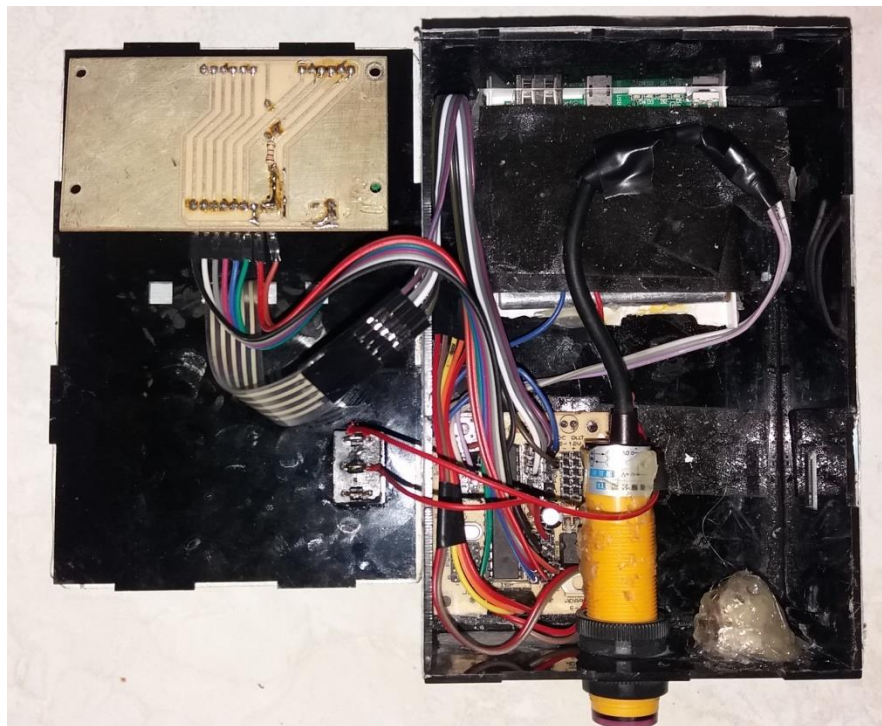
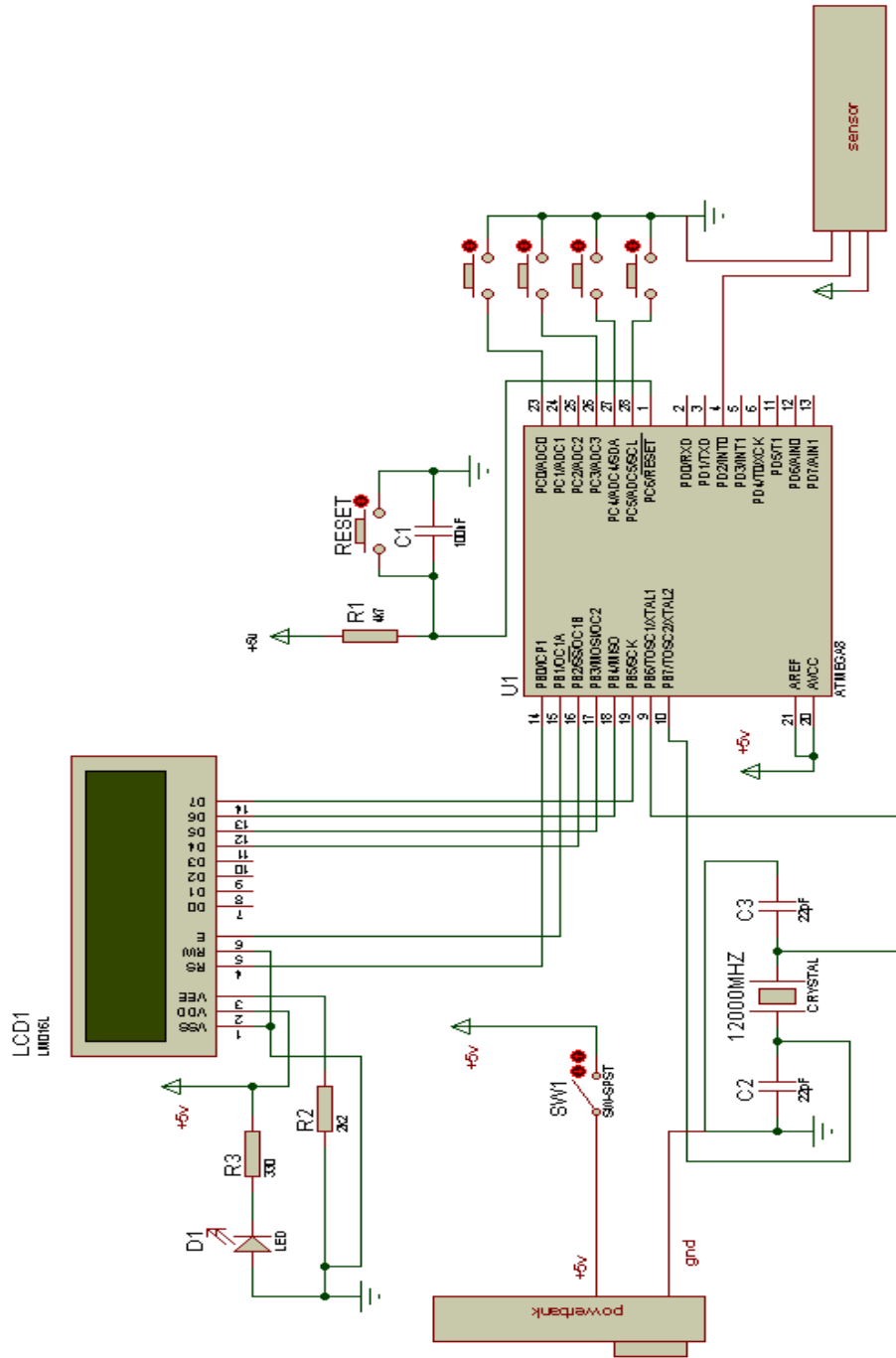


Foto-Foto Alat





Rangkaian Keseluruhan



Listing Program Keseluruhan

```
#include <mega8.h>
#include <alcd.h>
#include <delay.h>
#include <stdlib.h>
#include <stdio.h>
#define mode PINC.5
#define up PINC.3
#define ok PINC.4
#define down PIND.0
eeprom float
saver0,saver1,saver2,saver3,saver4,saver5,saver6,saver7,saver8,saver9;
eeprom float
saves0,saves1,saves2,saves3,saves4,saves5,saves6,saves7,saves8,saves9;
eeprom int memr=0,mems=0;
int menu_run,menu_mem,menu_mem_rpm,menu_mem_speed,opsi=0;
int frekuensi=0,detik=0,detiks;
float pulsa,speed;
char buf[33];

// External Interrupt 0 service routine
interrupt [EXT_INT0] void ext_int0_isr(void)
{
frekuensi++ ;
}
// Timer1 overflow interrupt service routine
interrupt [TIM1_OVF] void timer1_ovf_isr(void)
{
// Reinitialize Timer1 value
TCNT1H=0xD23A >> 8;
TCNT1L=0xD23A & 0xff;
//Ttimer1 = Tosc*(65536-TCNT1)*N (16 bit = 65536)
//Tosc = 1/12Mhz = 0,0000000833 detik
//TCNT1= 53818 = D23A (dalam hexa)
speed=((float)frekuensi*19)*0.036;
pulsa=((float)frekuensi*60);
frekuensi=0;
detik++;
detiks--;
if(detik==6){detik=0;memr=memr+1;mems=mems+1;}
lcd_clear();
}

// variables
void memori_rpm()
{
menu_mem_rpm=0;
while(1)
{
lcd_clear();
if(!up){delay_ms(200);menu_mem_rpm=menu_mem_rpm+1;}
if(!down){delay_ms(200);menu_mem_rpm=menu_mem_rpm-1;}
if(!ok){delay_ms(500);break;}
if(menu_mem_rpm>9){menu_mem_rpm=0;break;}
}
```

```
if(menu_mem_rpm<0){menu_mem_rpm=0;break;}
if(menu_mem_rpm==0)
{
lcd_gotoxy(0,0);
lcd_putsf("Memori RPM 1:");
lcd_gotoxy(0,1);
ftoa(saver0,0,buf);
lcd_puts(buf);
}
if(menu_mem_rpm==1)
{
lcd_gotoxy(0,0);
lcd_putsf("Memori RPM 2:");
lcd_gotoxy(0,1);
ftoa(saver1,0,buf);
lcd_puts(buf);
}
if(menu_mem_rpm==2)
{
lcd_gotoxy(0,0);
lcd_putsf("Memori RPM 3:");
lcd_gotoxy(0,1);
ftoa(saver2,0,buf);
lcd_puts(buf);
}
if(menu_mem_rpm==3)
{
lcd_gotoxy(0,0);
lcd_putsf("Memori RPM 4:");
lcd_gotoxy(0,1);
ftoa(saver3,0,buf);
lcd_puts(buf);
}
if(menu_mem_rpm==4)
{
lcd_gotoxy(0,0);
lcd_putsf("Memori RPM 5:");
lcd_gotoxy(0,1);
ftoa(saver4,0,buf);
lcd_puts(buf);
}
if(menu_mem_rpm==5)
{
lcd_gotoxy(0,0);
lcd_putsf("Memori RPM 6:");
lcd_gotoxy(0,1);
ftoa(saver5,0,buf);
lcd_puts(buf);
}
if(menu_mem_rpm==6)
{
lcd_gotoxy(0,0);
lcd_putsf("Memori RPM 7:");
lcd_gotoxy(0,1);
ftoa(saver6,0,buf);
lcd_puts(buf);
}
```

```

}
if(menu_mem_rpm==7)
{
lcd_gotoxy(0,0);
lcd_putsf("Memori RPM 8:");
lcd_gotoxy(0,1);
ftoa(saver7,0,buf);
lcd_puts(buf);
}
if(menu_mem_rpm==8)
{
lcd_gotoxy(0,0);
lcd_putsf("Memori RPM 9:");
lcd_gotoxy(0,1);
ftoa(saver8,0,buf);
lcd_puts(buf);
}
if(menu_mem_rpm==9)
{
lcd_gotoxy(0,0);
lcd_putsf("Memori RPM 10:");
lcd_gotoxy(0,1);
ftoa(saver9,0,buf);
lcd_puts(buf);
}
delay_ms(50);
lcd_clear();
}
}

void memori_speed()
{
lcd_clear();
menu_mem_speed=0;
while(1){
lcd_clear();
if(!up){delay_ms(200);menu_mem_speed=menu_mem_speed+1;}
if(!down){delay_ms(200);menu_mem_speed=menu_mem_speed-1;}
if(!ok){delay_ms(500);break;}
if(menu_mem_speed>9){menu_mem_speed=0;break;}
if(menu_mem_speed<0){menu_mem_speed=0;break;}
if(menu_mem_speed==0){
lcd_gotoxy(0,0);
lcd_putsf("Memori SPEED 1:");
lcd_gotoxy(0,1);
ftoa(saves0,1,buf);
lcd_puts(buf);
lcd_putsf(" Km/jam");
}
if(menu_mem_speed==1)
{
lcd_gotoxy(0,0);
lcd_putsf("Memori SPEED 2:");
lcd_gotoxy(0,1);
ftoa(saves1,1,buf);
lcd_puts(buf);
lcd_putsf(" Km/jam");
}
}
}

```

```

}
if(menu_mem_speed==2)
{
lcd_gotoxy(0,0);
lcd_putsf("Memori SPEED 3:");
lcd_gotoxy(0,1);
ftoa(saves2,1,buf);
lcd_puts(buf);
lcd_putsf(" Km/jam");
}
if(menu_mem_speed==3)
{
lcd_gotoxy(0,0);
lcd_putsf("Memori SPEED 4");
lcd_gotoxy(0,1);
ftoa(saves3,1,buf);
lcd_puts(buf);
lcd_putsf(" Km/jam");
}
if(menu_mem_speed==4)
{
lcd_gotoxy(0,0);
lcd_putsf("Memori SPEED 5");
lcd_gotoxy(0,1);
ftoa(saves4,1,buf);
lcd_puts(buf);
lcd_putsf(" Km/jam");
}
if(menu_mem_speed==5)
{
lcd_gotoxy(0,0);
lcd_putsf("Memori SPEED 6:");
lcd_gotoxy(0,1);
ftoa(saves5,1,buf);
lcd_puts(buf);
lcd_putsf(" Km/jam");
}
if(menu_mem_speed==6)
{
lcd_gotoxy(0,0);
lcd_putsf("Memori SPEED 7:");
lcd_gotoxy(0,1);
ftoa(saves6,1,buf);
lcd_puts(buf);
lcd_putsf(" Km/jam");
}
if(menu_mem_speed==7)
{
lcd_gotoxy(0,0);
lcd_putsf("Memori SPEED 8:");
lcd_gotoxy(0,1);
ftoa(saves7,1,buf);
lcd_puts(buf);
lcd_putsf(" Km/jam");
}
if(menu_mem_speed==8)
{

```

```

lcd_gotoxy(0,0);
lcd_putsf("Memori SPEED 9:");
lcd_gotoxy(0,1);
ftoa(saves8,1,buf);
lcd_puts(buf);
lcd_putsf(" Km/jam");
}
if(menu_mem_speed==9)
{
lcd_gotoxy(0,0);
lcd_putsf("Memori SPEED 10:");
lcd_gotoxy(0,1);
ftoa(saves9,1,buf);
lcd_puts(buf);
lcd_putsf(" Km/jam");
}
delay_ms(50);
lcd_clear();}
}

void rpm()
{
memr=0;
detik=0;
detiks=60;
while(1)
{
lcd_clear() ;
lcd_gotoxy(0,0);
lcd_putsf("RPM:");
ftoa(pulsa,0,buf);
lcd_puts(buf);
lcd_gotoxy(0,1);
sprintf(buf,"0:%d ",detiks);
lcd_puts(buf);
lcd_gotoxy(7,1);
sprintf(buf,"%d ",memr);
lcd_puts(buf);

if(memr==1){saver0=pulsa;}
if(memr==2){saver1=pulsa;}
if(memr==3){saver2=pulsa;}
if(memr==4){saver3=pulsa;}
if(memr==5){saver4=pulsa;}
if(memr==6){saver5=pulsa;}
if(memr==7){saver6=pulsa;}
if(memr==8){saver7=pulsa;}
if(memr==9){saver8=pulsa;}
if(memr==10){saver9=pulsa;}
if(memr>=10){delay_ms(500);break;}
if(!ok){delay_ms(500);break;}
lcd_clear();
}
}

```



```

void spedo()
{
  mems=0;
  detik=0;
  detiks=60;
  while(1)
  {
    lcd_clear() ;
    lcd_gotoxy(0,0);
    lcd_putsf("SPEED:");
    ftoa(speed,1,buf);
    lcd_puts(buf);
    lcd_putsf("Km/jam");
    lcd_gotoxy(0,1);
    sprintf(buf,"0:%d ",detiks);
    lcd_puts(buf);
    lcd_gotoxy(7,1);
    sprintf(buf,"%d ",mems);
    lcd_puts(buf);

    if(mems==1){saves0=speed;}
    if(mems==2){saves1=speed;}
    if(mems==3){saves2=speed;}
    if(mems==4){saves3=speed;}
    if(mems==5){saves4=speed;}
    if(mems==6){saves5=speed;}
    if(mems==7){saves6=speed;}
    if(mems==8){saves7=speed;}
    if(mems==9){saves8=speed;}
    if(mems==10){saves9=speed;}
    if(mems>=10){delay_ms(500);break;}
  if(!ok){delay_ms(200);break;}
  lcd_clear();
  }
}

void option()
{
  lcd_clear();
  if(!up){lcd_clear();delay_ms(200);menu_run=menu_run+1;
  }
  if(menu_run>1){menu_run=0;}
  if(menu_run==0)
  {
    lcd_gotoxy(0,0);
    lcd_putsf(" RPM");
    lcd_gotoxy(0,1);
    lcd_putsf(">Speed");
    if(!ok){delay_ms(200);spedo();
  }
  }
  if(menu_run==1)
  {
    lcd_gotoxy(0,0);
    lcd_putsf(">RPM");
  }
}

```

```

lcd_gotoxy(0,1);
lcd_putsf(" Speed");
if(!ok){delay_ms(200);rpm();}
}
delay_ms(50);
lcd_clear();
}

void memoption()
{
if(!up){lcd_clear();delay_ms(200);menu_mem=menu_mem+1;
}
if(menu_mem>1){menu_mem=0;
}
if(menu_mem==0)
{
lcd_gotoxy(0,0);
lcd_putsf(" Memori RPM");
lcd_gotoxy(0,1);
lcd_putsf(">Memori Speed");
if(!ok){delay_ms(500);memori_speed();
}
}
if(menu_mem==1)
{
lcd_gotoxy(0,0);
lcd_putsf(">Memori RPM");
lcd_gotoxy(0,1);
lcd_putsf(" Memori Speed");
if(!ok){delay_ms(500);memori_rpm();
}
}
delay_ms(50);
lcd_clear();
}

void main(void)
{
// Declare your local variables here
// Input/Output Ports initialization
// 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
// Func6=In Func5=In Func4=In Func3=In Func2=In Func1=In Func0=In
// State6=T State5=P State4=P State3=P State2=T State1=T State0=T
PORTC=0x3F;
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=0x01;
DDRD=0x00;

```

```
// Timer/Counter 0 initialization
// Clock source: System Clock
// Clock value: Timer 0 Stopped
TCCR0=0x00;
TCNT0=0x00;

// Timer/Counter 1 initialization
// Clock source: System Clock
// Clock value: 11,719 kHz
// Mode: Normal top=0xFFFF
// OC1A output: Discon.
// OC1B output: Discon.
// Noise Canceler: Off
// Input Capture on Falling Edge
// Timer1 Overflow Interrupt: On
// Input Capture Interrupt: Off
// Compare A Match Interrupt: Off
// Compare B Match Interrupt: Off
TCCR1A=0x00;
TCCR1B=0x05;
TCNT1H=0xD2;
TCNT1L=0x3A;
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=0x00;
TCCR2=0x00;
TCNT2=0x00;
OCR2=0x00;

// External Interrupt(s) initialization
// INT0: On
// INT0 Mode: Falling Edge
// INT1: Off
GICR|=0x40;
MCUCR=0x02;
GIFR=0x40;

// Timer(s)/Counter(s) Interrupt(s) initialization
TIMSK=0x04;

// USART initialization
// USART disabled
UCSRB=0x00;

// Analog Comparator initialization
// Analog Comparator: Off
```

```

// Analog Comparator Input Capture by Timer/Counter 1: Off
ACSR=0x80;
SFIOR=0x00;

// ADC initialization
// ADC disabled
ADCSRA=0x00;

// SPI initialization
// SPI disabled
SPCR=0x00;

// TWI initialization
// TWI disabled
TWCR=0x00;

// Alphanumeric LCD initialization
// Connections are specified in the
// Project|Configure|C Compiler|Libraries|Alphanumeric LCD menu:
// RS - PORTB Bit 0
// RD - PORTC Bit 0
// EN - PORTB Bit 1
// D4 - PORTB Bit 2
// D5 - PORTB Bit 3
// D6 - PORTB Bit 4
// D7 - PORTB Bit 5
// Characters/line: 16
lcd_init(16);

// Global enable interrupts
#asm("sei")

while (1)
{
// Place your code here
if(!mode){delay_ms(500);opsi=opsi+1;if(opsi>1){opsi=0;}}
if(opsi==0){option();}
if(opsi==1){memoption();}
}
}

```