



18th IEEE UAE Student Day Competitions
Academic Year 2023 - 2024
Software Engineering Project (SEP) Competition

Household Food Waste Management App

I. Competition Rules

1. Only **IEEE UAE Students Members** are eligible for this competition.
2. Each institution can submit a maximum of two entries in this competition.
3. Each competing team shall have no more than four students.
4. The contestants shall not use any unauthorized or unlicensed software.
5. The source code and all relevant documentation shall be made available to the competition coordinator and the judges on the day of the competition.
6. Salient features of the software shall be documented with the aid of an A1 size Poster.
A brief user manual shall also be provided.

II. Project Summary

In this project, students are required to demonstrate their skills in software by developing a mobile app that aims to solve household food waste problem. Too much available household edible food is thrown away every day, and this problem can be reduced by providing digital solutions that help people monitor the expiry dates of food that they store and inform them about near local food banks.

III. Technical Specifications

Students are required to implement all the following features:

1) **Adding food items**

When adding a new food item, the user should define the following attributes: category, name, weight or quantity, and the expiry date. Some of these attributes can



be optional. The user should also be able to modify these attributes, when needed. By default, there are several standard categories. These include bread, milk, cheese, chicken, meats, fruits, and vegetables. The user can define new categories as well.

2) Scanning the expiry dates

When adding a new food item, it should be simple for the user to enter the expiry date for the food item. This can be done by supporting the feature of scanning the expiry dates. When an expiry date is read, it is displayed to the user who can confirm the date or change it if necessary.

3) Scanning the barcodes of food items

When adding a new food item, the user can scan the bar code as well. This should ease adding new food items by scanning the bar code to automatically identify the item and fill in its details. The user should always be prompted to confirm the details of new food items before adding them. Also, the user should be able to edit the details of any food item stored by the app.

4) User notification:

When the expiry date of a food item stored by the app is close, the app should notify the user about this. There should be a default pre-expiry period before notifying the user which may depend on the food category, and the user should be able to change this period as well.

5) Near local food banks

When the user is notified of the expiry date of a food item, there should be an option to display local food banks that are near to the user's address.

6) Informative Tips

The app provides regular tips related to food waste. These tips aim to make the user



more informed about the food waste problem. In addition, these tips may include suggestions to make users play a more effective role in addressing the food waste problem.

In addition, there are several bonus features that will be considered during evaluation:

- There are different Android and iOS versions of the app. Alternatively, the same codebase can run on multiple platforms (e.g., consider using cross-platform app development frameworks such as Flutter).
- The application of AI in the implementation of some of features. For example, the user can scan a food item using the camera and the app can automatically assign the food items to its category by using video or image recognition technology.
- The app attempts to encourage the users to drop food at local food banks. For example, users can be rewarded with points when they drop foot items at local food banks. In this case, volunteers at the participating food banks can access the system via a web dashboard to credit users with points. Users can earn badges when they collect a certain amount of points and share these badges on social media.

IV. Poster and User Manual

The students are required to provide:

- A brief user manual.
- An A1 size poster to provide a concise software description and depict the technical specifications / methodology / tools / techniques used in the development of the system.

V. Testing Procedure

Each team must provide the smartphone device with the executable for the mobile application installed and a laptop to display the developed website, if any. The judges will provide the students with the items necessary to demonstrate the app's functionality.



VI. Evaluation

A panel of three judges, to be selected by the IEEE UAE Students Day Steering Committee, will assess the entries of the competition. The competition criteria that will be used for judging the entries are given below:

No	Evaluation Criteria	Weight Distribution	Weight	1 st Judge	2 nd Judge	3 rd Judge	Total
1	Functionality	<ul style="list-style-type: none">• Adding and managing food items (10%)• Scanning the expiry dates (10%)• Scanning the bar codes of food items (15%)• User notification (5%)• Near local food banks (10%)• Informative Tips (5%)	55%				
2	Theoretical Knowledge		10%				
3	User-Friendly Interface		10%				
4	Additional Features		15%				
5	Poster and User Manual		10%				
	Total		100%				