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Objective of Project:

To design a system capable to detecting insecure Wireless Networks (Wi-Fi). Findings will be presented on a Map using GPS Locations. (War-driving)

Scope of work:

1. Setting up OS on Raspberry Pi – Jiong Xu
2. Coding Script on Raspberry Pi to scan for Wi-Fi Hotspot – Jiong Xu
3. Coding of GPS Script to pin-point Wi-Fi Hotspots – Jiong Xu
4. Coding Web Application to display results of Wi-Fi Scan – Wen Jie
5. Setting up FTP server to allow communication between Raspberry Pi and Web Application. – Jiong Xu
6. Plotting of Wi-Fi hotspots on a map in Application – Wen Jie

Raspberry Pi Script have to include:

1. Scanning WiFi hotspots (BSSID) and associating it with GPS Location.
2. Placing these in a CSV file for later retrieval.
3. Connecting to a “Home Network” for retrieval of data.
4. Automatic Streaming of Data via FTP for ease of use.

Windows Machine have to include:

1. Google Maps with overlay of Wi-Fi hotspots. (Insecure as Red dots and Secured as green dots)
2. Parsing of CSV file.
3. Always-on FTP server.

Materials required: Raspberry Pi, 8GB SD Card, Wi-Fi Adapter, GPS Receiver.

Future expansions:

1. Store Location of Wi-Fi hotspots with GPS Data into a database. One’s location can then be determined by triangulation of Wi-Fi Hotspots. (Wi-Fi Positioning)
2. Pinpointing of insecure Wi-Fi hotspots, hacking into those hotspots and educate the owners on how to secure the Wi-Fi Hotspot. (Wi-Fi Security and Public Education)