CyWi: Open-Source Wireless Innovation Lab for Smart Ag, AR/VR, and Beyond

Team Number: sddec19-02   **Client**: Dr. Hongwei Zhang   **Faculty Advisor**: Dr. Hongwei Zhang

Team Members

Chenye Lim	Ryan Cullinan
Jian Chew	Shay Willems
Pawel Darowski	Tyler Beder

Dates

October 26 to November 8, 2019

Biweekly Summary

This week we worked further on the installation and set up of Xen Hypervisor. After successfully setting up our host domain on our Linux system, we worked towards installing our guest domains in order to later start installing Emulab.

Furthering research on Emulab brought up questions about the possibility of its use for a *wireless* testbed. Will need to dig deeper and also look at Emulab and PhantomNet as alternatives.

The new attenuator for SDR has arrived. We will be testing them to check whether it fits the signal behavior that we desire.

Accomplishments

- TI motes have figured out how we can program motes in parallel. In order to do it, we need to refer to them by their serial numbers. We were also able to do this using the USB hubs, which will let us use less NUCs.

Pending Issues

- For the TI motes, it has become apparent that we should collect documentation on what we change to use the JSC port on the TI motes. That way, when more motes arrive after we're gone, someone knows what they need to change in order to use an offboard antenna. This

documentation should also include links and descriptions of replacement parts: spare capacitors, JSC to SMA cable, antennas, etc. We also need to test new antennas for the TI motes

● Unable to find a working configuration file to install FreeBSD DomU on Xen Hypervisor. Currently working on writing our own file.

Individual Contributions

Team Member	Contribution	Weekly Hours	Total Hours
Chenye Lim	Testing new attenuators with SDR	15	73
Jian Chew	Testing new attenuators with SDR	8	100
Pawel Darowski	Researched Emulab software for Emulab install. Researched Powder and PhantomNet as possible wireless Emulab alternatives.	8	83
Ryan Cullinan	Researched Zen hypervisor. Installed Linux back on server. Worked on Zen install	20	78
Shay Willems	Attenuator testing	5	54
Tyler Beder	Attenuator testing	5	48

Plan for Coming Week

● Documentation for modifying TI motes to use the JSC port
● Prepare SDR packet delivery rate graph for documentation
● Testing antennas with TI motes