sdmay18-34: Integration of personnel tracking in an Augmented reality environment
April 9 - April 20

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

For this last reporting period, our team worked improve the accuracy of our WiFi rssi based tracking system and making the HoloLens application useable. The team spent much time at the ISU Startup Facility to test our system using the Industrial access points installed by our client in the parking lot. We have made improvements to accuracy through different means such as multiple tokens placed on users body, the use of a token for dynamically calculating the path loss constant and implementing the narrowing down of APs used in the multilateration algorithm based signal strength.

Past Week Accomplishments

- Hololens Team - Josua and Victor:
    - Communication from Services to Unity Application
    - Updated the textures of map and building
    - Created Get Request communication between Unity and Services Back-end
    - Worked on various Hololens prefabs

- Services Team - Chandler and Jason:
    - Worked on integrating admin data service with admin website
    - Updated base correcting service to incorporate new base station design
    - Updated Simulation to incorporate a path for the personnel to walk along
    - Worked on poster
    - Made progress on final report document

- Tracking Team - Chris:
    - Configured Raspberry Pi to work with USB GPS
    - Worked with services team to improve accuracy of tracking system
- Floater - Logan:
    - Finished up website
    - Testing with team
    - Working on final document

Pending Issues

- Hololens Team - Josua and Victor:
    - Getting HTTP request to work on Hololens
    - Finishing Documentation on Front-end portion of project

- Services Team - Chandler and Jason:
    - Finishing Documentation

- Tracking Team - Chris
    - N/A
- Floater - Logan
    - Getting website working with services

Plans for Upcoming Reporting Period

- Hololens Team - Josua and Victor:
    - Josh: Helping fix HTTP stuff, trying to get Spatial Mapping to work, work on final report / presentation / poster.
    - Victor: Continuing work with HTTP Requests and integration with Hololens. Putting all of the different scenes together for the Hololens. Creating video with explanations and documentation.

- Services Team - Chandler and Jason:
    - Chandler: Make more progress on final report, prepare final presentation and demo, prepare demo for Optical Operations' potential investors
    - Jason: Complete final report and final presentation. Gather data for final demo

- Tracking Team - Chris:
    - Continue work documentation and instructions related to the use of Raspberry Pis for client
- Floater - Logan
    - Finishing report and presentation

Individual Contributions

Team Member	Contribution	Hours per two week period	Total Hours
Logan Highland	Working on website, and documentation	30	80
Chandler Chockalingam	Worked with Logan on integration of database storage into admin website, worked on poster, worked on final report document, supported system testing	9	65
Christopher Stapler	Worked with Jason to implement Base Station token to calculate which utilizes a usb gps to itself. Fixed issues with the bluetooth beacon presence detection module the tracking code. Added scripts to pi for faster running of tracker application. Worked on step by step instructions for setup of tracking service on Raspberry Pi.	20	85
Josua Gonzales-Neal	Worked with Victor to get HTTP request calls working on Unity, worked on Spatial Mapping imports / some implementation, and worked on poster.	15	55
Jason Ramirez	● Worked with Chris base station code for raspberry pi ● Worked with Josua and Victor to change websockets to http requests ● Finished Service for base-correcting ● Updated Simulation to incorporate a path ● Updated testing interface to view a path, the access points and the average of all tokens on Google Maps ● Finished testing admin-data service ● Did outside testing with Chris (brr, cold) ● Finished rough draft of “Design” section of the final report	30	101
Victor Da Silva	● Changed websocket requests to HTTP Get Requests ● Worked on Documentation and Reports ● Hololens User Interface Work ● Hololens prefab work	25	82