

Lampiran D

Kode Program Pengendali Motor Servo Dengan Mikrokontroler ATMEGA 8535 Menggunakan Program AVR Studio 4.

1. Kode Program Untuk Komunikasi Serial.

a. Usart.h

```
"void init_serial();  
void write(unsigned char c);  
unsigned char read(void );  
void konversi_ascii(int data_konversi);  
void ascii(int VALUE, char digit);  
void stringx( char *ss);"
```

b. Usart.c

```
"#include <avr/io.h>  
#include<avr/interrupt.h>  
#include "usart.h"  
int VALUE;  
uint8_t satuan1, satuan, puluhan, ratusan,ribuan;  
  
/*@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@*/  
/*nilai UBRRL dari atmega8 untuk dapat baud rate 9600 */  
/*Fclk= 8Mhz UBRRL=51 */  
/*Fclk= 4Mhz UBRRL=25 */  
/*Fclk= 2Mhz UBRRL=12 */  
/*Fclk= 1Mhz UBRRL=6 untuk baudrate 9600 pada Fclk=1Mhz  
atmega8/*  
/* tidak disaran kan,karena error=-7,0% */  
  
void init_serial()  
{ UBRRH = 0x00; //0x01 for 1200  
UBRRL = 71; //0xA0 for 1200 67 4800  
  
UCSRB = (1<<RXEN)|(1<<TXEN) | (1<<RXCIE);  
UCSRC =(1<<URSEL)|(1<<USBS)|(3<<UCSZ0);  
}  
unsigned char read(void )
```

```

{
while ( !(UCSRA & (1<<RXC)) );
return UDR;
}
void write( unsigned char data )
{
while ( !( UCSRA & (1<<UDRE)) );
UDR = data;
}
void stringx( char *ss)
{
    while (*ss)
    {
        write (*ss);
        ss++;
    }
}
void servo ()
{
    //Configure TIMER1
    TCCR1A|=(1<<COM1A1)|(1<<COM1B1)|(1<<WGM11);//NON
Inverted PWM
    TCCR1B|=(1<<WGM13)|(1<<WGM12)|(1<<CS11)|(1<<CS10);
    //PRESCALER=64 MODE 14(FAST PWM)

    ICR1=2499; //fPWM=50Hz (Period = 20ms Standard)
    DDRD|=(1<<PD4)|(1<<PD5); //PWM Pins as Out
}
void ada()
{
}

```

2. Kode Program Utama.

```
#include <avr/io.h>
#include <util/delay.h>
#include "uart.h"
#include <avr/interrupt.h>
#include "lcd.h"

int pulse;
int mode[2];
int main()
{
    DDRD = 0x00001000;
    DDRC = 0XFF;
    PORTA= 0XFF;
    DDRA = 0XFF;
    servo ();
    init_serial();
    lcd_init();
    sei();

    while (1)
    {goto_xy(1,1);
        printf ("==SCAN KARTU==");
        write(mode[0]);

        if (mode[0]=='C' )
        {    clrscr();
            goto_xy(1,1);
            printf ("ID DITEMUKAN");
            _delay_ms(1500);
            clrscr();
            goto_xy(1,1);
            printf ("SILAHKAN MASUK");
            OCR1B=50;
            _delay_ms(10000);
            PORTC = 0XFF;
            write('P');
            OCR1B=310;
            _delay_ms(1000);
            write('X');
            PORTC = 0X00;
            mode[0]=12;
        }
    }
```

```

if(bit_is_clear(PINA,0)){
    clrscr();
    goto_xy(1,1);
    printf("==TERIMAKASIH==");
    _delay_ms(100);
    OCR1B=50;
    _delay_ms(10000);
    PORTC = 0XFF;
    write('P');
    OCR1B=310;
    _delay_ms(1000);
    clrscr();
    goto_xy(1,1);
    write('X');
    PORTC = 0XFF;
    //goto_xy(1,1);
    //printf("Coba");
    mode[0]=12;
}

    _delay_ms(1000);
    clrscr();
}

ISR(USART_RX_vect)
{
    mode[0]=UDR;
}

```