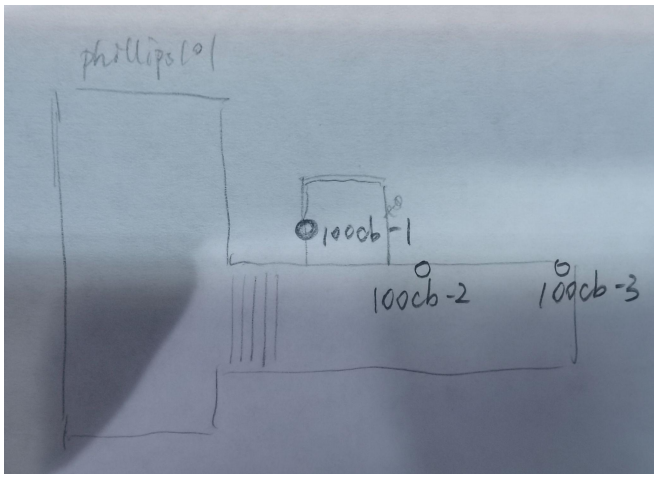
WIFI Mapping

Existing Mapping

This section records the current mapping of the routers' scannable MAC addresses to their physical locations. The table matches the router's name to its scannable MAC address, and the hand-drawn floor plan marks the actual locations of these routers. Note that the MAC addresses are all missing the last digit - which is used to distinguish between the Eduroam, Cornell-Visitor, and Redrover - since we just take an average of the three.

- Phillips 1st Floor

Name	MAC SSID (scan)
phillips-100cb-1-ap	94:B4:0F:E6:60:E
phillips-100cb-2-ap	94:B4:0F:E6:62:0
phillips-100cb-3-ap	94:B4:0F:E6:62:4



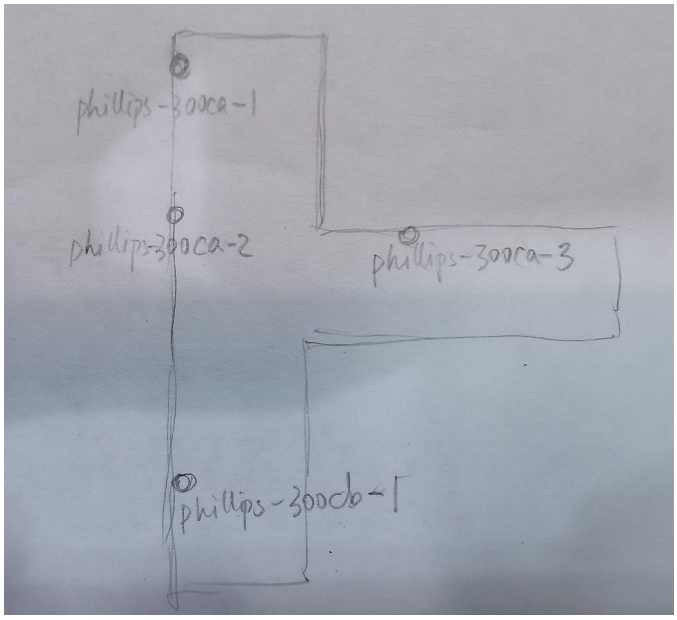
- Phillips 2nd Floor

Name	MAC SSID (scan)
phillips-200ca-1-ap	94:B4:0F:E6:35:A
phillips-200ca-2-ap	94:B4:0F:E6:45:C
phillips-200ca-3-ap	94:B4:0F:E6:44:E
phillips-203-1-ap	E8:26:89:37:9B:8
phillips-219-1-ap	E8:26:89:37:DB:8

phillips-232-1-ap	94:B4:0F:E6:45:E
phillips-236-1-ap	-
phillips-237-1-ap	F0:5C:19:6E:A0:A
phillips-238-1-ap	94:B4:0F:E6:34:E
phillips-239-1-ap	F0:5C:19:6E:74:C

- Phillips 3rd Floor

Name	MAC SSID (scan)
phillips-300cb-1-ap	94:B4:0F:E6:5F:0
phillips-300ca-1-ap	94:B4:0F:E6:47:8
phillips-300ca-2-ap	94:B4:0F:E6:61:0
phillips-300ca-3-ap	94:B4:0F:E6:5E:4



- Upson 1st Floor

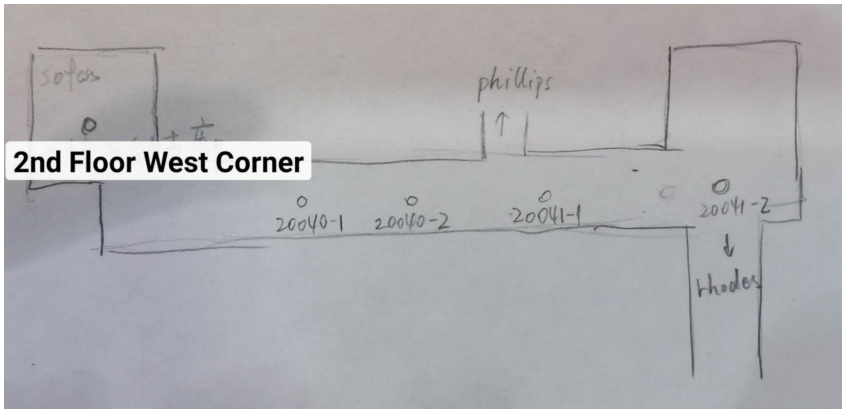
Name	MAC SSID (scan)

upson-10041-2-ap	F0:5C:19:A9:38:8
upson-10041-1-ap	F0:5C:19:A9:5A:8
upson-10040-2-ap	F0:5C:19:A9:31:2
upson-10040-1-ap	F0:5C:19:A9:32:0

The floor plan and router arrangement are the same as Upson 2nd Floor below - just change 2 to 1.

- Upson 2nd Floor

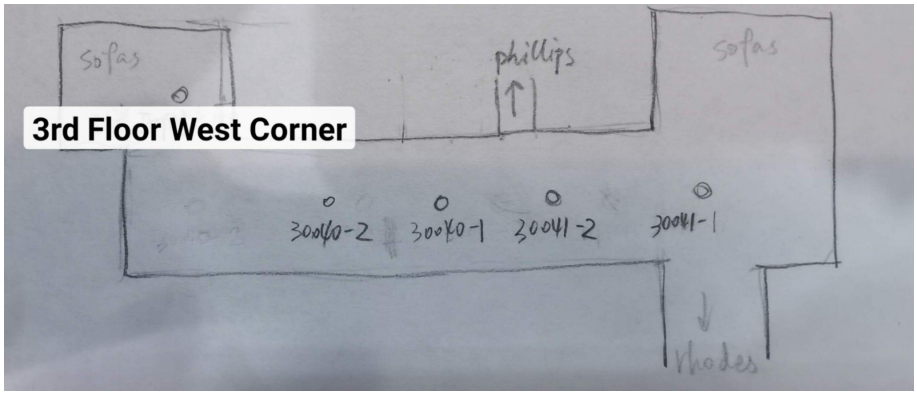
Name	MAC SSID (scan)
upson-20041-2-ap	F0:5C:19:A9:38:8
upson-20041-1-ap	F0:5C:19:A9:5C:A
upson-20040-2-ap	F0:5C:19:A9:59:A
upson-20040-1-ap	F0:5C:19:A9:59:C
upson 2nd floor west corner	F0:5C:19:A9:59:8



- Upson 3rd Floor

Name	MAC SSID (scan)
upson-30041-2-ap	B4:5D:50:83:FE:2
upson-30041-1-ap	B4:5D:50:81:56:E

upson-30040-1-ap	94:B4:0F:E6:62:4
upson-30040-2-ap	F0:5C:19:76:3D:C
upson 3rd floor west corner	AC:A3:1E:05:40:E



Expanding the Mapping

To map some new routers, we will need to stand beneath this router and run the file `WIFI_scanner_map_esp32/WIFI_scanner_map_esp32.ino` on ESP32. This code will print out all the MAC addresses + signal intensity of the routers that the ESP32 can detect, and also if a scanned MAC address is already recognized, this code will also print its name next to the above information, e.g. phillips-239.

Web Server

Currently we are hosting the server at AWS EC2, I put it to run at the background so everyone should be able to access it through this link: http://connect.owendpersonal.com/getLocation. Source code can be found in Github.

To start server, run `sudo python3 app.py`.

app.py receives data from Cart-E and save 10 most recent signals' information (time, strength, MAC address) to different txt file in /signals folder depending on the Cart ID.
When access http://connect.owendpersonal.com/svg_map or http://connect.owendpersonal.com/location, server will run python3 SignalProcess.py. SignalProcess.py reads and parse information from /signals folder and update maps, history table, and a history txt file correspondingly.