

sdmay18-34: Integration of personnel tracking in an Augmented reality environment**Week 3 Report**

February 26 - March 9

Team MembersLogan 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*

Bi-Weekly Summary

In this reporting period we worked on further improvements to the tracking system in regards to precision. Team members worked to implement a Kalman filter for rssi estimation to smooth and reduce noise of the system. Headway was made on the HoloLens team with the first real deployment of the application to the HoloLens and not just the emulator or unity. Next report there should a connection made and tested with the HoloLens to the rest of our system.

Past Week Accomplishments

- Hololens Team - Josua and Victor:
 - Able to put the 3D assets in the AR space. Random movement of AR avatar along the 3D map.
 - Created a UI Scene with cursor functionality. Hand Gesture integration working.
- Services Team - Chandler and Jason:
 - Finished writing code for Save User Location microservice
 - Wrote test code for Save User Location microservice
- Tracking Team - Chris:
 - Implemented Kalman filter for smoothing rssi values and reducing noise.
 - Tested bluetooth tile for presence detection purposes.
- Floater - Logan:
 - Found attachment for token to be worn on belt.
 - Starting watching videos on hololens development to try to switch over and help the hololens team.

Pending Issues

- Hololens Team - Josua and Victor:
 - Figuring out socket connections in Unity
 - More viable login screen
 - Integrating real map with the practice map that is currently in use
- Services Team - Chandler and Jason:
 - Creating plan for the rest of the semester
 - Finishing the admin-data service along with the admin data website
- Tracking Team - Chris:
 - Need to determine a good library for interfacing with bluetooth chip in python, tested methods have not been effective in determining if the device is a tile and the device's id.
- Floater - Logan
 - Have a lot of catching up to do to be of value to hololens team.

Plans for Upcoming Reporting Period

- Hololens Team - Josua and Victor:
 - Josh: Geofencing the 3D map asset, database options for Unity or through Services, dashboard basics
 - Victor: Socket connection solution if possible. Once socket connection is made. Have the 3D personnel moving according to input that is coming in every few seconds. Update the UI with specific assets that are currently being made.
- Services Team - Chandler and Jason:
 - Chandler: Execute test code for Save User Location service using personal laptop as server
 - Jason: Testing base station corrective service with simulations
- Tracking Team - Chris:
 - Add to tracking code running on Raspberry Pi to determine if tile is around using python bluetooth apis.
 - Work with Jason to implement a solution for dynamically calculating the pass law constant.
- Floater - Logan

- Continue researching hololens development, hopefully start to be able to read and debug code to help with QA.

Individual Contributions

Team Member	Contribution	Hours per Bi-weekly period	Total Hours
Logan Highland	Found attachment for token. Started researching hololens development	6	24
Chandler Chockalingam	Wrote code for Save User Location microservice, wrote test code for microservice	6	32
Christopher Stapler	Implemented Kalman Filter on tracking service client side with the help of Jason who had worked with the filter before. Tested tile with manual look up of bluetooth id and bluetooth rssi values to determine if there was a nearby tile.	10	37
Josua Gonzales-Neal	Organized and fixed git issues with Unity, helped victor with future plans, and created calendar for objectives	8	20
Jason Ramirez	Worked with Chris to implement kalman filter. Worked on documentation for the project to give to investors.	5	36
Victor Da Silva	Created a UI Scene with cursor functionality. Hand Gesture integration working.	9	30