Imagine IoT
Prototype

GROCERY WATCHER
Imagine IoT

1. Story

Summary
Office goers, who cook their own food, need a way to know remotely what groceries they have in the house, when the groceries expire and what can they prepare using the remaining groceries so that they can optimize their food planning and reduce food wastage.

Storyline
Every year, consumers in rich countries waste almost as much food (222 million tonnes) as the entire net food production of sub-Saharan Africa (230 million tonnes)\(^1\). Contrary to popular belief, the food industry and grocery stores are not the biggest squanderers of food. We consumers are the source of two-thirds of total food wastage.\(^2\) To make it a bit more tangible, the average UK family is wasting nearly £60 a month by throwing away almost an entire meal a day.\(^3\) In a world where the natural food sources are depleting and an alarming number of people are stricken with poverty and hunger, we must do our bit to reduce food wastage.

But why do we waste food? and how can that be prevented?

Let’ take the case of an Office goer, who likes to cook his own food at home. Between his busy schedule he often forgets what he purchased from his last visit to the Super market, what is left at home and not to mention when are the ‘Best before’ & ‘Consume within X days of opening’ dates. Unfortunately, in the absence of these key information when he goes for grocery shopping or decides to pick up some food from outside, he is unaware that the ‘Salami’ in his refrigerator should have been eaten that night. Sometimes it even happens that after returning from work, he realizes that 3 different food options are going to expire on that very night.

If only he had a reminder that something was going to expire in the next couple of days, he could plan to consume these food items. In addition, if he could carry his refrigerator & food cupboard with him all the time or maybe in a pragmatic way just the information about what’s in his refrigerator & food cupboard at all times, he could even plan for his complete meal for the next days making sure he consumes all the food items to expire. Finally, I am sure he won’t mind if he also had some recipe suggestions handy to inspire him about the meal options.

Therefore, access to the relevant information at the right time will go a long way in not only reducing food wastage for the consumer group in question, but also reduced food costs thanks to optimum use of the groceries.

\(^3\) Source: [https://www.theguardian.com/environment/2013/nov/07/uk-households-food-waste](https://www.theguardian.com/environment/2013/nov/07/uk-households-food-waste)
2. Persona

JOHNNIE WORKER
IT Manager

“I like to have relevant information at my fingertips, as it allows me to plan for my days optimally”

About
- 30, Bachelor and living alone
- I manage a team of 12 Engineers and am responsible for the operations of the company Datacenter
- I am ambitious and work in a demanding industry where I seem to be eternally out of time
- Over the weekend I teach computer basics in a Refugee camp at Cologne

Household activities
- I cook dinner mostly at home and occasionally pick up food from outside
- I shop for groceries once or twice a week, mostly on a weekday while returning from work
- My latest hobby is to learn healthy cooking
- Every alternate day, I try to go jogging and on Saturdays I play football

Main Goals
- Optimize the use of groceries at home leading to
  - reduced food wastage
  - reduced costs on food supplies

Needs
- Need to know if a food item is going to expire in the next days
- Need to know what food items/groceries are present in the house at any point of time
- Need to know what can I prepare from the existing food items at home which is healthy & tasty

Pain Points
- I forget the expiry dates of food items and realize only after the expiry dates have crossed thereby wasting food and money
- While returning home from work, I am unsure if the contents of the refrigerator/food cupboard is sufficient to prepare something at home or if I need to shop
- While grocery shopping, I do not know which food items can be combined to prepare a healthy meal
3. Point of View

As an Office goer, who likes to cook food at home, I need a way to know at any point of time what groceries are present at home, when they are going to expire and what can I prepare with them so that I can optimize my meal selection and do not waste the existing groceries at home.
### 4. User experience journey

<table>
<thead>
<tr>
<th>ACTIONS</th>
<th>MINDSET</th>
<th>FEELING</th>
<th>TOUCH POINTS</th>
</tr>
</thead>
</table>
| • Leave work  
• Start thinking about dinner | • Yay! Finally works done for the day  
• I feel like having something light & healthy for dinner today | 😊 | • Train station  
• Train seat |
| • Enter supermarket  
• Going through the grocery & vegetable aisles | • These vegetables look nice & fresh!  
• Uh-oh, I can’t seem to remember if I have them already in the refrigerator? | 😔 | • Shopping Cart  
• Supermarket aisles  
• Offers on display |
| • Select the grocery & food items | • Do I pick these now or wait till I have checked the refrigerator back home?  
• Errmm, I am going to pick them up. Worst case, I will eat them later | 😞 | • Packaging with expiry date  
• Nutritional value chart |
| • Wait in the queue  
• Pay & leave | • Such a long queue... wish I would not ponder so much about what to pick!  
• 20 €? What did I even pick? | 😞 | • Cashier  
• Debit card  
• Loyalty card |
| • Reach home  
• Fill the refrigerator & food closet  
• Throw away the expired food | • Yikes, I do have the same vegetables here  
• Oh no! The chicken strips have already expired.  
• Such a waste in a world full of starving mouths 😊 | 😞 | • Refrigerator  
• Food closet  
• Dustbin |
| • Prepare dinner | • I hate to waste food... how to ensure it will not happen again?  
• On top, I didn’t have anything to replace the chicken strips | 😞 | • Utensils  
• Groceries  
• Vegetables  
• Hot plates |
| • Eat dinner  
• Watch television | • I am certainly lacking some protein in today’s dinner | 😞 | • Food items  
• Cutlery  
• Couch table  
• Television remote |
5. Mock-up

The Grocery Watcher app mock-ups has been developed to query feedback and understand user-interactions. This app informs the users about

- what is currently present in their refrigerators and food cupboards
- notifies them if some groceries are about to expire or of any other sensor based abnormality (e.g. - if the bacteria sensor has detected something, etc.)
- provides suggested recipes based on available food items
- provides shopping suggestions based on trend analysis

The mock-ups have been added to BUILD and here are the:

a. link to the prototype
b. link to the study

In addition, the mock-ups have been demonstrated in the page below

With respect to the study, the following 2 questions have been asked for feedback:

a. Figure 1: Is the UI intuitive? What can be done to improve it further?

b. Figure 2: Is the augmented reality (overlaying selection boxes on top of the real fridge image) clear?
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**Figure 1**

Grocery Watcher

**Figure 2**

Grocery Watcher

**Figure 3**

Grocery Watcher

**Figure 4**

Grocery Watcher

**Figure 5**

Grocery Watcher