

System Requirements Specification v1.0

Product: Waste Watcher

Customer: Senator George J. Mitchell Center for Sustainability Solutions

Development Team: Kayak Development Solutions

* Declan Brinn
* Gavin Palazzo
* Levi Sturtevant
* Chase Pisone
* Finn Jacobs

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# **Introduction**

This is a capstone project for Susanne Lee, Travis Blackmer, and Ryan Fitzmaurice in partial fulfillment of the Computer Science BS degree for the University of Maine.

The project is a food waste tracking system developed for the Mitchell Center here at the University of Maine.

## **1.1 Purpose of This Document**

This document outlines the product definition and purpose in exact detail. Additionally, it provides software requirements, functional and non-functional, of our product. The final goal of the document is to design the outline for all of the other deliverable items, such as User Interface Design Document, System Design Document, and the current open issues/action items of the project.

## **1.2. References**

The Mitchell Institute has provided Kayak Development solutions with a Google Drive shared folder, with documentation on all of Solution 1, the food waste tracking portion of the Mitchell Institute Food Waste Reduction Product. Additionally, within this shared drive are logos and color scheme graphics that have proved useful for the aesthetics of this product.

The documents proven useful are

* FRM\_LogoSet
* Home Tracker
* Home tracker V2
* ColumnTrackers
* Useful Notes/Powerpoints

These have all been named and created by team members at the Mitchell Institute

## **1.3. Purpose of the Product**

The primary purpose of this product is to provide users a helpful and easily accessible way to track and see statistics about their food waste. It is going to be used by the Mitchell Center as part of their broader Food Waste Reduction project. This project’s main objective is to eliminate food waste in the state of Maine.

## **1.4. Product Scope**

Please see theUse Case and other UML diagrams detailed in the System Design Document for definition of system boundary.

# **2. Functional Requirements**

This section serves to break down all of our functional requirements into descriptions based on use case diagrams and use cases. This is to define the effect each choice the user makes based on the requirements provided. All possible scenarios need to be accounted, expected, and adjusted for. The use case tables can be found in this document: [Use Cases](https://docs.google.com/document/u/1/d/1IgSAoXIqAjVO52giiP1NiDj9UMct7N-4spD_b5x_dbA/edit)

**System Requirements**

1. The system shall allow the user to enter daily food waste information (amount by weight or volume, the type of food by category, the cause of waste, and the meal eaten/BLD into UI.
2. The system shall request and store: username, zip code, household size, user gender, age and income range.
3. The system shall allow the user to add friends and family and see their food waste history if the other user allows.
4. The system shall provide a referral option (link to app store) to elicit users to invite their friends/family to use the application.
5. The system shall include an option to opt out of data collection other than location.
6. The system shall include other language support
7. The system shall use user data to create a “leaderboard” of food waste reducers based on food waste reduction percentage, as well as by participation streak.
8. The system shall allow the user to earn progress-based badges to their profile .
9. The system shall provide food saving tips to the user based on their type or cause of waste.
10. The system shall have a history feature that displays the users past food waste data in a

calendar view.

1. The system shall include a stock-ticker like view displaying food waste trends
2. The system shall display the total approximate cost of their food waste for a selected time period.
3. The system shall display town/county statistics about how much food has been donated weekly, as well as the average food waste per person of users in each town.
4. The system shall model statistics (graph, map, table...) based on how much food is

wasted in Maine statewide. Specifically, total average waste per person, cause proportion, and category proportion statewide, as well as at municipal levels will be calculated.

1. The system shall store information related to home/away from home eating habits (meals eaten away from home per week) and shopping habits (grocery shopping trips per week).
2. The system shall record information related to user habits
3. The system shall provide a section that contains additional food waste resources per interest.

# **3. Non-Functional Requirements**

Non-functional requirements break down different operational standards that the system shall adhere to. These non-functional requirements are represented as tables detailing the requirements, priority and a brief testing plan for testing the respective NFR. Below is a list of NFRs. This [NFR Tables](https://docs.google.com/document/u/1/d/1JDkr480TiPS3vLnCo3UH3O_DsOQ5k57UWeLk5oTjQbA/edit) document gives more detail about these NFRs.

* The system shall work cross platform between IOS and android devices
* The system shall be able to support 5000 concurrent users
* The system shall be able to query any user data from a database within 2 seconds 90% of the time
* The system shall store user information entered into the UI in the database within 2 seconds 90% of the time
* The system shall be able to process touch screen input from the user within 2 seconds 90% of the time
* The system shall adhere to the US Privacy Act of 1974
* The system shall implement hashing for user locations
* The system shall implement hashing for demographic information
* The system shall generate food waste statistics with data collected within the last week
* The system shall generate food waste statistics within 3 seconds of the user navigating to the statistics page of the application

# **4. User Interface**

This sections serves as reference to our User Interface Design Document in which we detail the aspects of the User Interface we chose for Waste Watcher

See User Interface Design Document for Waste Watcher

# **5. Deliverables**

This section details which deliverables and which various documents will be delivered to the customer. Each deliverable will be given to the client both electronically and in a paper format if they request it.

Product: Waste Watcher- Format, Source Code, Executable Code, Object Code

Hard copies of each of the following:

* Systems Requirement Specification -Due: Oct. 20th 2022
* System Design Document -Due: Nov. 10th 2022
* User Interface Design Document -Due: Nov. 29th 2022
* User Manual - TBD
* Administrator Manual - TBD
* Copies of all Biweekly Status Reports

An electronic file containing the following:

* Systems Requirement Specification
* System Design Document
* User Interface Design Document
* User Manual
* Administrator Manual
* All source code
* The executable program
* Any other software required for installation and execution of the delivered program.

Presentations

* Present Critical Design Review Document in class to employer
* Present Final Product
* Present project results at 3rd Annual Maine Statewide Food Waste Solutions Summit Meeting (virtual) in April 2023.

# **6. Open Issues**

* Choice of Database
* Choice of PL

# **Appendix A – Agreement Between Customer and Contractor**

By signing this document both parties agree on the information outlined in this document. This System Requirements Specification document clearly outlines the requirements of the system that must be completed prior to the success of this project.

In the event that this document must be changed a meeting must be held among both parties and a proposal to amend or repeal document information must be presented to the affected party. If all members agree, the S.R.S. will be updated to reflect the changes and all previous renditions are thus void.

**Kayak Development**

SIGN Declan Brinn X

SIGN Chase Pisone X

SIGN Finn Jacobs X

SIGN Levi Sturtevant X

SIGN Gavin Palazzo X

**Solution 1 Mitchell Institute**

SIGN Ryan Fitzmaurice X

SIGN Susanne Lee X

SIGN Halle Rogers X

SIGN\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_X

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# **Appendix B – Team Review Sign-off**

Place on a separate page. Provide a brief paragraph stating that all members of the team have reviewed the document and agree on its content and format. Provide lines for typed names, signatures, dates, and comments for each team member. The comment areas are to be used to state any minor points regarding the document that members may not agree with. Note that there cannot be any major points of contention

| Name | Signature | Date | Comments |
| --- | --- | --- | --- |
| Gavin Palazzo | G.P | 10/20/2022 | No points of contention |
| Chase Pisone | C.P. | 10/20/2022 | No points of conenetion |
| Levi Sturtevant | L.S. | 10/20/2022 | I have no points of contention |
| Finn Jacobs | F.J. | 10/20/2022 |  |
| Declan Brinn | D.B. | 10/20/2022 | Everything looks good, I did not have any points of discrepancies |

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# **Appendix C – Document Contributions**

Levi: Worked on use case tables, Section 1 references, Section 1 purpose of product, Section 1 product scope, Section 2, Section 5 and Section 6 - 25%

Finn: Identifying non-functional requirements and creating tables - 15%

Declan: Worked on use case tables, intro, purpose of product, product scope and NFR intro. Also helped Finn with identifying non-functional requirements - 20%

Chase: Worked on requirements, ranking requirements, and use case tables: 25%

Gavin: Worked on functional/non-functional requirements, use cases, helped communicate with clients to come up with app name - 15%