sdmay18-34: Integration of personnel tracking in an Augmented reality environment
Week 2 Report
January 27 - February 9

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*

Bi-Weekly Summary

During this reporting period our team pushed to get working demo of our current tracking system working for a few raspberry pis in the atrium of Durham hall. We were able to perform this demo, which showed we have the infrastructure in place, however, we need to work on the precision of our tracking system. Continuing on we will work towards integration between the work of our three different teams to be closer getting a working version of the Hololens personnel tracking system ready for our client.

Past Week Accomplishments

- Hololens Team - Josua and Victor:
    - Created a proof of concept that the Maps API and Hololens can be integrated together. Demonstrated Hololens app that displayed map of San Francisco.
    - Learned how to create a custom map using MapBox API
    - Talked with client about creating a custom 3d map asset for importing into Unity

- Services Team - Chandler and Jason:
    - Tracking-Cluster skeleton back end working with tracking token.
    - Built services to save AP data

- Tracking Team - Chris:
    - Completed full integration of raspberry pi code with multilateration service
    - Worked with Services Team to get a working demo setup for client and advisor

- Floater - Logan:
    - Understanding specifications for admin AP registration webpage. Starting creation of webpage, meeting about requirements and API information.

Pending Issues

- Hololens Team - Josua and Victor:
    - Using MapBox API has been a challenge to convert the map object to a visible object in AR space. Currently in contact with client's co-founder to create a 3D map for the Unity / HoloLens application.

- Services Team - Chandler and Jason:
    - Getting Websockets to work on server.
    - Testing data for multilateration service

- Tracking Team - Chris:
    - Need to find best way to configure raspberry pis simultaneously between multiple instead of individually.

- Floater - Logan
    - Initially was requiring user input to get mac addresses, Cisco has informed us they have an AP that will send that data as well as other information, so webpage will change based on that.

Plans for Upcoming Reporting Period

- Hololens Team - Josua and Victor:
    - Josh: Upcoming plans are getting the MapBox to an AR ready object with a demo-able view on the HoloLens. Using the client's co-founder's objects and deploying to HoloLens. Getting more UI and functionality for the Map.
    - Victor: Import 3-dimensional objects (map, personnel, etc...) into Unity and begin developing C# code in order to control the objects. Bring up different screens for log in and viewing. Get drag and drop functionality working for the 3d map.

- Services Team - Chandler and Jason:
    - Chandler: Implement service to save user's location data in Python
    - Jason: Get hololens working with the back end services. Finishing the admin-data service. Get testing data from multilateration service.

- Tracking Team - Chris:
    - Configure the access points given to us by advisor and set up a preliminary testing environment in area allocated for testing. Look into using ansible to quickly deploy source code to raspberry pis. Determine if tile has an open api for usage with

raspberry pis to determine if personnel is where their PPE.

- Floater - Logan
    - Meet with Cisco to determine API's needed to register AP's in our system, as well as get information about the AP's. Finish creating website, start talking with hololens and services team and work with backend on that.

Individual Contributions

Team Member	Contribution	Weekly Hours	Total Hours
Logan Highland	Understanding specifications for admin AP registration webpage. Starting creation of webpage, meeting about requirements and API information.	6	14
Chandler Chockalingam	Finished up the Multilateration Service to process RSSI values and AP info. Tested the multilateration service for the demo we gave to our client and advisor.	6	16
Christopher Stapler	Worked on setting up a demo of the integration of tracking team work with services team. Further improved python code that runs on raspberries pis to scan and send fingerprints	6	17
Josua Gonzales-Neal	Using APIS installed to create a augmented reality object. Went through setting of the MapBox API, learned more about HoloLens features that can be used for the project..	6	12
Jason Ramirez	Built, tested and deployed token-login service Built, tested and deployed token-data-entry service skeleton Built, tested and deployed the admin data with the ability to add, read and delete AP Data Worked on getting socket-routing up and running on GCP, ended up deploying to heroku	6	11
Victor Da Silva	Hololens Unity environment setup Hololens Emulator setup Tutorial and learning programming gestures, cameras, voice, and spatial mapping	6	13