Sustainability Project

Team Three

Safe-House

**The Concept**

One of the principles of sustainability is gender equality.

[graphic of sustainability goals]

And in a gender-equal world, women would be able to live alone if they want.

[selfie photo of me and Bagsy]

And they would be able to do it safely, or at least with a minimum of risk.

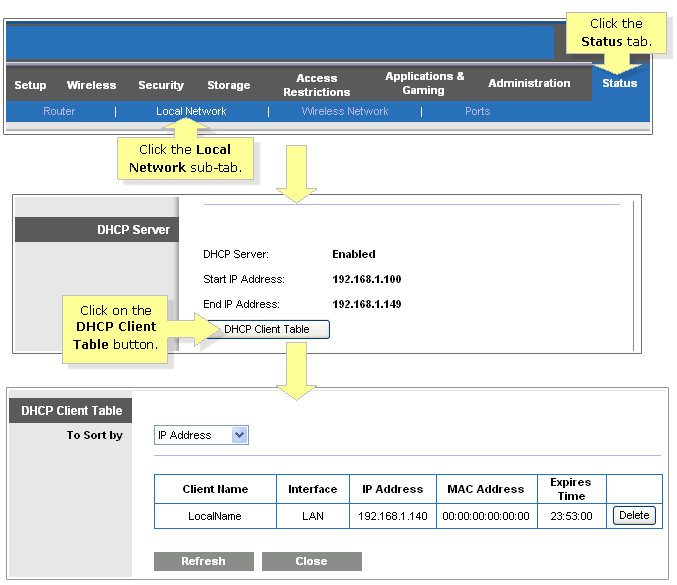
So, what is the biggest risk to women? Statistically speaking[[1]](#footnote-1), it’s the men we know and love, and the ones we don’t love any more.

[graphic?]

What if there were some way to know if someone you used to trust was standing outside your window at 3 o’clock in the morning?

**Well, if his phone in his pocket, your wi-fi router knows. As soon as that sucker automatically connects, he’s busted.**

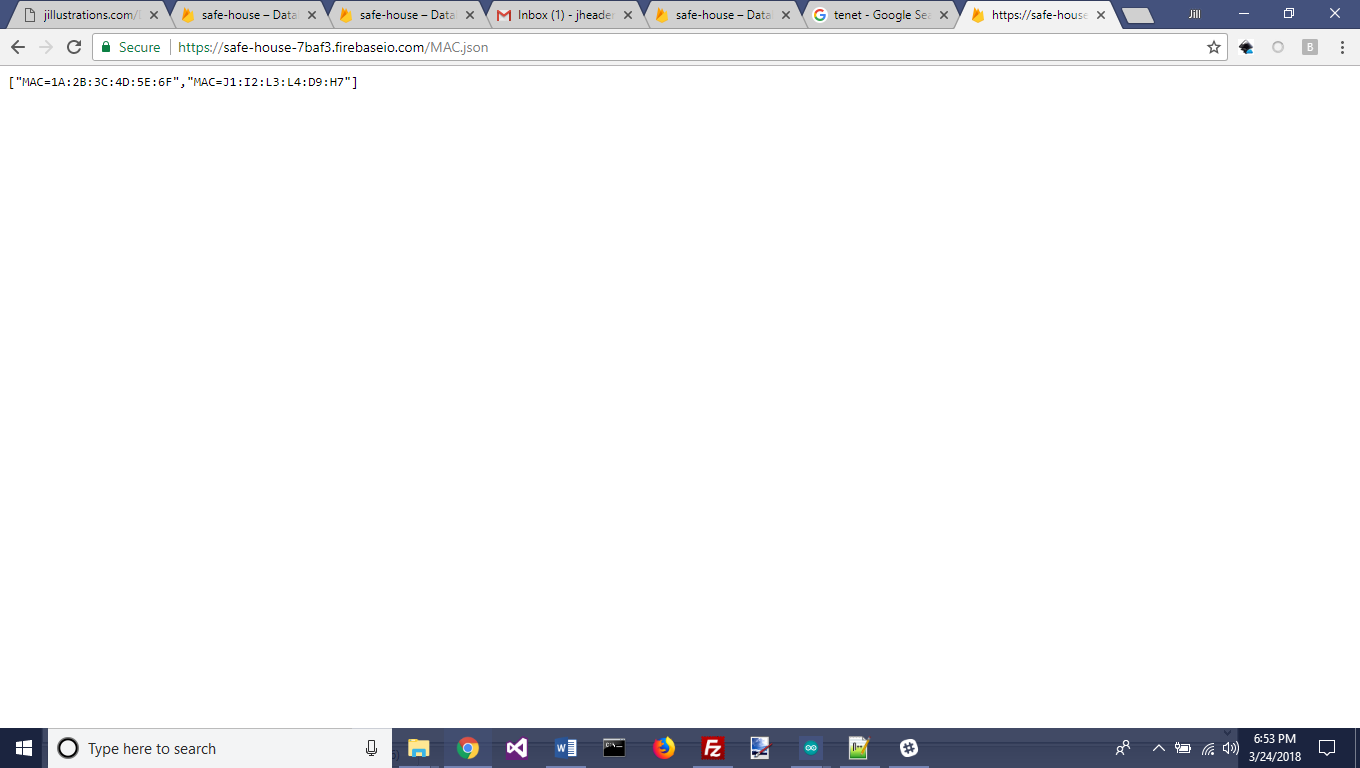
In the real world, we could set up a script to get the MAC[[2]](#footnote-2) addresses from my router’s DHCP[[3]](#footnote-3) client list and then put that information as a payload where the feather HUZZAH can grab it and compare it to a list of “bad guys.”[[4]](#footnote-4)



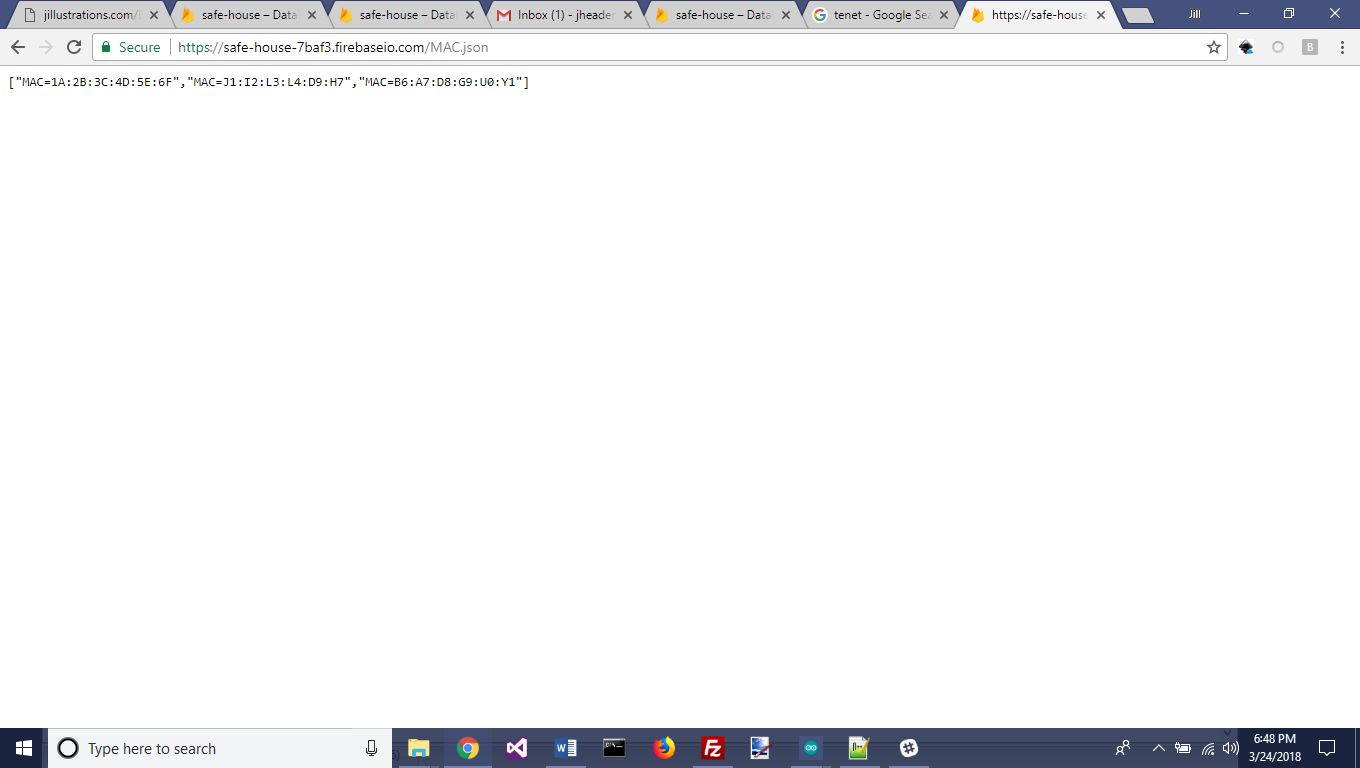
**Taken from: http://cache-www.linksys.com/support/images/KB17346-003\_EN\_v6.PNG**

Of course, we can’t get to this information on Puppet’s wi-fi network, so we set up a web page to simulate that part.

This is a simulation of the payload from a list of my own known devices.



And to simulate what happens if someone awful comes close to my house, there’s a button to add a “Bad Guy” MAC address…



The feather HUZZAH pings the DHCP list, grabs the MAC addresses for every device connected, and if there’s a match between the list of who all is connected and who is listed on the Bad Guy list, Safe-Home lets me know.

Want to see Safe Home?

**[Demonstrate The Thing!]**

She’s right here! She was right here keeping us all safe the whole time and you didn’t even notice her. Pretty perfect, huh?

If that happened at 3am, that would wake me up.

**The App**

We even have the prototype an app.

**Known Limitations:**

* Potential victim doesn’t have a wi-fi router
* Assailant loses/replaces phone, new MAC address is not on the Bad Guy list.
* Assailant knows to turn off the phone’s wi-fi - mitigation: this fact could be captured and submitted later as evidence whatever he did was premeditated.
* Bad Guy’s MAC address is not in “Bad Guy” list because I didn’t capture it when I had the chance – mitigation: write a script to send me a message whenever I give someone access to my wi-fi. MAC address can be associated with contact in my phone.

**Potential Improvements:**

Panic Button

1. According to the Center for Disease Control (CDC): “Homicide is one of the leading causes of death for women aged ≤44 years, and rates vary by race/ethnicity. Nearly half of female victims are killed by a current or former male intimate partner.” Source: https://www.cdc.gov/mmwr/volumes/66/wr/mm6628a1.htm [↑](#footnote-ref-1)
2. Why MAC addresses instead of IP addresses? Because IP addresses can change. [↑](#footnote-ref-2)
3. DHCP (Dynamic Host Configuration Protocol) is a network management protocol used to dynamically assign an Internet Protocol (IP) address to any device, or node, on a network so they can communicate using IP. Source: http://searchnetworking.techtarget.com/definition/DHCP [↑](#footnote-ref-3)
4. Or whoever your archenemies are. [↑](#footnote-ref-4)