

**DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING
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**SYSTEM REQUIREMENTS SPECIFICATION
CSE 4316: SENIOR DESIGN I
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**THE BREW CREW
BEVERAGE MANAGEMENT**

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1 PRODUCT CONCEPT

This section describes the purpose, use and intended user audience for the Beverage Management app. Beverage Management app is an android application that provides an efficient way to manage large collection of beverages using smartphone.

1.1 PURPOSE AND USE

Beverage Management is an android application that works as a virtual inventory and allows user to effectively manage and keep track of several beverages. Users can use this app to keep track of name, storage location, brewery, style, volume, manufactured date and best before date. It also allows user to search and sort the beverages according to the date, style etc.

1.2 INTENDED AUDIENCE

The intended audience for this application are those people who have large collection of beverages in their home and are looking for easy ways to manage them free of cost. It can also be used in local grocery stores, bars and restaurants to keep track of their beverage inventory. Our app is intended for general use but it can certainly be expanded into a more complex inventory management system with additional features.

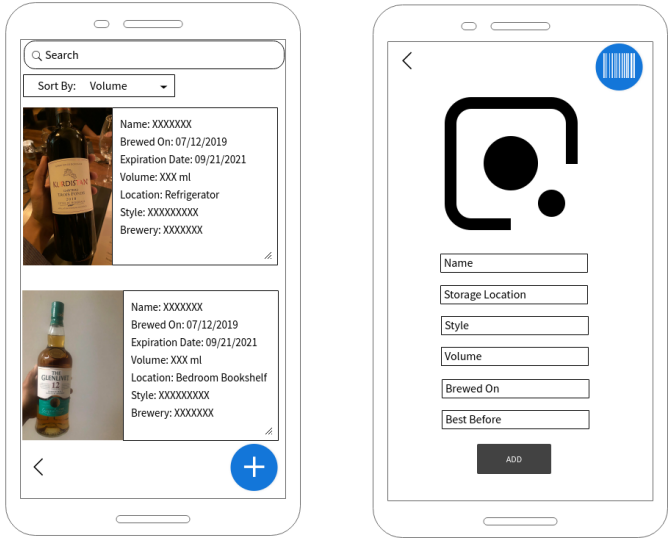


Figure 1: conceptual drawing of Beverage Management App (Home screen and Add screen)

2 PRODUCT DESCRIPTION

This section provides the reader with an overview of Beverage Management. Beverage Management is an Android application that manages the beverages which a user has stored in their storage space. the application will have access to a dataset of various drinks (beers in the initial release) and have will be able to populate the virtual storage space as to simulate the actual storage of the user's drinks. The application will have a login functionality to allow users to personalize their experience. The application will also send notifications to alert the user of soon-to-expire drinks.

2.1 FEATURES & FUNCTIONS

This product will help users manage and optimize their storage space and reduce wastage. The app will connect to a database, primarily we will use firebase, which will store user information and beverage information. The beverage data will be extracted using the barcode which the app can scan using the phone's camera.

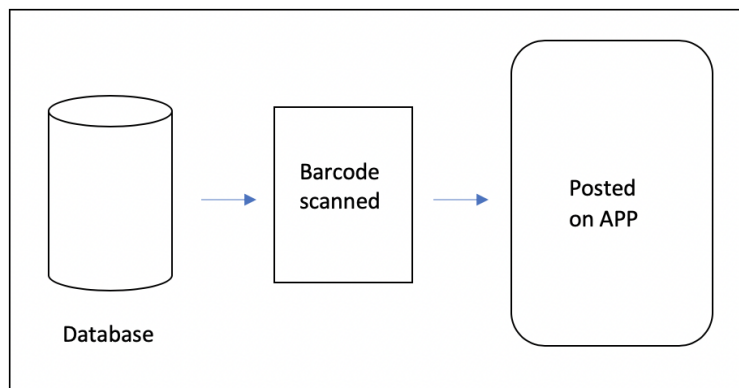


Figure 2: Database Design

2.2 EXTERNAL INPUTS & OUTPUTS

The users will scan the barcode of the drink, which will then access the dataset and output the details of the drink within the required storage area on the app. Our app will extract the information as well, such as expiry date, and use it to send push notifications to the user.

2.3 PRODUCT INTERFACES

We will have a default home screen which will display be modeled to copy Dr. Conly's storage area, in the initial release. There will be a button to access the camera and a settings page and an editing page as well.

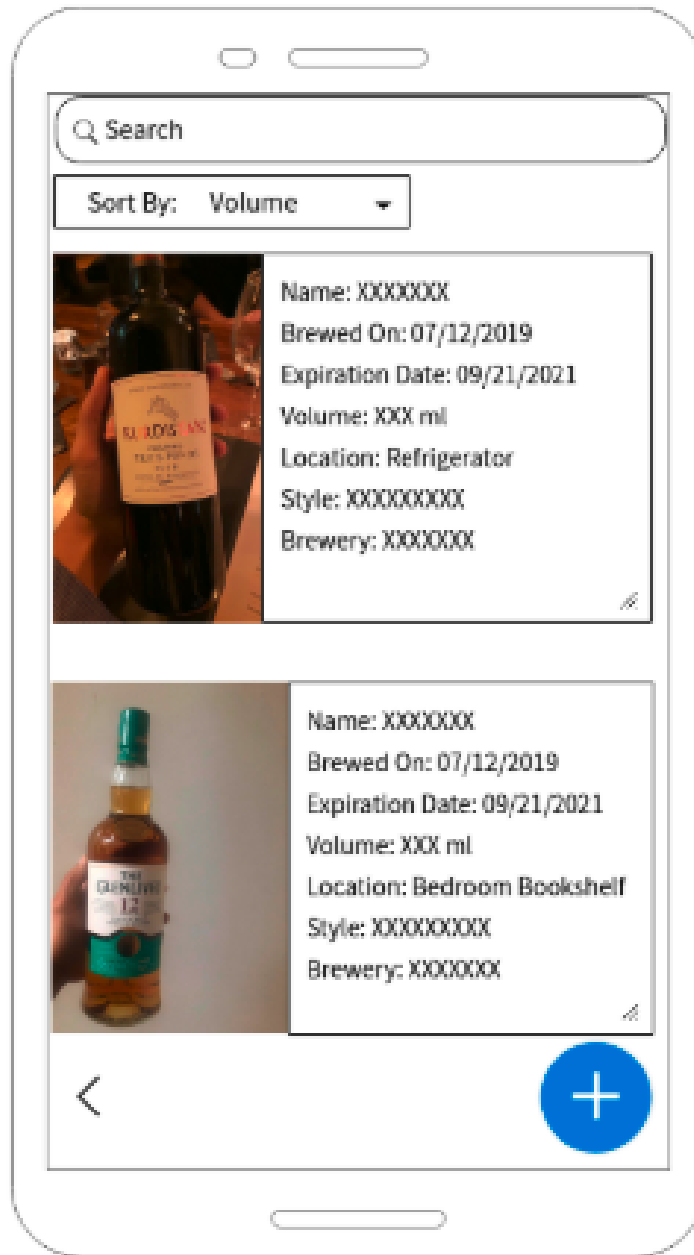


Figure 3: Home Page after login (varies per user)

3 CUSTOMER REQUIREMENTS

Here, we have requirements that our group came up with after having a detailed conversation with our customer and group members. These requirements are documentation of what our customer expects from our mobile application and these requirements will not be changed without the consent of the customer.

3.1 ACCURATE INVENTORY TRACKING

3.1.1 DESCRIPTION

Customers shall be able to track the total number of a specific beer available in their inventory.

3.1.2 SOURCE

Nirjal

3.1.3 CONSTRAINTS

N/A

3.1.4 STANDARDS

N/A

3.1.5 PRIORITY

High

3.2 AN ATTRACTIVE AND EASY TO USE USER INTERFACE

3.2.1 DESCRIPTION

Customers shall be able to navigate through our application without any confusion and complications.

3.2.2 SOURCE

Kunal

3.2.3 CONSTRAINTS

N/A

3.2.4 STANDARDS

N/A

3.2.5 PRIORITY

High

3.3 SUCCESSFUL ACCESS TO THE CAMERA

3.3.1 DESCRIPTION

The application shall have no problem using the user's cellphone camera after getting user's consent.

3.3.2 SOURCE

Kunal

3.3.3 CONSTRAINTS

The user will have to put in the extra work in order to enter the product name and categorize it manually if the camera is not functioning properly.

3.3.4 STANDARDS

N/A

3.3.5 PRIORITY

Critical

3.4 LOGIN FUNCTIONALITY

3.4.1 DESCRIPTION

The user shall be able to login to their account without any complications with correct username and password. In case user forgets the password, there shall be a way for the user to recover it.

3.4.2 SOURCE

Lokendra

3.4.3 CONSTRAINTS

N/A

3.4.4 STANDARDS

N/A

3.4.5 PRIORITY

Critical

3.5 SEARCH BY PRODUCT NAME, BREWERY, AND BEER STYLE

3.5.1 DESCRIPTION

The application shall be able to search and display the product that already exists in the inventory on the basis of product name, brewery, and beer style.

3.5.2 SOURCE

Sima and Chris

3.5.3 CONSTRAINTS

N/A

3.5.4 STANDARDS

N/A

3.5.5 PRIORITY

Critical

3.6 NOTIFICATION IF THE BEER IS NEARING EXPIRY DATE

3.6.1 DESCRIPTION

The application shall notify the user about the products in the inventory that are nearing their best by date.

3.6.2 SOURCE

Chris

3.6.3 CONSTRAINTS

N/A

3.6.4 STANDARDS

N/A

3.6.5 PRIORITY

Critical

3.7 SORT BY BEST BY DATE, BREW DATE, AND FORMAT

3.7.1 DESCRIPTION

The application shall be able to sort the displayed items based on nearest expiration date, brew date and item size (12 oz. bottle, 12 oz. can, .33 L bottle, etc.).

3.7.2 SOURCE

Chris

3.7.3 CONSTRAINTS

N/A

3.7.4 STANDARDS

N/A

3.7.5 PRIORITY

High

3.8 CREATE A STORAGE LOCATION WITH NxM ROWS AND COLUMNS

3.8.1 DESCRIPTION

The application shall be able to create and save a storage location in the format of NxM rows and columns

3.8.2 SOURCE

Chris

3.8.3 CONSTRAINTS

N/A

3.8.4 STANDARDS

N/A

3.8.5 PRIORITY

High

3.9 ABILITY TO TAKE A PICTURE OF BOTTLE/CAN TO STORE THAT

3.9.1 DESCRIPTION

The application shall allow user to click and save a photo of the item that we are storing.

3.9.2 SOURCE

Chris

3.9.3 CONSTRAINTS

N/A

3.9.4 STANDARDS

N/A

3.9.5 PRIORITY

Moderate

3.10 NOTES SECTION TO ADD ANY COMMENTS THAT USER MAY FIND USEFUL(EXAMPLE: TASTING NOTES)

3.10.1 DESCRIPTION

The application shall allow user to click and save a photo of the item that we are storing.

3.10.2 SOURCE

Chris

3.10.3 CONSTRAINTS

N/A

3.10.4 STANDARDS

N/A

3.10.5 PRIORITY

Low

3.11 WARNING WHEN MOBILE STORAGE SPACE IS LOW

3.11.1 DESCRIPTION

The application shall warn users when mobile storage space is running low and the app cannot save anymore photos, notes, etc.

3.11.2 SOURCE

Bishal

3.11.3 CONSTRAINTS

N/A

3.11.4 STANDARDS

N/A

3.11.5 PRIORITY

Low

4 PACKAGING REQUIREMENTS

The application software shall be loaded to our client's mobile device. The client's preferred platform shall be android OS. Client/User can also download via google play store for free. Additionally, the application software shall be stored on team lead's external hard drive and GitHub repository.

4.1 INSTALLING APPLICATION

4.1.1 DESCRIPTION

The application will be installed in the client's device by private downloadable link provided by the team, the initial setup or installation must be required by the user.

4.1.2 SOURCE

Team

4.1.3 CONSTRAINTS

User must have access to internet connectivity.

4.1.4 STANDARDS

N/A

4.1.5 PRIORITY

High

5 PERFORMANCE REQUIREMENTS

The application should be able to precisely scan the bar code and establish the connection with the saved beverages or add new beverage to the database. Adding a new self with required number of rows and columns for initial setup for the beverages should not take more than 1-2 minutes.

5.1 ACCURATE BARCODE SCANNING

5.1.1 DESCRIPTION

The system should accurately scan the bar code with minimal number of errors.

5.1.2 SOURCE

Team member

5.1.3 CONSTRAINTS

Internet connectivity is important to make the connection with the database to match the scanned bar code.

5.1.4 STANDARDS

All information should be stored in the database.

5.1.5 PRIORITY

High

6 SAFETY REQUIREMENTS

The Development of Brew Crew project does not include any of the toxic chemicals, sharp objects or any laser beams so there are no specific safety requirements for this project. The basic laboratory safety measures is listed below:

6.1 LABORATORY EQUIPMENT LOCKOUT/TAGOUT (LOTO) PROCEDURES

6.1.1 DESCRIPTION

Any fabrication equipment provided used in the development of the project shall be used in accordance with OSHA standard LOTO procedures. Locks and tags are installed on all equipment items that present use hazards, and ONLY the course instructor or designated teaching assistants may remove a lock. All locks will be immediately replaced once the equipment is no longer in use.

6.1.2 SOURCE

CSE Senior Design laboratory policy

6.1.3 CONSTRAINTS

Equipment usage, due to lock removal policies, will be limited to availability of the course instructor and designed teaching assistants.

6.1.4 STANDARDS

Occupational Safety and Health Standards 1910.147 - The control of hazardous energy (lockout/tagout).

6.1.5 PRIORITY

Critical

6.2 NATIONAL ELECTRIC CODE(NEC) WIRING COMPLIANCE

6.2.1 DESCRIPTION

Any electrical wiring must be completed in compliance with all requirements specified in the National Electric Code. This includes wire runs, insulation, grounding, enclosures, over-current protection, and all other specifications.

6.2.2 SOURCE

CSE Senior Design laboratory policy

6.2.3 CONSTRAINTS

High voltage power sources, as defined in NFPA 70, will be avoided as much as possible in order to minimize potential hazards.

6.2.4 STANDARDS

NFPA 70

6.2.5 PRIORITY

Critical

6.3 RIA ROBOTIC MANIPULATOR SAFETY STANDARDS

6.3.1 DESCRIPTION

Robotic manipulators, if used, will either housed in a compliant lockout cell with all required safety interlocks, or certified as a "collaborative" unit from the manufacturer.

6.3.2 SOURCE

CSE Senior Design laboratory policy

6.3.3 CONSTRAINTS

Collaborative robotic manipulators will be preferred over non-collaborative units in order to minimize potential hazards. Sourcing and use of any required safety interlock mechanisms will be the responsibility of the engineering team.

6.3.4 STANDARDS

ANSI/RIA R15.06-2012 American National Standard for Industrial Robots and Robot Systems, RIA TR15.606-2016 Collaborative Robots

6.3.5 PRIORITY

Critical

7 MAINTENANCE & SUPPORT REQUIREMENTS

7.1 ADMINISTRATION PORTAL SHALL BE CREATED FOR MAINTENANCE AND SUPPORT

7.1.1 DESCRIPTION

Customer will be able to contact us through the administration portal for any help needed. The system will be maintained and supported accordingly.

7.1.2 SOURCE

Team

7.1.3 CONSTRAINTS

N/A

7.1.4 STANDARDS

N/A

7.1.5 PRIORITY

Critical

8 OTHER REQUIREMENTS

8.1 THE SOURCE CODE WILL BE PORTABLE

8.1.1 DESCRIPTION

The Source code will be compatible on Windows, Linux and MAC System.

8.1.2 SOURCE

Team

8.1.3 CONSTRAINTS

N/A

8.1.4 STANDARDS

N/A

8.1.5 PRIORITY

Critical

9 FUTURE ITEMS

In this section requirements with high priority are listed below for future reference.

9.1 ACCURATE INVENTORY TRACKING

9.1.1 DESCRIPTION

Customers shall be able to track the total number of a specific beer available in their inventory.

9.1.2 SOURCE

Nirjal

9.1.3 CONSTRAINTS

N/A

9.1.4 STANDARDS

N/A

9.2 AN ATTRACTIVE AND EASY TO USE USER INTERFACE

9.2.1 DESCRIPTION

Customers shall be able to navigate through our application without any confusion and complications.

9.2.2 SOURCE

Kunal

9.2.3 CONSTRAINTS

N/A

9.2.4 STANDARDS

N/A

9.3 INSTALLING APPLICATION

9.3.1 DESCRIPTION

The application will be installed in the client's device by private downloadable link provided by the team, the initial setup or installation must be required by the user.

9.3.2 SOURCE

Team

9.3.3 CONSTRAINTS

User must have access to internet connectivity.

9.3.4 STANDARDS

N/A

9.4 ACCURATE BARCODE SCANNING

9.4.1 DESCRIPTION

The system should accurately scan the bar code with minimal number of errors.

9.4.2 SOURCE

Team member

9.4.3 CONSTRAINTS

Internet connectivity is important to make the connection with the database to match the scanned bar code.

9.4.4 STANDARDS

All information should be stored in the database.

9.5 CREATE A STORAGE LOCATION WITH NxM ROWS AND COLUMNS

9.5.1 DESCRIPTION

The application shall be able to create and save a storage location in the format of NxM rows and columns

9.5.2 SOURCE

Chris

9.5.3 CONSTRAINTS

N/A

9.5.4 STANDARDS

N/A

REFERENCES