

EE/CprE/SE 491 WEEKLY REPORT 11

03/16/2020 – 04/05/2020

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

The development of the preliminary design for the algorithm CPS-V2X is nearing completion. Some new information from the original algorithm documents is being included. The CI/CD server is being held up by not having a machine with sufficient memory, and ETG has been slow to respond due to the virus. We did not make as much progress as we'd hoped to on the visualization of the SUMO data, but as we figure out workflows and adapt to the changes this will not be a continuing issue. EPC is up and running, but needs SIM identification registered to HSS database to authenticate communication between UE and eNBs.

○ Summary of Weekly Advisor Meeting

Remaining effort was broken down and given deadlines for each task. We discussed potential solutions for the CI/CD server since we may not be able to rely on a solution from ETG. Our advisor would like to see the algorithm and simulator to get up and running soon so that we can begin the verification process.

○ **Past week accomplishments**

- **Ibro:** Configured EPC and began registering HSS database information with SIM information from UEs. Ran and built the UE/eNBs on a single machine. Need to physically connect UE/eNB machine with the EPC to get full communication.
- **Will:** Revisited Analysis and Comparisons of the algorithms after realizing there was pseudocode in the documents detailing them. Began carrying over new information into preliminary design plans.
- **Nathan:** Haven't done as much work as usual due to the virus and having to move back home, but have learned more about visual C++ programming and worked on creating a GUI some more.
- **Sam:** Individual did not report accomplishments for report period
- **Drew:** Individual did not report accomplishments for report period
- **Nick:** Individual did not report accomplishments for report period

○ **Pending issues**

- Virus outbreak is causing a lot of change, requiring adaptation and evaluation of resources.
- Need a system capable of running CI/CD implementation

○ **Individual contributions**

<u>Name</u>	<u>Individual Contributions</u>	<u>Hours this period</u>	<u>Hours cumulative</u>
Andrew Eschweiler	Individual did not report contributions	??	78
William Byers	Revisited Analysis and Comparisons of Algorithms	10	112
Nathan Whitcome	Worked on visual C++ program	8	91
Samuel Stanek	Individual did not report contributions	??	106
Ibrica Tutic	Worked on simulator setup, EPC config, building UE/eNBs. Talk to ETG about VM for CI/CD system.	11	152
Nicholas Lorenz	Individual did not report contributions	??	68

○ **Comments and Extended Discussion**

Over spring break the server we are running OAI on went down (or there was a network issue) and we were not able to access it to test at all. Because of the virus, we were not able to go in and debug it ourselves, so we had to wait on the ETG to help us out. There was an underlying network issues in the senior design lab that caused our server to be inaccessible for a few days.

○ **Plans for the Upcoming Period**

- **All:** Continue on breaking down tasks and accomplishing things weekly, stay on timeline posted on Trello cards for individual work.
- **Ibro:** Finish registering SIM information with HSS database, connect UE/eNB systems with EPC for communication test
- **Will:** Finish all analysis, comparison, and preliminary design of new algorithm. Meet with advisor to finalize preliminary design.
- **Sam:** Individual did not report plans for upcoming period
- **Nathan:** Get back into working on the project more and get the program to a point where it can show some basic information.
- **Drew:** Individual did not report plans for upcoming period
- **Nick:** Individual did not report plans for upcoming period