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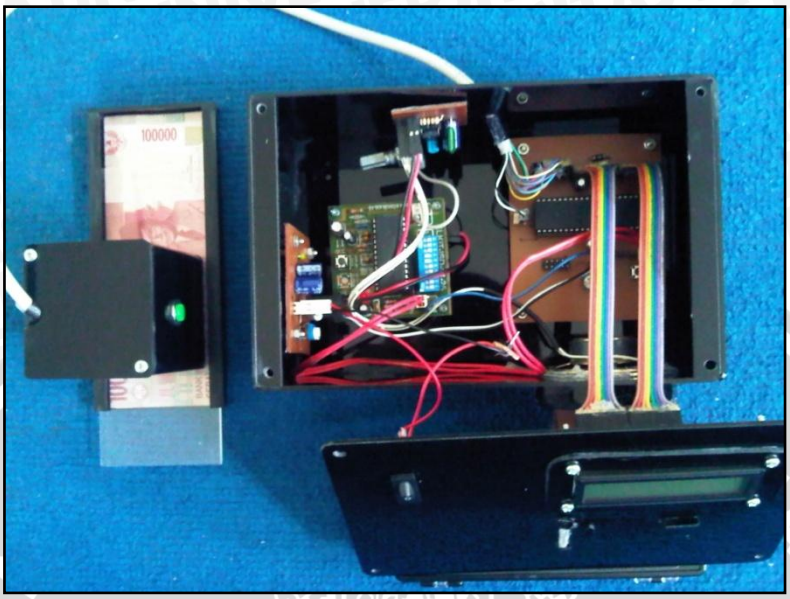
DOKUMENTASI ALAT



Gambar 1. Alat Deteksi Nominal Uang Kertas Untuk Penyandang Tuna Netra Tampak Secara Keseluruhan

Gambar 2. Pengujian Alat Deteksi Nominal Uang Kertas Menggunakan Objek Uang Kertas

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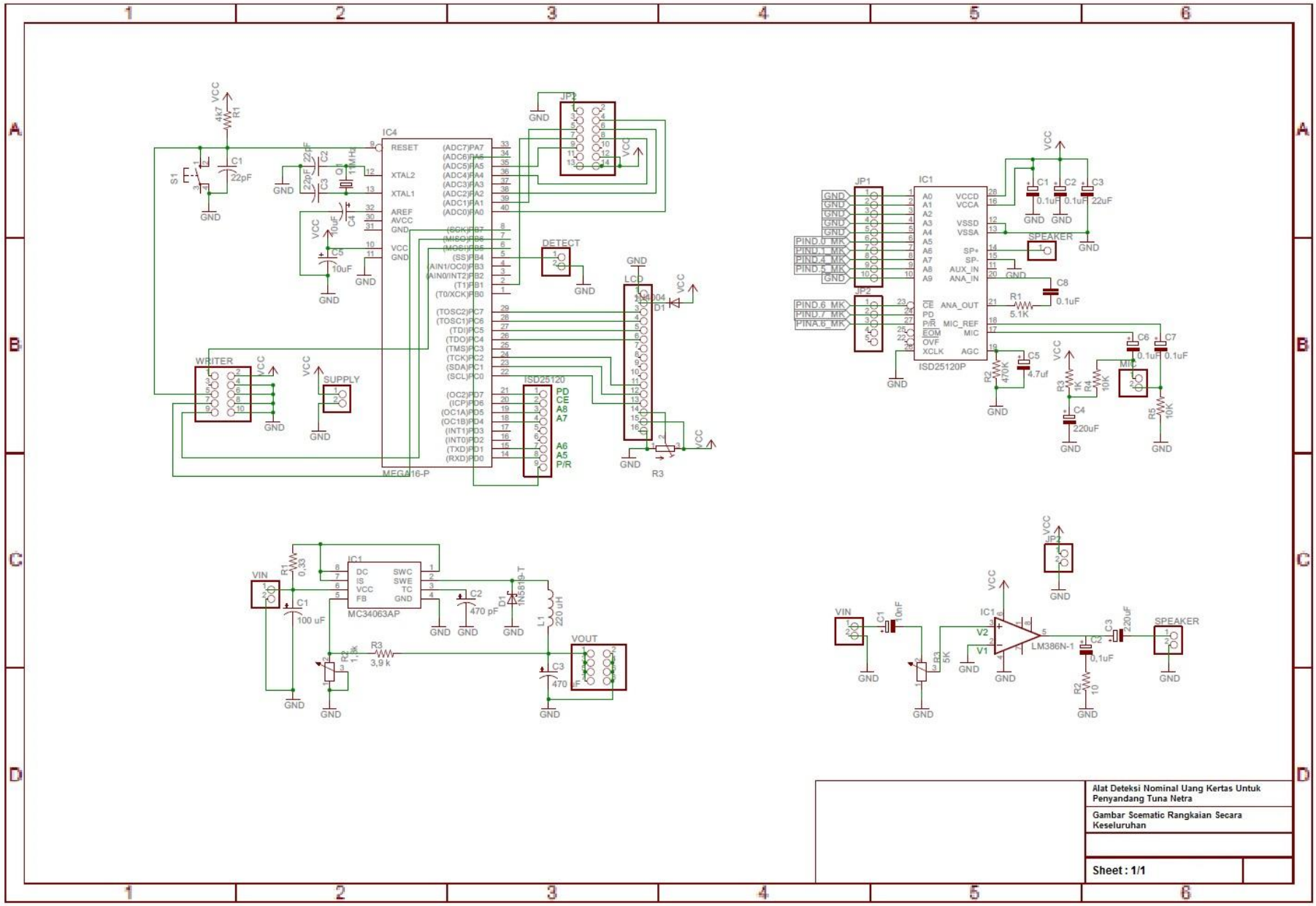
SKEMATIKA RANGKAIAN


1
2
3
4
5
6
A
B
C
D
IC4
MEGA16-P
RESET
XTAL2
XTAL1
AREF
AVCC
GND
VCC
WRITER
SUPPLY
DETECT
LCD
ISD25120
PD
CE
A8
A7
A6
A5
P/R
JP1
JP2
IC1
ISD25120P
SPEAKER
MIC
VIN
VOUT
MC34063AP
LM386N-1
1N5819-T
Alat Deteksi Nominal Uang Kertas Untuk Penyandang Tuna Netra
Gambar Scematic Rangkaian Secara Keseluruhan
Sheet : 1/1

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LISTING PROGRAM

```
/*****************************************************
Chip type           : ATmega16
Program type        : Application
Clock frequency     : 11.059200 MHz
Memory model        : Small
External SRAM size  : 0
Data Stack size     : 256
*****************************************************/

#include <mega16.h>

// Alphanumeric LCD Module functions
#asm
   .equ __lcd_port=0x15 ;PORTC
#endasm

// LCD display buffer
char lcd_buffer[33];

#include <lcd.h>
#include <delay.h>
#include <math.h>
#include <stdio.h>

int frekuensiR;
int frekuensiG;
int frekuensiB;
unsigned int count=0;

// Declare your global variables here

#define S3 PORTA.0
#define S2 PORTA.1
#define LD PORTA.2
#define S0 PORTA.4
#define S1 PORTA.5
#define CE PORTD.6
#define PD PORTD.7
#define PR PORTA.6
#define A8 PORTD.5
#define A7 PORTD.4
#define A6 PORTD.1
#define A5 PORTD.0


void Red()
{
   S2=0;
   S3=0;
}

void Green()
{
   S2=1;
   S3=1;
}
```

```
void Blue()
{
  S2=0;
  S3=1;
}

void On()
{
  LD=1;
}

void Off()
{
  LD=0;
}

void frekuensi()
{

  lcd_clear();
  On();

  Red();

  TCCR1B=0x06;
  delay_ms(10);
  TCCR1B=0x0;
  frekuensiR=(256*(int)count)+(int)TCNT0;

  sprintf(lcd_buffer,"Red = %d ", frekuensiR);
  lcd_gotoxy(4,0);
  lcd_puts(lcd_buffer);
  delay_ms(1500);
  lcd_clear();


  Green();


  TCCR1B=0x06;
  delay_ms(10);
  TCCR1B=0x0;
  frekuensiG=(256*(int)count)+(int)TCNT0;

  sprintf(lcd_buffer,"Green = %d ",counter1);
  lcd_gotoxy(3,0);
  lcd_puts(lcd_buffer);
  delay_ms(1500);
  lcd_clear();


  Blue();
```

```
  TCCR1B=0x06;
  delay_ms(10);
  TCCR1B=0x0;
  frekuensiB=(256*(int)count)+(int)TCNT0;

  sprintf(lcd_buffer,"Blue = %d ",counter1);
  lcd_gotoxy(3,0);
  lcd_puts(lcd_buffer);
  delay_ms(1500);
  lcd_clear();

  Off();
  delay_ms(1500);
  lcd_clear();

}


// Timer 0 overflow interruptservice routine
interrupt [TIM0_OVF] void timer 0_ovf_isr (void)
{
// Place your code here
   count++
}

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

// Input/Output Ports initialization
// Port A initialization
// Func7=Out Func6=Out Func5=Out Func4=Out Func3=Out Func2=Out Func1=Out
Func0=Out
// State7=0 State6=1 State5=0 State4=0 State3=0 State2=0 State1=0 State0=0
PORTA=0x40;
DDRA=0xFF;

// 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=P State3=P State2=P State1=T State0=T
PORTB=0x1C;
DDRB=0x00;

// Port C 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
PORTC=0x00;
DDRC=0x00;


// Port D initialization
// Func7=Out Func6=Out Func5=Out Func4=Out Func3=In Func2=In Func1=Out Func0=Out
// State7=1 State6=1 State5=0 State4=0 State3=P State2=P State1=0 State0=0
PORTD=0xCC;
DDRD=0xF3;
```

```
// Timer/Counter 0 initialization
// Clock source: System Clock
// Clock value: Timer 0 Stopped
// Mode: Normal top=FFh
// OC0 output: Disconnected
TCCR0=0x00;
TCNT0=0x00;
OCR0=0x00;

// Timer/Counter 1 initialization
// Clock source: System Clock
// Clock value: Timer 1 Stopped
// Mode: Normal top=FFFFh
// OC1A output: Discon.
// OC1B output: Discon.
// Noise Canceler: Off
// Input Capture on Falling Edge
// 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=0x41;

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

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

// LCD module initialization
lcd_init(16);

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

massage=0;
S0=1;
S1=1;


//Mencetak karakter pada layar LCD
lcd_clear();

    lcd_gotoxy(0,0);
    lcd_putsf("    ALAT DETEKSI    ");
    lcd_gotoxy(0,1);
    lcd_putsf("  NOMINAL UANG KERTAS  ");
    delay_ms(1000);


    lcd_gotoxy(0,0);
    lcd_putsf("    UNTUK    ");
    lcd_gotoxy(0,1);
    lcd_putsf(" TUNA NETRA ");
    delay_ms(1000);


while (1)
    {
    // Place your code here
    state=1;

    PR=1; PD=0;
    A8=1; A7=0; A6=0; A5=1;
    delay_ms(150);

    CE=0;

    lcd_clear();
    lcd_gotoxy(0,0);
    lcd_putsf("  TEKAN  TOMBOL ");
    lcd_gotoxy(0,1);
    lcd_putsf("   D E T E C T  ");
    delay_ms(1000);


//Program penentuan nilai nominal uang kertas
 while (PINB.4==0)
 {

    frekuensi();
```

```
 if ((R>100000)&&( G>100000)&&( B>100000))
{
 PR=1; PD=0;
 A8=0; A7=1; A6=1; A5=0;
 delay_ms(150);

 CE=0;

 lcd_clear();
 lcd_gotoxy(0,0);
 lcd_putsf("  Nominal Uang  ");
 lcd_gotoxy(0,1);
 lcd_putsf("    Rp 100000   ");
 delay_ms(2500);
}

 else if ((R<65000)&&( G<100000)&&( B>100000))
{

 PR=1; PD=0;
 A8=0; A7=1; A6=0; A5=1;
 delay_ms(150);

 CE=0;

 lcd_clear();
 lcd_gotoxy(0,0);
 lcd_putsf("  Nominal Uang  ");
 lcd_gotoxy(0,1);
 lcd_putsf("    Rp 50000    ");
 delay_ms(2500);
}

 else if ((R<100000)&&( G>100000)&&( B>100000))
{
 PR=1; PD=0;
 A8=0; A7=1; A6=0; A5=0;
 delay_ms(150);

 CE=0;

 lcd_clear();
 lcd_gotoxy(0,0);
 lcd_putsf("  Nominal Uang  ");
 lcd_gotoxy(0,1);
 lcd_putsf("    Rp 20000    ");
 delay_ms(2500);
}

 else if ((65000<R<85000)&&( G<100000)&&( B>100000))
{
 PR=1; PD=0;
 A8=0; A7=0; A6=1; A5=1;
 delay_ms(150);
```

```
  CE=0;

  lcd_clear();
  lcd_gotoxy(0,0);
  lcd_putsf("  Nominal Uang  ");
  lcd_gotoxy(0,1);
  lcd_putsf("    Rp 10000    ");
  delay_ms(2500);
 }

  else if ((85000<R<110000)&&( G<100000)&&( B<110000))
 {

  PR=1; PD=0;
  A8=0; A7=0; A6=1; A5=0;
  delay_ms(150);

  CE=0;

  lcd_clear();
  lcd_gotoxy(0,0);
  lcd_putsf("  Nominal Uang  ");
  lcd_gotoxy(0,1);
  lcd_putsf("    Rp 5000     ");
  delay_ms(2500);
 }

  else if ((30000<R<40000)&&( G<50000)&&( B<50000))
 {

  PR=1; PD=0;
  A8=0; A7=0; A6=0; A5=1;
  delay_ms(150);

  CE=0;

  lcd_clear();
  lcd_gotoxy(0,0);
  lcd_putsf("  Nominal Uang  ");
  lcd_gotoxy(0,1);
  lcd_putsf("    Rp 2000     ");
  delay_ms(2500);
 }

  else if ((R<80000)&&( G<100000)&&( B<100000))
  {

  PR=1; PD=0;
  A8=0; A7=0; A6=0; A5=0;
  delay_ms(150);

  CE=0;

  lcd_clear();
  lcd_gotoxy(0,0);
  lcd_putsf("  Nominal Uang  ");
```

```
    lcd_gotoxy(0,1);
    lcd_putsf("    Rp 1000     ");
    delay_ms(2500);
   }

   else

  { lcd_clear();
    lcd_gotoxy(0,0);
    lcd_putsf("    Nothing      ");
    delay_ms(2500);
  }
 }
}
```

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DATASHEET