KITCHENTTE RECIPES

Functional Specification

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Section 1 - Introduction

The purpose of the Kitchenette mobile application is to allow users to manage food in the home. Users of the kitchenette app will be able to upload the food they have in their homes. After this, users will be able to see recipes for meals they can make based on food they already have in the home. The application will take features from existing applications which have already tackled this challenge. Existing features, including adding food, suggested recipes and compiled shopping lists will construct the core functionality of the kitchenette application. Unlike many applications on the market, the Kitchenette app will allow users to specific quantities of the food they have in stock for better suggestions and food management. The Kitchenette app will also incorporate features to allow users to customise their use of the application, including adding custom ingredients, or food items, and recipes. The following functional specification attempts to further explore and detail the features of the Kitchenette application.

Section 2 - Target Market

The Kitchenette application will have two main target markets. The first target market will be those who are concerned with food wastage in the home. Each year almost a third of all edible food produced becomes waste. In Ireland alone, almost 80kg of food per person is wasted (Bord Bia, 2017). The simplest way to reduce food waste is to plan meals for the week ahead of time. Using similar food to cook more than one meal rather than buying a wide variety of foods leads to less leftover food being wasted. Kitchenette will help users to see how the food they already have in their home can be used to cook a variety of meals. This should help prevent a lot of food becoming waste and help to reduce the sheer quantity of food a user buys per week.

The second target market will be aimed at those who want to manage their weekly shopping on a budget. The app will help to manage the food that a shopper will buy as well as the amount they will need for meals throughout the week. By being able to judge the amount of food they currently have in stock alongside the amount they will need to cook different meals, the user should be able to better manage their food budget. The shopping list functionality in the app will help the user to oversee what foods they do and do not need to purchase, instead of struggling to remember what is in their cupboard or buying duplicate products.

Section 3 - Functionality

The functionality of the Kitchenette application will be divided into three main sections, the cupboard section, the cookbook section and the shopping list functionality. The cupboard section denotes food the user currently has in stock in their home. The cupboard will be divided into main food categories such as Dairy, Meat, Grains etc. The user will be able to manage the cupboard section by adding and removing food from their stock. The cupboard section should also keep track of the quantity of each food item the user has in their home.

The cookbook section contains the user's recipes. Some of these recipes will be standard recipes stored in the applications database. The user should be able to add their own recipes or alter existing recipes. The Kitchenette app will suggest first to the user recipes for which they have all the ingredients they have in stock. For all other recipes, the app will highlight to the user the ingredients, or food items they are missing from stock to create this recipe.

The third main functionality of this app will be the shopping list functionality. The user will be able to add individual food items to the shopping list, or all missing ingredients from a recipe into the shopping list. The shopping list will present functionality to the user to tick off items they have picked up as they are shopping, and a list function to add those items to their cupboard later.

The functionality for this application is dived in core functionality and secondary functionality. The app functionality for each section is listed below.

3.1 - Core Functionality

The user should be able to add food items to their personal Cupboard inside the application. The application must also allow the user to add or remove a specific quantity of that food. The Cupboard should update automatically to display the updated quantity of food.

Upon viewing the Recipe Book, users should first be presented with Recipe options for which they have all necessary ingredients and enough quantities in their cupboard. These recipes are displayed as "Suggested Recipes." The user will see a list of recipes displayed when opening the Recipe book, with "Suggested Recipes" at the top of the list. After this, recipes will be displayed by order of increasing missing ingredients. Users will be able to filter results in the Recipe Book by Meal Type and Diet Requirements. If a user selects a recipe, and then selects "Make this Recipe," the cupboard should update to remove the ingredient quantities in the recipe from its stock. The Recipe Book should update its display as the Cupboard's stock is updated to display suggestions more accurately.

In the top right-hand corner of each food item page a shopping cart icon will be displayed. If the user taps this icon, the food item should be added to their shopping list. In the top-right hand corner of a recipe, the same icon will appear. If a user taps this icon on a recipe page, any missing ingredients will be added to the shopping list. The shopping list functionality will allow users to add more items to the list, using the search function, or remove them. A user can also indicate that they have "bought" an item, to be added to the cupboard later. A separate list of items marked as "bought" is compiled. From here, a user can add the food item to their cupboard and indicate its quantity. The user can also re-add an item to the shopping list or remove it from "bought" altogether.

3.2 – Secondary Functionality

A user should be able to create a new custom food item. The user should be able to enter details about the food and an identifying photograph. Once the user saves this custom food item, it will appear in their database as a normal food item for future use. The user should also be able to create a new custom recipe. The user will able to enter a description, method, name and identifying photograph for this recipe. The user should be able to select ingredients from the database to be a part of this recipe and indicate the measurements needed. Any custom food or recipe must be given a unique name. Users should be able to edit or delete custom food items and recipes at any time. A user should also be able to edit an existing recipe as a new custom recipe, for which it must be renamed.

The Kitchenette application should include functionality to scan a products barcode and update their cupboard. If a barcode is already attached to a food item in the database, the user should be able to automatically add the food and its quantity to the cupboard. If a barcode is unrecognised, the app should present the user to attach it to a food item and indicate its quantity. A list of barcodes scanned should be available for the user. From this list users can save a new barcode or update the Cupboard for the barcode's product.
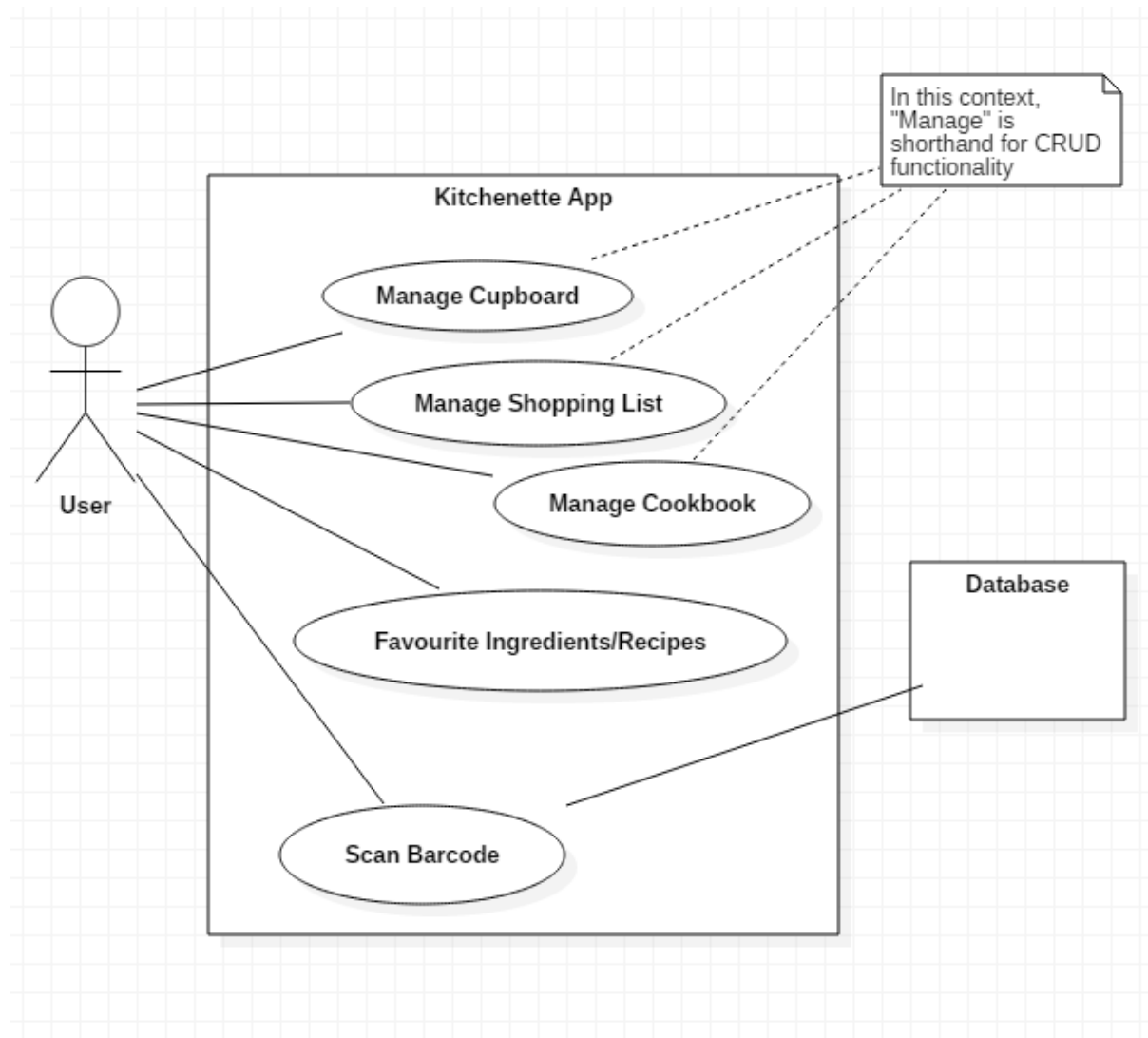
Section 4 - Context Diagram

Figure 1 context diagram for application

Section 5 – Use Cases

5.1 – Manage Food in Cupboard

Primary Actor:

User

Preconditions:

The user has the app installed on their device and has the app open.

Success Guarantee:

The user can successfully add food to their stock cupboard and update the quantity of this food they have.

Main Success Scenario:

1. The user opens the app menu and selects the Cupboard section
2. The user searches for the food item
3. The app will present the user with a list of similar matches
4. The user clicks on the food they want and selects "Add to Cupboard"
5. The app presents the user with the option to add quantity of the food item to stock
6. The user adds quantity and clicks done
7. The food is added to the cupboard stock

Alternate Flows:

3. The food the user searches for is not present
    a) The user creates a custom food
4. The user already has the selected food in the cupboard
    a) The app will display "Update Cupboard" – See Use Section 5.2
    b) The user can add or remove quantity from the food

5.2 – Add a New Ingredient

Primary Actor:

User

Preconditions:

The user has the app installed on their device and has the app open.

Success Guarantee:

The user can create a custom food item.

Main Success Scenario:

1. The user opens the app menu and selects the Cupboard section
2. The user selects the "Add a New Ingredient" option
3. The user inputs the food details including name, category (food group), a photo of the food and nutritional information
4. The user selects "Save New Ingredient"
5. The app will open the new custom food on a view page
6. The user can now add that food to their cupboard

Alternate Flows:

3. The user does not enter all the details of the food
   1. The Custom Food can still be saved but has incomplete information

5.3 – Manage Cookbook

Primary Actor:

User

Preconditions:

The user has the app installed on their device and has the app open.

Success Guarantee:

The user can add custom recipes in the cookbook, view recipes which they have all the ingredients to make and view recipes for which they are missing ingredients.

Main Success Scenario:

1. The user opens the app menu and selects the Cupboard section
2. The user selects to view recipes within a certain category (Breakfast, Lunch, Dinner etc.)
3. The app presents the user the option to view recipes for which they have all necessary ingredients and all other recipes
4. The user selects a recipe
5. The user selects "Make this Recipe"
6. The app will update the cupboard to remove the ingredients quantity in the recipe

Alternate Flows:

4. The user wants to make a change to the recipe
   a) The user can select "Create New Recipe" or "Edit Recipe" to make changes to the recipe
   b) The user can edit the Recipe description and method, change the recipe photo and add or remove ingredients and quantities
5. The user does not contain all the ingredients to Make the Recipe
   1. The app presents the user the option to add all missing ingredients to shopping list (Section 5.5)

5.4 – Favourite Item

Primary Actor:

User

Preconditions:

The user has the app installed on their device and has the app open. The user is on a view recipe or view ingredient page.

Success Guarantee:

The user can add ingredients and recipes to their "Favourites section" for ease of access.

Main Success Scenario:

1. The user selects the star icon on the item displayed in the top right corner of the page
2. The app will add this item to the Favourites List
3. The user selects the Favourites section in the app menu
4. The app presents the user with a list of any favourited ingredients and recipes
5. The user can now view any favourited items as normal

Alternate Flows:

a) The user tapped the star icon by mistake
   a. The user can reselect the star icon to remove the item from favourites

5.5 – Manage Shopping List

Primary Actor:

User

Preconditions:

The user has the app installed on their device and has the app open.
The user has the app open on a view food item page or a recipe page.

Success Guarantee:

The user can successfully add and remove food items from the shopping list

Main Success Scenario:

1. The user selects the shopping cart icon displayed in the top right corner of the page
2. The app adds the food item(s) to the shopping list
3. The user selects the Shopping list item in the app menu
4. The app presents the user a list of all items added to the shopping list
5. The user clicks the "+" icon on the food item
6. The item selected is added to a "bought" menu
7. The user selects the Bought list view option
8. The user can view the food item and add it to the cupboard (Section 5.1)
9. The item is removed from the shopping list

Alternate Flows:

1. The user did not mean to tap the shopping cart icon
    a) The user can reselect the icon to remove the item from the shopping list
5. The user did not mean to hit the "+" icon
    1. The user can hit the shopping cart icon again to read the item to the shopping list

5.6 – Barcode Scan

Primary Actor:

User

Preconditions:

The user has the app installed on their device and has the app open.
The user's device has a camera and the user has already granted the app permission to access the camera.

Success Guarantee:

The user can scan the barcode of a product and update the cupboard, adding the food and its quantity

Main Success Scenario:

1. The user selects the Scan Barcode option from the app menu
2. The app opens the device back camera with an outlined area to place the barcode
3. The user presents the barcode in the apps view finder
4. The app registers the barcode
5. The barcode is found in the database and the product information is presented to the user
6. The user can select "Add" and update the cupboard to include the food and its quantity
7. The user can now scan another barcode

Alternate Flows:

5. The barcode is not found in the database
   a) The user can select the barcode and save it to a food item with the products quantity
6. The user does not update the cupboard immediately, but continues to scan barcodes
   a) The barcodes scanned can be found in the "history" list view option and added to the cupboard later
   b) Unknown barcodes will be saved in the history section also to be saved later

Section 6 – App Screens

6.1 – Menu Screen

Figure 2 Navigation Menu Screen

The menu screen will provide access to all the main functionality of the Kitchenette application. It can be accessed from any screen via the symbol:
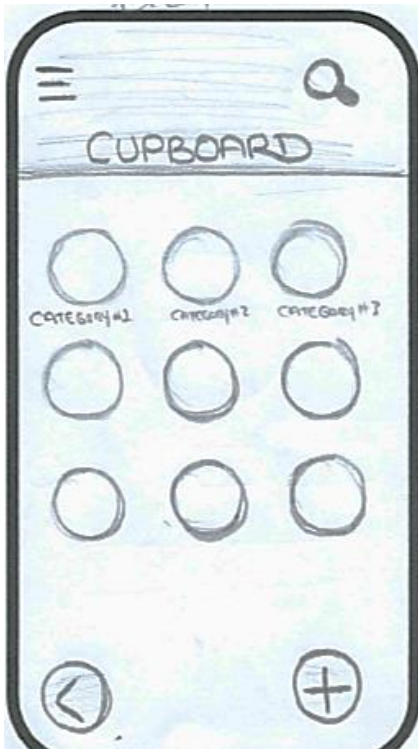
6.2– Cupboard Functionality

6.2.1– Menu

This will be the main access screen for the "Cupboard" section of the Kitchenette app. This screen is accessed via the menu displayed in Section 6.1. It will have feature shortcut icons to access different food categories including;

- Dairy
- Fruit and Vegetables
- Meat and Fish
- Baking and Grains
- Spices
- Condiments
- Desserts and Snacks

This screen will allow the user to browse through food in specific categories that they have in their home. They may also add new food from any screen in the "Cupboard" section using the "+" button.
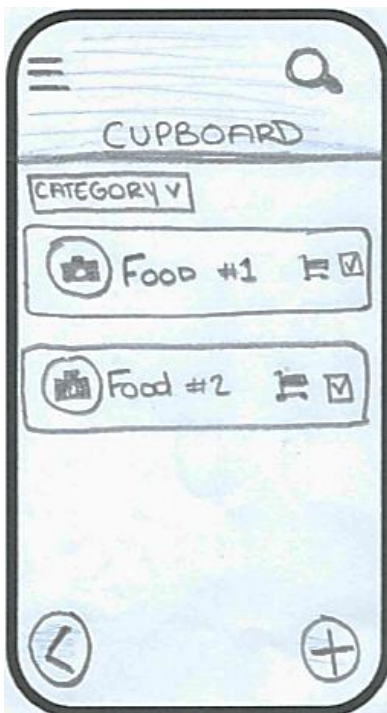
Figure 3 Main Cupboard Display

6.2.2 – Food in Category

This screen allows the user to view food in a certain section. It can be accesed by tapping on any category icon on the main page cupboard page. Food can directrly be added to the shopping list via the shopping cart symbol from this page. The user will be able to change the category they are viewing from the drop down box. By tapping on any food item the user will be able to more details about that food page.
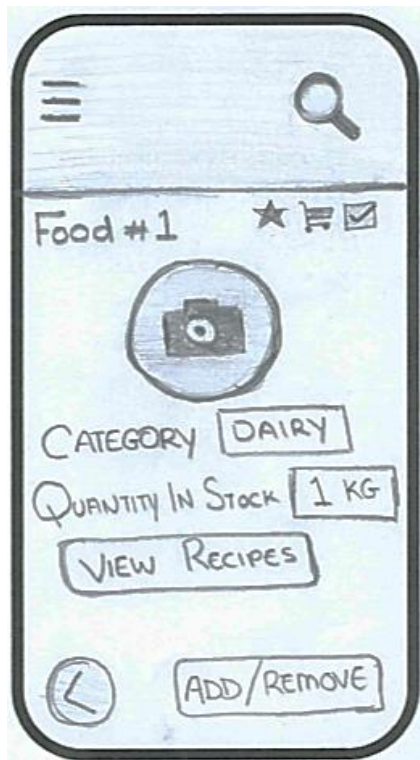
Figure 4 View Food in a Category

6.2.3 – View Food Item

This page can be accessed by tapping on any food item – as displayed in section 6.2.2 or anywhere else in the application a food item list is displayed. This page presents the user more details about the food and presents the option to favourite, add to shopping cart and add or remove a quantity of this food from stock.
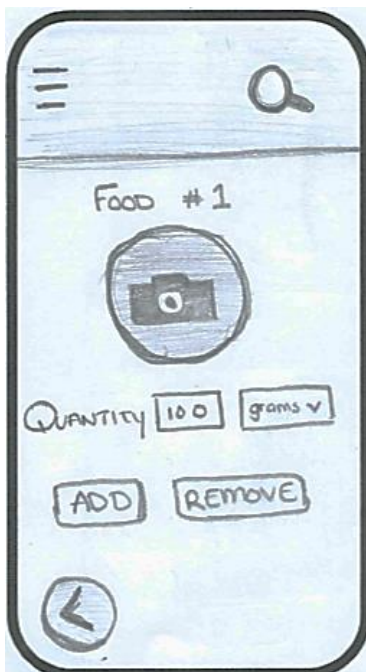
Figure 5 Display details of the selected food item

6.2.4 – Add or Remove Food Quantity

This screen allows the user to manually add or remove a certain quantity of food from their cupboard. The user will be able to choose which measurement to select from a drop-down menu, for example grams, cups or ounces. This screen is accessed by tapping the add/remove button on the screen displayed in Section 6.2.3.
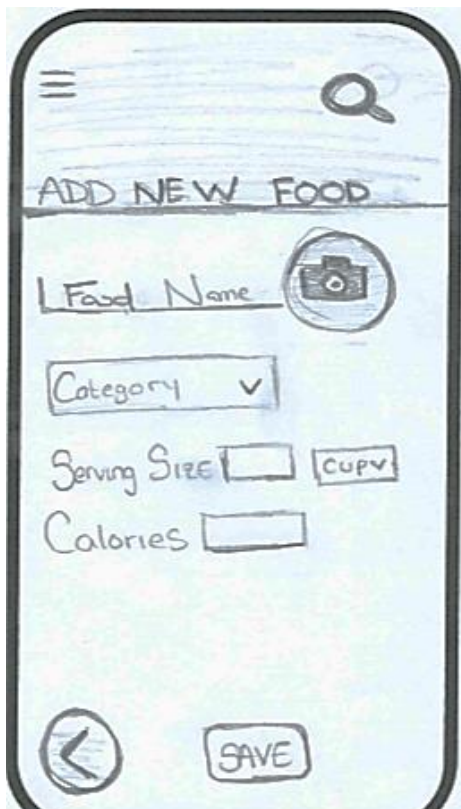
Figure 6 add or remove quantity of ingredient from the cupboard

6.2.5- Add New Food

This screen allows the user to add their own custom food item. The user can enter the name and details of the food alongside a photograph. This food will then be saved to the user's database for future use. The "Add New Food" screen can be accessed via the "+" symbol in Section 6.2.1 or Section 6.2.2.

Figure 7 Create New Custom Recipe screen

6.3 – Recipe Book Functionality

6.3.1 – Recipe Book Main Screen
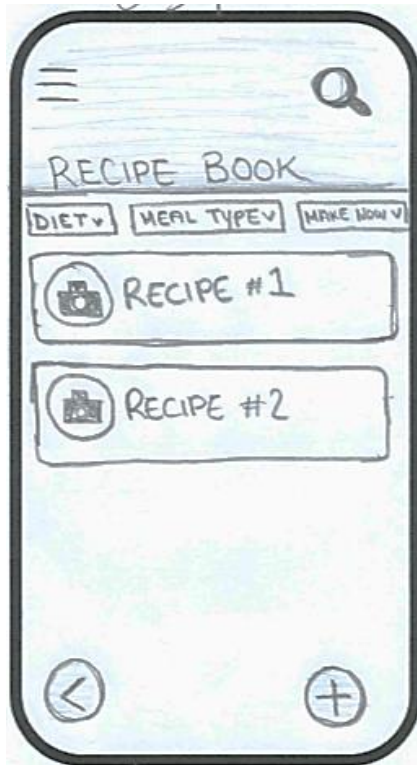
The main screen for the recipe book section of the Kitchenette application will contain a list of all recipes. The app will display firstly suggested recipes for which the user contains all ingredients in their cupboard. The user can then choose to narrow down search results with several drop-down options:

- Diet – (No Diet, Vegetarian, Vegan, etc.)
- Meal Type – (Breakfast, Lunch, Dinner)
- Make Now or All Recipes

This screen can be accessed via the Recipe Book option in the menu as shown in section 6.1

Figure 8View Recipes in the "Recipe Book"

6.3.2 – View a Recipe
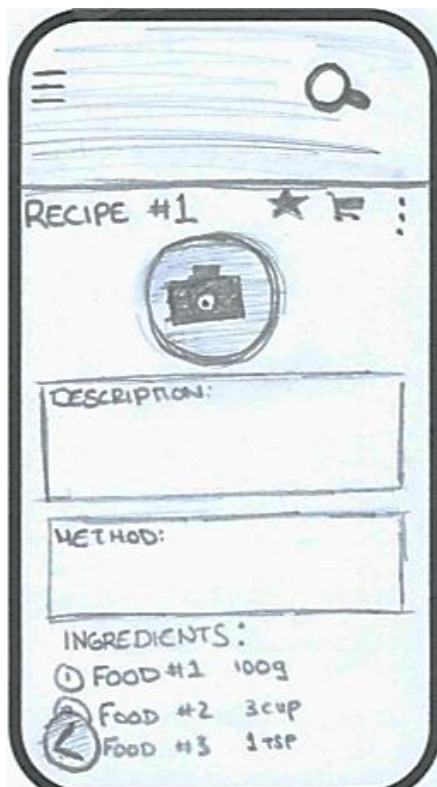
This screen will allow the user to view further details about a recipe. The user will be able to favourite a recipe via this screen or add all missing ingredients to their shopping list. The user will also be able to select the option to remove all ingredients and their quantities in the recipe from their cupboard – signalling they have made the recipe. This screen can be accessed by tapping on any recipe in Section 6.3.1.

Figure 9 View a Selected Recipe Item

6.3.3 – Create a New Recipe

Figure 10 Create a new Custom Recipe

This screen allows the user to create their own custom recipe and save it in their recipe book. The user will be able to add a description, method, photograph and name for their recipe. The user can also add any food items stored in the database with quantities to save as ingredients. This screen can be accessed via the "+" symbol displayed on the screen in Section 6.3.1. Once saved, the custom recipe will have the same functionality as all other recipes in the Recipe Book.

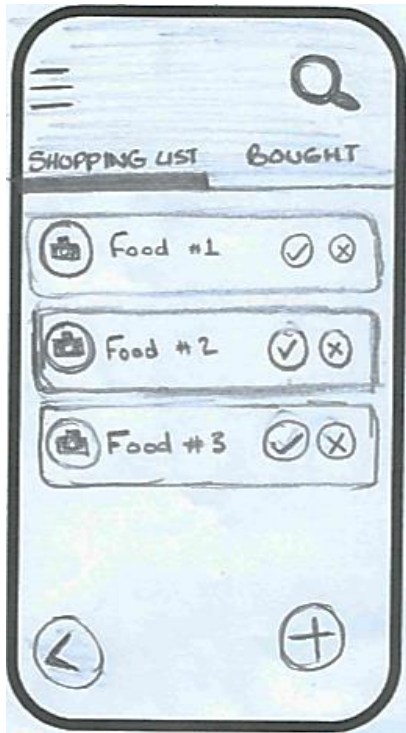## 6.4 – Shopping List

6.4.1 – Shopping List

This screen allows the user to manage their shopping list. Food can be added to this page by tapping the shopping cart symbol as seen on the screen in Section 6.2.3 or Section 6.3.2. New items can be added to the shopping list by tapping the "+" symbol displayed on the screen. Food can be removed from the shopping list by re-tapping the shopping cart icon on their own page or by tapping the "x" icon displayed here. By tapping the tick symbol, the food is moved from the shopping list tab to the bough tab.
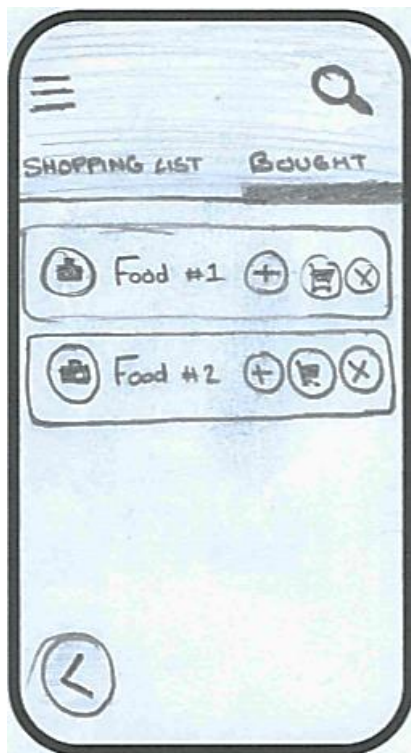
Figure 11 Shopping List Screen

6.4.2 – Bought Items

As mentioned in Section 6.4.1, food is added to this screen when the tick icon is tapped on the shopping list screen. Food is stored in a list on this screen to indicate it has been purchased and the user may then add the items to their cupboard later. Food items can be deleted from this screen by tapping the "x" icon, or re added to the shopping cart by tapping the shopping cart icon. By tapping on the "+" icon the user is taken directly to the screen shown in Section 6.2.4 to add a quantity of this food to their cupboard. Alternatively, the user can tap on the food item itself and be taken to the View Food screen shown in Section 6.2.3.

Figure 12 Bought List Screen

6.5 – Favourites

This screen can be accessed by selecting the Favourites option in the menu screen shown in Section 6.1. This screen is divided into two tabs – favourited food and favourited recipes. The food item or Recipe may be tapped and displayed from this page. Items can be added to the favourites section by tapping the star icon shown on screens in Section 6.2.3 and Section 6.3.2. This screen allows the user easy access to their preferred recipes or ingredients.

Figure 13 Favourite Food/ Recipes display
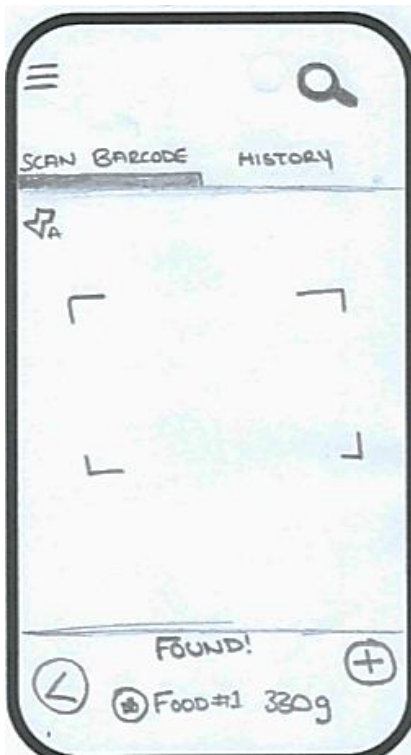
6.6 – Scan Barcodes

6.6.1 – Scan a Barcode
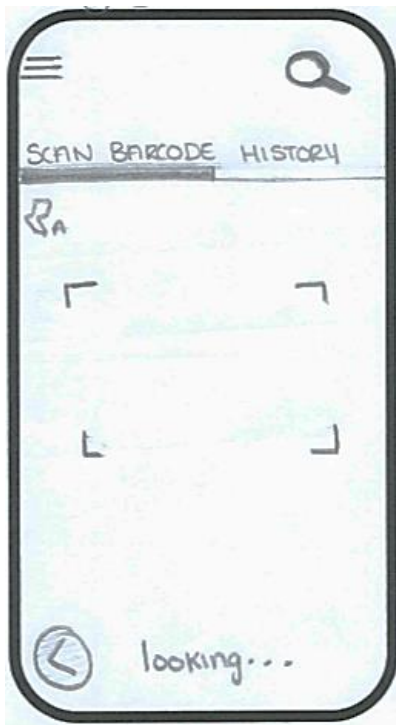
This screen opens the camera on the user's device. The user may align a barcode within the viewfinder on the screen so that it may be registered. This screen may be accessed via the Scan Barcode option in the main menu screen as shown in section 6.1.

Figure 14 Scan a new barcode

6.6.2 – Barcode Registered

Once a barcode has been scanned and registered by the application, the pop up at the bottom of the screen appears as shown. The user may directly add the food item to their cupboard if the barcode registered is already attached to a food in the database. Otherwise, they may save the barcode and attach it to a food manually. The user may also choose to ignore the popup and continue scanning barcodes. All barcodes scanned and registered will be saved in the History screen show below in Section 6.6.3.

Figure 15 Barcode Found and Popup

6.6.3 – View Barcode History
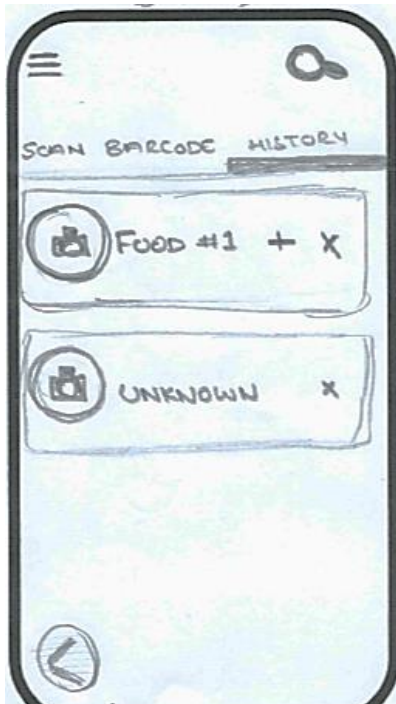
This screen can be accessed by tapping the History tab as shown in Section 6.6.1 and Section 6.6.2. This screen displays a list of all barcodes the user has previously scanned in the application. Any item can be removed from this list by tapping the "x" icon. If a scanned barcode is already attached to a food item, it can be automatically added to the cupboard by tapping the "+" symbol. If a barcode is not registered in the database, the user may choose to manually attach the barcode to save it for future use. This screen is shown in Section 6.6.4 below.

Figure 16 View history of scanned products

6.6.4 – Save an Unknown Barcode

This screen allows the user to save a previously unknown barcode and attach it to a food item in the database. The user may enter the quantity of the food so that it may be automatically added to the cupboard in future. Any barcodes saved by the user will be kept for future use. This screen can only be accessed by tapping on an unknown barcode on the barcode history tab shown in Section 6.6.3. The date the barcode was scanned alongside the barcode number will be displayed on this screen for easy identification.

Figure 17 Save a new barcode

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Bord Bia, 2017. *Food Waste - A Mind-Set.* [Online]
Available at:
https://www.bordbia.ie/industry/manufacturers/insight/alerts/pages/foodwasteamindset.aspx
[Accessed 21 November 2018].