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

Just because it's the final chapter of 101, don't despair, I'll be making more videos about more WICED things in the future.

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

You know:

Creating a new project

Interacting with peripherals using GPIOs, I2C, etc.

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

Getting data to and from the Cloud – remember MQTT, HTTP - yeah, all of that stuff. We like to put it together.

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, and humidity, and ambient light from the PSoC on the shield.

In the displays the values on the screen along with the name of the IoT thing, the IP address that is assigned to the 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.

Remember, we talked about parsing JSON documents in chapter 4.

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

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

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

The CapSense buttons are used to control which weather station’s weather is displayed. Button 0 displays the local weather 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. You can enter a question mark to see a list of all of the commands. One especially useful command is “x” which will print the current state of all of the weather stations that are known to exist.

I’m not going to go through the firmware for this project since we want you to use this as an exercise to practice your skills in building IoT devices.

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 this project on your own first without looking at the solution to see how well you understand each of the lessons.

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

You have now reached the end of Cypress Academy WICED WiFi 101. I hope you enjoyed it and learned a lot about the world of IoT and WICED. It's been an amazing learning experience for me building this material and I'd like to thank a lot of great people including Greg Landry and Vikram Ramana, and Mike Noel and James Dougherty – you guys are great. As my friends in 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. Thank you.