

EE/CPRE/SE 492 - sdmay19-29

Automating Inventory Management & Routing through Sensor Networks

Week 9 Report

4/1/19 - 4/7/19

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 began the integration of parts for the project. Each aspect of the software and hardware side of the project has begun to come together. Soon the project will be ready for integration testing.

- **Traffic Consideration for Routing** - David
 - Revised routing algorithm to consider traffic variance
 - Currently considers traffic rate to be a global factor over time, so location of routes can be ignored
 - Algorithm will now prefer additions to routes that can avoid the most traffic
- **Began Preparing Unit Tests for Back-End** - Sam, David
 - Install Cappuccino and Mocha libraries to project as primary testing framework
 - Began writing unit tests for routing algorithm methods
- **Device Registration Modal and Row Click Modal** -Hanna
 - Modified axios query to fix bug and return proper JSON data
 - Standard PUT request format not working, so experimented and found general format that works
 - PUT request for device registration modal now working
 - Experimented with Row Click feature for datatable
 - Figuring out how to make modal popup while while still keeping datatable in background
 - Do not want entire reroute, just overlay modal component on datatable component
- **Maps API integration** -Sam
 - Integrate route api with the rest if the routing algorithm
 - Integrate order log into routing logic
- **ESP8266 to Raspberry Pi communication** - Adam, Noah

- Updated arduino code to enable communication between the ESP8266 chips with the Raspberry Pi
- **Built remaining ESP chips** - Noah
 - Soldered pins on remaining ESP chips and validated that all were working properly
- **Sensor Module Validity Test** - Adam
 - Wrote a test case for checking the validity of data coming to the Raspberry Pi
 - As weight decreases, data from the sonar sensor should increase
 - All data that does not match that expected behavior will be flagged
- **Raspberry Pi Data Collection**
 - Updated scripts for collecting sensor module data on raspberry pi
 - Packets are now formatted differently
 - (Module ID) + “ “ + (Weight Data) + “ “ + (Sonar Data)
 - Packets can now be more easily parsed and checked for validity
 - Added environmental variable for sensor ID

Pending Issues

- **Routing Algorithm Stress Testing** - David
 - Routing algorithm needs to be tested with larger data sets to ensure it meets performance demands of project

Plans for Upcoming Reporting Period

- **More Tests to Back-End** - David
 - Write more tests for the back-end logic, especially for routing
- **Integrate Routing with Order Data** - David, Sam
 - Connect logic for order generation with logic for routing to complete full-cycle data to output
- **Complete Raspberry Pi Data Collection** - Adam
 - Fully implement data flow from sensor module to Raspberry Pi
- **Complete Validity Check** - Adam
 - Fully implement sensor module validity checking
- **Integrate weight and sonar sensors** - Ben, Noah, Adam
 - Combine sonar and weight sensor onto one program and send data from both to the database
- **On Row Click Consistent Behavior** - Hanna
 - Currently on Row Click only pulling up on first selection of a row
 - Need to add communication between child and parent to ensure modal comes up each time row clicked

Individual Contributions

Team Member	Contribution	Weekly	Total
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		Hours	Hours
David Bis	Traffic Considerations for Routing Back-End Testing	8	64
Hanna Moser	Device Registration Modal PUT request On Row Click Modal	10	68
Adam Hauge	ESP8266 to Raspberry Pi communication Sensor Module Validity Test	7	65
Sam Guenette	Route API debugging and integration Device Registrations Modification	7	65
Ben Gruman	Adaptation of Sensor Drivers	3	38
Noah Bix	ESP8266 to Raspberry Pi communication Built remaining ESP chips	5	49