sdmay18-34: Integration of personnel tracking in an Augmented reality environment

Week 7 Report
October 30 - November 5

Team Members

Logan Highland — *QA Lead*
Chandler Chockalingam — *Project Manager*
Christopher Stapler — *Report Manager*
Josua Gonzales-Neal — *Chief Engineer*
Jason Ramirez — *Software Architect*
Victor Da Silva — *Chief Engineer*

Summary of Progress this Report

For this reporting period, we continued down the path of gathering Channel State Information using the Intel 5300 in one of our personal laptops and a laptop provided by Dr. Qiao. Member worked independently and collaboratively to work throw the issues related to using the Linux 802.11n CSI Tool. As we have run into many issues so far related to gathering Channel State Information, we have decided to look into RSSI-based localization more closely as a secondary means to localize and track personnel. In addition, this week we made changes to our project plan to represent the changes in direction that our project has taken along with the required information that we left out in the previous project plan version.

Pending Issues

We still have not been successful in our attempts at gathering CSI. On one laptop the issue we are facing is that we are unable to log any channel state information between open and unencrypted networks thus far. With the other laptop, we are still unable to install the Intel 5300 card since the bios is rejecting the card and we have been unsuccessful in updating the bios.

Plans for Upcoming Reporting Period

Next reporting period we plan to have overcome some of the obstacles we have been facing regarding CSI. This will hopefully include seeking help from some ECE graduate students that have previously worked with the 802.11n CSI Tool. Furthermore, we would like to demo WiFi triangulation using RSSI to analyze its potential as the primary means of localization for our tracking solution.

Individual Contributions

Team Member	Contribution	Weekly Hours	Total Hours
Logan Highland	Worked remotely on updating project plan to show changes to the project description. also switched research area from CSI to RSSI to use as a backup plan.	4	35
Chandler	Worked on project plan including making a	5	33

Chockalingam	Gantt chart and completing other sections, performed other project management tasks including working with the team to update the Trello board. Looked into RSSI alternative solutions to CSI.		
Christopher Stapler	In order to streamline the process of gathering CSI, I installed the Intel 5300 into my laptop. For the CSI Tool to work it needs a specific version of the Linux kernel. As I was unaware what versions of the Linux kernel was available. I had to install different Linux oses multiple times as I first tried the current version of Linux Mint, then Ubuntu 14.04.5, and finally Ubuntu 14.04.4. Once I had the correct Linux kernel version I later had problems attaching the modified driver to the kernel. At first, I thought there might have been an issue with the compilation process, however, searching for the error I found that it had to do with the fact that secure boot was enabled. After I disabled secure boot. I was able to install the modified driver but now am currently running into the problem that I am not able to make an 802.11n connection that leads to the logging of CSI.	10	44
Josua Gonzales-Neal	Worked on getting a new pc for the Intel 5300 Wifi chipset. Created a cheap solution for testing that is at $100. Looked at other options that would work for the chipset such as a low-cost laptop.		30
Jason Ramirez	Trying to install Windows XP on Dr. Qiao's laptop. Then trying to install bios update on laptop as well.	4	36
Victor Da Silva	Worked on installing LibreBoot. Researched RSSI and CSI. Learned about different methods of using RSSI triangulation and began implementation of bash script to take in RSSI values from different access points to find approximate locations.	5	33