EE/CPRE/SE 492 - sdmay19-29
Automating Inventory Management & Routing through Sensor Networks
Week 4 Report
2/18/19 - 2/25/19
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 individually to continue improving on separate aspects of the project. Significant progress is being made on the routing system as well as the networking and sensing aspects of the project.

> **Update New Hardware** - Adam
> - The new hardware arrived this week. Took time to port all functionality over to new Raspberry Pi model.
>   - Integrated WLAN connection
>   - Added use of static IP address
> **Raspberry Pi Drivers** - Adam
> - Researched multiple methods of running scripts on boot in the Raspbian OS
> - Began writing Raspberry Pi drivers for the project
>   - Raspberry Pi now boots some necessary startup scripts
>   - Ultimate goal is to prevent the need for any monitors on startup
>   - Raspberry Pi should always connect to WLAN automatically on startup
> **Part Retrieval** - Ben
> - Collected remainder of second part order from ETG
> - Sent third part order to ETG
> **Implement Logic to Create Daily Order List** - David, Sam
> - Continued on algorithm for determining what items need to be order, for whom, and when
> **DB Refactoring and order use case testing** - Sam
> - Implemented different possible scenarios in database to account for different scenarios involving automated ordering system
> **User Registration and Login Backend** - Sam

- ○ Implemented Node.JS backend for registering a user and logging into web component

Sonar Sensor modification
- ○ Modified the sonar sensor to return boolean values and doubles for the distance measured
- ○ The boolean values deliver a true value when an object is within a certain distance of the sonar and false when an object is not within that distance
    - ■ These values will detect whether the sensor is detecting an object on the shelf or another random object in the room
- ○ The double will detect how far away that value is and can return it in whichever units are required

Display Device Information on Device Display Page - Hanna
- ○ Pull device information from back-end and display as raw text in sections
- ○ Verify that information being displayed matches that stored in the database

Update Navigation Bar - Hanna
- ○ Update navigation bar to include inventory, new device, registered devices, and routing tabs
    - ■ This splits up registering a new device and displaying previously set up devices to create more clarity on functionality of each tab on the navigation bar
    - ■ New device displays form to register a new device while registered devices displays all devices that have already been registered

Pending Issues

Raspberry Pi Automatic WLAN Connection- Adam
- ○ It is currently impossible to know if the Raspberry Pi has connected to the WLAN without the use of a monitor and HDMI cable.

Plans for Upcoming Reporting Period
- ● **Raspberry Pi Drivers** - Adam
    - ○ There are still a few scripts for the Raspberry Pi that should run on startup. Time will be spent next week writing these
- ● **Routing** - David, Sam
    - ○ Begin routing algorithm implementation
- ● **Implementing ESP chip in place of Arduino**
    - ○ The sonar sensor is currently using an arduino as its microcontroller since we do not have the ESP chips yet.
    - ○ The transfer should be theoretically smooth, but the ESP chips work with 3.3V instead of 5V so there may need to be major adjustments.
- ● **Setup Routing Page** - Hanna
    - ○ Setup connection with back-end to retrieve most recent order information
    - ○ Display information in raw text on Routing page and verify that what is being displayed is same as what is stored in database

Individual Contributions

Team Member	Contribution	Weekly Hours	Total Hours
David Bis	Implement Logic to Create Daily Order List	5	25
Hanna Moser	Display Device Information on Device Display Page Update Navigation Bar	8	27
Adam Hauge	Implement New Hardware Raspberry Pi Startup Scripts	10	26
Sam Guenette	Implement Logic to Create Daily Order List DB Refactoring and order use case testing User Registration and Login Backend	9	28
Ben Gruman	Part Retrieval	3	17
Noah Bix	Sonar sensor modification	5	23