

sdmay18-15: Building wireless lab space on a college campus

Bi-Weekly Report 7

April 6th - April 20th

Team Members

- Alec Sauerbrei — *Curriculum Lead*
 - Colin Ward — *Communications Manager*
 - Hope Scheffert — *Documentation Manager*
 - Omar Taylor — *Software Design Lead*
 - Tyler Much — *Physical Design Lead*
 - Dalton Handel — *Networking Lead*
-

Summary of Progress this Report

There has been a lot of progress this reporting period. The final iteration of the faraday cage has been built, with all components securely mounted inside. The cage resides next to the server in the senior design lab, and is powered, connected to the network, and accessible through the Iowa State VPN. Furthermore, multiple tests with the components in the cage resulted in 100% signal blocking for both the cellular and wireless signals. Sources state that a signal has been lost at -110db, and the team has achieved -120db for cell signals and -140db for wireless signals. The components inside the cage can be accessed remotely, and scripts that generate traffic have been made to run on said components. The server is configured with the appropriate VMs.

Pending Issues

The only issue left is phone communication through the SDR. There are issues surrounding the fact that we ordered phones without SIM cards, since that is what we should've needed. After trying to get it to work this way, we are moving to including SIM cards and seeing how that works. The team has sim cards, as well as a reader/writer to configure them as needed.

Plans for Upcoming Reporting Period

Show off our hard work, and finish the project to the best of the team’s abilities.

Individual Contributions

Team Member	Contribution	Week 1 Hours	Week 2 Hours	Total Hours
Alec Sauerbrei	Trying to help set up phones and SDR on server. Poster work and network setup,tracking down materials from	2.5	10	50.5

Senior Design Bi-Weekly Status Report

	client-advisors.			
Colin Ward	Finished the construction of the final iteration of the faraday cage with Tyler. I also conducted multiple tests with both the new sub-cage for the phones and the cage as a whole. Very successful tests which the team is excited about. Many team meetings, and a lot of collaboration on the poster and report.	3	9	53
Hope Scheffert	Mostly documentation work on the Poster, Design Doc, and Final Report. Helped mount components to the cage. Touched up scripts and created a couple of scripts to run on admin VM to begin the traffic generation. Helped with setting up the cage and components.	4	8	53
Omar Taylor	Several group meetings. Physically designed our network. Worked on poster. Configured and troubleshooting networks. Researched options for connecting cell phones to SDR via openBTS.	5	8	48
Tyler Much	Conducted final testing. designed, constructed, and tested final interior sub cage. helped generate graphs for the poster. Worked on poster, worked on network troubleshooting. wrote content for the final report and usage documentation.	4	8	50
Dalton Handel	Configured pfSense as NAT router on server. Configured vSwitches for different VM networks (students, cage devices, NAT). Connected SDR to Server and established communication.	5	9	53