Grocery Listing Application

# Overview

## Topic

The project scope includes designing and developing software that keeps track of grocery items currently being kept in the household. Consequently, using such data to assist in ordering consumed items, finding coupons to items, and notify when items are on a discount.

For additional developments, the software could be implemented to various platforms and hardware such as mobile apps, web interfaces for remote control and RasperyPi for local control. Statistical features such as graphs and charts may be generated to inform users of habits of consuming thus giving appropriate health recommendations.

The project when developed will considerably assist users in everyday routine by automation the process. More importantly, it will present more alternatives to managing grocery stocks. By simplify the process and provide statistical information, it will reduce meal preparation time, promote a healthy selection of grocery, which can lead to more home cooking meals ratio than fast food. Overall, the project if successful may provide a positive impact on user’s diet and lifestyle.

## Motivation

The project considered useful as it assists in making daily routine automatically, therefore users can spend more time more on food preparation and cooking which lead to better diet quality and health, according to Pablo Monsivais, Anju Aggarwal, Adam Drewnowski (2014).

## Landscape

There are many grocery listing apps and software on the market currently, such as Grocery Pal, Out of Milk, Grocery iQ ..., but their main features often are focusing on generating portable shopping lists. Consequently, existing a large market gap for grocery list tracking software which integrates itself into the smart home or IoT environment.

# Detailed Description

## Aims

---In progress--

## Plans and Progress (updated 08/05/19)

The project has been planned in many states, each of which is an improvement of the former. The aim of the team is making a working beta version ready to deploy. Using that as a core platform, the team can continue to add more features, making it a full system as planned.

The first stage of development includes computer software with primary features such as grocery items listing and automatic reordering. Additionally, should an item need restocking, it will inform the user of appropriate online coupons or discounts. Initially, users can choose to input list of items manually or scan its barcodes into the system for it to begin handling records. The later feature will available after completion of the second stage. When an item is out of stock, users will mark that to the system. From there, a range of options will be provided, whether take that item off the listing, or reorder using automatic reordering system. The ordering process could be made more efficient by including online discount code and price comparison.

After core features are established and operational, the second stage of software development will initiate. In this stage, additional components will be included to further enhance software capability and better integration into smart home ecosystems. Integration of smartphone components can add more interaction to the software such as barcode scanning, remote controlling. The system program and database will subsequently transfer to a RasberryPi with touchscreen included providing users with a single physical device without the need of a computer. More importantly, this device can operate around the clock and continuously inform users of health advises and statistical information based on consuming habit.

## Roles

To be able to develop the project, developers must have experiences in Java programing language and skills in program integration to multiple platforms. Basic knowledge with different hardware components such as smartphones and RaspberryPi is also a requirement. The project considered feasible as required skills are at an immediate level, therefore it should not be a difficulty getting developers with appropriate knowledge.

## Scope and Limits

## Based on the constricted time-frame, the scope of the project is narrowed down to developing a prototype of computer application. Using it as a core to expand more functionalities should time and budget allowed.

## Features to be developed:

## Making lists of grocery items.

## Basic inventory handling (add, delete, get item prices etc.)

## Features pending:

## Online ordering.

## Integrate into IoT system.

## Develop a mobile app.

## Integrate into RaspberryPi

## Tools and Technology (update 07/05/19)

A mixture of software and hardware are needed to develop this system includes:

* Java SDK 11 on any IDE (free Eclipse 4.11 is recommended for its extensive plug-in and customizable). Java is the programming language of choice because of its ability to be deployed on multiple platforms.
* A free GitHub repository for collaboration and version control.
* Adobe XD (free license) for prototype making.
* Microsoft 365 subscription license (can get for free with student email) including:
  + Microsoft Words for documentations.
  + Microsoft PowerPoint for presentation.
  + Microsoft Access for database creation and handling.
* For hardware component, a RaspberryPi3 board with a touchscreen attached by GPIO ports, which all being put inside an enclosure to protect the unit from external damage. This device will be installed with a lightweight operating system like Raspbian Stretch Lite or RISC OS to be operational.

## Testing

--- In Progress --

## Timeframe

--- In Progress –

## Risks

--- In Progress --

## Group processes and communications

--- In Progress --