EE/CPRE/SE 491 - sdmay29
Automating Inventory Management & Routing through Sensor Networks
Week 5 Report
10/01/18 - 10/07/18
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 was spent as a work week, trying to gain progress on developing the back-end database in order to move forward with the project. Research has been done on the hardware side of the project. All parts for first proof-of-concept were ordered and progress will continue on the hardware side once they are delivered.

- **Design Document -** All
    - Progress was started on an initial draft of the project design document
        - Outline was created and all currently known information has been inserted
        - David made a UML Deployment Diagram for project solution to add to the report
        - Document will be completed and posted to team website by October 12, 2018
- **Network Communication -** Adam
    - Researched and tried out new methods of creating a communication network between microcontrollers
    - All work was preliminary and most likely will need to be implemented differently when actual hardware arrives.
    - Learned about plans to use ESP8266 wireless chip for communication.
        - Researched and learned about how it works but did not have one for testing.
- **Sensors** - Noah
    - Researched possible ways to implement barcode scanner into our inventory management system.
        - Scanning boxes as they enter and exit room
        - Scanning all boxes at end of work day
    - Research ways other companies have implemented barcode scanners in this type of situation

- **Prototype Materials** - Ben
    - Ordered initial prototyping materials through TLA
        - Load cell, amplifier, and ADC for weight sensor
        - Barcode scanner

- **Completed MySQL Server for Remote Access** - David
    - Finish setting up the MySQL Server on virtual machine for remote access
        - Database configuration through MySQL workbench now possible
        - Raspberry Pi should now be able to communicate with database
- **Continued work on web page to display data** - Hanna
    - Decided what ReactJS features to use on web page to display data
    - Adjusted screen sketches to better fit purpose
    - Worked on code for individual boxes to display data

Pending Issues

- **Design Document -** All
    - The first draft of the project design document is unfinished and needs to be completed
- **Network Communication -** Adam
    - Actual progress is currently blocked
        - Real progress will be made once hardware arrives
        - All work that has been done so far has been purely research for future implementation
- **Sensors** - Noah
    - Scanning boxes as they enter and exit room
        - How to program barcode scanner to know whether a box is leaving or entering room
            - May have to use a push button or switch to know when box is leaving/entering.
    - Mounting the scanner vs handheld sensor
- **Device Registration Component** -Sam
    - Developed code for the Raspberry Pi to send post information to the MySQL database and receive and respond to important information from server
        - Device Registrations
        - Inventory Update based on user-changes made in the database
    - Developed Device registration back-end for users register items that the corresponding device is monitoring
        - Update MySQL device pantry
        - Pull information being updated from the Raspberry Pi component
    - Updated Database
        - Device Registration datatable
        - Filled with test data

Plans for Upcoming Reporting Period

- **Design Document** - All

    - Complete initial draft of Design Document
- **Implement Database API for Front-end -** David
    - Build an API for both querying data and modifying data in the database
    - Return data should be formatted for easy integration for data visualization on ReactJS front-end
        - Use JSON as primary data format
- **Network Communication -** Adam
    - Assuming hardware arrives, will start communicating data between devices to create a small network.
- **Sensors -** Noah
    - When hardware arrives, figure out how to read barcode scanner to raspberry pi
- **Prototype Materials -** Ben
    - Retrieve ordered parts from TLA
- **Search Box** - Hanna
    - Implement a search box to filter data to only display certain items
        - Display one item, multiple items, or all items at storage facility

Individual Contributions

Team Member	Contribution	Weekly Hours	Total Hours
David Bis	Set up MySQL Database remote access Design Document	6	33
Hanna Moser	Worked on web page to display data Design Document	6	22
Adam Hauge	Network Communication Research	7	31
Sam Guenette	Device Registration and monitoring component SQL Database Update	7	32
Ben Gruman	Ordered prototype materials	2	17
Noah Bix	Researched barcode scanners	4	23

Gitlab Activity Summary

Action: pushed new branch deviceRegBackend, Wed Oct 03 2018
Author: guenette

Action: opened, Wed Oct 03 2018
Author: guenette
Title: Sensor Register front-end, Type: Issue

Action: opened, Wed Oct 03 2018
Author: guenette
Title: Server Configuration, Type: Issue

Action: opened, Tues Oct 02 2018
Author: hjmoser
Title: Each product box should have background highlight to indicate status, Type: Issue
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Action: opened, Tues Oct 02 2018
Author: hjmoser
Title: Create page for each facility that has data on each product, Type: Issue
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Action: opened, Tues Oct 02 2018
Author: hjmoser
Title: Once facility selected and continue button pressed proceed to facility page, Type: Issue
---
Action: opened, Tues Oct 02 2018
Author: hjmoser
Title: Build simple frontend page to choose facility to enter, Type: Issue
---
Action: opened, Tues Oct 02 2018
Author: dsbis
Title: Implement Barcode Scanner into Raspberry Pi, Type: Issue
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Action: opened, Tues Oct 02 2018
Author: dsbis
Title: Registering sensors into back-end, Type: Issue

Action: opened, Tues Oct 02 2018
Author: dsbis
Title: Build API to access data from database, Type: Issue

Action: opened, Tues Oct 02 2018
Author: Ben Gruman
Title: Build Sensor Prototype, Type: Issue

Action: opened, Tues Oct 02 2018
Author: dsbis
Title: Establish Database Connection for Remote Access, Type: Issue
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Action: opened, Mon Oct 01 2018
Author: hjmoser
Title: Draw Screen Sketches for frontend, Type: Issue
