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 Raspberry Pi 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 12/05/19)

## The project has been planned in many states, each of which is an improvement of the former. The initial intention of the team is to make a working beta version ready to deploy. Subsequently, using it as a core platform, the team can improve the project continuously by adding more features, making it a full system as set out in the plan.

## After considerations and agreed upon by the majority of 6Tech team members, the name "Home Hero" was chosen to be the official name of the project, credited to Zac Gearing. Also, 6Tech has set out a detailed plan for the whole project, covering most of the steps needed from start to finish, and should budget allowed, plans for project expansion.

## Initially, 6Tech will generate a prototype of the applications needed for the project. The prototype's scope is limit at basic user interfaces, functionality demonstration, as well as their relation to each other. 6Tech will then use it to test on user experiences and accessibility. Further adjustments could be applied based on feedback from testers. This prototype can also be used to demonstrate the project to investors and other parties of interest to acquire extra investment if the team decided to pursue project expansion.

## After the prototype approved by the team and project direction finalised, 6Tech will begin developing the core application to handle grocery listing, with primary features including but not limited to:

## - Grocery items list managing.

## - Reordering system.

## - Discount and coupons finding.

## - Barcode scanning.

## On a user's aspect, the process started with a list of user created grocery items which can be created manually or scanned from barcodes (barcode scanning feature will be available after the next stage finalised). When an item is out of stock, users will mark that off 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. 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 Raspberry Pi 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 programming language and skills in program integration to multiple platforms. Basic knowledge with different hardware components such as smartphones and Raspberry Pi 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 Raspberry Pi

## 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

|  |  |  |  |
| --- | --- | --- | --- |
| **Risk Statement**  There is a risk that/of… | | **Risk Owner**  Name and position | **Current Risk Level** |
| **1** | **Inexperience** - There is a risk that the project does not have adequately experienced staff to develop the software or run a project effectively. | 6Tech executives | Medium |
| **2** | **Procurement** –There is a risk that the contract is inadequate or ambiguous and the statement of requirements doesn’t reflect the actual requirement | 6Tech executives | Low |
| **3** | **Staff turnover** –There is a risk that implementation will be delayed due to Telstra and Supplier infrastructure constraints | 6Tech executives | High |
| **4** | **Estimation and scheduling** – There is a risk that estimating and scheduling development time may be inaccurate | 6Tech executives | Medium |
| **5** | **Design compromise** –There is a risk that due to quick turnaround the project could be rushed with compromises made in the design phase | 6Tech executives | Low |

[Detailed Risk Management Plan](Risk%20Management%20Plan.docx)

## Group processes and communications

--- In Progress --