SE 3XA3: Software Requirements Specification
Synergy Inventory Management System (SIMS)

Team #33, 'Sick Ideas'
Nathan Coit - 400022342
Lucas Shanks - 400029943
Cameron Van Ravens - 400020215

December 5, 2017

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Table 1: **Revision History**

Date	**Version**	**Notes**
Oct. 6th, 2017	0.0	Initial Revision
Dec. 4th, 2017	1.0	Revision 1

This document describes the requirements for the *Synergy Inventory Management System*. The template for the Software Requirements Specification (SRS) is a subset of the Volere template (Robertson and Robertson, 2012).

1 Project Drivers

1.1 The Purpose of the Project

We want to give a simple and quick-start inventory management system to small businesses and warehouses who do not have the resources or funding to set up an expensive enterprise management system.

1.2 The Stakeholders

The stakeholders this application targets are small businesses with a smaller inventory size without the financial ability to use an inventory management system meant for large companies. These would usually be businesses where the owner themselves would track inventory, thus not being a complete expert in the nuances of inventory tracking.

1.2.1 The Client

The client for this product is also an outside reviewer. The client wishes to see a product that demonstrates the concepts of a software engineering project consisting of proper documentation and a final demonstration of the product.

1.2.2 The Customers

The intended customers are small businesses and warehouses who do not have the resources, funding or need for large scale enterprise inventory management solutions.

1.2.3 Other Stakeholders

The stakeholders involved in this product are the teaching assistants whose knowledge will be needed to properly document the product. These stake-

holders will have a large influence over the direction of the project and the time constraints of the deliverables for the product.

1.3 Mandated Constraints

Description: The product shall be hosted and maintained on a public IP address to allow remote access to the platform.
Rationale: The customers will not have the resources or infrastructure to install, host and maintain the platform themselves.
Fit criterion: The site and database must be hosted remotely and always accessible by the customer.

Description: The product shall be made using NodeJS and store data on a PostgreSQL database.
Rationale: The technologies used must have extensive support and must be a modern "Industry Standard".
Fit criterion: The product shall pass testing for the technologies and must connect to a PostgreSQL server.

Description: The product shall be interfaced with using HTML, CSS, and Javascript through a web browser.
Rationale: HTML, CSS, and javascript are the industry standard for accessing web pages and are platform independent.
Fit criterion: The product shall maintain standards according to the world wide web consortium.

1.4 Naming Conventions and Terminology

SIMS: Synergy Inventory Management System. The name of the product abbreviated for ease of communication.
Node: NodeJS. The technology being used in the development of the product. "Node" is not used to refer to a singularity, point or vertex.
CSV: Comma Separated Values. CSV refers to the file type, commonly available on most systems.
Properly Formatted: Format matching developer's specification.
HTML: Hyper Text Markup Language

CSS: Cascading Style Sheets

1.5 Relevant Facts and Assumptions

Facts

The existing application consists of 3000 lines of PHP code.
20 percent of all inventory items represent 80 percent of inventory costs.

Assumptions

The server hosting the web service shall be maintained by a third party web server hosting company.

2 Functional Requirements

2.1 The Scope of the Work and the Product

Specific tasks can be found in the Gantt chart. Usable resources include access to a server to host the website and any open source code.

2.1.1 The Context of the Work

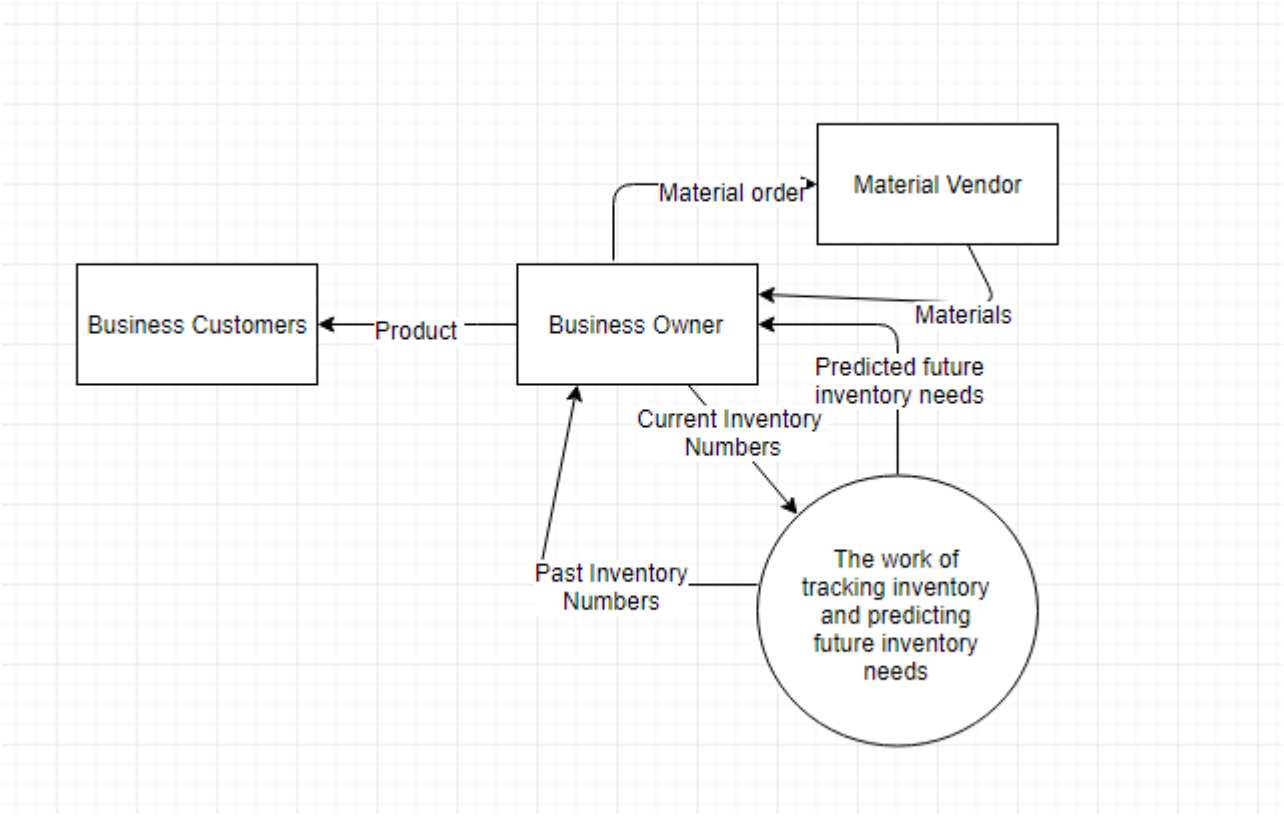

Figure 1: Context Diagram

2.1.2 Work Partitioning

Event Name	Input	Output	Summary
1.User submits an inventory page	Inventory Information	Confirmation Message	Record the current inventory submitted by the user and save it to the database.
2.User requests inventory	User ID and Inventory ID	The selected inventory page	Return and display the requested inventory page in an editable page.
3.User requests homepage	-	The homepage	Return the homepage for the platform containing basic information about the product and sign up/login functionality.
4.User signs up	User information	-	Create an account for the user based on given information.
5.User requests user page	User login credentials	A user landing page	Return the landing page to the user
~~6.User requests prediction~~	~~Item ID~~	~~A calculated number~~	~~Return a prediction for future inventory needs.~~
7.User deletes an inventory page	Inventory ID	-	Delete an inventory page from the system.
8.User deletes account	User credentials	-	Remove all information on the user from the system.
9.User requests download of their inventory	User credentials and inventory ID/IDs	A csv file of inventory information	Allow the user to download a local copy of their inventory.

Figure 2: Work Partitioning

2.1.3 Individual Product Use Cases

Access management handles access control to the same inventory management system differently between the two types of user groups: admin and user. While admin accounts receive full functionality to the application, regular users shall have access restricted and must be tied to administrative

accounts. User access features can be found above under work partitioning and records all events that may occur in a user session.

2.2 Functional Requirements

req_ID: REQ1
Description: The application shall be accessible at a URL in most browsers.
Fit Criterion: The application must appear in the browser when accessing its URL.

req_ID: REQ2
Description: The user shall log in to grant access to the product and their data.
Fit Criterion: The user must not be able to access the application or their data before they have logged in.

req_ID: REQ3
Description: The user shall be brought to a main overview page upon logging into the application.
Fit Criterion: After logging in, the main overview page must be displayed.

req_ID: REQ4
Description: The user shall be able to add items to the database.
Fit Criterion: The user must be able to enter data, and have it stored on the database.

req_ID: REQ5
Description: The user shall be able to bulk add items to the database from information in a CSV document.
Fit Criterion: The user must have the option to read and store data from a CSV file that they provide to the application.

req_ID: REQ6
Description: The user shall be able to access and edit their data in the database.
Fit Criterion: The user must be able to view their stored items and edit the data correlated to them.

req_ID: REQ7
Description: The application shall be mobile-responsive.
Fit Criterion: The application must be completely usable and fluid on a smaller/mobile phone screen.

req_ID: REQ8
Description: The user shall be able to allow other users to access their page, with either Admin or User access levels.
Fit Criterion: The user must be able to add extra logins to their account, with controllable access levels.

req_ID: REQ9
Description: The database shall have a recent back up in case of emergency.
Fit Criterion: A back up of the server shall be no older than one week.

3 Non-functional Requirements

3.1 Look and Feel Requirements

This application shall have a simple yet professional style with a consistent overall layout.
Fit Criterion: The majority of users shall find the website visually appealing.

There shall be emphasis put upon rational space usage.
Fit Criterion: A single web page should not take more than 1 minute to navigate through.

Sleek design shall entice the user to be involved with the product, as well invoke feelings of trust and reliability between the user and the application over regular use.
Fit Criterion: A majority of first time users should use the product again in the future.

3.2 Usability and Humanity Requirements

The primary usability requirement is to provide the user with a clean, simple, user-friendly interface.
Fit Criterion: All options and fields on the web page shall not be ambiguous.

Information and choices shall be presented in a clear and concise manner with stress on lack of ambiguity.
Fit Criterion: The majority of users shall understand how to use the page upon first use.

All functionality shall be intuitive and be usable with no training.
Fit Criterion: No training shall be needed to use the product.

The application shall also ensure reliable functionality across mobile devices and browsers and shall support screen readers for impaired users.
Fit Criterion: Web page shall be accessible from mobile phones, and be readable by screen reader software.

3.3 Performance Requirements

The maximum server response time for all activities should be no longer than 5 seconds.

3.4 Operational and Environmental Requirements

The product shall be accessible through most popular web browsers.
Fit Criterion: Website accessible through Google Chrome, Mozilla Firefox, Opera, and Internet Explorer 9 and above.

3.5 Maintainability and Support Requirements

Server updates should be done overnight during low server load times.
Fit Criterion: server shall be down no longer than 20 minutes between the hours of 12am and 5am EST once a month.

3.6 Security Requirements

Only registered users can access the product by logging into their user account.
Users can only view their own inventory and data.

3.7 Cultural Requirements

Product shall not offend %100 of users.

3.8 Legal Requirements

Personal information shall be implemented so as to comply with the Data Protection Act.
Fit Criterion: Lawyer's opinion that the product does not break any laws.

3.9 Health and Safety Requirements

The product shall run on environmentally friendly server spaces.

4 Project Issues

4.1 Open Issues

~~How to handle multiple users editing a single inventory at once.~~ Decision to only allow one user to edit a page at a time, while other can view it updates upon request.

4.2 Off-the-Shelf Solutions

One simple solution is managing inventory with paper or a manually made spreadsheet
Existing inventory management system Fishbowl Inventory starts at $4,395

per user licence.

4.3 New Problems

Any users currently using an separate application or other means of managing inventory must transfer all data into their new environment.
Users require a personal machine with an internet connection to access inventory.

4.4 Tasks

In order to implement this project, the waterfall method is being used. This follows the phases of requirements, design, implementation, verification, maintenance. The following points illustrate the approach that will be taken to deliver the final product.

Proof of Concept Demo
Required operational date: 10/18/17
This demonstration includes a low-level working prototype including the primary features present in the final design including user log-in and account creation, storing and retrieving user inventory information.
The prototype must be responsive when requests are made to access and store information.

Revision 0 Demonstration
Required operational date: 11/15/17
This demonstration will include the fully tested, finished application revised with feedback from the proof of concept demo with all working events. This application should be accessible online.

Final Demonstration
Required operational date: 11/29/17
A working copy of the product shall be demonstrated to the client and stakeholders.

Revision 1
Required operational date: 12/5/17
The final revision and changes of the documentation and project shall be uploaded to the GitLab repository.

4.5 Migration to the New Product

Users should be able to import a properly formatted csv file to instantiate their inventory.

4.6 Risks

The user must commit time to transfer current database information into the new database.
Features may not fulfill user requirements.
Software may provide inaccurate inventory prediction.
Inventories may be lost in event of server failure.

4.7 Costs

Not applicable.

4.8 User Documentation and Training

Technical specifications to accompany the product:
User manual
About page accessible through the product
Documentation will be maintained by the developers.

4.9 Waiting Room

Not applicable.

4.10 Ideas for Solutions

Not applicable.

References

James Robertson and Suzanne Robertson. *Volere Requirements Specification Template*. Atlantic Systems Guild Limited, 16 edition, 2012.

5 Appendix

This section has been added to the Volere template. This is where you can place additional information.

5.1 Symbolic Parameters

The definition of the requirements will likely call for SYMBOLIC_CONSTANTS. Their values are defined in this section for easy maintenance.