

sdmay19-04: Open-Source Prototyping of 5G Wireless Systems for Smart Ag, Autonomous Veh
 Week 8 Report
 November 3 - November 9

Team Members

Anthony Benson — *Chief Engineer: OAI Simulations*

Hye-Sung Moon — *Chief Engineer: Hardware Systems/SUMO Simulations, Client/Adviser Liaison*

Jaime Zetina — *Engineer: Hardware Systems Testing, Report Manager*

Jared Gorton — *Engineer: Software Systems Testing*

Khanh Luu — *Chief Engineer: SUMO Simulations, Client/Adviser Liaison*

Ted Miller — *Engineer: Software Systems Testing, Meeting Scribe*

Summary of Progress this Report

- 1) We completed the OAI installations with the new software requirements.
 - a) We have completed cloning repository of OAI, Installing the new features; USRP Driver, eNB+USRP, eNB+ETHERNET, Unitary L1 simulations, OASIM, OpenAirInterface System Emulation.
- 2) We met with Yuwei. He has helped us start simulations.
- 3) We are working towards running SUMO simulation software with Ubuntu to import urban maps of Ames IA.
- 4) Our meetings have been geared towards the implementation of the PRKS and CPS over OAI.
 - a) Discussing the PRKS, UCS, and CPS algorithms and our mission to manipulate them to work over OAI for our purpose of prototyping a 5g network.
 - b) We continue to study PRKS, UCS, and CPS principles and concepts to design our algorithm.

Pending Issues

- 1) Understanding PRKS, specifically the principles of the parameter (K). This Parameter is a key element to our research.
 - a) This is the ability to govern communication in order to provide the highest reliability within a highly congested environment. In said environment there is a high probability of co-channel and co transmission interference.
- 2) Understanding hardware that is to implemented (SDRs).

Plans for Upcoming Reporting Period

- 1) Reviewing pending issues and resolve pending issues

Individual Contributions

Team Member	Contribution	Weekly Hours	Total Hours
Anthony Benson	Got OAI and SUMO fully installed and simulations working. Went over CPS paper again trying to understand it in more depth. Attended group meetings. Started looking at existing design document and project plan finding parts that need revision.	10	69

Hye-Sung Moon	Meeting with PhD student Yuwei and get help to install OAI algorithm and running. Reading UCS(Unified Cellular Scheduling) paper. Successfully installed OAI and SUMO over ubuntu 16.04 LTS.	20	108
Jaime Zetina	Collaborated with PhD student Yuwei to complete initial install of OAI software. We will continue to work with Yuwei to derive the algorithm needed. Reading UCS, PRKS, CPS paper. Successfully installed OAI and SUMO over ubuntu 16.04. Was able to simulate an operating base station (eNB) and user equipment (UE) over OA.I Together with team members, we have worked on design docs. present for team meetings and meetings with our advisor / client.	16	100
Jared Gorton	Group meetings, worked over details of PRKS and CPS papers, discussed possible project details/routes with group, finished installing and running OAI to simulate base station and UE nodes.	10	68
Khanh Luu	Finished setting up OAI on Ubuntu 16.04.02. OAI could run both UE and eNB on virtual machine, encounters some errors due to the limitation of hardware and software. Group meeting, working on Functional and Non-functional testing on Design Document V.2	10	70
Ted Miller	Worked on getting OAI set up for Ubuntu 16.04. got it running using both the UE's and eNB's for the simulator. Went to both of the group meetings during the week and took meeting minutes. Read the CPS paper and looked into ways to get the CPS algorithm working with OAI.	11	96

Gitlab Activity Summary

Nothing to report.
