

# Coo-Cubes

Advanced Design Of Interactive System 20/02/25

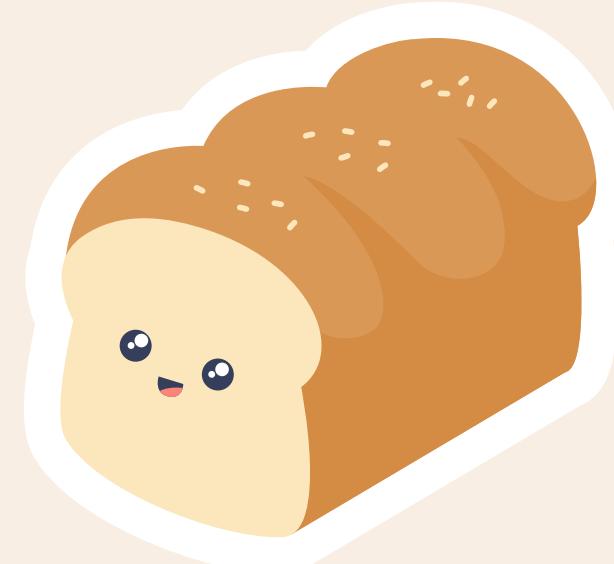
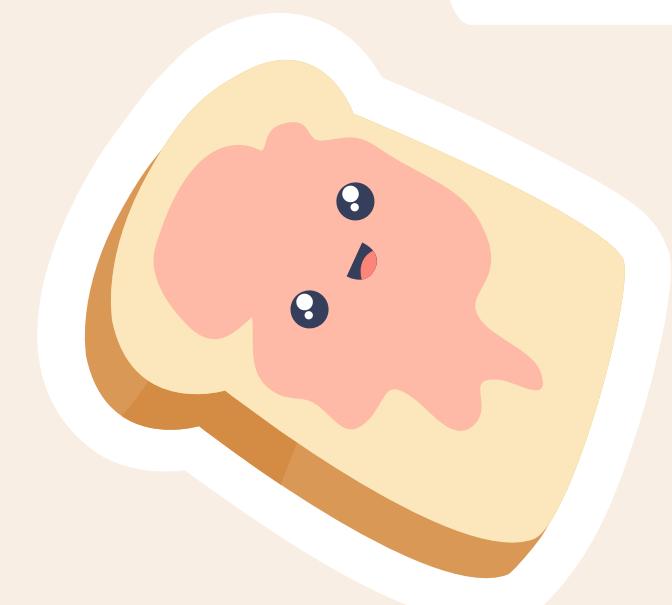
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# Design context

Problem  
User's goal  
Target user  
Context of use





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“sometimes I write the recipe  
from the video”

“I like having a guide to make  
sure I don’t mess things up”

“A connected tablet to help new  
kitchen assistants with recipes,  
checklists, etc.”

—Some cookers



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# Design context

## User's goal

Carry out all the steps of a meal or pastry recipe from video, starting from the shopping list until saving the final recipe

## Target user

Cook and pastry chef of all levels



## Problems

Transcribe recipe videos  
Recipe guide  
Measurement issues  
Boring tasks

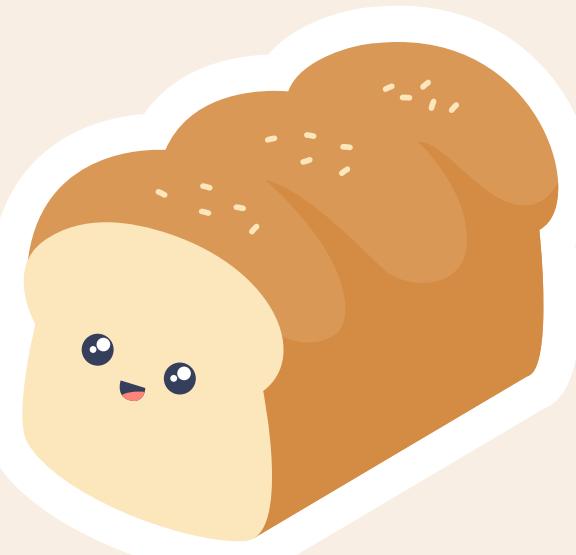
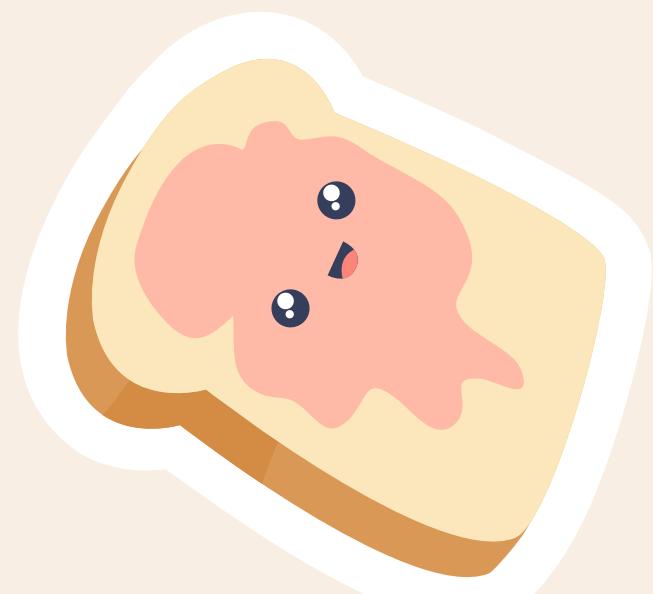
## Context of use

In the kitchen, island, fridge, wall  
Make meal/cake  
Do groceries

02

# Initial design concept

Design idea  
Alternatives  
Sketches



# Design ideas

Resizable wall screen that show the recipe video and steps and a robotic arm that perform repetitive/boring tasks (ex: mixing, peeling)

Tasks:  
Screen  
Measure  
Mixing/Peeling



Small sticky cubes that can perform multiple tasks to enhance cooking/baking

Tasks :  
Projection screen  
Measurement  
Scanning  
Camera



# Alternatives

## Ceiling Projector



That can follow you in the kitchen and display the recipe where you are



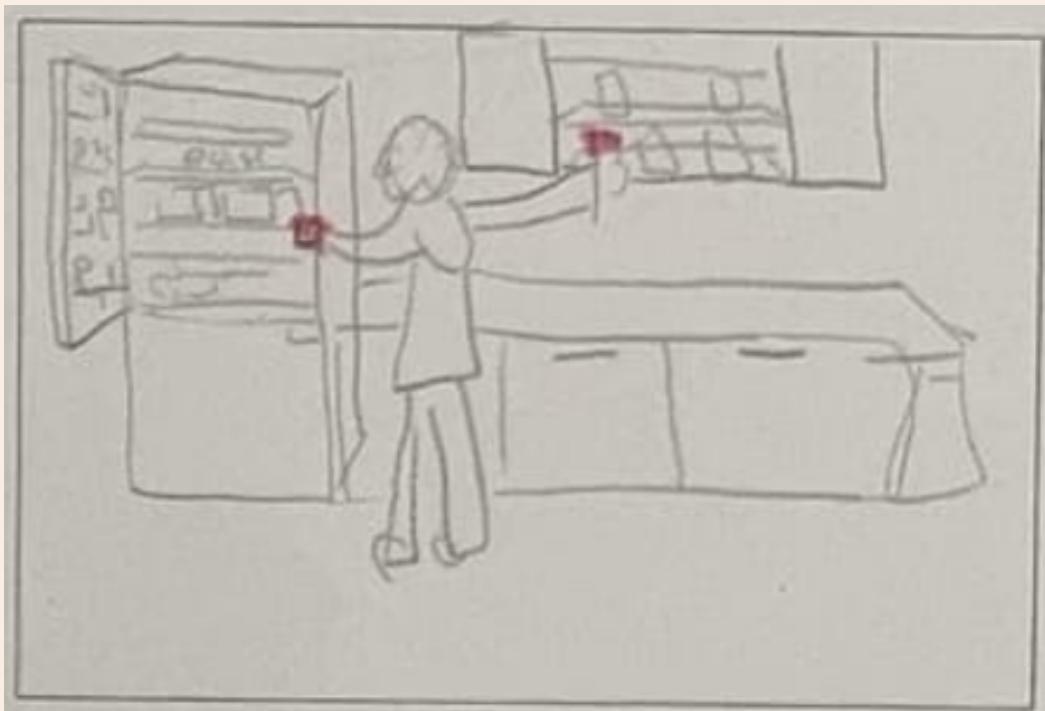
Scan what's in the fridge and provide groceries list and recipe according to what is in your fridge

## Robotic Arm

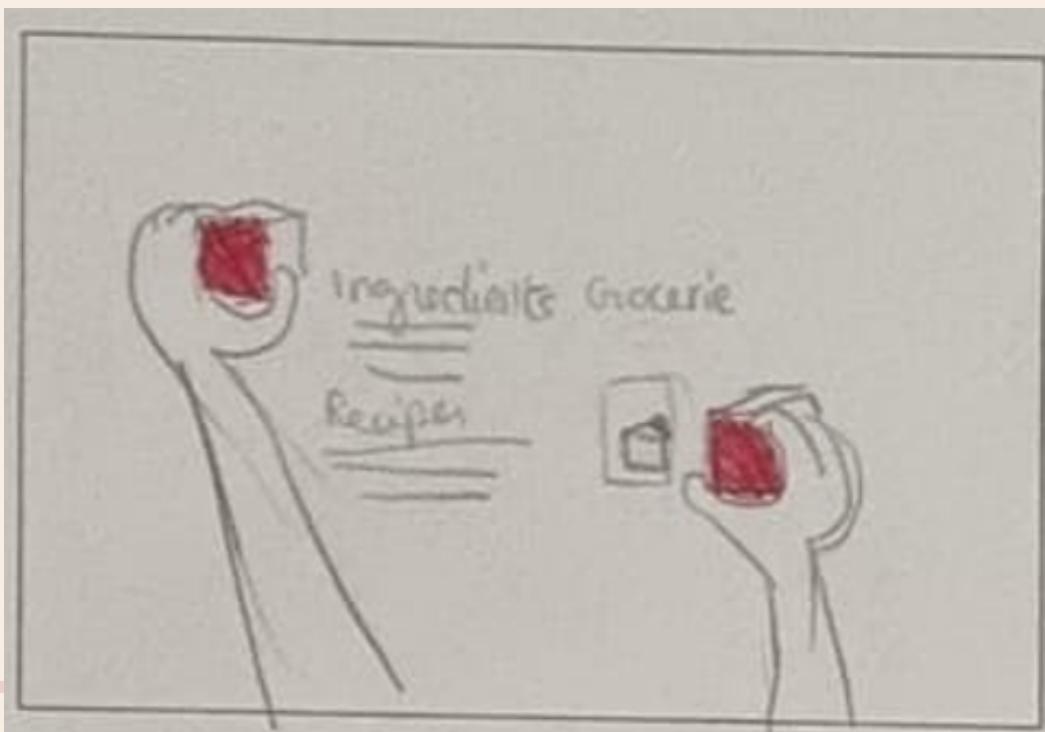


That can do measurement, mixing, peeling for you

# Sketches



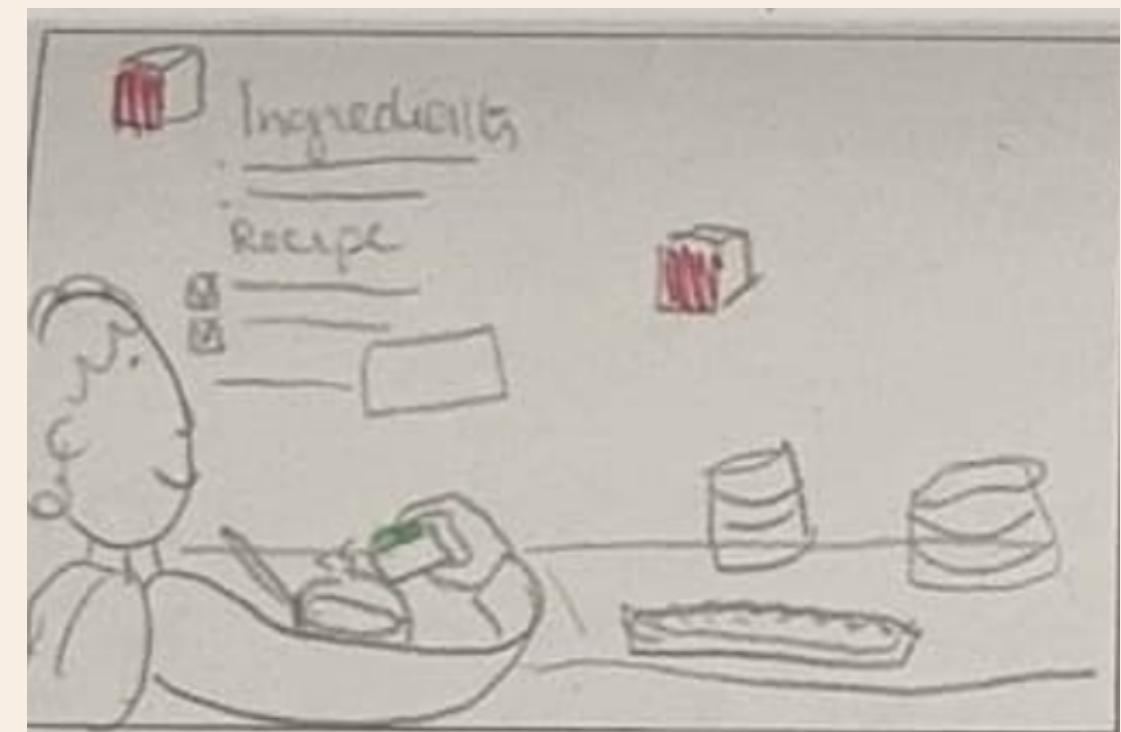
Scan



Projection



Game during boring tasks



Capture the result

# Initial Concept Reasoning

03

Role of the user :

Role of the system :

Control by design :

Errors in our design :



# Role of the user

## 1. Choose the recipe

Users share the video to the cubes using NFC tags.

## 2. Move les cubes

Using hands, users can move the cubes around for positioning and functionalities.



## 3. Interacting with cubes

Users can use touch gesture or voice commands to interact with the cubes.

## 4. Cooking

Users follow the recipe and instructions step-by-step to work on their cookings.

# Role of the system

1. The system takes advantage of its powerful AI to do stuffs.
2. The system can scan/look at the surrounding.
3. Display the data in an engaging/easy to follow manners.
4. Provides real-time adjustments based on user progress and preferences

# Control by design

## Hands-Free Interaction

Users can navigate through the steps using voice commands or simple gestures.



## Minimal Display

Information is broken down into digestible segments to avoid overwhelming the user.



## Adaptive Projection

The system adjusts projections based on what the users are doing.



# Errors in our design

## 1. Projection Visibility Issues



The projected display might be unclear on certain surfaces

## 2. User Interaction Challenges

Some hand based gestures might be inconvenient when cooking.

# 04

## Redesigning Prototype

### Feedbacks

Feedback received

### Changes

Changes Applied

Applying socio-technical  
thing



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## 1. Interaction Clarity

- a. Issue : Users struggled to understand some interactions.
- b. Solutions :
  - i. Redesign the interaction using techniques that are more common.
  - ii. Add more indicators.

## 2. Cube Physical Interaction

- a. Issue : Handling the cubes was sometimes impractical. Users were unsure about the function of different cube faces.
- b. Solutions:
  - i. Introduced voice commands to navigate without touching the cubes.
  - ii. Standardized colors and symbols with a legend for quick recognition.



## BRIEF DESCRIPTION

Concept : Multiple cubes that help you to do baking

For this scenario we assume that Louis have multiple cubes that he can use to do different actions (project, scan, capture, measure). Each face of the cube is dedicated to an action.

GROUP

2

SYSTEM

Cooker Cubes

# 06

## Role of the System

How can we start and project a recipe?

1. NFC tag Video sharing for the cube ✓
2. Translate the video into tasks of the recipe and the list of ingredients with their quantity ~
3. Cubes movement ✓
4. Tracks the other cubes positions and define the size of the screen accordingly ~
5. Clickable faces ✓
6. Projection of the recipe video, recipe tasks, ingredients ✓

How can we get the missing ingredients ?

1. Scan the fridge and cardboard using the cubes' camera ~
2. Recognise every ingredients and create a list of missing ingredients from the kitchen ~
3. Project the grocery list of missing ingredients ✓
4. Click on the shopping button on the projection ✓
5. Connect to the account of grocery drive app ✓

# 07

## Impact of the System on the User

Upscaling or  
downscaling  
of the user

Is AI  
necessary ?

It depends on the skills of the user. It helps novice users but not always skilled users

Translating the video : manually or recipe can come from other types of media.  
Image recognition of the ingredients : manually or via voice command  
Replacement of ingredients : asking people

# Thanks

Do you have any questions?