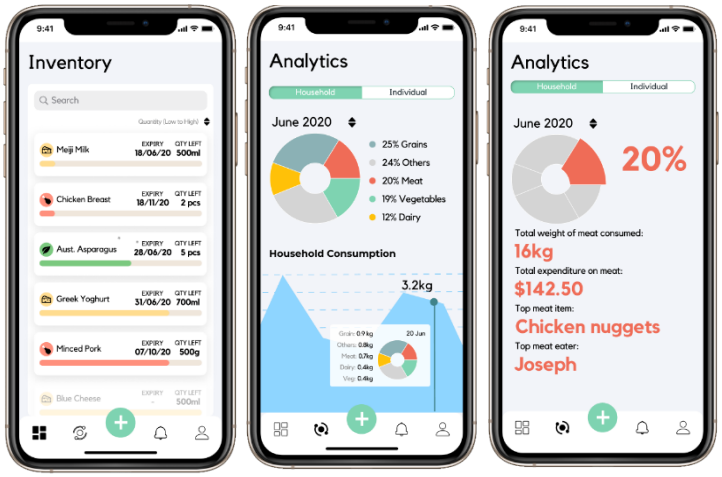
Peanuts: A Better Way to Manage Groceries



PROBLEM

Expired food being thrown away or unnecessary grocery purchases being made can be attributed to the lack of a rigorous system that allows consumers to keep track of the inventory in the kitchen and better plan their grocery trips and consumption.

GOAL

To create a system that would enable households to better manage their groceries with a focus on minimising recurrent user interaction.

ROLE

Product Strategist and UX Designer

INSIGHTS FROM DISCOVERY PHASE

| Users do not want to manually input data

| Households plan for a grocery trip when something runs out. They only check what has run out or is running out right before a grocery trip.

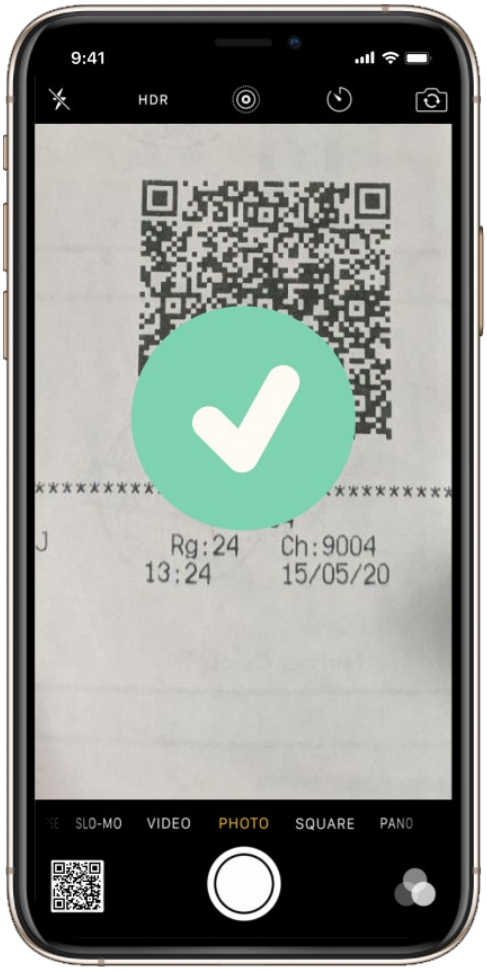
| Many often forget what they have purchased and end up throwing out expired food or making unnecessary purchases

| Few households keep track of their total grocery expenditure and consumption

Based on these insights, it was clear that to achieve the most seamless experience, the user interface of the solution would need to be able to autonomously keep track of household groceries by operating in the background. This realisation manifested in our solution of pairing an app with an IoT device/camera installed in the kitchen.

DATA INPUT

In a grocery management system, the point of highest friction is likely to be in keeping the inventory updated after a purchase is made, especially for users who make sporadic grocery trips.



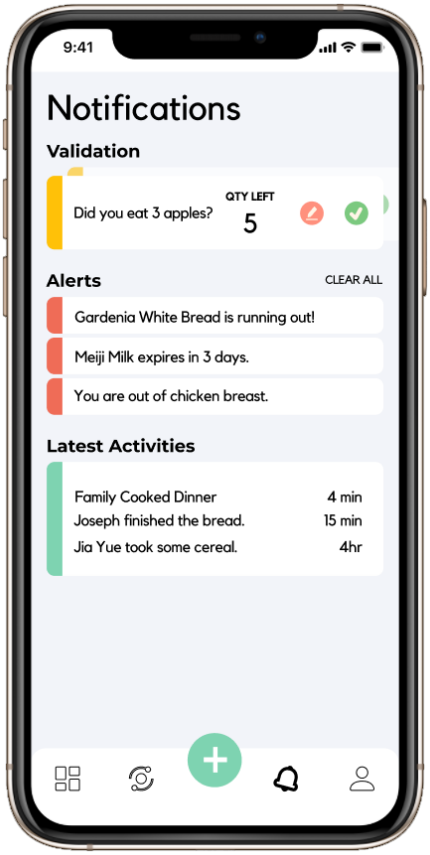
Thus, in our camera module we decided to integrate:

1. QR Code Scanner for partner stores that are able to provide purchase info in QR codes
2. Optical Character Recognition (OCR) to recognise text or to scan barcodes or receipts
3. Object Recognition for grocery purchases that do not have an electronic signature e.g. individual fruits and vegetable from a farmers' market

INVENTORY UPDATE

A simple and easy way to keep the inventory updated would have been to adopt a binary approach e.g. There is bread vs There is no more bread. However, based on our user research, most households purchase groceries as they are running out and not when it has completely been used up.

Hence, we decided on a solution that would continuously keep track of the consumption of the groceries in the house through the use of cameras and a machine learning (ML) algorithm that could recognise objects and learn user behaviour.

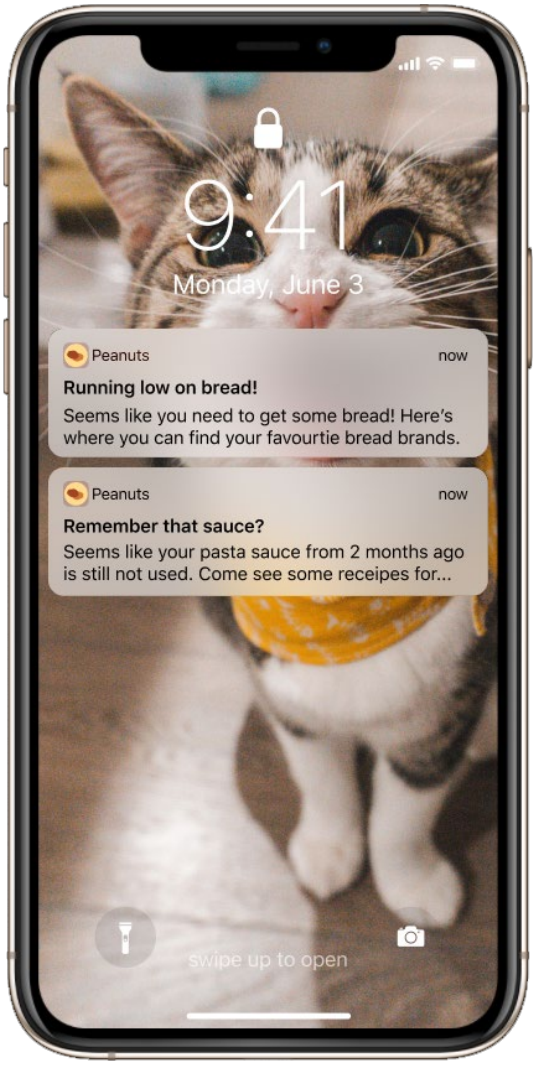


The user feedback to train the algorithm was designed seamlessly into the app in the validation component.

Over time, with sufficient data, the user would have less involvement in validating their actions.

PUSH NOTIFICATIONS

Purchasing food, throwing it to the back of the cupboard, forgetting about it and purchasing it again the next time? This is an all-too-familiar situation that all but those with the best memory have not encountered.

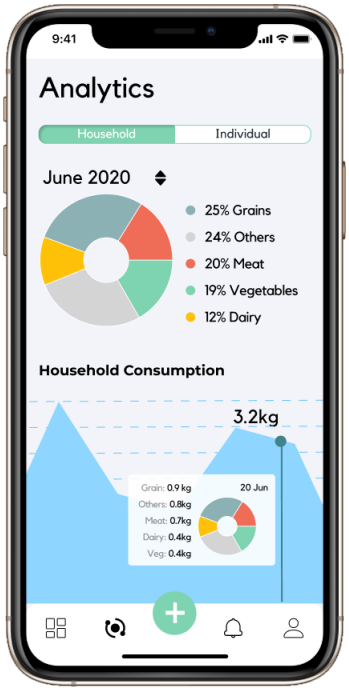


Our app gives push notifications for:

1. *Food that is close to expiry*
2. *Food that was purchased recently but not used*
3. *Groceries that are running out*

DATA ANALYTICS

Households now have a way to understand their own consumption patterns at a glance and use this info to plan their grocery runs. In turn, this would lead to a reduction in food wasted.



Both monthly/daily and household/ individual consumption statistics broken down by category

A closer look at an individual category with relevant statistics such as total expenditure and top item consumed.

RETROSPECTIVE

While designing Peanuts, I faced the challenge of balancing user needs and development feasibility. Nevertheless, the team still managed to come up with a development prototype to showcase for the pitch.

Future improvements that could be made would be in the physical medium of interaction. Rather than using a app, having a physical always-on device placed in the kitchen itself that users can interact with might provide more value-add and ease-of-use. Pictured below is the Hachi M1, a device that can project a screen onto a table-top that users can interact with by touch. With this interface, users can more easily update their grocery inventory with the built-in cameras and LIDAR sensors and there is also more room for complementary features such as recipe recommendations and cooking video tutorials.

CONCLUSION

This case study was from our winning solution in the Hack Junction Asia 2020 hackathon. It was heavily inspired by autonomous grocery stores such as Amazon Go that make use of a network of cameras to make for a more seamless grocery shopping experience that is almost like ‘magic’. Overall, it was a good exercise in exploring and envisioning new mediums of interaction in a household.

If you want to hear more about this project, feel free to contact me.