

Vision Document

Dumpster Finder

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Spring 2021

Task 17
version 1.2

Audit history

Date	Version	Description	Author(s)
12.01.2021	0.1	Creation of document	Helene Y. Jonson
13.01.2021	0.2	First draft	Tore Bergebakken, Jon Åby Bergquist and Helene Y. Jonson
18.01.2021	0.5	Rough draft finished	Tore Bergebakken, Jon Åby Bergquist and Helene Y. Jonson
19.01.2021	1.0	Finishing touches	Tore Bergebakken and Jon Åby Bergquist
25.01.2021	1.1	Small changes	Tore Bergebakken and Helene Y. Jonson
18.05.2021	1.2	Grammar and layout fixes	Tore Bergebakken

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1 Introduction

The purpose of this project is to create an app that makes dumpster diving easier, and this document outlines what we intend to achieve. The primary goal of the project is an app that allows communication between dumpster divers about dumpsters, while ensuring that their privacy is maintained.

2 Summary of problem and product

2.1 Problem summary

There is no current system that this project is building on, however there are some solutions to similar problems. Some dumpster divers use social medias like Facebook groups ([link](#)) for communicating with other dumpster divers, which does not focus on privacy and is not a specialized tool. This project aims to be a simpler and more efficient solution that also focuses more on security and privacy.

Problem with	distributing information about local garbage bins in an area; currently done through various divergent means
involves	dumpster divers.
As a result of this,	there is no centralized source of information on dumpsters and their related metadata.
A successful solution will	let divers share information (location, types of trash etc.) in a more organized and private fashion.

2.2 Product summary

Made for	dumpster divers
that	want to be able to see what's in dumpsters without visiting them all, and tell others what's in them.
The product	is a mobile app
that	allows people to see and add information on dumpsters so they can only search the ones they find relevant.
As opposed to	things like Facebook groups
our product	focuses on security, will not store personal data and is purely practical, not a social media

3 Overall description of stakeholders and users

3.1 Summary of stakeholders

Name	Description	Role during development
Donn Morrison	Lecturer that wants this app made	Product owner
Tore Bergebakken, Jon Åby Bergquist, Helene Yvee Jonson	Those who design the system and write the code – they get to keep the fruits of their labour	Developers

3.2 Summary of users

Name	Description	Role during development	Represented by
Dumpster divers	People who search dumpsters for food and other salvageable items	Interview subjects, end-user representatives	Donn Morrison and potential interview subjects

3.3 User environment

The product is an app that should be available for both android and iOS, and optionally for desktop computers. It will be designed to be used in whichever context the user desires, so the *physical* user environment is very broadly defined.

3.4 Summary of user needs

Need	Priority	Concerns	Today's solution	Proposed solution
Find dumpsters in the local area	High	Dumpster divers	Various means of localized information sharing	Let users enter their location, find and display dumpsters in an area around that position – on a map or as a list
See dumpster information/metadata	High	Dumpster divers	Gather information from various sources	Let the app display useful information about a dumpster
Share the location of a dumpster	High	Dumpster divers	Various means of giving directions	Let (registered) users place a marker on a map where a dumpster is
Add dumpster metadata	High	Dumpster divers	Again, all sorts of information sharing	Have (editable) fields for telling whether the dumpster is locked, when it tends to be emptied, etc. – and let users add things like photos, tags and food quality ratings
Review or post experiences about specific dumpsters	High	Dumpster divers	Posting experiences on miscellaneous social media	Let (registered users or any users) add reviews to a specific dumpster's entry
Share photos of dumpsters and their contents	High	Dumpster divers	Posting pictures to image sharing sites or other social media	Add or take pictures of dumpsters through the app
Protect the users' privacy	High	Dumpster divers	Depends on the method used for sharing information	Store and transmit as little identifiable information as possible, ensure no malicious third party can access <i>all</i> data in our database, etc.
Prevent spam and misinformation	Medium	Dumpster divers and maintainers	Same as above	Have (local) admins clean up content AND/OR let users rate dumpsters by factuality/quality and thus make the system handle the issue dynamically AND/OR some kind of rating for users, possibly based on non-infringing information like the device number for the phone

3.5 Alternatives to our product

Too Good to Go is an app that lets shops arrange controlled hand-outs of food that would otherwise be thrown away. This does *not* take care of food that actually ends up in dumpsters, and is not a viable solution for the problem our product aims to solve.

There are various Facebook groups like "Dumpster Diving & Foodsharing Trondheim" that focus on dumpster diving, where people may post information about dumpsters, but that does not seem to be the main purpose. Those groups are more about food sharing.

4 Product overview

4.1 Its role in the user environment

It will be a tool to make dumpster diving more efficient and less time consuming, while making sure that the users' privacy is not disturbed.

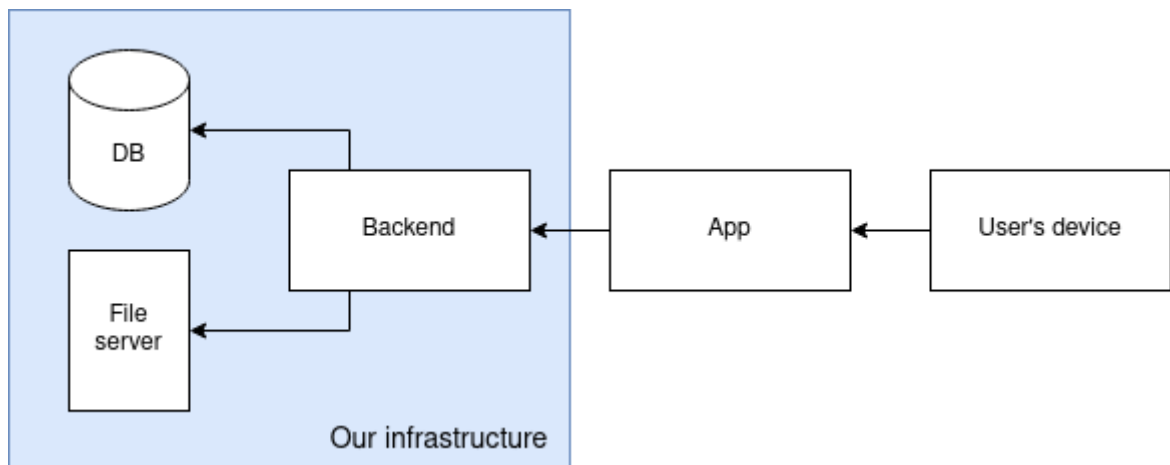


Figure 1: Illustration of the product's architectural relation to a user's device

4.2 Assumptions and dependencies

We assume the following:

- There is an issue with perfectly edible food being thrown away
- Dumpster divers typically have access to smart phones
- There is no good solution that satisfies our criteria on the market today
- We will implement a solution that does not require a user system

Our product depends on these conditions:

- That future updates to either IOS or Android don't conflict with our code, if such a conflict were to arise, we would need a maintainer updating the app
- That the 3 layers (app, backend and database) communicate with each other without issues
- The only external dependency the app utilizes is OpenStreetMap ([link](#))

5 Functional properties

1. The ability of for the user to add their location, will give suggestions (cities) based on letters written
2. Display a list with all dumpsters in the given area
3. Show the list as nodes on a map (position is part of the data)
4. Be able to choose any individual dumpster, either from the list view or from the map, and go to a page with its data
5. See the data for a specific dumpster. This will include information about whether it is locked or not, if it is a compressor, how dirty it is, its position, its emptying schedule and more.
6. Add which items are located inside the dumpster, and useful info like expiration dates and amounts
7. Upload images related to the dumpster or its contents
8. Add a new dumpster on the map, including any data
9. Update a specific dumpster's information
10. Update the products in a dumpster, change the amounts of the product that is available
11. Move the map to a new location to see the dumpsters in that area
12. The ability to choose whether to only see recent additions (following the emptying schedules or some predefined constant) to dumpsters or see all information.
13. Search for the products you want and only show the relevant dumpsters
14. Rate the information about a dumpster, so that others know if it's useful or not
15. Rate a user's reliability so that the information they post in the future can be blocked
16. Be able to filter out information from poorly rated users
17. Be able to filter out dumpsters that don't meet your criteria – filter by food quality and the like

6 Non-functional properties and other requirements

This section uses the *FURPS* model for software quality. ([link](#))

6.1 Functionality

The product shall be usable for all the intended purposes, as described in sections 5 and 3.4.

6.2 Usability

The product shall be easy to comprehend and use for people with various disabilities or lack thereof.

6.3 Reliability

The backend should have a reasonable uptime (99%, ideally) and be able to avoid crashing under unexpected circumstances (invalid input and the like).

6.4 Performance

The backend should perform well under expected load, and perform decently under loads that exceed our expectations.

The frontend – that is, the mobile app – should be performant and run smoothly without being too taxing on the phone’s hardware. This might be limited by our choice of framework.

6.5 Security

The product shall not store identifying information or other sensitive data that could be traced back to its users.

We will take particular care when it comes to transmitting and storing location data.

User accounts, if any, shall be protected with the usual measures – passwords shall be stored and transmitted securely.