

Kode Program Pada Mikrokontroler

```
/*  
This program was produced by the  
CodeWizardAVR V2.05.3 Standard  
Automatic Program Generator  
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http://www.hpinfotech.com*/
```

```
Project :  
Version :  
Date    : 7/24/2016  
Author  : tyery08  
Company : embeeminded.blogspot.com  
Comments:
```

```
Chip type           : ATmega8535  
Program type        : Application  
AVR Core Clock frequency: 11.059200 MHz  
Memory model        : Small  
External RAM size   : 0  
Data Stack size     : 128
```

```
*****/
```

```
#include <mega8535.h>
```

```
// Alphanumeric LCD functions  
#include <alcd.h>  
#include <delay.h>
```

```
// Standard Input/Output functions  
#include <stdio.h>  
#define buzzer PORTC.0  
// Declare your global variables here  
char val;  
int i = 0;  
void main(void)
```

```
{  
// Declare your local variables here
```

```
// Input/Output Ports initialization  
// Port A 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  
PORTA=0x00;  
DDRA=0x00;
```

```
// 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  
// 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=0xFF;

// 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=0x00;
DDRD=0x00;

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

// Timer/Counter 1 initialization
// Clock source: System Clock
// Clock value: Timer1 Stopped
// Mode: Normal top=0xFFFF
// OC1A output: Discon.
// OC1B output: Discon.
// Noise Canceler: Off
// Input Capture on Falling Edge
// Timer1 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: Timer2 Stopped
// Mode: Normal top=0xFF
// 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=0x00;

// USART initialization
// Communication Parameters: 8 Data, 1 Stop, No Parity
// USART Receiver: On
// USART Transmitter: On
// USART Mode: Asynchronous
// USART Baud Rate: 115200
UCSRA=0x00;
UCSRB=0x18;
UCSRC=0x86;
UBRRH=0x00;
UBRRL=0x05;

// 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 - PORTB Bit 1
// EN - PORTB Bit 2
// D4 - PORTB Bit 4
// D5 - PORTB Bit 5
// D6 - PORTB Bit 6
// D7 - PORTB Bit 7
// Characters/line: 8
lcd_init(16);
printf("M.Luthfi Pradipta");
delay_ms(10);
lcd_gotoxy(0,0);
    lcd_putsf("M.Luthfi Pradipta");
    lcd_gotoxy(0,1);
    lcd_putsf("TEKNIK KOMPUTER");
    delay_ms(1500);
    lcd_clear();
    lcd_putsf("Sistem Pendeteksi");
    lcd_gotoxy(0,1);

```

```

    lcd_putsf("Kelayakan Oli");
    delay_ms(1500);
    lcd_clear();

    buzzer = 1; delay_ms(50); buzzer = 0; delay_ms(50); buzzer = 1;
    delay_ms(50); buzzer = 0; delay_ms(50);

while (1)
{
    // Place your code here
    ulang:
        lcd_putsf("Sistem Standby");
        val=getchar();
        if(val=='A'){
            lcd_gotoxy(0,0);
            lcd_putsf("Oli terdeteksi");

            lcd_gotoxy(0,1);
            lcd_putsf(" Layak Untuk Digunakan

");

            lcd_putsf("!");
            buzzer = 1; delay_ms(50); buzzer =
0; delay_ms(50); buzzer = 1; delay_ms(50); buzzer = 0; delay_ms(50);buzzer
= 1; delay_ms(50); buzzer = 0; delay_ms(50); buzzer = 1; delay_ms(50);
buzzer = 0; delay_ms(50);

            delay_ms(5000);
            goto ulang;

        } else
            if(val=='B'){
                lcd_putsf("Oli terdeteksi");

                lcd_gotoxy(0,1);
                lcd_putsf(" Tidak Untuk Digunakan

");

                lcd_putsf("!");
                for (i=0; i<5; i++)
                {
                    buzzer = 1;
                    delay_ms(2000);
                    buzzer = 0;
                    delay_ms(1000);
                }

                delay_ms(5000);
                goto ulang;

            }
}}

```

Kode Program Pada Aplikasi Realtime

```
Imports Emgu.CV
Imports Emgu.CV.Util
Imports Emgu.CV.Structure
Imports Emgu.CV.CvEnum

Public Class Form1

    Dim capturez As Capture = New Capture

    Private Sub Timer1_Tick(ByVal sender As System.Object, ByVal e As
System.EventArgs) Handles Timer1.Tick
        Dim imagez As Image(Of Bgr, Byte) = capturez.QueryFrame
        Dim imagez2 As Image(Of Bgr, Byte) = capturez.RetrieveBgrFrame
        Dim imagez3 As Image(Of Bgr, Byte) = imagez2.Canny(New Bgr(0, 0,
0), New Bgr(0, 0, 0))

        Dim imagez5 As Image(Of Gray, Byte) = capturez.RetrieveGrayFrame
        Dim imagez7 As Image(Of Gray, Byte) = imagez5.Canny(New Gray(150),
New Gray(60))
        Dim circlez()() As CircleF = imagez7.HoughCircles(New Gray(50), New
Gray(NumericUpDown1.Value), 1, 60, 3, 300)

        If circlez(0).Length <> 0 Then 'Put not equals here, youtube
doesn't allow the less and greater than symbols in description.
            For i = 0 To circlez(0).Length - 1
                imagez7.Draw(circlez(0)(i), New Gray(255), 3)
                TextBox1.Text = circlez(0)(i).Center.X.ToString
                TextBox2.Text = circlez(0)(i).Center.Y.ToString
                TextBox3.Text = circlez(0)(i).Radius.ToString
                TextBox4.Text = circlez(0)(i).Area.ToString

                Next
            End If

            PictureBox1.Image = imagez7.ToBitmap
            PictureBox2.Image = imagez.ToBitmap
            PictureBox3.Image = imagez3.ToBitmap

        End Sub

End Class
```

```

Public Class Form2
    Dim myPort As Array 'COM Port yang terdeteksi pada sistem akan
    disimpan disini

    Private Sub Form2_Load(ByVal sender As System.Object, ByVal e As
    System.EventArgs) Handles MyBase.Load
        'Cek semua com port yang memungkinkan
        myPort = IO.Ports.SerialPort.GetPortNames()
        'Nilai Baud Rate yang bisa digunakan
        ComboBox2.Items.Add(9600)
        ComboBox2.Items.Add(19200)
        ComboBox2.Items.Add(38400)
        ComboBox2.Items.Add(57600)
        ComboBox2.Items.Add(115200)
        For i = 0 To UBound(myPort)
            ComboBox1.Items.Add(myPort(i))
        Next
        'Atur Com Port pada Port yang pertama terdeteksi
        ComboBox1.Text = ComboBox1.Items.Item(0)
        'Atur Baud Rate pada Baud yang pertama terdeteksi
        ComboBox2.Text = ComboBox2.Items.Item(0)
        Button1.Enabled = True 'Inisialisasi tombol
        Button2.Enabled = False
        Button3.Enabled = False
    End Sub

    Private Sub Button1_Click(ByVal sender As System.Object, ByVal e As
    System.EventArgs) Handles Button1.Click
        SerialPort1.PortName = ComboBox1.Text
        SerialPort1.BaudRate = ComboBox2.Text
        SerialPort1.Open()
        Button1.Enabled = False
        Button2.Enabled = True
        Button3.Enabled = True
        Form5.Show()
    End Sub

    Private Sub Button2_Click(ByVal sender As System.Object, ByVal e As
    System.EventArgs) Handles Button2.Click
        SerialPort1.Close()
        Button1.Enabled = True
        Button2.Enabled = False
        Button3.Enabled = False
    End Sub

    Private Sub Button3_Click(ByVal sender As System.Object, ByVal e As
    System.EventArgs) Handles Button3.Click
        SerialPort1.Write(TextBox1.Text)

    End Sub

End Class

Imports Emgu.CV

```

```

Imports Emgu.CV.Util
Imports Emgu.CV.Structure

Public Class Form3
    Dim capturez8 As Capture = New Capture

    Private Sub Timer1_Tick(ByVal sender As System.Object, ByVal e As
System.EventArgs) Handles Timer1.Tick

        Dim imagez0 As Image(Of Gray, Byte) = capturez8.RetrieveGrayFrame
        Dim imagez1 As Image(Of Bgr, Byte) = capturez8.RetrieveBgrFrame
        Dim imagez2 As Image(Of Gray, Byte) = imagez0.Canny(New Gray(150),
New Gray(60))

        Dim RhoRes As Double = 2
        Dim Threshold As Double = 100
        Dim MinLineWidth As Double = 3
        Dim linegap As Integer = 3
        Dim ThetaRes As Double = Math.PI / 180

        Dim Linez()() As LineSegment2D = imagez2.HoughLinesBinary(RhoRes,
ThetaRes, Threshold, MinLineWidth, linegap)

        If Linez(0).Length >= 0 Then 'Greater than or equal to
            For i = 0 To Linez(0).Length - 1

                If Linez(0)(i).Length >= 10 And Linez(0)(i).Length <= 30
Then 'Greater than and less than or equal to
                    imagez1.Draw(Linez(0)(i), New Bgr(0, 255, 0), 3)
                End If

                If Linez(0)(i).Length >= 30 And Linez(0)(i).Length <= 60
Then 'Greater than and less than or equal to
                    imagez1.Draw(Linez(0)(i), New Bgr(255, 0, 0), 3)
                End If

                If Linez(0)(i).Length >= 60 Then
                    imagez1.Draw(Linez(0)(i), New Bgr(0, 0, 255), 3)
                End If

            Next
        End If

        PictureBox1.Image = imagez1.ToBitmap

    End Sub
End Class

```

```

Imports Emgu.CV
Imports Emgu.CV.Util
Imports Emgu.CV.Structure
Imports Emgu.CV.CvEnum

```

```
Imports Emgu.CV.UI
Imports System.Windows.Forms.DataVisualization.Charting
```

```
Public Class Form5
```

```
    Dim capturez As Capture = New Capture
```

```
    Private Sub Timer1_Tick(ByVal sender As System.Object, ByVal e As System.EventArgs) Handles Timer1.Tick
```

```
        Dim imagez As Image(Of Bgr, Byte) = capturez.QueryFrame
        Dim imagez5 As Image(Of Gray, Byte) = capturez.RetrieveGrayFrame
        Dim imagez7 As Image(Of Gray, Byte) = imagez5.Canny(New Gray(150),
New Gray(60))
```

```
        PictureBox2.Image = imagez.ToBitmap
        PictureBox3.Image = imagez7.ToBitmap
```

```
        Dim bmp As New Bitmap(1, 1)
        'Dim x As Integer = 1016
        'Dim y As Integer = 229
        Using g As Graphics = Graphics.FromImage(bmp)
            g.CopyFromScreen(Windows.Forms.Cursor.Position, New
Point(Cursor.Position.X = -1016, Cursor.Position.Y = -229), New Size(1, 1))
```

```
        End Using
```

```
        Dim pixel As Drawing.Color = bmp.GetPixel(0, 0)
        'Label1.Text$ = bmp.GetPixel(0, 0).R
        TextBoxmerah.Text$ = bmp.GetPixel(0, 0).R / 10
        TextBoxmerah2.Text$ = bmp.GetPixel(0, 0).R / 10
        TextBoxhijau.Text$ = bmp.GetPixel(0, 0).G
        TextBoxbiru.Text$ = bmp.GetPixel(0, 0).B
```

```
        Dim p As New Point
        p.X = (Me.Width / 2) - (Label1.Width / 2)
        p.Y = Label1.Top
        Label1.Location = p
        PictureBox1.BackColor = pixel
        Me.Invalidate()
```

```
    End Sub
```

```
    Private Sub Form5_Load(sender As System.Object, e As System.EventArgs)
Handles MyBase.Load
```

```
        Timerchart.Interval = 2000
        Timerchart.Start()
```

```
        Chart1.Series(0).Name = "R"
        Chart1.Series(0).BorderWidth = 4
        Chart1.Series(0).Color = Color.Red
```



```

Dim NewSeries As New Series
NewSeries.Name = "G"
Chart1.Series.Add(NewSeries)
Chart1.Series("G").BorderWidth = 4

Dim NewSeries1 As New Series
NewSeries1.Name = "B"
Chart1.Series.Add(NewSeries1)
Chart1.Series("B").BorderWidth = 4
Chart1.ChartAreas(0).AxisX.LabelStyle.Format = "mm:ss"
Chart1.ChartAreas(0).AxisX.Interval = 1
Chart1.ChartAreas(0).AxisX.IsStartedFromZero = True

For Each cs As Series In Chart1.Series
    cs.ChartType = SeriesChartType.FastLine
    cs.XValueType = ChartValueType.Time
    cs.IsXValueIndexed = True
Next

Timer2.Enabled = False
Labeltidaklayak.Visible = False
LabelLAYAKPAKAI.Visible = False
Labelproses.Visible = False
Labelcampurair.Visible = False
ProgressBarproses.Visible = False
Labelprosesselesai.Visible = False

```

End Sub

```

Private Sub PictureBox2_DoubleClick(sender As Object, e As
System.EventArgs) Handles PictureBox2.DoubleClick

```

```

Timer2.Enabled = False
LabelLAYAKPAKAI.Visible = False
ProgressBarproses.Value = 0
ProgressBarproses.Visible = False
Labelproses.Visible = False
Labeltidaklayak.Visible = False
Labelprosesselesai.Visible = False
Labelcampurair.Visible = False
Chart1.Enabled = False
Chart1.Visible = False
Windows.Forms.Cursor.Show()
Timer1.Enabled = True

```

End Sub

```

Private Sub Timer2_Tick(sender As System.Object, e As System.EventArgs)
Handles Timer2.Tick
    'Me.Cursor = New Cursor Cursor.Current.Handle
    Windows.Forms.Cursor.Position = New System.Drawing.Point(850, 280)
    Cursor.Clip = New Rectangle(Me.Location, Me.Size)

```

```

        'capturez.Stop()
    If ProgressBarproses.Value = 10 Then
        Timer1.Enabled = False
    End If

End Sub

Private Sub PictureBox2_Click_1(sender As System.Object, e As
System.EventArgs) Handles PictureBox2.Click
    Timer2.Enabled = True
End Sub

Private Sub Button1_Click(sender As System.Object, e As
System.EventArgs) Handles Button1.Click
    'Dim capturez As Capture = New Capture
    'Dim imagez As Image(Of Bgr, Byte) = capturez.QueryFrame
    'imagez.Save("mypic.jpg")
    'PictureBox2.Image =
Image.FromFile("C:/Users/Helper/Desktop/Lutfi/WindowsApplication1/bin/Debug
/mypic.jpg")
    'Timer1.Enabled = False
    Timerproses.Enabled = True
    Timer2.Enabled = True

    Windows.Forms.Cursor.Hide()
End Sub

Private Sub Timerproses_Tick(sender As System.Object, e As
System.EventArgs) Handles Timerproses.Tick
    Labelproses.Visible = True
    ProgressBarproses.Visible = True
    If ProgressBarproses.Value < 100 Then
        ProgressBarproses.Value += 5
    ElseIf ProgressBarproses.Value = 100 Then
        Timerproses.Stop()
        Chart1.Enabled = True
        Chart1.Visible = True
        Labelprosesselesai.Visible = True
        Labelproses.Visible = False
        If TextBoxmerah.Text >= 10 And TextBoxmerah.Text <= 20 Then
            LabelLAYAKPAKAI.Visible = True
            Form2.SerialPort1.Write("A")
        ElseIf TextBoxmerah.Text >= 1 And TextBoxmerah.Text <= 5 Then
            Labelcampurair.Visible = True
            Form2.SerialPort1.Write("B")
        ElseIf TextBoxmerah.Text >= 1 And TextBoxmerah.Text <= 5 Then
            Labeltidaklayak.Visible = True
            Form2.SerialPort1.Write("B")
        End If
    End If
End Sub

```

```

    Private Sub Timerchart_Tick(sender As System.Object, e As
System.EventArgs) Handles Timerchart.Tick
        If Chart1.Series(0).Points.Count = 100 Then
            Chart1.Series(0).Points.RemoveAt(0)
            Chart1.Series(1).Points.RemoveAt(0)
            Chart1.Series(2).Points.RemoveAt(0)
        End If
        Dim xTime As Double = Now.ToOADate
        Chart1.Series("R").Points.AddXY(DateTime.FromOADate(xTime),
TextBoxmerah.Text)

    End Sub

    Private Sub TextBoxmerah_TextChanged(ByVal sender As System.Object,
ByVal e As System.EventArgs) Handles TextBoxmerah.TextChanged
        ' Dim ass As Double
        ' ass = Val(TextBoxmerah.Text) / 10
        ' TextBoxmerah.Text = ass
    End Sub

    Private Sub Button2_Click(ByVal sender As System.Object, ByVal e As
System.EventArgs) Handles Button2.Click
        End
    End Sub
End Class

```



KEMENTERIAN RISET, TEKNOLOGI, DAN PENDIDIKAN TINGGI
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No	Uraian Revisi	Paraf
1	Lengkapi Laporan Tugas Akhir	

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No	Uraian Revisi	Paraf
-	Perbaiki Diagram blok.	

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No.	Nama Dosen Penguji	Revisi	Ket	Paraf yang Mengesahkan	
				Pembimbing I	Pembimbing II
1	Yulian Mirza S.T., M.Kom	Pengujian, Pembahasan, Kesimpulan	OK		
2	Adi Sutrisman, S.Kom., M.Kom	Lengkapi Laporan Tugas Akhir	OK.		
3	Isnainy Azro, S.Kom., M.Kom	Tidak ada Revisi	OK		
4	Hartati Deviana, S.T., M.kom	Perbaiki Diagram Blok	OK		

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