

EE/CprE/SE/CybE 491 Period Report

10/19/2019 - 11/01/2019

Group number: sdmay20-53

Project title: Smart Backpack Sprayer for Small-scale Agriculture Applications

Client &/Advisor: Tim Andersen, Taylor Greiner, and Daji Qiao

Team Members/Role: Madison Kriege, Sean Doran, Kevin Davis, David Hayes, Shuangquan Li, Donald Laracuenta

Period Summary

Our goal for this two-week timeframe was to further our hardware testing and begin working on iOS and API components of the project. The mobile app now has basic functionality and can be demoed on an actual device. Similarly, the hardware and API teams can gather and use data of single sensors. They are working toward combining them into a single object moving forward.

Past Period Accomplishments

For the past two weeks, we have made significant strides in our respective teams. The hardware team has become further acquainted with the new equipment and has been able to get accurate data from the compass and flow sensors. Additionally, they have done further testing on the GPS retrieval system and increased their overall accuracy. The API team has continued to familiarize themselves with Mapbox. API created a base map for testing data collection and is ready to transmit data. Finally, the software team has finalized the login and sign out the functionality of the app and have the central foundation complete.

Pending Issues

Hardware Team: The Bluetooth module is less user-friendly than originally anticipated and has led to some project difficulties.

Individual Contributions

Name	Individual Contributions	Hours this period	Hours cumulative
Madison Kriege	Integrated Firebase with XCode project, implemented tabbed view for storyboard and created	16	62

	viewController files, began work on client profile view		
Sean Doran	Started implementing the Mapbox API and created base map layout. Created example datasets. Looking at how to get data from GPS into Firebase Firestore.	16	62
David Hayes	Worked on formatting the data received from the sensor to send to the iOS and API team	15	62
Kevin Davis	Worked on testing accuracy of sensors - including flow meter, gps module, compass. Began to look at how to display compass/directional data.	15	62
Shuangquan Li	Implemented mobile application's login view and set up the text field to acquire user information and corresponding controller files. Implemented mobile application's sign up view and corresponding controller files, implemented the swipe gesture recognition for retrieve the keyboard. Adjusted the user interface using autolayout, working fine for all iOS devices.	16	62
Donald Laracuenta	Worked on design documents such as Screen Flow diagram and architecture diagram.	15	62

Plans for Upcoming Period

In the next two week period, the hardware team is hoping to finalize data transmission with the Bluetooth module and begin combining the data into one package. The API and Mobile teams will be combining slightly to work on the three main pages of the iOS application. Mobile will complete the profile and data view sections, and the API will handle the map page with Mapbox

integration.

Summary of Advisor Meeting

It was on Halloween; we got candy and cookies. The breakout teams demoed their components individually to our advisor and showed how everything was progressing. Most of the demo worked as expected; however, the GPS sensor was not working. Our advisor seems content with our project progression.