

LAMPIRAN 1

FOTO ALAT

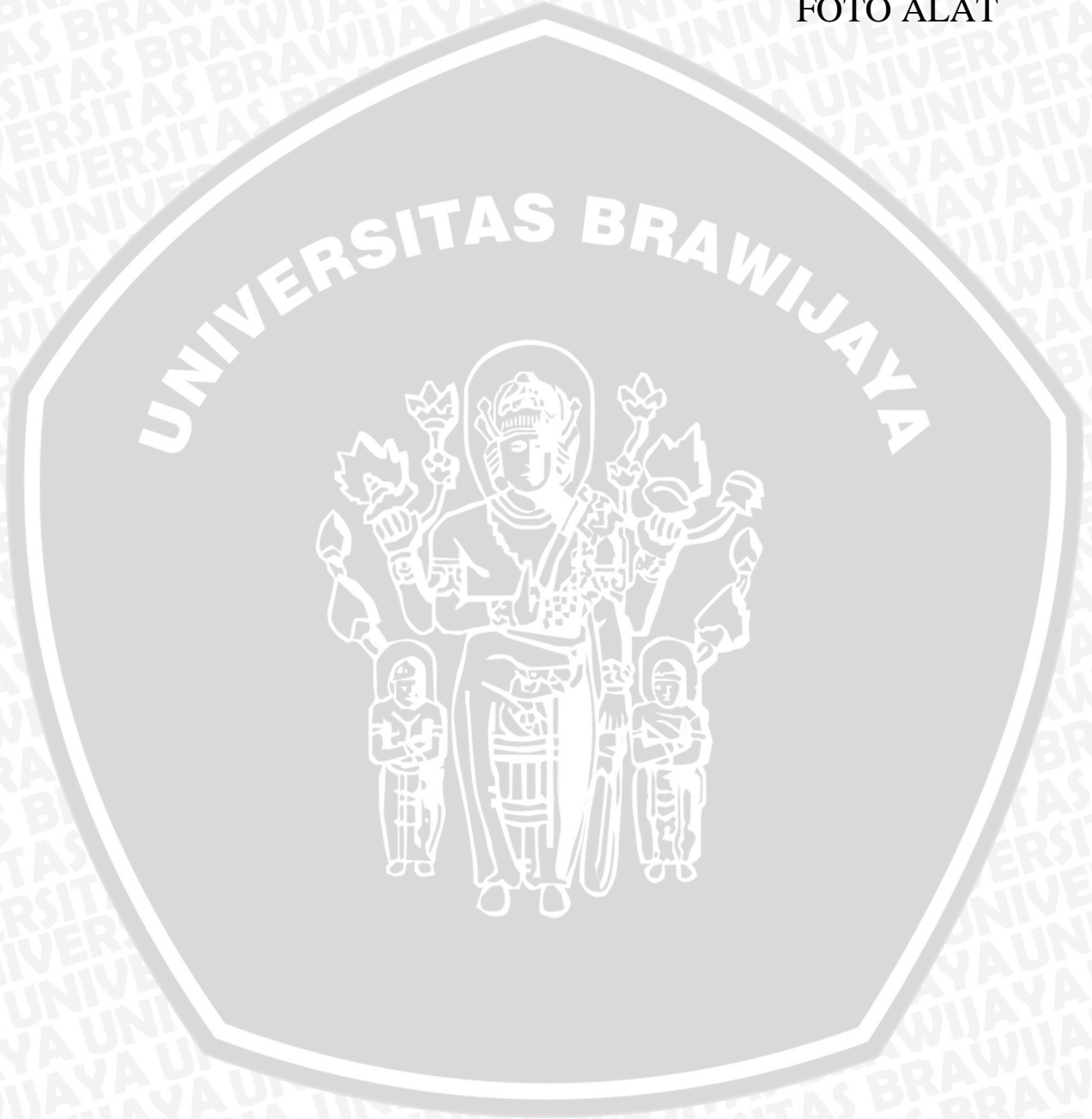




Foto Alat

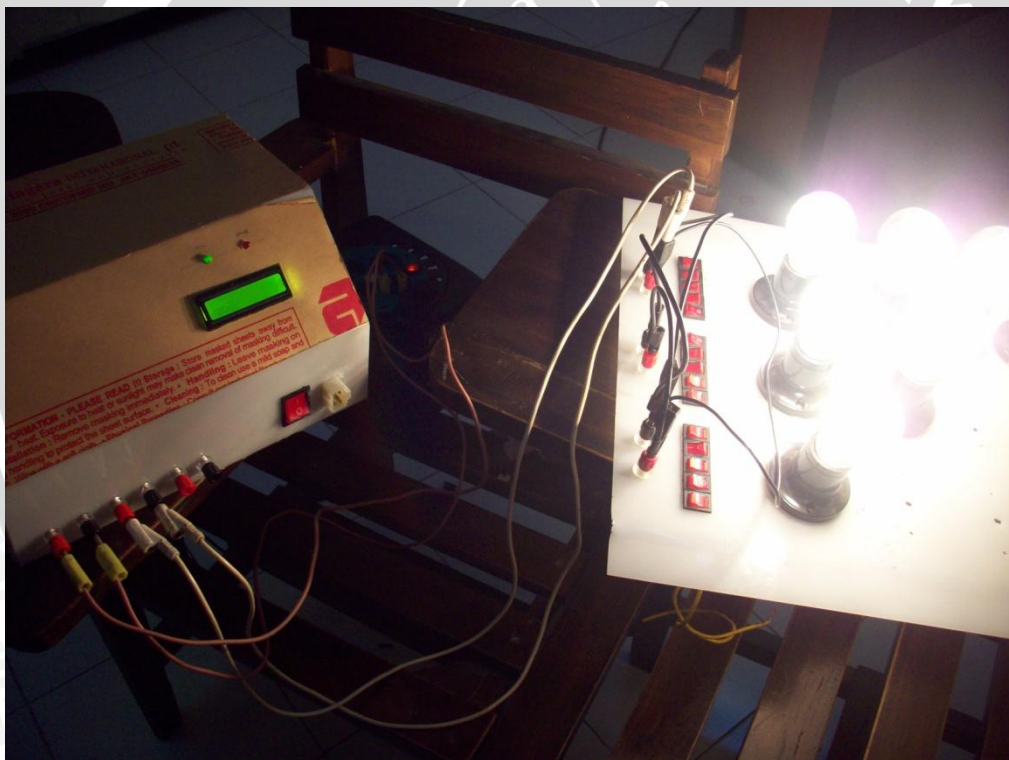
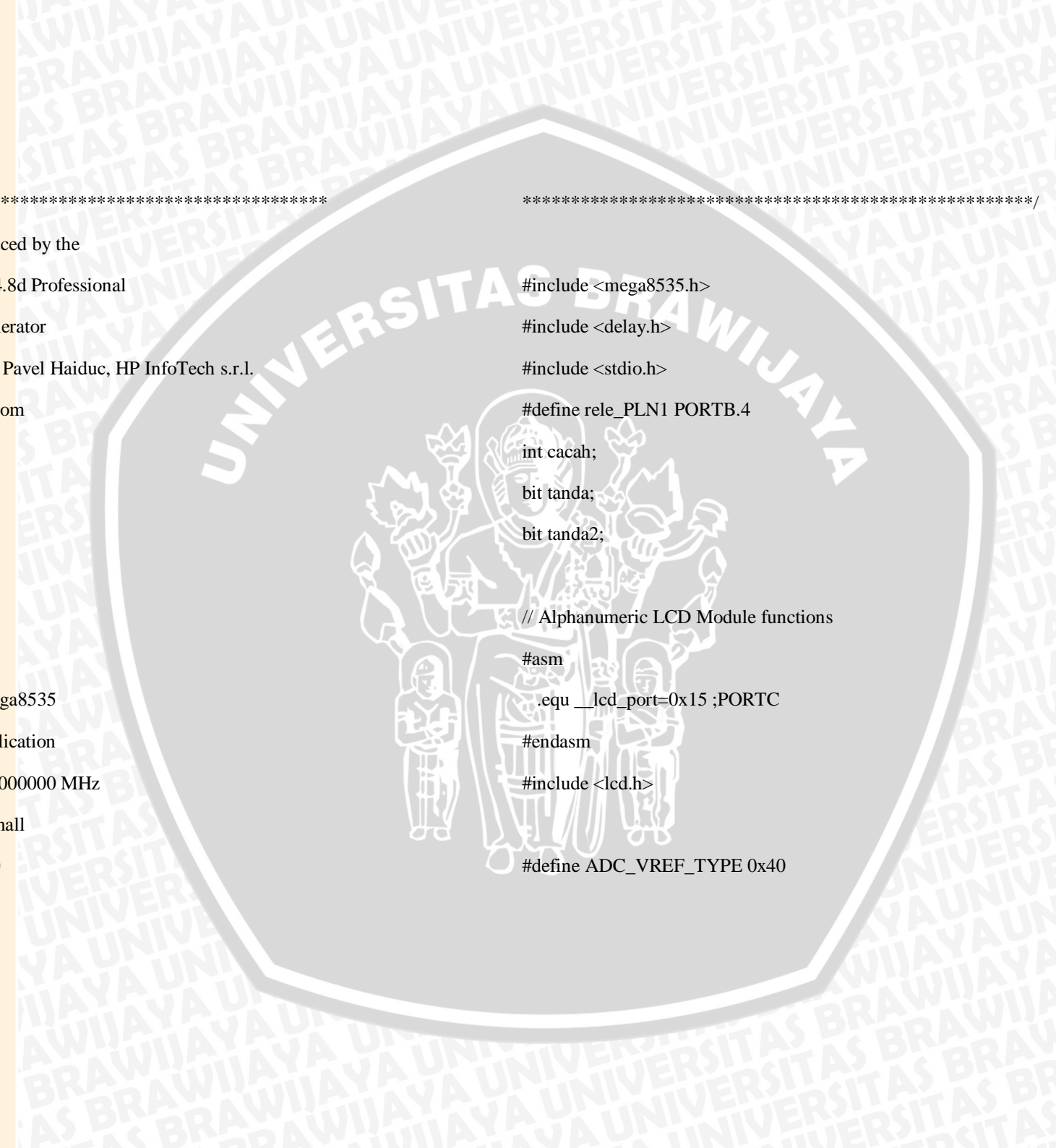


Foto Pengujian

LISTING PROGRAM ATMEGA 8535







/\*  
 This program was produced by the  
 CodeWizardAVR V1.24.8d Professional  
 Automatic Program Generator  
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 http://www.hpinfotech.com  
 Project :  
 Version :  
 Date : 1/21/2013  
 Author : F4CG  
 Company : F4CG  
 Comments:  
 Chip type : ATmega8535  
 Program type : Application  
 Clock frequency : 16.000000 MHz  
 Memory model : Small  
 External SRAM size : 0  
 Data Stack size : 128  
 \*/

\*\*\*\*\*  
 #include <mega8535.h>  
 #include <delay.h>  
 #include <stdio.h>  
 #define rele\_PLN1 PORTB.4  
 int cacah;  
 bit tanda;  
 bit tanda2;  
 // Alphanumeric LCD Module functions  
 #asm  
 .equ \_\_lcd\_port=0x15 ;PORTC  
 #endasm  
 #include <lcd.h>  
 #define ADC\_VREF\_TYPE 0x40  
 \*/

```

// Read the AD conversion result
unsigned int read_adc(unsigned char adc_input)
{
  ADMUX=adc_input|ADC_VREF_TYPE;

  // 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
unsigned int b;

//void kontrol(void);

//char buff[33];

char buf[33];

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

    // Input/Output Ports initialization
    // Port A 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
    PORTA=0x00;

    DDRA=0x00;

    // Port B initialization
    // Func7=Out Func6=Out Func5=Out Func4=Out Func3=Out Func2=Out
    Func1=Out Func0=Out
  }
}

```

```
// State7=0 State6=0 State5=0 State4=0 State3=0 State2=0 State1=0 State0=0 // Clock source: System Clock
PORTB=0x00; // Clock value: Timer 0 Stopped
DDRB=0xFF; // Mode: Normal top=FFh
// Port C initialization // OC0 output: Disconnected
// Func7=In Func6=In Func5=In Func4=In Func3=In Func2=In Func1=In // TCCR0=0x00;
Func0=In // TCNT0=0x00;
// State7=T State6=T State5=T State4=T State3=T State2=T State1=T State0=T // OCR0=0x00;
PORTC=0x00; // Timer/Counter 1 initialization
DDRC=0x00; // Clock source: System Clock
// Port D initialization // Clock value: Timer 1 Stopped
// Func7=Out Func6=Out Func5=Out Func4=Out Func3=Out Func2=Out // Mode: Normal top=FFFFh
Func1=Out Func0=Out // OC1A output: Discon.
// State7=0 State6=0 State5=0 State4=0 State3=0 State2=0 State1=0 State0=0 // OC1B output: Discon.
PORTD=0x00; // Noise Canceler: Off
DDRD=0xFF; // Input Capture on Falling Edge
// Timer/Counter 0 initialization // Timer 1 Overflow Interrupt: Off
// Input Capture Interrupt: Off
```

```
// Compare A Match Interrupt: Off
// Compare B Match Interrupt: Off
TCCR1A=0x00;
TCCR1B=0x00;
TCNT1H=0x00;
TCNT1L=0x00;
ICR1H=0x00;
ICR1L=0x00;
OCR1AH=0x00;
OCR1AL=0x00;
OCR1BH=0x00;
OCR1BL=0x00;

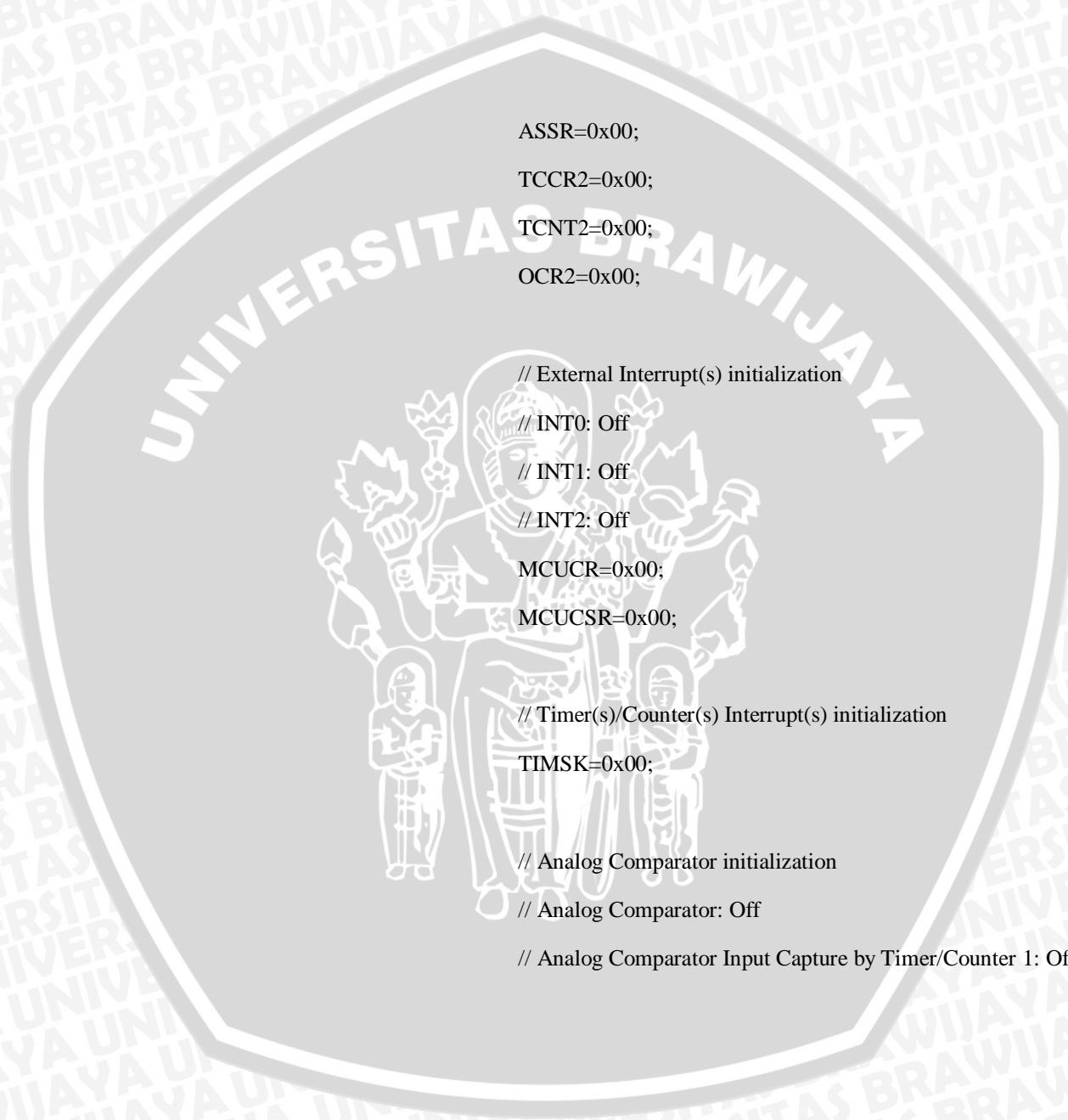
// Timer/Counter 2 initialization
// Clock source: System Clock
// Clock value: Timer 2 Stopped
// Mode: Normal top=FFh
// OC2 output: Disconnected

ASSR=0x00;
TCCR2=0x00;
TCNT2=0x00;
OCR2=0x00;

// External Interrupt(s) initialization
// INT0: Off
// INT1: Off
// INT2: Off
MCUCR=0x00;
MCUCSR=0x00;

// Timer(s)/Counter(s) Interrupt(s) initialization
TIMSK=0x00;

// Analog Comparator initialization
// Analog Comparator: Off
// Analog Comparator Input Capture by Timer/Counter 1: Off
```





```
ACSR=0x80;
SFIO=0x00;

// ADC initialization
// ADC Clock frequency: 1000.000 kHz
// ADC Voltage Reference: AVCC pin
// ADC High Speed Mode: Off
// ADC Auto Trigger Source: None
ADMUX=ADC_VREF_TYPE;
ADCSRA=0x84;
SFIO&=0xEF;

// LCD module initialization
lcd_init(16);

while (1)
{
    cacah=0;

    /*a=read_adc(3);
    //lcd_init(16);
    lcd_gotoxy(0,0);
    sprintf(buff,"ADC=%d",a);
    lcd_puts(buff);*/
    lcd_clear();
    b=read_adc(2);
    lcd_gotoxy(0,1);
    sprintf(buf,"ADC=%d",b);
    lcd_puts(buf);

    //delay_ms(50);

    if(b>540)
    {
        if(tanda==1)
        {
            PORTB.2=0;
        }
    }
}
```

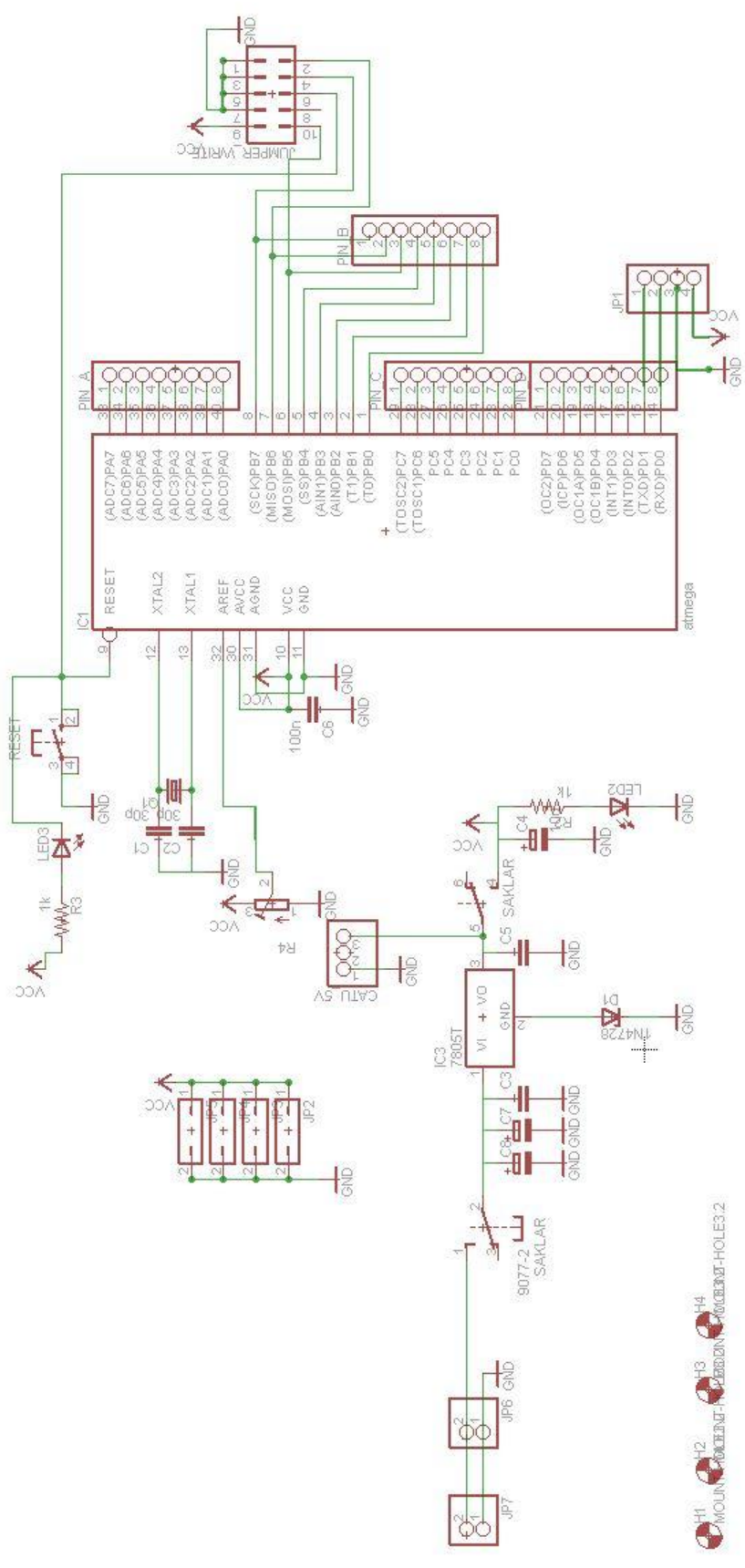


```
PORTB.3=0;
PORTB.4=0;
PORTB.5=0;
PORTD.1=0; //port rele untuk memutus arus sensor tegangan
PORTD.2=1; //port kontak jika 0 = ON, jika 1 = OFF
PORTD.3=0; //port starter genset 0 = OFF, 1 = ON
delay_ms(500);
tanda=0;
}
PORTB.2=0;
PORTB.3=0;
PORTB.4=1;
PORTB.5=1;
PORTD.1=1; //port rele untuk memutus arus sensor tegangan
PORTD.2=1; //port kontak jika 0 = ON, jika 1 = OFF
PORTD.3=0; //port starter genset 0 = OFF, 1 = ON
tanda2=0;
}
if(b<540)//suplai dari PLN
{
if(tanda2==0)
{
PORTB.2=0;
PORTB.3=0;
PORTB.4=0;
PORTB.5=0;
PORTD.1=0; //port rele untuk memutus arus sensor tegangan
PORTD.2=0; //port kontak jika 0 = ON, jika 1 = OFF
PORTD.3=1; //port starter genset 0 = OFF, 1 = ON
delay_ms(500);
}
while(cacah<1000)
```



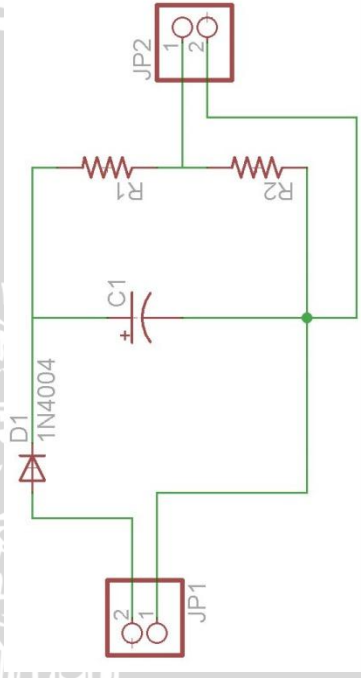
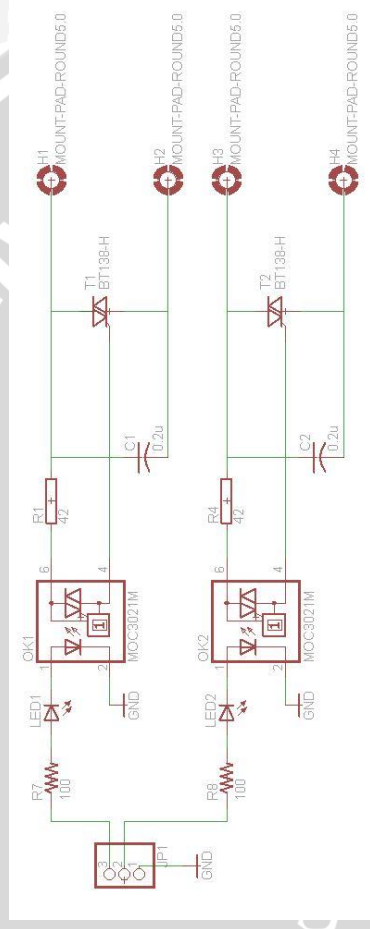
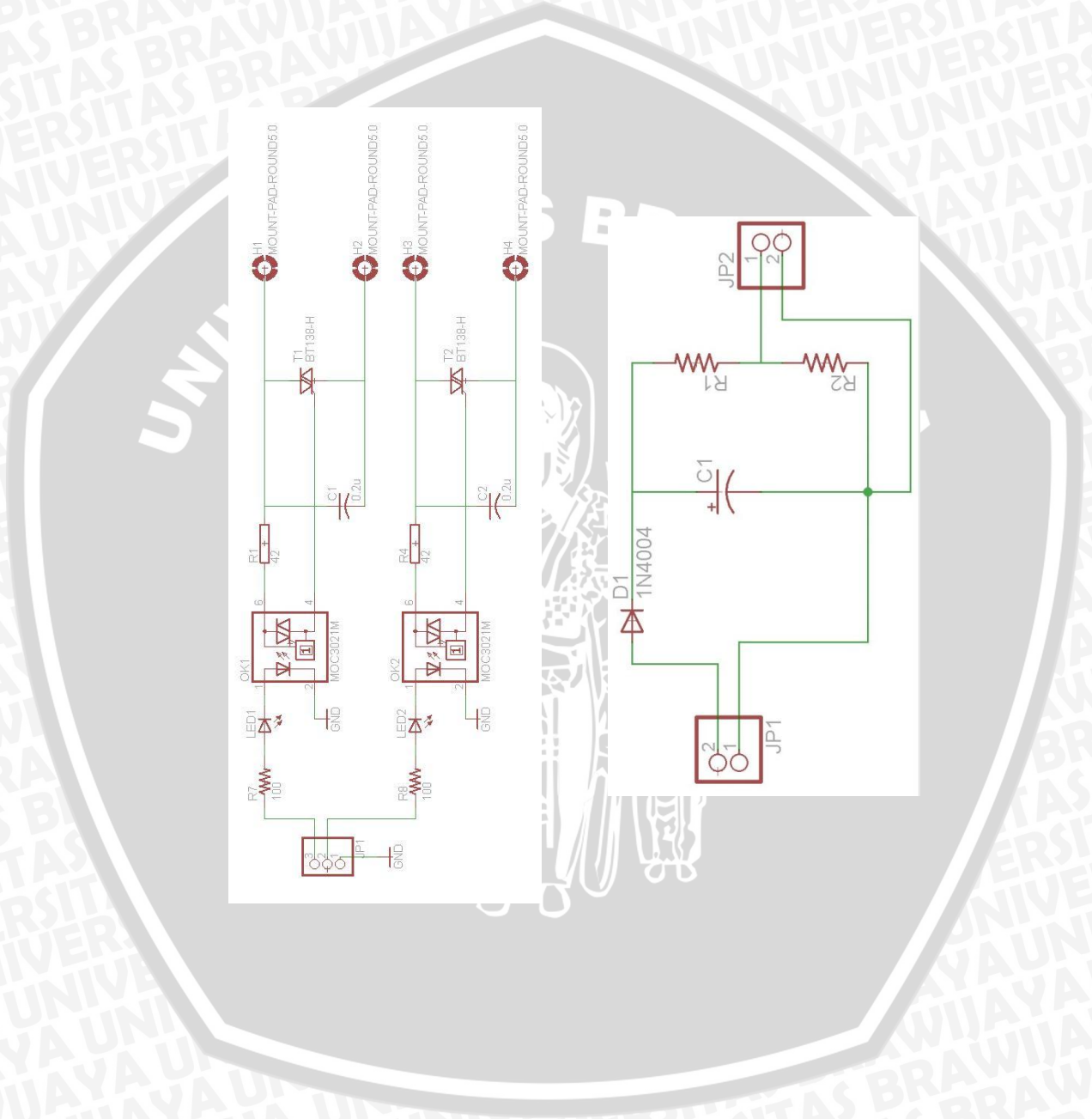
SKEMATIK RANGKAIAN





- H1 WOUNDCONNECT
- H2 WOUNDCONNECT
- H3 WOUNDCONNECT
- H4 WOUNDCONNECT
- HOLE3:2





## LAMPIRAN 4

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### DATASHEET









