Problem Solving with the Internet of Things and Python

Unit 5 - WiFi Connectivity

CASE WESTERN RESERVE UNIVERSITY | INSTITUTE FOR SMART, SECURE CONNECTED

Lab 9

Intro to Wifi and HTTP

What is Wi-Fi?

You were introduced to Wi-Fi back in Unit 1.

Everyone knows what Wi-Fi is!

Right?

Maybe?

Maybe not...

What Wi-Fi is not.

Wi-Fi is not an acronym. It is not short for WIreless FIdelity or anything else. Wi-Fi was created in 1999 as a brand name to replace "IEEE 802.11b Direct Sequence."

Interbrand, the consulting firm that created the name as a play on "hi-fi", also created the Wi-Fi logo

Wi Fi™

source: https://www.cablefree.net/wireless-technology/history-of-wifi-technology/

Intro to Wi-Fi

A little more about Wi-Fi

Who controls Wi-Fi?

Wi-Fi is really another name for an IEEE 802.11 protocol which refers specifically to wireless local area networks.

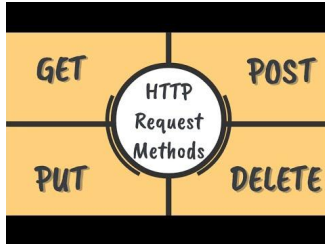The IEEE created and maintains the standards for this protocol.

The first 802.11 protocol was developed in 1997.

Wi-Fi through the years

Wi-Fi 0 : 802.11 (1997)	2.4 GHz	1 to 2 Mbits	*Prior to Wi-Fi 4, Wi-Fi was*
Wi-Fi 1 : 802.11b (1999)	2.4 GHz	1 to 11 Mbits	*not branded by numbers.*
Wi-Fi 2 : 802.11a (1999)	5 GHz	6 to 54 Mbits	
Wi-Fi 3 : 802.11g (2003)	2.4 GHz	6 to 54 Mbits	
Wi-Fi 4 : 802.11n (2009)	2.4/5 GHz	72 to 600 Mbits	
Wi-Fi 5 : 802.11ac (2014)	5 GHz	433 to 6933 Mbit s	
Wi-Fi 6 : 802.11ax (2019)	2.4/5 GHz	600 to 9608 Mbits	
Wi-Fi 6E : 802.11ax (2020)	2.4/5/6 GHz	600 to 9608 Mbits	***FCC opened up a 6GHz band***
Wi-Fi 7 : 802.11ax (????)	2.4/5/6 GHz	40000 Mbits	

After connecting with Wi-Fi

In Lab 9 you will focus on using HTTP as the communication protocol.

More resources

https://learn.adafruit.com/alltheiot-transports/wifi

https://www.cablefree.net/wireless-technology/history-of-wifi-technology/

https://www.cisco.com/c/en/us/products/wireless/what-is-wifi.html

https://www.thoughtco.com/who-invented-wifi-1992663

HTTP Crashcourse