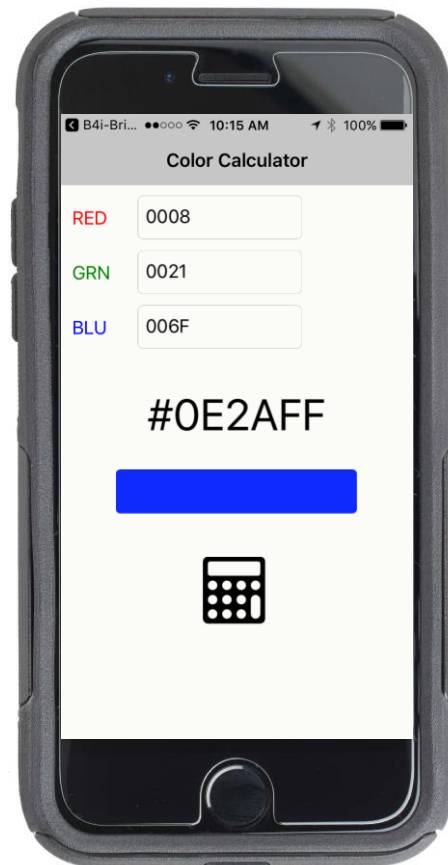


IoT Programming with Basic for iOS



B4i Programming Techniques

October 24, 2017

FRED EADY

IoT Programming with Basic for iOS

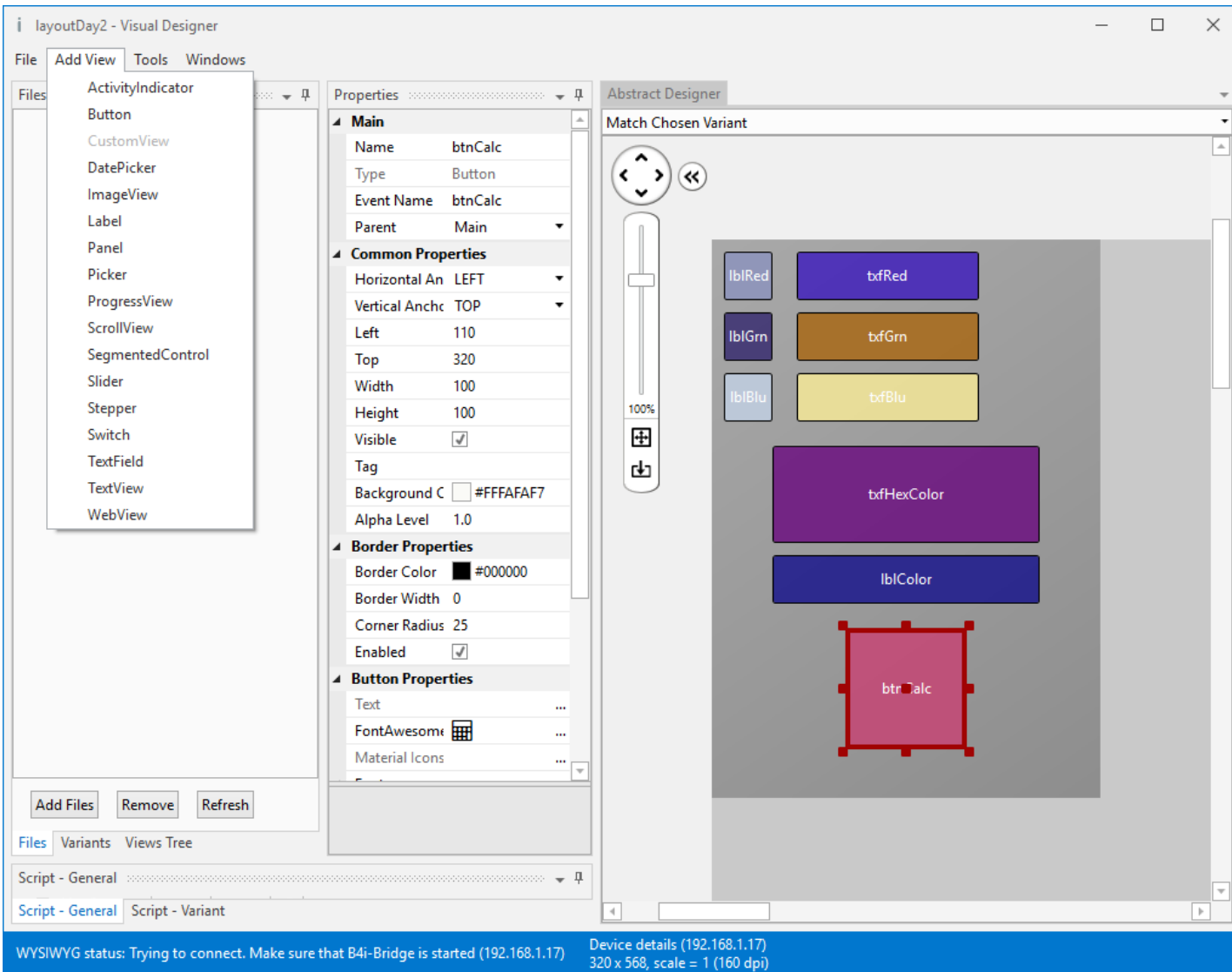
AGENDA

- Coding a B4i iOS **Color** Calculator App
- **Day 2's Done**



IoT Programming with Basic for iOS

Coding a B4i iOS Color Calculator App – Visual Designer



IoT Programming with Basic for iOS

Coding a B4i iOS Color Calculator App – Visual Designer

layoutDay2 - Visual Designer

File Add View Tools Windows

Files Properties Abstract Designer

Main Properties

- Handle Resize
- Background C #FFFAFAF7
- Page Title Color Calculator
- Page Prompt
- Hide Back But

Top Right Buttons

- Top Right #1
- Top Right #2
- Top Right #3
- Top Right #4
- Top Right #5

Toolbar Buttons

- Toolbar #1
- Toolbar #2
- Toolbar #3
- Toolbar #4
- Toolbar #5

Layout Animation Properties

Match Chosen Variant

100%

Refresh

ants script

A11

Script - General Script - Variant

WYSIWYG status: Trying to connect. Make sure that B4i-Bridge is started (192.168.1.17)

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IoT Programming with Basic for iOS

Coding a B4i iOS Color Calculator App – Visual Designer

layoutDay2 - Visual Designer

File Add View Tools Windows

Files

Properties

- Main
 - Name btnCalc
 - Type Button
 - Event Name btnCalc
 - Parent Main
- Common Properties
 - Horizontal An LEFT
 - Vertical Anchr TOP
 - Left 110
 - Top 320
 - Width 100
 - Height 100
 - Visible
 - Tag
 - Background C #FFFAFAF7
 - Alpha Level 1.0
- Border Properties
 - Border Color #000000
 - Border Width 0
 - Corner Radius 25
 - Enabled
- Button Properties
 - Text ...
 - FontAwesome
 - Material Icons ...

Abstract Designer

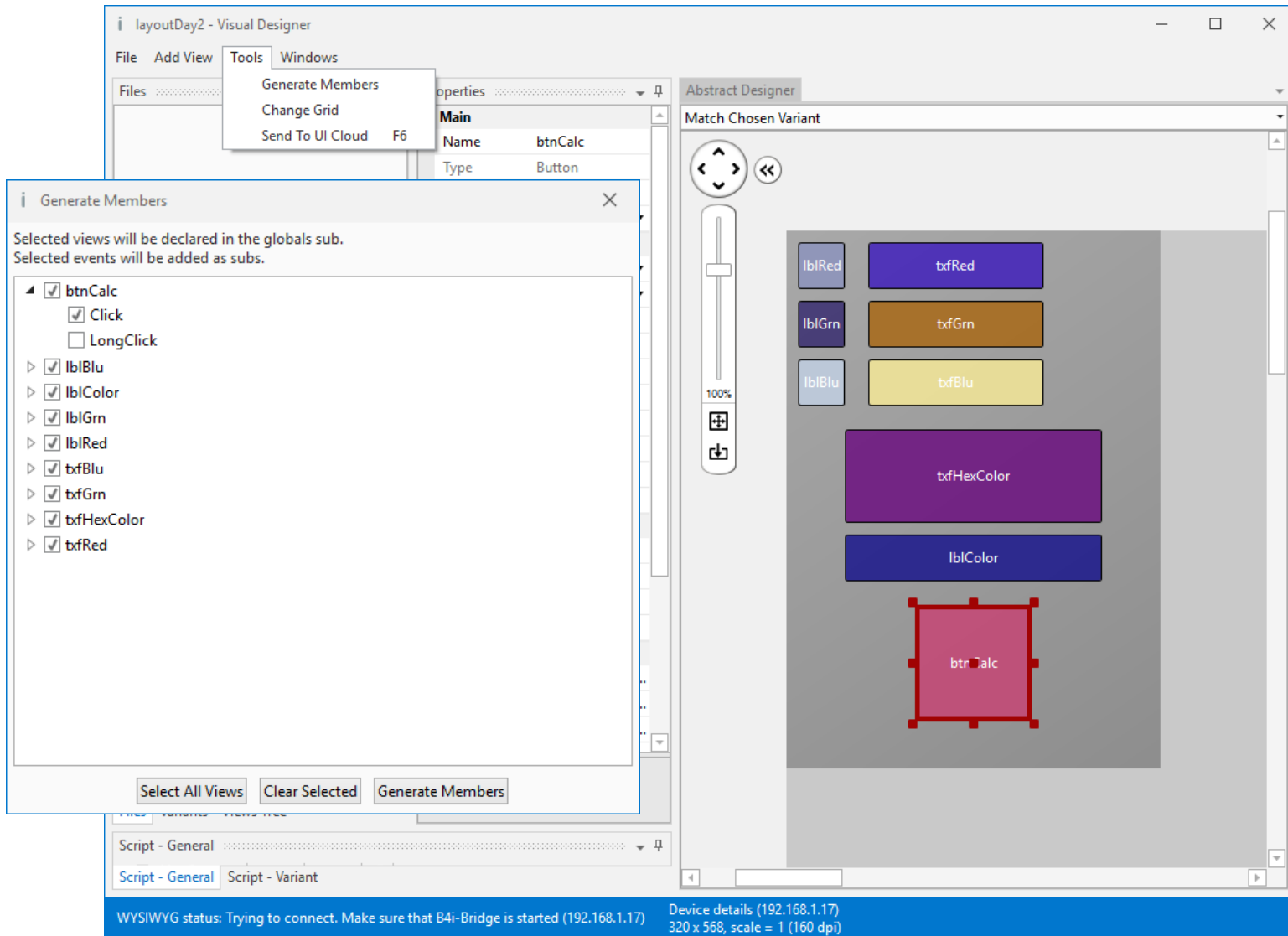
Match Chosen Variant

100%

Make sure that B4i-Bridge is started (192.168.1.17) Device details (192.168.1.17) 320 x 568, scale = 1 (160 dpi)

IoT Programming with Basic for iOS

Coding a B4i iOS Color Calculator App – Visual Designer



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Coding a B4i iOS Color Calculator App – Visual Designer

Generate Members

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

<input checked="" type="checkbox"/> btnCalc		
<input checked="" type="checkbox"/> Click		
<input type="checkbox"/> LongClick		
▶ <input checked="" type="checkbox"/> lblBlu	34	Private btnCalc As Button
▶ <input checked="" type="checkbox"/> lblColor	35	Private lblBlu As Label
▶ <input checked="" type="checkbox"/> lblGrn	36	Private lblGrn As Label
▶ <input checked="" type="checkbox"/> lblRed	37	Private lblRed As Label
▶ <input checked="" type="checkbox"/> txfBlu	38	Private txfBlu As TextField
▶ <input checked="" type="checkbox"/> txfGrn	39	Private txfGrn As TextField
▶ <input checked="" type="checkbox"/> txfHexColor	40	Private txfHexColor As TextField
▶ <input checked="" type="checkbox"/> txfRed	41	Private txfRed As TextField
	42	Private lblColor As Label

Select All Views Clear Selected Generate Members

lblRed txfRed

lblGrn txfGrn

lblBlu txfBlu

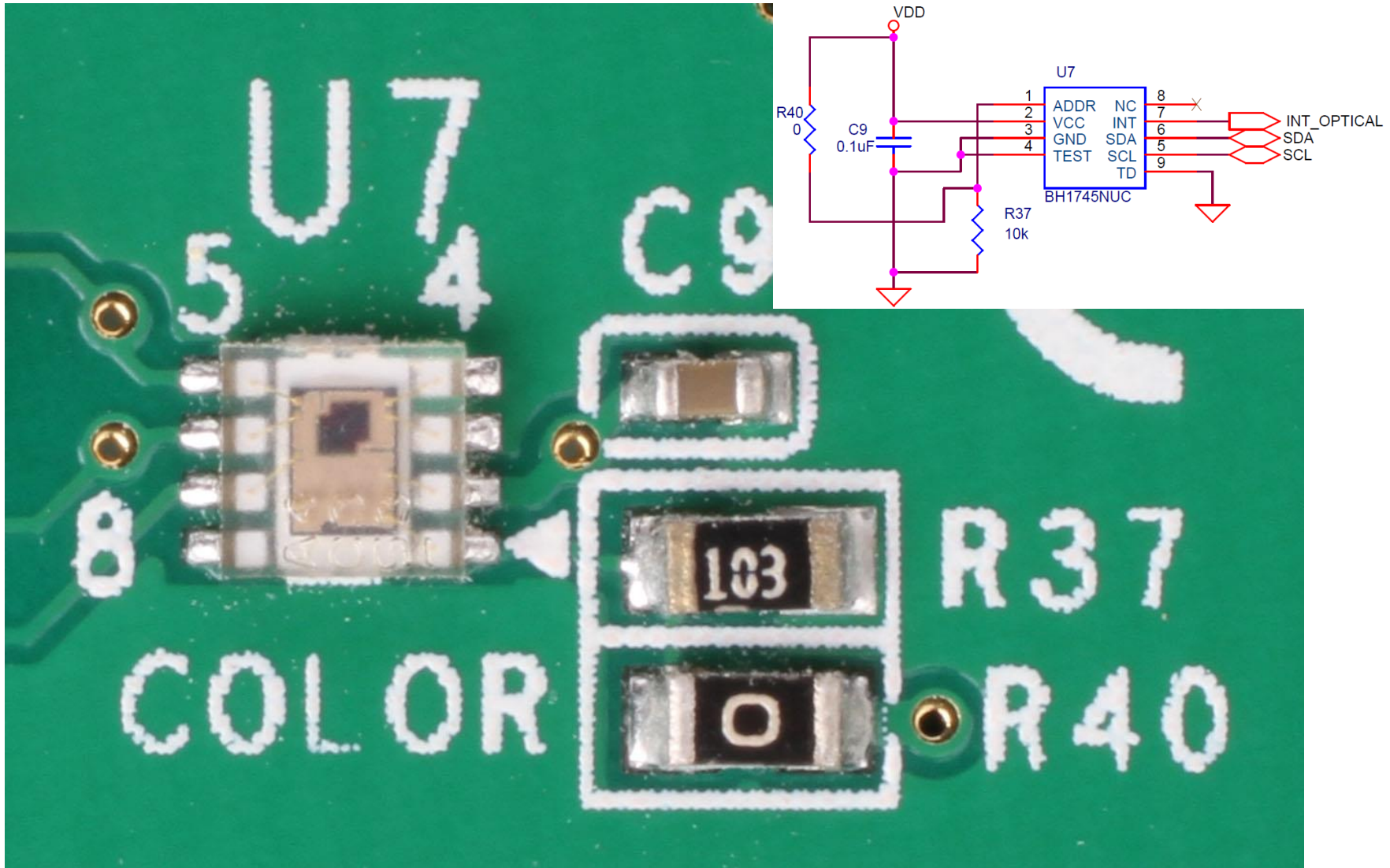
txfHexColor

lblColor

btnCalc

IoT Programming with Basic for iOS

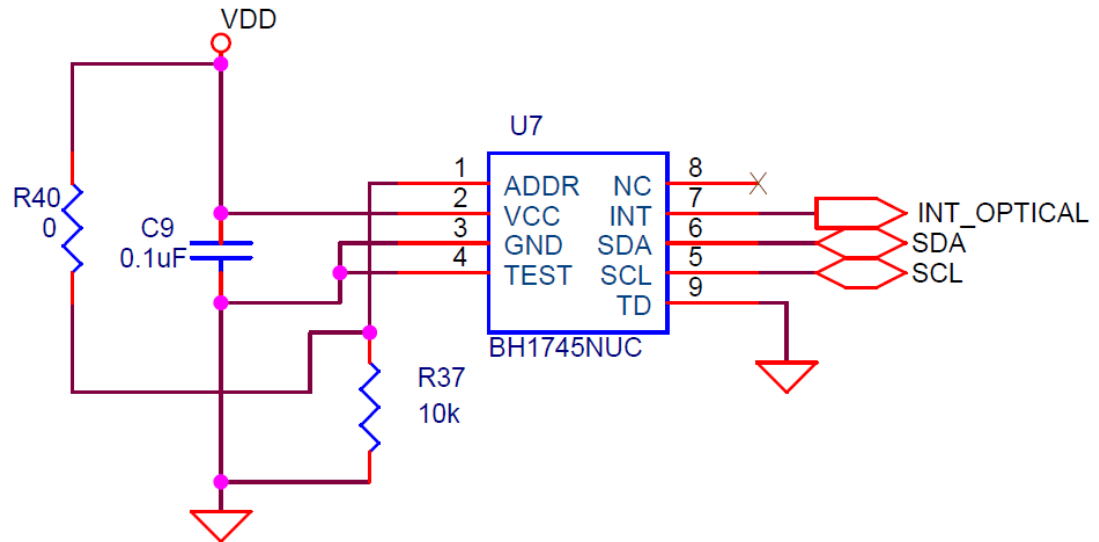
Coding a B4i iOS Color Calculator App – Hardware



IoT Programming with Basic for iOS

Coding a B4i iOS Color Calculator App – Hardware

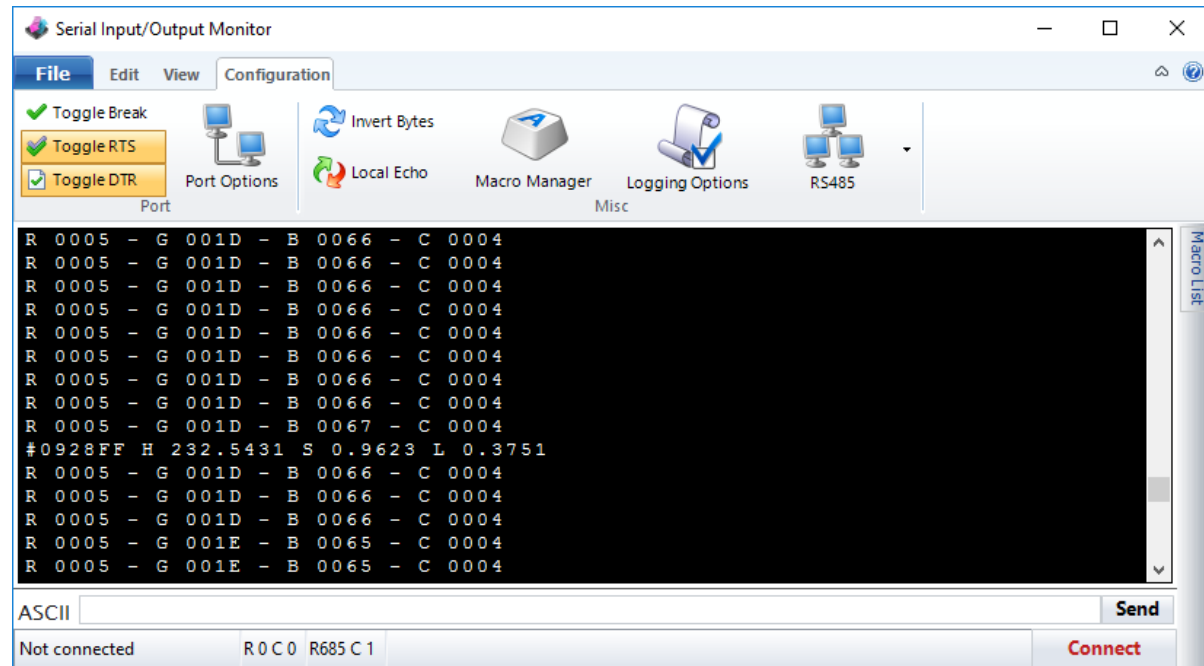
```
187 //*****
188 /* Read RGBC Registers via I2C
189 //*****
190 void readRGBC(void)
191 {
192     i2c_start();
193     i2c_write(BH1745_WR_ADDR);
194     i2c_write(rgbDataBegin);
195     i2c_start();
196     i2c_write(BH1745_RD_ADDR);
197     rgbRaw[0] = i2c_read(1);
198     rgbRaw[1] = i2c_read(1);
199     rgbRaw[2] = i2c_read(1);
200     rgbRaw[3] = i2c_read(1);
201     rgbRaw[4] = i2c_read(1);
202     rgbRaw[5] = i2c_read(1);
203     rgbRaw[6] = i2c_read(1);
204     rgbRaw[7] = i2c_read(0);
205     i2c_stop();
206 }
```



IoT Programming with Basic for iOS

Coding a B4i iOS Color Calculator App – Hardware

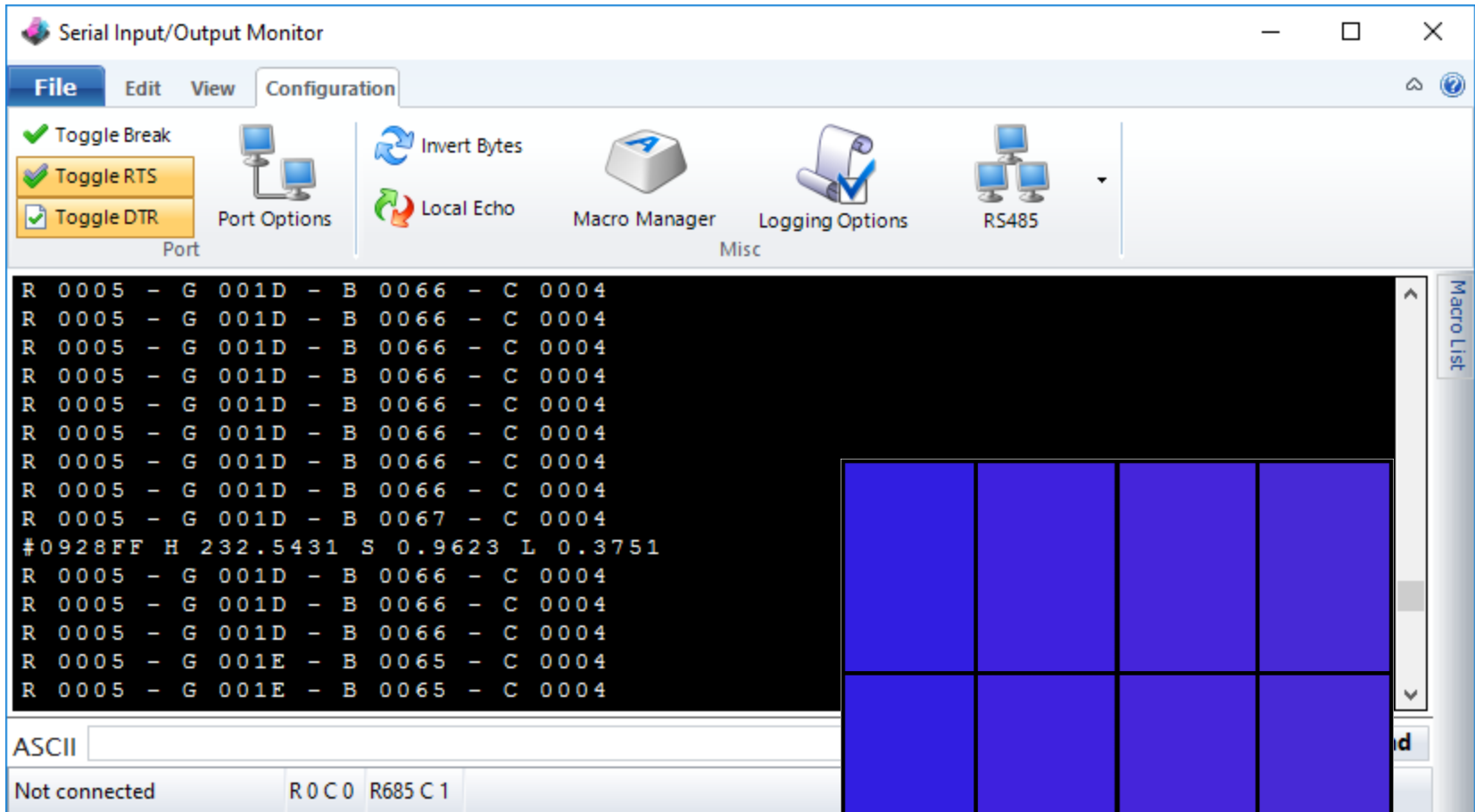
```
187 //*****
188 /* Read RGBC Registers via I2C
189 //*****
190 void readRGBC(void)
191 {
192     i2c_start();
193     i2c_write(BH1745_WR_ADDR);
194     i2c_write(rgbcDataBegin);
195     i2c_start();
196     i2c_write(BH1745_RD_ADDR);
197     rgbcRaw[0] = i2c_read(1);
198     rgbcRaw[1] = i2c_read(1);
199     rgbcRaw[2] = i2c_read(1);
200     rgbcRaw[3] = i2c_read(1);
201     rgbcRaw[4] = i2c_read(1);
202     rgbcRaw[5] = i2c_read(1);
203     rgbcRaw[6] = i2c_read(1);
204     rgbcRaw[7] = i2c_read(0);
205     i2c_stop();
206 }
```



```
rawR = make16(rgbcRaw[1], rgbcRaw[0]);
rawG = make16(rgbcRaw[3], rgbcRaw[2]);
rawB = make16(rgbcRaw[5], rgbcRaw[4]);
rawC = make16(rgbcRaw[7], rgbcRaw[6]);
```

IoT Programming with Basic for iOS

Coding a B4i iOS Color Calculator App – Hardware



IoT Programming with Basic for iOS

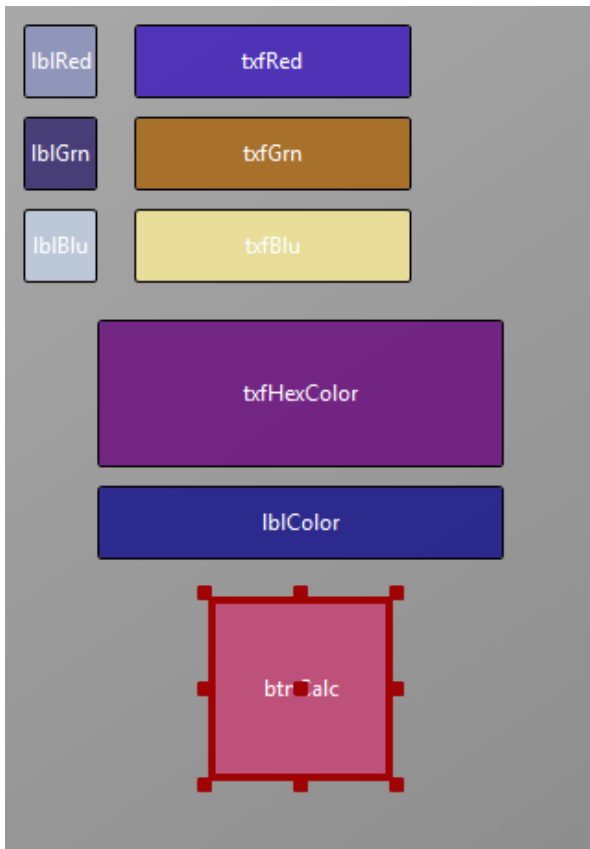
Coding a Color Calculator App – B4i Code

```
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 NavController As NavController
18     Private Page1 As Page
19     Private bc As ByteConverter
20
21     Dim rgb_s1R As Short
22     Dim rgb_s1B As Short
23     Dim rgb_s1G As Short
24     Dim redIntensity As Float
25     Dim grnIntensity As Float
26     Dim bluIntensity As Float
27     Dim maxIntensity As Float
28     Dim redScaled As Byte
29     Dim grnScaled As Byte
30     Dim bluScaled As Byte
31     Dim scaledColors(3) As Byte
32     Dim hexVal() As Byte
33
34     Private btnCalc As Button
35     Private lblBlu As Label
36     Private lblGrn As Label
37     Private lblRed As Label
38     Private txfBlu As TextField
39     Private txfGrn As TextField
40     Private txfHexColor As TextField
41     Private txfRed As TextField
42     Private lblColor As Label
43 End Sub
```

IoT Programming with Basic for iOS

Coding a B4i iOS Color Calculator App – B4i Code

```
45 Private Sub Application_Start (Nav As NavigationController)
46     'SetDebugAutoFlushLogs(True) 'Uncomment if program crashes before all logs are printed.
47     NavControl = Nav
48     Page1.Initialize("Page1")
49     Page1.Title = "Page 1"
50     Page1.RootPanel.Color = Colors.White
51     Page1.RootPanel.LoadLayout("layoutDay2")
52     NavControl.ShowPage(Page1)
53 End Sub
```



IoT Programming with Basic for iOS

Coding a B4i iOS Color Calculator App – B4i Code

```
63 Sub btnCalc_Click
64   Dim x As Byte
65
66   hexVal = bc.HexToBytes(txfRed.Text)
67   rgb_s1R = (hexVal(0) * 256) + hexVal(1)
68   hexVal = bc.HexToBytes(txfGrn.Text)
69   rgb_s1G = (hexVal(0) * 256) + hexVal(1)
70   hexVal = bc.HexToBytes(txfBlu.Text)
71   rgb_s1B = (hexVal(0) * 256) + hexVal(1)
72
73   redIntensity = rgb_s1R * 1.39
74   grnIntensity = rgb_s1G * 1
75   bluIntensity = rgb_s1B * 1.79
76
77   If redIntensity >= grnIntensity And redIntensity >= bluIntensity Then
78     maxIntensity = redIntensity
79   Else If grnIntensity >= redIntensity And grnIntensity >= bluIntensity Then
80     maxIntensity = grnIntensity
81   Else
82     maxIntensity = bluIntensity
83   End If
84
85   redScaled = (redIntensity/maxIntensity) * 255
86   grnScaled = (grnIntensity/maxIntensity) * 255
87   bluScaled = (bluIntensity/maxIntensity) * 255
88   scaledColors(0) = redScaled
89   scaledColors(1) = grnScaled
90   scaledColors(2) = bluScaled
91   txfHexColor.Text = "#" & bc.HexFromBytes(scaledColors)
92   lblColor.Color = Colors.RGB(redScaled,grnScaled,bluScaled)
93   x = x + 1
94 End Sub
```

```
R 0005 - G 001D - B 0066 - C 0004
R 0005 - G 001D - B 0066 - C 0004
R 0005 - G 001D - B 0066 - C 0004
R 0005 - G 001D - B 0066 - C 0004
R 0005 - G 001D - B 0066 - C 0004
R 0005 - G 001D - B 0067 - C 0004
#0928FF H 232.5431 S 0.9623 L 0.3751
```



