

LAMPIRAN I

FOTO ALAT





(a)



(b)

Gambar 1. (a) Alat Tampak Depan, (b) Alat Tampak Samping



Gambar 2. Alat Tampak Perspektif

LAMPIRAN II

LISTING PROGRAM




```

#include <mega16.h>
#include <stdio.h>
#include <delay.h>
#define set 1020
#define pwm_motor OCR1A
#define Buzzer PORTD.7
#define __lcd_port=0x18 ;PORTB
#define ADC_VREF_TYPE 0x40
#define OCR1AL=0x00;
#define OCR1BH=0x00;
#define OCR1BL=0x00;
#define TIMSK=0x00;
#define timer0_0326=0;
#define ADMUX=ADC_VREF_TYPE & 0xff;
#define ADCSRA=0x84;
#define lcd_init(16);
#define #asm("sei")
#define while (1)
{
    baca();
    kembali:
    if(baca4 >= set) //tombol 250
    {
        baca();
        while(baca3 <= set)
        {
            baca();
            lcd_250();
            if(baca4>=set ||
            baca5>=set ||
            baca6>=set ||
            baca7>=set) goto
            kembali;
        }
    }
    lcd_clear();
    lcd_gotoxy(2,0);
    lcd_putsf("Mulai Proses");
    lcd_gotoxy(4,1);
    lcd_putsf("250 gram");
    delay_ms(100);
    Start_Timer();
    while(baca0 <= 720) //Buka
    Katup Hingga Terbuka Penuh
    {
        baca();
        Motor_Buka();
    };
    Motor_Off();
    while(baca0 <= 62) //Cek Apakah
    Berat = 230gr
    {
        baca();
        Tampil_250();
    };
    while(baca1 > 425) //tutup
    Katup Hingga 1/2 Terbuka
    {
        baca();
        Motor_Tutup();
    };
    Motor_Off();
    while(baca0 <= 77) //Cek Apakah
    Berat = 250gr
    {
        baca();
        Tampil_250();
    };
    while(baca1 > 125) //Tutup
    Katup Hingga Tertutup Penuh
    {
        baca();
        Motor_Tutup();
    };
    Motor_Off();
    Stop_Timer();
    baca();
    Buzzer=1;
    Tampil_250();
}

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 baca(void);
void Motor_Buka(void);
void Motor_Tutup(void);
void Motor_Off(void);
void lcd_250(void);
void lcd_500(void);
void lcd_1000(void);
void lcd_3000(void);
void Tampil_250(void);
void Tampil_500(void);
void Tampil_1000(void);
void Tampil_3000(void);
void Start_Timer(void);
void Stop_Timer(void);
void Tampil_Timer(void);

unsigned char buf[33];
unsigned int
baca0,baca1,baca2,baca3,baca4,baca5,baca
6,baca7, tes1,timer0_0326;

interrupt [TIMO_OVF] void
timer0_ovf_isr(void)
{
    timer0_0326++;
}

void main(void)
{
PORTA=0x00;
DDRA=0x00;
PORTB=0x00;
DDRB=0x00;
PORTC=0x00;
DDRC=0x00;
PORTD=0x00;
DDRD=0xFF;
TCCR0=0x05;
TCNT0=0x00;
OCR0=0x00;
TCCR1A=0x81;
TCCR1B=0x0C;
TCNT1H=0x00;
TCNT1L=0x00;
ICR1H=0x00;
ICR1L=0x00;
OCR1AH=0x00;

```



```

lcd_gotoxy(0,0);
lcd_putsf(" Proses Selesai ");
delay_ms(1000);
Buzzer=0;
delay_ms(1000);
Tampil_Timer();
}
else if(baca5 >= set) //tombol 500
{
  baca();
  while(baca3 <= set)
  {
    baca();
    lcd_500();
    if(baca4>=set ||
       baca5>=set ||
       baca6>=set ||
       baca7>=set) goto
       kembali;
  }
  lcd_clear();
  lcd_gotoxy(2,0);
  lcd_putsf("Mulai Proses");
  lcd_gotoxy(4,1);
  lcd_putsf("500 gram");
  delay_ms(100);
  Start_Timer();
  while(baca1 <= 720) //Buka
  katup hingga terbuka penuh
  {
    baca();
    Motor_Buka();
  };
  Motor_Off();
  while(baca0 <= 111) //Cek
  Apakah Berat = 480gr
  {
    baca();
    Tampil_500();
  };
  while(baca1 > 425) //Tutup
  Katup Hingga 1/2 Terbuka
  {
    baca();
    Motor_Tutup();
  };
  Motor_Off();
  while(baca0 <= 119) //Cek
  Apakah Berat = 500gr
  {
    baca();
    Tampil_500();
  };
  while(baca1 > 125) //Tutup
  Katup Hingga Tertutup Penuh
  {
    baca();
    Motor_Tutup();
  };
  Motor_Off();
  Stop_Timer();
  baca();
  Buzzer=1;
  Tampil_500();
  lcd_gotoxy(0,0);
  lcd_putsf(" Proses Selesai ");
  delay_ms(1000);
  Buzzer=0;
  delay_ms(1000);
  Tampil_Timer();
}

else if(baca6 >= set) //tombol 1000
{
  baca();
  while(baca3 <= set)
  {
    baca();
    lcd_1000();
    if(baca4>=set ||
       baca5>=set ||
       baca6>=set ||
       baca7>=set) goto
       kembali;
  }
  lcd_clear();
  lcd_gotoxy(2,0);
  lcd_putsf("Mulai Proses");
  lcd_gotoxy(3,1);
  lcd_putsf("1000 gram");
  delay_ms(100);
  Start_Timer();
  while(baca1 <= 720) //Buka
  Katup sampai penuh
  {
    baca();
    Motor_Buka();
  };
  Motor_Off();
  while(baca0 <= 172)
  {
    baca();
    Tampil_1000();
  };
  while(baca1 > 425) //Tutup
  Katup hingga 1/2 terbuka
  {
    baca();
    Motor_Tutup();
  };
  Motor_Off();
  while(baca0 <= 180)
  {
    baca();
    Tampil_1000();
  };
  while(baca1 > 125) //Tutup
  Katup hingga tertutup penuh
  {
    baca();
    Motor_Tutup();
  };
  Motor_Off();
  Stop_Timer();
  baca();
  Buzzer=1;
  Tampil_1000();
  lcd_gotoxy(0,0);
  lcd_putsf(" Proses Selesai ");
  delay_ms(1000);
  Buzzer=0;
  delay_ms(1000);
  Tampil_Timer();
}

else if(baca7 >= set) //tombol 3000
{
  baca();
  while(baca3 <= set)
  {
    baca();
    lcd_3000();
  }
}

```

```

        if(baca4>=set ||
           baca5>=set ||
           baca6>=set ||
           baca7>=set) goto
        kembali;
    }
    lcd_clear();
    lcd_gotoxy(2,0);
    lcd_putsf("Mulai Proses");
    lcd_gotoxy(3,1);
    lcd_putsf("3000 gram");
    delay_ms(100);
    Start_Timer();
    while(bacal <= 720) //Buka
    Katup sampai penuh
    {
        baca();
        Motor_Buka();
    };
    Motor_Off();
    while(baca0 <= 271)
    {
        baca();
        Tampil_3000();
    };

    while(bacal > 425) //Tutup
    Katup hingga 1/2 terbuka
    {
        baca();
        Motor_Tutup();
    };
    Motor_Off();
    while(baca0 <= 280)
    {
        baca();
        Tampil_3000();
    };

    while(bacal > 125) //Tutup
    Katup hingga tertutup penuh
    {
        baca();
        Motor_Tutup();
    };
    Motor_Off();
    Stop_Timer();
    baca();
    Buzzer=1;
    Tampil_3000();
    lcd_gotoxy(0,0);
    lcd_putsf(" Proses Selesai ");
    delay_ms(1000);
    Buzzer=0;
    delay_ms(1000);
    Tampil_Timer();
}

else
{
    lcd_clear();
    lcd_gotoxy(1,0);
    lcd_putsf("Penimbang Gula");
    lcd_gotoxy(2,1);
    lcd_putsf("Pilih Tombol");
    delay_ms(100);
    PORTD.7=0;
    PORTD.6=0;
    pwm_motor=0;
}

void baca()
{
    baca0=read_adc(0); //Sensor Berat
    baca1=read_adc(1); //Sensor Katup
    baca2=read_adc(2);
    baca3=read_adc(3); //Tombol Start
    baca4=read_adc(4); //Tombol 250
    baca5=read_adc(5); //Tombol 500
    baca6=read_adc(6); //Tombol 1000
    baca7=read_adc(7); //Tombol 3000
}

void Motor_Buka()
{
    PORTD.6=1; //Buka
    pwm_motor=255-255; //Buka
}

void Motor_Tutup()
{
    PORTD.6=0; //Tutup
    pwm_motor=255; //Tutup
}

void Motor_Off()
{
    PORTD.6=0; //Off
    pwm_motor=0; //Off
}

void lcd_250()
{
    lcd_gotoxy(4,0);
    lcd_putsf("250 gram");
    lcd_gotoxy(3,1);
    lcd_putsf("Tekan Start");
    delay_ms(100);
    lcd_clear();
}

void lcd_500()
{
    lcd_gotoxy(4,0);
    lcd_putsf("500 gram");
    lcd_gotoxy(3,1);
    lcd_putsf("Tekan Start");
    delay_ms(100);
    lcd_clear();
}

void lcd_1000()
{
    lcd_gotoxy(3,0);
    lcd_putsf("1000 gram");
    lcd_gotoxy(3,1);
    lcd_putsf("Tekan Start");
    delay_ms(100);
    lcd_clear();
}

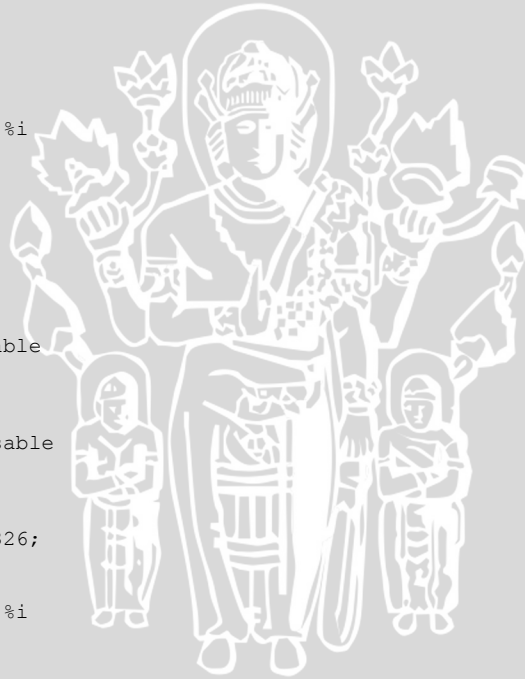
void lcd_3000()
{
    lcd_gotoxy(3,0);
    lcd_putsf("3000 gram");
    lcd_gotoxy(3,1);
    lcd_putsf("Tekan Start");
    delay_ms(100);
    lcd_clear();
}

void Tampil_250()
{
    tes1=baca0*3,95;
    lcd_clear();
    lcd_gotoxy(0,1);
    sprintf(buf,"Berat = %i
gram",tes1);
}

```



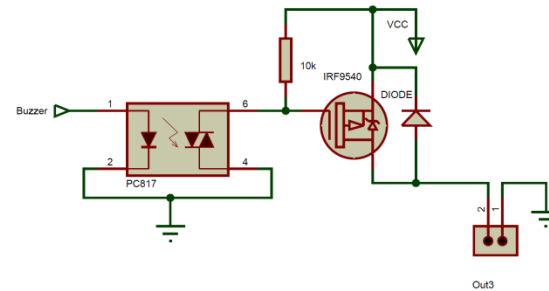
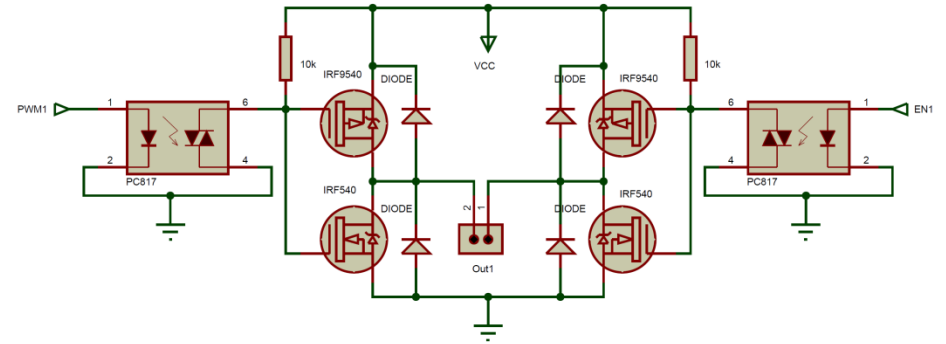
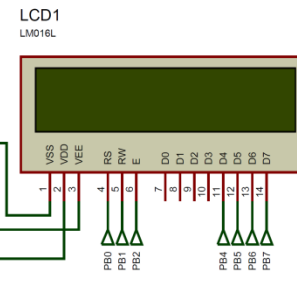
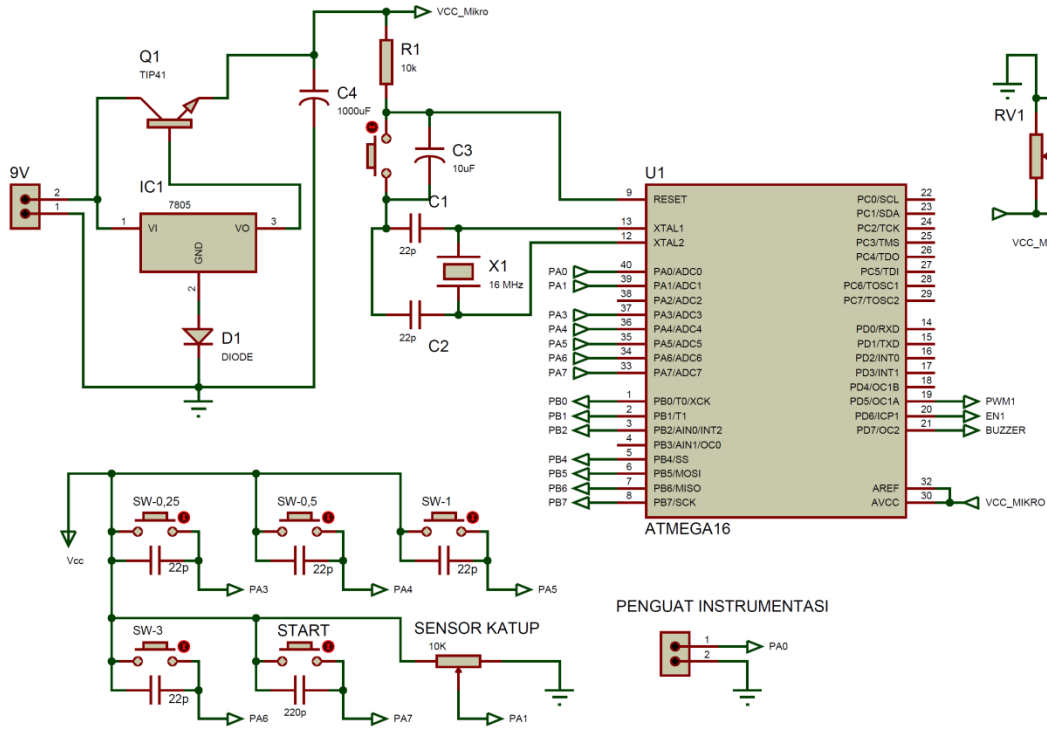
```
        lcd_puts(buf);
        delay_ms(50);
    }
    void Tampil_500()
    {
        tes1=baca0*4,3;
        lcd_clear();
        lcd_gotoxy(0,1);
        sprintf(buf,"Berat = %i
gram",tes1);
        lcd_puts(buf);
        delay_ms(50);
    }
    void Tampil_1000()
    {
        tes1=baca0*5,8;
        lcd_clear();
        lcd_gotoxy(0,1);
        sprintf(buf,"Berat = %i
gram",tes1);
        lcd_puts(buf);
        delay_ms(50);
    }
    void Tampil_3000()
    {
        tes1=baca0*8,2;
        lcd_clear();
        lcd_gotoxy(0,1);
        sprintf(buf,"Berat = %i
gram",tes1);
        lcd_puts(buf);
        delay_ms(50);
    }
    void Start_Timer()
    {
        Timer0_0326=0;
        TCNT=0;
        TIMSK=0x01; //int enable
    }
    void Stop_Timer()
    {
        TIMSK=0x00; //int disable
    }
    void Tampil_Timer()
    {
        tes1=timer0_0326*0.0326;
        lcd_clear();
        lcd_gotoxy(0,1);
        sprintf(buf,"Waktu = %i
detik,
tes1);
        lcd_puts(buf);
        delay_ms(3000);
    }
}
```



LAMPIRAN III

PERANCANGAN KESELURUHAN SISTEM





LAMPIRAN IV

DATASHEET

