

EE/CPRE/SE 491 - sdmay29

Automating Inventory Management & Routing through Sensor Networks

Week 4 Report

9/24/18 - 9/30/18

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 our team completed our first draft of the official project plan and uploaded it to the team website for review. Furthermore, we determined what kinds of microcontrollers we will be using for our project. We also started work on the database so that we can push data up to our database in the future. In a team meeting with our adviser, the decision was made to use a barcode scanner instead of an RFID sensor so that we can build a working prototype that was much cheaper but still as effective. We do not yet know if we will continue with the barcode scanner in the final product or if we will switch back to an RFID sensor.

- **Project Plan - All**
 - Initial draft of project plan was completed for review
 - Can be viewed on team website
- **Microcontrollers - Adam**
 - Decided that Raspberry Pi will be used for our initial prototype
 - Chosen because they are easy to use
 - Onboard wifi is very useful for this project
 - ADC units are cost effective and easy to use.
- **Passing Data - Adam, Sam, David**
 - Attempted to implement a system to pass data wirelessly from Raspberry Pi to online database
 - Made python script to send data to MySQL database hosted on server from Raspberry Pi
 - Server Configuration
 - Installed and began configuring MySQL on remote server. The database appeared successfully configured to modify when accessing it when SSH'd into the remote server, but cannot connect to over other means, such as MySQL Workbench.
 - Database Entity API Research and Testing

- Developed experimental test code to consider certain APIs that can convert Database information into a back-end component to keep information easily accessible and scalable for the web application component.
- **Sensors - Noah**
 - Switched from RFID sensors to barcode scanner
 - Decided RFID sensors were too expensive
 - Barcode scanner will require slightly more work from the Crafty employee, but it may be a more sensible solution
 - Barcode scanner can be used to simulate a RFID sensor if necessary
 - Selected a barcode sensor
 - Researched and ordered a barcode scanner
 - Chose one with a USB hookup, since there were no good options with wireless communication.
- **Basic Frontend Page - Hanna**
 - Continued research and learning about ReactJS
 - Finished screen sketches for frontend
 - Two types of pages
 - One for selecting a facility
 - Other for viewing inventory at chosen facility
 - Have ability to choose all items, one item, or multiple items to look at at a time using a filter
 - Items that have gone below threshold will be highlighted red, items within certain range of threshold will be yellow, and items in good standing will be green
 - Started building simple web page with option to choose facility
 - Work in-progress on creating drop-down menu and continue button

Pending Issues

- **Passing Data - Adam, Sam, David**
 - Server is not ready to accept data with a Raspberry Pi
 - Unable to connect to database remotely. Error likely to be sourced from erroneous configuration or improper security set-up, such as managing the server's firewall for incoming requests.
- **Sensors - Noah**
 - USB connected barcode sensor may provide a problem with maneuvering around storage area.

Plans for Upcoming Reporting Period

- **Passing Data - Adam, Sam, David**
 - Make sure server is ready to receive data from the Raspberry Pi
 - Develop a method for sending data to the server from the Raspberry Pi

- **Slave - to - Master Connection** - Adam
 - Start creating a method to pass data from slave to master Raspberry Pi
 - This data should be able to be encoded as a standardized packet that can be easily translated and sent to the database
 - Should make sure packets cannot be dropped
- **Webpage Development** - Hanna
 - Complete webpage with ability to select specific facility to view
 - Start development on web page to display data from different facilities
 - Communicate with backend to retrieve and display data
 - Separate section for each item with data on weight, threshold, and last date stocked
 - Highlight items based on their status
- **Back-End Communication With Database** - David, Sam
 - Connect the skeleton API so that when called will either return with data from the database or modify the database
- **Sensors** - Noah
 - Start configuring sensors to communicate with microcontrollers
 - Create a database for barcode reading and decoding
 - Decide how to implement barcode scanners
 - Option 1: Scan items as they leave and enter room
 - Option 2: Scan items every day at end of day

Individual Contributions

Team Member	Contribution	Weekly Hours	Total Hours
David Bis	Passing Data Project Plan	8	27
Hanna Moser	Simple Frontend Page Project Plan	6	16
Adam Hauge	Microcontrollers Passing Data	5	24
Sam Guenette	Server Configuration and Security DB Entity API Testing & Research	7	26
Ben Gruman	Acquiring Prototype Materials Project Plan Writing & Editing	6	15
Noah Bix	Barcode Sensor Research Project Plan Writing	5	19

Gitlab Activity Summary

Action: closed, Sun Sep 30 2018
Author: dsbis
Title: Server Setup, Type: Issue

Action: pushed to branch master, Sun Sep 30 2018
Author: guenette

Action: pushed to branch master, Sun Sep 30 2018
Author: guenette
Title: Establish API endpoint architecture, Type: Issue

Action: pushed to branch master, Sun Sep 30 2018
Author: guenette

Action: pushed to branch master, Sun Sep 30 2018
Author: guenette

Action: closed, Sat Sep 29 2018
Author: nbix20
Title: Research RFID Sensors, Type: Issue

Action: opened, Mon Sep 24 2018
Author: guenette
Title: Add Dummy Data, Type: Issue

Action: accepted, Mon Sep 24 2018
Author: dsbis
Title: Merge Complete Basic Architecture to Master, Type: Issue

Action: pushed to branch master, Mon Sep 24 2018
Author: dsbis

Action: opened, Mon Sep 24 2018
Author: dsbis
Title: Merge Completed Basic Architecture to Master, Type: Merge Request

Action: closed, Mon Sep 24 2018
Author: guenette
Title: Model Setup, Type: Issue

Action: accepted, Mon Sep 24 2018
Author: dsbis
Title: Merging Database integration into Back-End Integration, Type: Merge Request

Action: pushed to branch api_skeleton, Mon Sep 24 2018
Author: dsbis

Action: closed, Mon Sep 24 2018
Author: guenette
Title: Mvc setup sam, Type: Merge Request

Action: pushed to branch mvcSetupSam, Mon Sep 24 2018
Author: dsbis

Action: opened, Mon Sep 24 2018
Author: dsbis
Title: Merging Database integration into Back-End Integration, Type: Merge Request

Action: opened, Mon Sep 24 2018
Author: guenette
Title: Mvc setup sam, Type: Merge Request

Action: closed, Mon Sep 24 2018
Author: ahaug
Title: Research Microcontrollers, Type: Issue
