# Smart Grocery Expiry Management System

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## 1. Template for Initial Problem Statement and Definition

### Background:

In both households and retail environments, a large volume of grocery items is discarded due to poor expiry tracking. Manual methods of monitoring grocery shelf life are inefficient and error-prone, resulting in avoidable food wastage, financial loss, and negative environmental impact.

### Problem Definition:

There is no existing intelligent and user-friendly solution to automate the detection and tracking of expiry dates of groceries. Consumers and retailers often forget expiry timelines, leading to unhealthy consumption or wastage.

### Objectives:

- To build a smart system that monitors grocery items’ expiry dates  
- To alert users in advance regarding approaching expiries  
- To reduce food wastage and optimize usage  
- To provide useful insights and analytics on inventory turnover

### Scope of the Project:

- Integration with barcode, RFID, or QR code readers  
- Mobile or web-based inventory management  
- Expiry alerts via push notifications or email  
- Analytics dashboard for usage and expiry trends  
- Recipe suggestions using soon-to-expire items

### Stakeholders:

- Household users  
- Retailers and supermarkets  
- Grocery delivery platforms  
- Food NGOs and waste reduction initiatives

### Limitations:

- Dependent on proper data input (if barcode data is incomplete)  
- Limited effectiveness in areas without digital literacy

### Expected Outcome:

- Automated expiry tracking system  
- Enhanced food usage efficiency  
- Reduced grocery-related wastage  
- User engagement through helpful expiry-based suggestions

### Tools and Technologies Used:

ChatGpt -- information and framework,

Gemini, Canva—image generations.

### Requirements:

Functional Requirements:  
- Product registration via barcode/RFID input  
- Expiry date auto-fetch or manual entry  
- Real-time alerts  
- Visual dashboard for inventory  
- Recipe suggestion engine  
  
Non-Functional Requirements:  
- Easy-to-use UI/UX  
- Secure data storage  
- Scalable for both home and retail use

## 2. Newspaper Advertisement Inviting Tenders for the Project

## 3. Draft Generative AI Prompts to Automate Problem Definition and Documentation

1. Generate a detailed problem statement for a Smart Grocery Expiry Management System that helps reduce food wastage in households and stores.  
2. Draft a scope document for a software project that uses barcode scanning and expiry alerts to manage grocery items.  
3. Create a list of features for an AI-based inventory and expiry management system for groceries.  
4. Write a user story document from the perspective of a household user using an expiry tracking app.  
5. Prepare a functional requirement specification (FRS) for a smart grocery expiry tracker.  
6. Generate use cases for a grocery expiry management system integrated with smart devices.  
7. Create a Gantt chart and timeline for a 3-month project to build a grocery expiry alert app.