EE/CprE/SE 491 WEEKLY REPORT 06

11/15/2019 – 12/1/2019

Groupnumber: ***sdmay2036***

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**

  The simulator has been moved over to v1.1.1 and the gitlab repo has the new version of the new simulator. Work has begun to move over the code for physical layer abstraction from OAI v.5.2 and to integrate SUMO into the same place. OAISim was the layer of OAI .5.2 that controlled the positions of the UE and the physical layer abstraction to an extent, so porting this code over will be the basis of including that functionality in v 1.1.1.

- **Summary of Weekly Advisor Meeting**

  Did not meet with advisor.

- **Past week accomplishments**
  - **Ibro:**
  - **Will:** Finished OAISIM documentation. Determined with Ibro that it will be better to do our own port of PHY abstraction layer.
  - **Nathan:**
  - **Sam:** Looked into TraCI with sumo to create a python script that runs sumo as a server and returns the info needed in real time. Looked into creating a C client instead of python, but there are not any TraCI libraries that support C.
  - **Drew:** Installed the correct VM.
  - **Nick:** I attempted to get my power software on a device to test it properly.
- **Pending issues**
  - Potential OAI physical layer (oaisim) porting from v.5.2 to v1.1.1. This is another teams work. Running OAI successfully still hasn't been done yet.
- **Individual contributions**

Name	Individual Contributions	Hours this period	Hours cumulative
Andrew Eschweiler		8	55
William Byers	Finished OAISIM Documentation	10	66
Nathan Whitcome	Worked on getting OAI v1.1.1 working on a virtual machine	8	60
Samuel Stanek	Created a python scripts that runs sumo in server mode and returns a live feed if info.	12	64
Ibrica Tutic	OAI v1.1.1 installed on Ubuntu 16.04 with low latency kernel. Began porting OAI Sim to v1.1.1.	14	93
Nicholas Lorenz	Worked on getting my power software installed on a testbed.	6	53

- **Comments and Extended Discussion**
  - Work is still being done on moving the physical abstraction layer code over to v1.1.1. This is needed for full scale simulation and validation in OAI. This work includes some of the work of another senior design group, however, they aren't progressing as fast as needed, so we will need to port this over ourselves to begin developing the algorithm and verifying it works correctly.

- **Plans for the Upcoming Period**
  - **All:** Continue work on porting physical layer simulation layer over to v1.1.1. Work on SUMO server/client interface. Work on managing UE node locations using x,y coordinates of structs in the code.
  - **Ibro:** Work on linking build_oai script with new –oaisim flag to mimic behavior found in v.5.2 of OAI. Once this has been linked, integration of other people's roles can be added to the OAISIM file (SUMO code and physical layer abstraction).
  - **Will:** Optimize scripting flow for OAI setup. Assist Ibro on port of OAISIM. Stretch goal is to begin algorithm implementation if team feels we are at a place we can do that.
  - **Sam:** Continue working on connecting sumo to OAI using the TraCI client script. Start looking into where in OAI this information is needed to complete the connection between the two programs.
  - **Nathan:** Finish getting OAI and TraCI working. Run some more tests with OAI and see if I can make some simple programs that utilize OAI.
  - **Drew:** Get OAI and TraCi installed and working on the correct VM.
  - **Nick:** I will continue trying to test my power software.