

FOOD WASTAGE

A VR design project

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TODAY'S MENU

- Recap
- Stakeholders
- Root concept
- Gulf of Execution/Evaluation
- Field research/testing
- Mockup/user flow
- Prototyping video
- Insights and reflections





TO RECAP...

BACKGROUND INFO

A focus group done by NEA has shown that consumers...



Tend to buy more than they need to ensure that household members have enough to eat



Waste more food than they eat at home compared to dining outside

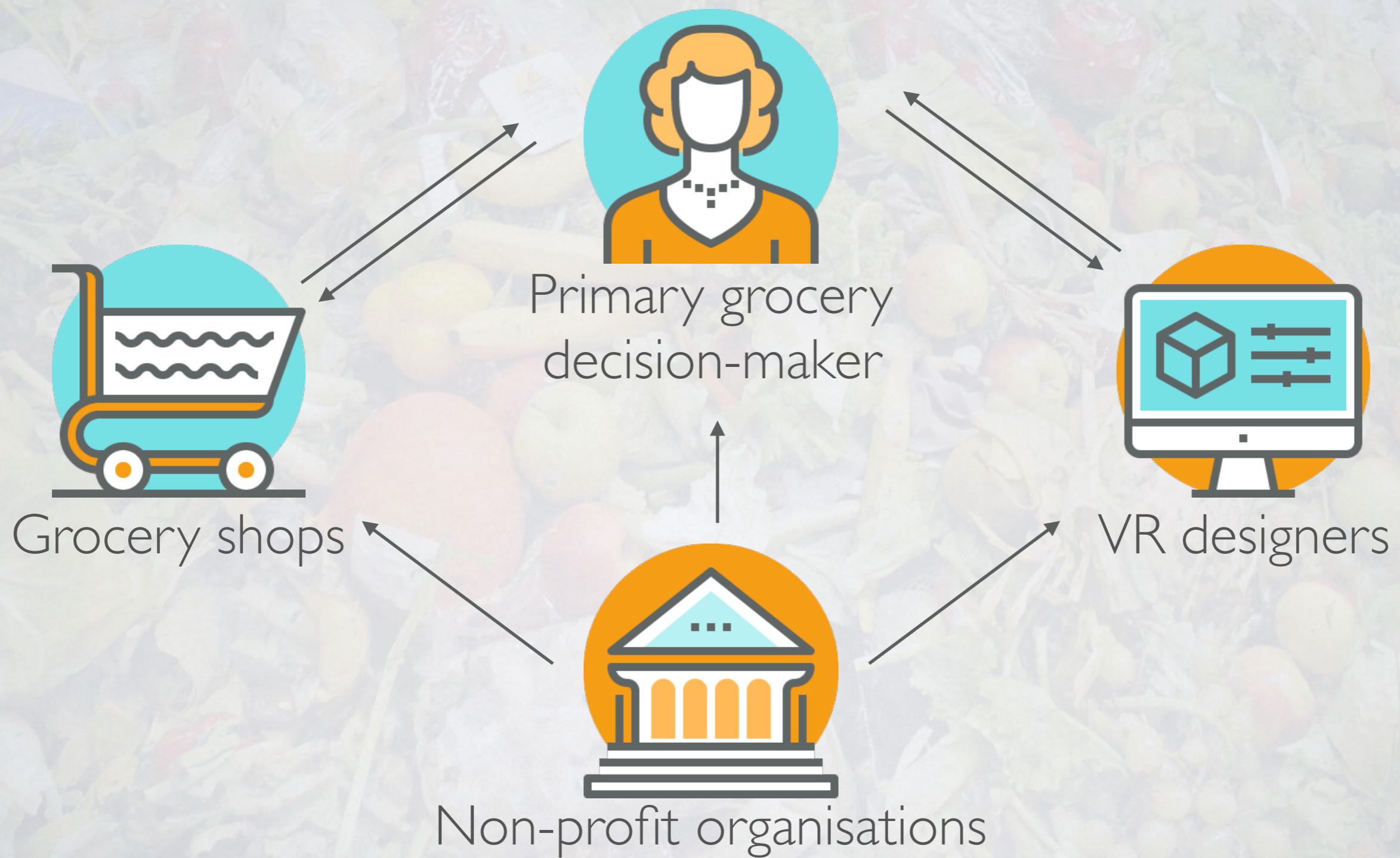


Shop on impulse



Promotions over checklists and meal plans

STAKEHOLDER RELATIONSHIPS



STAKEHOLDER DIAGRAM



Age range: 50-65

Gender: Female

Computer literacy: Low

- **Background**
 - * Knows that food wastage is a problem in Singapore
 - * Have seen some campaigns addressing the issue
 - * Tries to reduce food wastage but not all the time
 - * Feels bad/guilty when they waste food
- **Expectations**
 - * Learn ways to reduce food wastage
 - * Save money
- **Preferences**
 - * Able to do it on their own free time (when they have time)
 - * Convenient
 - * Easy to learn

ROOT CONCEPT

Concept name: Using VR to educate household grocery decision makers on the consequences of over-purchasing of groceries.

Vision: To create a learning platform where consumers can achieve a balance between the cost-savings from bulk purchases and food wastage.

Rationale:

- Research has shown that consumers tend to over-purchase food in an attempt to save money from the discounts and promotions given by the store.
- Some of these food were never eaten after being purchased, resulting in spoilage and hence, food wastage.
- Consumers do not realise that over-purchasing of groceries would result in them incurring costs larger than the savings they received from the discounts.

Assumptions:

- Artifacts: VR system, computers, software
- Contexts: Grocery stores





SINCE THEN...

GULF OF EXECUTION/ EVALUATION

GULF OF EXECUTION/ EVALUATION



Start the game



Buy groceries



Move to another aisle



Check out



Cook the food



Throw away food

FIELD RESEARCH AND USER TESTING



WHAT WE DID

PILOT TEST (WIZARD OF OZ)

Red text - Talkthrough

Blue text - Physical actions

Note: should only take about 15 min max (explain, walkthrough). The game should not be longer than 10 min.

1. Start menu - Mostly just talking through the game, what it means and how to play it (similar to the actual project). Verbally explain what the game is and how to 'play' it
 - a. Explanation
 - i. "In this game, your goal is to buy groceries to cook dinner for a family of 3 adults for a week. The aim is to ensure the most efficient use of food and money. There will be 2 parts - the first part is in a supermarket. You are responsible for managing food purchases. Buy however much you think you need for a family of 3 for a week. You have an unlimited budget in this game. Second part is in a kitchen whereby you manage the usage of ingredients."
 - ii. Instructions
 - i. (General) "There are two main stages in this game - the food purchasing stage and the cooking stage. Use the (controllers and the controller button) to interact with and manipulate key in-game objects. Try looking around (and turning your head) to familiarize yourself with using the VR headset."
 - ii. (Supermarket) "In the supermarket, pick up the groceries that you want using the controller and place them in the basket/cart. Move from section to section by _____. When you have gotten what you want, move to the cashier section and interact with the cashier to pay."
 - c. Game start (by picking up the basket/cart)
 2. Supermarket - Users cannot walk around the supermarket during this simulation. They have to simulate how moving works in VR, which means that they have stand still and interact until they decide to move, during which they will point at a location, walk there and stand at that point until they decide to move again.
 - a. Picking up groceries
 - b. Putting groceries in the basket/cart
 - c. /click to move from aisle to aisle (both? Depending on how people move from aisle to aisle in the game)
 - d. Putting groceries on the cashier counter (Are we actually going to do this haha)
 - e. Checking shopping cost

- i. "The total cost of your items is ___, and you have purchased ___ units of food."
- ii. "Confirm payment?"
3. Transition between scenes
 - a. Instructions for next scene
 - i. (Kitchen) "It is now time to cook the meal for your family! Grab the groceries from the pile, and place them into the pot to cook them. Once you have decided on what you want to cook, turn the stove switch on to begin the cooking process."
 - b. Checking amount of money spent
 - i. "You have spent \$___ on groceries."
 - c. Checking amount of food purchased
 - i. "You have purchased ___ units of groceries."
4. Kitchen - This section of the game is abstracted, so it's basically just putting food in a pot. We will have to explain that this is a simplified representation of cooking food, even though the actions themselves require no talkthrough
 - a. Picking up food
 - b. Putting food in the pot
 - c. Putting the lid on the pot
 - d. Seeing that food is uneaten/expired
 - i. "__ of cooked food was uneaten. ___ of available groceries has expired."
 - e. Throwing away expired/uneaten food
 - f. Seeing how much food is thrown away/money is wasted
 - i. "The total amount of food wasted (today) is ___, which amounts to \$___."
5. Wrap-up
 - a. Seeing how much food/money was wasted (end score)
 - b. Comparisons to national statistics on food wastage
 - c. Tips on how to better play the game next time and reduce wastage
 - d. Restart game?
 - i. "Do you want to return to the main menu?" / "Play again?"

Conclusion:

When we throw away food, we're also wasting all the water, energy, and other resources used to produce, package and transport food to our plates.

Food is wasted when we:

- Buy more than we need (happens at pre-planning and supermarket stage)
- Cook too much (during cooking)
- Throw away leftovers (after meals)
- Store it incorrectly (at home)

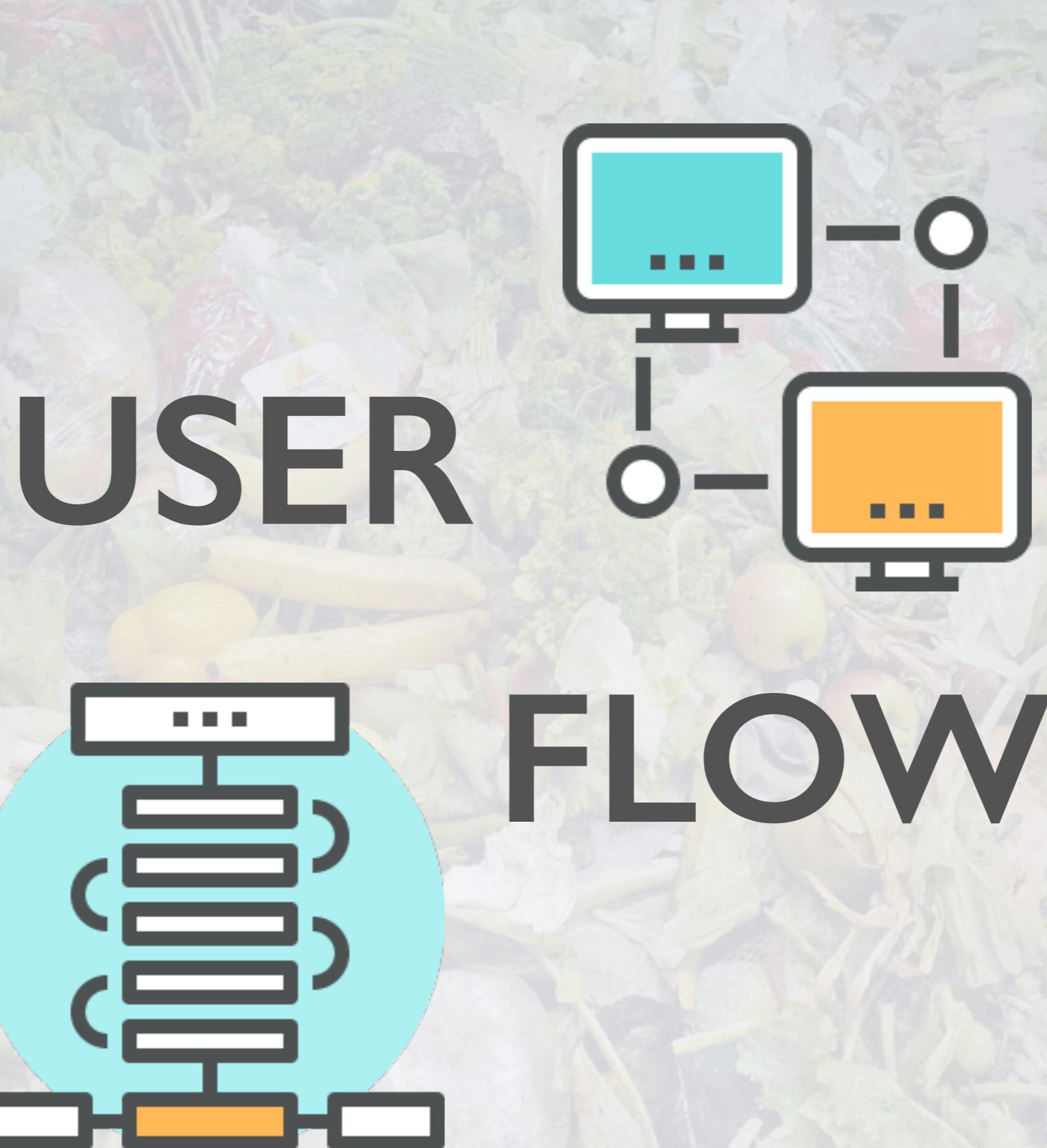
WHAT WE DID



<https://www.youtube.com/watch?v=8lGnoCIjjj0>

WHAT WE LEARNED

- Our VR system should also give an overview of monetary savings that each item on the shelf would generate as players are unable to calculate just by scanning the shelf. By highlighting the savings, players would be more tempted to buy the ones with bigger savings, even if it is not an appropriate amount of serving needed to feed their family.
- Buying food is a very subjective activity, hence our system needs to give players clear instructions and a standard end goal to achieve.



INTRO



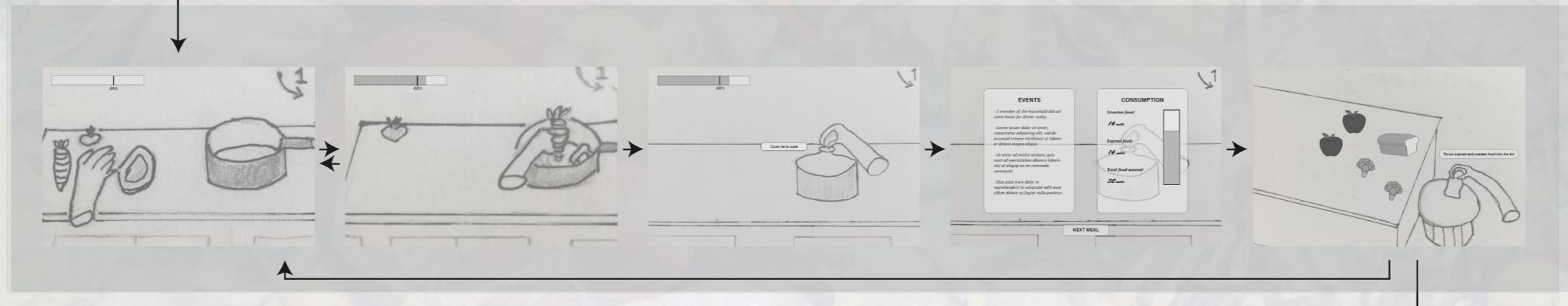
SUPERMARKET



TRANSITION



KITCHEN



CONCLUSION



HOW TO BETTER REDUCE FOOD WASTAGE

1. Plan meals in advance

2. Use leftovers

3. Store food properly

4. Compost

5. Shop smart

6. Use meal prep containers

7. Label containers

8. Use a refrigerator calendar

9. Use a meal planning app

10. Make a grocery list

11. Use a grocery delivery service

12. Use a meal delivery service

13. Use a meal kit service

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Main screen



Instructions

Information

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OK, I'M READY!

SUPERMARKET



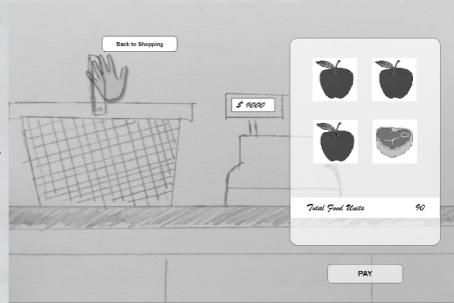
Main aisle view

SUPERMARKET



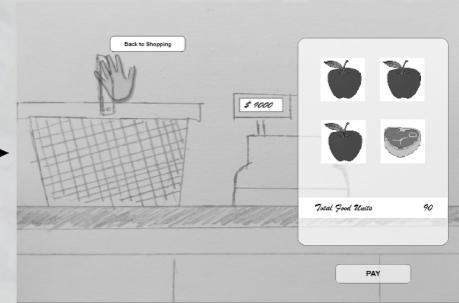
Shelf view

SUPERMARKET



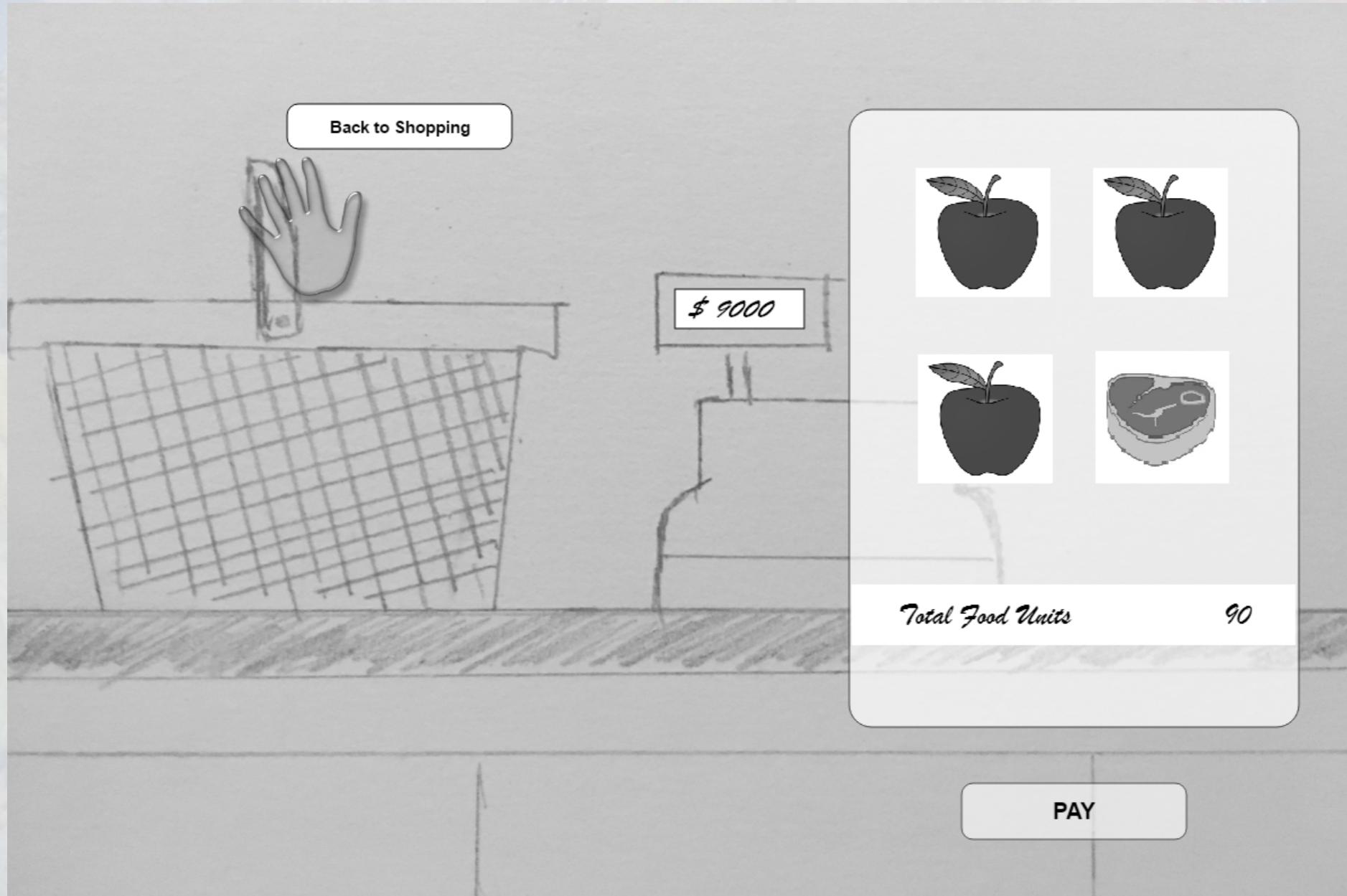
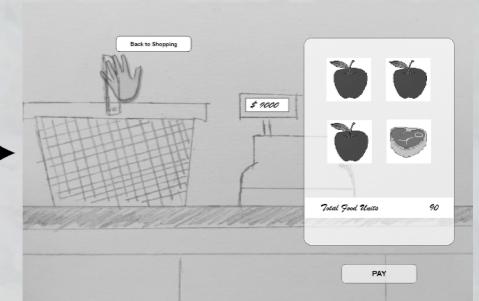
Putting
item in
cart

SUPERMARKET



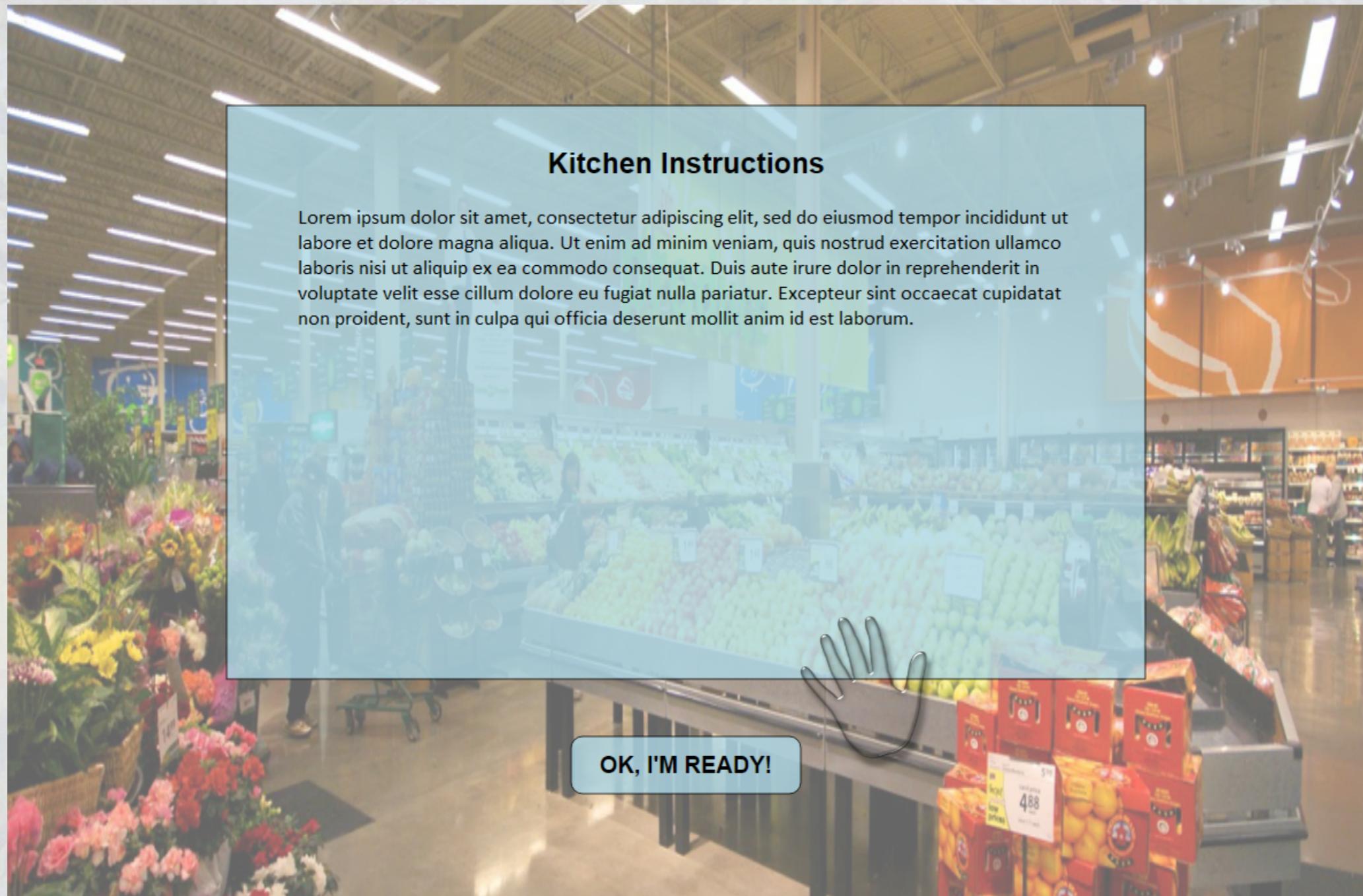
Changing
aisle

SUPERMARKET

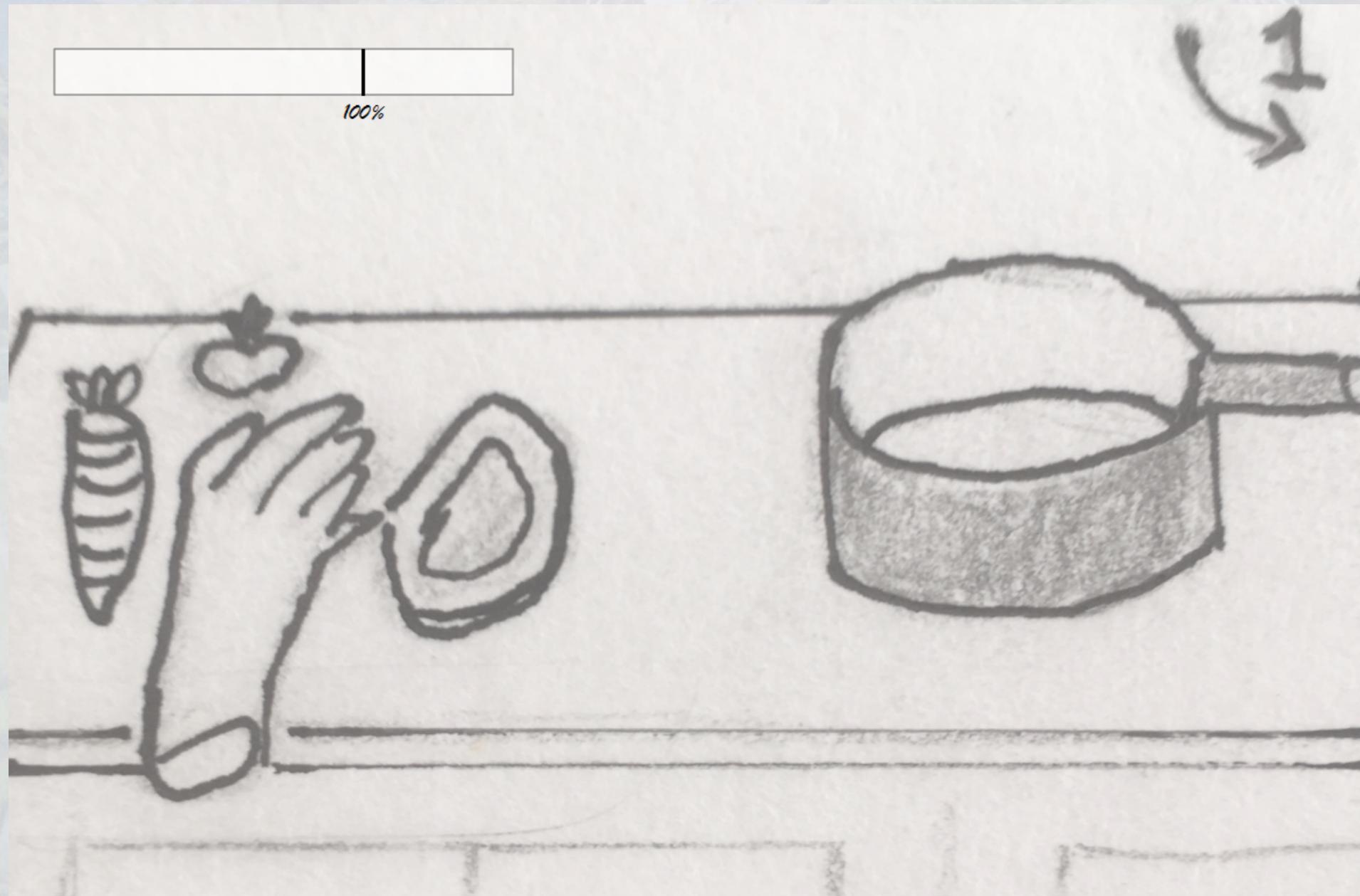
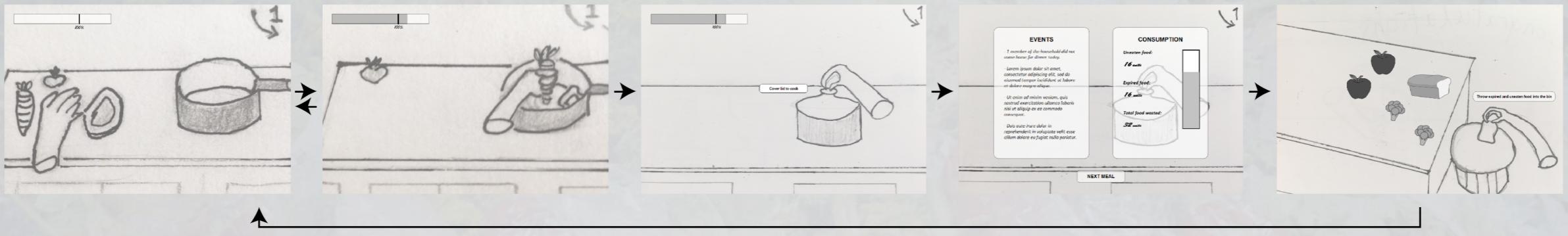


Checkout

TRANSITION/ INSTRUCTIONS

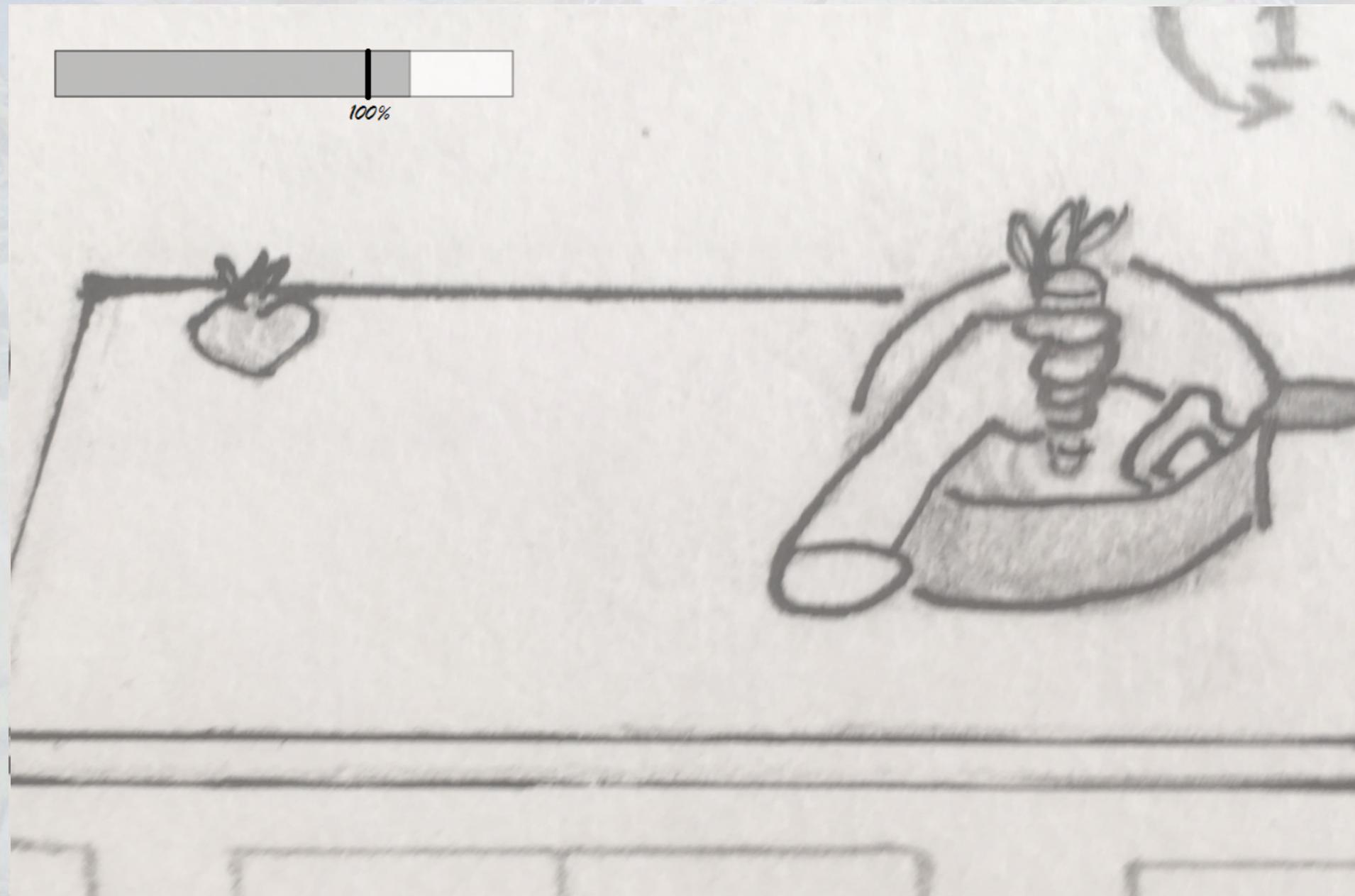
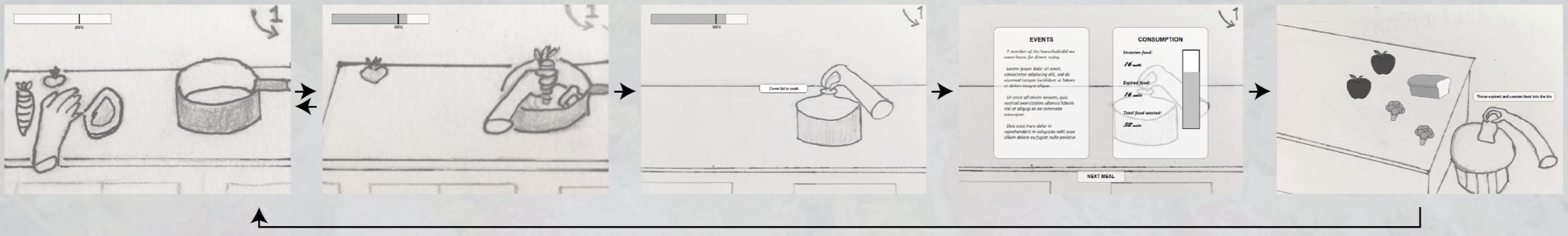


KITCHEN



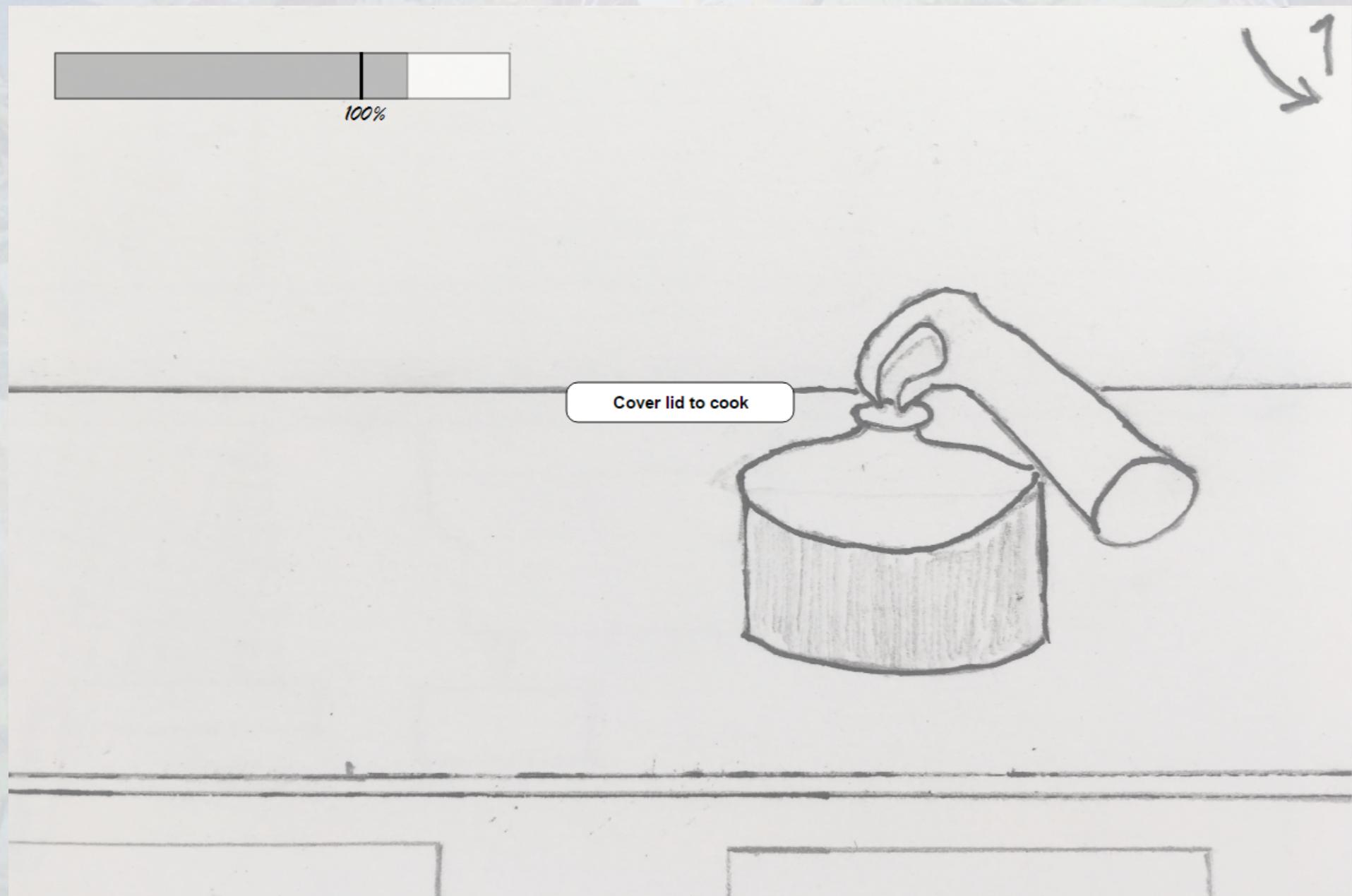
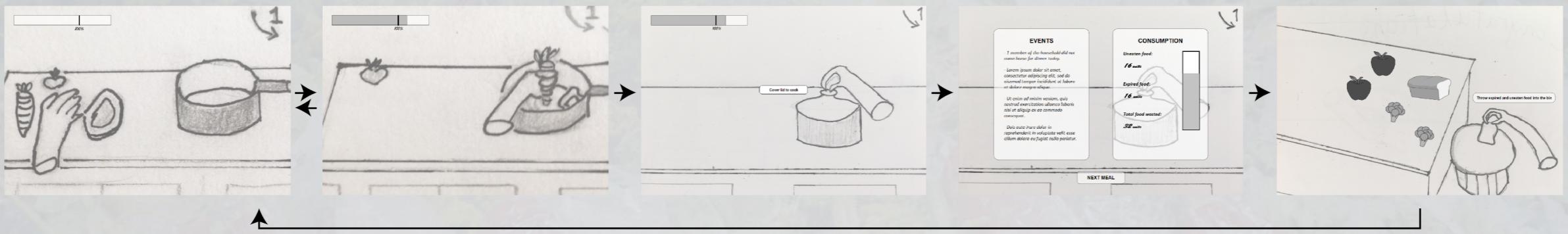
Main
kitchen
view

KITCHEN



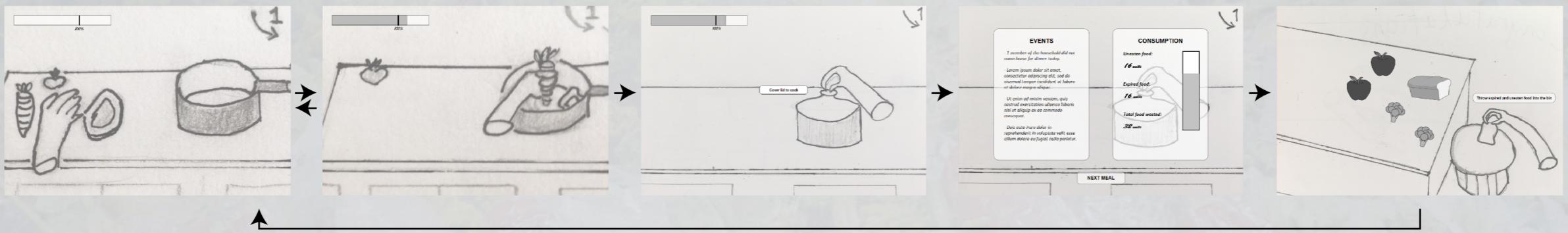
Putting
food in
pot

KITCHEN



Putting lid
on pot

KITCHEN



1
Cooking results

EVENTS

- 1 member of the household did not come home for dinner today.
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- Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat.
- Duis aute irure dolor in reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla pariatur.

CONSUMPTION

Uneaten food:

16 units

Expired food:

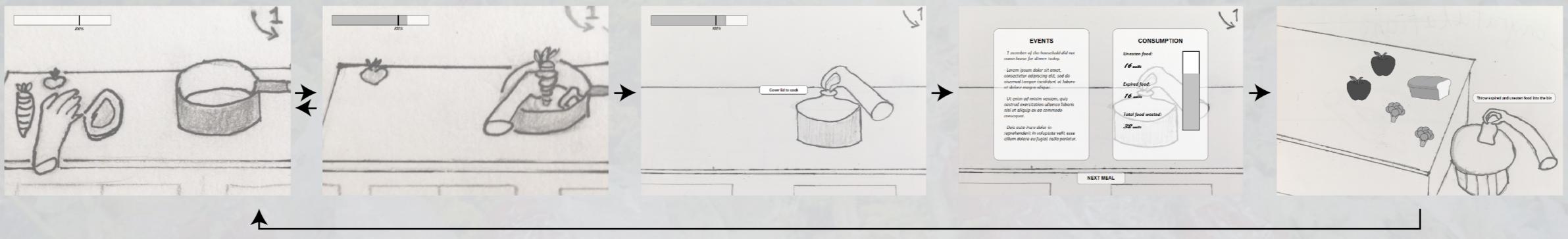
16 units

Total food wasted:

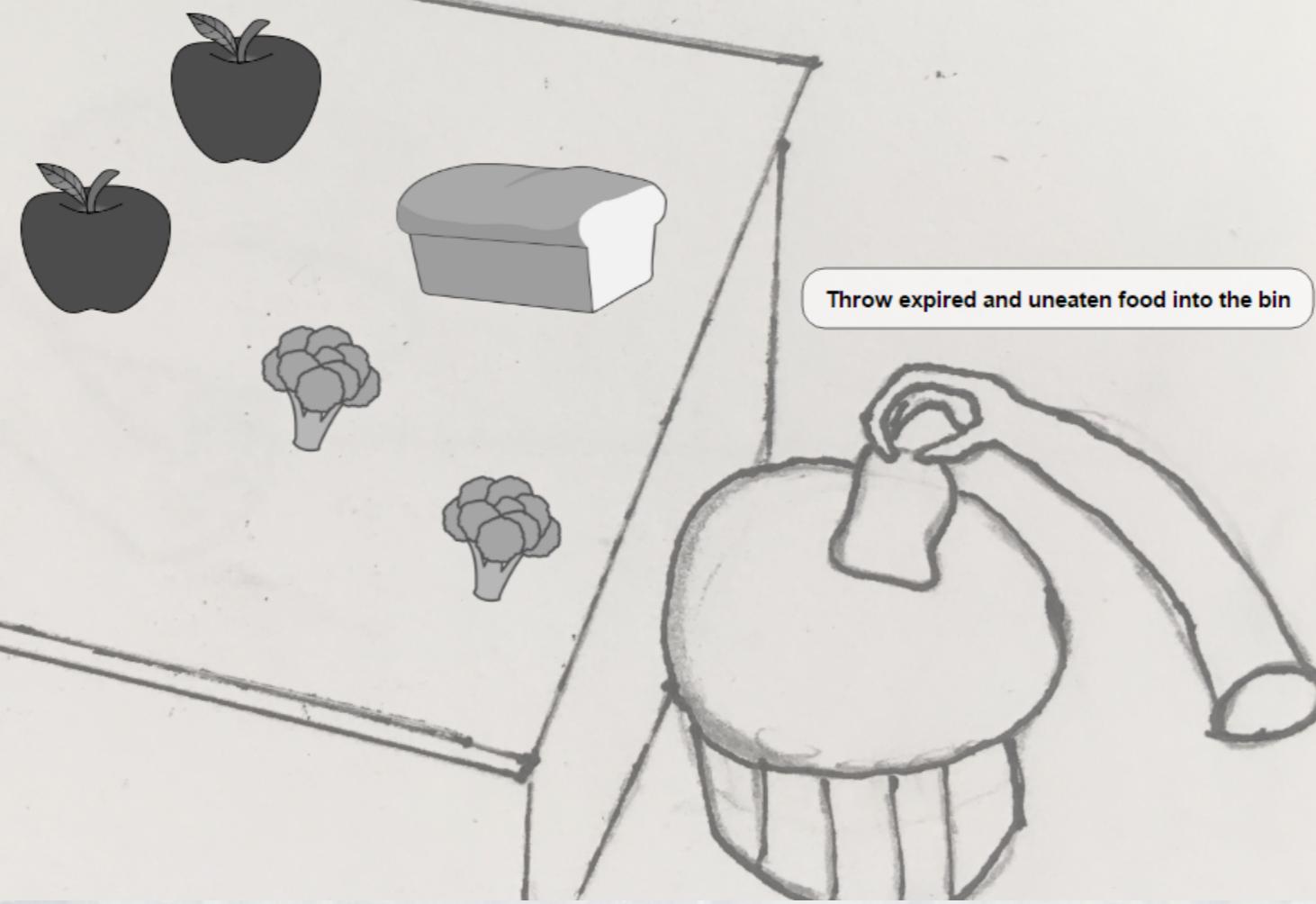
32 units

NEXT MEAL

KITCHEN



Disposing
uneaten/
expired
food



Ending score

Congratulations

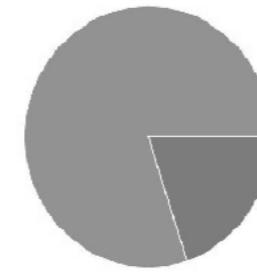
Food wasted:

16 units

Money wasted:

\$ 9001

Percentages:



National Statistics:

FOOD WASTE IN NUMBERS

200 loaves	6/10 Shoppers	30,000 Kilograms	500 Kilograms
			

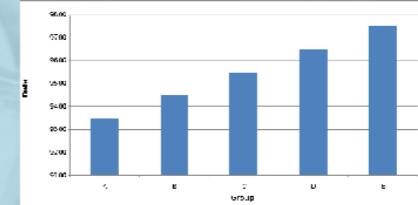
NEXT



Tips/replay

HOW TO BETTER REDUCE FOOD WASTAGE

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RETURN TO THE BEGINNING

PROTOTYPE

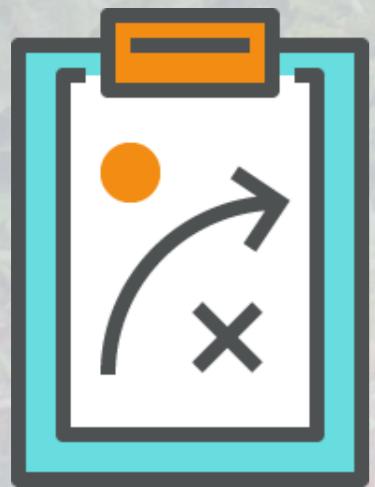


VIDEO

https://www.youtube.com/watch?v=iXImRPV9_OU



WHAT WE LEARNED



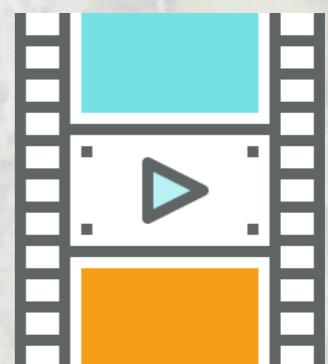
GEE



Field studies

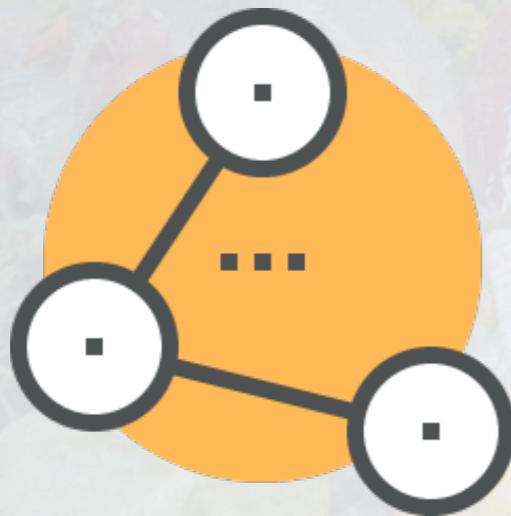


Mockups



Prototype
Video

WHAT WE LEARNED



Granularity



Communication



Limitations



Abstraction



Iteration



THANK YOU FOR
LISTENING!