

## 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

March 16 to April 5, 2019

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### Weekly Summary

We spent the first week planning and writing the first draft of our Design Document, which took a lot of time. Also, the first 20 TI development kits have been mounted in the lab so the hardware section of the project is almost complete. We will soon be bringing in two B210 SDRs and mounting them as well, as well as the two NUC mini PCs. The investor presentation was held and went well so we should know if more funding is on the way by July. Our first milestone will be to have basic remote access available to our lab server, NUCs, and SDR/CPS devices before summer break.

The project has come to the point where we are beginning to specialize. We formed three groups to more effectively refine our plans moving forward: Chenye and Jian will focus on the SDRs including OpenAirInterface protocols, Shay and Tyler will focus on the CPS motes including Bluetooth and 802.15.4 protocols, and Pawel and Ryan will focus on the server including the web interface and its other services. We are in the process of selecting a computer to function as our server. As always, we continue to research into our many topics including wireless protocols, hardware, and other existing testbeds.

### Accomplishments

- 20 TI development kits were installed
- Divided into teams to focus on SDRs, CPS motes, and the server
- Refined project roadmap and tasks
- Finally gained access to ORBIT wireless testbed after many hurdles
- Presentation for more investors went well

- Began research on a pc to host our server

### Pending Issues

- More research is needed, especially into OpenAirInterface and LTE/5G
- Need to get server ordered and installed soon
- PC selection to host our server is not as straightforward as selecting the NUC's

### Individual Contributions

Team Member	Contribution	Weekly Hours	Total Hours
Chenye Lim	Requested B210 USRP to be used for testing Researching OAI program to be tested	6	32
Jian Chew	Prepared for POWDER tour for client meeting. Took long time to be able to understand specific features.	10	32
Pawel Darowski	Long hours on the Design Document, finally received ORBIT account approval, troubleshooting POWDER experiments including researching OpenAirInterface and RAN	12	49
Ryan Cullinan	Spent time working on the Design Document. Also started researching into a pc to host our server on.	8	21
Shay Willems	Started researching TI SCC	5	29
Tyler Beder	Started researching TI SCC	5	21

### Plan for Coming Week

- Select a machine for our lab server
- TI SimpleLink lab survey/tests to measure effective communication reliability in our lab setting
- Refine the main ideas and features of SDRs, CPS notes, and the server
- ORBIT and POWDER tour during the next client meeting