

ImagineRIT Proposal

Team Name: SMIF – Smart Meals, Intelligent Fridge

Name your team members and indicate the anticipated year of graduation and degree program for each.

- Khant-Nyar May 2020
- Harshvardan Gupta May 2020
- Jennifer Liu May 2020
- Robert Aguilera May 2019

Describe your concept.

SMIF (Smart Meals Intelligent Fridge) aims to make your food management a breeze by keeping track of what you eat in an unobtrusive and intuitive way. It remembers what you put in your fridge and is therefore capable of suggesting recipes ,reminding you when you're running low on items, when something is about to go bad, and also help you have a healthy and balanced diet. It uses IOT devices and Machine Learning to achieve these things.

Outline a plan to develop a prototype for exhibition on May 6, 2017.

There are 5 separate components to this project.

- Amazon Echo
 - Purpose for this is to ease user experience by allowing users to use voice control to retrieve information about items available in the fridge
 - It does exactly what the iPhone application would do, but with voice commands
- Object Detection
 - Responsible for detecting what is being placed into your fridge using Deep Learning
 - Capable of deciding whether food is being put into the fridge or being put out of the fridge
- Raspberry Pi integrated with PIR sensor
 - This is where our camera module is mounted
 - It works with the Object Detection technology and it triggers camera to go on when motion is detected
 - Once camera is triggered, it sends the results of object detection to our iPhone-application
- iPhone Application
 - This is where users are able to personalize their experience
 - Each user is required to register for an account
 - This account stores the food that is available in their fridge
 - It calculates the expiration date of food
 - It provides recommendation for what recipes are available based on what is in your fridge

Indicate whether it will be a digital or a physical product prototype.

Digital and Physical

Define your target audience/end user(s).

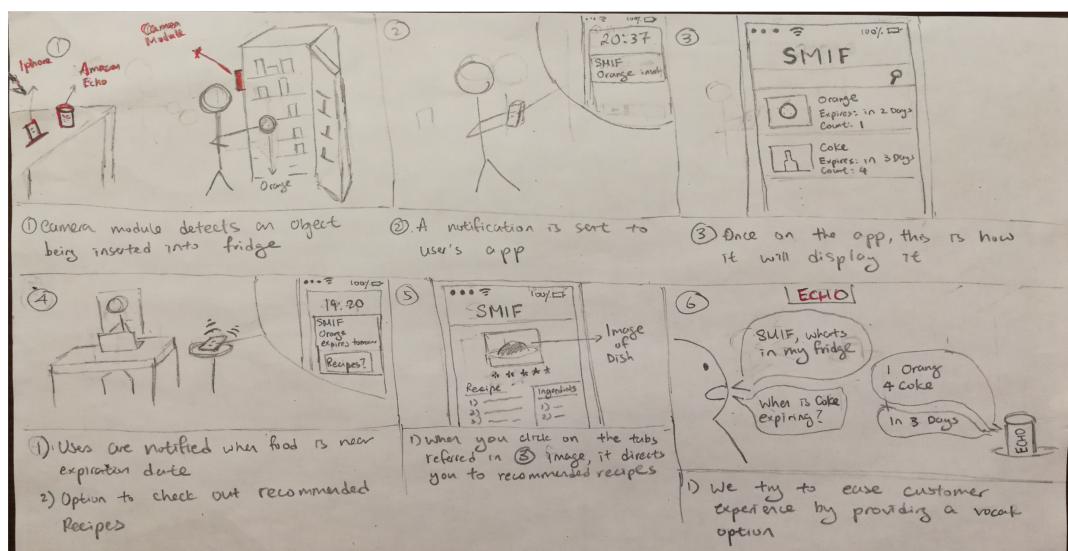
- Homeowners
- Stay at home moms, parents
- Wealth status: middle class – upper class citizens
- Age: 20-50
- People interested in cooking, building a smarter home

Describe how you envision your product will meet the need(s) (unmet or in demand) of the end user(s).

- Goal: help users keep their food fresh as possible by notifying users when food is about to expire
- Want our customers to get the most of our product, while doing as little as possible. This is why we used deep learning to detect objects that are being entered into the fridge. By doing so, users no longer have to manually input their food product
- Using heuristic to calculate expiration date - This technology further enhances user experience as it eliminates the process of manually inserting expiration date
- We want to provide a platform that will help increase individual productivity by removing unnecessary task in their daily lives. For those who are not natural cooks, cooking can be the most frustrating task especially when you are limited to certain materials. Our application will help resolve this by providing recommendation for recipes given the food in your fridge

Describe the user experience/usability as you envision it.

We believe that a physical illustration will do the best at illustrating our vision for this product. Below is an image illustration our project's walkthrough.



Briefly discuss the foreseeable commercial impact of your concept as well as potential challenges to creating and/or delivering this product or service to the market. Inclusion of a cost-benefit analysis is not required but is a plus.

- We do not intend for this product to make any financial profit
- To ensure that object detection is accurate, we need a larger dataset, and our current resource is unable to support that
- Our method for computing expiration date may not be the most accurate
- We need to ensure that our product is packaged well, and deliver a cleanly designed product