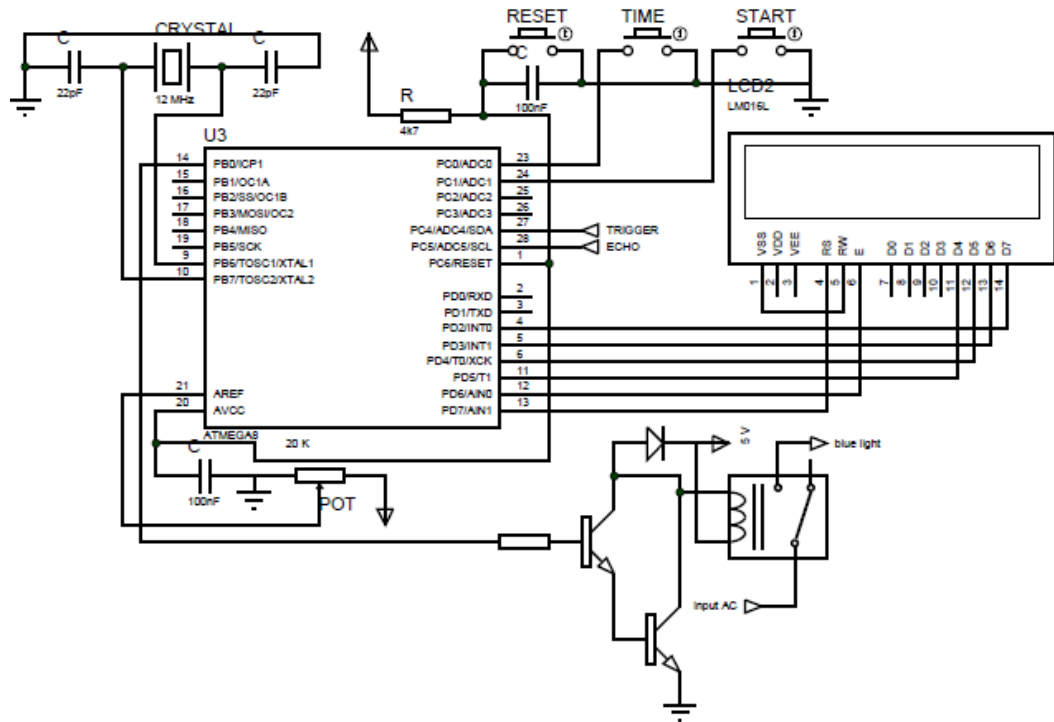
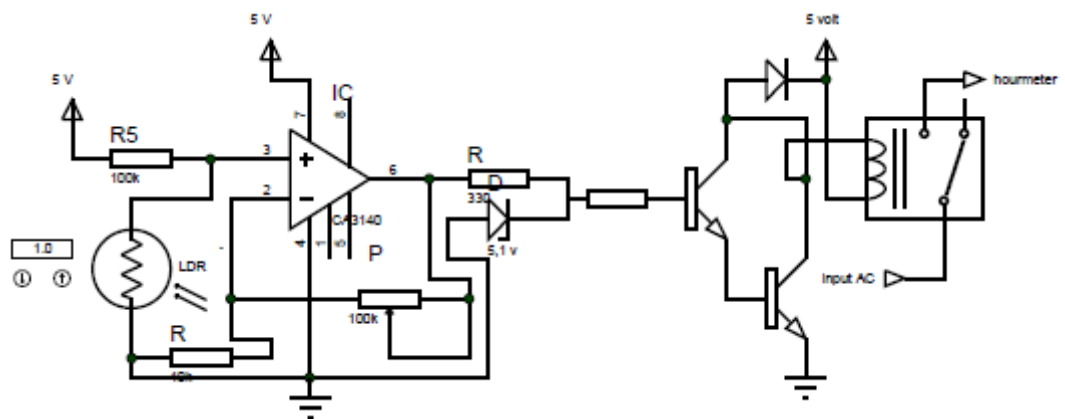


Rangkaian keseluruhan

Rangkaian *minimum sistem* ATmega8, *driver blue light* dan LCD



Rangkain sensor jarak dan *driver hourmeter*



Listing Program

```
#include <mega8.h>
#include <stdlib.h>
#include <stdio.h>
#include <delay.h>
#include <alcd.h>

#define menu PINC.0
#define start PINC.1

#define trigger PORTC.4
#define echo PINC.5
#define led PORTB.0
unsigned int jarak;
unsigned char detik,menit,setmenit,smenit;

char buf[33];
interrupt [TIM1_OVF] void timer1_ovf_isr(void)
{
    TCNT1H=0xD23A >> 8;
    TCNT1L=0xD23A & 0xff;
    detik--;
}

#define ADC_VREF_TYPE 0x00
unsigned int read_adc(unsigned char adc_input)
{
    ADMUX=adc_input | (ADC_VREF_TYPE & 0xff);
    delay_us(10);
    ADCSRA|=0x40;
    while ((ADCSRA & 0x10)==0);
    ADCSRA|=0x10;
    return ADCW;
}
void ukur_jarak()
{

//program jarak
unsigned int i;
jarak=0;
delay_us(100);
trigger=1; //tout, H=5 us
```

```

delay_us(58);
trigger=0;
delay_us(100);
while(!echo);
for (i=0;i<=500;i++)
{
if (echo) {jarak++;}
delay_us(58);
}
}

void time(){
switch(setmenit){
case 0 : menit=10;break;
case 1 : menit=15;break;
case 2 : menit=20;break;

}
lcd_gotoxy(0,0);
lcd_putsf("Pemilihan waktu");

lcd_gotoxy(0,1);
smenit=menit-1;
sprintf(buf,"%d Menit",menit);
lcd_puts(buf);

if(!menu){setmenit=setmenit+1;}
if(setmenit==3) {setmenit=0;}
delay_ms(200);
}

void run(){
detik=60;
time();
lcd_clear();
while (1)
{
ukur_jarak();
delay_ms(300);

lcd_gotoxy(1,0);
lcd_putsf("TIME");
lcd_gotoxy(11,0);

```

```

    lcd_putsf("JARAK");

    lcd_gotoxy (11,1);
    sprintf (buf,"%dcm ",jarak);
    lcd_puts (buf);
    delay_ms(100);

    if(jarak>=4 || jarak<10){led=1;}
    if(jarak<=4 || jarak>10){led=0; TCNT1H=0xD2;
    TCNT1L=0x3A;

    }
    if(detik==255){smenit=smenit-1;}
    if(detik==59){detik=59;}
    if(smenit==255 && detik==59){lcd_clear();break;}

    lcd_gotoxy(0,1);
    sprintf(buf," %d:%d ",smenit,detik);
    lcd_puts(buf);
    }
    }
    void main(void)
    {
    lcd_init(16);
    DDRC.5=0;
    DDRC.4=1;
    PORTB=0x00;
    DDRB=0x01;
    PORTC=0x23;
    DDRC=0x10;
    PORTD=0x00;
    DDRD=0x00;
    TCCR0=0x00;
    TCNT0=0x00;

    TCCR1A=0x00;
    TCCR1B=0x05;
    TCNT1H=0xD2;
    TCNT1L=0x3A;
    ICR1H=0x00;
    ICR1L=0x00;
    OCR1AH=0x00;
    OCR1AL=0x00;
    OCR1BH=0x00;

```

```
OCR1BL=0x00;
ASSR=0x00;
TCCR2=0x00;
TCNT2=0x00;
OCR2=0x00;
MCUCR=0x00;
TIMSK=0x04;
UCSRB=0x00;
ACSR=0x80;
SFIO=0x00;
ADMUX=ADC_VREF_TYPE & 0xff;
ADCSRA=0x84;
SPCR=0x00;
TWCR=0x00;
lcd_init(16);
asm("sei")
lcd_gotoxy(3,0);
lcd_putsf("Endri S C");
lcd_gotoxy(2,1);
lcd_putsf("20143010062");
delay_ms(3000);
lcd_clear();
while (1)
{
time();
led=0;
if(!start){run();}
}
}
```

LAMPIRAN