OC1A output: Disconnected
// OC1B output: Disconnected
// Noise Canceler: Off
// Input Capture on Falling Edge
// Timer1 Overflow Interrupt: Off
// Input Capture Interrupt: Off
// Compare A Match Interrupt: Off
// Compare B Match Interrupt: Off
TCCR1A=(0<<COM1A1) | (0<<COM1A0) | (0<<COM1B1) |
(0<<COM1B0) | (0<<WGM11) | (0<<WGM10);

TCCR1B=(0<<ICNC1) | (0<<ICES1) | (0<<WGM13) |
(0<<WGM12) | (0<<CS12) | (0<<CS11) | (0<<CS10);
TCNT1H=0x00;
TCNT1L=0x00;
ICR1H=0x00;
ICR1L=0x00;
OCR1AH=0x00;
OCR1AL=0x00;
OCR1BH=0x00;
OCR1BL=0x00;

// Timer/Counter 2 initialization
// Clock source: System Clock
// Clock value: Timer2 Stopped
// Mode: Normal top=0xFF
// OC2 output: Disconnected
ASSR=0<<AS2;
TCCR2=(0<<PWM2) | (0<<COM21) | (0<<COM20) | (0<<CTC2) |
(0<<CS22) | (0<<CS21) | (0<<CS20);
TCNT2=0x00;
OCR2=0x00;

// Timer(s)/Counter(s) Interrupt(s) initialization

```

```

TIMSK=(0<<OCIE2) | (0<<TOIE2) | (0<<TICIE1) |
(0<<OCIE1A) | (0<<OCIE1B) | (0<<TOIE1) | (0<<OCIE0) |
(0<<TOIE0);

// External Interrupt(s) initialization
// INT0: Off
// INT1: Off
// INT2: Off
MCUCR=(0<<ISC11) | (0<<ISC10) | (0<<ISC01) |
(0<<ISC00);
MCUCSR=(0<<ISC2);

// USART initialization
// USART disabled
UCSRB=(0<<RXCIE) | (0<<TXCIE) | (0<<UDRIE) | (0<<RXEN)
| (0<<TXEN) | (0<<UCSZ2) | (0<<RXB8) | (0<<TXB8);

// Analog Comparator initialization
// Analog Comparator: Off
// The Analog Comparator's positive input is
// connected to the AIN0 pin
// The Analog Comparator's negative input is
// connected to the AIN1 pin

ACSR=(1<<ACD) | (0<<ACBG) | (0<<ACO) | (0<<ACI) |
(0<<ACIE) | (0<<ACIC) | (0<<ACIS1) | (0<<ACIS0);
SFIOR=(0<<ACME);

// ADC initialization
// ADC disabled
ADCSRA=(0<<ADEN) | (0<<ADSC) | (0<<ADATE) | (0<<ADIF) |
(0<<ADIE) | (0<<ADPS2) | (0<<ADPS1) | (0<<ADPS0);

// SPI initialization
// SPI disabled
SPCR=(0<<SPIE) | (0<<SPE) | (0<<DORD) | (0<<MSTR) |
(0<<CPOL) | (0<<CPHA) | (0<<SPR1) | (0<<SPR0);

// TWI initialization
// TWI disabled

```

```
TWCR=(0<<TWEA) | (0<<TWSTA) | (0<<TWSTO) | (0<<TWEN) |  
(0<<TWIE);
```

```
// Alphanumeric LCD initialization  
// Connections are 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);  
    for(x=0;x<=2;x++)  
    {  
        lcd_gotoxy(0,0);  
        lcd_putsf("Teknik Komputer");  
        lcd_gotoxy(0,1);  
        lcd_putsf("Mahfudin A N");  
        delay_ms(100);  
        lcd_clear();  
        delay_ms(100);  
    }
```

```
while (1)  
{  
// Place your code here  
    if (Sensor_IR1 == 0)  
    {  
        Lampu_on();  
        delay_ms(1000);  
    }  
    if (Sensor_IR2 == 0 && Lampu == 1)  
    {  
        Lampu_off();  
    }  
}
```

```
data_suhu = Sensor_LM35;
suhu_celcius = ((float)data_suhu*500/1024); //Rubah
kecelcius
ftoa(suhu_celcius,2,kata);
lcd_gotoxy(2,0);
lcd_putsf("Suhu saat ini ");
lcd_gotoxy(4,1);
lcd_puts(kata);
lcd_gotoxy(9,1);
lcd_putchar(0xdf); //menampilkan karakter derajat
lcd_putsf("C");
delay_ms(10);
    if(data_suhu > 27)
    {
        Blower_on();
    }
    if(data_suhu < 27)
    {
        Blower_off();
    }
};
}
```























