Hi, I’m Alan Hawse. I’m Senior Vice President of Technical Staff for Solutions and Software at Cypress Semiconductor. Welcome to Chapter 8 – the final chapter - of Cypress Academy WICED WiFi 101.

When I teach this class in person, we assign a class project so that students can practice pulling together all the different concepts and skills that are taught in lessons 1 through 7.

You know:

Creating a new project,

Interacting with peripherals using GPIOs and I2C,

Using the RTOS features,

Writing to the display using the U8G library,

Parsing JSON messages,

Connecting to WiFi,

Setting up a connection using TLS security,

and Getting data to and from the Cloud.

For the final project, we have the students design an IoT weather station.

Here is what it looks like when it is completed. The WICED device reads the temperature, humidity, and ambient light from the PSoC on the shield.

In displays the values on the screen along with the name of the IoT thing name and IP address that is assigned to this device when it connects to the network.

It connects to the cloud and sends updated weather information every 30 seconds.

Here you can see what the information looks like on the Amazon Web Services site. The information is shown as a “Thing Shadow” which is just a JSON document.

The user interface uses a mechanical button to send weather information to the cloud when it is pressed so that you don’t have to wait 30 seconds for an update.

The other mechanical button toggles a weather alert that is shown on the display and is also sent to the cloud.

Since we have multiple students in the class, we have each student read weather information for the other student’s stations from the cloud and display the information locally.

The CapSense buttons are used to control which station’s weather is displayed. Button 0 displays the local station’s weather, Button 1 displays the previous station’s weather, Button 2 displays the next station’s weather, and Button 3 jumps forward by 10 stations.

Finally, there is a UART user interface that allows more detailed control. Enter a question mark to see the list of commands. One especially useful command is “x” which will print the current state of all the weather stations that exist.

I’m not going to go through the firmware for this project since we want this to be an exercise for you to practice creating your own IoT solution.

Additional details about the project can be found in the manual for lesson 8.

The solution firmware is provided along with the other exercise solutions, but I would recommend that you attempt to do the project on your own first without looking at the solution to see how well you understood each of the lessons.

In fact, we have a solution using MQTT as well as a solution using HTTP so you can check out both ways of interacting with AWS.

If you do want to try out the solution project, you will have to get your own certificates since we don’t provide the certificates that we use on the class AWS account.

You have now reached the end of the Cypress Academy WICED WiFi 101 class. I hope you enjoyed it and learned a lot about the world of IoT and WICED. As my friends from Boston would say, “It’s wicked cool!”

As always, you can post your comments and questions in our Wifi developer community or you are welcome to email me at alan\_hawse@cypress.com or tweet me @askioexpert with your comments, suggestions, criticisms and questions.