EE/CprE/SE 491 WEEKLY REPORT 04

10/19/2019 – 11/1/2019

Group number: ***sdmay20-36***

Project title: ***Open-Source Prototyping of 5G Wireless Systems for Unmanned Ground and Aerial Vehicles***

Client &/Advisor: ***Hongwei Zhang***

Team Members/Role:
Andrew Eschweiler – *Algorithm Dev.*
William Byers – *Algorithm Dev.*
Nathan Whitcome – *OAI Integration Dev.*
Samuel Stanek – *OAI Integration Dev.*
Ibrica Tutic – *Project Manager*
Nicholas Lorenz – *Quality/Performance Analyst*

- **Weekly Summary**
  - *We spent most of the week trying to run OAI as it is installed to get an understanding of the build procedures for the simulator. There are many different possible configurations and the documentation is fairly version specific, meaning that the same general steps don't work across versions. We have members looking at how to run OAI and others looking at the SUMO/OAI integration so we can try to get everything working at around the same time.*

- **Summary of Weekly Advisor Meeting**
  - Did not meet with advisor this week. We were instructed to continue progress according to the road map (OAI/SUMO integration primarily).

- **Past week accomplishments**
  - **Ibro:** Worked on CPS algorithm analysis, looked at SUMO/OAI integration via sockets and worked a little bit on trying to get OAI to build.
  - **Will:** Found UE MAC layer location in code repository. Began switching gears to help get OAI up and running.
  - **Nathan:** Installed Ubuntu on a flash drive for local testing and worked on getting OAI and SUMO installed.
  - **Sam:** Created a virtual machine with ubuntu on personal machine and installed OAI on it. Looked into code repository to learn more about integrating SUMO.
  - **Drew:** Successfully installed Sumo and looked into traffic files for Ames. Also will setup OAI on a virtual machine
  - **Nick:** Spent time working on figuring out how to find the power usage of the cynet from the amount and strength of signals being sent out.
- **Pending issues**
  - OAI still not running, most of the team is working on trying to get it working.
  - SUMO/OAI integration can't be tested until OAI is running
  - New algorithm is still in the works, instructed to work on CPS for the time being

- **Individual contributions**

Name	Individual Contributions	Hours this period	Hours cumulative
Andrew Eschweiler	Installing Sumo and setting up a VM for OAI	6	43
William Byers	Located UE MAC Layer	10	51
Nathan Whitcome	Installing Ubuntu and OAI	8	47
Samuel Stanek		5	46
Ibrica Tutic	Building OAI, SUMO TraCi client interconnect with OAI. CPS algorithm analysis	17	64
Nicholas Lorenz		5	47

- **Comments and Extended Discussion**

  Whole team working on OAI for the most part. Almost all work except research is blocked until OAI is functioning and there is communication between UEs/eNBs. OAI has version specific instructions that is making it difficult to find any guides on how to use it with our version. This problem is exasperated by the fact that the current version of OAI is different from the version we are using from 2 years ago, so the current documentation doesn't apply.

- **Plans for the Upcoming Period**
    - **All:** Continue working on getting OAI running. This is currently blocking any future work aside from research.
    - **Ibro:** Continue looking at OAI/SUMO integration as well as how nodes get positional data from SUMO. Also going to work more on getting OAI working altogether, since it is blocking a lot of work.
    - **Will:** Assist in getting OAI up and running. Planning on writing a shell script on team server that way command sequences are recorded and accessible to entire team. Begin algorithm development of CPS if OAI is figured out.
    - **Sam:** Install SUMO on virtual machine along with OAI. Try to compile and run OAI.
    - **Nathan:** Try to get OAI to compile. Figure out what data we want from SUMO so I know what data to pipe out.
    - **Drew:** Install OAI 0.5.2 onto a VM and begin debugging to get it to work.
    - **Nick:** Work with the rest of the team getting the OAI running in any way that I can. Continue looking at the power consumption of the cynet network.