

Lab 1 - Product Description Outline

Spoiler Alert

Team Bronze

CS 410

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1. Introduction

Food recalls are an ongoing public health concern, affecting millions of consumers every year. According to the U.S. Food and Drug Administration (FDA) and the U.S. Department of Agriculture (USDA), hundreds of recall incidents occur annually due to contamination, undeclared allergens, or foreign materials in products (University of Nebraska-Lincoln, 2025). Despite the frequency and seriousness of these events, many consumers remain unaware of active recalls until it is too late. This lack of awareness contributes to preventable illnesses and even deaths caused by unsafe food consumption.

The core issue lies not in the absence of recall information but in how it is distributed. Current recall communication systems rely heavily on official government websites and static email alerts, which are often overlooked by the public. Studies show that only 13 percent of Americans regularly check FDA or CDC sites for recall updates, and fewer than 3 percent subscribe to automatic alerts. This information gap leaves the most vulnerable populations — such as children, the elderly, and those with allergies or weakened immune systems — at increased risk of exposure to contaminated products.

Three main gaps exacerbate the problem: Awareness Gap: Recall notices spread slowly and unevenly, leaving many consumers uninformed; Engagement Gap: Consumers often underestimate the urgency of recalls; Customization Gap: Existing systems lack personalized alerts tailored to user needs.

A modern solution must be centralized, personalized, immediate, and trustworthy. It should gather verified recall data directly from government sources and deliver it through user-preferred channels (such as push notifications or email) in clear, concise language. Users should be able to filter recalls by allergens, track their inventory, and receive real-time alerts that help them act quickly. By combining accessibility with customization, such a platform can motivate engagement and enhance safety.

Spoiler Alert is an innovative mobile application designed to bridge these gaps. The app provides personalized, immediate, and dependable food recall alerts to help consumers and families avoid unsafe products. Features include barcode and receipt scanning, custom allergen filters, and real-time push notifications from FDA and USDA data. By bringing clarity, speed, and trust into recall communication, Spoiler Alert aims to ensure that no consumer is left unaware — and that there are no surprises at the table.

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1.1 Problem

1.1.1 Problem Statement

1.1.2 Who is Affected

- Everybody
- Parents
- People with Allergens
- Immunocompromised People
- Companies

1.1.3 Problem Characteristics

- Awareness Gap
- Engagement Gap
- Customization Gap
- Urgency Gap

1.2 Solution

- Develop SpoilerAlert— a mobile and web application that provides personalized, real-time notifications of food recalls.

1.2.1 Solution Statement

- SpoilerAlert bridges the gap between recalls issuers (FDA, USDA, CSPP) and consumers by automating and customizing recall alerts.

1.3 Solution Characteristics

- Delivers real-time alerts through email or app notifications.
- Integrates multiple APIs (FDA, Barcode Lookup) for comprehensive recall detection.
- Supports barcode and receipt scanning for personalized recall matching.
- Stores user data securely for future recall cross-referencing.

2. Product Description

2.1 Key Product Features and Capabilities

- Spoiler Alert streamlines recall awareness with multiple methods of notification.
- Spoiler Alert has functionality to specialize the type of reports based on factors like:
Allergies and Location
- The user can scan receipts and barcodes for Spoiler Alert to track what recalls the user may be at risk of.
- Provide real-time recall notifications via email and mobile app alerts.
- Aggregates recall data from FDA, USDA, and CPSC databases to ensure complete and accurate information.
- Offers a personalized inventory summarizing all active recalls affecting the user's stored products or scanned items.
- Allows users to filter recalls by type or category (food, cosmetics, and medicine).
- Utilizes cloud-based data synchronization so that updates reach users across all their devices.
- Integrates a search and filter function for recalls by product name, brand, or UPC.

2.2 Major Components (Hardware/Software)

- App as the main user interface.
- Spoiler Alert Servers
 - Our servers grab data from the FDA API.
 - Our Servers try to pull information from the API to alert users about the recall.
 - Our servers will save previous user purchases to the servers to alert them about future recalls.

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- In the case that a UPC cannot be gathered from the recall, a Spoiler Alert employee will manually gather all relevant UPCs and link them.
- Include MFCD from the slides?

3. Identification of Case Study

3.1 Who is affected by recalls?: A case study

3.1.1 WHO

- A single mother of three, with two children who have severe allergies.

3.1.2 WHAT

- The problem: She struggles to monitor food recalls and misses critical alerts from the FDA.

3.1.3 HOW

- She'll use SpoilerAlert:

The single mother goes to the grocery store and buys some chicken to make for her and her children for dinner. She scans her receipt into the app after her purchase to log all of her groceries into her personalized inventory. The next day, she plans to use the chicken, but get's an alert from the app that it has been recalled due to salmonella. Luckily, she received this alert before her or her children consumed it.

3.2 FEATURES

- Personalized inventory in-app based on the users purchases that they can log manually or with scanning a barcode or receipt
- Notifications for recalls of any purchased products or logged allergies in whatever form the user decides

3.3 Future Capabilities

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- Advertisements from sponsors for general users that stop when upgrading to premium
- The opportunity to opt into text messages for notifications

3.4 Other Potential Users

- Individuals who have dietary restrictions or have children with them
- Business owners and managers
- Immunocompromised individuals

4. Glossary

- Product Recall
- Recall Reviewer
- FDA
- CDC
- UPC
- CPSC
- API
- Allergen
- Immunocompromised
- Contamination

5. References

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