

EE/CPRE/SE 492 - sdmay19-29

Automating Inventory Management & Routing through Sensor Networks

Week 5 Report

2/26/19 - 3/4/19

Client: Jimmy Paul

Faculty Advisor: Goce Trajcevski

Team Members:

David Bis - *Meeting Facilitator*

Hanna Moser - *Meeting Scribe*

Adam Hauge - *Report Manager*

Sam Guenette - *Public Relations*

Ben Gruman - *Resource Acquisition*

Noah Bix - *Documentation Manager*

Past Week Accomplishments

This week, the team members worked together over Skype to continue improving on several aspects of the project. Significant progress is being made on the routing system as well as the networking and sensing aspects of the project.

- **Raspberry Pi Startup** - Adam
 - Wrote several more scripts to improve the necessary Raspberry Pi startup process on boot
- **Raspberry Pi LCD Screen Attachment** - Adam
 - Researched LCD use with Raspberry Pi [here](#).
 - Connected a small LCD screen to the Raspberry Pi's GPIO ports
 - Screen displays Raspberry Pi's IP address
 - Screen notifies user when it is ready to begin accepting connections with the sensor modules
 - LCD Screen can be used versitally with any other python script
 - Will be beneficial for testing and implementation purposes later on in the semester
- **Raspberry Pi Testing and Implementation Notifications** - Adam
 - Raspberry Pi now alerts the user when the necessary server scripts are running correctly
 - The Raspberry Pi can start making client connections without the use of a monitor and HDMI cable
- **Review Routing Algorithm logic** - Sam, David
 - Reviewed implementation plan for Clarke-Wright Savings algorithm for route planning
 - Explored potential solutions for implementation of algorithm into project
- **Mapping API research and experimentation** - Sam

- Reviewed benefits and risks of different mapping APIs for distance and route. Used for delivery
- Experimental Programming
- **Order List Finalized and Refactored** - Sam
 - Backend query modified to contain missing information needed for routing
- **ESP8266 Chip Integration** - Noah
 - Attempting to transfer sonar sensor code from the arduino chip to the ESP8266 Feather Huzzah chip
 - Not much progress has been made, the transfer is not as straightforward as we anticipated
- **Set up Routing tab** - Hanna
 - Set up connection with back-end to pull information about the most recent order
 - Set up routing for clicking Routing tab on navigation bar
 - Display most recent order information and verify that it matches what is found in database

Pending Issues

- **ESP chip Integration** - Noah
 - The ESP chip works with 3.3V instead of 5V, which could be a problem for the sonar sensor
 - I am also not able to communicate with the ESP chip via the USB to micro USB converter I have.

Plans for Upcoming Reporting Period

- **Final Report** - Adam
 - Begin working on final report
 - Will read final reports from other teams of past semesters for organization ideas.
- **Implement Routing Component** - Sam
 - Begin implementing routing algorithm into web component
 - Use information from order log query to create fastest and most efficient route
- **Continue Integrating ESP8266 chip** - Noah
 - Will continue to research and troubleshoot ESP8266 to HC-SR04 (sonar sensor) to find out what is causing these issues.
- **Display Data in Tabular Format with Filter** - Hanna
 - Now that have data displaying and verified as correct, start to implement tabular scheme
 - Information on Inventory, Registered Devices, and Routing tabs should be displayed in tabular format
 - If finish tabular format on time, then start implementing filter for tables

Individual Contributions

Team Member	Contribution	Weekly Hours	Total Hours
David Bis	Review Routing Algorithm logic	3	28
Hanna Moser	Set up Routing tab	5	32
Adam Hauge	Raspberry Pi Startup Scripts Raspberry Pi LCD Screen Attachment Raspberry Pi Testing and Implementation Notifications	10	36
Sam Guenette	Review Routing Algorithm logic Mapping APIs review and experimentation Order List Finalized and Refactored	6	34
Ben Gruman	Excused Absence for Class Trip	0	17
Noah Bix	ESP8266 Integration	4	27