

# **RapidRecall: Intelligent and Consistent Medical Recall Notification System**

*Sponsored by Cottage Health*

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**Team Name:** RapidRecall

**Project Title:** RapidRecall

## **Team Members**

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## **Industry Partner**

Cottage Health is a leading hospital system based in Santa Barbara, California. It oversees over 600 medical staff and provides critical services such as urgent care, hospital care, and rehabilitation for California's Central and South Coast. At Cottage, the Compton Center for Medical Excellence and Innovation focuses on propelling clinical and operational innovation for health care delivery through research and support, sponsoring projects that improve healthcare for the communities that Cottage serves. Our industry mentors are the following:

- Kathryn Bazylewicz - [kbazylew@sbch.org](mailto:kbazylew@sbch.org)
- Yulun Wang - [ywang@sovato.com](mailto:ywang@sovato.com)
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## **Problem Statement**

Unsafe or ineffective medical devices present significant risks to patients. In 2024, more than 1,000 medical device recalls were issued in the U.S. Each recall generates multiple notification variations, flooding healthcare systems with mail and creating 'alarm fatigue.'

Today, there is no effective standardization of manufacturer recall notices. It is up to the recipient to read and decipher whether any given notice is relevant and urgent at their facility. At Cottage Health, recall notices may arrive via certified mail, standard mail, private delivery carriers, emails, phone calls, and they are sent to different recipients, sometimes based on the vendor's individual contact at the facility. Once a recall notice is received by Cottage's Supply Chain team, staff checks electronic inventory records using the manufacturer name, code, lot number and date of purchase, to determine whether any of the recalled item is within the system.

Standardizing and improving the recall notification process would involve regulatory action from the U.S. Food and Drug Administration. This could take years. In the meantime, preventable patient harm could occur. To better protect patients, our team aims to design a recall management system that rapidly and consistently responds to recall information within Cottage Health.

### **Existing Solutions**

ECRI is the market leader in the recall notification services field. However, its current recall management system, Recall Management, is only compatible with Workday, making it difficult to integrate with healthcare systems nationwide. \*Information repository - gives recall notifications, not a solution

\*Human scans the envelope/contents, determine where to notify to recall

### **Project Overview**

RapidRecall is an agentic medical product recall system that integrates with any enterprise resource planning (ERP) system. This system is designed to rapidly identify, assess, and act on critical recall notices.

\*Respond to recall

### **Project Goals**

- Design an agentic system that automatically ingests recall notice images, processes it into actionable information, and alerts staff at Cottage Health
- Create an intuitive dashboard
- Integrate with the 3 most popular ERP systems
- Achieve adoption by Cottage Health

### **Initial Milestones**

- Explore existing product recall system software (e.g., ECRI) and pinpoint its practices and limitations
- Create a product/system design and specification document that has been iterated with mentor feedback
- Craft an initial MVP for the auto-recall system (see technical approach for skeleton)
- Allocate responsibilities to team members
- Understand more precisely how Cottage plans to integrate our system. Do they plan to use it as an API? If so, how exactly do they expect the output to look

### **Technical Approach**

- Use of an email where pdf documents can simply be emailed over as opposed to scanning
- Input: PDF
- Adhere to Agile methodology
- Python Flask backend, JS frontend

- Use OpenAI Vision API to extract text from mail image
  - Experiment with other image APIs
  - Non-AI approaches: Tesseract OCR
- Classify the text using another LLM
- Agent model prompt:
  - **Relevance:** Correctly identify whether image is a recall
  - **Urgency:** Classify the recall as Class I, II, or III recall type, and whether it is issued by the manufacturer or the FDA
  - **Action:** Connect to ERP service to handle alerting relevant teams to stop the use and distribution of the recalled items depending on inventory and location from the hospital's ERP software
- Integrate a database to store historical recall data (date received, notification method, date of acknowledgement, etc.)
- (Stretch goal) Add search capability to find specific recalled items from database
- (Stretch goal) Build an iOS or Android application to support recall envelope/notice scanning feature

### **Expected Benefits & Impacts**

- Significantly reduce the time it takes to process the recall
- Minimal human effort after recalls are scanned
- Accessible for all Cottage Health employees at one centralized location via RapidRecall