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Appendix A

Parts List for Detector Circuit

<table>
<thead>
<tr>
<th>No</th>
<th>Parts</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Resistor 470 Ω</td>
<td>2</td>
</tr>
<tr>
<td>2</td>
<td>Resistor 10K Ω</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>Resistor 4.7K Ω</td>
<td>1</td>
</tr>
<tr>
<td>4</td>
<td>Resistor 2K Ω</td>
<td>1</td>
</tr>
<tr>
<td>5</td>
<td>Resistor 1.2K Ω</td>
<td>1</td>
</tr>
<tr>
<td>6</td>
<td>Diode 1N4148</td>
<td>1</td>
</tr>
<tr>
<td>7</td>
<td>IR LED and Detector</td>
<td>1 set</td>
</tr>
<tr>
<td>8</td>
<td>Transistor 2N3904</td>
<td>1</td>
</tr>
<tr>
<td>9</td>
<td>LED</td>
<td>1</td>
</tr>
</tbody>
</table>

*note that all component due to 1 set sensor*
Appendix B

Source Code for Module

Option Explicit

Public Declare Sub PortOut Lib "io.dll" (ByVal Port As Integer, ByVal Value As Byte)
Public Declare Function PortIn Lib "io.dll" (ByVal Port As Integer) As Byte

Declare Function sndPlaySound Lib "winmm.dll" Alias "sndPlaySoundA" (ByVal lpszSoundName As String, ByVal uFlags As Long) As Long
Public Declare Function waveOutGetNumDevs Lib "winmm" () As Long

Global Const SND_SYNC = &H0 'just after the sound is ended exit function
Global Const SND_ASYNC = &H1 'just after the beginning of the sound exit function
Global Const SND_NODEFAULT = &H2 'if the sound cannot be found no error message
Global Const SND_LOOP = &H8 'repeat the sound until the function is called again
Global Const SND_NOSTOP = &H10 'if currently a sound is played the function will return without playing the selected sound

Global Const Flags& = SND_ASYNC Or SND_NODEFAULT
Appendix C

Source Code for Form 1 (Opening)

Private Sub Form_Load()
    Left = (Screen.Width - Width) \ 2
    Top = (Screen.Height - Height) \ 2
    Shape1.BackColor = vbWhite
End Sub

Private Sub Image4_Click()
End Sub

Private Sub Timer1_Timer()
    If Shape1.BackColor = vbWhite Then
        Shape2.Visible = True
        Shape3.Visible = False
        Shape4.Visible = False
        Shape5.Visible = False
        Shape6.Visible = False
        Shape7.Visible = False
        Shape8.Visible = False
        Shape9.Visible = False
        Shape10.Visible = False
    End If
End Sub

Private Sub Timer10_Timer()
    Timer9.Enabled = False
    If Shape10.Visible = True Then
        Form1.Hide
        Form1.Enabled = False
        Form2.Show
        Timer10.Enabled = False
    End If
End Sub

Private Sub Timer11_Timer()
    'Static Count As Integer
    If (p1.Left + p1.Width) <= 0 Then
        p1.Left = Form1.Width
    End If
End Sub
End If

    p1.Left = p1.Left - 100
End Sub

Private Sub Timer12_Timer()
' Static Count As Integer
    If (p2.Right + p2.Width) <= 0 Then
        p2.Right = Form1.Width
    End If

    p2.Right = p2.Right - 100
End Sub

Private Sub Timer2_Timer()
    Timer1.Enabled = False
    If Shape2.Visible = True Then
        Shape2.Visible = True
        Shape3.Visible = True
        Shape4.Visible = False
        Shape5.Visible = False
        Shape6.Visible = False
        Shape7.Visible = False
        Shape8.Visible = False
        Shape9.Visible = False
        Shape10.Visible = False
    End If
End Sub

Private Sub Timer3_Timer()
    Timer2.Enabled = False
    If Shape3.Visible = True Then
        Shape2.Visible = True
        Shape3.Visible = True
        Shape4.Visible = True
        Shape5.Visible = False
        Shape6.Visible = False
        Shape7.Visible = False
        Shape8.Visible = False
        Shape9.Visible = False
        Shape10.Visible = False
    End If
End Sub
End Sub

Private Sub Timer4_Timer()
Timer3.Enabled = False
If Shape4.Visible = True Then
Shape2.Visible = True
Shape3.Visible = True
Shape4.Visible = True
Shape5.Visible = True
Shape6.Visible = False
Shape7.Visible = False
Shape8.Visible = False
Shape9.Visible = False
Shape10.Visible = False
End If
End Sub

Private Sub Timer5_Timer()
Timer4.Enabled = False
If Shape5.Visible = True Then
Shape2.Visible = True
Shape3.Visible = True
Shape4.Visible = True
Shape5.Visible = True
Shape6.Visible = True
Shape7.Visible = False
Shape8.Visible = False
Shape9.Visible = False
Shape10.Visible = False
End If
End Sub

Private Sub Timer6_Timer()
Timer5.Enabled = False
If Shape6.Visible = True Then
Shape2.Visible = True
Shape3.Visible = True
Shape4.Visible = True
Shape5.Visible = True
Shape6.Visible = True
Shape7.Visible = True
Shape8.Visible = False
Shape9.Visible = False
Shape10.Visible = False
End If
End Sub
Private Sub Timer7_Timer()
    Timer6.Enabled = False
    If Shape7.Visible = True Then
        Shape2.Visible = True
        Shape3.Visible = True
        Shape4.Visible = True
        Shape5.Visible = True
        Shape6.Visible = True
        Shape7.Visible = True
        Shape8.Visible = True
        Shape9.Visible = False
        Shape10.Visible = False
    End If
End Sub

Private Sub Timer8_Timer()
    Timer7.Enabled = False
    If Shape8.Visible = True Then
        Shape2.Visible = True
        Shape3.Visible = True
        Shape4.Visible = True
        Shape5.Visible = True
        Shape6.Visible = True
        Shape7.Visible = True
        Shape8.Visible = True
        Shape9.Visible = True
        Shape10.Visible = False
    End If
End Sub

Private Sub Timer9_Timer()
    Timer8.Enabled = False
    If Shape9.Visible = True Then
        Shape2.Visible = True
        Shape3.Visible = True
        Shape4.Visible = True
        Shape5.Visible = True
        Shape6.Visible = True
        Shape7.Visible = True
        Shape8.Visible = True
        Shape9.Visible = True
        Shape10.Visible = True
    End If
End Sub
Appendix D

Source Code for Form 9 (Main Page)

Private Sub Command1_Click()
    Form9.Hide
    Form4.Show
End Sub

Private Sub Command2_Click()
    Form9.Hide
    Form11.Show
End Sub

Private Sub Command3_Click()
    Form9.Hide
    Form6.Show
End Sub

Private Sub Command4_Click()
    Form9.Hide
    Form8.Show
End Sub

Private Sub Command5_Click()
    End
End End Sub

Private Sub Command6_Click()
    Form9.Hide
    Form13.Show
End Sub

Private Sub Form_Load()
    Left = (Screen.Width - Width) \ 2
    Top = (Screen.Height - Height) \ 2
End Sub

Private Sub Image1_Click()
End Sub

Private Sub Timer1_Timer()
'Static Count As Integer
    If (p1.Left + p1.Width) <= 0 Then
        p1.Left = Form1.Width
    End If

    p1.Left = p1.Left - 100
End Sub
Appendix E

Product Details

**Infrared LED**
IR503C-B20Y1 Infrared LED with Reverse and Forward Current

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**Country of Origin:**
- China (mainland)

**Main Export Markets:**
- Eastern Europe
- North America
- Mid East/Africa
- Central/South America
- Asia
- Western Europe
- Australasia

**Key Specifications/Special Features:**
- View angle: 20 degree
- Size
- Diameter: 4.98mm
- Height: 8.7mm
- Lens color: water clear
- Forward voltage: 1.25 to 1.45V (test condition IF=20mA)
- Spectral bandwidth: 45nm (test condition IF=20mA)
- Reverse current: 10uA
- Forward current: 20mA
- Radiant intensity: 50 mW
Appendix F

Product Details

Infrared Emitting Diode
IR523B-W50Q1 Infrared Emitting Diode with Blue Transparent Plastic Packing

Key Specifications/Special Features:

- Size: 5.0 x 8.7 mm
- Lens color: water clear (blue)
- Forward voltage: 1.18 to 1.20V
- Radiant intensity: 28 to 34mW/sr
- Peak wavelength: 940mm
- Viewing angle: 30 to 50 degrees

Country of Origin:

- China (mainland)

Main Export Markets:

- Eastern Europe
- North America
- Mid East/Africa
- Central/South America
- Asia
- Western Europe
- Australasia

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