University of Texas at Arlington

CSE 3311-002

Object Oriented Software Engineering

Instructor: Christoph Csallner

Inception

Team 10

Team Members:

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<h1 style="text-align: center;">Inventory Management Software</h1>

Project Vision

An inventory management website to help small business take inventory. The website is a free and open source software that is easy to use. It is made primarily for startups and small business owners who may not have enough money to purchase an inventory system. The software is intuitive, user-friendly and convenient, and it will enable business owners switch from the old excel spreadsheets with human error to an automated system. IM System does one thing, take inventory in real time, all the user has to do is scan the barcode and it updates the stock of items in the inventory. The system will help keep track of what businesses have in stock, since you can only sell what you have readily available; and different business locations can have an updated view of company stocks. As customers purchase items, the system is being updated with the current stock item, and will send a notification to the business owner to restock if needed. IM System will handle payments through an external party (like paypal); no mobile app feature, only a webpage that can be accessible on a laptop or mobile phone; large data management and revenue generation are not covered.

Potential Risks

- Website might not work on certain browsers

  Risk Exposure: 70% * 6 Hours = 4.2 Hours

  Mitigate via:

    - Testing website for functionality, and suggesting to users recommended browsers

- Lack of certain programming language knowledge and skills

Risk Exposure: 60% * 6 Hours = 3.6 Hours

Mitigate via:

- Personal training and development
- Take advantage of language libraries in software development

- Time management(availability) and communication

Risk Exposure: 40% * 5 Hours = 2 Hours

Mitigate via:

- Agile scrum development
- Meet once a week to give an overview of progress, challenges and future plans on the project development
- Software reuse

- Our software is free, open source so all libraries used must be open source

Risk Exposure: 30% * 4 Hours = 1.2 Hours

Mitigate via:

- Thorough search on all libraries to avoid copyright infringement laws

- Data limit on our server

Risk Exposure: 25% * 4 Hours = 1 Hour

Mitigate via:

- Giving users a certain data amount on the website

Competitors

According to business.org's article 6 best Inventory Management Software, some of the best

inventory management systems for small businesses in 2019 are:

- Ordoro, cloud-based website that is relatively cheap compared to other competitors. Its plans are a good fit for businesses that may need shipping abilities like the drop-shipping management feature which allows business owners to directly transfer goods from manufacturer to customer without directly keeping goods in retailer's stock. Ordoro has a free option but users have to pay to get access to system's maximum features. Ordoro manages shipping operations with integration from major carriers like DHL, FedEx, UPS. IM System does not facilitate shipping for the business owner because the website does just one thing. The IM System is a simple intuitive website to help relieve the business owner from bookkeeping activities by tracking inventory in real time.

- Cin7, cloud-based inventory management offers outstanding customer service by providing videos and articles to provide knowledge on the system's features. Cin7 provides extensive guides and an account manager to help each business owner. Cin7 plans start with $299 per month and they cater to a wide range of business owners--startups to large companies. Cin7 does more than inventory management, they provide supply chain management. Cin7 offers a payment portal but the IM System does not have a payment portal but uses a third-party application to automate payments.

- Fishbowl, integrates QuickBooks and Xero for accounting, Amazon for ecommerce. Fishbowl website includes order management, inventory control, warehouse management, and manufacturing. Due to its numerous features, entrepreneurs starting a new venture may find it difficult learning it's tools and taking advantage of its features. The starting price for Fishbowl is $4,395 and increases with each user added. Since Fishbowl does more than inventory management it is more suitable for medium to large business organizations.

Unlike Fishbowl, IM System only helps the business owner with inventory management and no costs.

List of inventory management systems with starting price list

Company	Starting price per month
Ordoro	$25
Tradegecko	$79
Unleashed	$85
Veeqo	$200
Cin7	$299
Fishbowl	$366

For a small startup business that may be run by the likes of stay-at home mothers, these prices for inventory systems are certainly high for an entrepreneur with little capital. Our software offers free services to these small businesses for as long as they need them.

- The website will use JavaScript for most of the work, meaning most smartphones and personal computers can be used, rather than many of the other options which may require dedicated hardware.

- The website can be hosted on the LAN of a business or home, this enables extra security for a small business as well as allowing for the entire system to be hosted without any potential server hosting fees.

- Because the software will be completely open source, users will be able to audit the software for themselves. This will allow for early detection of bugs, as well as creating extra confidence in the security of their company's private information.

Features

Primary:

- Open source and free to use

    o Users will feel more secure in using the software, while also saving money

- Different style of scanning compared to competitors

    o Users do not want to purchase extra equipment if they already have a smart device

- User friendly and Simple

    o Too many buttons and pages can make the software too cumbersome for the user.

Secondary:

- Usable on any modern browser

    o Accessibility will enable the users to reach a wider audience

- Usable on the LAN

    o For customers who only want to host an inventory system, this provides extra

    security as well as cost reduction.

- Ability to split products into different bins for easy location lookup

    o Enables the users to have a way of quickly looking up where an items location is

    in their business

Tertiary:

- Ability to differentiate between different business locations

    o Some entrepreneurs may have multiple small businesses at the same time, this

    allows for having a one stop access to each of these.

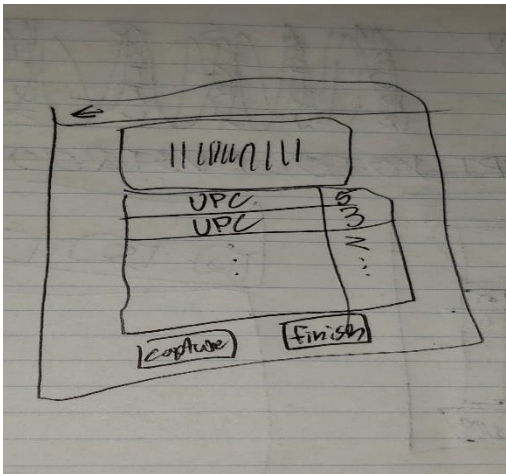*Assumptions and constraints*

Assumptions

- We will not pay for our host server

- Our software is not customized for businesses like catering industry
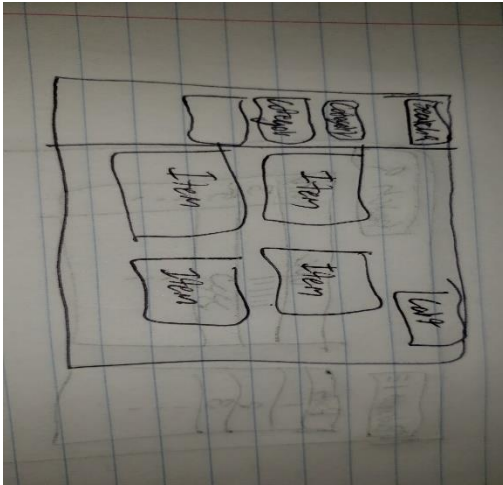
- Access to Local Area Network

Constraints

- Since we are not paying for the server, only a limited amount of people can use

  our software

- Team lacks website development skills

- Team is unable to provide sole focus for this project

- English is not the native language of the entire team
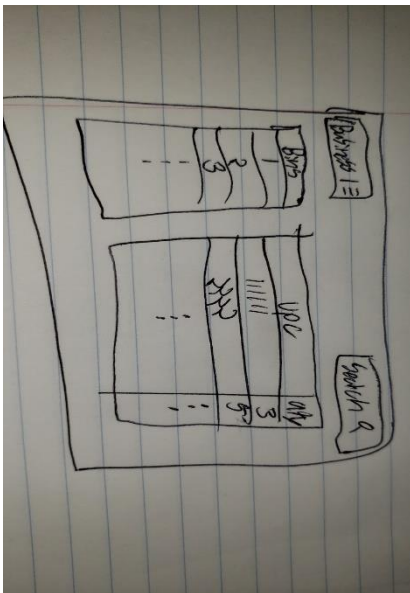
UI Prototype

Inventory Scanning:

Shopping Page:

Website Inventory Management:

Software Development Plan

- **Iteration Plan**
  - The first iteration will be getting the underlying technology stack in place to allow for integration of the UI and backend services.
- **Tools**

- Programming application: JavaScript, MongoDB, HTML, CSS, bootstrap, NodeJS

- Cloud: amazon web service

- Agile Scrum software development: implementation and unit testing

- Github: https://github.com/siddharth1410/inventory_management

- **People**

  - Members of CSE 3311 Team 10

  - Review Team 11

  - Professor Christoph Csallner and TA Soumik Mohian

- **Education**

  - Members have a foundational knowledge of programming and computer science, but education is needed on the some of the languages being used.

References

"6 Best Inventory Management Software of 2019." *Business.org*, Business.org, 16 Jan. 2019,

www.business.org/finance/cost-management/best-inventory-management-software/.