

LAMPIRAN A
LIST PROGRAM VISUAL BASIC

Dim a, aa, b, c, d, e, jj, m, n, o, x, xx, st1, st2, snr As Integer

```
Private Sub Command1_Click()  
Command3.Visible = False  
Command4.Visible = False  
Picture2(0) = stt  
Picture2(0).Visible = True  
a = 1  
b = 0  
e = 0  
xx = 0  
snr = 0  
mt1a = 0  
mt1b = 0  
mt2a = 0  
mt2b = 0  
For i = 1 To 36  
Picture2(i) = useless  
Picture2(i).Visible = False  
Next  
MSComm1.Output = Chr(0)  
Timer2.Enabled = False  
Timer3.Enabled = False  
End Sub
```

```
Private Sub Command2_Click()  
End  
End Sub  
Private Sub Command3_Click()  
d = a  
a = c  
Command4.Visible = True  
Command3.Visible = False  
End Sub
```

```
Private Sub Command4_Click()  
If (a - 13) > d Then  
For i = d To (a - 13)  
Picture2(i) = grs  
Picture2(i).Visible = True  
Next  
a = a - 13  
Else  
a = d  
End If  
Command4.Visible = False  
End Sub
```

```

Private Sub Command5_Click()
e = 0
For i = 1 To 13
If Picture2(i) = motor1stop Then
If mt1a = 1 Then
e = e - 1
mt1a = 0
Timer1.Enabled = True
ElseIf mt1b = 1 Then
e = e - 2
mt1b = 0
Timer1.Enabled = True
End If
ElseIf Picture2(i) = motor2stop Then
If mt2a = 1 Then
e = e - 4
mt2a = 0
Timer1.Enabled = True
ElseIf mt2b = 1 Then
e = e - 8
mt2b = 0
Timer1.Enabled = True
End If
ElseIf Picture2(i) = motor1cw Then
e = e + 1
mt1a = 1
Timer1.Enabled = True
ElseIf Picture2(i) = motor1ccw Then
e = e + 2
mt1b = 1
Timer1.Enabled = True
ElseIf Picture2(i) = motor2cw Then
e = e + 4
mt2a = 1
Timer1.Enabled = True
ElseIf Picture2(i) = motor2ccw Then
e = e + 8
mt2b = 1
Timer1.Enabled = True
ElseIf Picture2(i) = inputs Then
Timer3.Enabled = True
ElseIf Picture2(i) = delay Then
Call Pause(jj)
ElseIf Picture2(i) = counter Then
xx = xx + 1
Text1.Visible = True

```

```
Timer1.Enabled = True
Text1.Text = xx
Command8.Visible = True
ElseIf Picture2(i) = gt2 Then
aa = i
Timer1.Enabled = True
ElseIf Picture2(i) = gt1 Then
i = aa
Timer1.Enabled = True
ElseIf Picture2(i) = ends Then
e = 0
Timer1.Enabled = True
ElseIf Picture2(i) = stepper Then
st1 = 4
st2 = 0
Timer2.Enabled = True
ElseIf Picture2(i) = ifs Then
If snr = 0 Then
For i2 = 14 To 26
If Picture2(i2) = motor1stop Then
If mt1a = 1 Then
e = e - 1
mt1a = 0
Timer1.Enabled = True
ElseIf mt1b = 1 Then
e = e - 2
mt1b = 0
Timer1.Enabled = True
End If
ElseIf Picture2(i2) = motor2stop Then
If mt2a = 1 Then
e = e - 4
mt2a = 0
Timer1.Enabled = True
ElseIf mt2b = 1 Then
e = e - 8
mt2b = 0
Timer1.Enabled = True
End If
ElseIf Picture2(i2) = motor1cw Then
e = e + 1
mt1a = 1
Timer1.Enabled = True
ElseIf Picture2(i2) = motor1ccw Then
e = e + 2
mt1b = 1
Timer1.Enabled = True
```

```

ElseIf Picture2(i2) = motor2cw Then
e = e + 4
mt2a = 1
Timer1.Enabled = True
ElseIf Picture2(i2) = motor2ccw Then
e = e + 8
mt2b = 1
Timer1.Enabled = True
ElseIf Picture2(i2) = inputs Then
Timer3.Enabled = True
ElseIf Picture2(i2) = delay Then
Call Pause(jj)
ElseIf Picture2(i2) = counter Then
xx = xx + 1
Text1.Visible = True
Timer1.Enabled = True
Text1.Text = xx
ElseIf Picture2(i2) = gt2 Then
aa = i
Timer1.Enabled = True
ElseIf Picture2(i2) = gt1 Then
i = aa
Timer1.Enabled = True
ElseIf Picture2(i2) = ends Then
e = 0
Timer1.Enabled = True
End
ElseIf Picture2(i2) = stepper Then
st1 = 4
st2 = 0
Timer2.Enabled = True
End If
Next
End If
End If
Next
End Sub

```

```

Private Sub Command6_Click()
a = a - 1
If a > 0 Then
Picture2(a) = useless
Picture2(a).Visible = False
Else
a = a + 1
End If
End Sub

```

```
Private Sub Command7_Click()  
snr = 0  
e = 0  
Timer1.Enabled = True  
Timer2.Enabled = False  
Timer3.Enabled = False  
End Sub
```

```
Private Sub Command8_Click()  
Text1.Text = 0  
xx = 0  
End Sub
```

```
Private Sub delay_Click()  
b = 0  
If a < 14 Then  
For i = 1 To 40  
If Picture2(i) = ends Or Picture2(i) = gt1 Then  
MsgBox "periksa yg benar", 0, "warning"  
b = 1  
End If  
Next  
End If  
If b = 0 Then  
Picture2(a) = delay  
Picture2(a).Visible = True  
a = a + 1  
jj = InputBox("Masukkan nilai delay(second)", "warning")  
End If  
End Sub
```

```
Private Sub ends_Click()  
b = 0  
If a < 14 Then  
For i = 1 To 40  
If Picture2(i) = ends Or Picture2(i) = gt1 Then  
MsgBox "periksa yg benar", 0, "warning"  
b = 1  
End If  
Next  
End If  
If b = 0 Then  
Picture2(a) = ends  
Picture2(a).Visible = True  
a = a + 1
```

```
End If
End Sub
```

```
Private Sub Form_Load()
MSComm1.CommPort = 1
MSComm1.Settings = "9600,N,8,1"
MSComm1.InputLen = 0
MSComm1.PortOpen = True
a = 1
b = 0
e = 0
xx = 0
snr = 0
mt1a = 0
mt1b = 0
mt2a = 0
mt2b = 0
Timer1.Enabled = True
Text1.Visible = False
For i = 1 To 40
Picture2(i) = useless
Picture2(i).Visible = False
Next
End Sub
```

```
Private Sub gt1_Click()
b = 0
If a < 14 Then
For i = 1 To 40
If Picture2(i) = ends Or Picture2(i) = gt1 Then
MsgBox "periksa yg bener", 0, "warning"
b = 1
End If
Next
End If
If b = 0 Then
Picture2(a) = gt1
Picture2(a).Visible = True
a = a + 1
End If
End Sub
```

```
Private Sub inputs_Click()
b = 0
If a < 14 Then
For i = 1 To 40
If Picture2(i) = ends Or Picture2(i) = gt1 Then
```

```
MsgBox "periksa yg bener", 0, "warning"
b = 1
End If
Next
End If
If b = 0 Then
Picture2(a) = inputs
Picture2(a).Visible = True
a = a + 1
End If
End Sub
```

```
Private Sub ifs_Click()
b = 0
For i = 1 To 40
If Picture2(i) = ends Or Picture2(i) = gt1 Then
MsgBox "periksa yg bener", 0, "warning"
ElseIf Picture2(i) = ifs Then
MsgBox "tidak diijinkan If bersarang", 0, "warning"
b = 1
End If
Next
If b = 0 Then
Picture2(a) = ifs
Picture2(a).Visible = True
Command3.Visible = True
a = a + 1
c = a + 13
End If
End Sub
```

```
Private Sub gt2_Click()
b = 0
If a < 14 Then
For i = 1 To 40
If Picture2(i) = ends Or Picture2(i) = gt1 Then
MsgBox "periksa yg bener", 0, "warning"
b = 1
End If
Next
End If
If b = 0 Then
Picture2(a) = gt2
Picture2(a).Visible = True
a = a + 1
End If
End Sub
```



```

Private Sub motor_Click()
b = 0
m = 3
n = 3
o = 3
If a < 14 Then
For i = 1 To 13
If Picture2(i) = ends Or Picture2(i) = gt1 Then
MsgBox "periksa yg bener", 0, "warning"
b = 1
End If
Next
End If

If b = 0 Then
m = InputBox("Pilih motor yg mana?(1/2)", "Pilih Motor")
If m <> 1 And m <> 2 Then
MsgBox "Pilih 1 untuk motor 1/pilih 2 untuk motor 2", 0, "warning"
Else
n = InputBox("Keadaan motor?(1 untuk on/0 untuk off)", "Motor Action")
If n <> 0 And n <> 1 Then
MsgBox "Pilih 1 atau 0", 0, "warning"
ElseIf n = 1 Then
o = InputBox("Putaran motor?(pilih 0 untuk clockwise / pilih 1 untuk counterclockwise)", "Rotasi motor")
If o <> 1 And o <> 0 Then
MsgBox "pilih 0 atau 1", 0, "warning"
End If
End If
End If
If m = 1 Then
If n = 0 Then
Picture2(a) = motor1stop
Picture2(a).Visible = True
ElseIf n = 1 Then
If o = 0 Then
Picture2(a) = motor1cw
Picture2(a).Visible = True
ElseIf o = 1 Then
Picture2(a) = motor1ccw
Picture2(a).Visible = True
End If
End If
ElseIf m = 2 Then
If n = 0 Then
Picture2(a) = motor2stop
Picture2(a).Visible = True

```

```
ElseIf n = 1 Then
    If o = 0 Then
        Picture2(a) = motor2cw
        Picture2(a).Visible = True
    ElseIf o = 1 Then
        Picture2(a) = motor2ccw
        Picture2(a).Visible = True
    End If
End If
End If
a = a + 1
End If
End Sub
```

```
Private Sub counter_Click()
    Text1.Visible = True
    b = 0
    If a < 14 Then
        For i = 1 To 40
            If Picture2(i) = ends Or Picture2(i) = gt1 Then
                MsgBox "periksa yg benar", 0, "warning"
                b = 1
            End If
        Next
    End If
    If b = 0 Then
        Picture2(a) = counter
        Picture2(a).Visible = True
        a = a + 1
    End If
End Sub
```

```
Private Sub stepper_Click()
    b = 0
    If a < 14 Then
        For i = 1 To 40
            If Picture2(i) = ends Or Picture2(i) = gt1 Then
                MsgBox "periksa yg benar", 0, "warning"
                b = 1
            End If
        Next
    End If
    If b = 0 Then
        Picture2(a) = stepper
        Picture2(a).Visible = True
        a = a + 1
    End If
End Sub
```

```
End If
End Sub
```

```
Private Sub Timer1_Timer()
MSComm1.Output = Chr(e)
End Sub
```

```
Private Sub Timer2_Timer()
If st1 < 8 Then
e = e + 2 ^ st1 - st2
st2 = 2 ^ st1
st1 = st1 + 1
ElseIf st1 > 7 Then
st1 = 4
e = e + 2 ^ st1 - st2
st2 = 2 ^ st1
st1 = st1 + 1
End If
End Sub
```

```
Private Sub Timer3_Timer()
hasil = MSComm1.Input
If Len(hasil) > 0 Then
    hasil = Asc(hasil)
    hasil = Int(hasil)
    If hasil = 128 Then
        snr = 1
    Else: snr = 0
    End If
End If
End Sub
```

```
Sub Pause(ByVal nSecond As Single)
    Dim t0 As Single
    t0 = Timer
    Do While Timer - t0 < nSecond
        Dim dummy As Integer
        dummy = DoEvents()
        ' if we cross midnight, back up one day
        If Timer < t0 Then
            t0 = t0 - CLng(24) * CLng(60) * CLng(60)
        End If
    Loop
End Sub
```

LAMPIRAN B
BAHASA ASSEMBLER AT89S52

```
$mod51
ORG 00H

SJMP MAIN

ORG 23H
SJMP SERINT

ORG 30H
MAIN:
MOV TMOD,#20H
MOV TH1,#0FDH
MOV SCON,#50H
SETB TR1
MOV R0,#60H
MOV SP,#10H

SETB ES
SETB EA

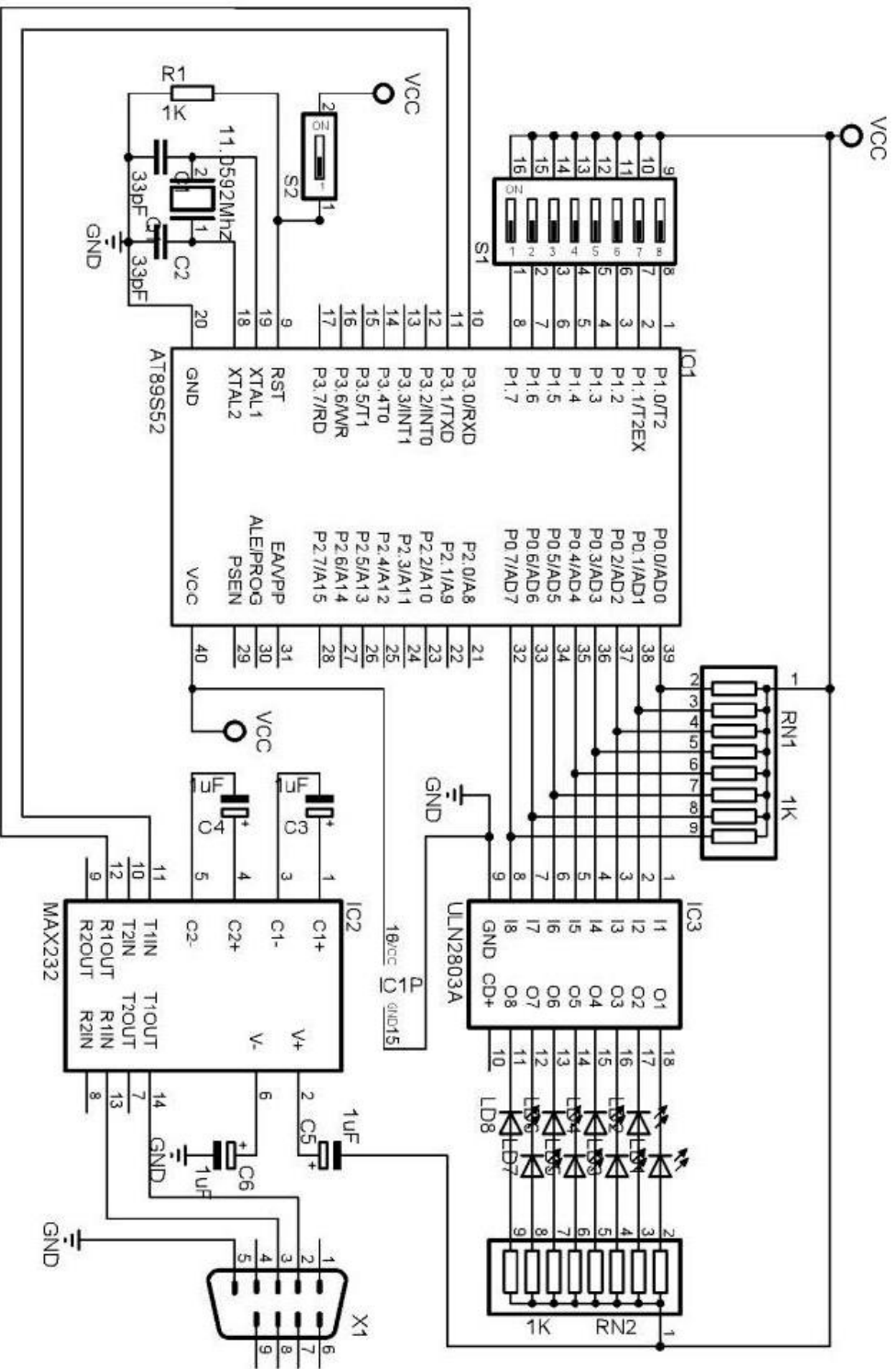
DEAD:
SJMP DEAD

SERINT:
JB RI,RCV_CH
CLR TI
RETI

RCV_CH:
PUSH PSW
PUSH ACC
MOV A,SBUF
CLR RI
MOV P0,A

EXIT:
POP ACC
POP PSW
RETI
END
```

LAMPIRAN C
GAMBAR SKEMA RANGKAIAN MIKROKONTROLER



LAMPIRAN D
DATA SHEET MIKROKONTROLER AT89S52