

IoT Programming with Basic for iOS



An IoT-flavored B4i Remote Control App

October 25, 2017

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IoT Programming with Basic for iOS

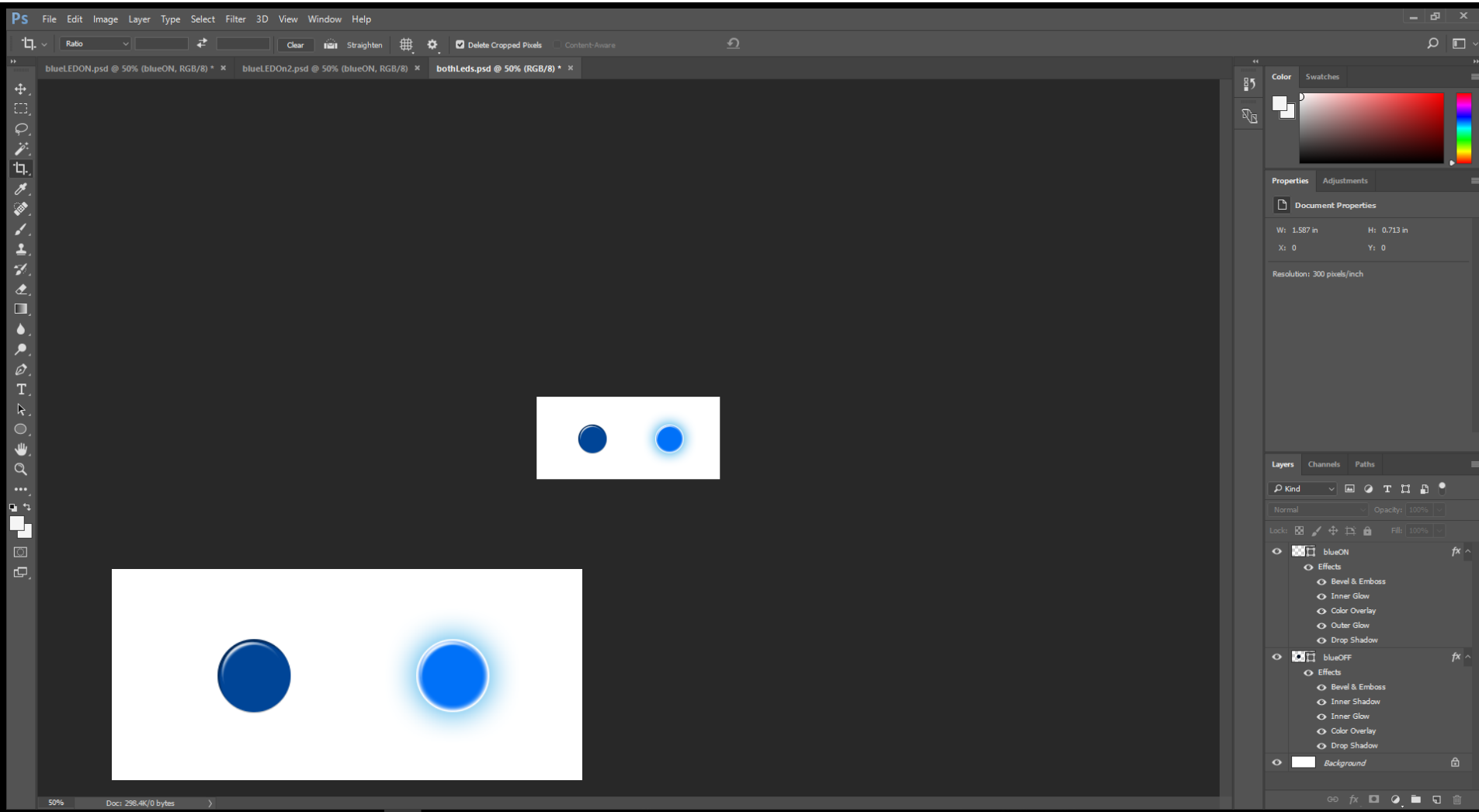
AGENDA

- Coding a B4i iOS Remote Control App
- Coding a B4R Remote Device App
- Day 3's Done



IoT Programming with Basic for iOS

Coding a B4i iOS Remote Control App – Photoshop LEDs



IoT Programming with Basic for iOS

Coding a B4i iOS Remote Control App – Visual Designer



layoutDay3 - Visual Designer

File Add View Tools Windows

Files

- blueLEDOFF.png
- blueLEDON.png

Properties

- Vertical Anch: TOP
- Left: 10
- Top: 100
- Width: 30
- Height: 40
- Visible:
- Tag:
- Background C: #00FFFFFF
- Alpha Level: 1.0
- Border Properties**
- Border Color: #000000
- Border Width: 0
- Corner Radius: 0
- Label Properties**
- Text:
- FontAwesome:
- Material Icons:
- Font**
- Font: FontAwesome
- Size: 28
- Text Color: #FF0000
- Multiline:
- Adjust Font Si:
- Text Alignmer: Left

Abstract Designer

Match Chosen Variant

100%

WYSIWYG status: Connected Device details (192.168.1.17) 320 x 568, scale = 1 (160 dpi) 10/6/2017 2:19:47 PM File Saved.

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Coding a B4i iOS Remote Control App – Visual Designer



layoutDay3 - Visual Designer

File Add View Tools Windows

Files

- blueLEDOFF.png
- blueLEDON.png

Properties

Vertical Anch: TOP

Left: 210

Top: 70

Width: 100

Height: 100

Visible:

Tag:

Background C: #00FFFFFF

Alpha Level: 1.0

Border Properties

Border Color: #000000

Border Width: 0

Corner Radius: 0

Enabled:

Button Properties

Text:

FontAwesome:

Material Icons:

Font

Font: FontAwesome

Size: 48

Style: Custom

Text Color: #0000FF

Pressed Text C: #FFFFFF

Abstract Designer

Match Chosen Variant

100%

WYSIWYG status: Connected Device details (192.168.1.17) 320 x 568, scale = 1 (160 dpi) 10/6/2017 2:19:47 PM File Saved.

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Coding a B4i iOS Remote Control App – Visual Designer



IoT Programming with Basic for iOS

Coding a B4i iOS Remote Control App – Visual Designer

The screenshot displays the B4i Visual Designer interface. On the left, the 'Generate Members' dialog is open, showing a list of selected views and events. The 'Abstract Designer' window on the right shows a visual representation of the app's layout with various UI elements like buttons, labels, and text fields.

Generate Members Dialog:

Selected views will be declared in the globals sub.
Selected events will be added as subs.

- btnConnect
 - Click
 - LongClick
- btnD0
 - Click
 - LongClick
- btnD1
 - Click
 - LongClick
- btnD2
 - Click
 - LongClick
- imgvLedD0
- imgvLedD1
- imgvLedD2
- lblIP
- lblStatus
- txfIP

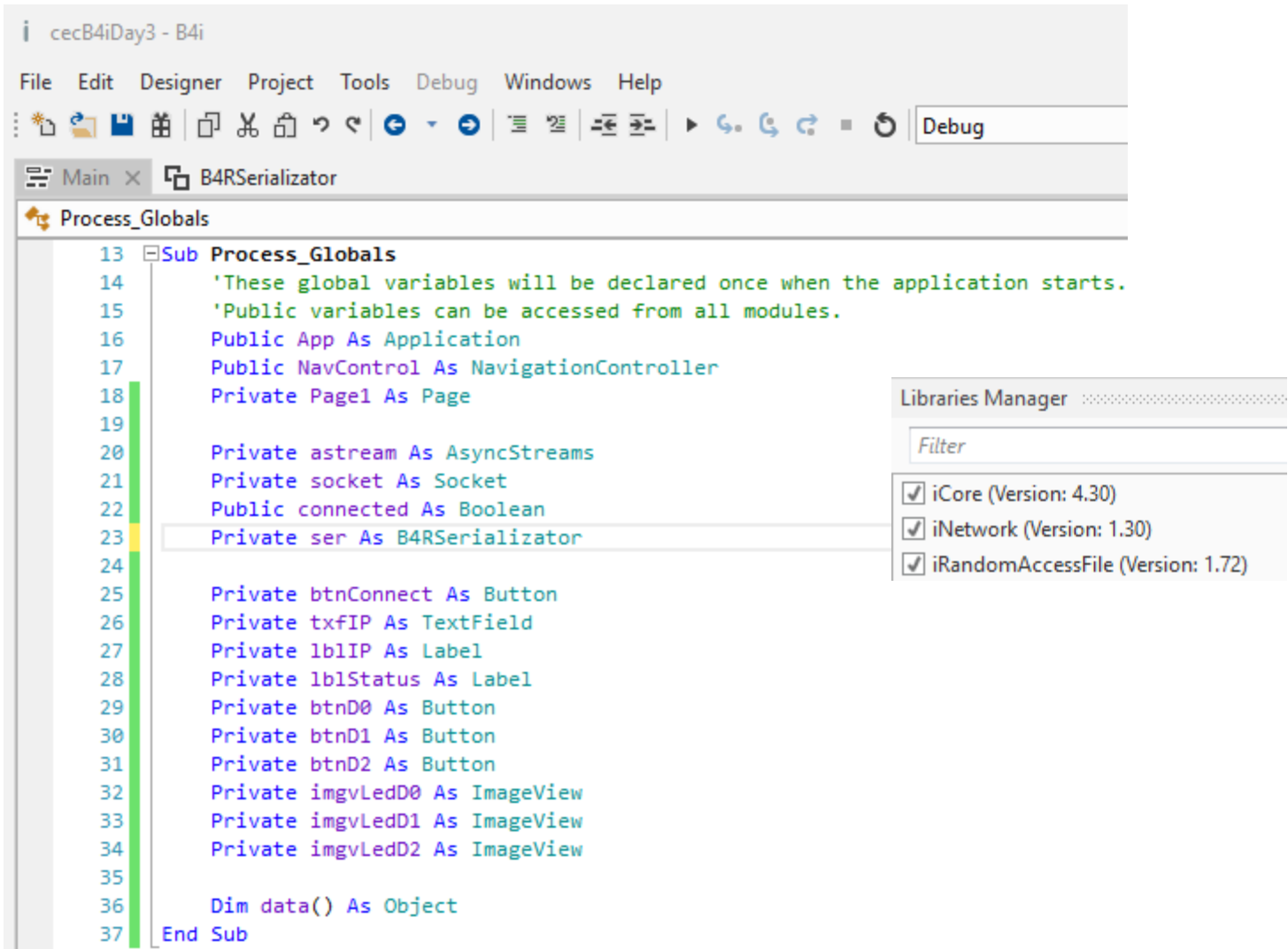
Abstract Designer Code:

```
26 Private btnConnect As Button
27 Private txfIP As TextField
28 Private lblIP As Label
29 Private lblStatus As Label
30 Private btnD0 As Button
31 Private btnD1 As Button
32 Private btnD2 As Button
33 Private imgvLedD0 As ImageView
34 Private imgvLedD1 As ImageView
35 Private imgvLedD2 As ImageView
```

WYSIWYG status: Connected Device details (192.168.1.17) 320 x 568, scale = 1 (160 dpi) 10/6/2017 2:19:47 PM File Saved.

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Coding a B4i iOS Remote Control App – iPhone Code



```
13 Sub Process_Globals
14     'These global variables will be declared once when the application starts.
15     'Public variables can be accessed from all modules.
16     Public App As Application
17     Public NavControl As NavigationController
18     Private Page1 As Page
19
20     Private astream As AsyncStreams
21     Private socket As Socket
22     Public connected As Boolean
23     Private ser As B4RSerializator
24
25     Private btnConnect As Button
26     Private txFIP As TextField
27     Private lblIP As Label
28     Private lblStatus As Label
29     Private btnD0 As Button
30     Private btnD1 As Button
31     Private btnD2 As Button
32     Private imgvLedD0 As ImageView
33     Private imgvLedD1 As ImageView
34     Private imgvLedD2 As ImageView
35
36     Dim data() As Object
37 End Sub
```

Libraries Manager

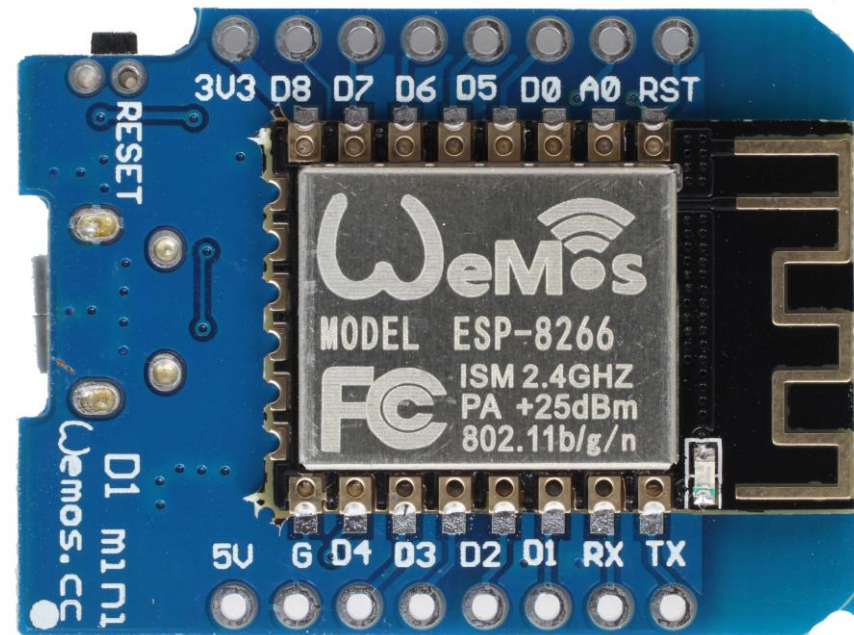
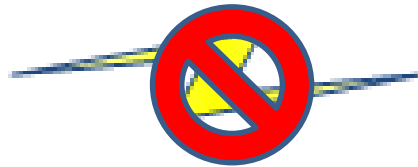
Filter

- iCore (Version: 4.30)
- iNetwork (Version: 1.30)
- iRandomAccessFile (Version: 1.72)

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Coding a B4i iOS Remote Control App – iPhone Code

```
39 Private Sub Application_Start (Nav As NavigationController)
40     'SetDebugAutoFlushLogs(True) 'Uncomment if program crashes before all logs are printed.
41     ser.Initialize
42     NavControl = Nav
43     Page1.Initialize("Page1")
44     Page1.RootPanel.LoadLayout("layoutDay3")
45     NavControl.ShowPage(Page1)
46 End Sub
```

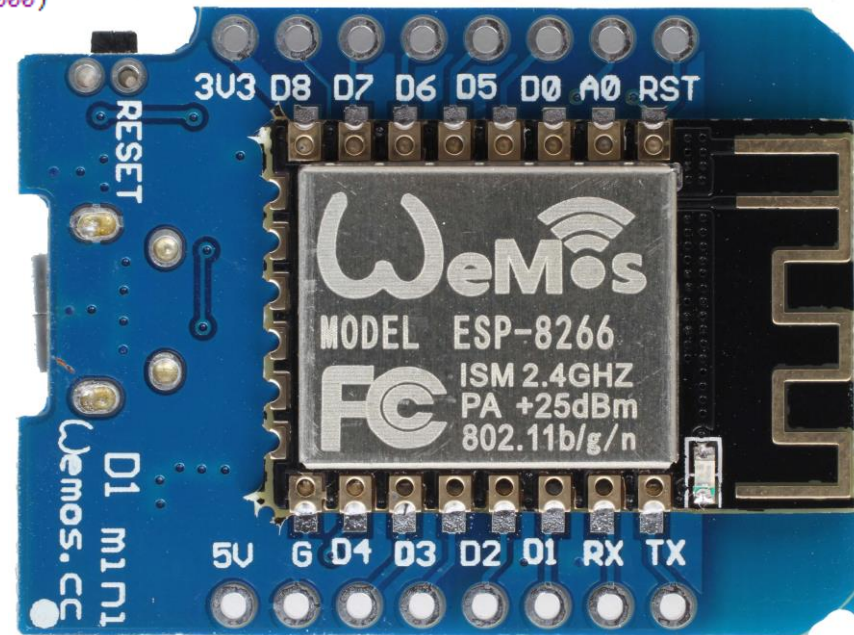
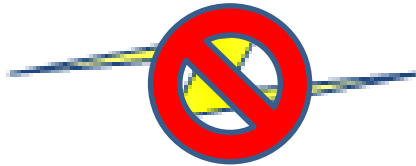


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Coding a B4i iOS Remote Control App – iPhone Code

```
120 Sub btnConnect_Click
121     Connect(txfIP.Text)
122 End Sub

66 Public Sub Connect(ip As String)
67     If astream.IsInitialized Then
68         astream.Close
69     End If
70     socket.Initialize("socket")
71     socket.Connect(ip, 51042, 30000)
72 End Sub
```

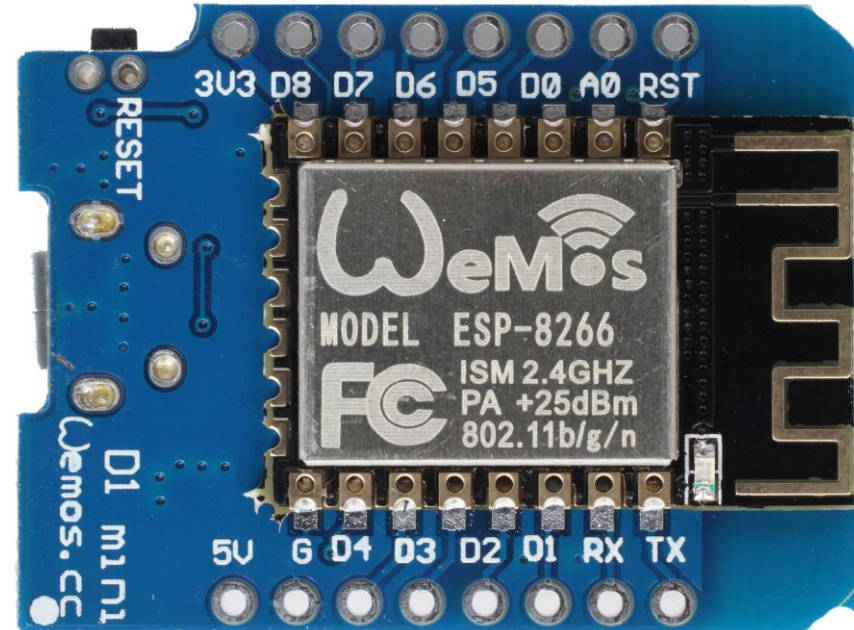


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Coding a B4i iOS Remote Control App – iPhone Code

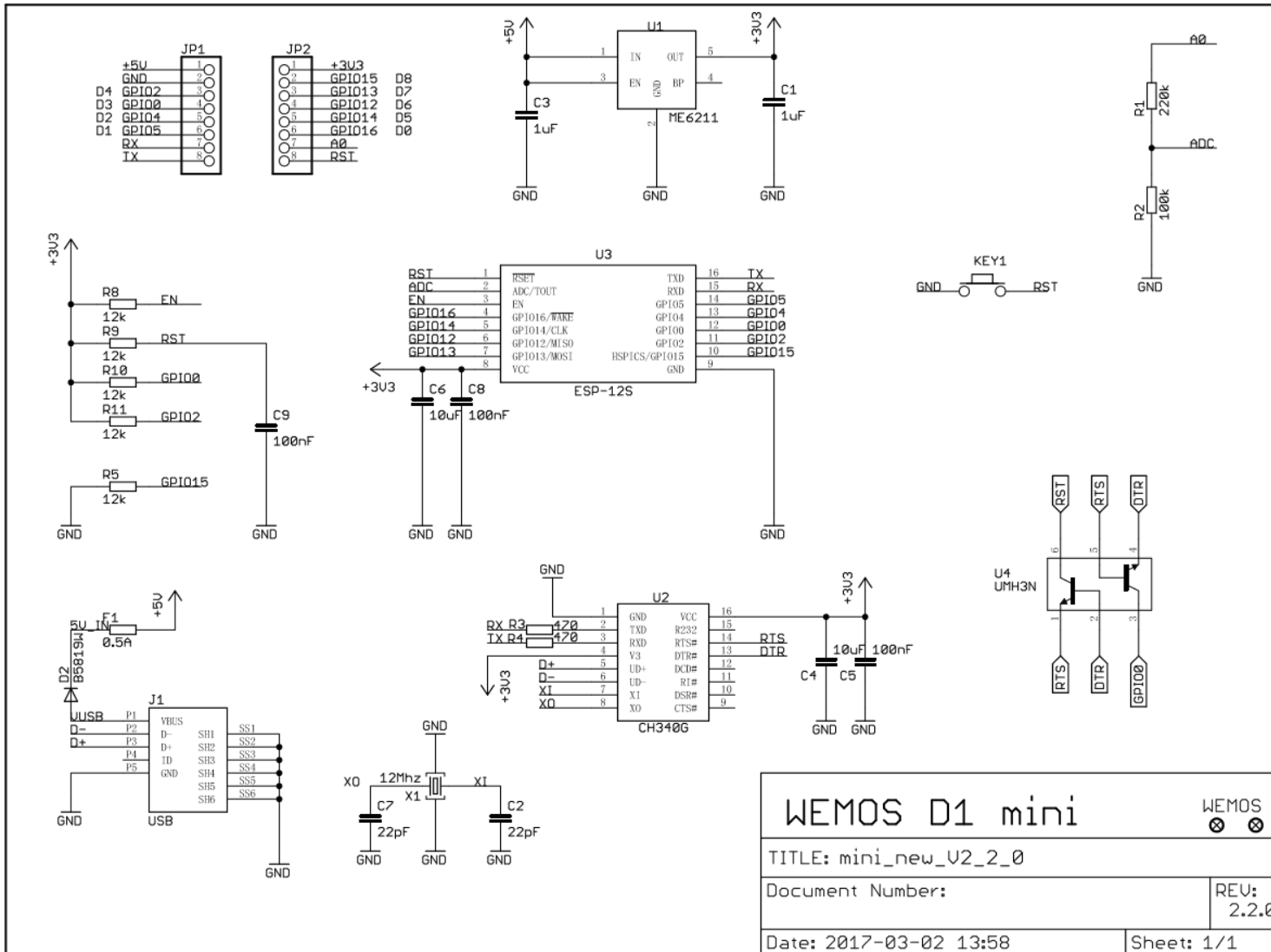
```
74 Private Sub Socket_Connected (Successful As Boolean)
75     If Successful Then
76         connected = True
77         astream.Initialize(socket.InputStream, socket.OutputStream, "astream")
78         StateChanged
79     End If
80 End Sub
```

```
56 Public Sub StateChanged
57     If connected Then
58         lblStatus.TextColor = Colors.Green
59         lblStatus.Text = "@"
60     Else
61         lblStatus.TextColor = Colors.Red
62         lblStatus.Text = "@@"
63     End If
64 End Sub
```



IoT Programming with Basic for iOS

Coding a B4R Remote Device App - WeMos Code



Presented by:

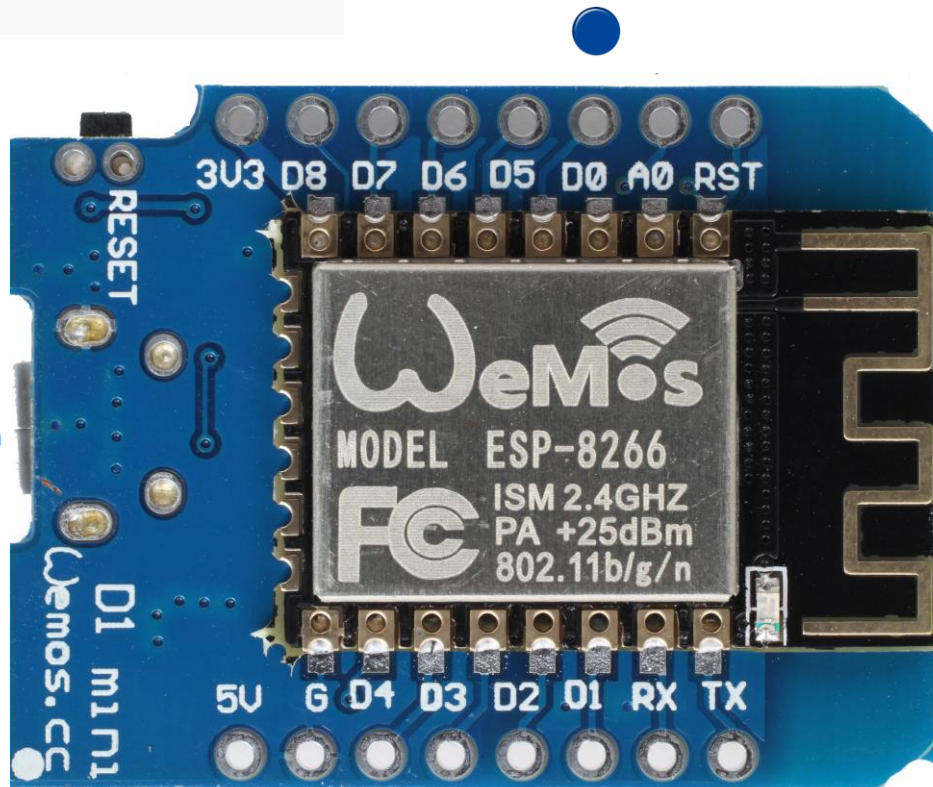
IoT Programming with Basic for iOS

Coding a B4R Remote Device App - WeMos Code

```
8 Sub Process_Globals
9   Public Serial1 As Serial
10  Private server As WiFiServerSocket
11  Private wemosPins As D1Pins
12  Private espWifi As ESP8266WiFi
13  Private astream As AsyncStreams
14  Private relay0 As Pin
15  Private relay1 As Pin
16  Private relay2 As Pin
17  Private relay0State As Boolean
18  Private relay1State As Boolean
19  Private relay2State As Boolean
20  Private ser As B4RSerializator
21 End Sub
22
23 Private Sub AppStart
24   Serial1.Initialize(115200)
25   Log("AppStart")
26   If espWifi.Connect2("MySpectrumWiFi1a-2G","password") Then
27     server.Initialize(51042, "server_NewConnection")
28     server.Listen
29     Log("Waiting for connection.")
30     Log("My ip: ", espWifi.LocalIp)
31   Else
32     Log("Crapped Out.")
33   End If
34   relay0.Initialize(wemosPins.D0, relay0.MODE_OUTPUT)
35   relay1.Initialize(wemosPins.D1, relay1.MODE_OUTPUT)
36   relay2.Initialize(wemosPins.D2, relay2.MODE_OUTPUT)
37   relay0.DigitalWrite(False)
38   relay1.DigitalWrite(False)
39   relay2.DigitalWrite(False)
40   relay0State = False
41   relay1State = False
42   relay2State = False
43 End Sub
```

***** PROGRAM STARTING *****

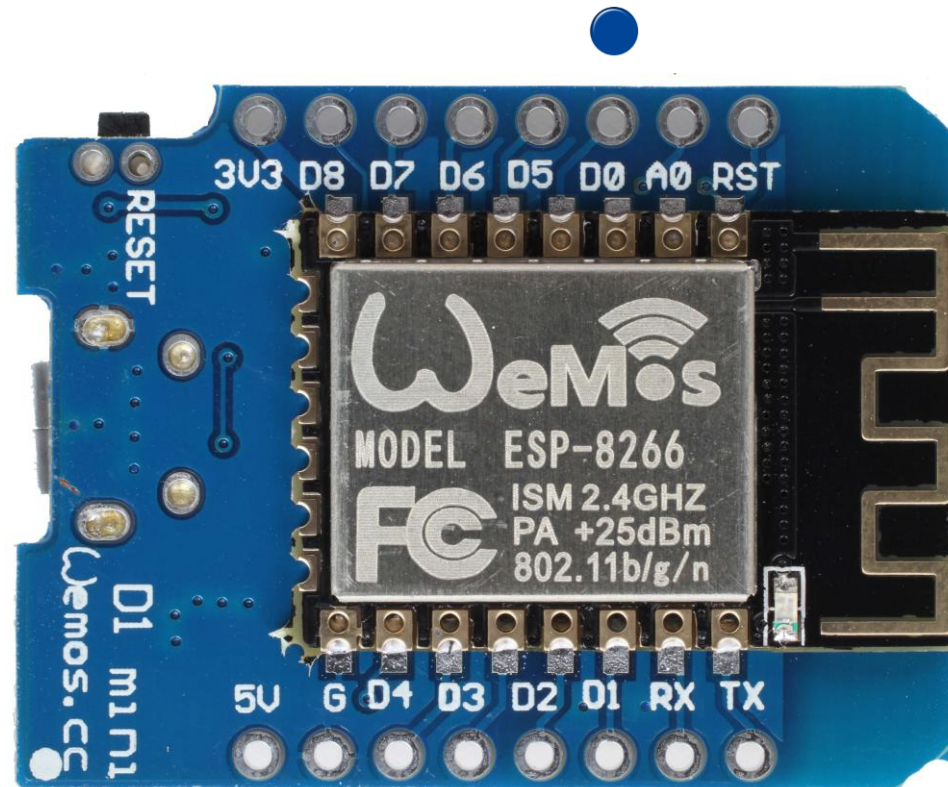
Waiting for connection.
My ip: 192.168.1.133



IoT Programming with Basic for iOS

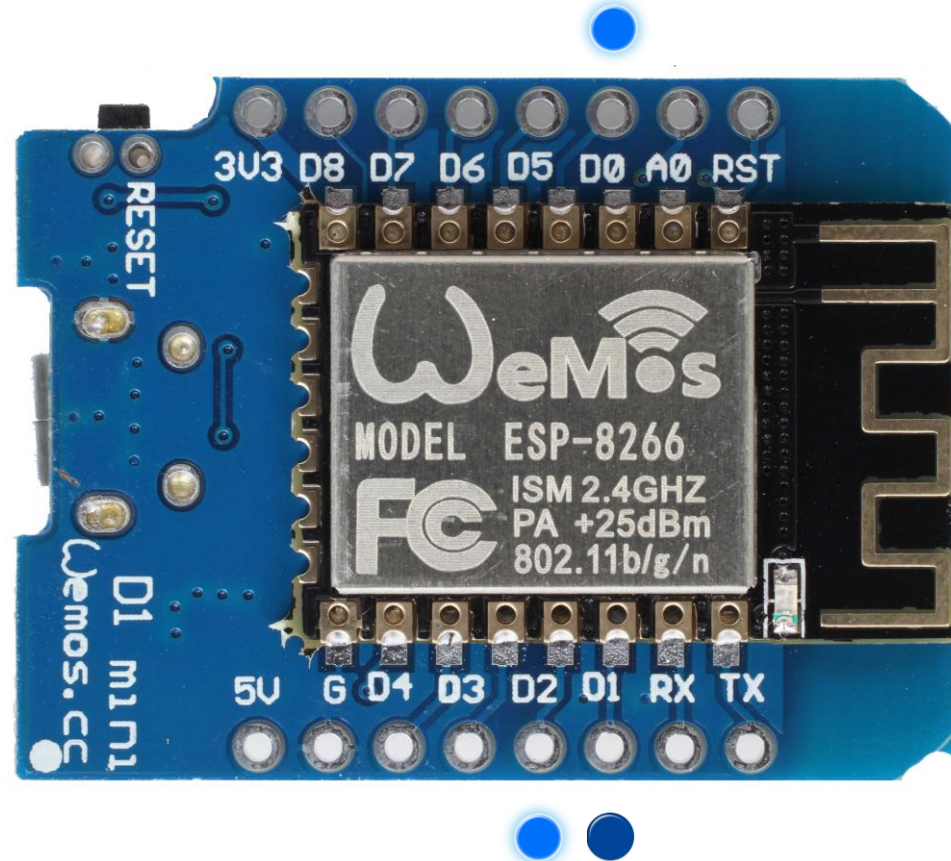
Coding a B4R Remote Device App - WeMos Code

```
45 Sub Server_NewConnection (NewSocket As WiFiSocket)
46     astream.Initialize(NewSocket.Stream, "astream_NewData", "astream_Error")
47 End Sub
48
49 Sub astream_NewData (Buffer() As Byte)
50     Dim be(10) As Object 'used as a storage buffer.
51     Dim objects() As Object = ser.ConvertBytesToArray(Buffer, be)
52     For Each o As Object In objects
53         Select o
54             Case "D0"
55                 If relay0State = False Then
56                     relay0.DigitalWrite(True)
57                     relay0State = True
58                 Else
59                     relay0.DigitalWrite(False)
60                     relay0State = False
61                 End If
62                 astream.Write(ser.ConvertArrayToBytes(Array("D0", relay0State)))
63             Case "D1"
64                 If relay1State = False Then
65                     relay1.DigitalWrite(True)
66                     relay1State = True
67                 Else
68                     relay1.DigitalWrite(False)
69                     relay1State = False
70                 End If
71                 astream.Write(ser.ConvertArrayToBytes(Array("D1", relay1State)))
72             Case "D2"
73                 If relay2State = False Then
74                     relay2.DigitalWrite(True)
75                     relay2State = True
76                 Else
77                     relay2.DigitalWrite(False)
78                     relay2State = False
79                 End If
80                 astream.Write(ser.ConvertArrayToBytes(Array("D2", relay2State)))
81         End Select
82     Next
83 End Sub
```



IoT Programming with Basic for iOS

Coding a B4R Remote Device App - WeMos Code



IoT Programming with Basic for iOS

Coding a B4R Remote Device App - iPhone Code

```
83 Private Sub Astream_NewData (Buffer() As Byte)
84     data = ser.ConvertBytesToArray(Buffer)
85     Select data(0)
86     Case "D0"
87         If data(1) = True Then
88             imgvLedD0.Bitmap = (LoadBitmap(File.DirAssets, "blueledon.png"))
89         Else
90             imgvLedD0.Bitmap = (LoadBitmap(File.DirAssets, "blueledoff.png"))
91         End If
92     Case "D1"
93         If data(1) = True Then
94             imgvLedD1.Bitmap = (LoadBitmap(File.DirAssets, "blueledon.png"))
95         Else
96             imgvLedD1.Bitmap = (LoadBitmap(File.DirAssets, "blueledoff.png"))
97         End If
98     Case "D2"
99         If data(1) = True Then
100            imgvLedD2.Bitmap = (LoadBitmap(File.DirAssets, "blueledon.png"))
101        Else
102            imgvLedD2.Bitmap = (LoadBitmap(File.DirAssets, "blueledoff.png"))
103        End If
104     End Select
105 End Sub
```



IoT Programming with Basic for iOS

Day 3's Done

- We Fired Up a WeMos D1 Mini Using B4R
- We Wrote a B4i iOS Remote Control App

