

EE/CPRE/SE 492 - sdmay19-29

Automating Inventory Management & Routing through Sensor Networks

Week 6 Report

3/4/19 - 3/10/19

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 began work on the final report portion of the project. This is the report that will be turned in to the faculty and industry panel at the end of the semester for review so it is vital that progress begins early. Further work continues on all physical aspects of the project as usual.

- **Final Report** - Adam
 - Began working on the final report
 - Large amounts of information from the team's previous documentation was able to be refined and adapted for this report
 - Wrote and refined drafts in the following sections
 - Introductory material
 - Design specifications and analysis
 - Testing methodology
 - Related work and literature
 - Closing material
- **Routing Component** - David, Sam
 - Implement route optimization algorithm (Clarke-Wright Algorithm)
 - Implement mapping API with routing algorithm
- **ESP8266 Chip integration** - Noah
 - Continued working on transferring sonar data to the ESP8266 chip
 - Established communication between the ESP8266 chip and the arduino ide software
 - The CP2104 USB driver software was needed to communicate to the ESP chip via USB micro cable
 - Communication was confirmed by uploading a blink program to the ESP chip

- Also now using a voltage divider since the HC-SR04 sensor delivers 5V to the ESP pins which are not 5V compatible.
 - This may require recalibration as well
- **Fix Bug in Routing Tab** - Hanna
 - Routing tab broke and was not displaying information correctly, so had to go in and fix issue with displaying
 - Found out that part of the issue was old objects in the database with outdated fields
 - Another part of the issue was a misuse of ComponentDidMount, which has been changed to ComponentWillMount

Pending Issues

- **Testing processes and results** - Adam
 - This section of the final report will need the most attention from the team in the next few weeks.
- **ESP8266 Chip Integration** - Noah
 - The Sonar sensor is still not calculating distance with the ESP8266 chip
 - The HC-SR04 Vcc pin is rated for 5V instead of 3.3V (ESP output). Will try with a 5V source
 - May have to order the HC-SR04+ which works with 3.3V instead of 5V

Plans for Upcoming Reporting Period

- **Begin Integration** - All
 - Each aspect of the project should soon be integrated in the weeks to come
- **Expand Routing Algorithm To Consider Constraints** - David
 - Routing algorithm should consider the follow constraints
 - Truck Capacity
 - Variable Traffic
- **Complete Sonar integration with ESP chip** - Noah
 - Using a 5V source the sonar sensor will be tested again
 - May have to order different sonar sensors since finding a 5V source to use with our sensors is not feasible
- **Display Data in Table with Filter** - Hanna
 - Inventory, Registered Devices, and Routing pages should be displayed in tabular format sans the ability to select each individual row to change specs
 - A filter should be provided to allow the user to filter or search data to be displayed by certain criteria such as threshold met, name of product, or device id
 - Use mui-datatables to implement the table display and filter

Individual Contributions

Team Member	Contribution	Weekly Hours	Total Hours
David Bis	Routing Component (Clarke-Wright Algorithm)	6	34
Hanna Moser	Fix Bug in Routing Tab	6	38
Adam Hauge	Final Report	5	41
Sam Guenette	Routing Component (mapping API) in progress	8	42
Ben Gruman	Driver Translation	6	23
Noah Bix	ESP8266 chip integration	7	34