



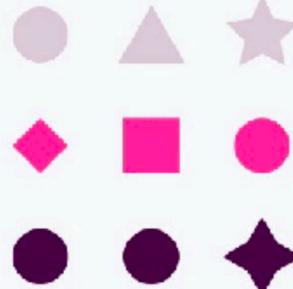
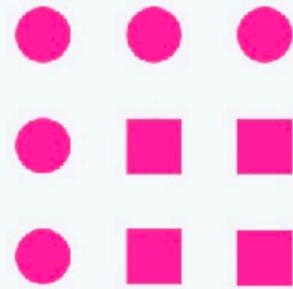
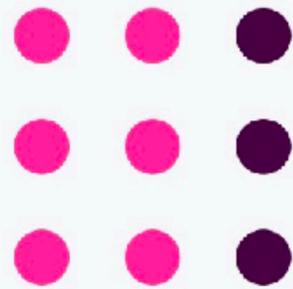
MIRAIE

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# FRIDGE: USABILITY & VISUAL DESIGN ANALYSIS

# GESTALT PRINCIPLE OF SIMILARITY

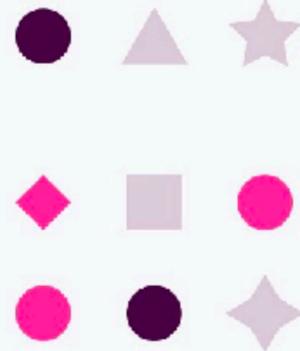
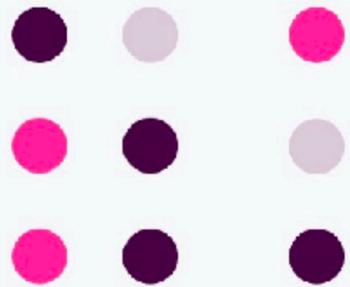
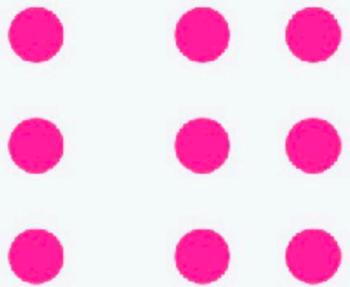
## Similarity



- ▶ Elements that have similar visual appearance seems to be more related or grouped than the ones not sharing the same attributes.

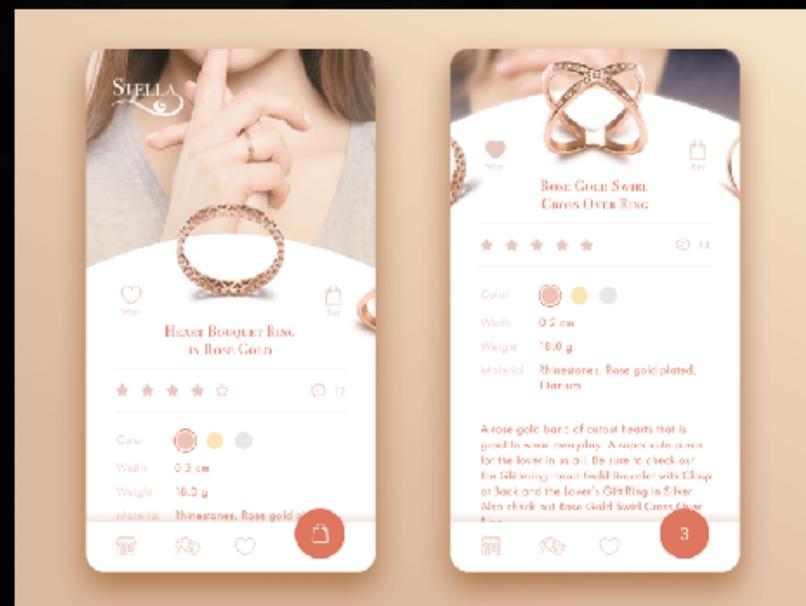
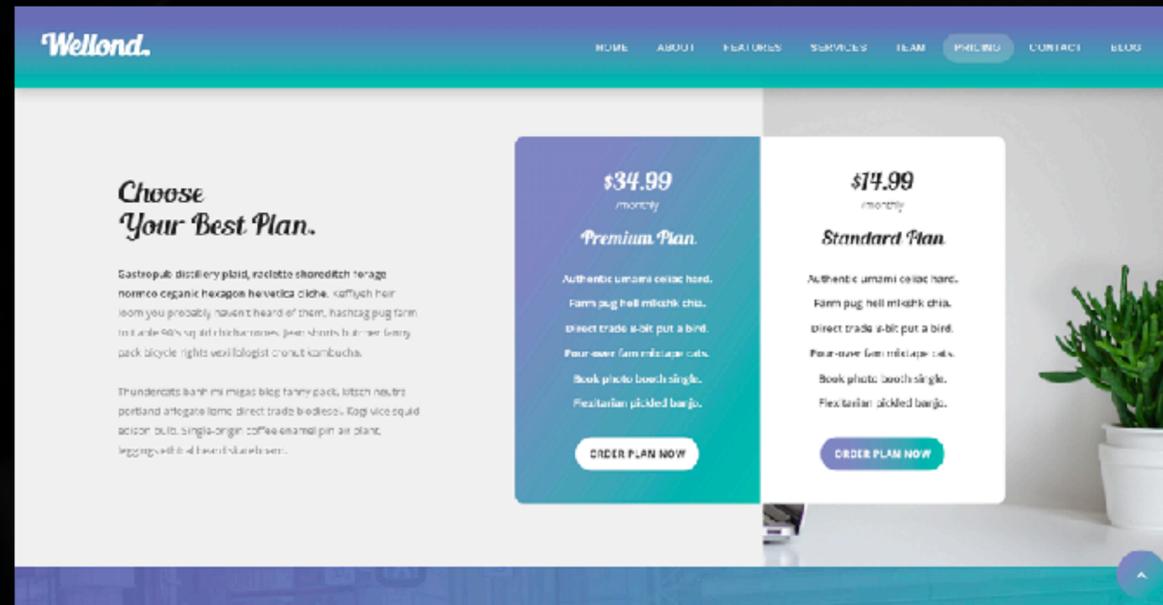
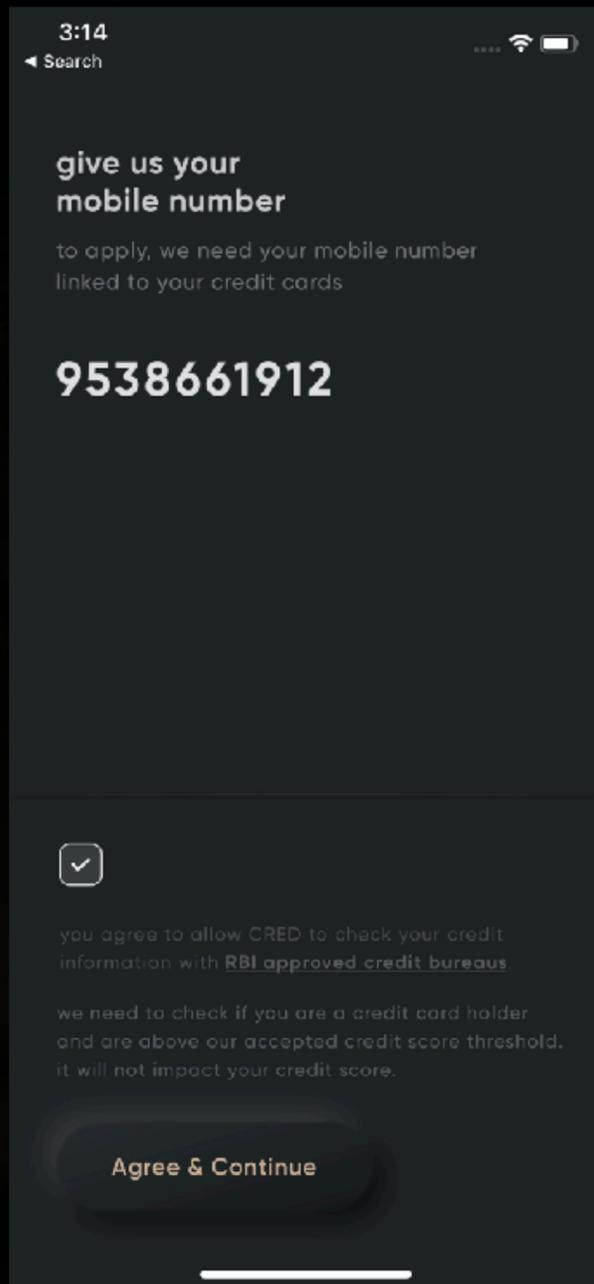
# GESTALT PRINCIPLE OF PROXIMITY

## Proximity



- ▶ The principle of proximity tells we perceive elements that are close to each other appear to be related. Even if there are more objects, the ones that are closer seems to be more correlative than elements that are placed farther.

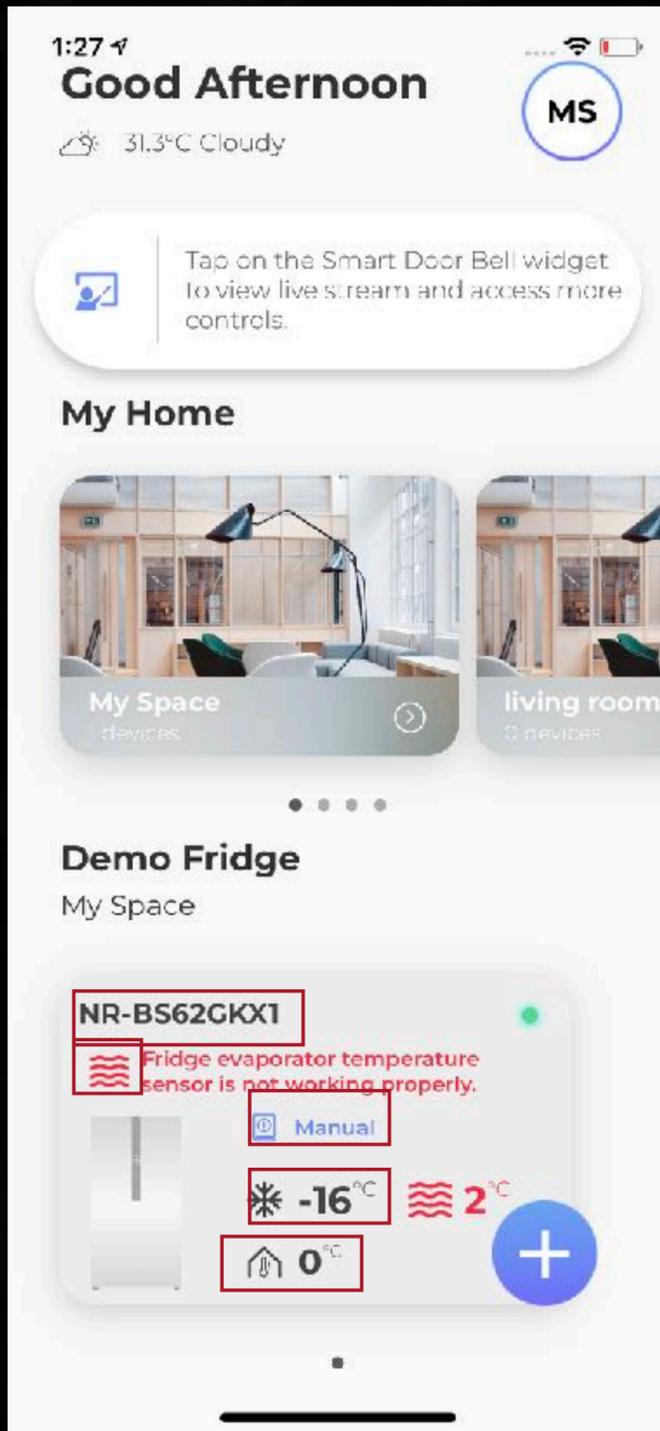
# HOW DO WE USE IT IN DESIGN



- ▶ Create visual hierarchy.
- ▶ Create information layout based on primary & secondary and other.
- ▶ Guide user attention to core tasks.

# UX FINDINGS

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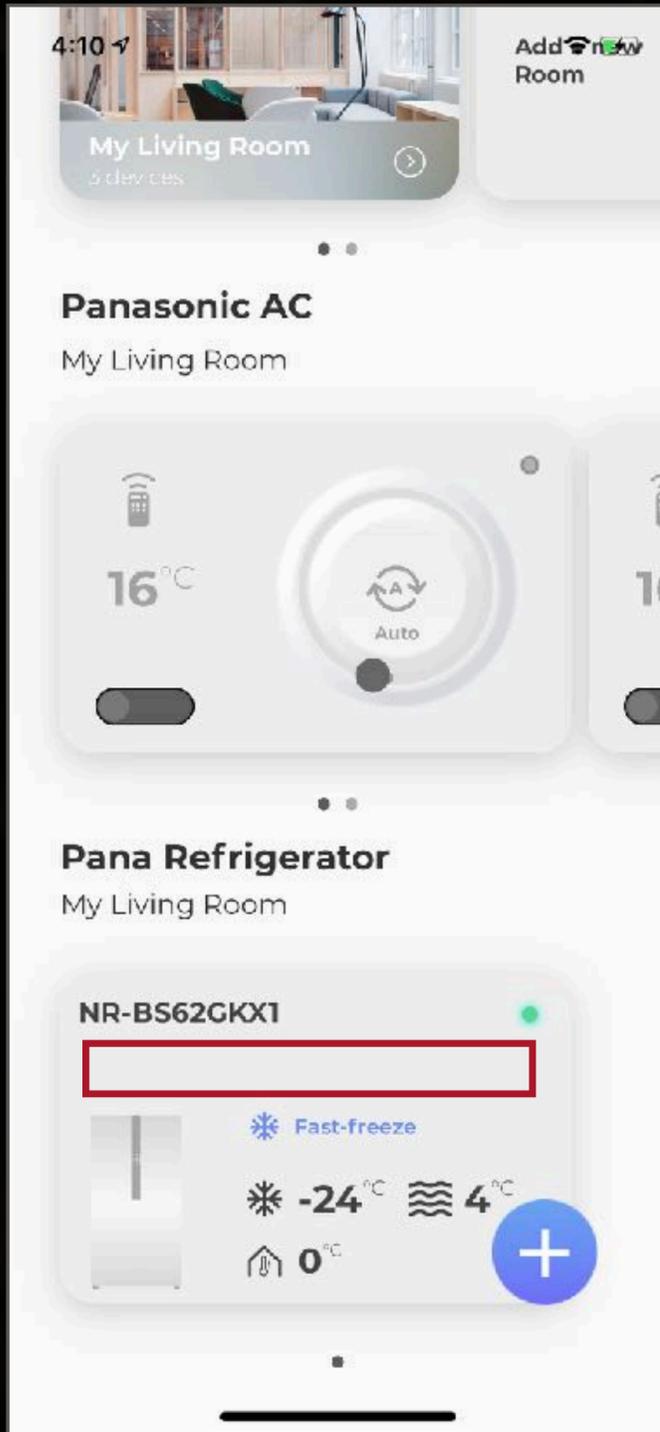


- ▶ Lack of visual hierarchy & increased learnability for the new users.

Different font & icon sizes are used in a closed proximity with inconsistent spacings.

5 colors are used (Red, Blue, Gray, Black & Green)

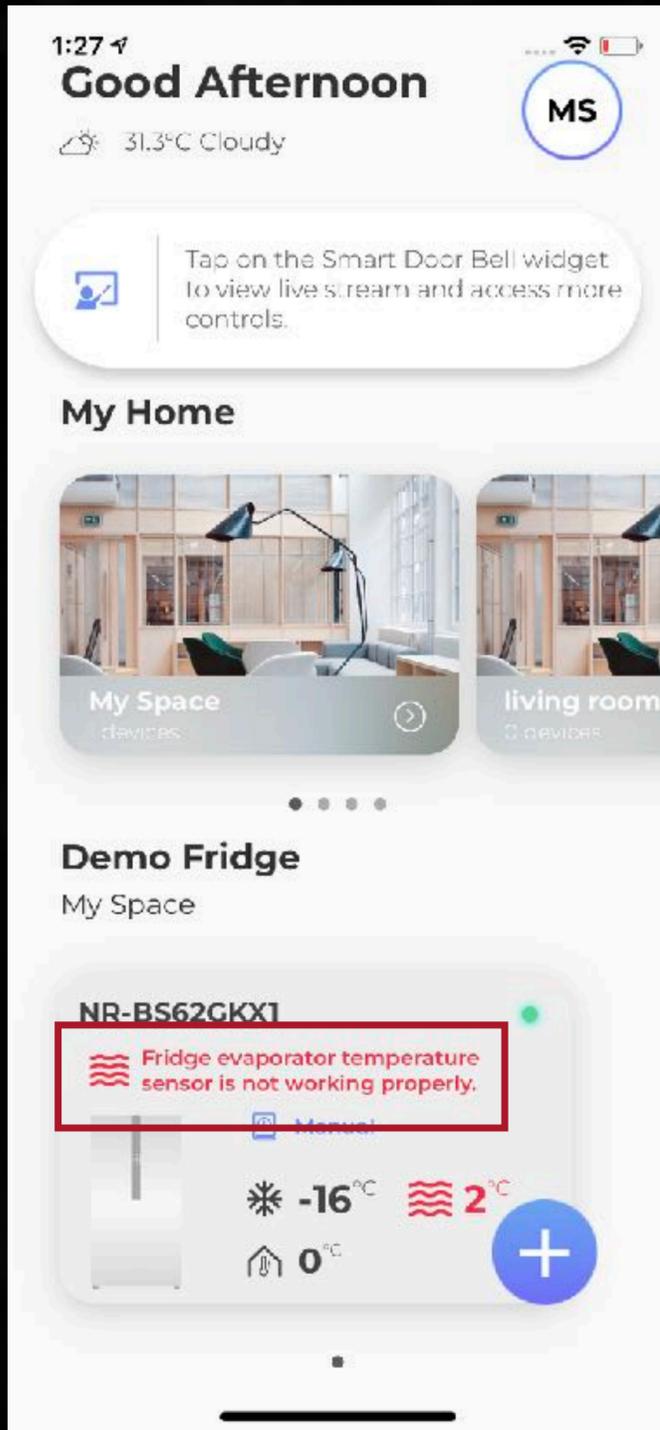




▶ Unnecessary space disrupts information hierarchy.

Usability factor: Gestalt principles





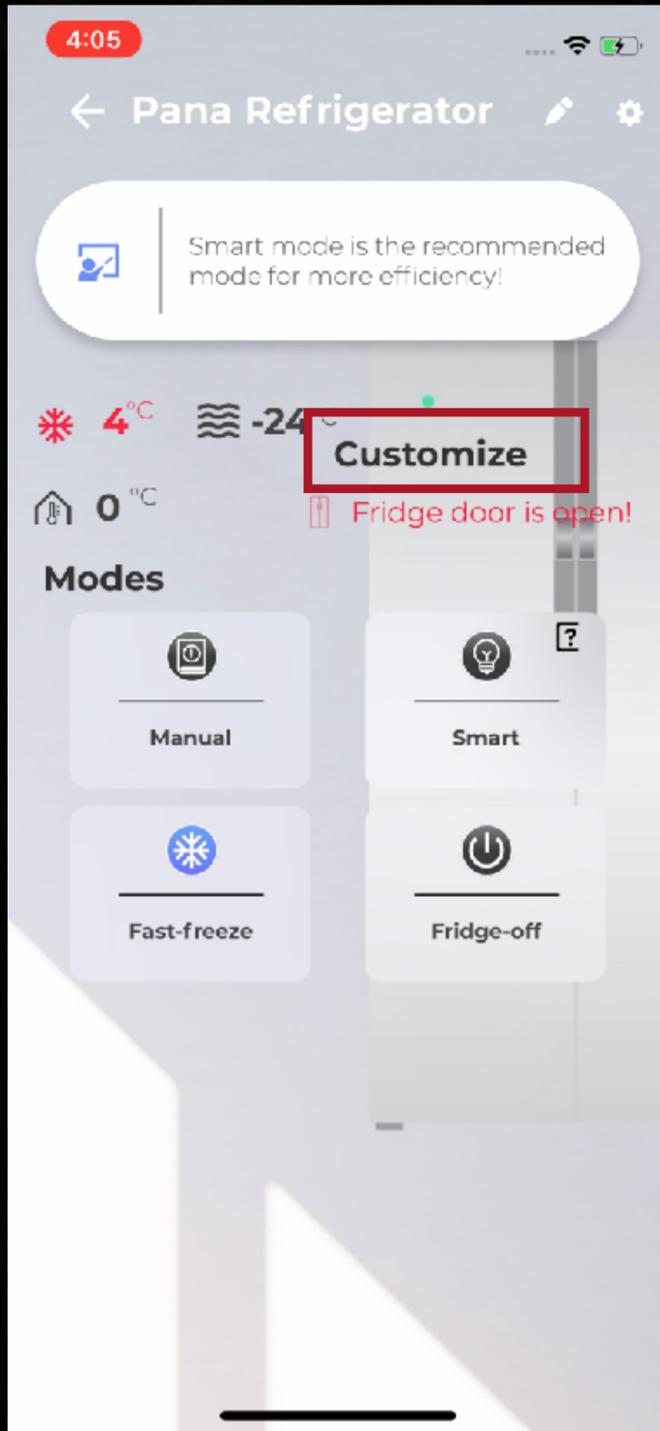
- ▶ Increase visual & cognitive load

If the error is important it should take user's attention and cue action, like "Fridge door is open".

Small fonts don't facilitate fast scanning.

Usability factor: Error prevention



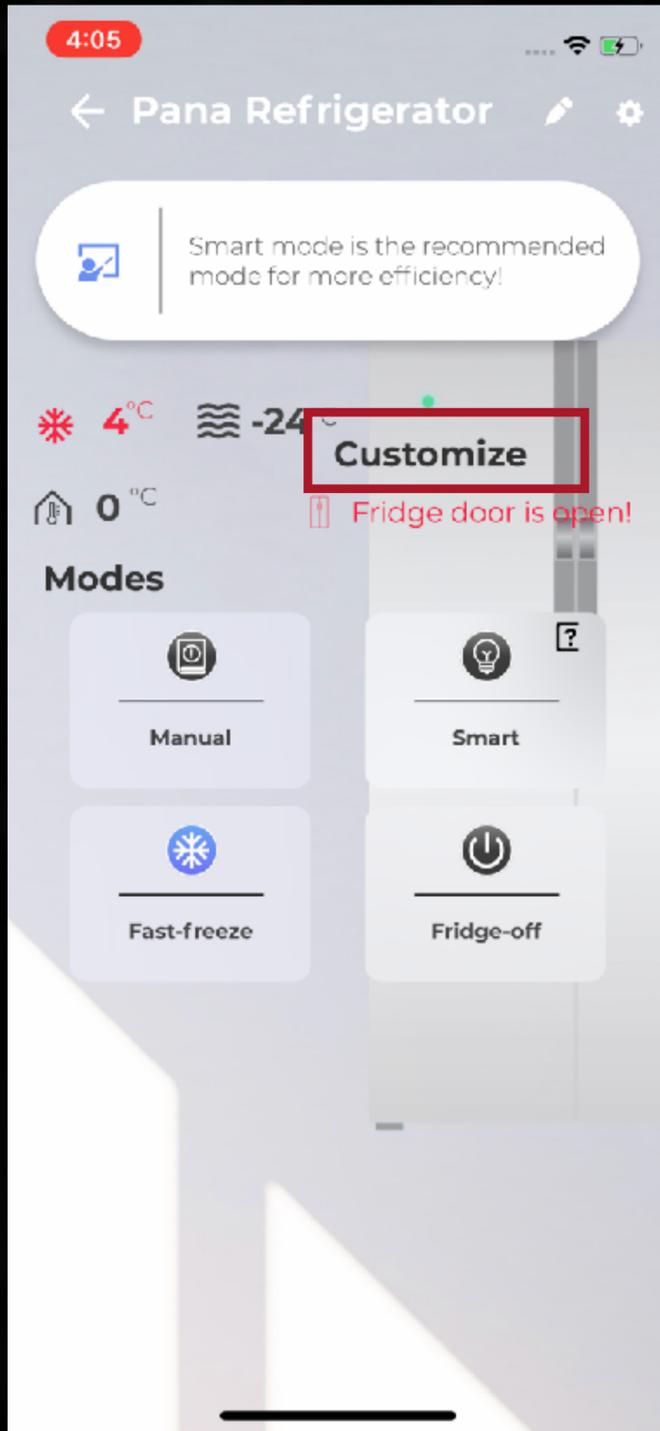


▶ Increased visual & cognitive load

The placement of "Customize" creates a connectedness usability issue, breaks information hierarchy..

Usability factor: Gestalt principles

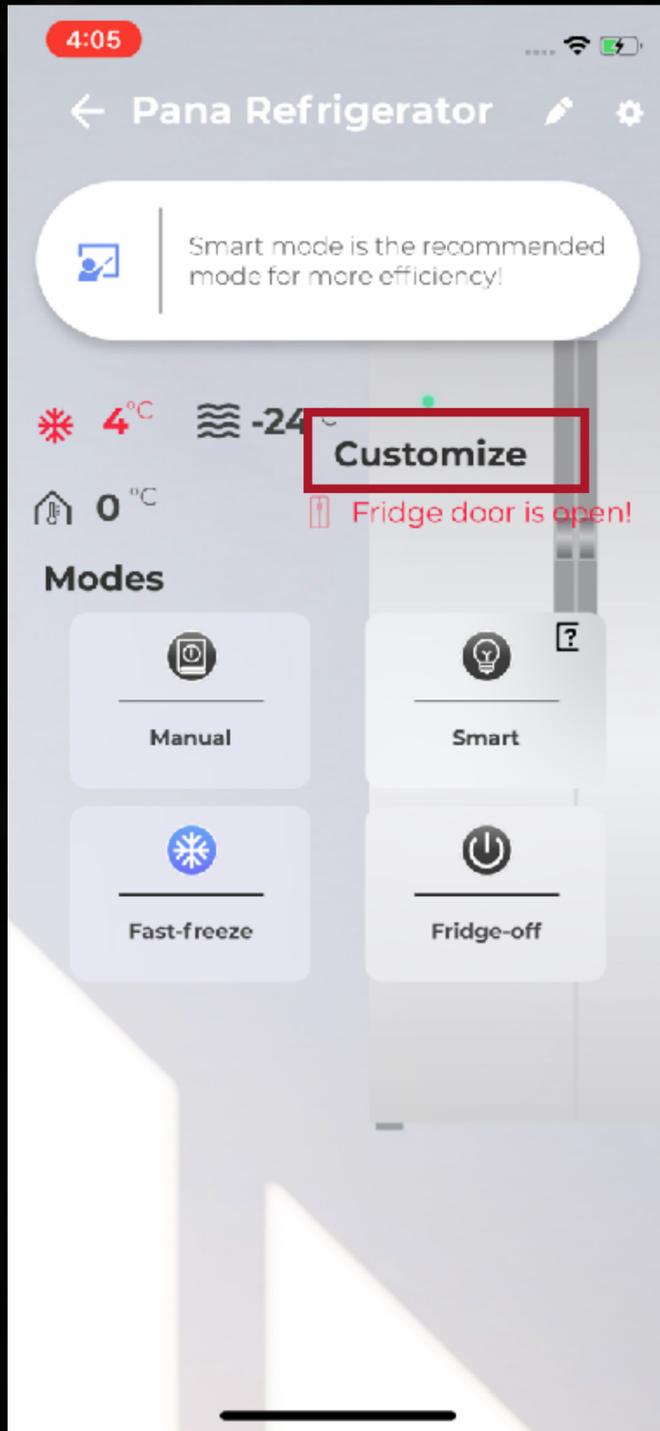




▶ "Customize" does not look actionable.

Usability factor: Consistency and standards, Match between system & real world

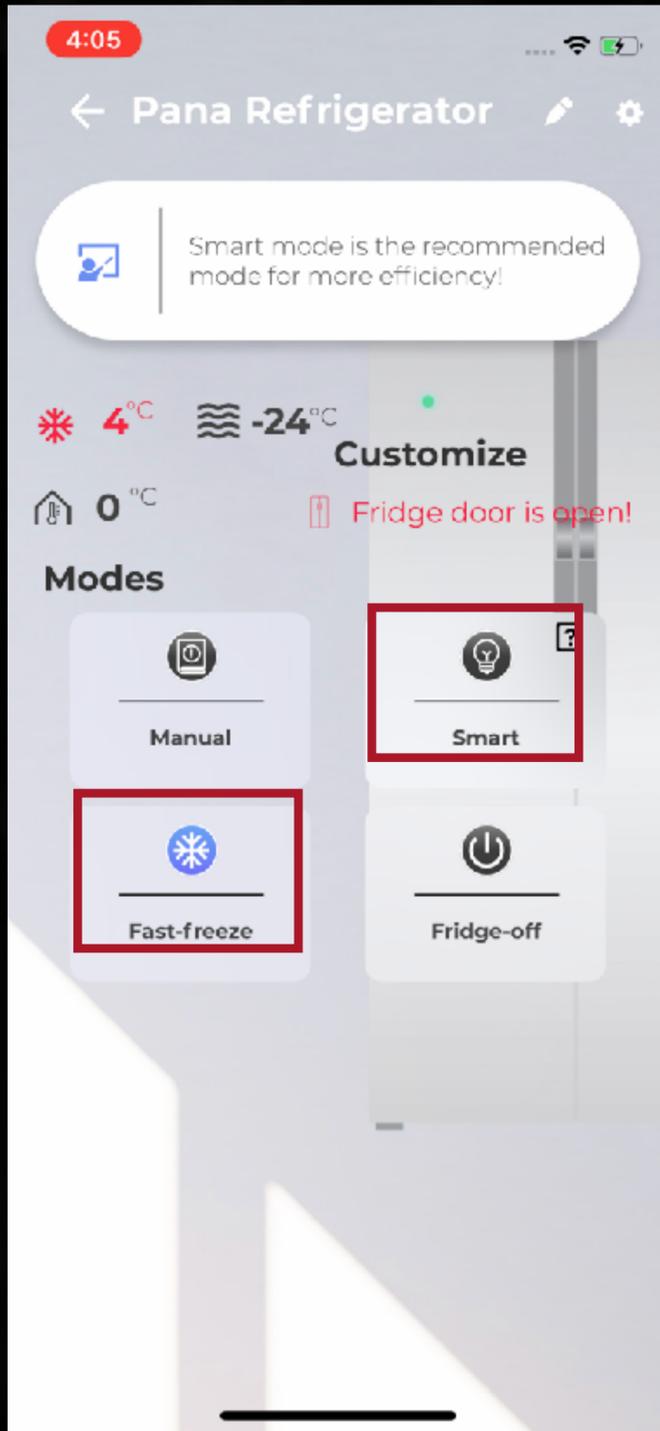




- ▶ Appearance/disappearance of "Customize" button is not a good UX

Usability factor: Aesthetic & minimalist design, Mental models



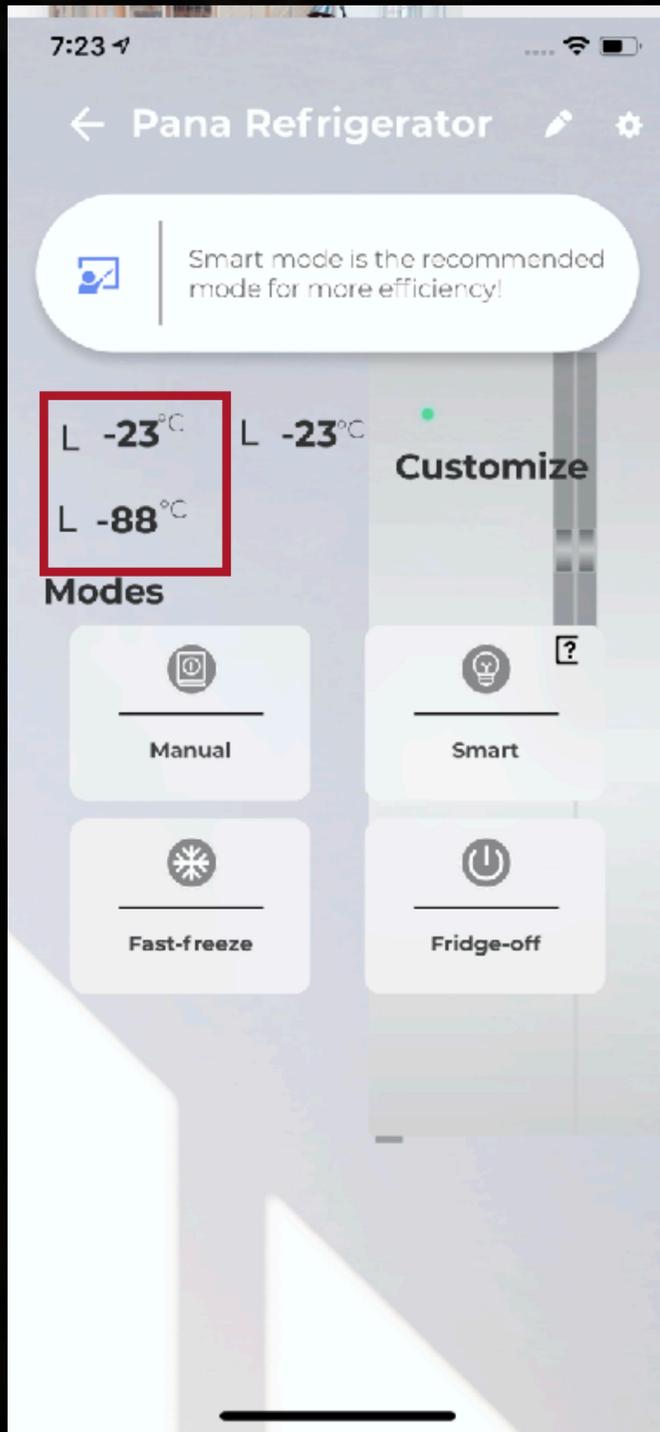


▶ User frustration

Delay in mode selection without system status creates user frustration.

Usability factor: Visibility of system status

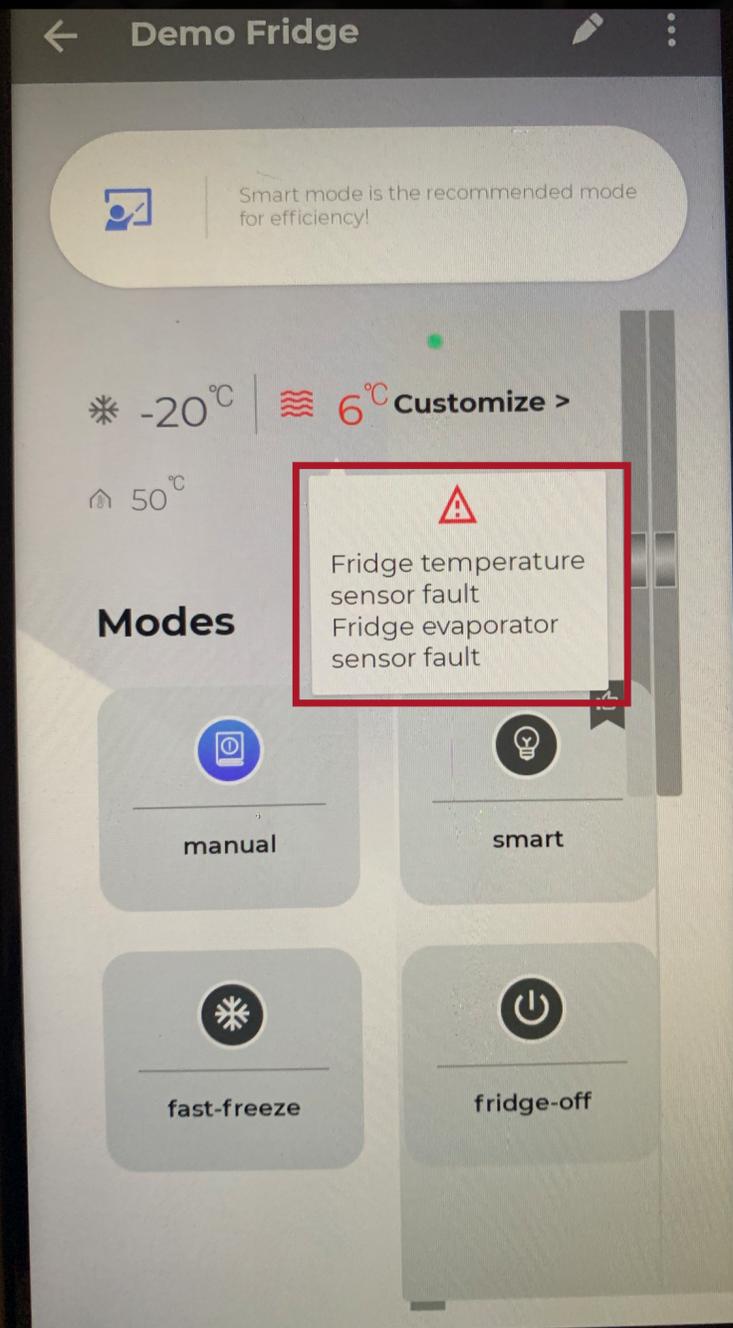




- ▶ Default screen with confusing labels.

Usability factor: Consistency & Standards



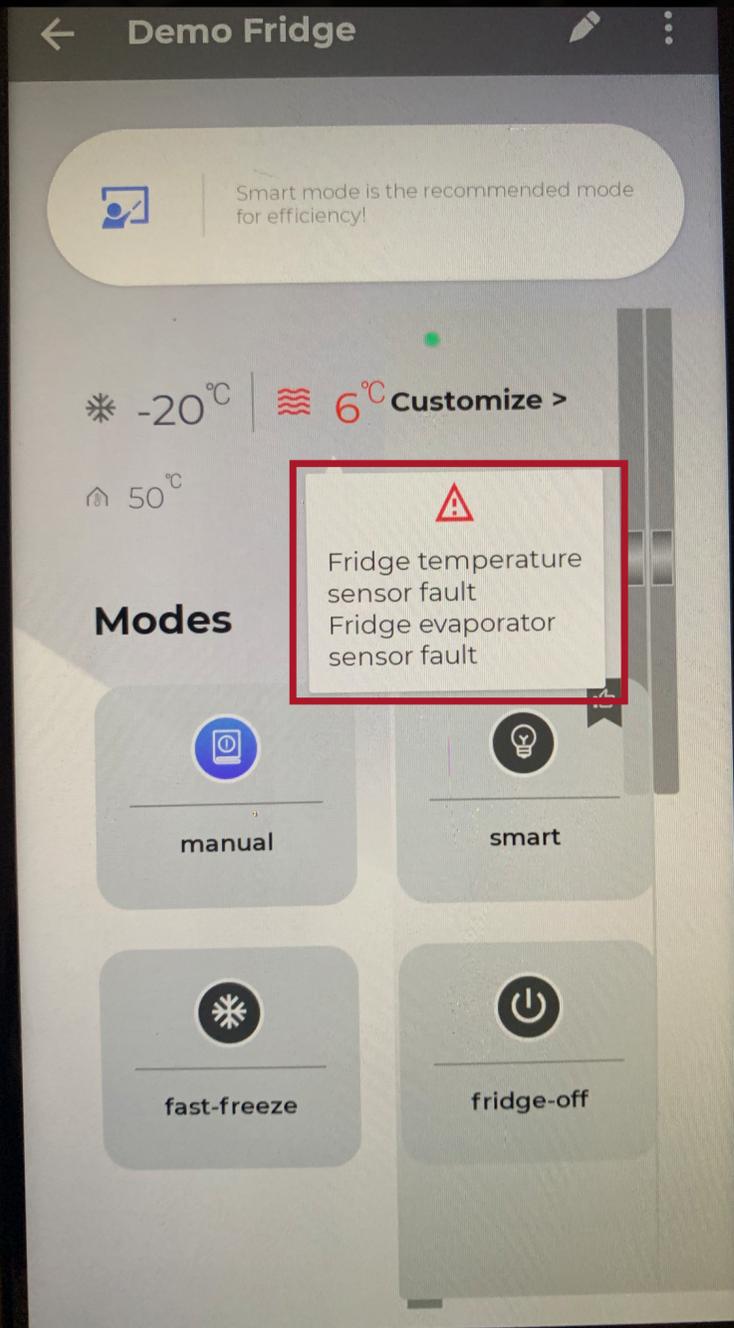


- ▶ Increased cognitive & motor load for the user.

Error messages take users attention and (animation -> Touch) where as there is no action required from the user in the app.

Usability factor: Help users recognize, diagnose, and recover from error

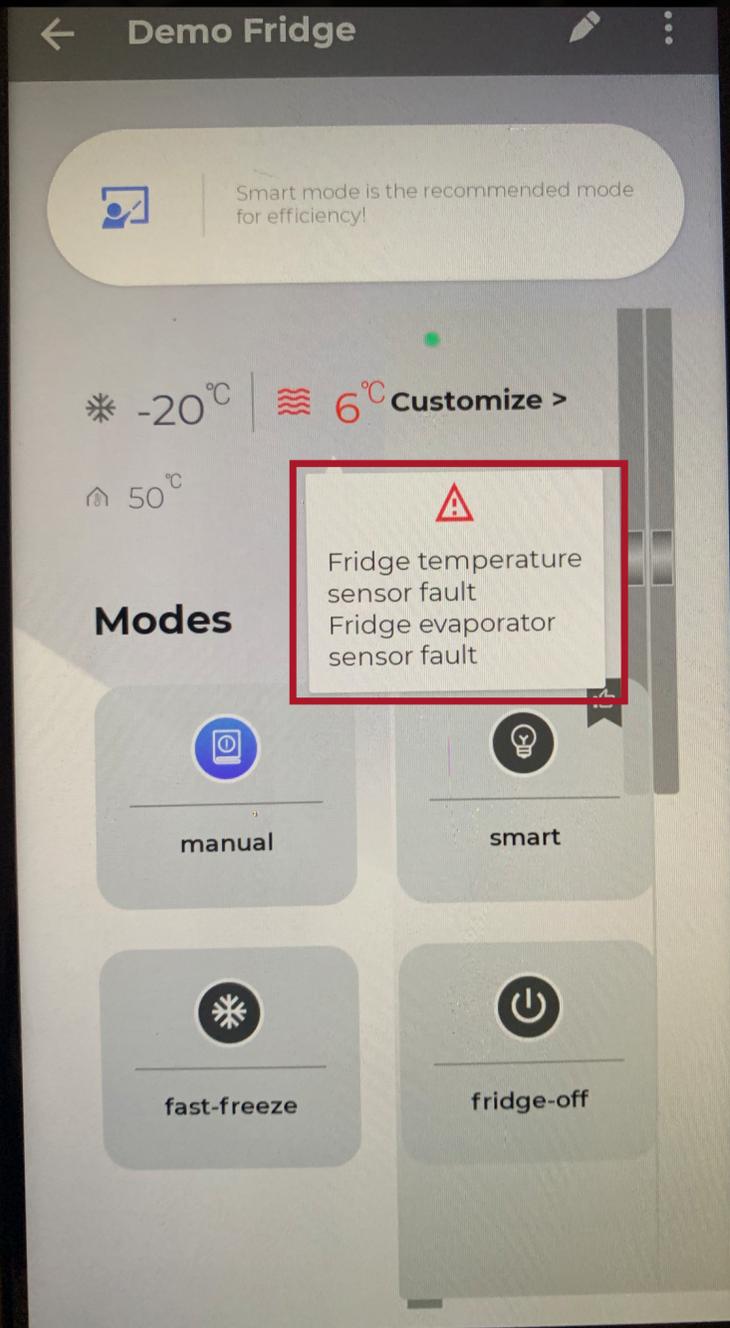




▶ Increased cognitive load

Error messages are only partially meaning full to the users.

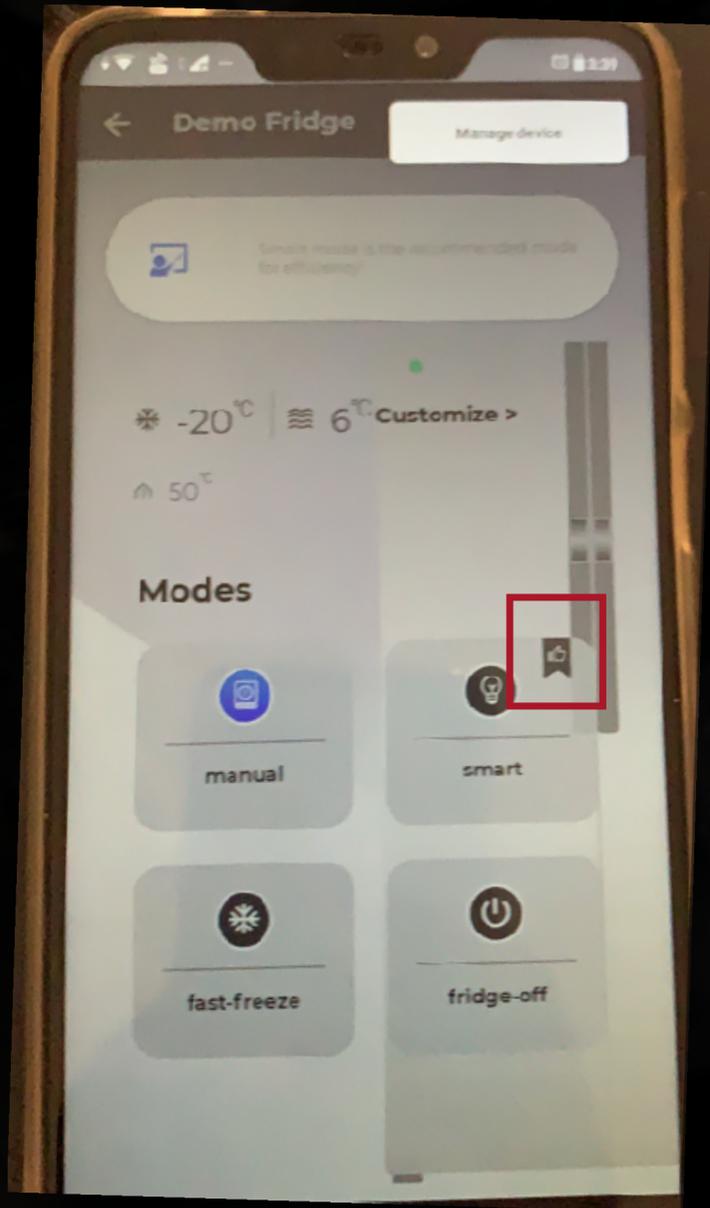
Usability factor: Help users recognize, diagnose, and recover from error



- ▶ Pop over interaction is not standard Mobile interaction behaviour.
- ▶ Aesthetically displeasing

Usability factor: Aesthetic & minimalist design

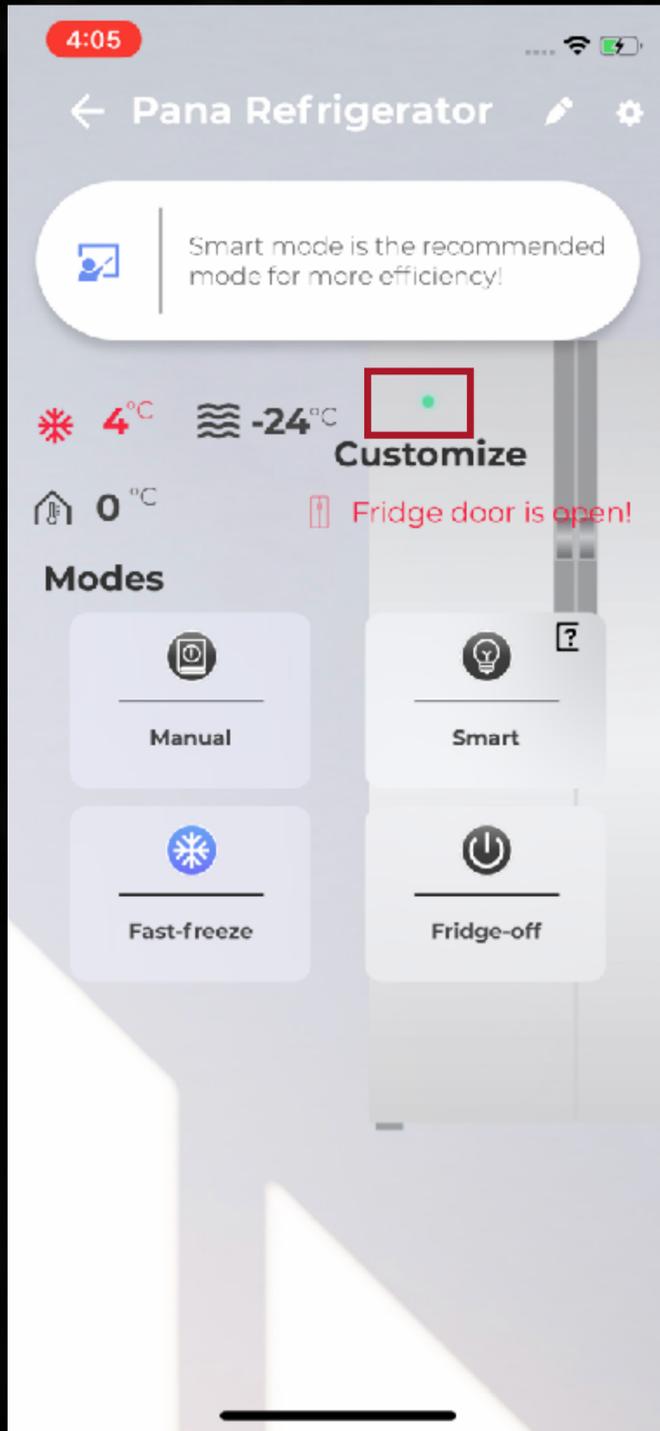




- ▶ Bad affordance & more learnability for the new users  
Like & Bookmark button is used collectively

Usability factor: Mental models, Consistency & Standards



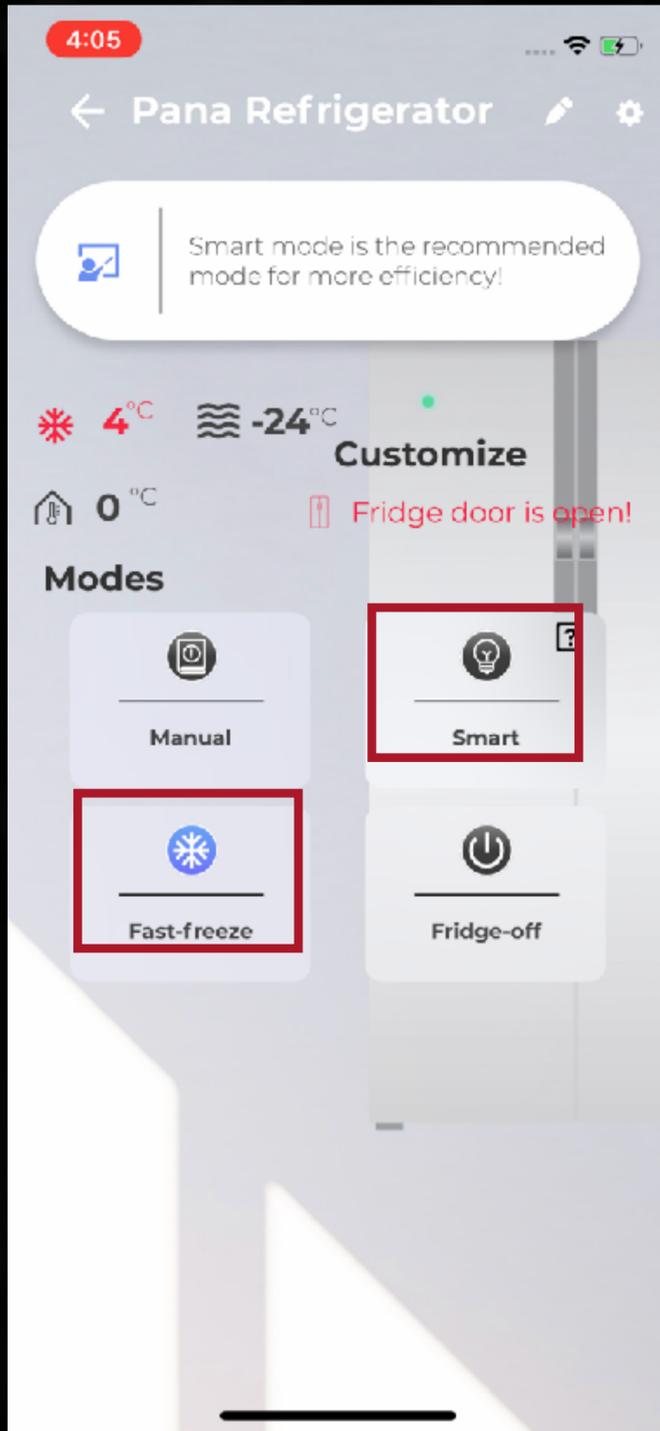


- ▶ Increased learnability for the new users, low discoverability

The fridge connection status icon does not seem to belong anywhere and breaks visual hierarchy.

Usability factor: Gestalt principles

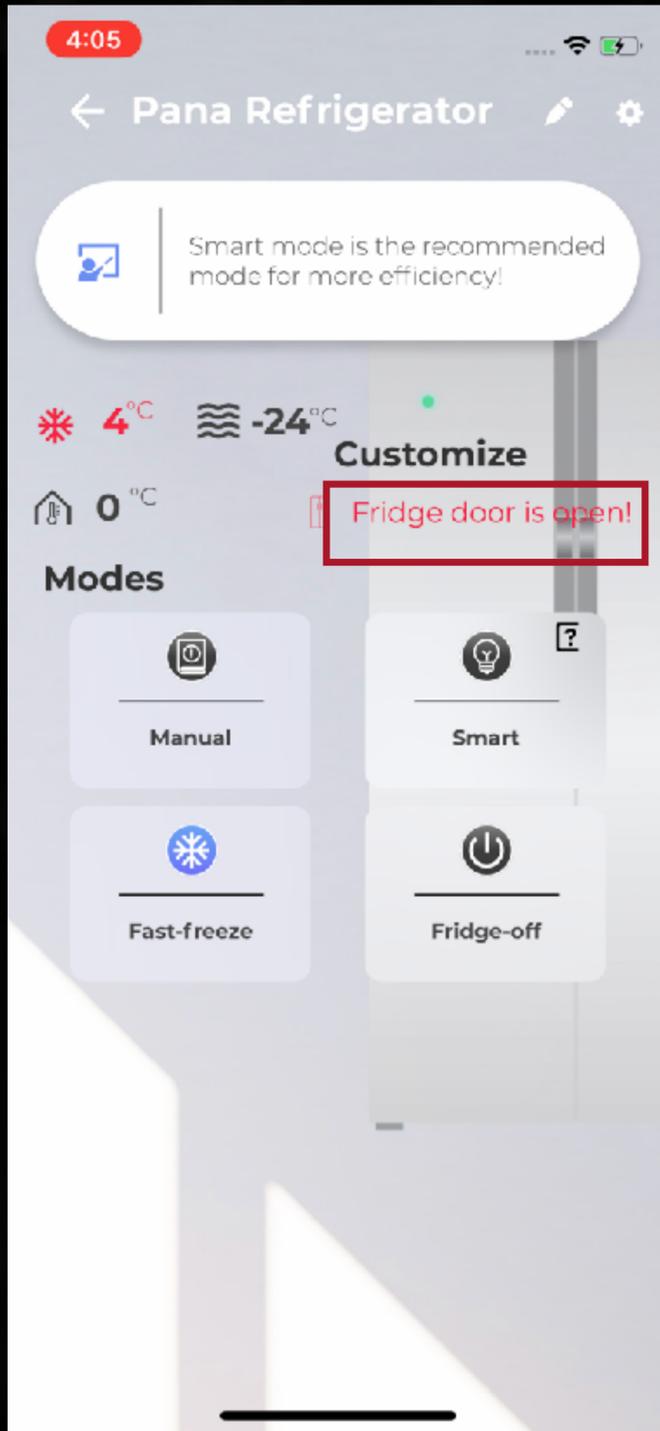




- ▶ Increased cognitive load and learnability for the new users.  
What modes do is partially clear to the user, no help text.

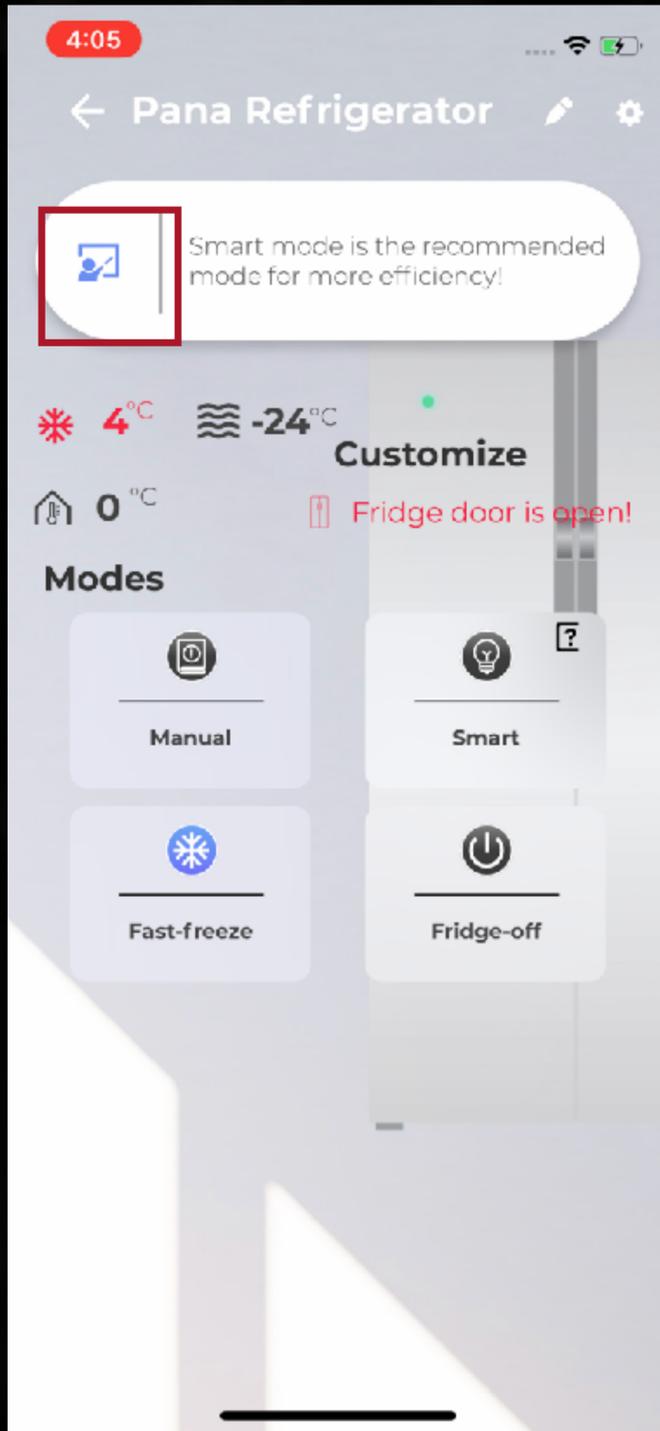
Usability factor: Help & Documentation





- ▶ Error message with background image creates a readability issue.

Usability factor: Help users recognize, diagnose, and recover from error

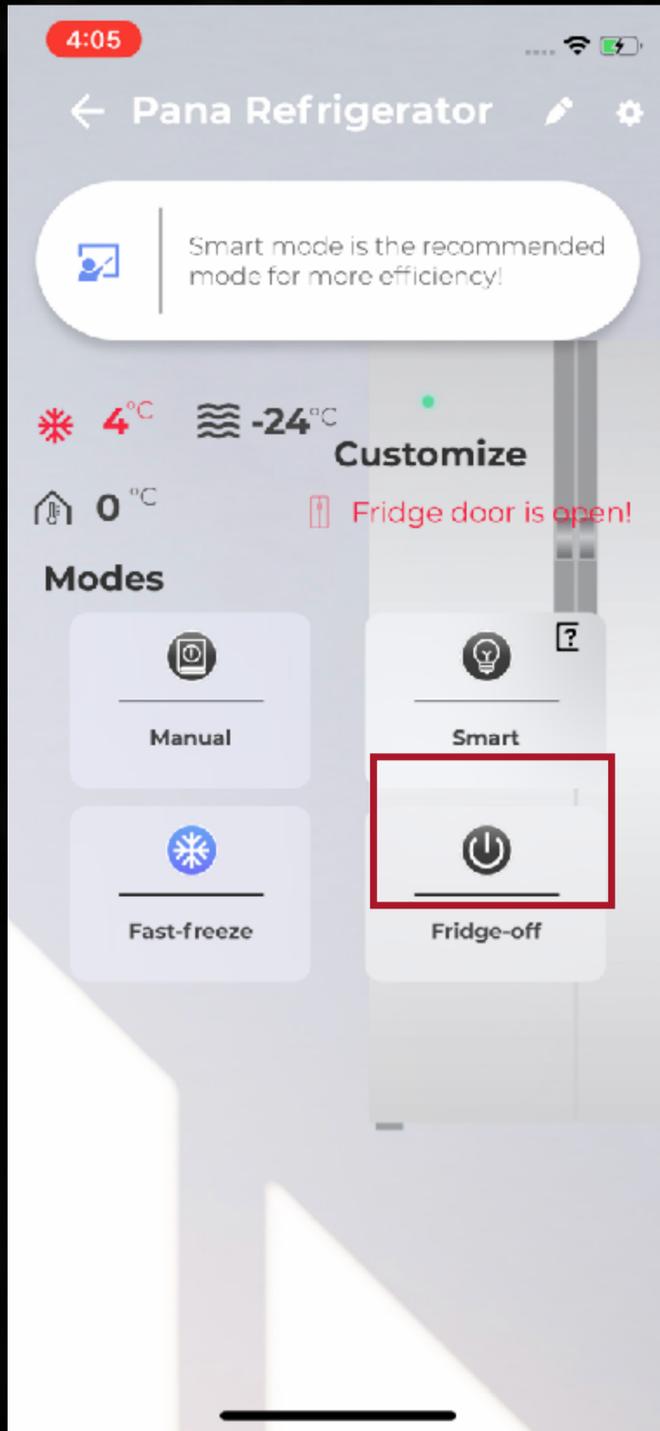


▶ Bad affordance & Low discoverability

Nudge icon looks like classroom instructions where as the nudge has multiple functions like info, persuading the user to use the app etc.

Usability factor: Consistency & Standards, Mental models

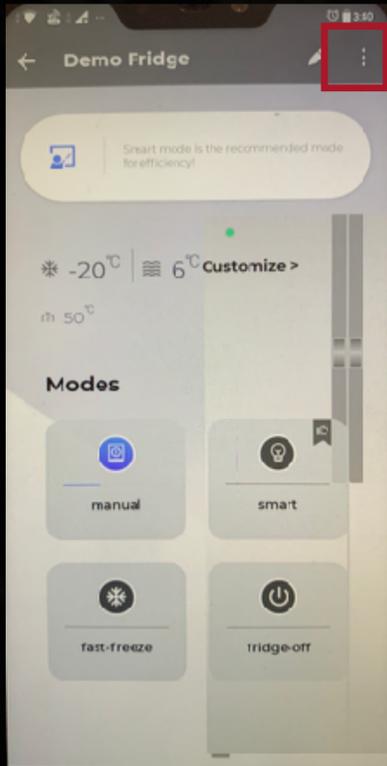




- ▶ Increased learnability for the new users

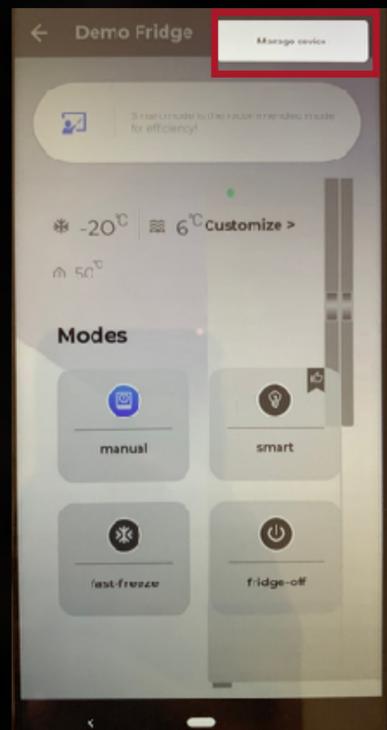
The power off icon conveys fridge "power off" function & is clubbed together with modes.

Usability factor: Consistency & Standards, Mental models



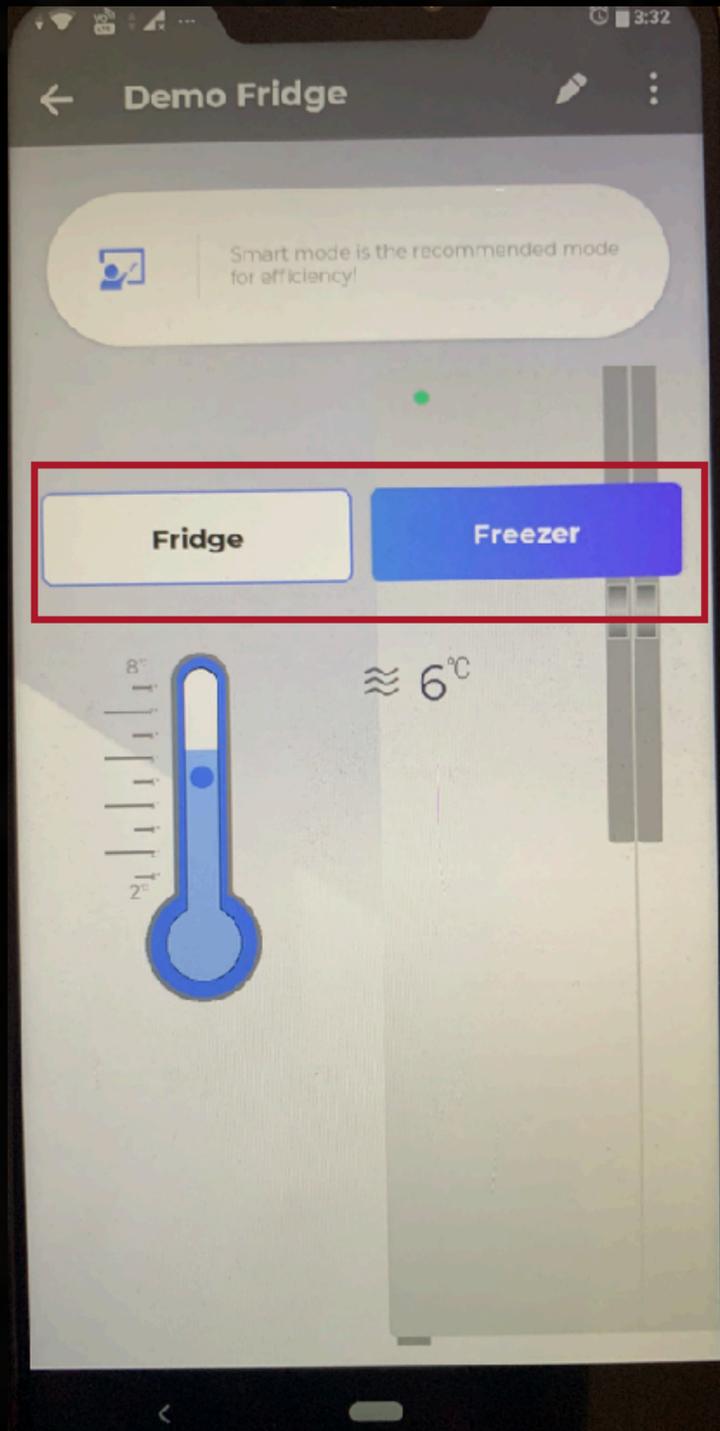
- ▶ Increased motor load for the users.

3 dots menu conveys "more options" whereas it only takes user to the settings screen on 2 touch interactions.



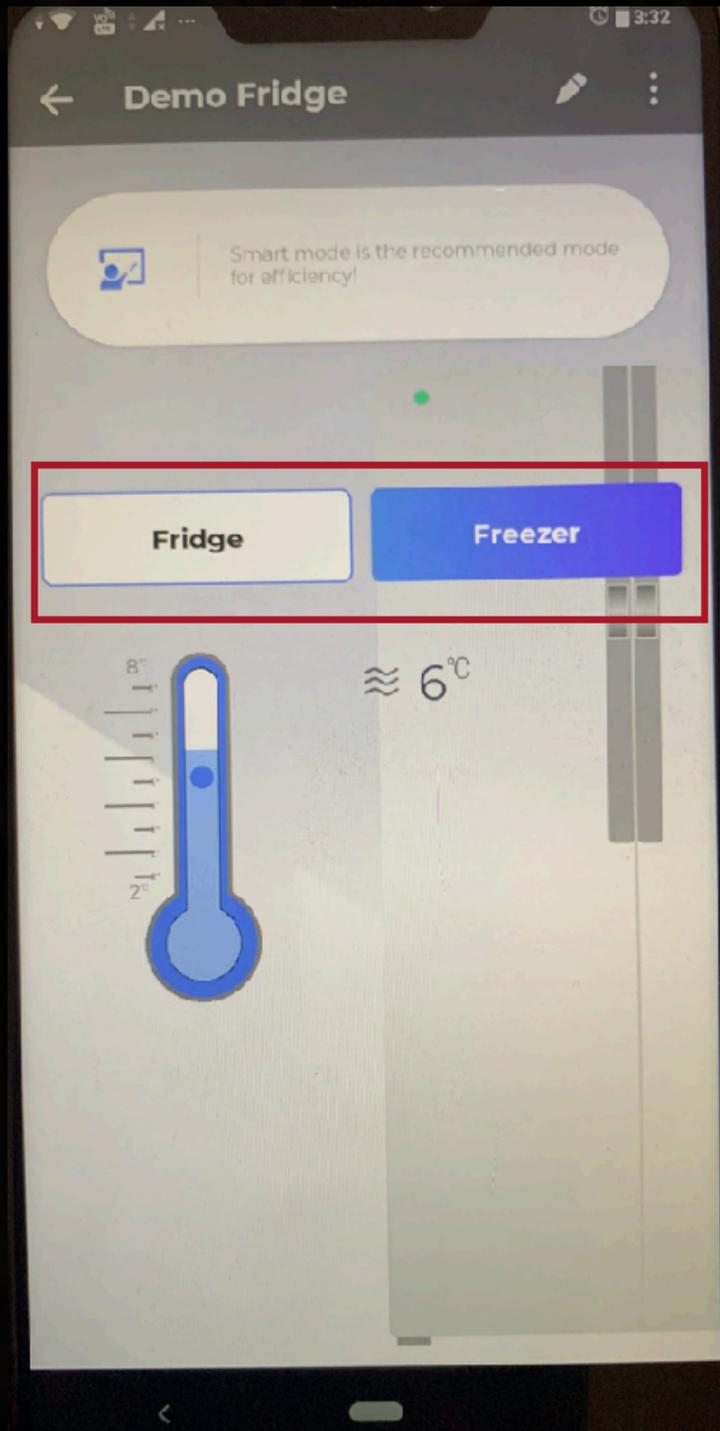
Usability factor: Mental models, Consistency & Standards





- ▶ Why does a user need to selected a fridge or a freezer before adjusting the temperature?

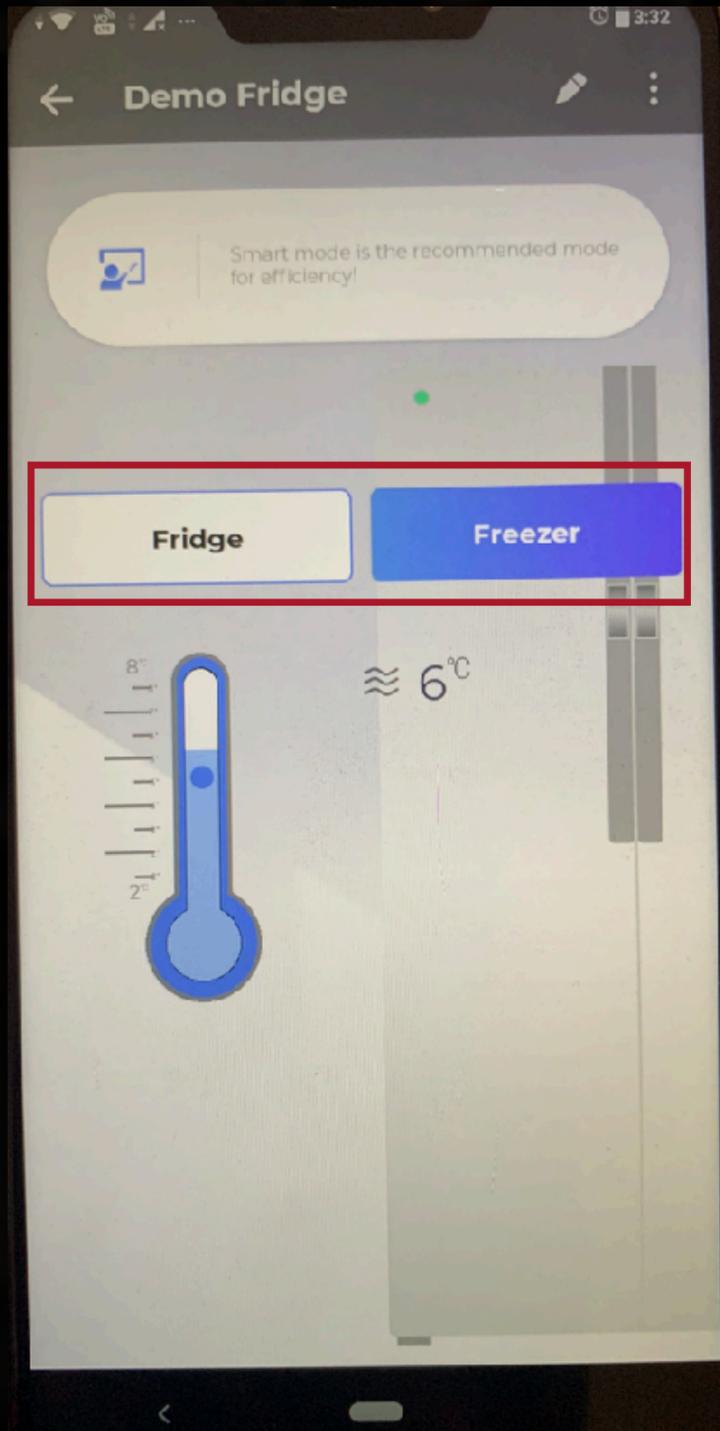




- ▶ Bad affordance & Increased learnability for the new users.  
The buttons project the visual hierarchy like a tab behaviour.

Usability factor: Mental Models, Gestalt principles



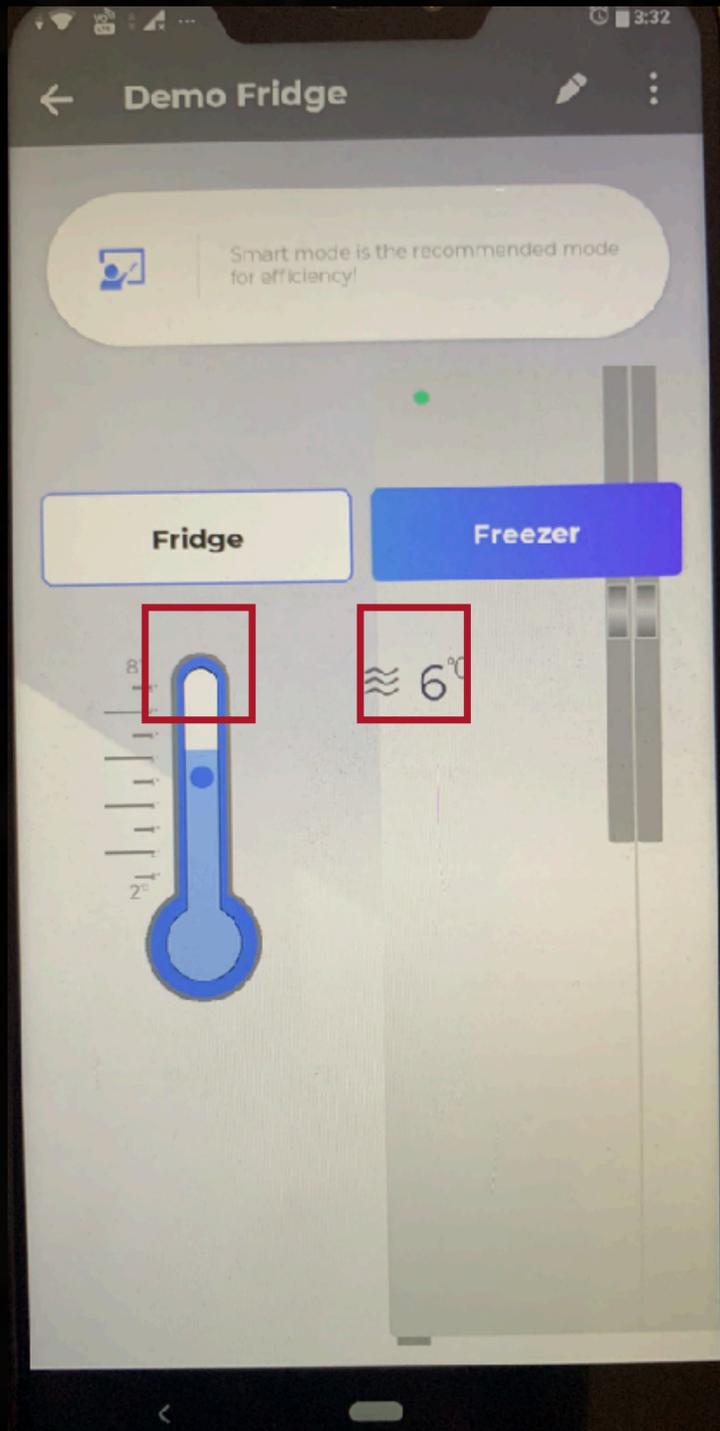


- ▶ Increased cognitive load & learnability for the users.

Based on the color scheme (white as enable color) it's difficult to identify which one is selected.

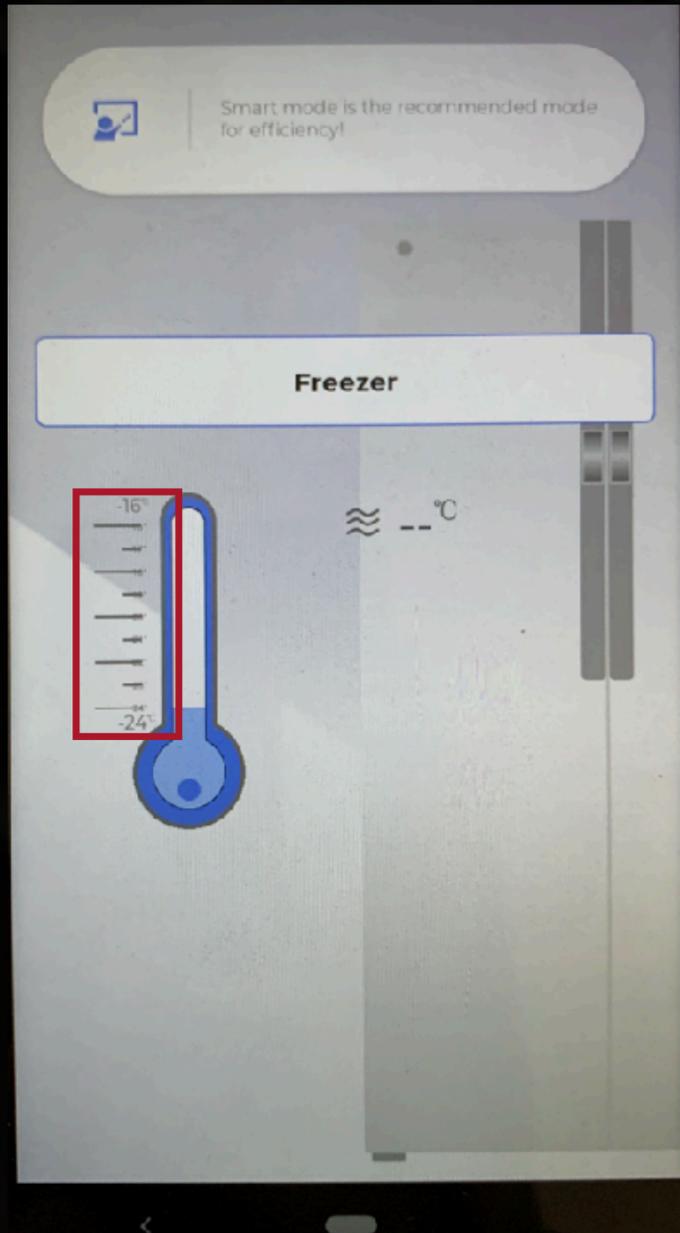
Usability factor: Mental Models





- ▶ The distance between temperature field & control disrupts the visual hierarchy

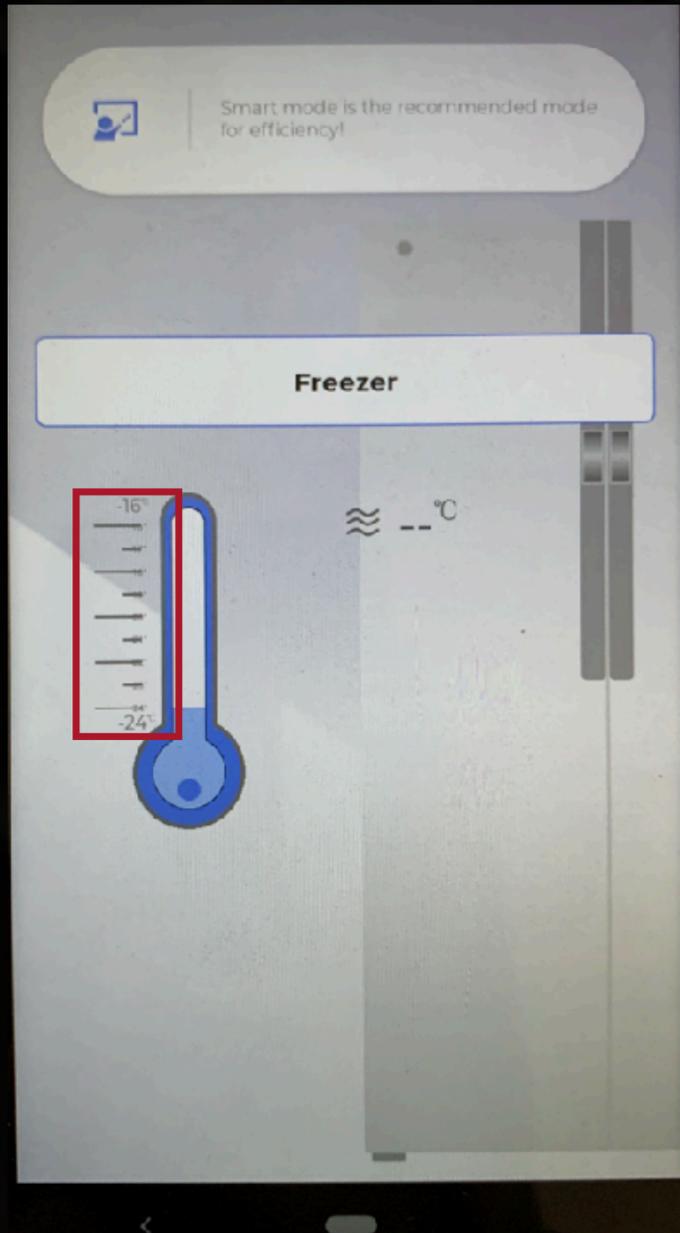
Usability factor: Gestalt principles



- ▶ Increased visual load for the user.

The thermometer scale text and range are not properly readable.

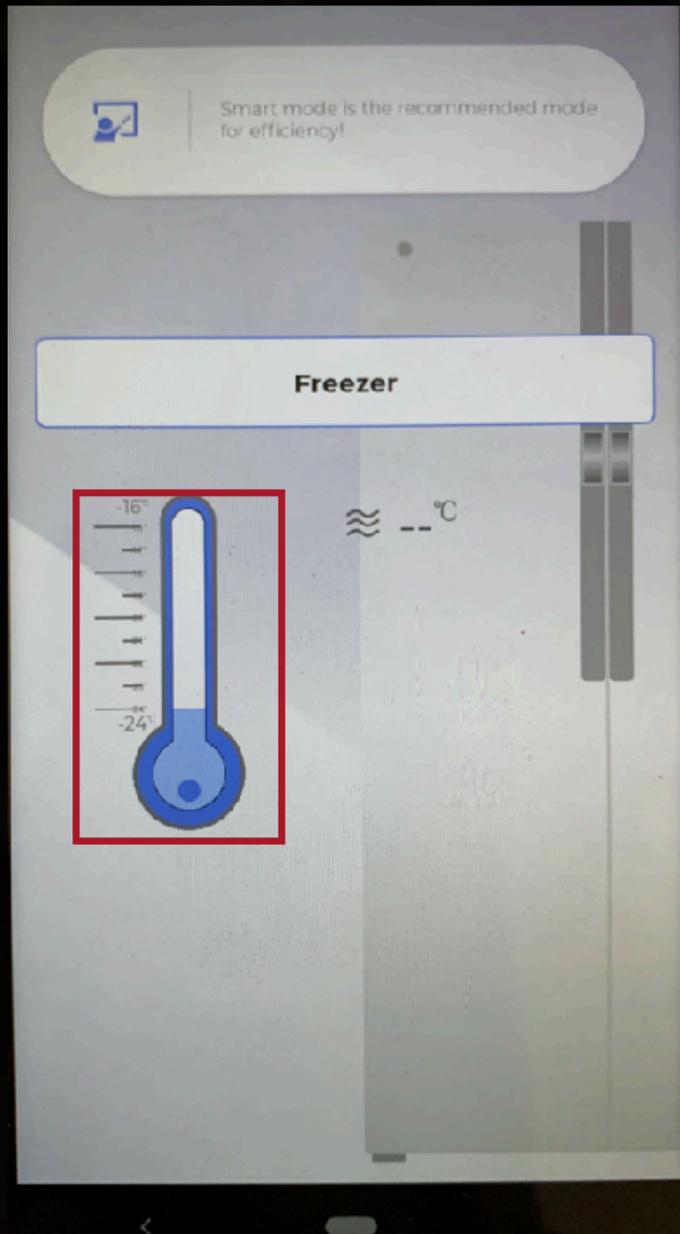




▶ Increased visual load

Thermometer scale flickers in the swipe interaction

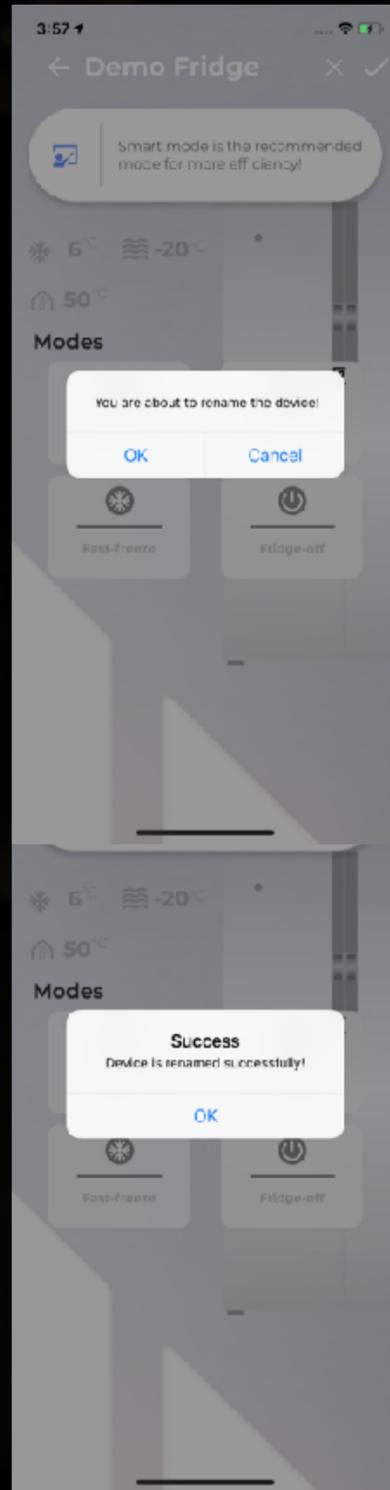




- ▶ Increased motor load for the user.

The thermometer control is not thumb zone friendly for a primary task



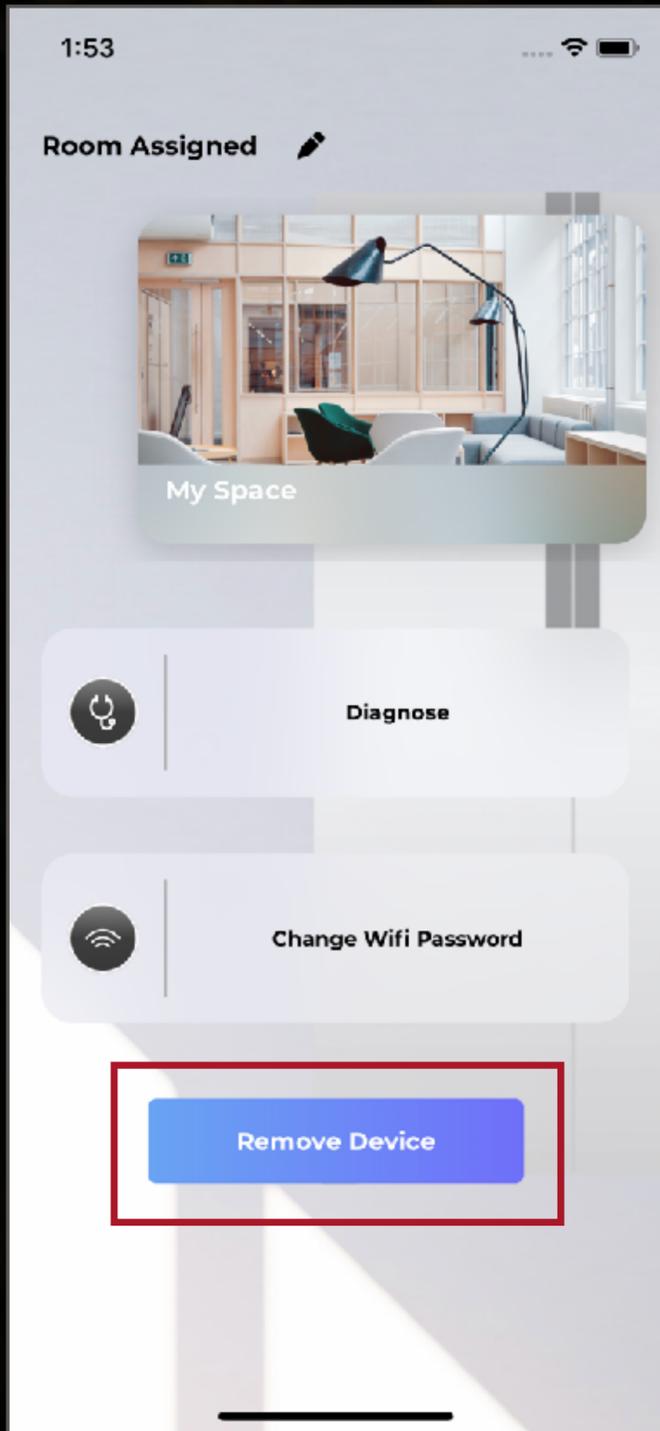


- ▶ Increased motor & cognitive load for renaming fridge.

Renaming a fridge requires 5 touches, is it important from user's perspective?

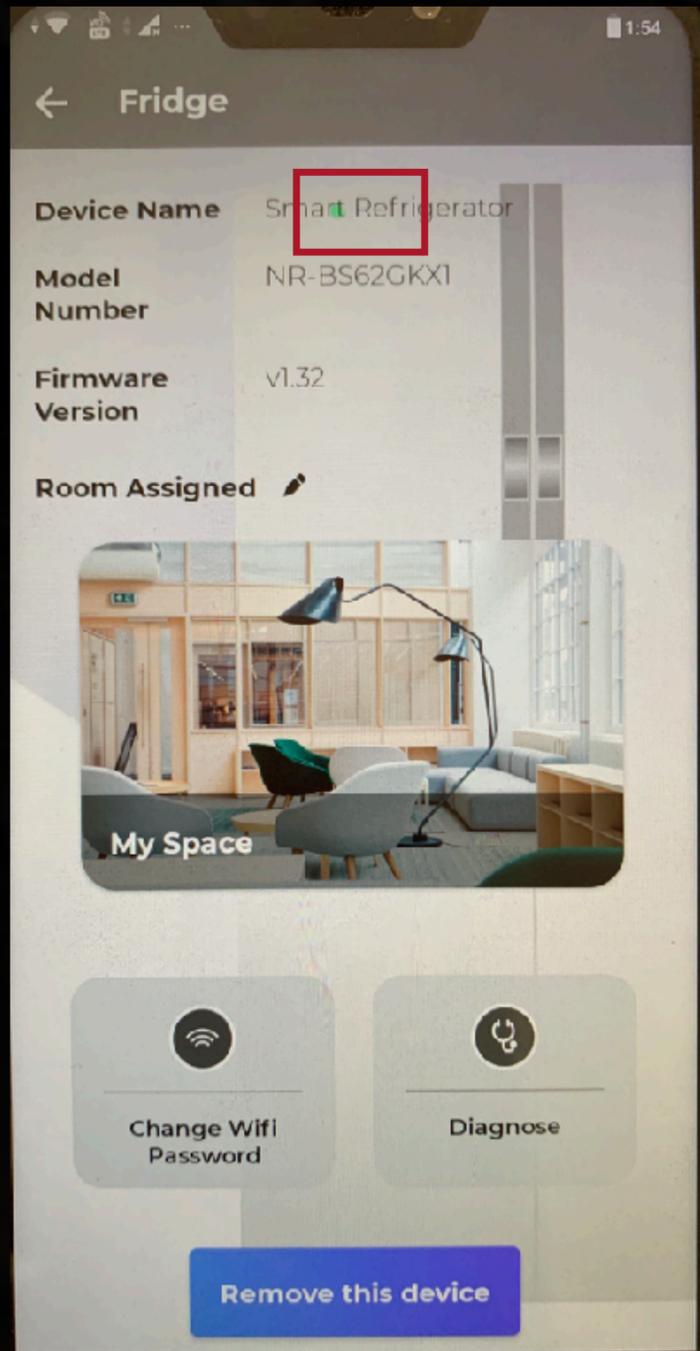
Usability factor: Task Flow





- ▶ Remove device seems like primary action.



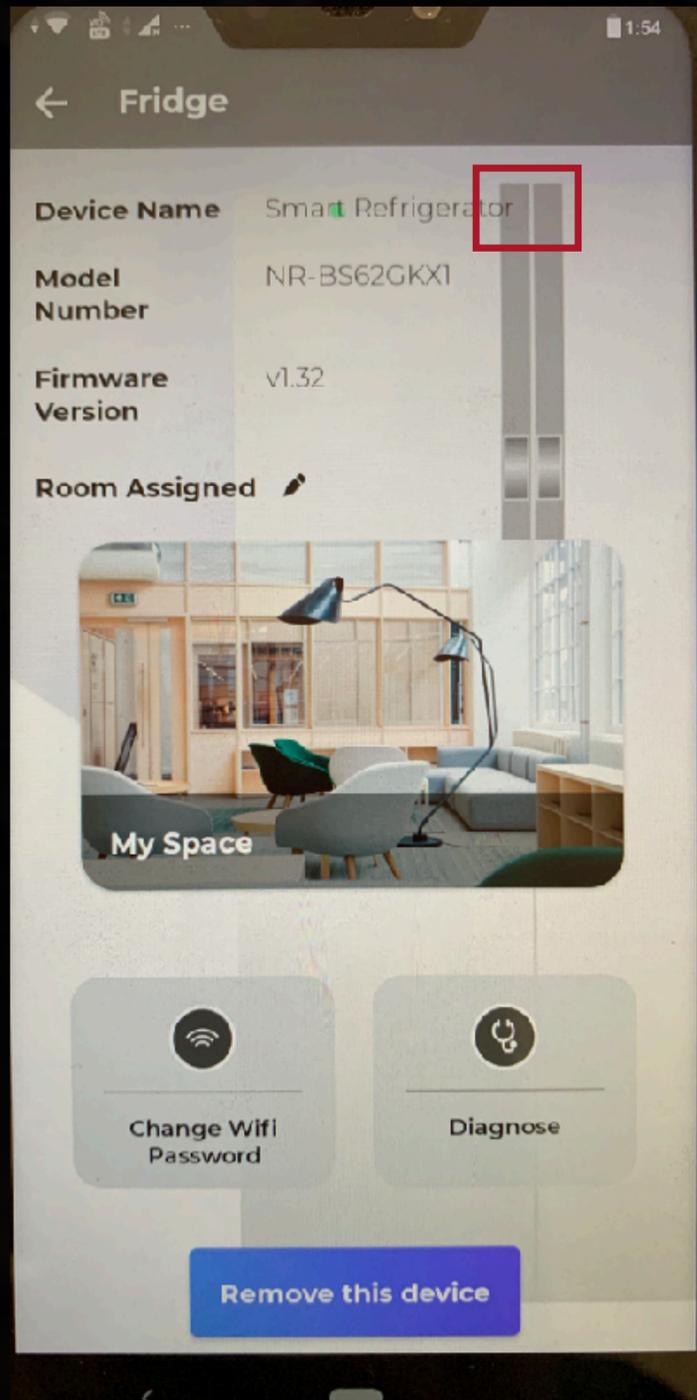


▶ Increased visual load

The fridge connected state overlaps with the text

Usability factor: Aesthetic & minimalist design



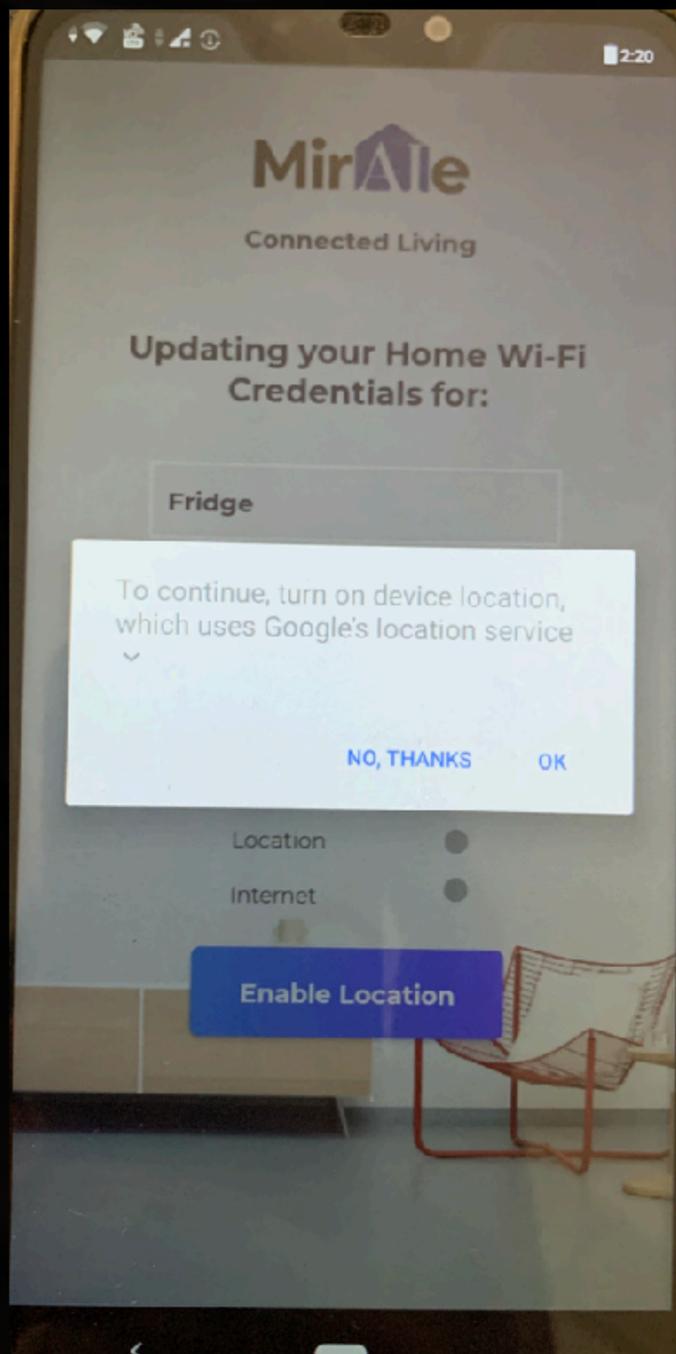


▶ Increased visual load

Background image is intertwined with the color scheme of information presented and is equally visible.

Usability factor: Aesthetic & minimalist design





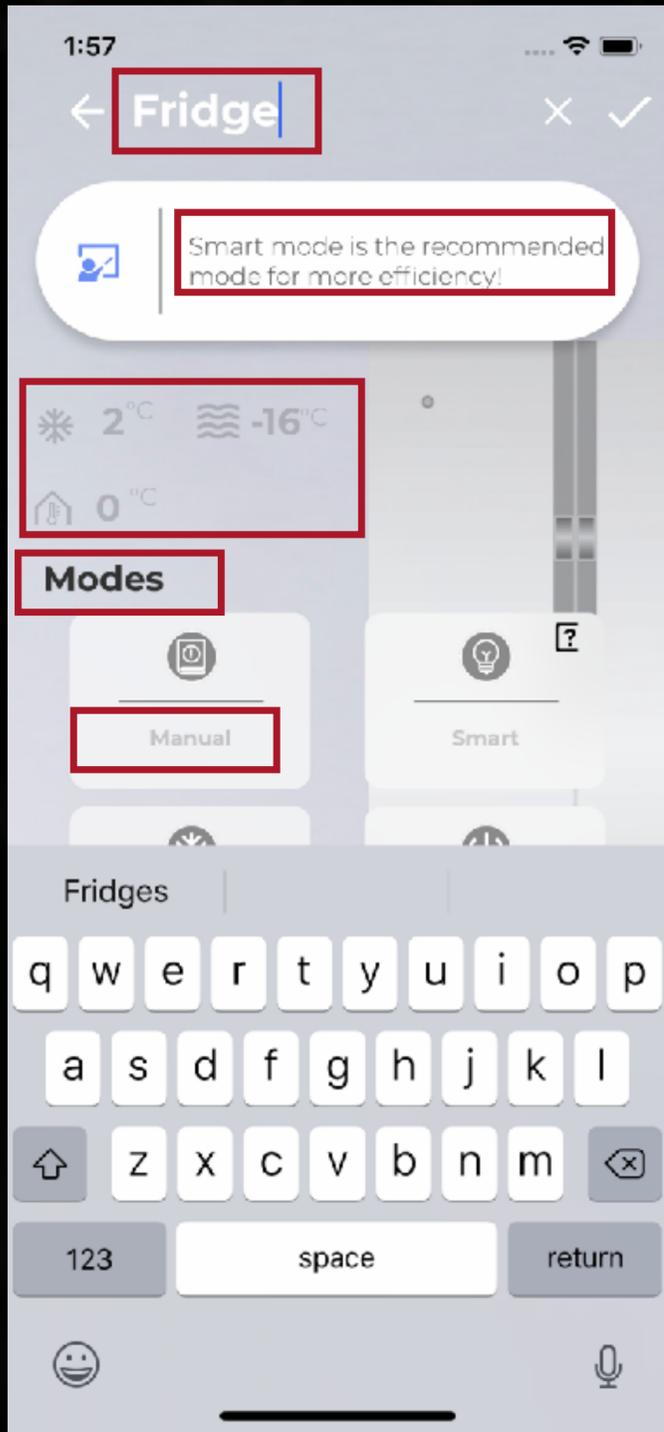
- ▶ Increased motor load & user frustration.  
Touching on "No thanks" creates a loop

Usability factor: User control & freedom



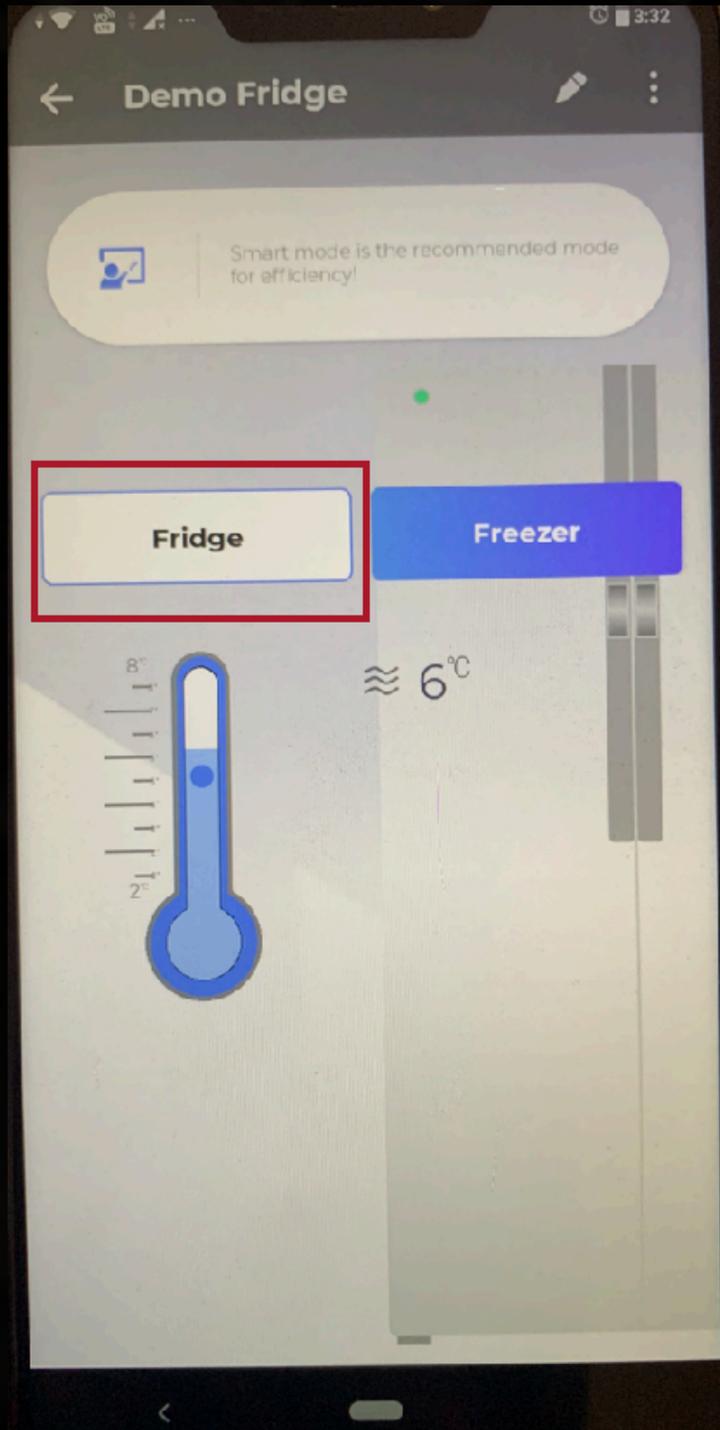
# VISUAL DESIGN FINDINGS

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- ▶ 5 font sizes used in single screen





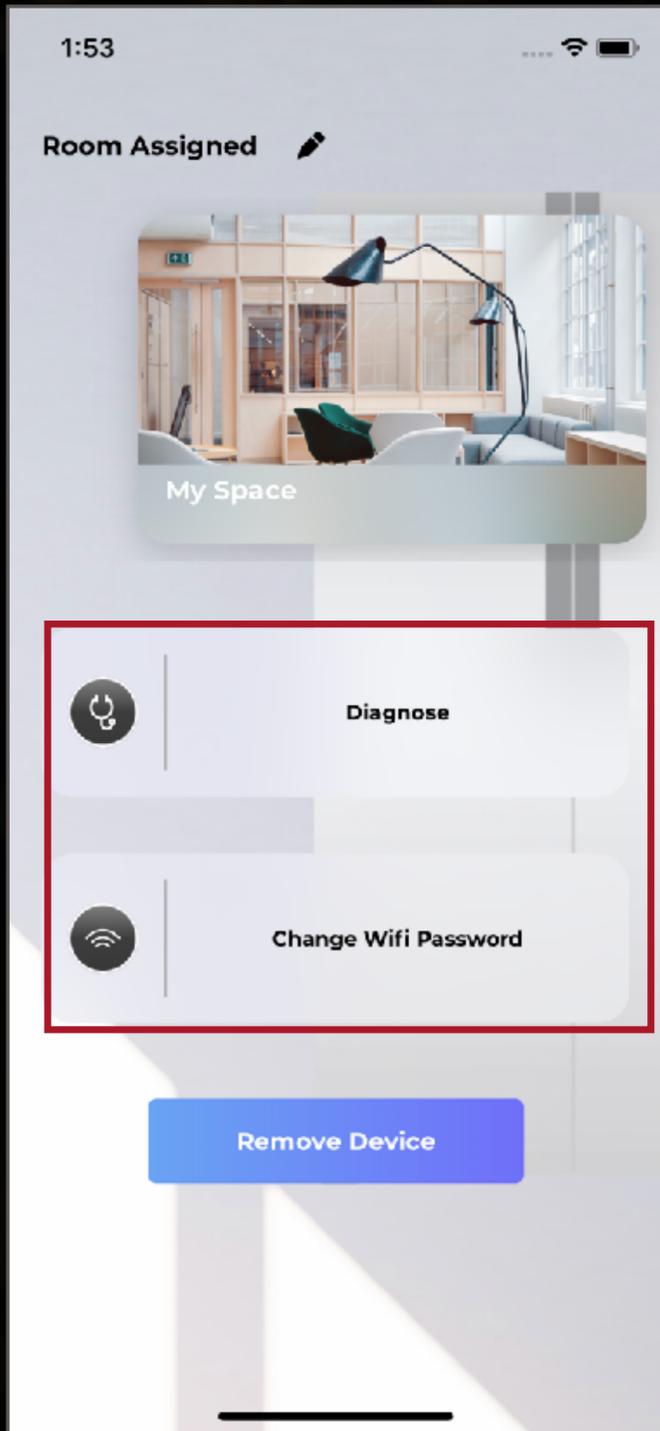
- ▶ Inconsistent visual language  
Borders in the button.





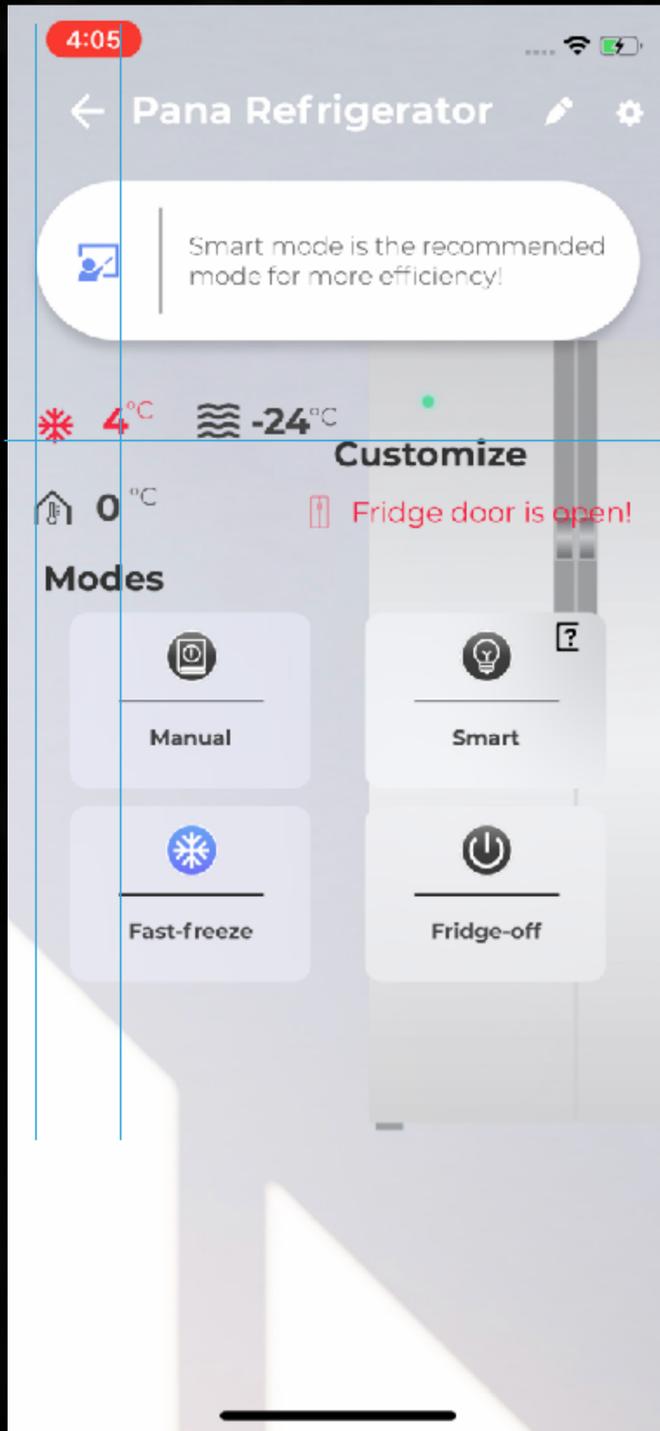
- ▶ Background image is pixelated





- ▶ Diagnose & Change wifi password partially convey action based on the visual language of the app.

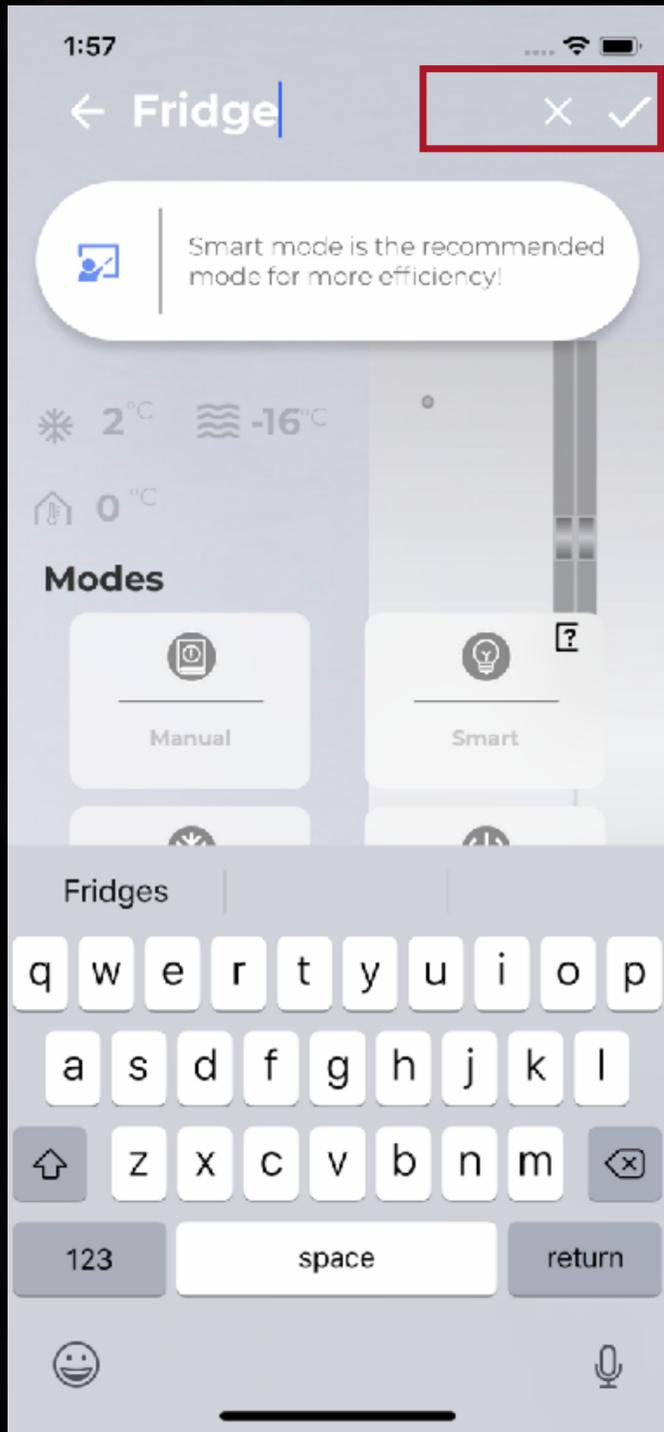




- ▶ Inconsistent alignment and spacings, information is scattered without visual hierarchy

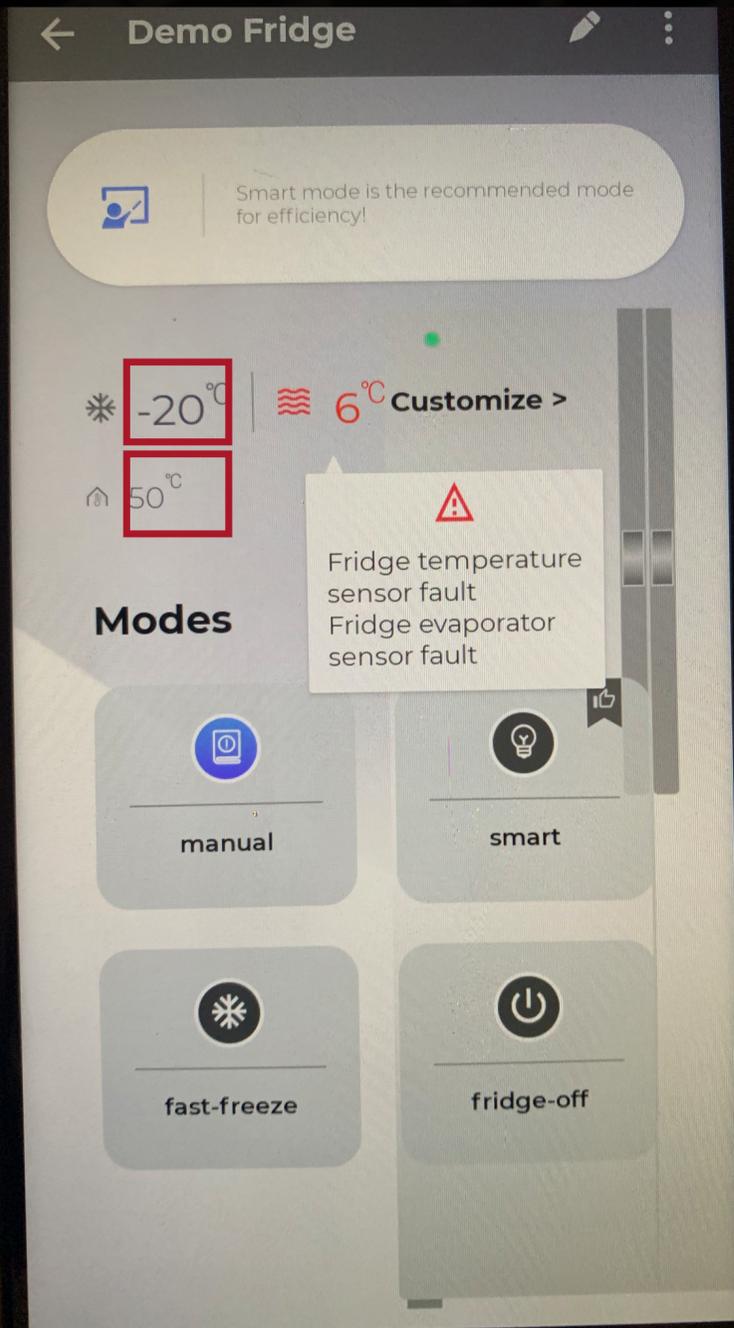
Usability factor: Visual hierarchy





- ▶ Inconsistent icon sizes
- ▶ Alignment issues

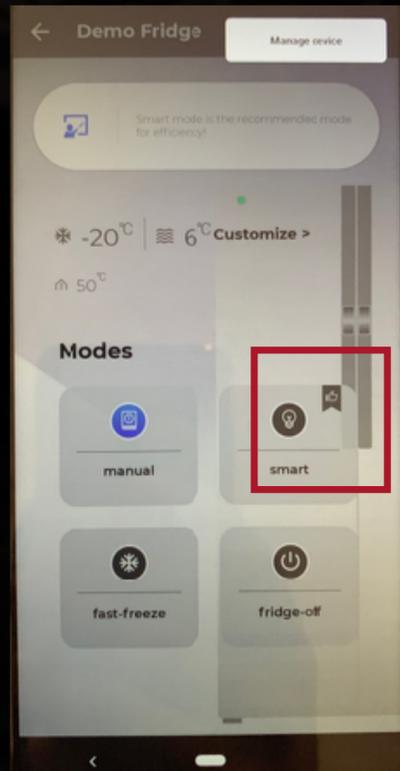




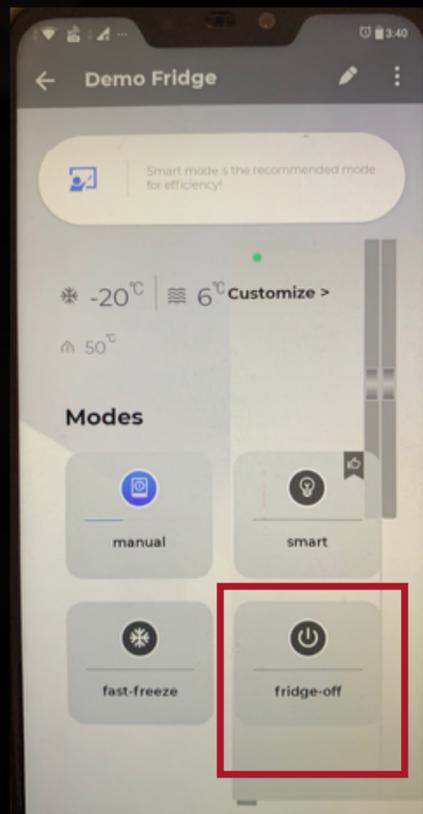
▶ Inconsistent font sizes

Usability factor: Consistency & Standards





- ▶ Background image interwinds with UI disrupting the information layout.



Usability factor: Aesthetic & minimalist design, Consistency & Standards



▶ Inconsistency in icon sizes.

Usability factor: Consistency & Standards

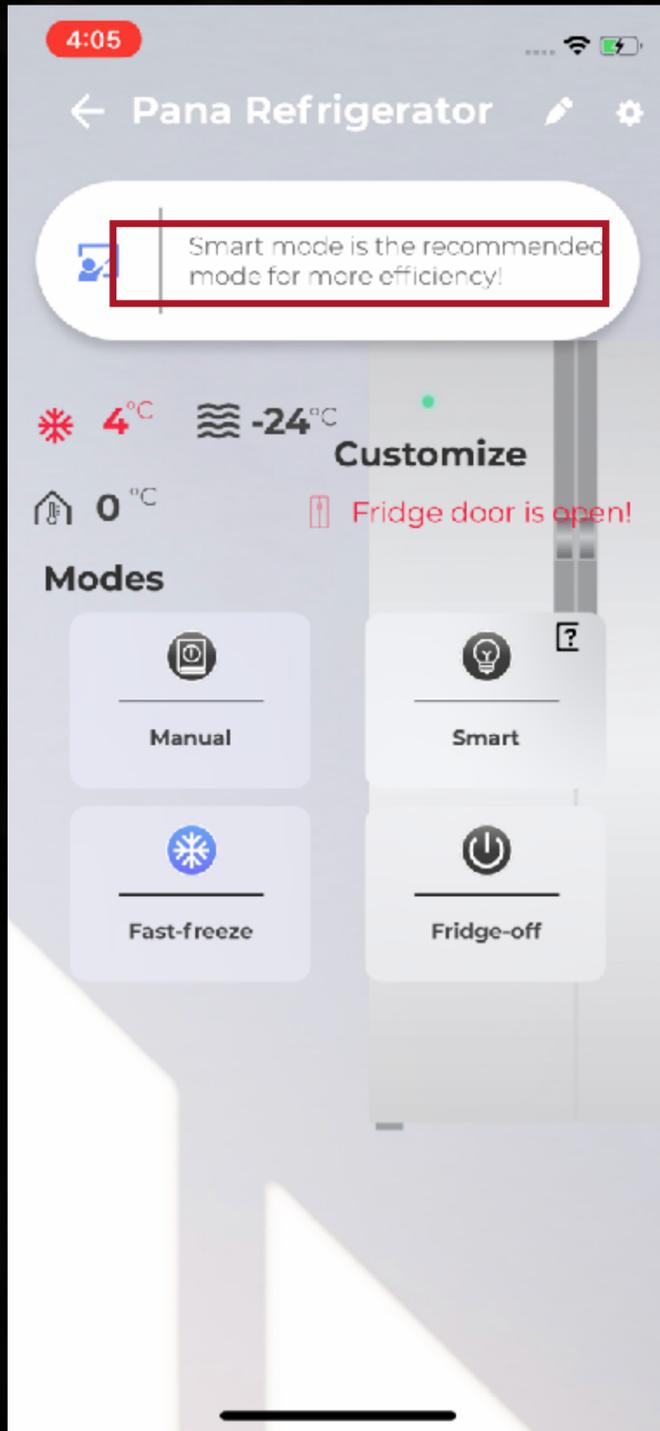




- ▶ Inconsistency in font sizes in closed proximity.
- ▶ Information seems to belong together and represented with visual inconsistencies.

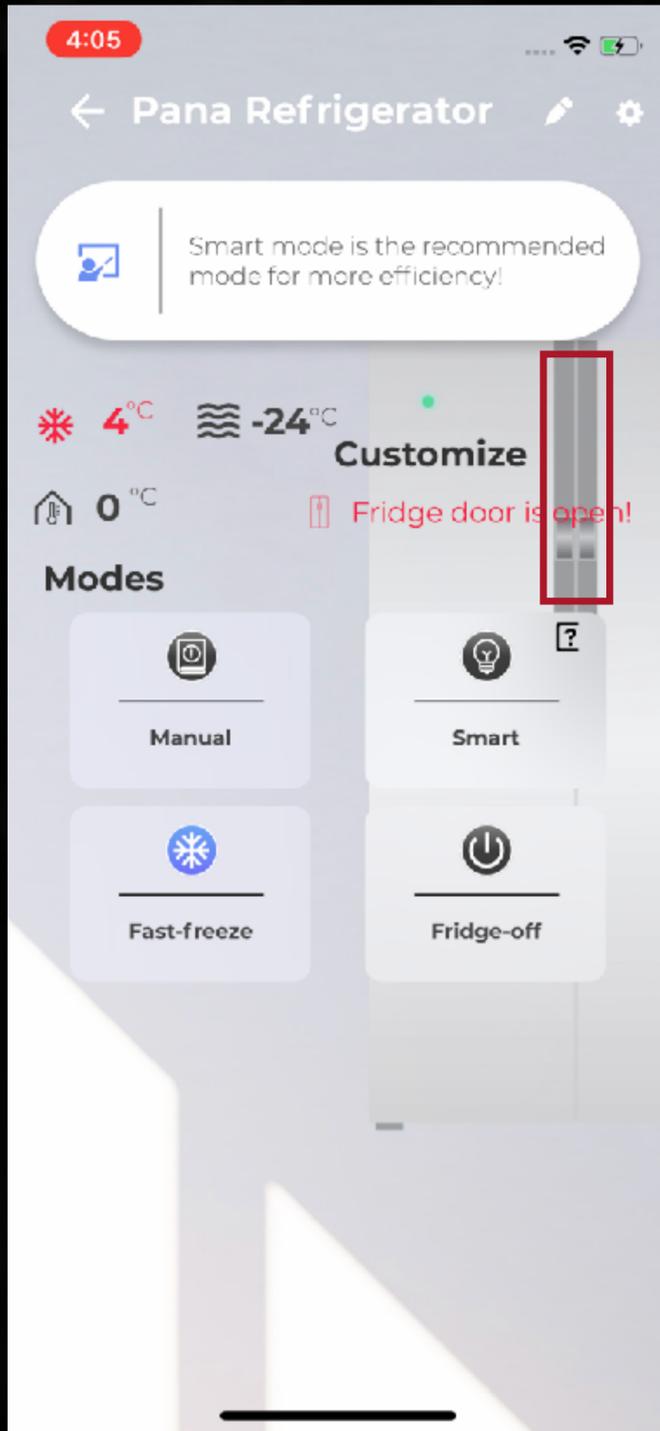
Usability factor: Consistency & Standards





- ▶ Do we really need recommendation to be present all the time?

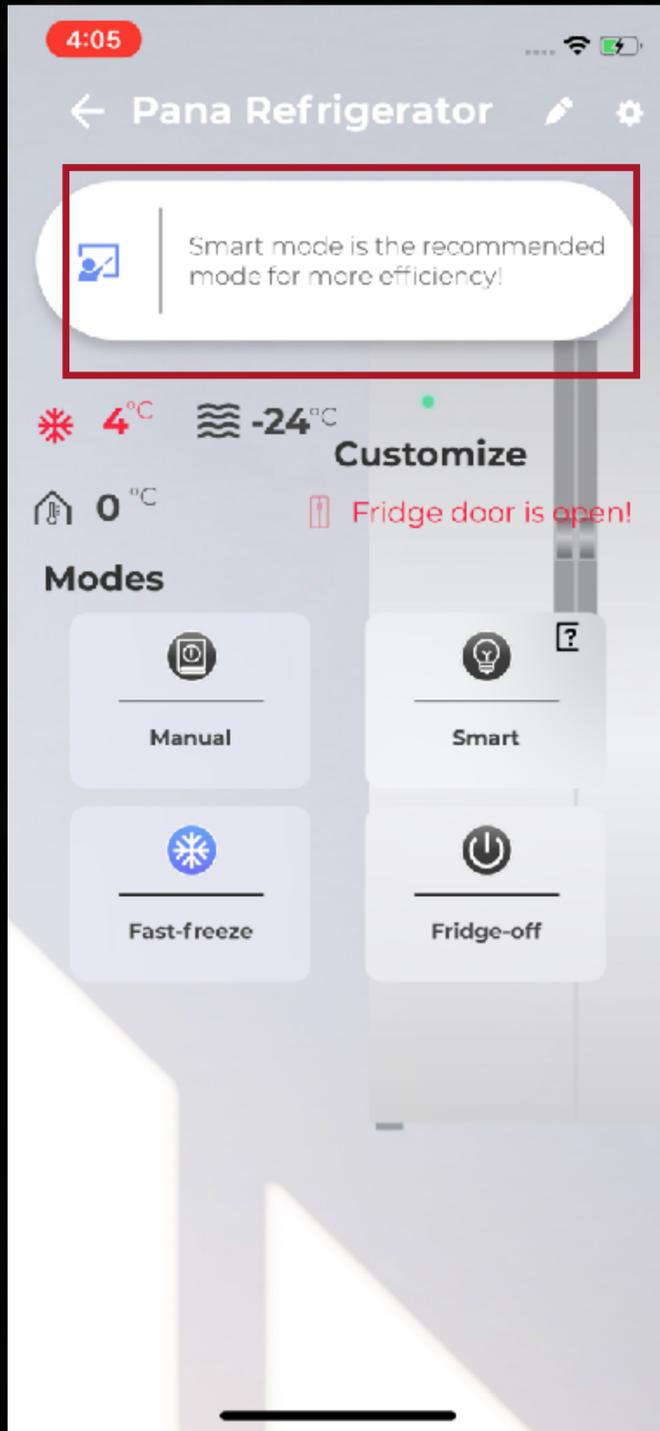




► Inconsistent visual language.

Given the colours used for the controls, the fridge background image interwinds with the UI elements.

Usability factor: Consistency & Standards

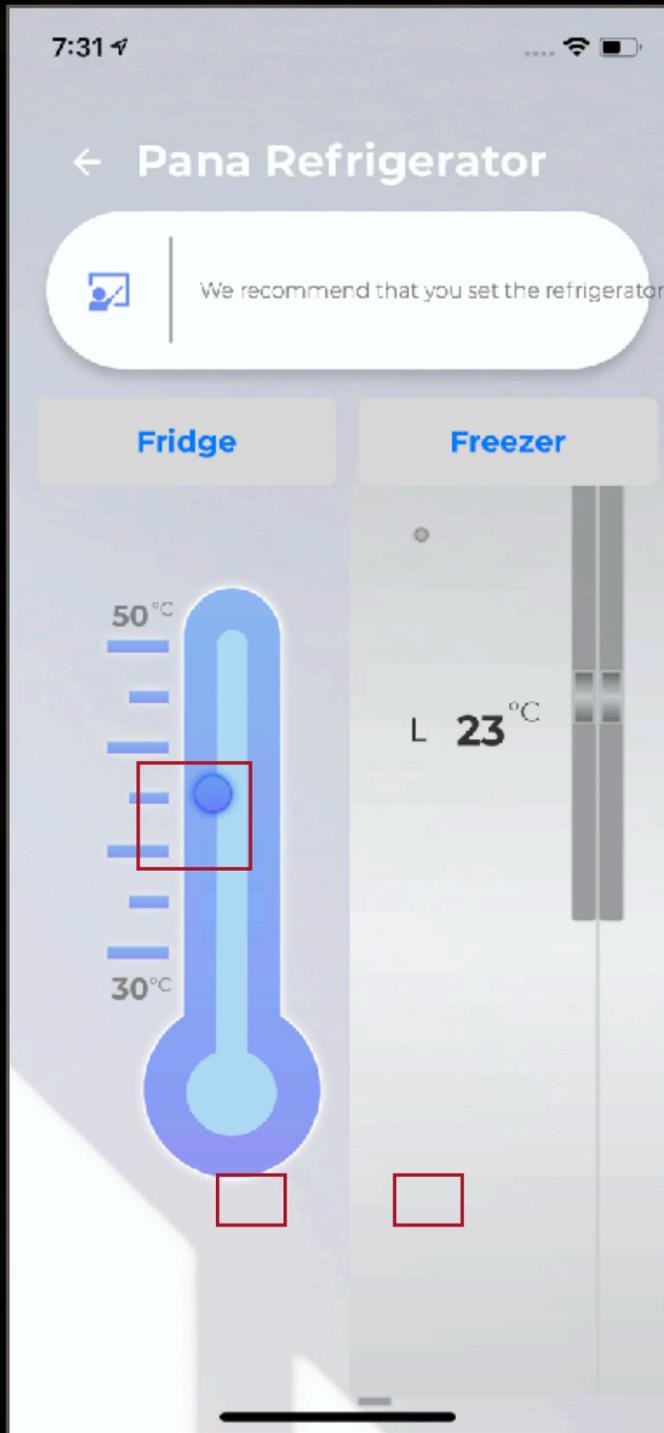


- ▶ Inconsistent information hierarchy.

Nudge size is relatively big and seem to present primary information needed in the screen.

Usability factor: Information hierarchy





▶ Alignment issue

Usability factor: Aesthetics and minimalist design





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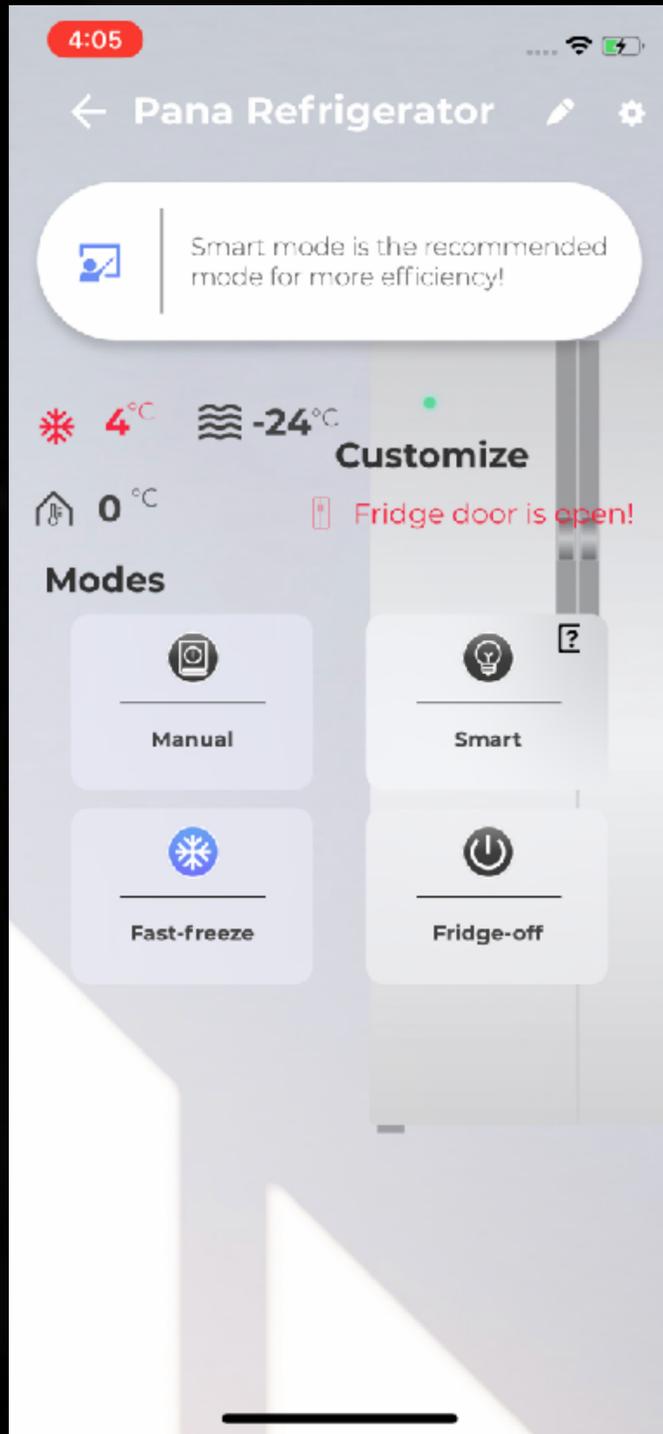
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# FRIDGE: DESIGN PROPOSAL

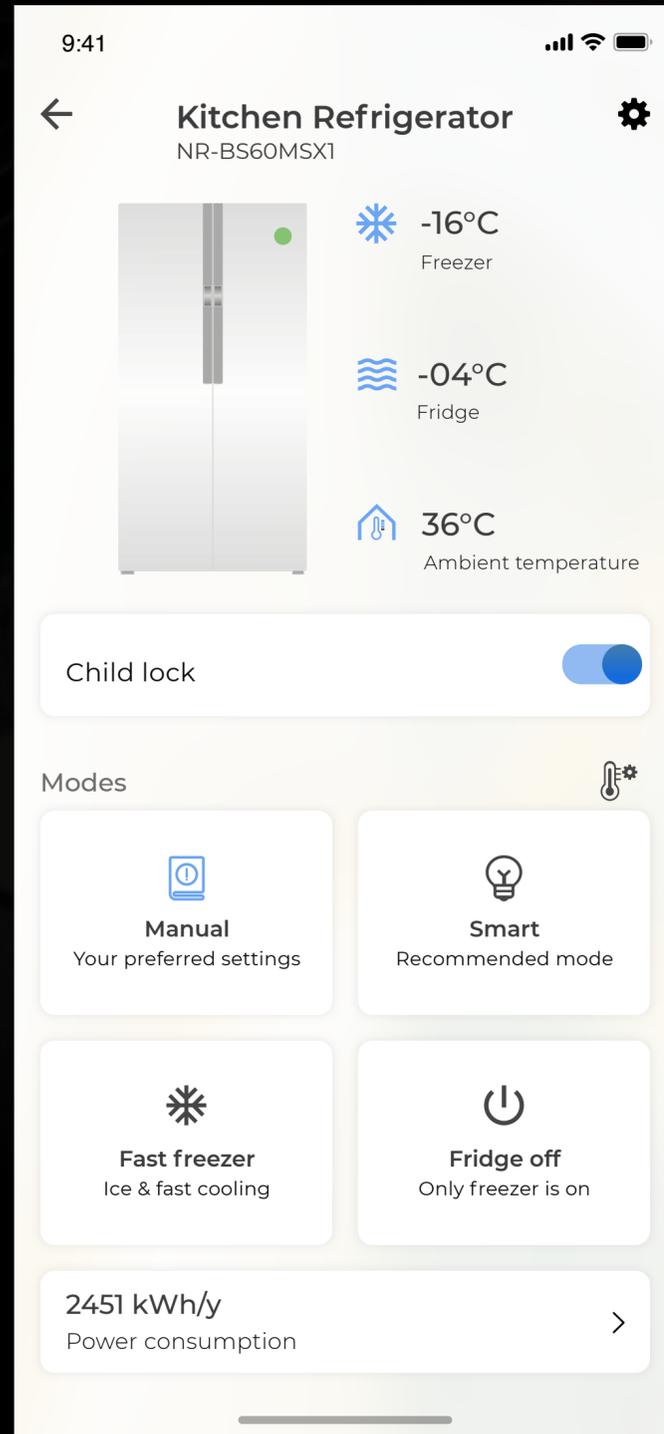
# TOPICS

- ▶ Overview of fixed usability issues.
- ▶ User flows & Interactions and transitions for both designs
- ▶ How to use HTML for Specs
- ▶ Suggestion & Improvements

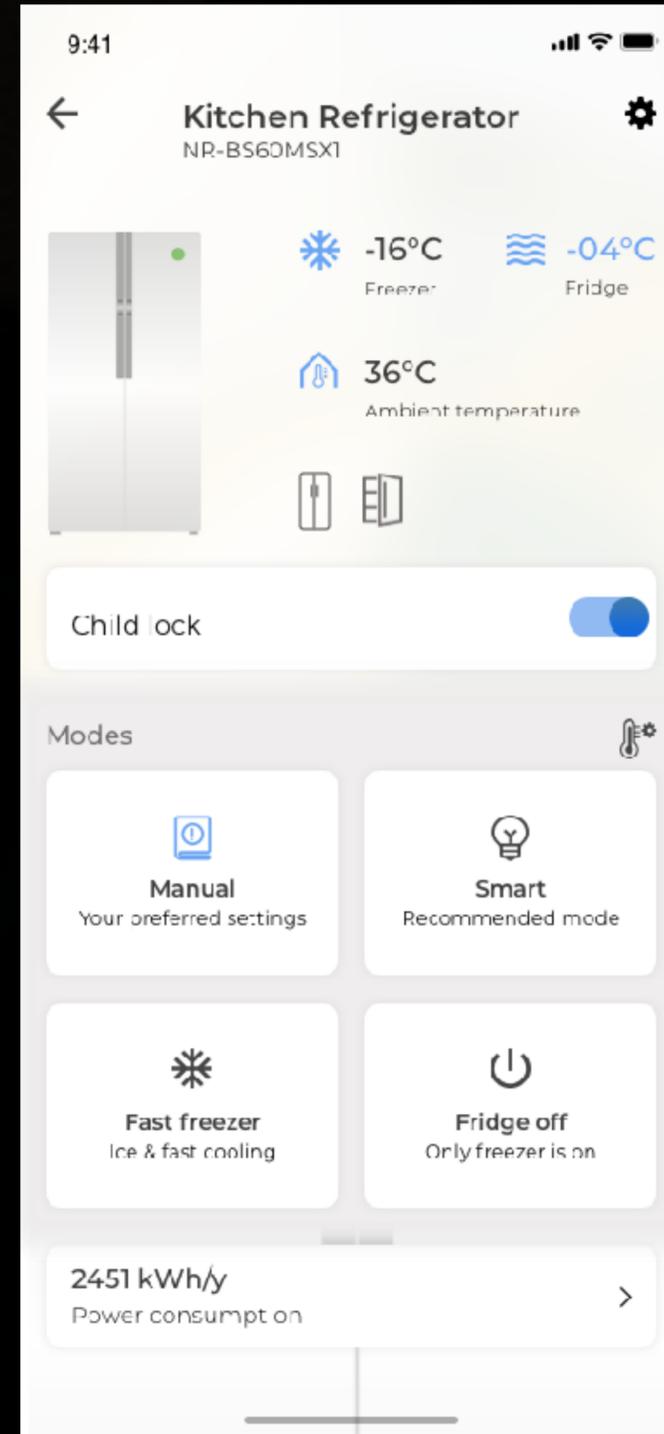
# DASHBOARD



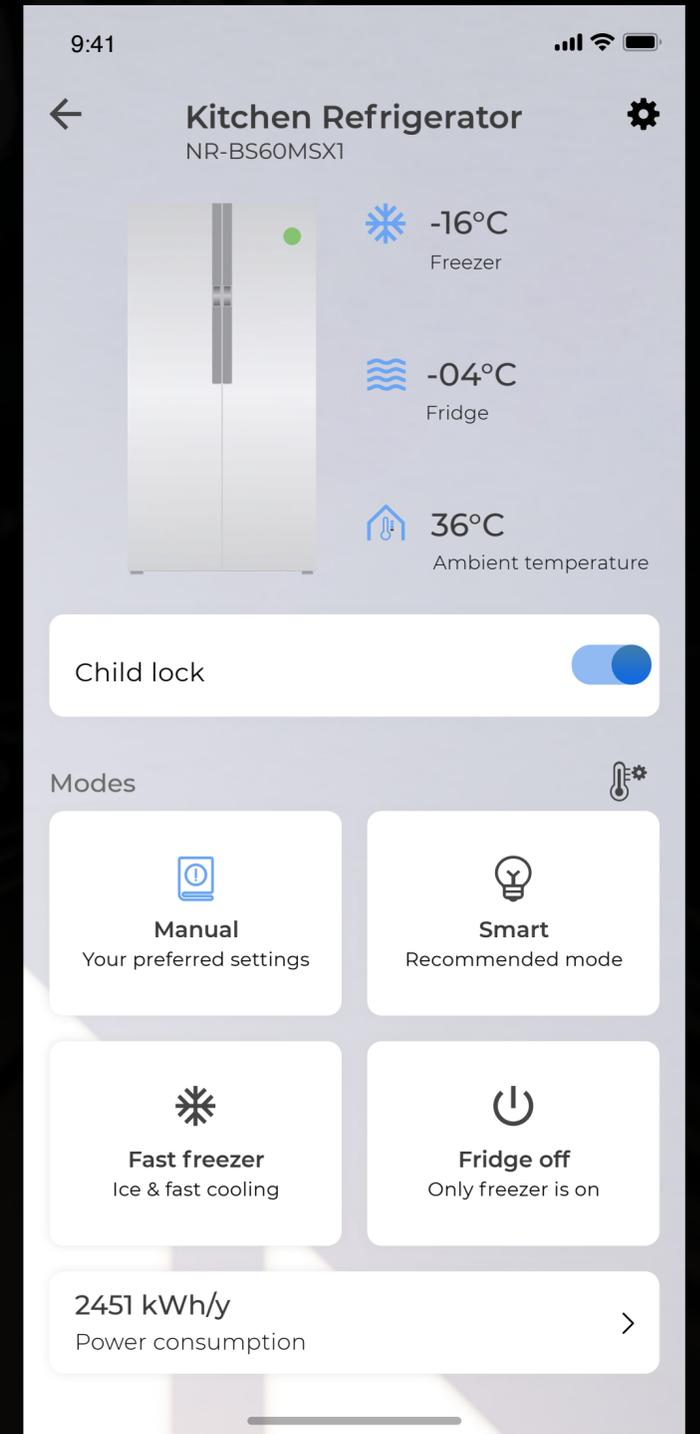
Previous



DESIGN 1



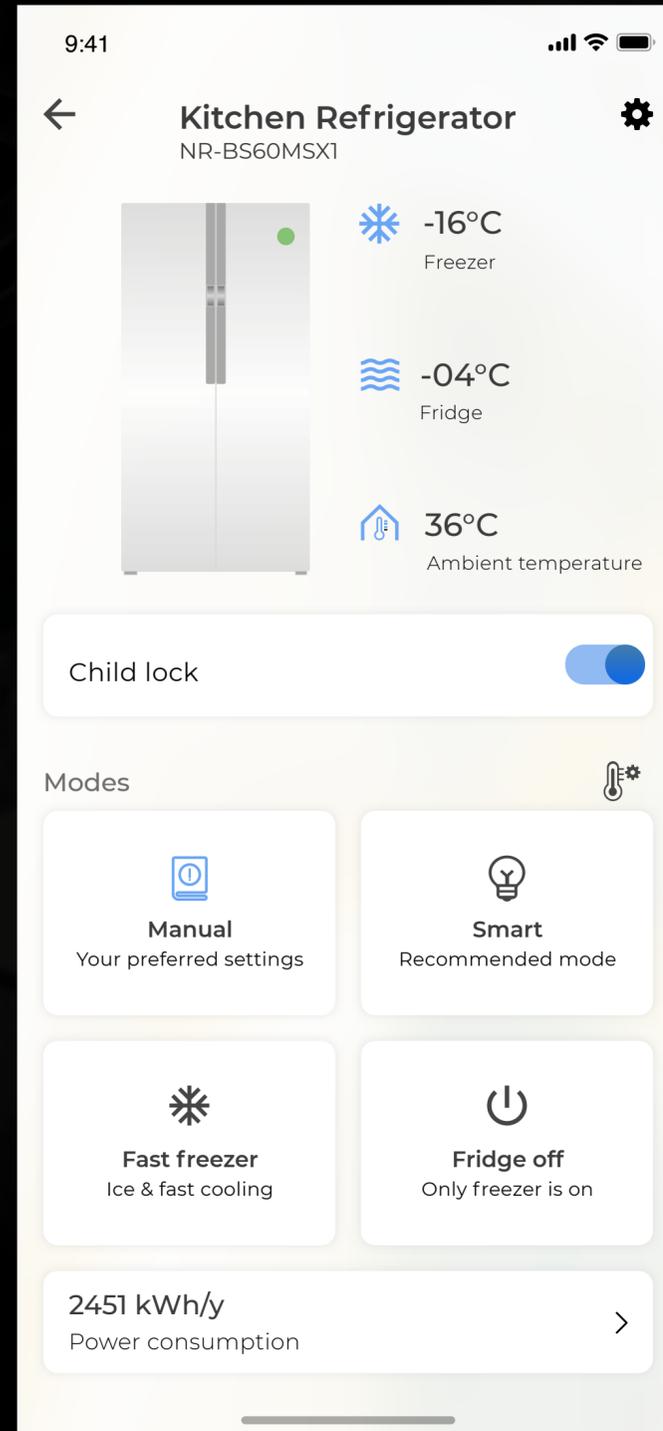
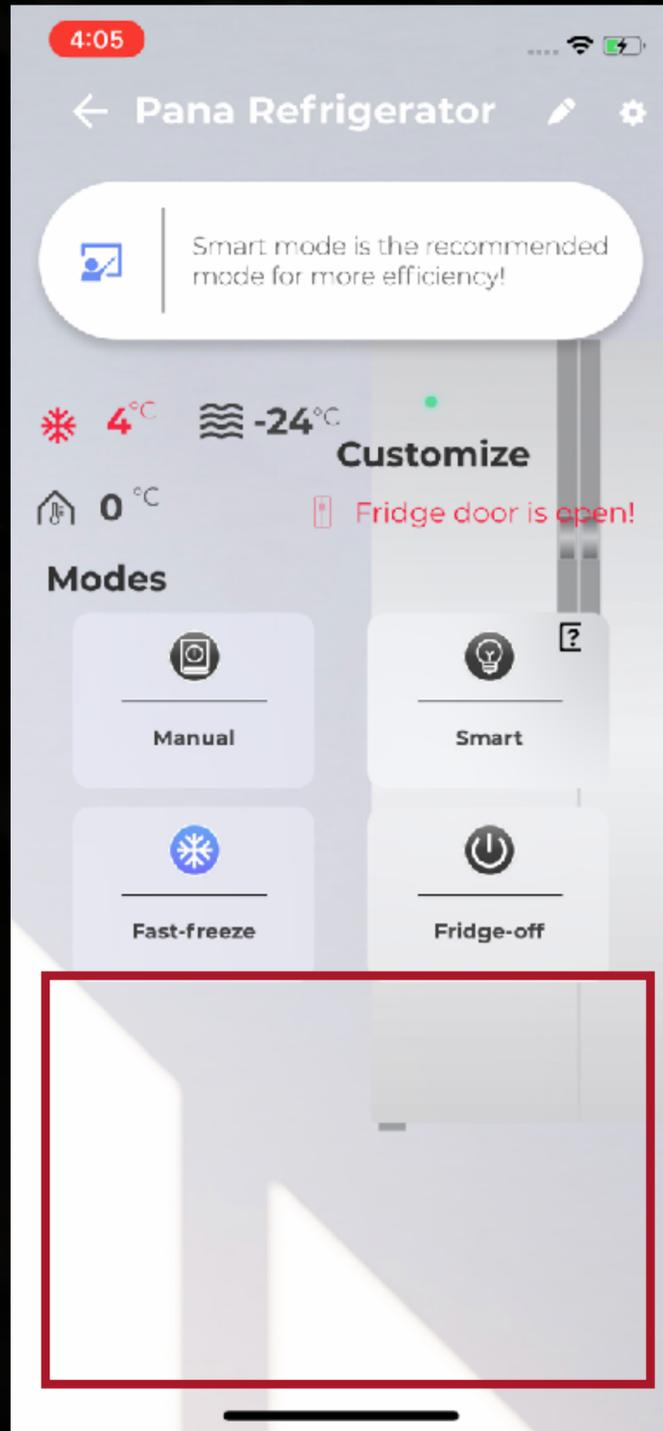
DESIGN 2



With default background

# USABILITY FIXES

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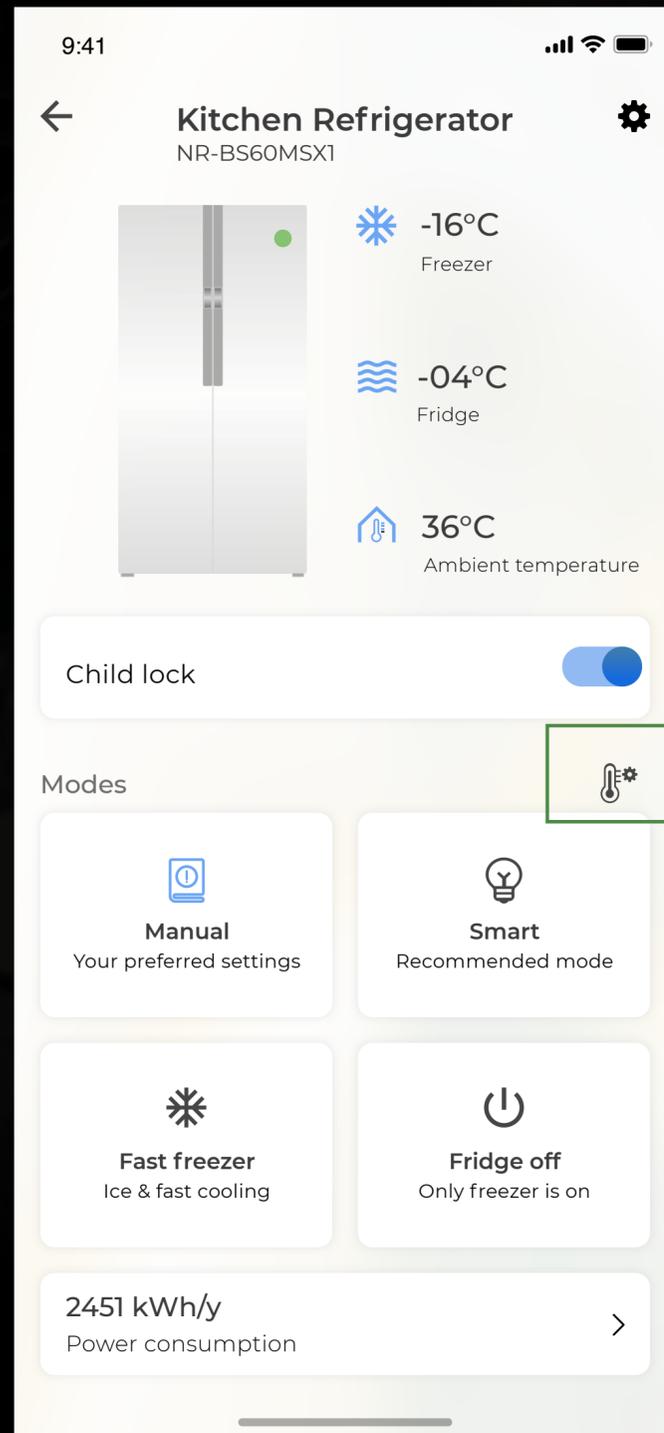
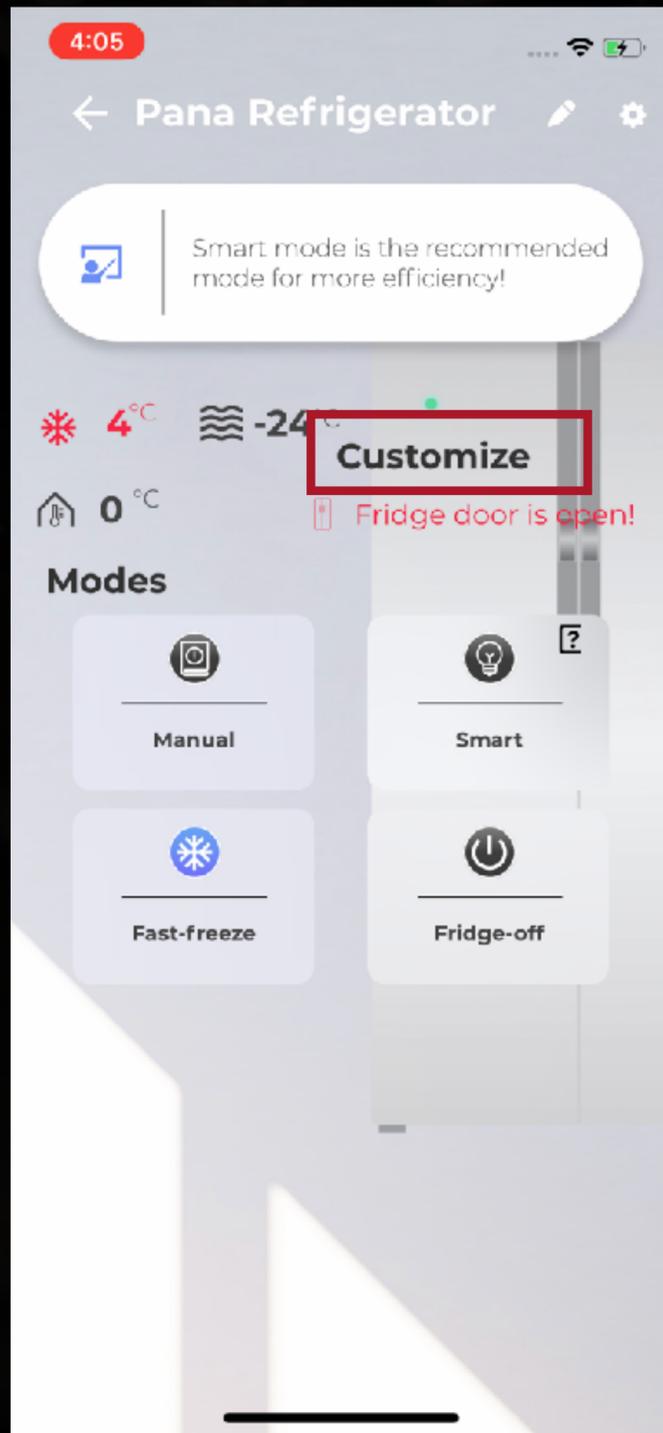
- ▶ Waste of important real estate of reachable thumb zone.

### Solution:

- ▶ Better use of real estate for primary tasks as mode.
- ▶ Assigned real estate for interactive and non interactive information.
- ▶ Entry point to **power consumption** is in the context of screen & not in the settings screen.

Usability factor: Gestalt principles





- ▶ Increased visual & cognitive load

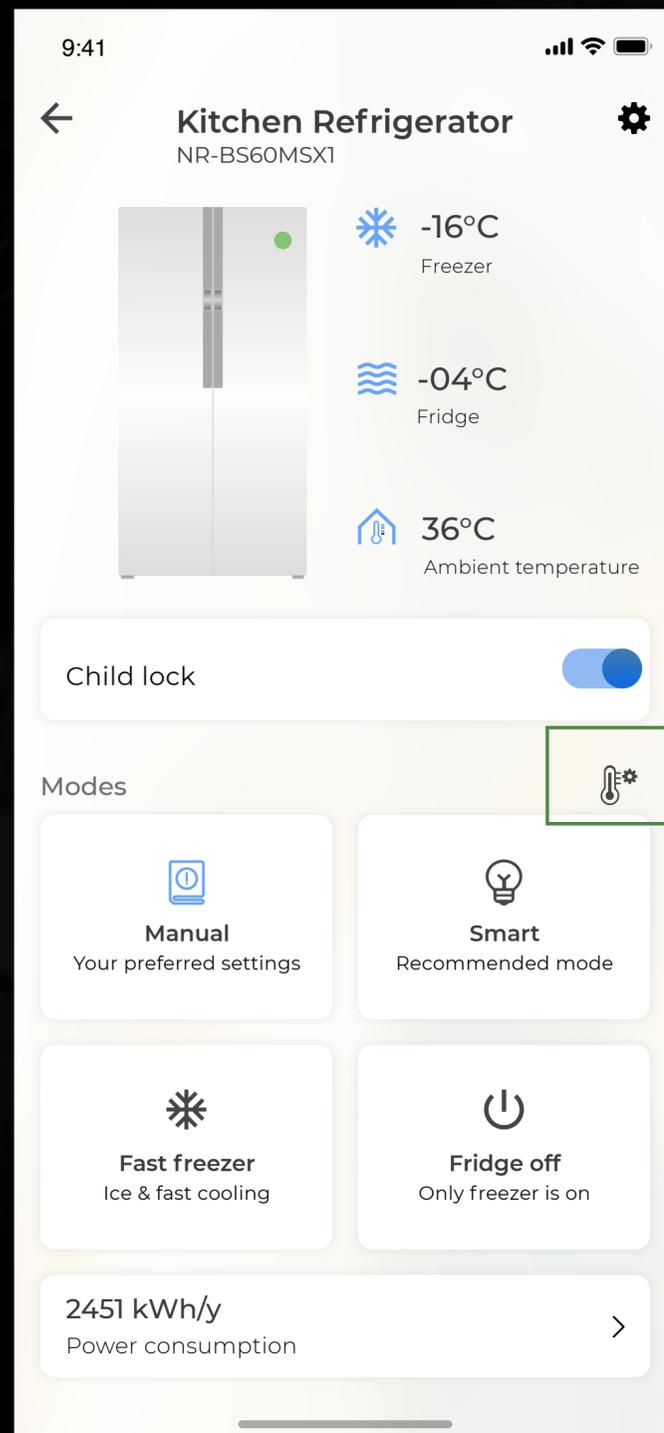
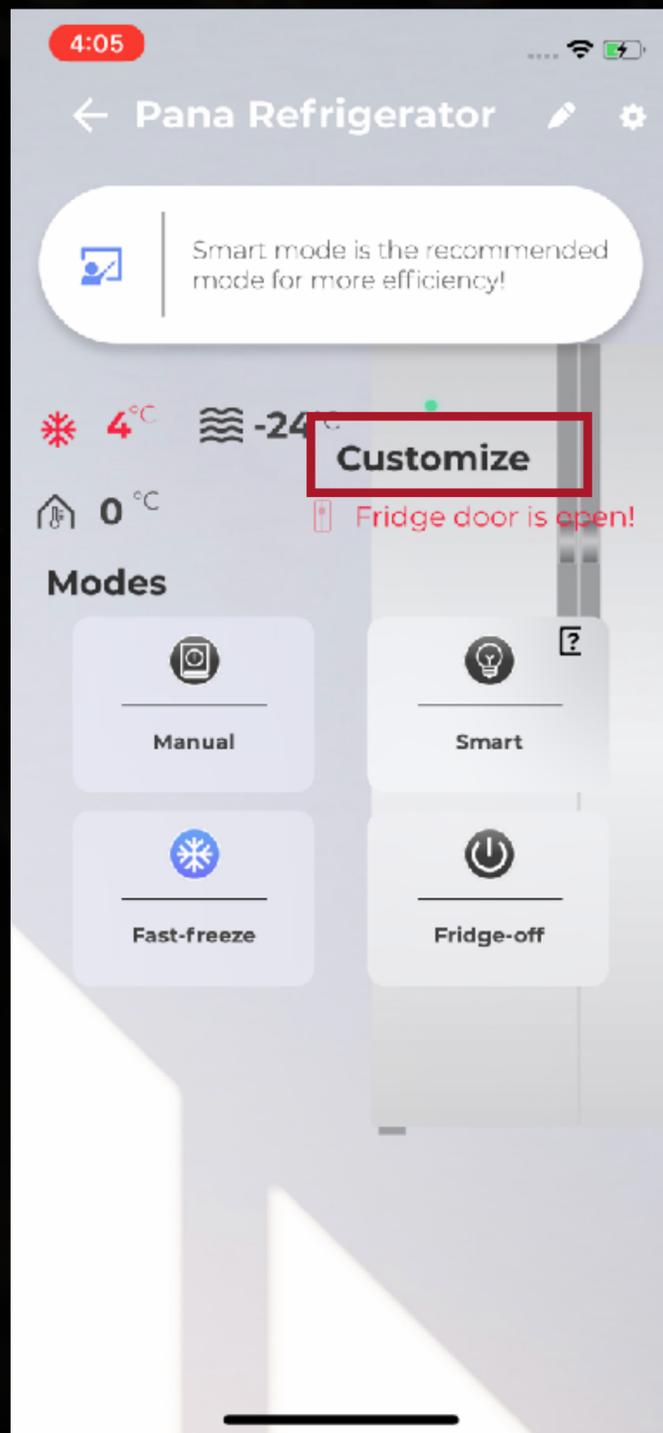
The placement of "Customize" creates a connectedness usability issue, breaks information hierarchy..

Solution:

- ▶ Better information layout.
- ▶ Visual hierarchy
- ▶ Better application of gestalt principles

Usability factor: Gestalt principles





▶ “Customize” does not look actionable.

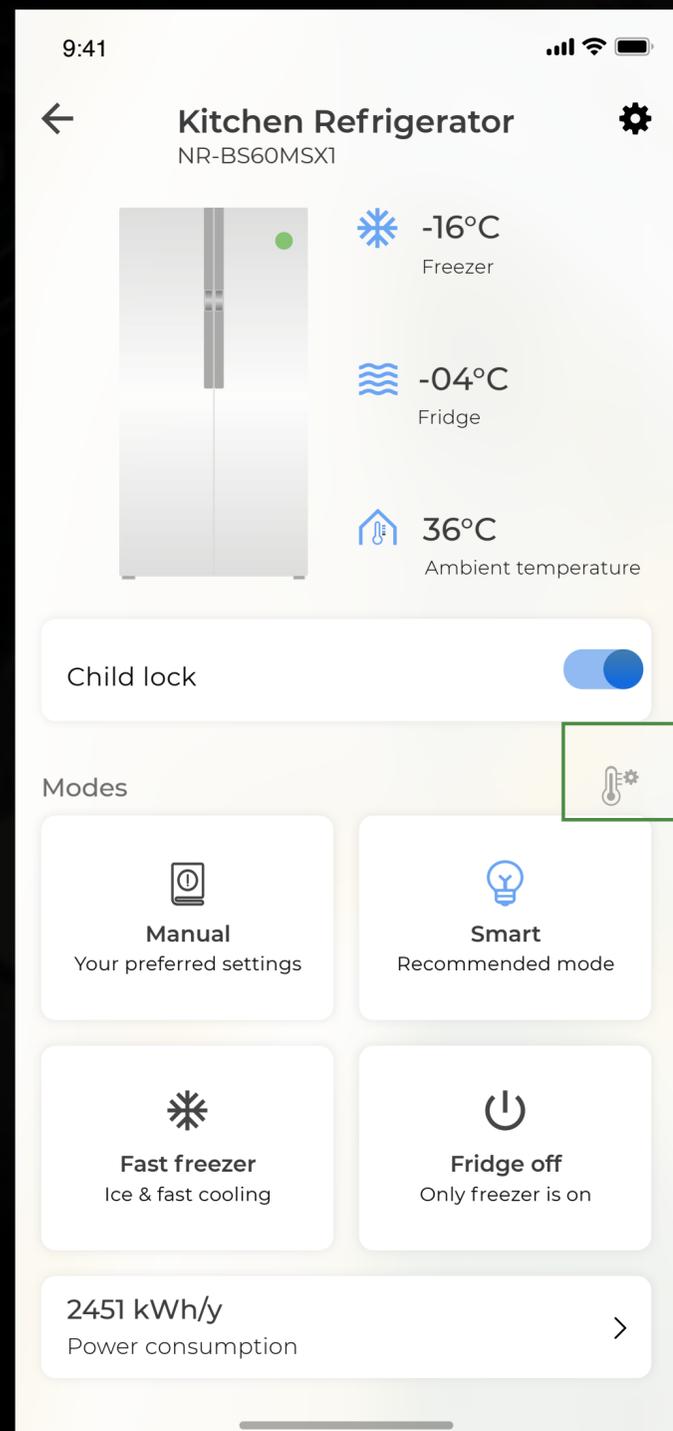
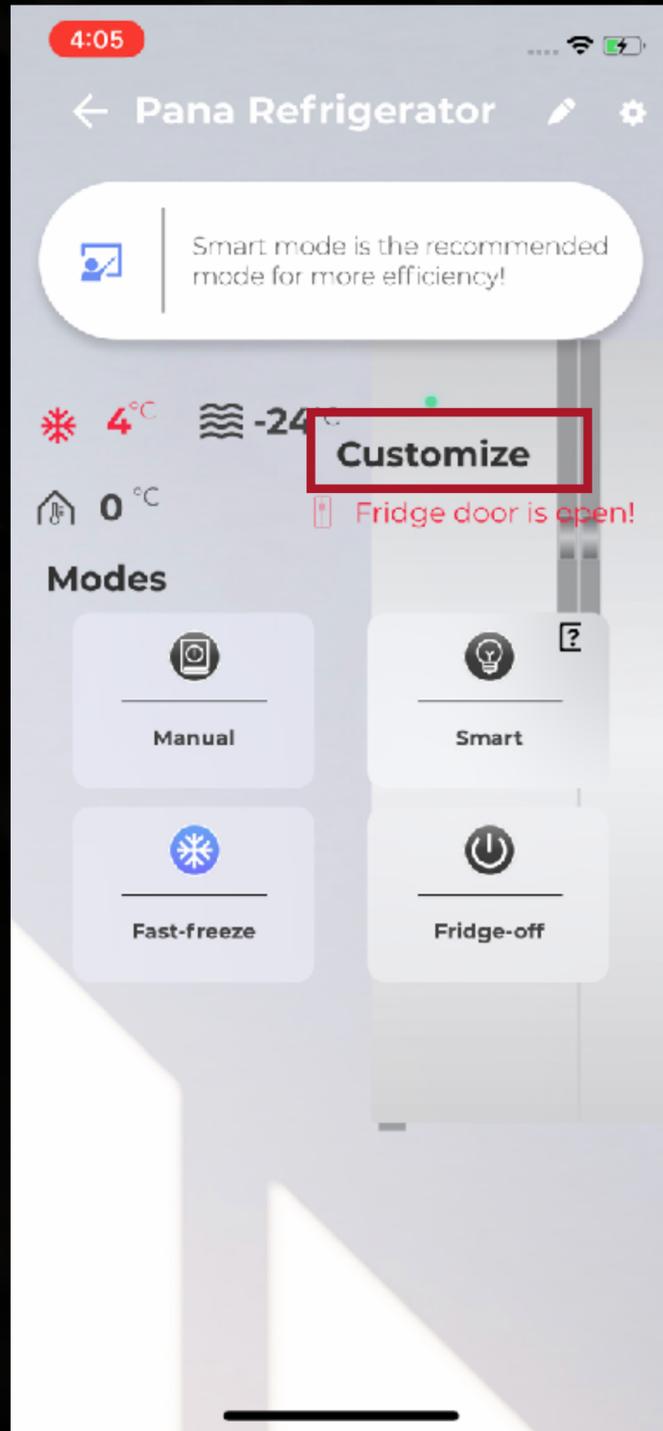
Solution:

- Better affordance with temperature settings button.

Usability factor:

Consistency and standards, Match between system & real world



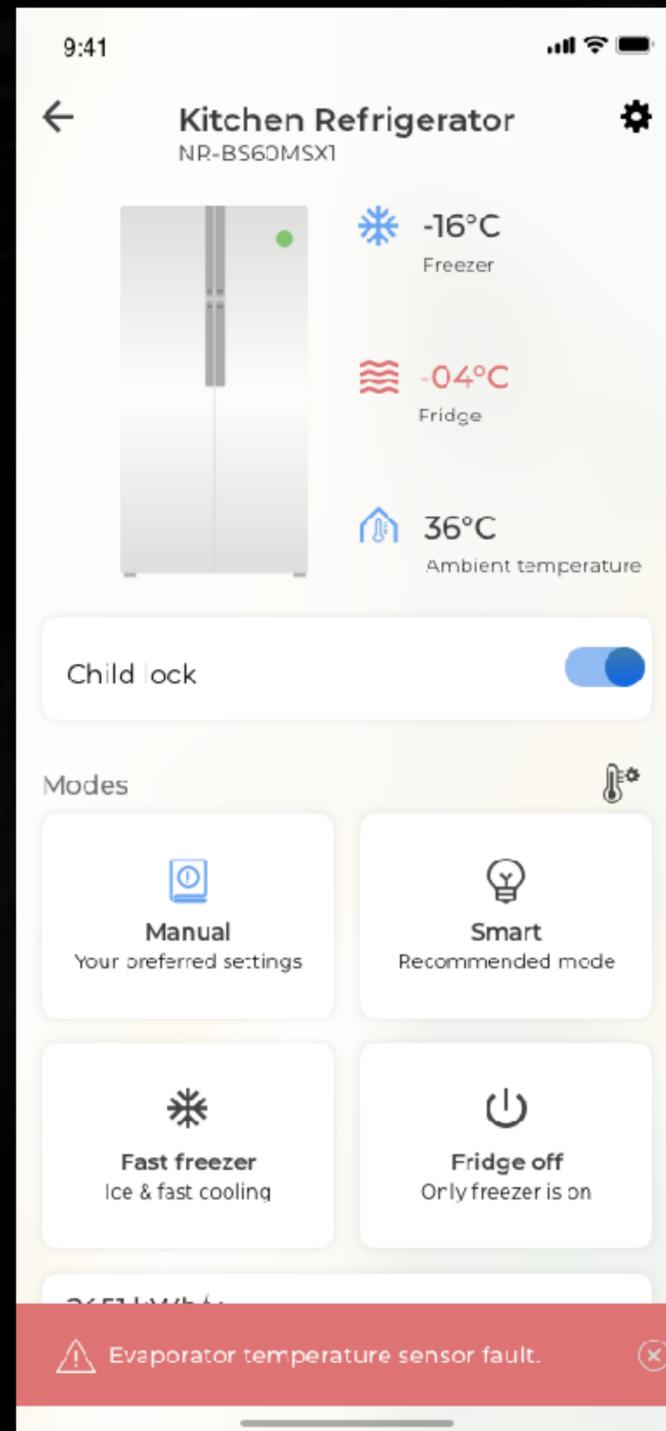
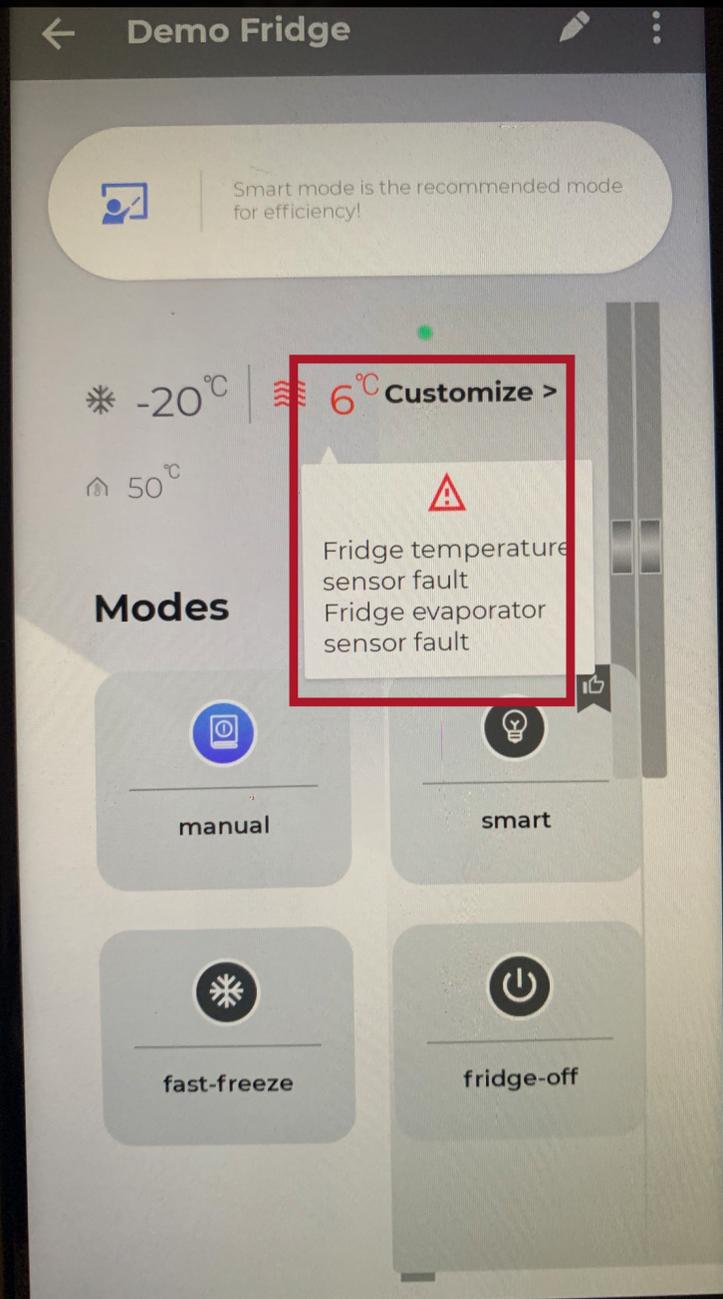


- ▶ Appearance/disappearance of “Customize” button is not a good UX.
- ▶ Solution:
- ▶ “Customize ” state is enabled and disabled based on app state.
- ▶ Better use of mental models.

Usability factor:

Aesthetic & minimalist design, Mental models

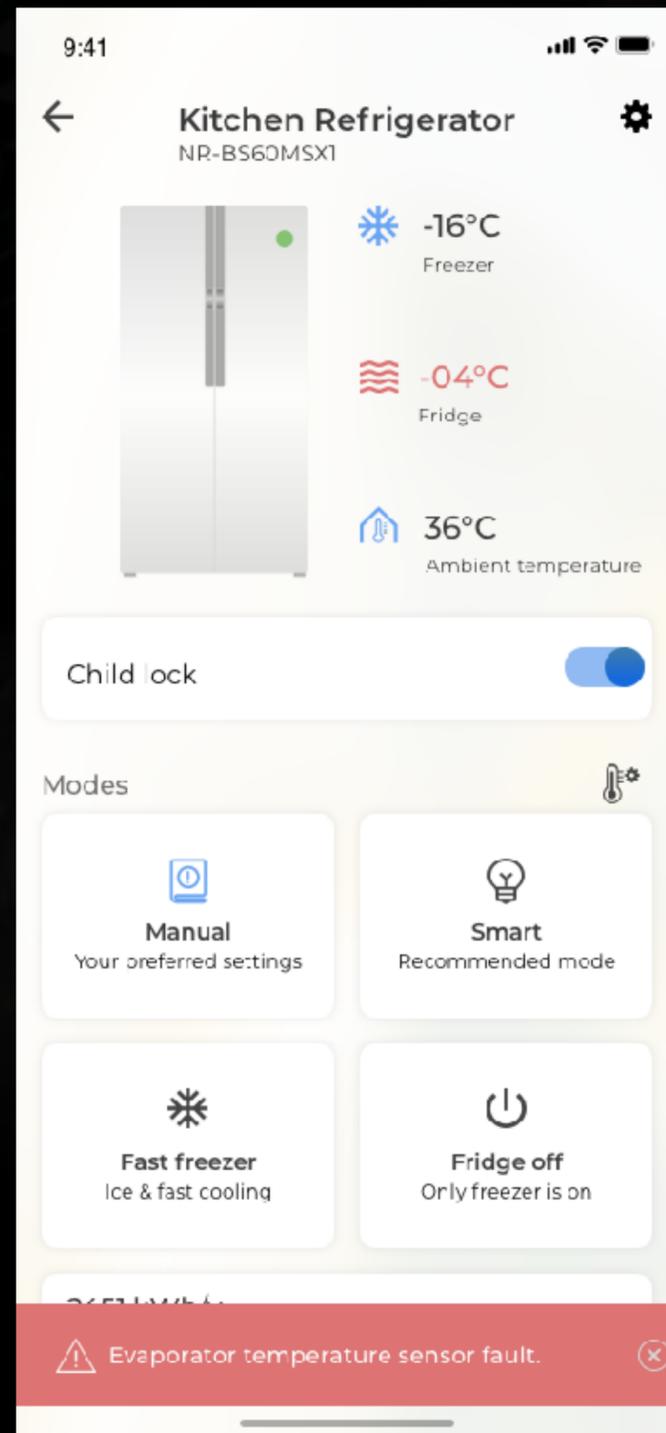
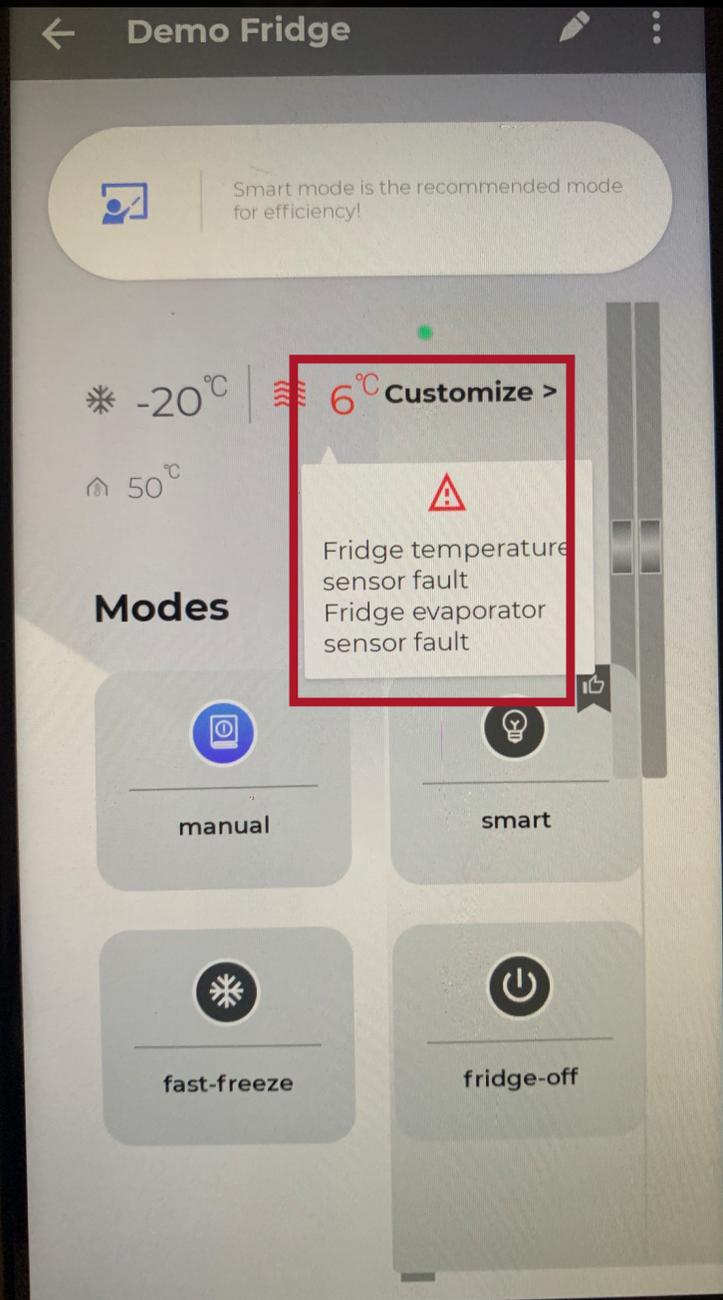




- ▶ Increased cognitive & motor load for the user. Error messages take users attention and (animation -> Touch) where as there is no action required from the user in the app.

### Solution:

- ▶ Use of transient toast for error message and temperature field in matching color.
- ▶ Forming a visual language.

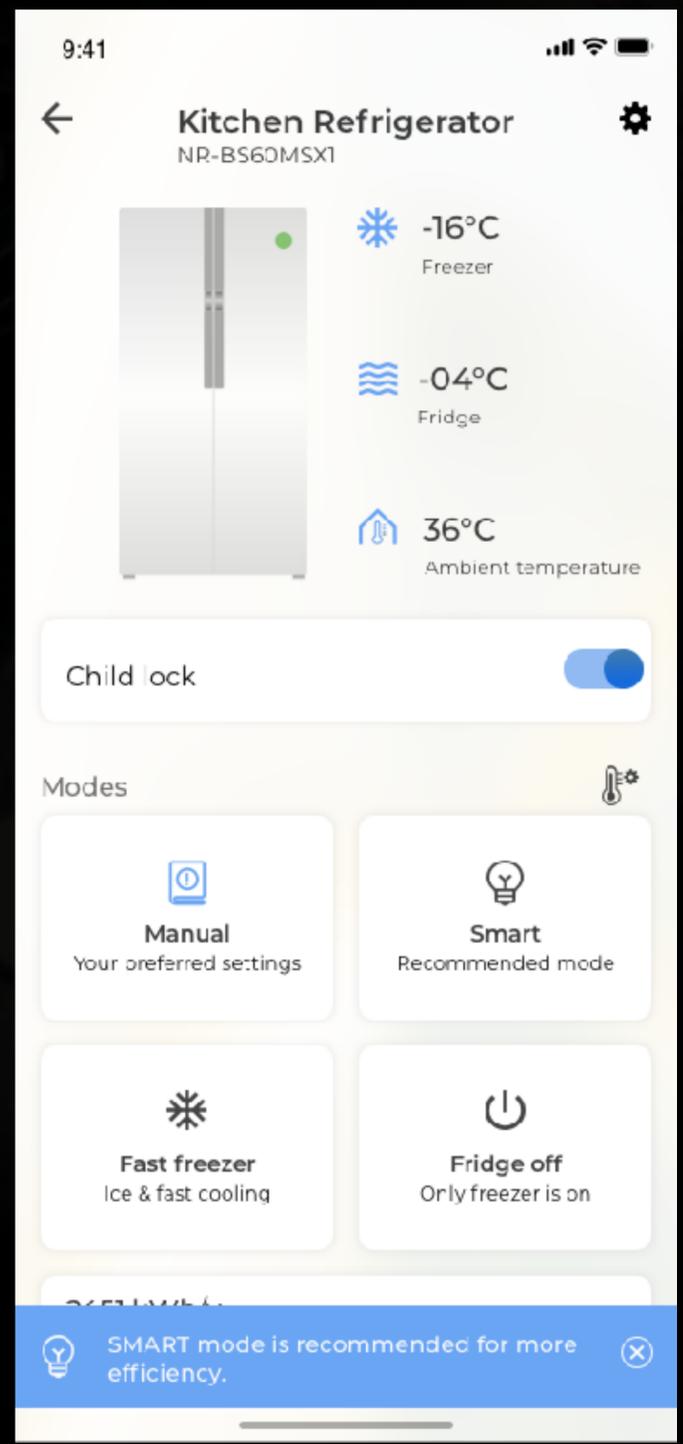
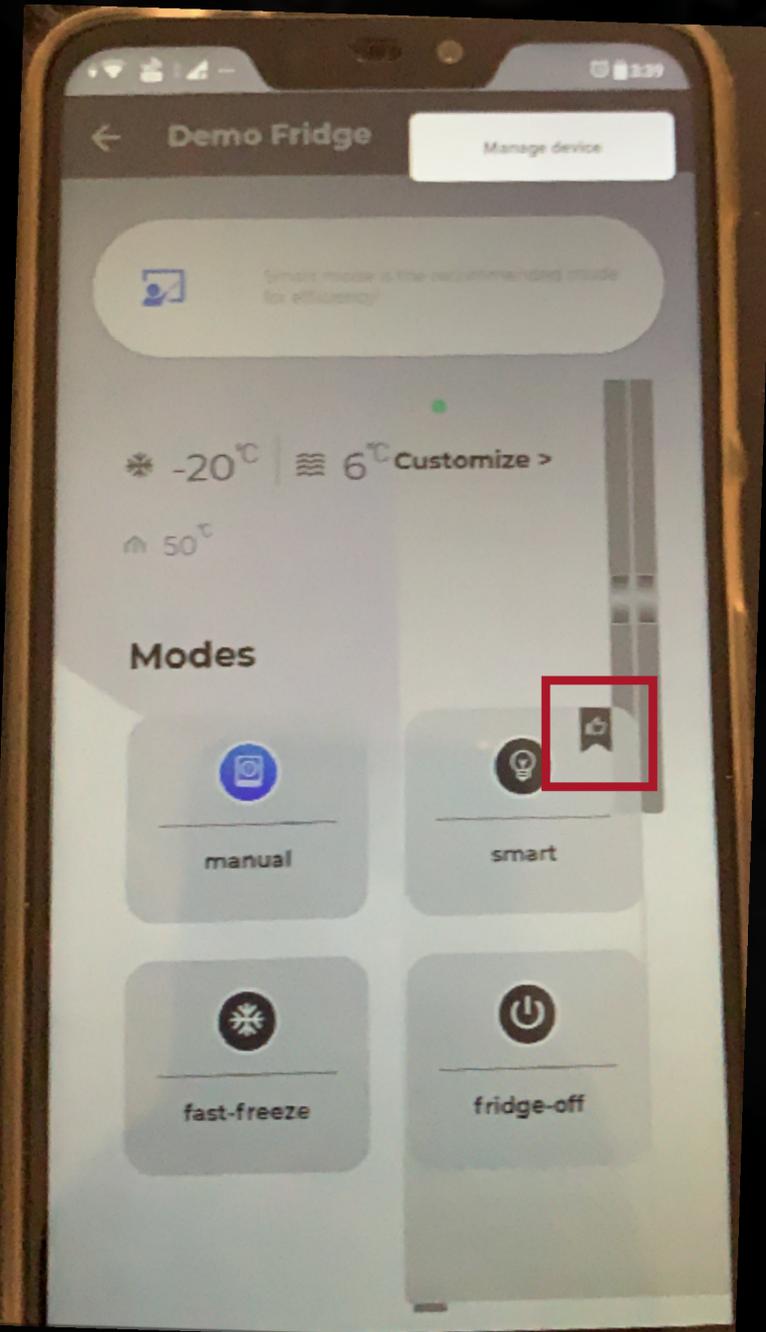


- ▶ Pop over interaction is not standard Mobile interaction behaviour.
- ▶ Aesthetically displeasing

**Solution:**

- ▶ Use of an aesthetically pleasing transient toast.
- ▶ Standard mobile interaction.

Usability factor: Aesthetic & minimalist design



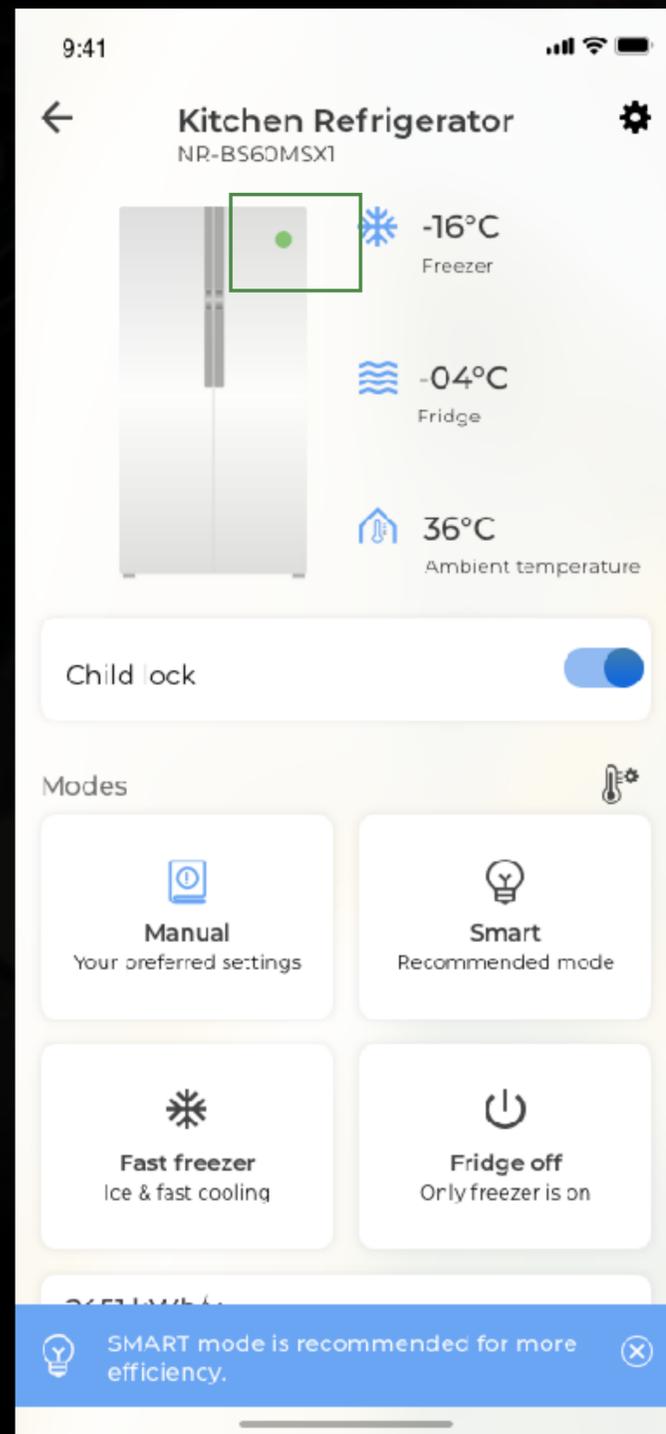
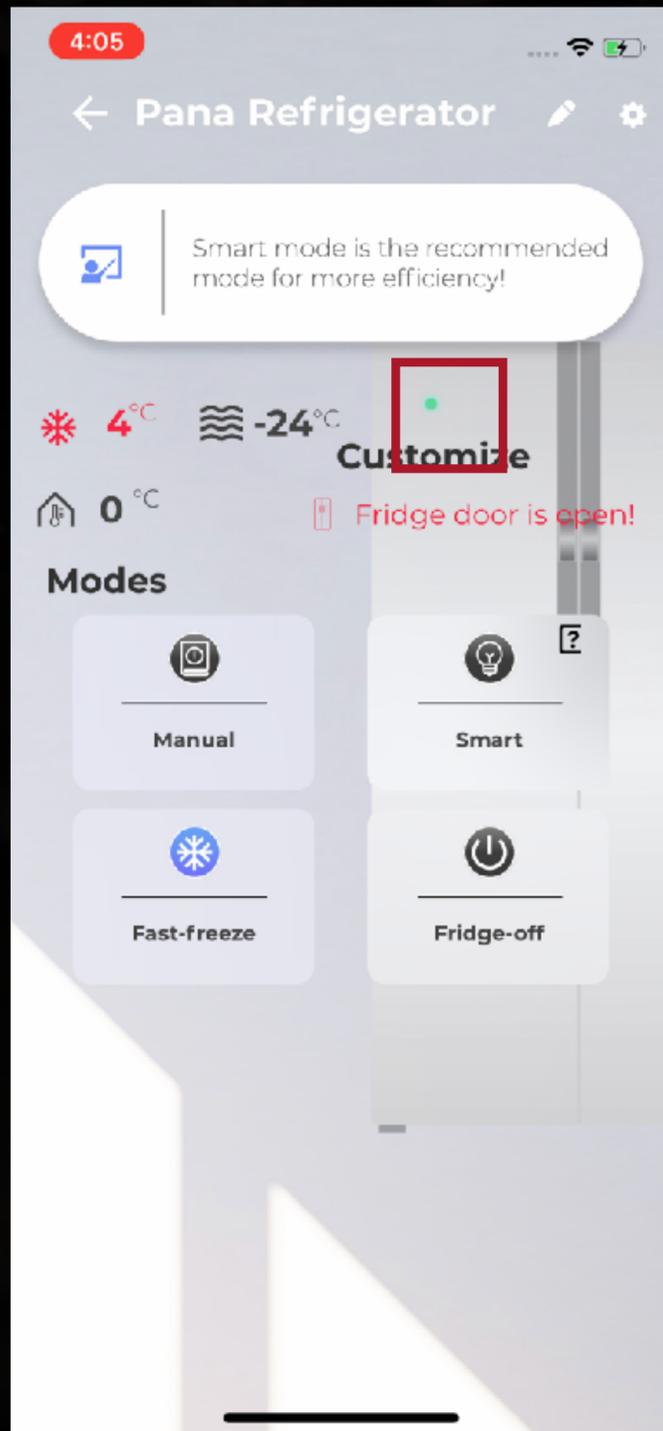
- ▶ Bad affordance & more learnability for the new users

Like & Bookmark button is used collectively

Solution:

- ▶ Progressive disclosure of information based on context and app state.
- ▶ Use of toast message to grab users attention and recommend SMART mode on landing.
- ▶ Clear readable text with no confusion and low learnability.

Usability factor: Mental models, Consistency & Standards



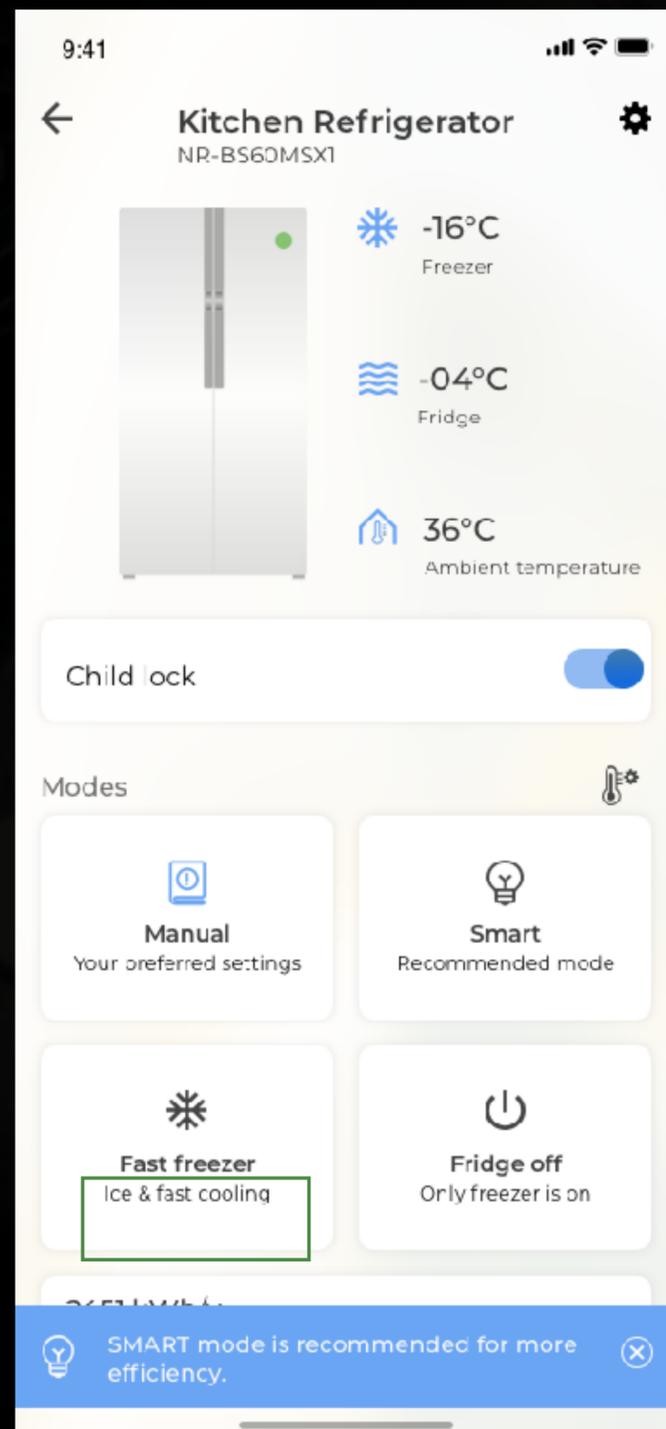
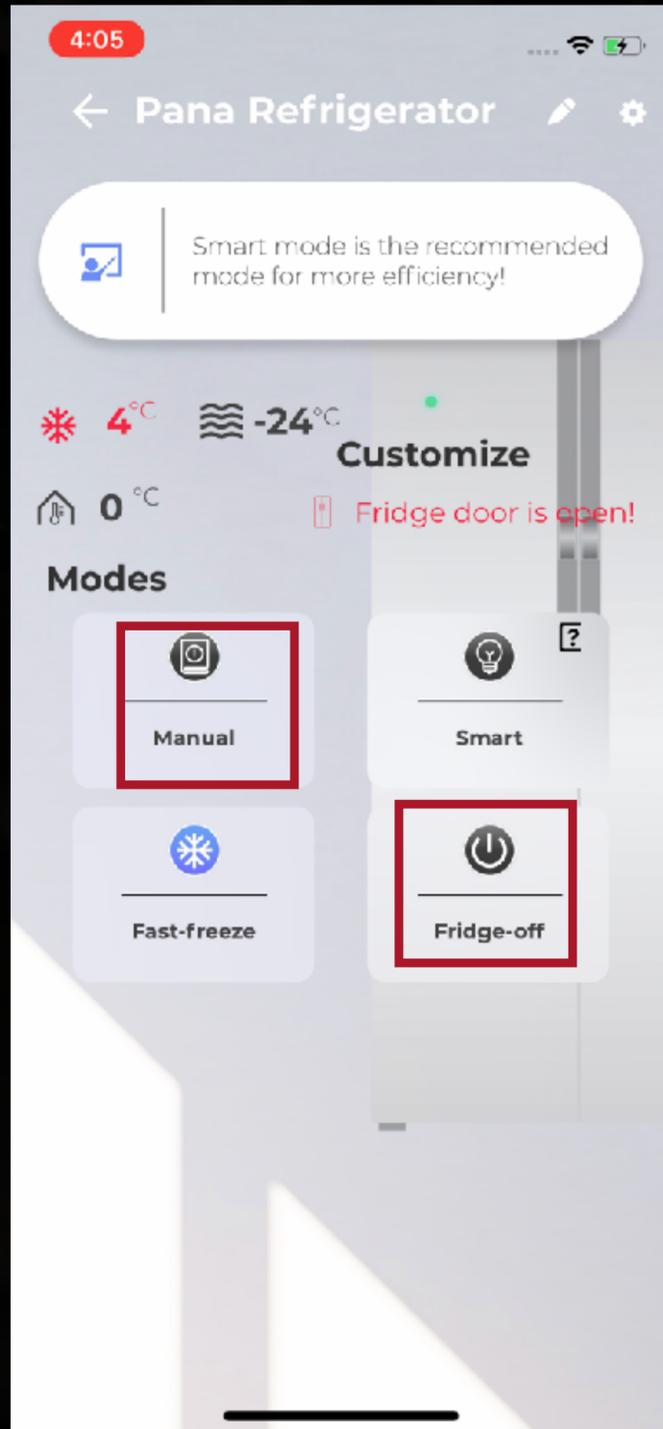
- ▶ Increased learnability for the new users, low discoverability

The fridge connection status icon does not seem to belong anywhere and breaks visual hierarchy.

Solution:

- ▶ Proper use of skeuomorphism
- ▶ Proper visual hierarchy depicting fridge state
- ▶ No visual load to see connected state.
- ▶ Better use of Gestalt principles.

Usability factor: Gestalt principles

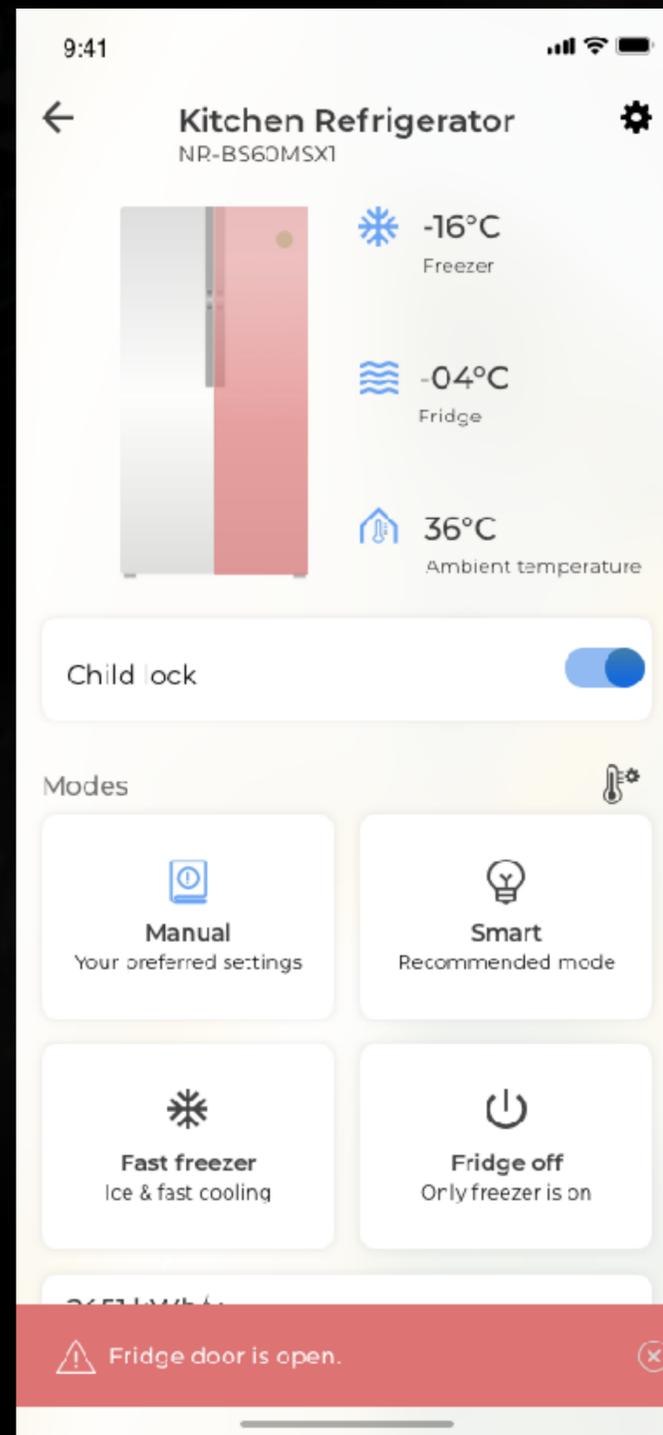
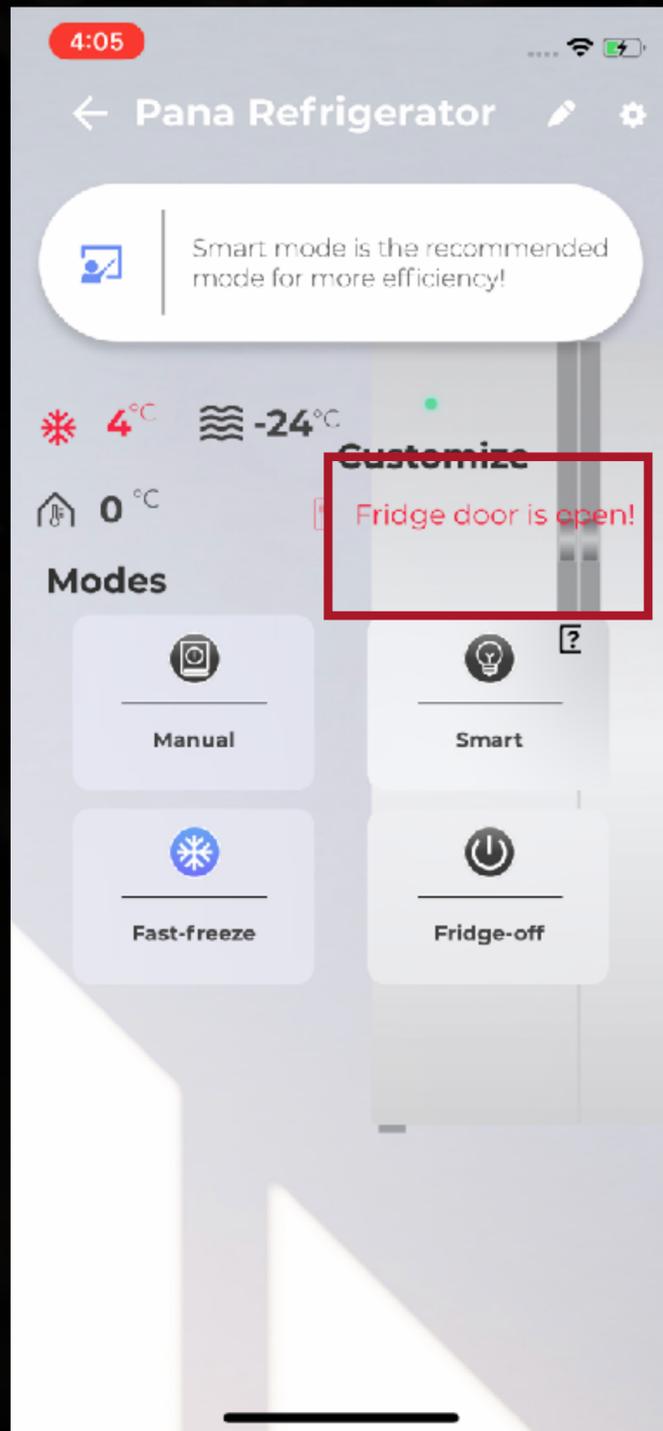


- ▶ Increased cognitive load and learnability for the new users.

What modes do is partially clear to the user, no help text.

Solution:

- ▶ Assistance to the user in making a choice.
- ▶ Non confusion to the user with subtitle text about the mode.
- ▶ Decreased cognitive load.

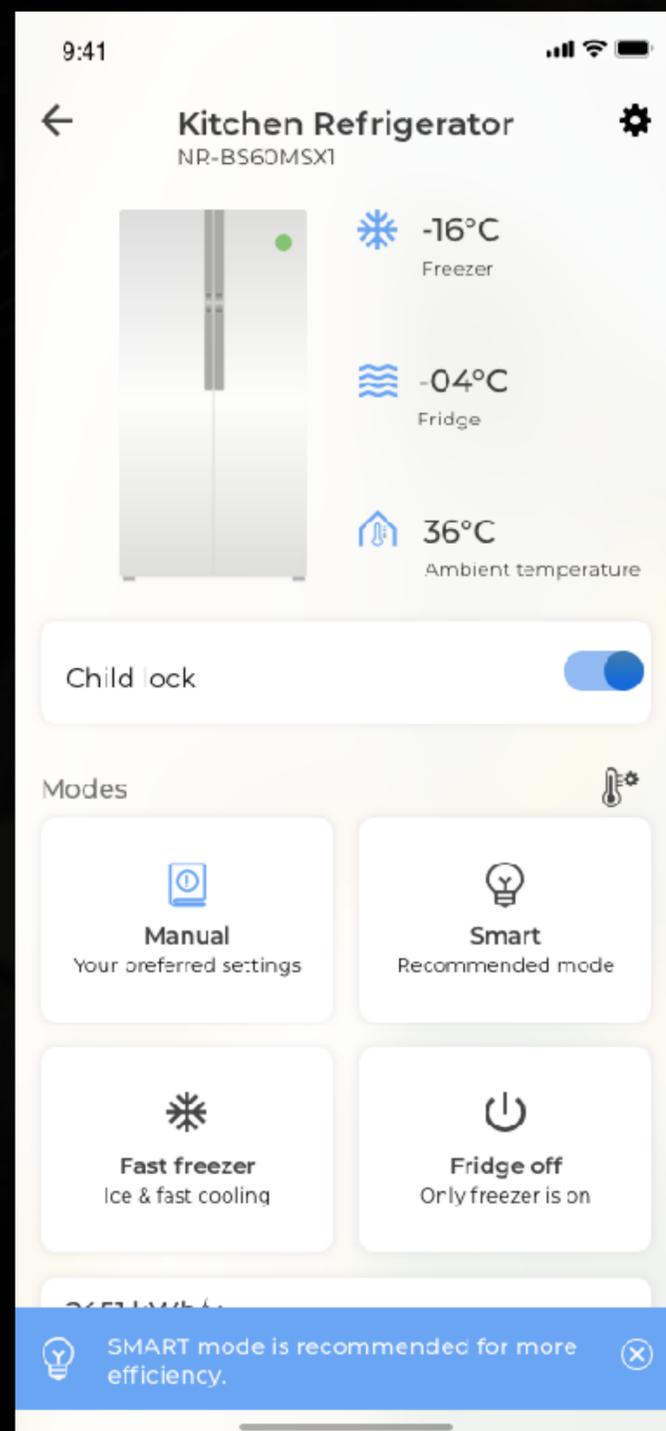
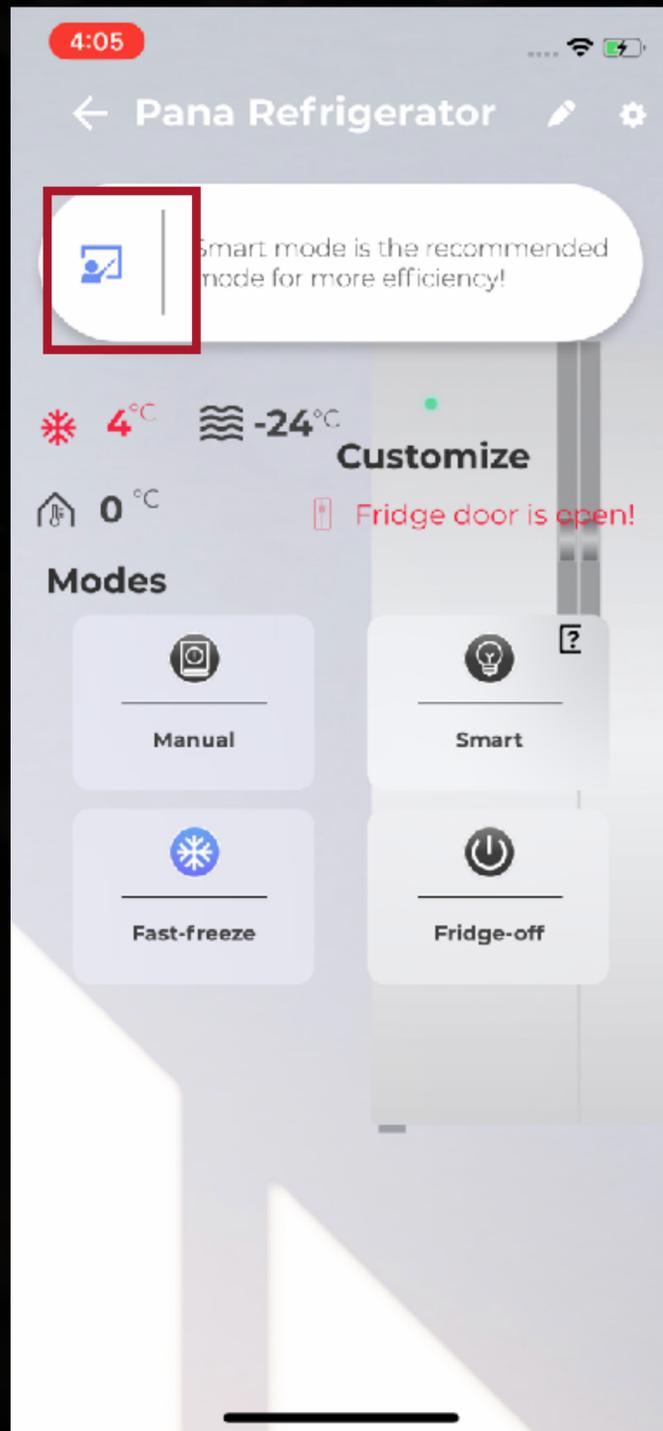


- ▶ Error message with background image creates a readability issue.

### Solution:

- ▶ Clear text with no readability issue in the toast message.
- ▶ Grabs users attention for important error & warnings.
- ▶ Use of realism in the app with fridge door error depiction.

Usability factor: Help users recognize, diagnose, and recover from error



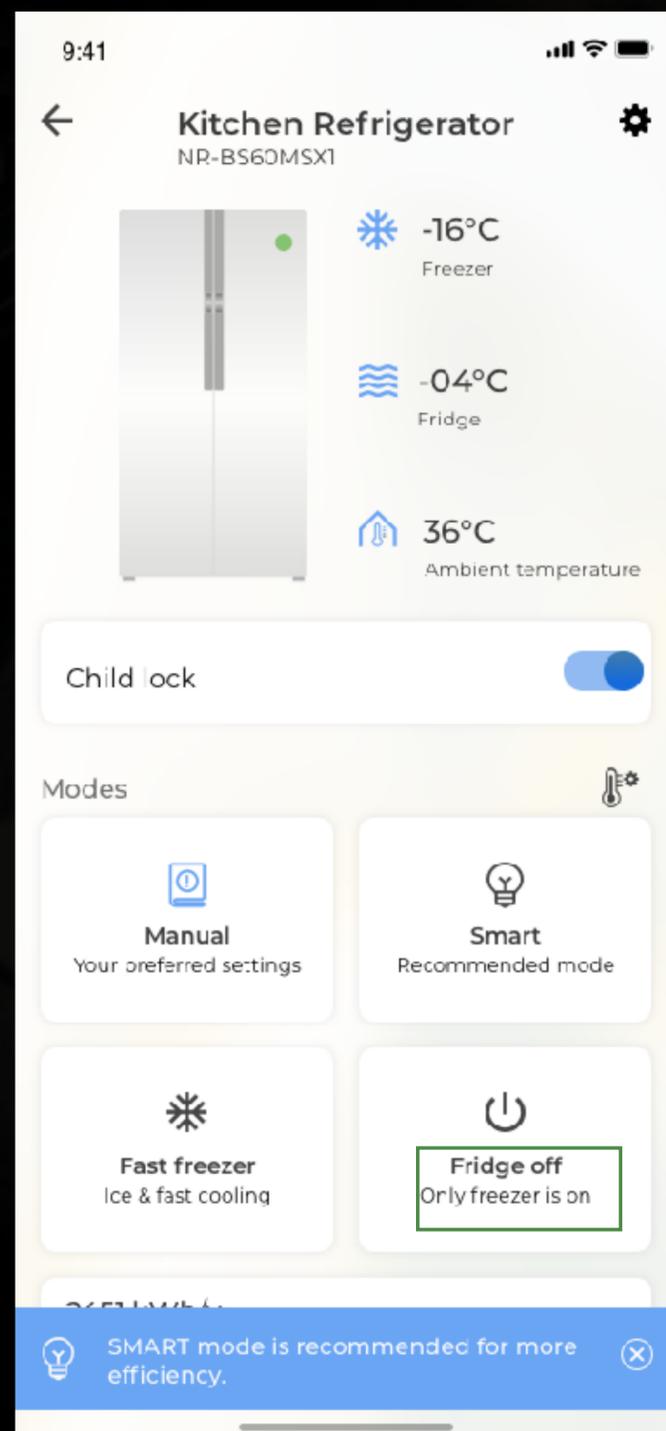
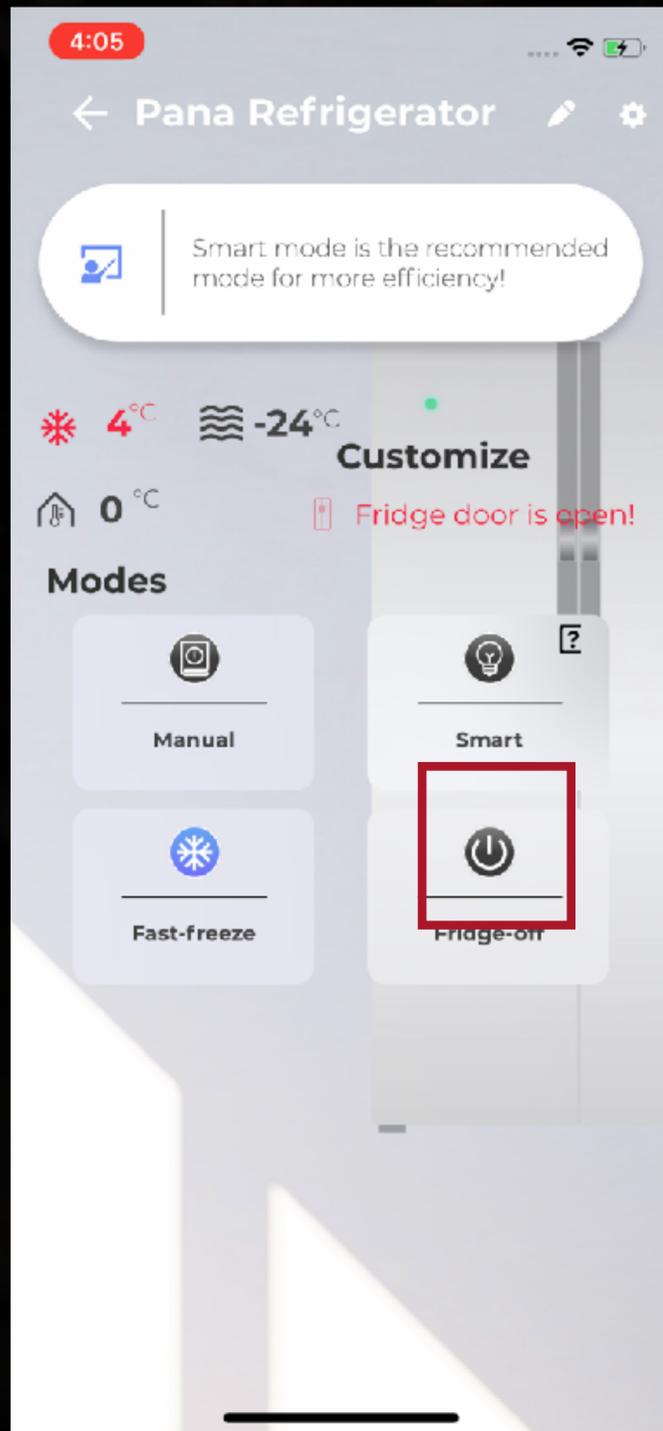
▶ **Bad affordance & Low discoverability**

Nudge icon looks like classroom instructions where as the nudge has multiple functions like info, persuading the user to use the app etc.

**Solution:**

- ▶ Change of app state based on context.
- ▶ Progressive disclosure of information.
- ▶ Removing the unnecessary permanent function.

Usability factor: Consistency & Standards, Mental models



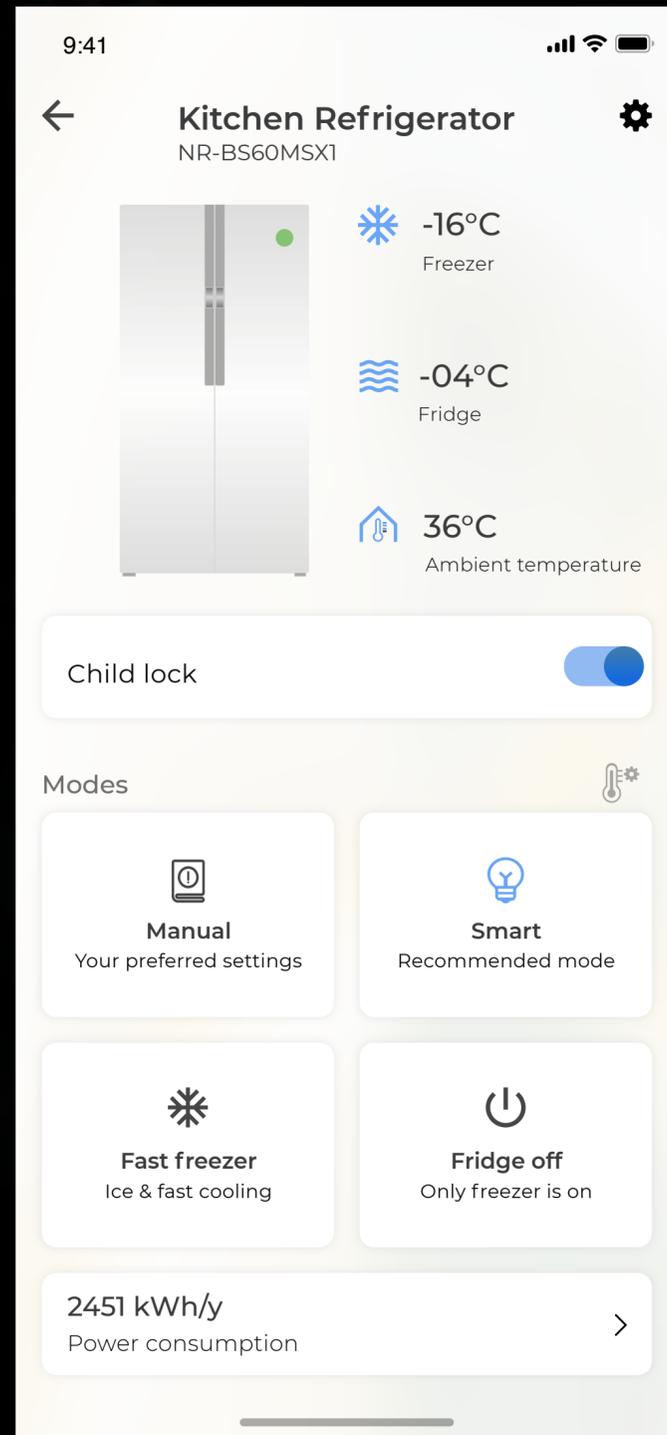
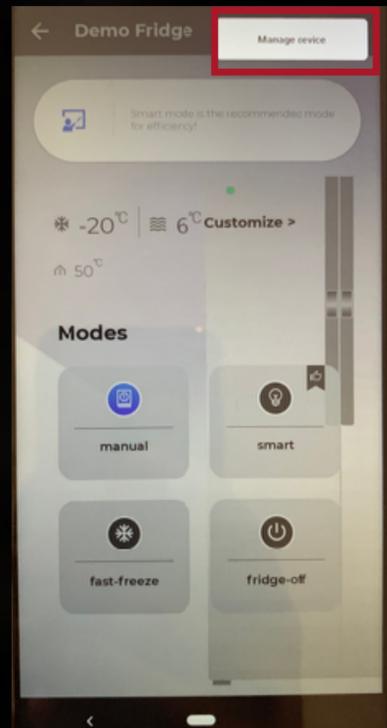
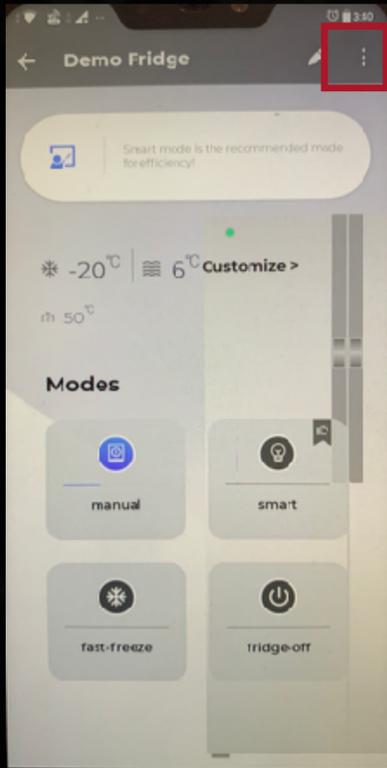
- ▶ Increased learnability for the new users

The power off icon conveys fridge "power off" function & is clubbed together with modes.

Solution:

- ▶ The text about mode removes the users confusion.

Usability factor: Consistency & Standards, Mental models



▶ Increased motor load for the users.

3 dots menu conveys "more options" whereas it only takes user to the settings screen on 2 touch interactions.

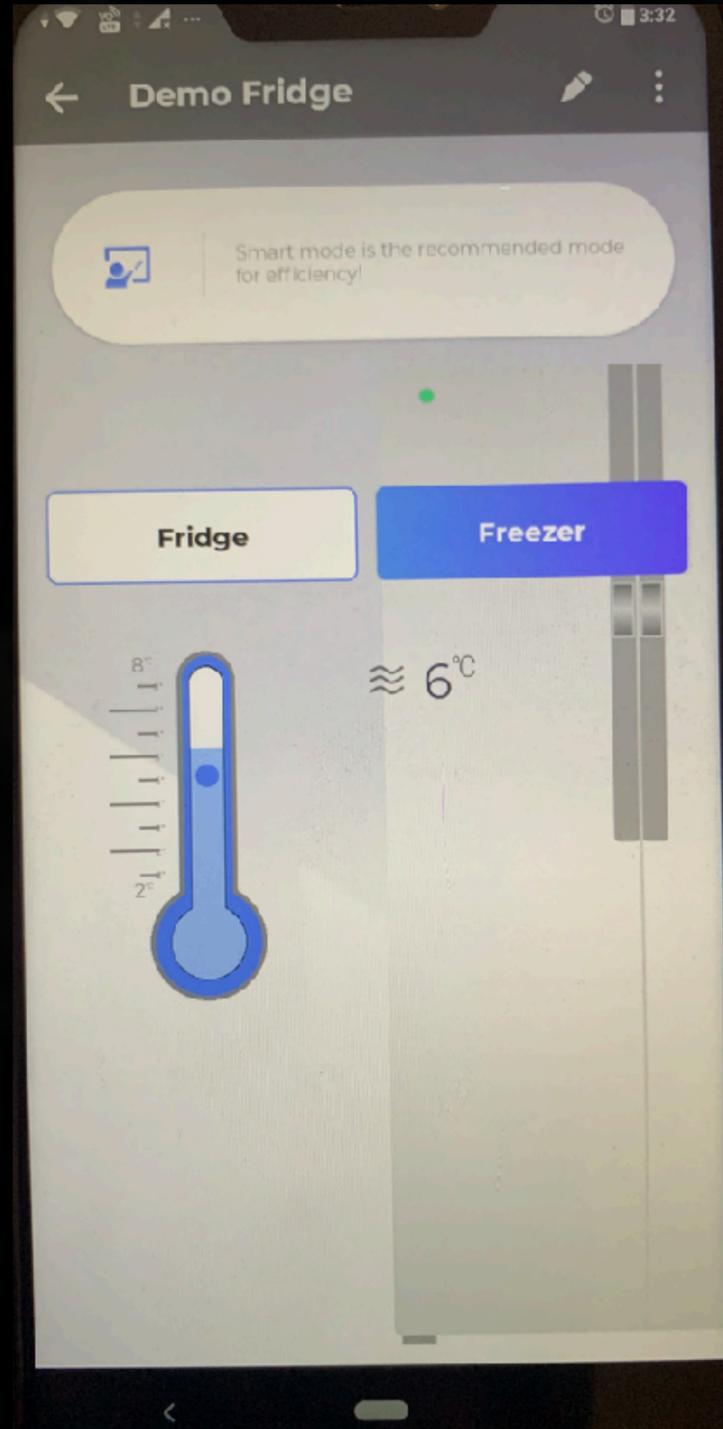
Solution:

▶ Clear settings button transitions to settings screen.

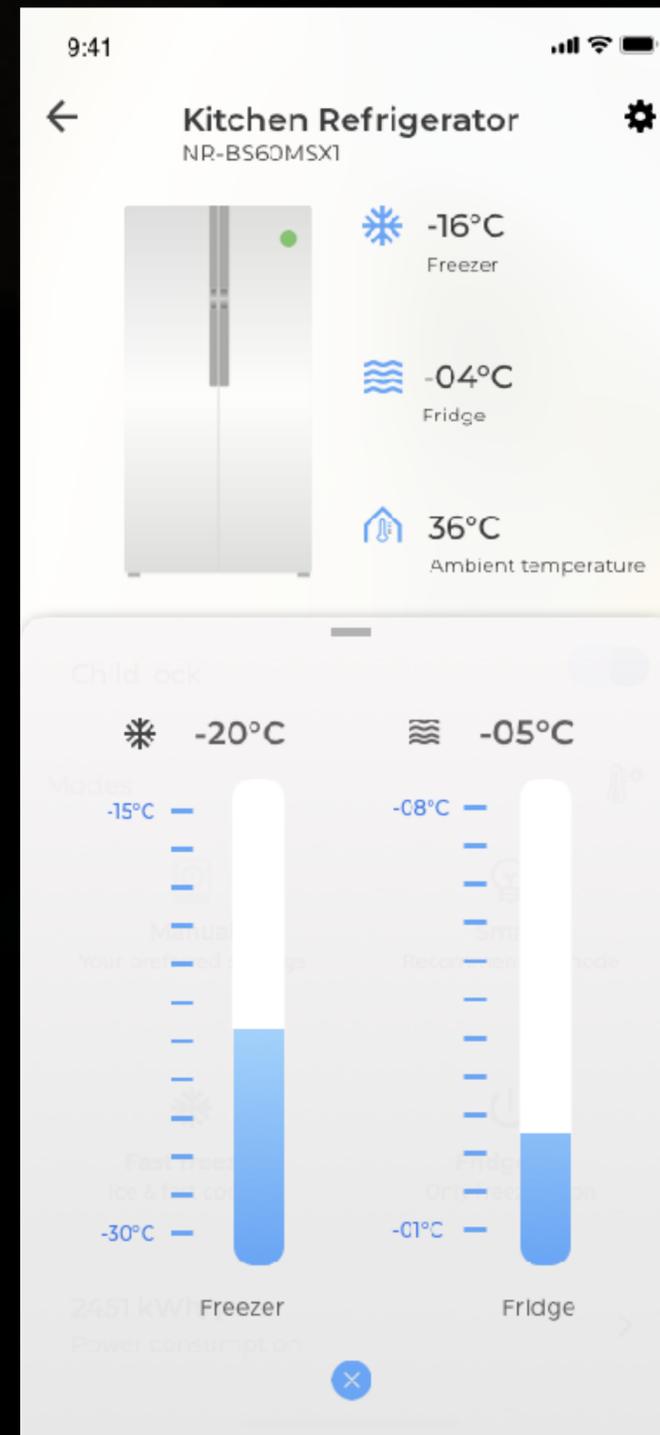
▶ One touch saved for the user.

▶ No confusion

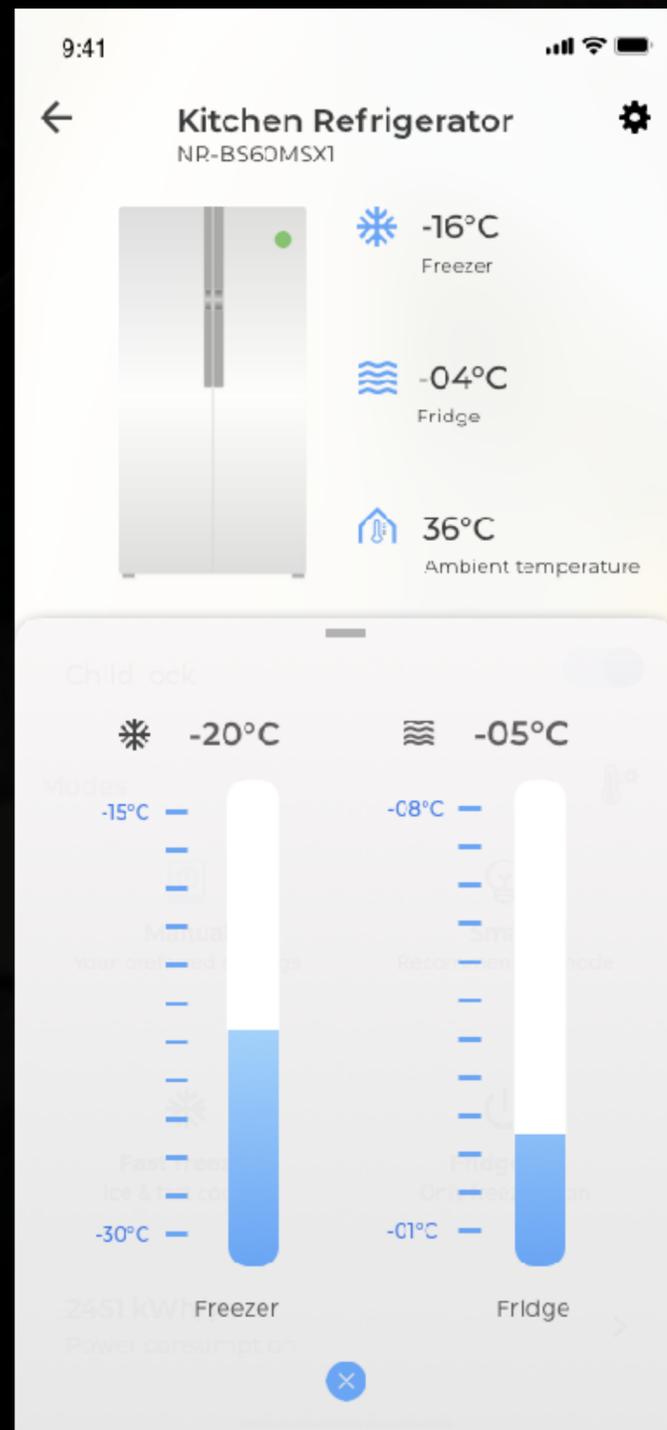
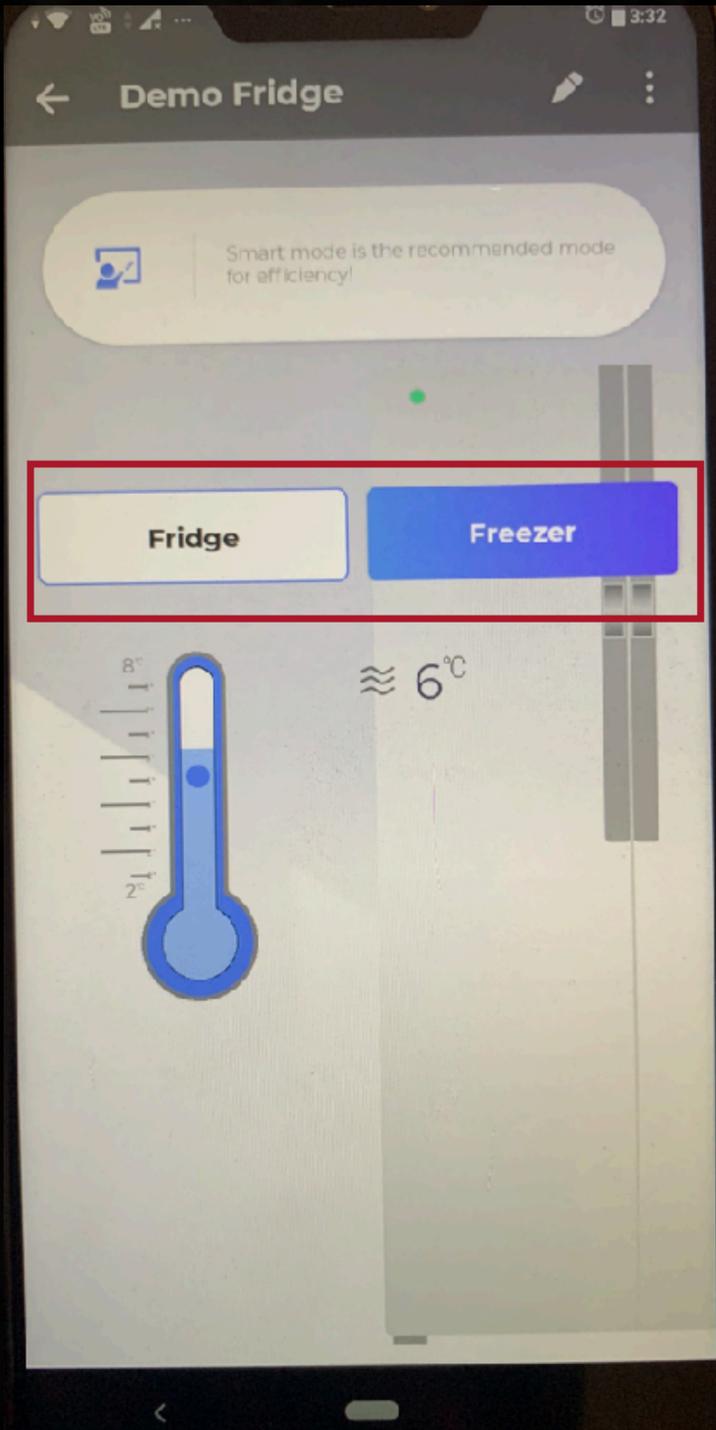
# TEMPERATURE CONTROL



Previous



DESIGN

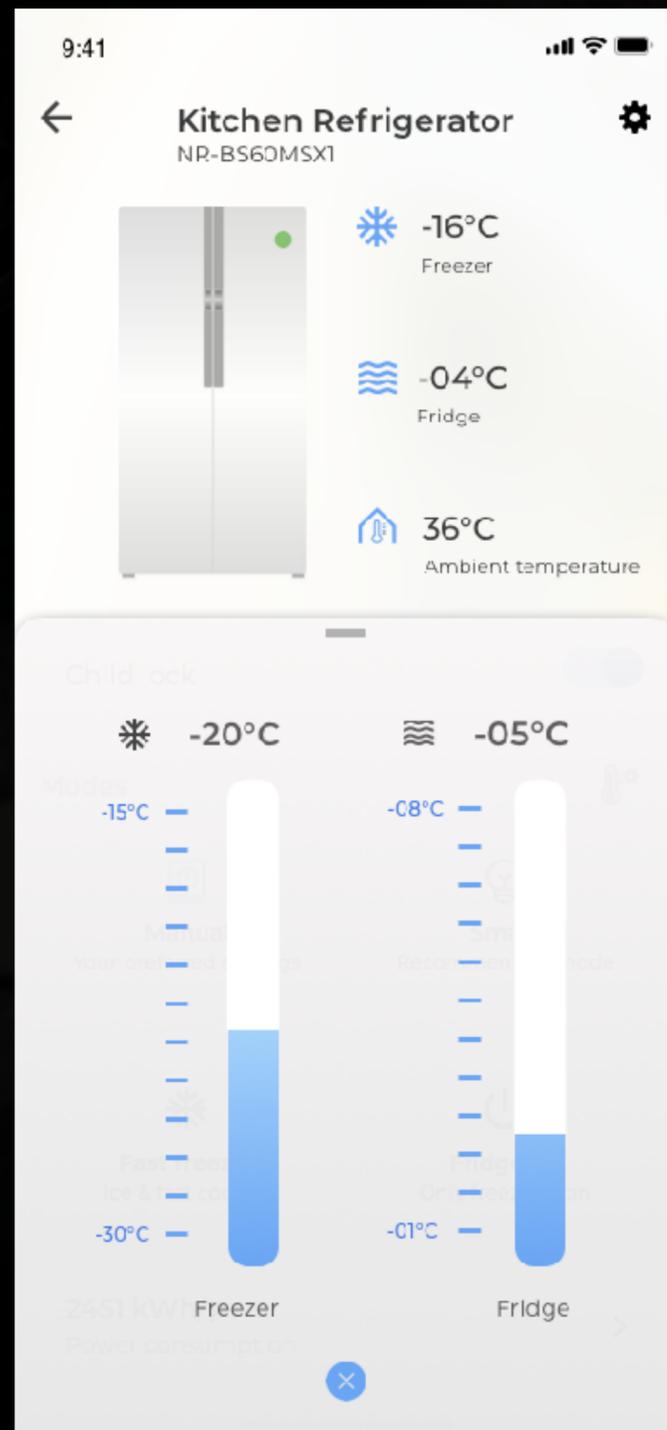
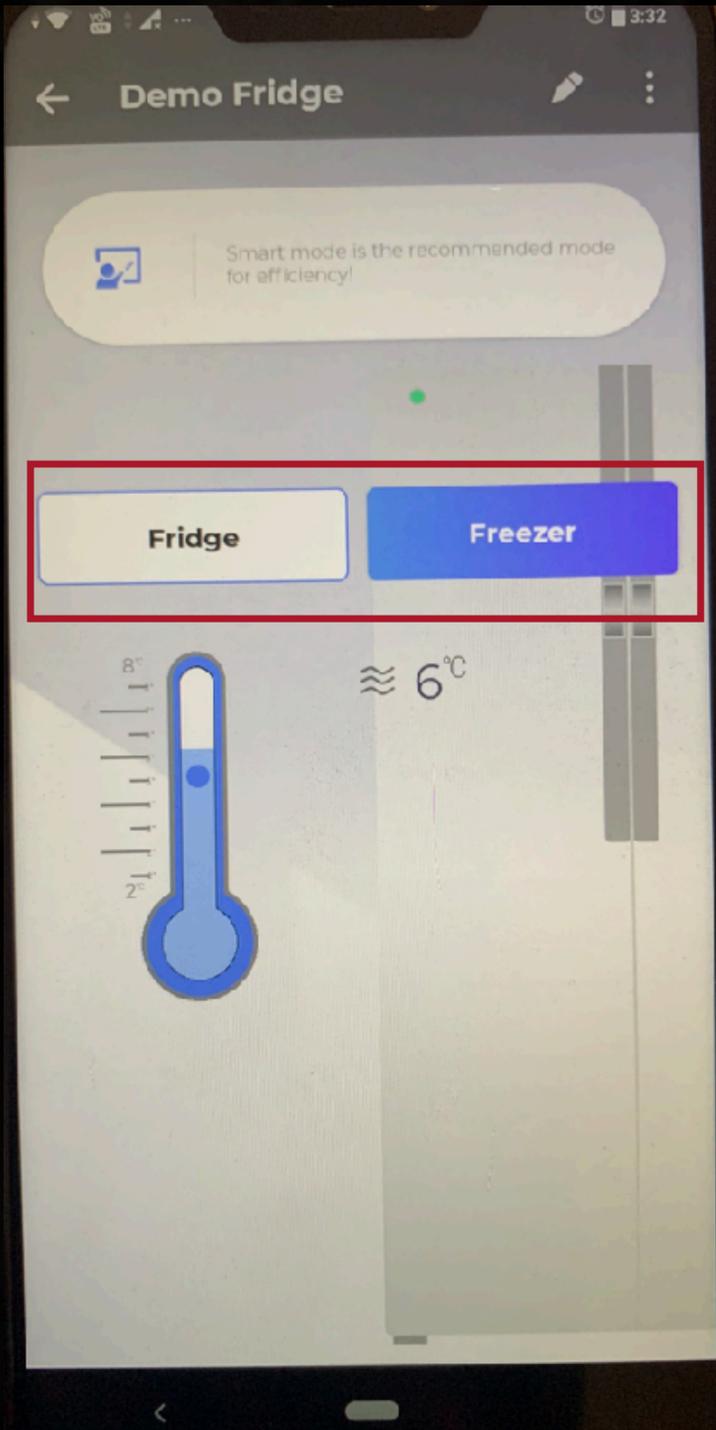


- ▶ Why does a user need to selected a fridge or a freezer before adjusting the temperature?

Solution:

- ▶ Better user orientation & not taking the user out of screen.
- ▶ Saved multiple touches for the user.



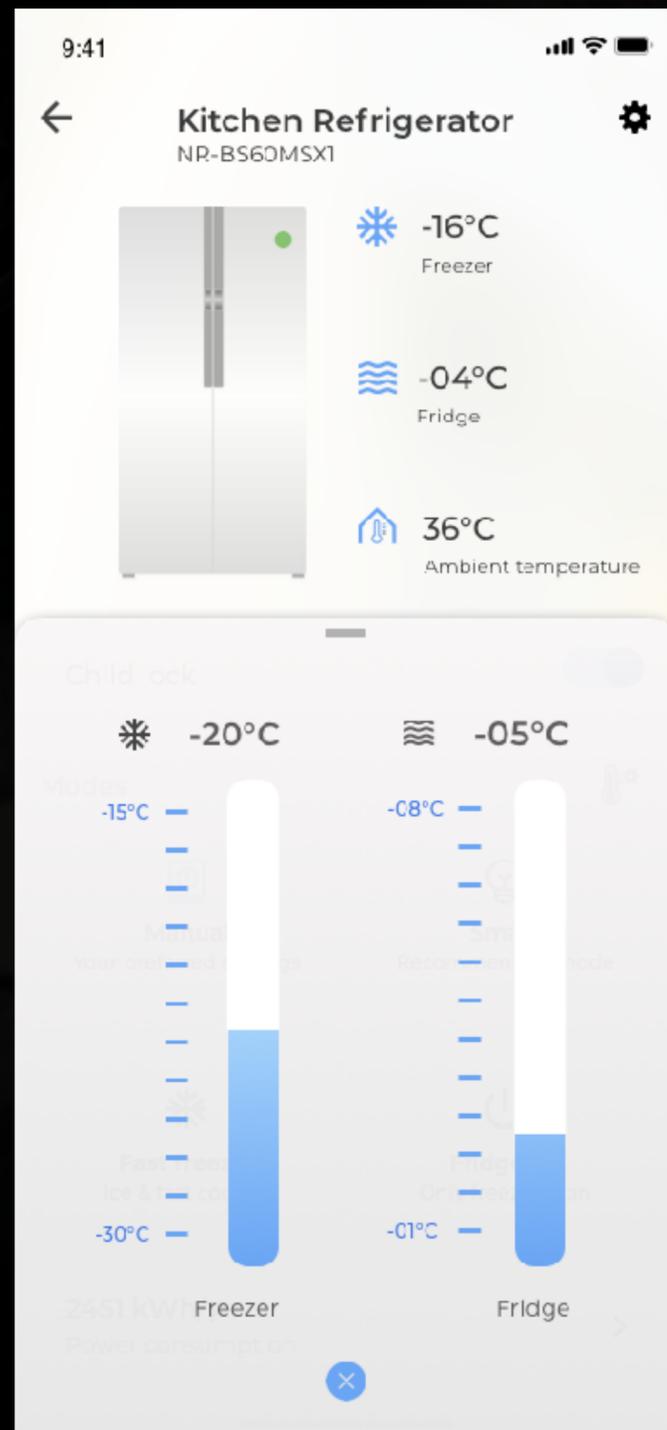
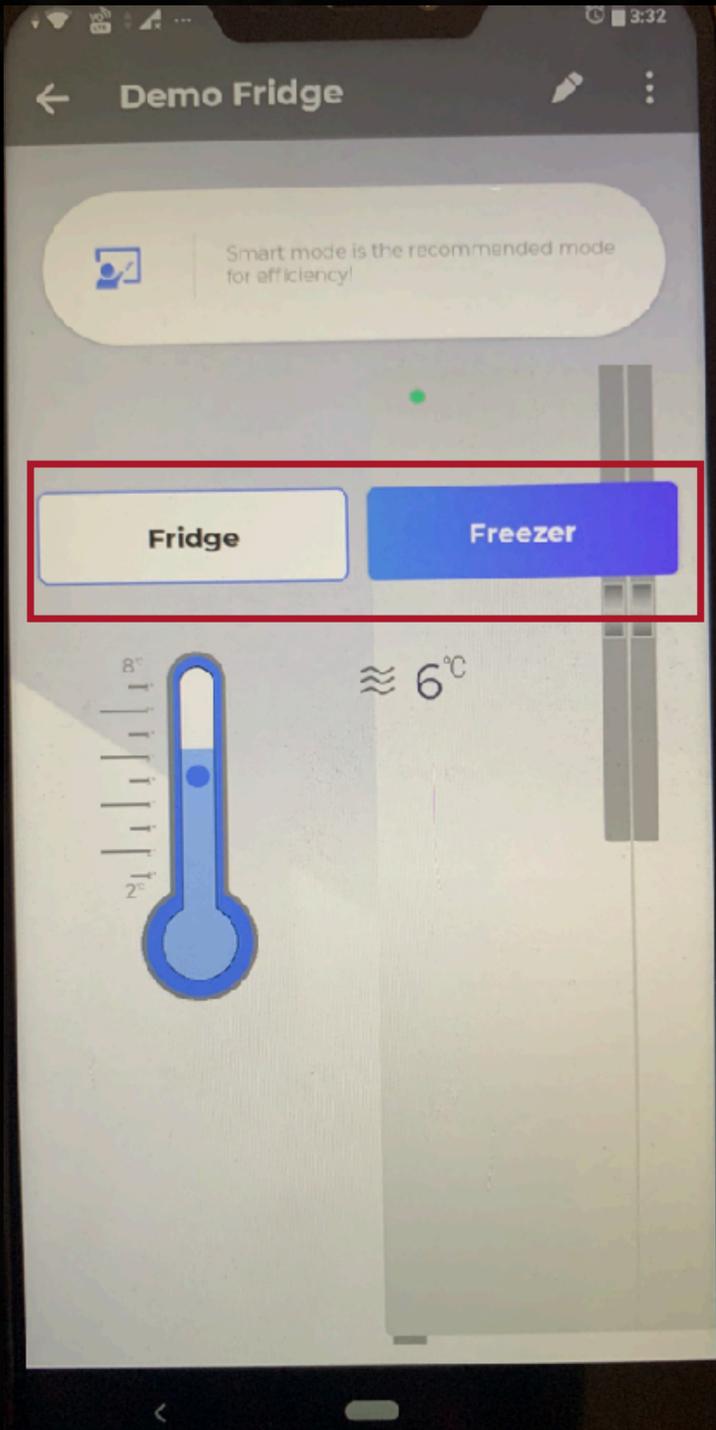


- ▶ Bad affordance & Increased learnability for the new users.
- ▶ The buttons project the visual hierarchy like a tab behaviour.

### Solution:

- ▶ Proper visual hierarchy with text & labels
- ▶ Better use of Gestalt principles.





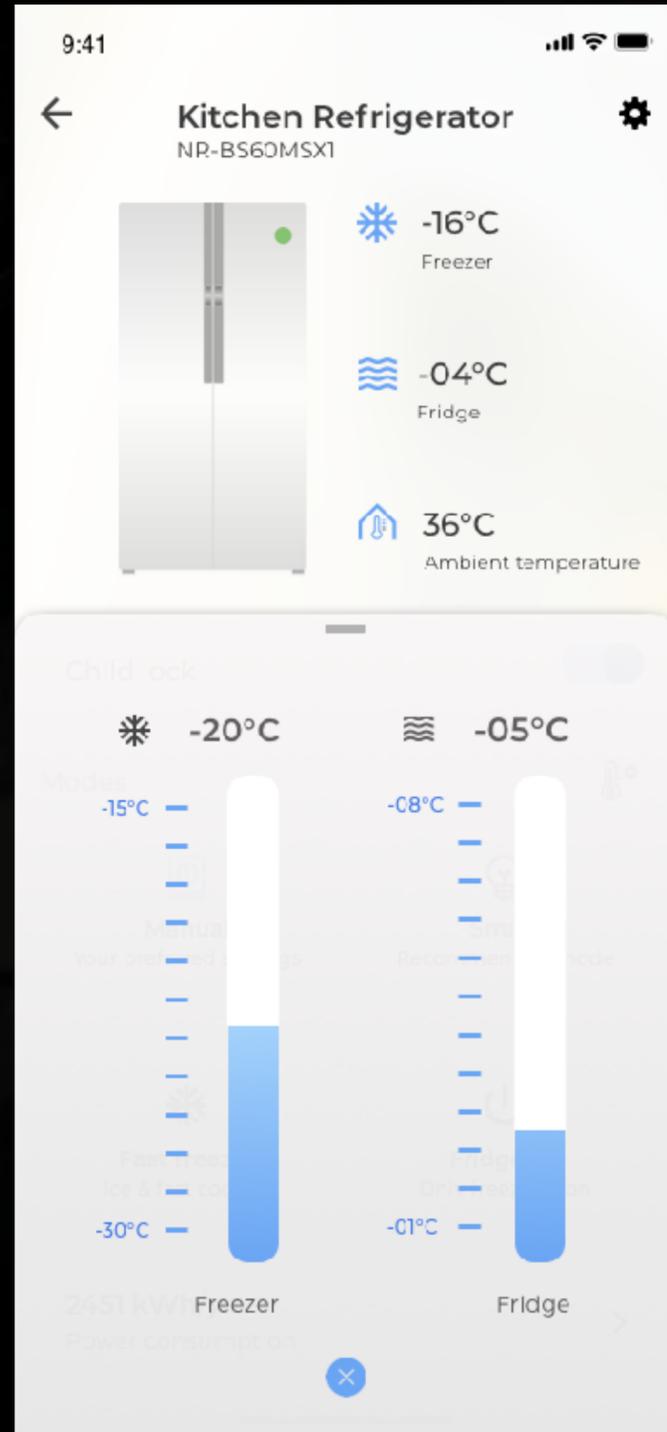
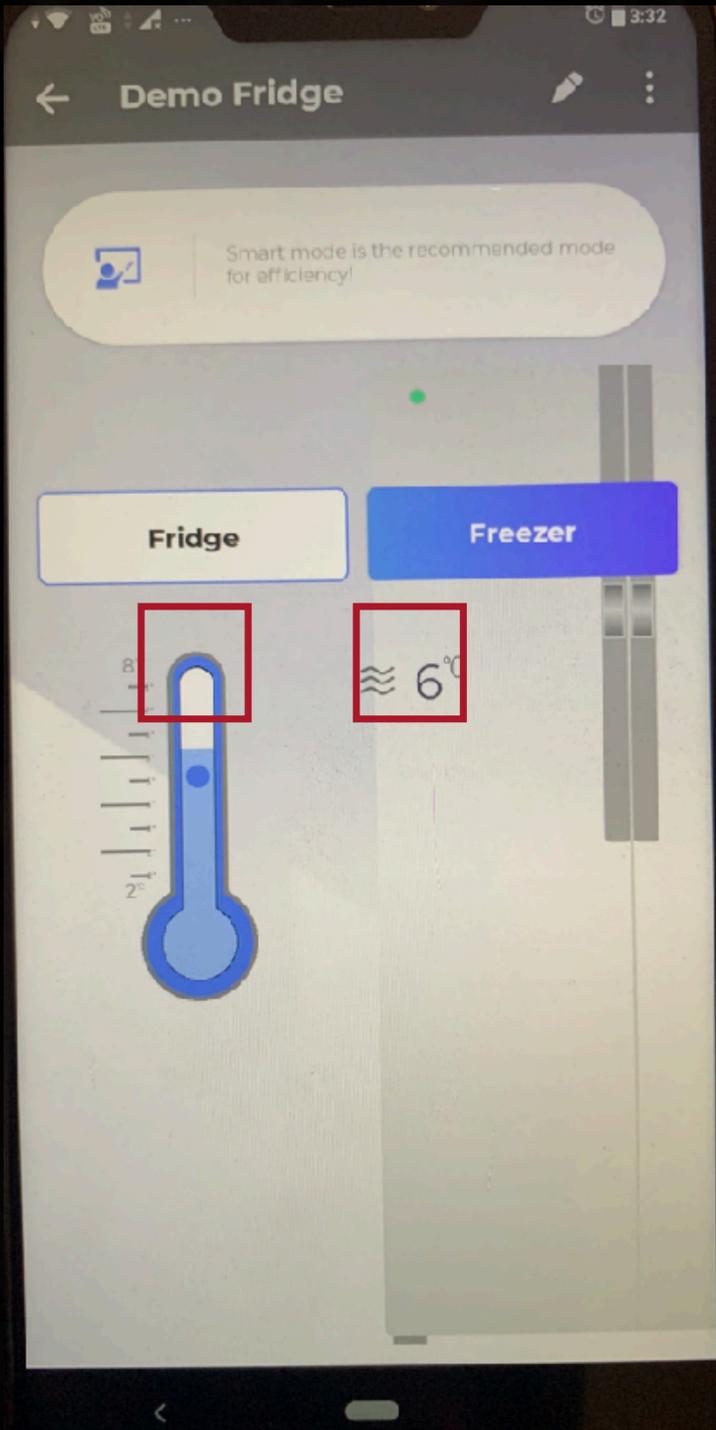
- ▶ Based on the color scheme (white as enable color) it's difficult to identify which one is selected.

Solution:

- ▶ Removed the confusion with proper visual hierarchy.
- ▶ Consistent use of colours.

Usability factor: Mental Models





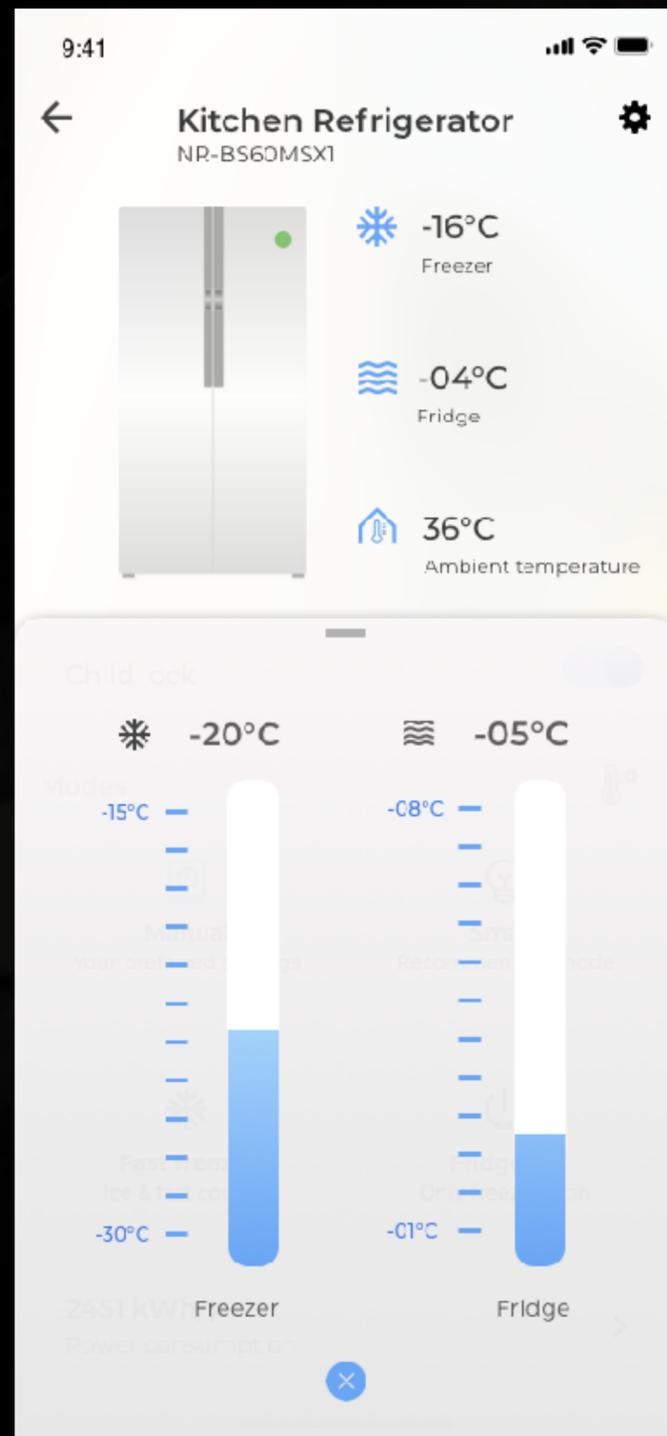
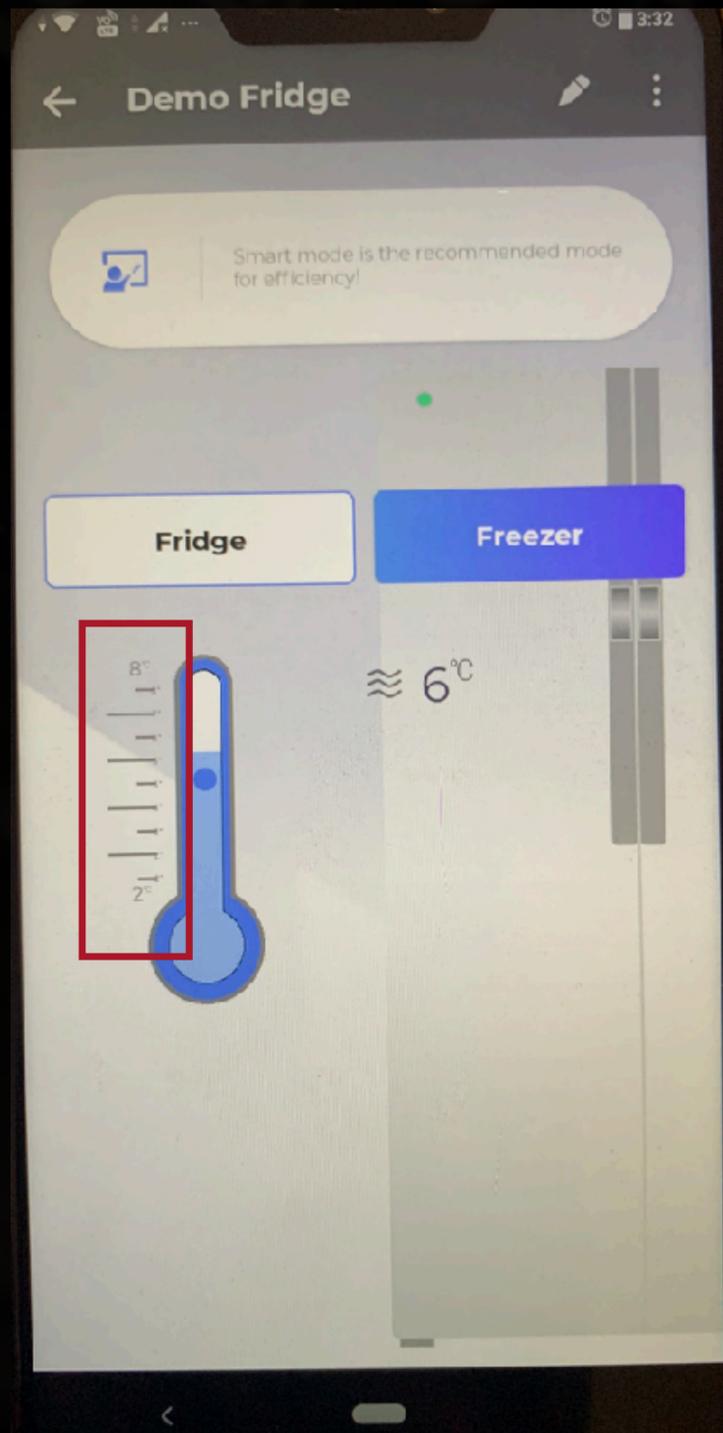
- ▶ The distance between temperature field & control disrupts the visual hierarchy

Solution:

- ▶ Proper use of labels in correct proximity to remove any confusion of the user.

Usability factor: Gestalt principles





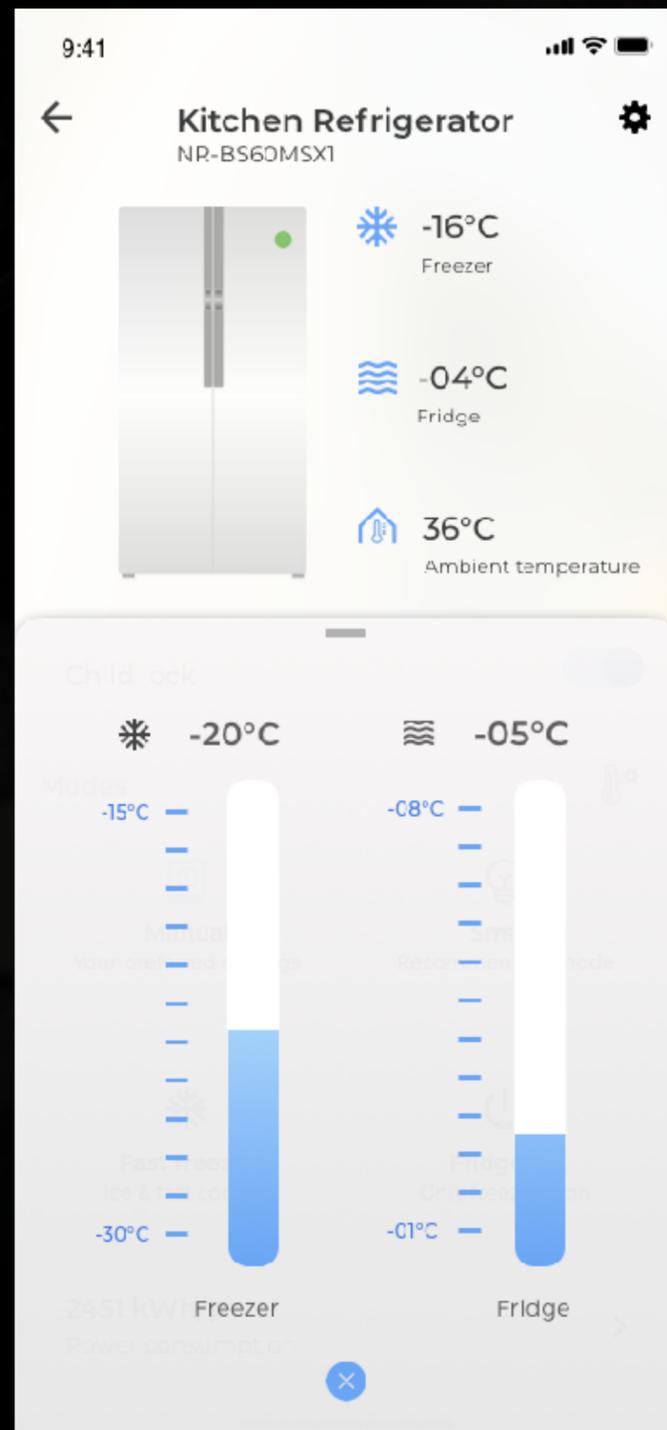
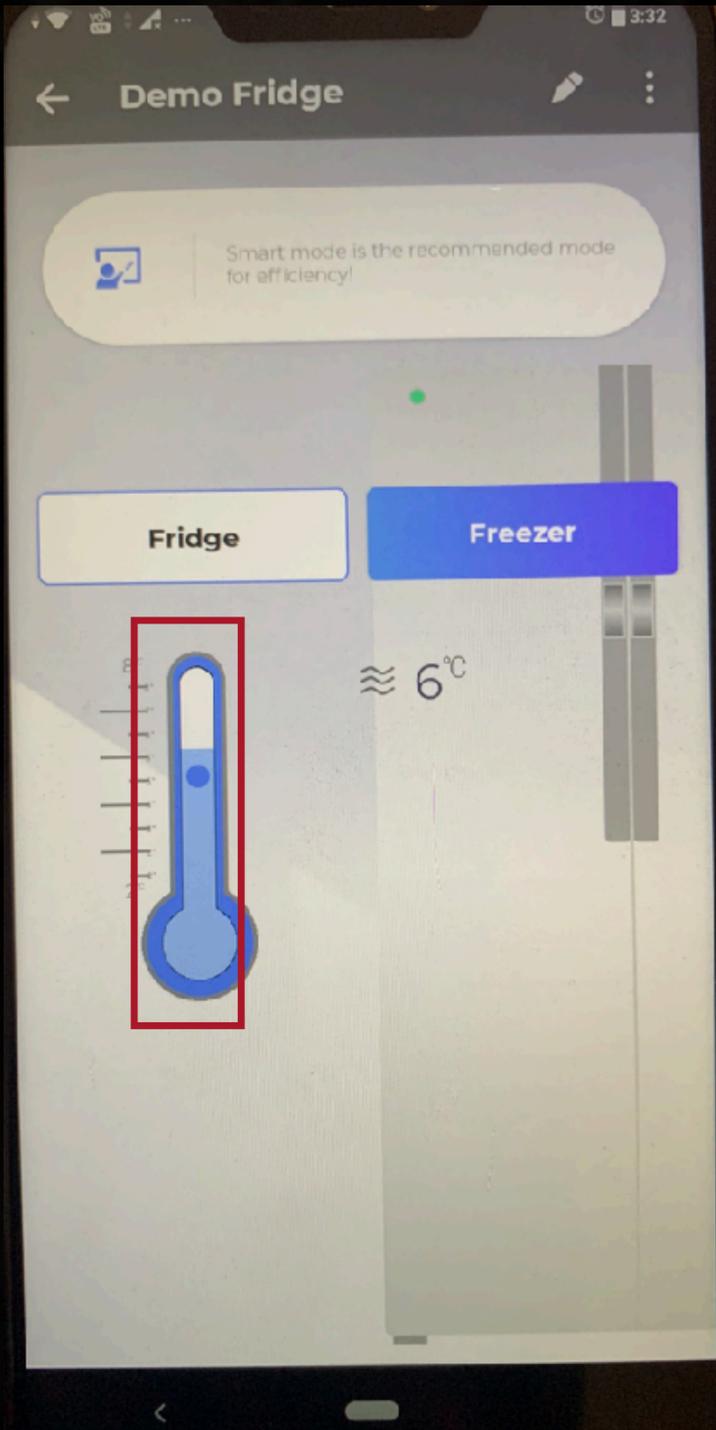
- ▶ The thermometer scale text and range are not properly readable.

Solution:

- ▶ Readability issue solved with bigger size scale and clear labels.

Usability factor: Gestalt principles





- ▶ Increased motor load for the user.

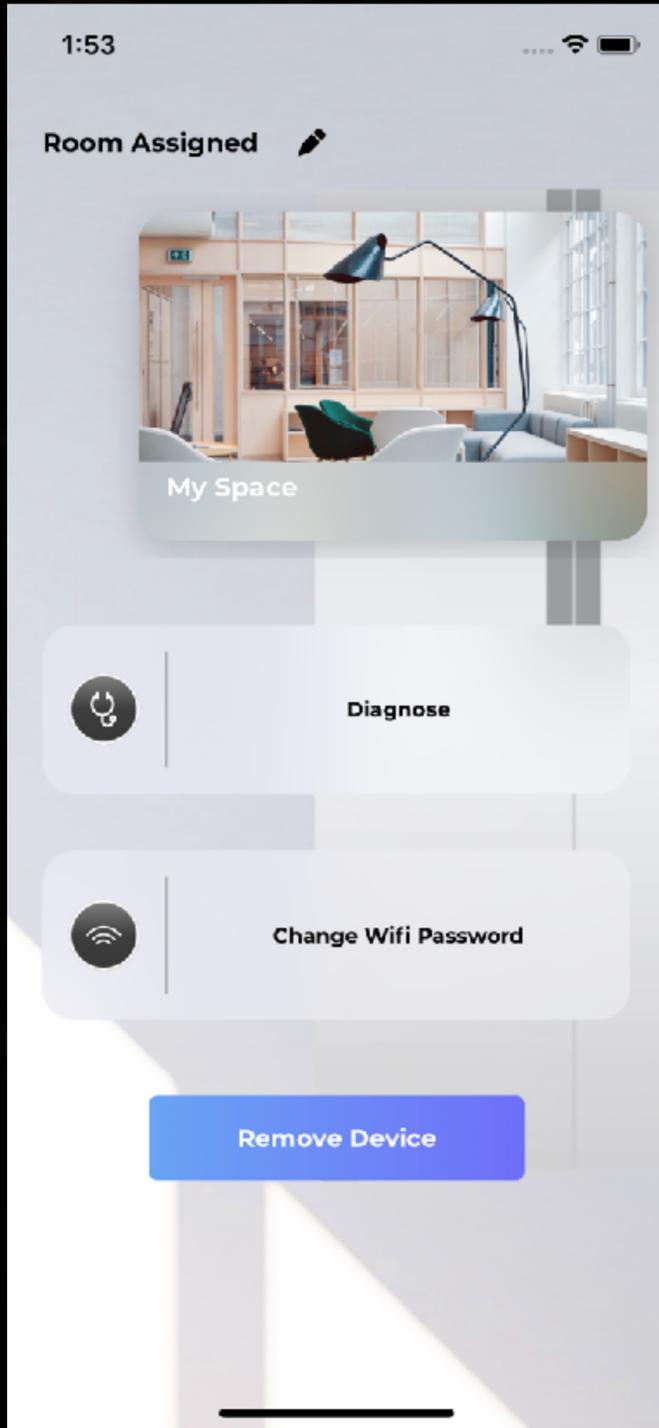
The thermometer control is not thumb zone friendly for a primary task

Solution:

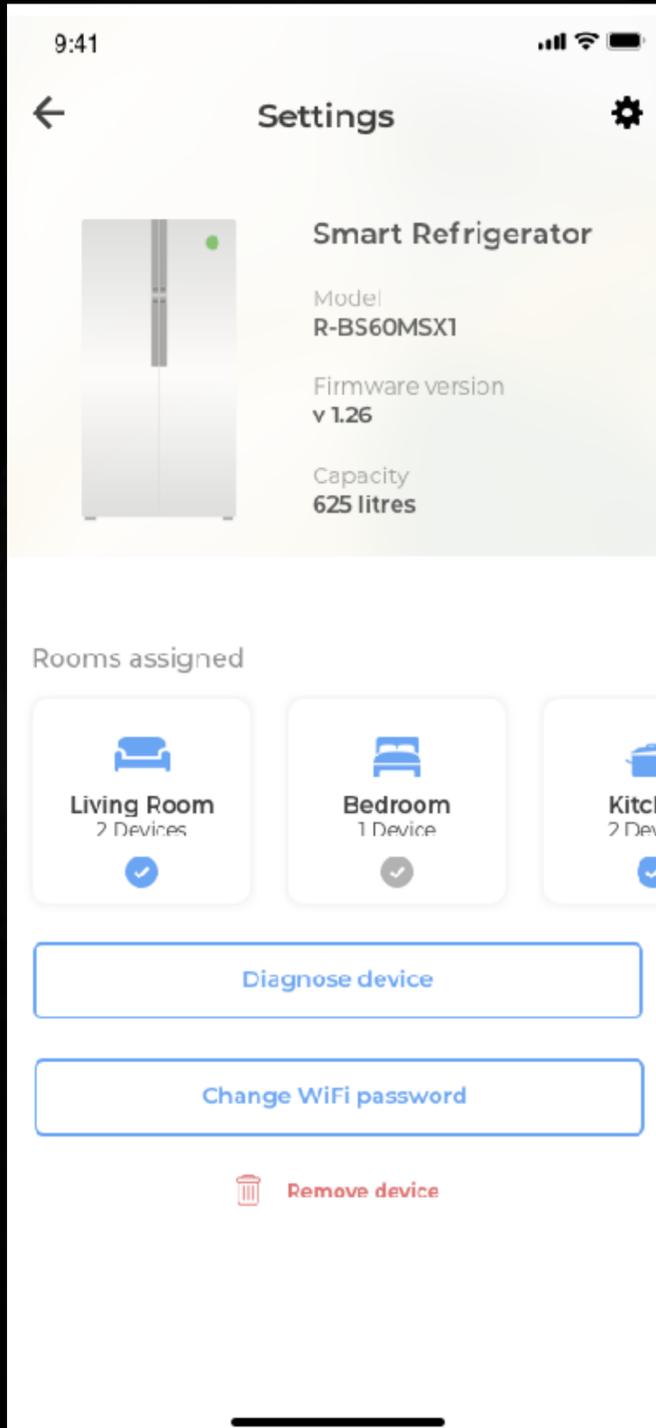
- ▶ The primary task of temperature adjustment is in reachable thumb zone now.



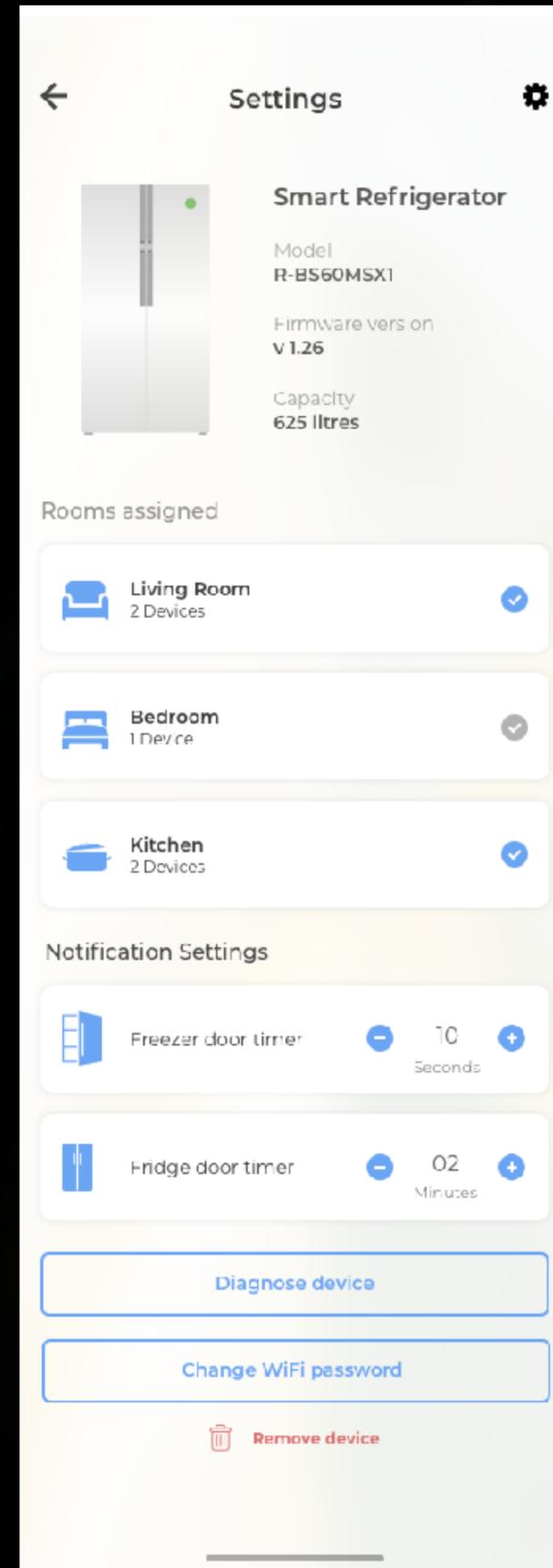
# SETTINGS



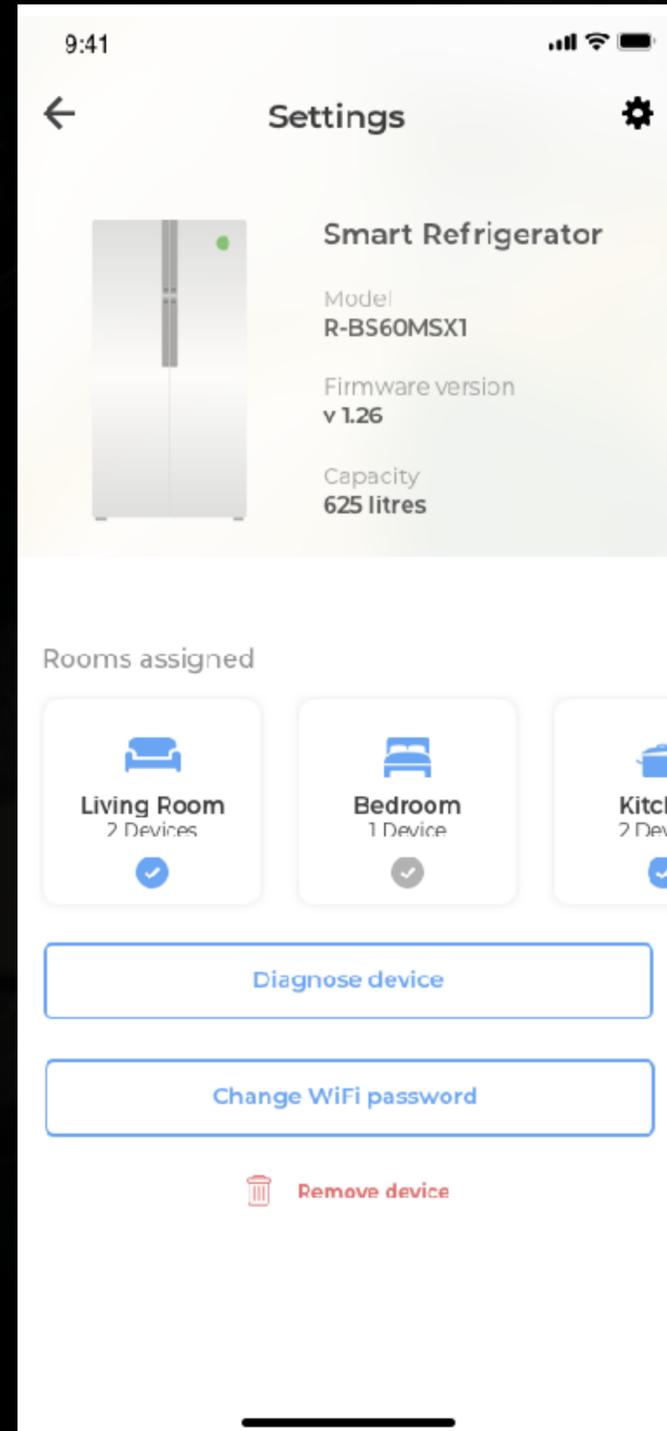
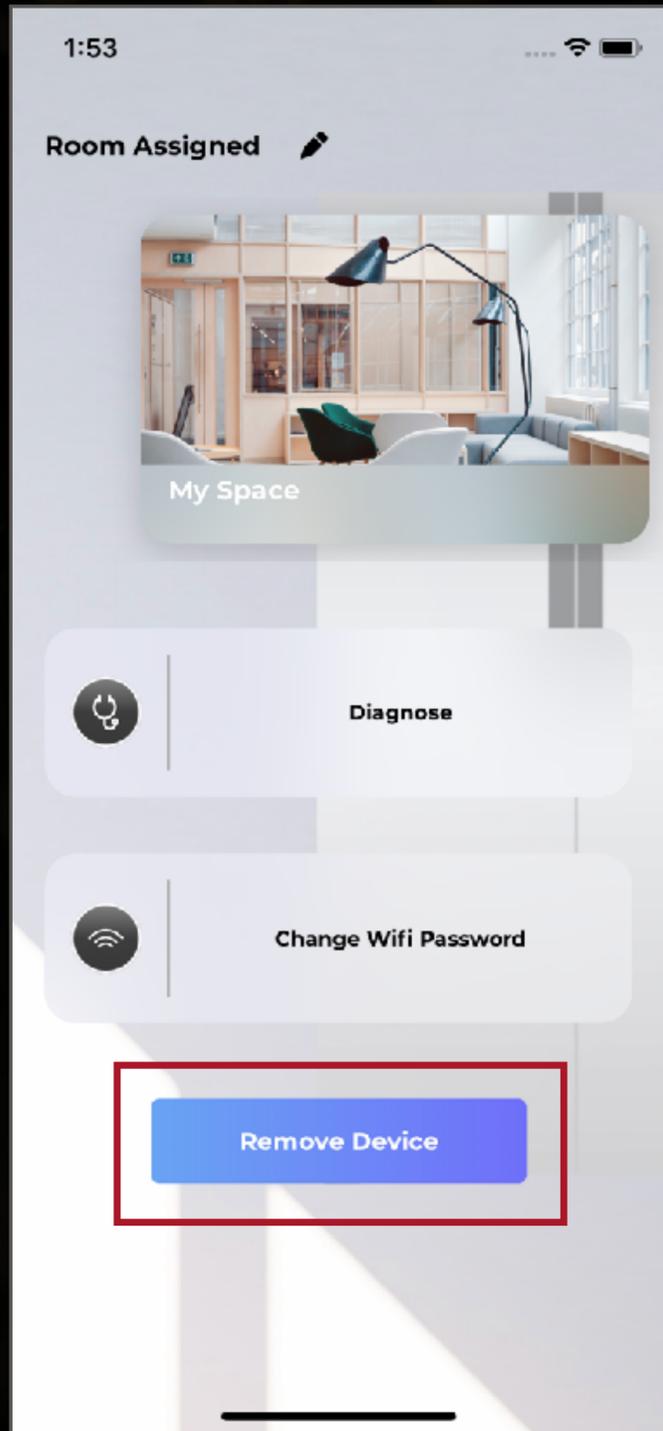
Previous



DESIGN 1



DESIGN 2

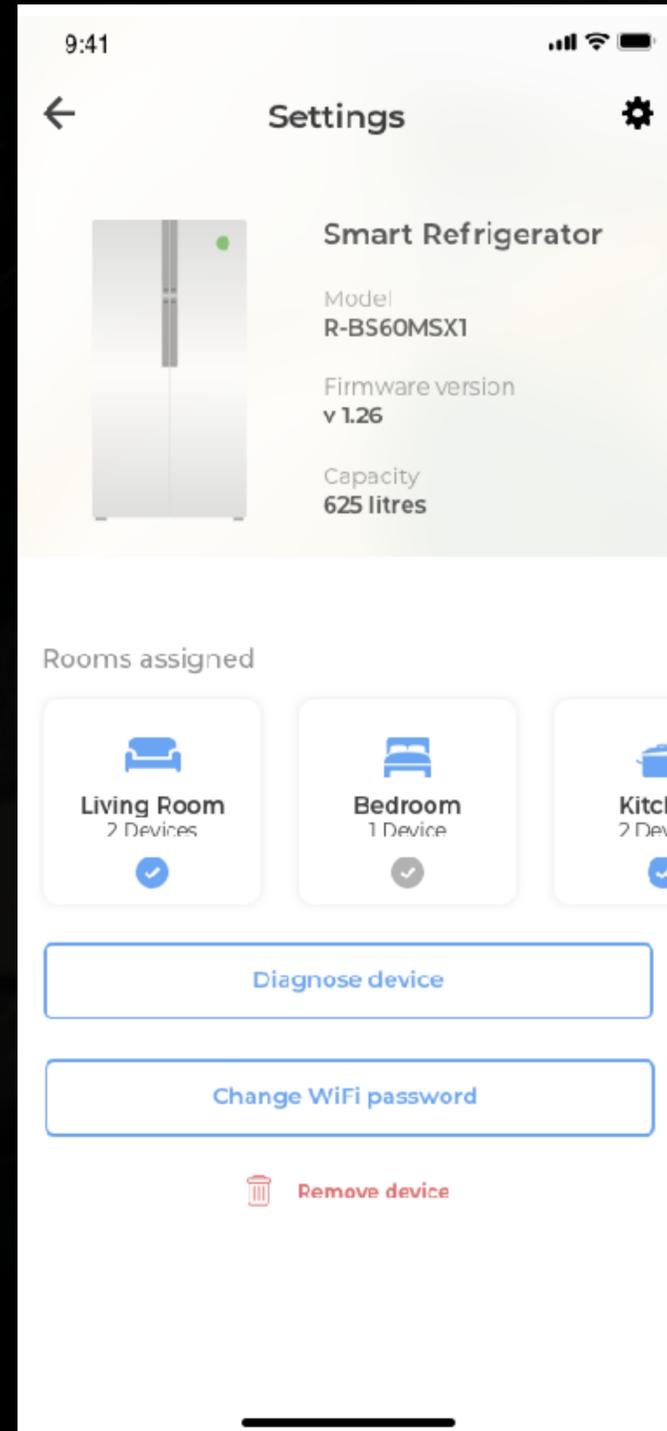
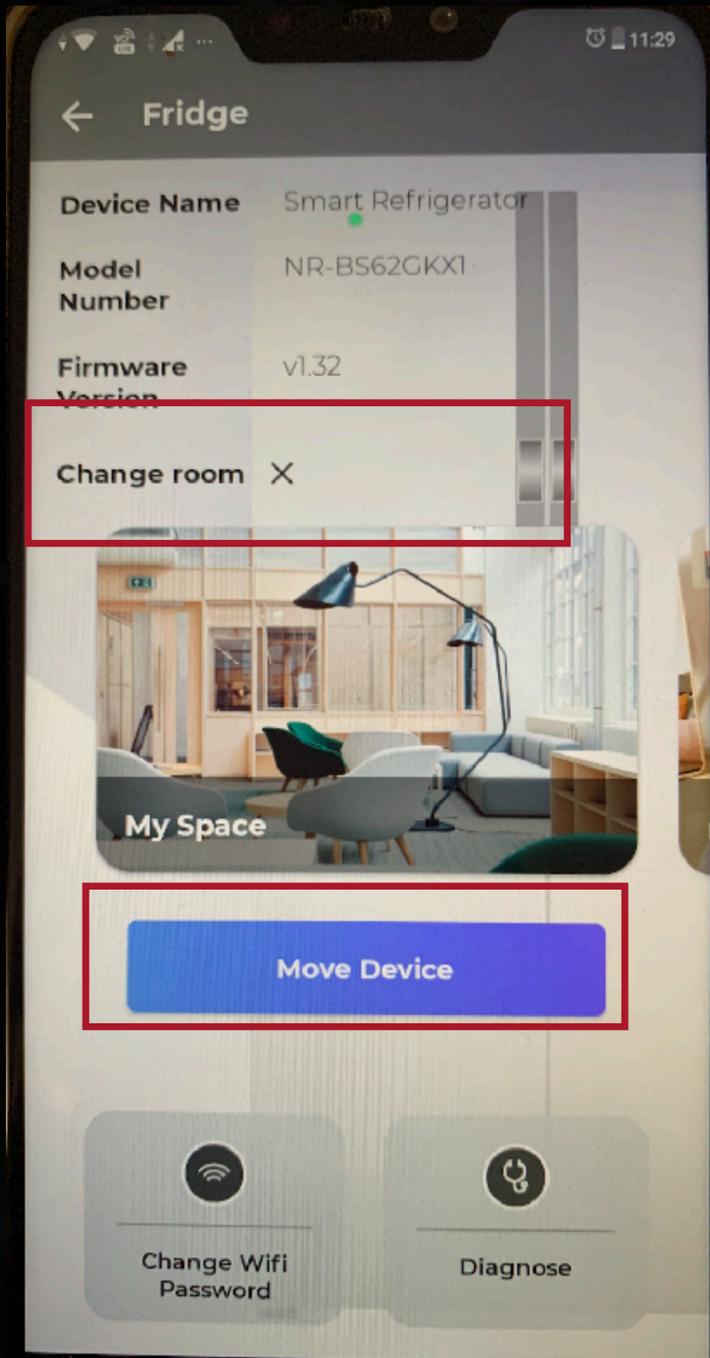


- ▶ Remove device seems like primary action.

### Solution:

- ▶ Better information layout based on projected tasks.
- ▶ Remove device depicted as secondary task with proper color
- ▶ Better use of mental models



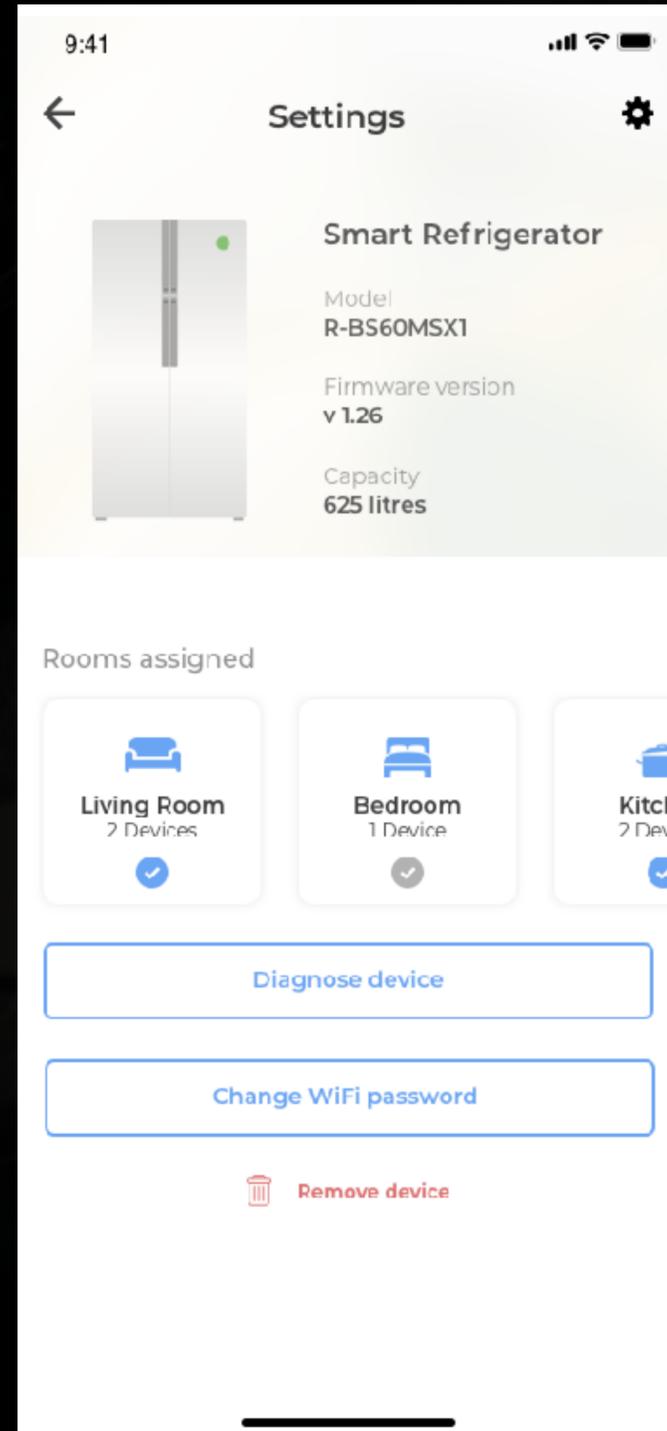
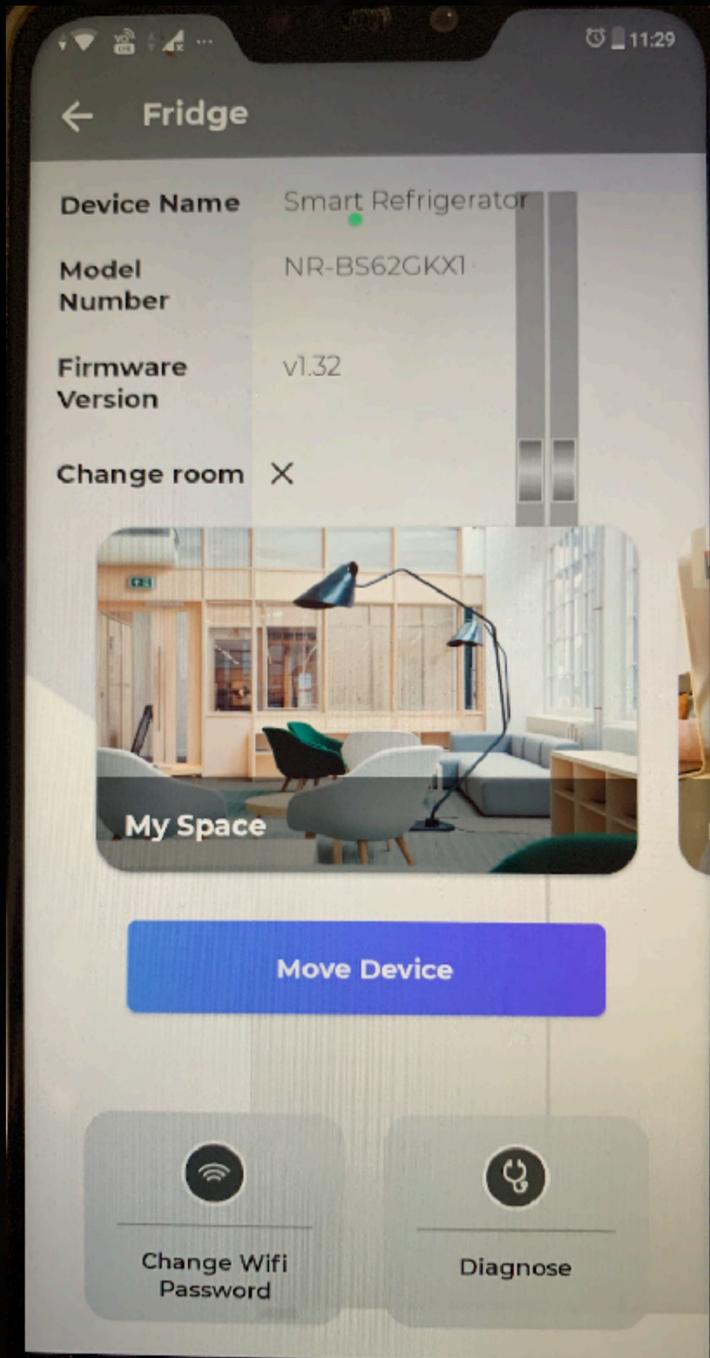


- ▶ Increased motor load for the user & high learnability
- Room assignment interaction is non intuitive & cumbersome.
- Adding and removing elements dynamically is not a good UX

#### Solution:

- ▶ Intuitive interaction with pleasing interaction language.
- ▶ Saves user multiple touch.
- ▶ No confusion and consistent UI with changing app context
- ▶ Quick feedback from UI after room assignment.



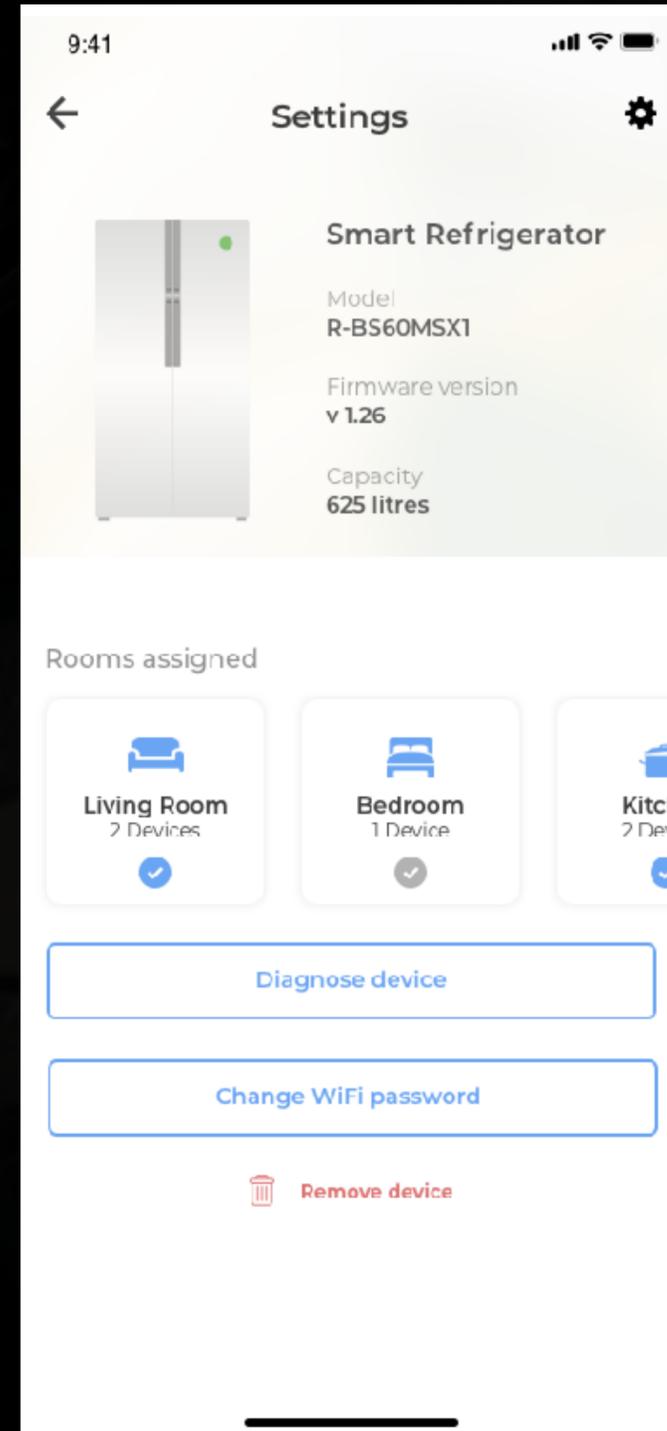
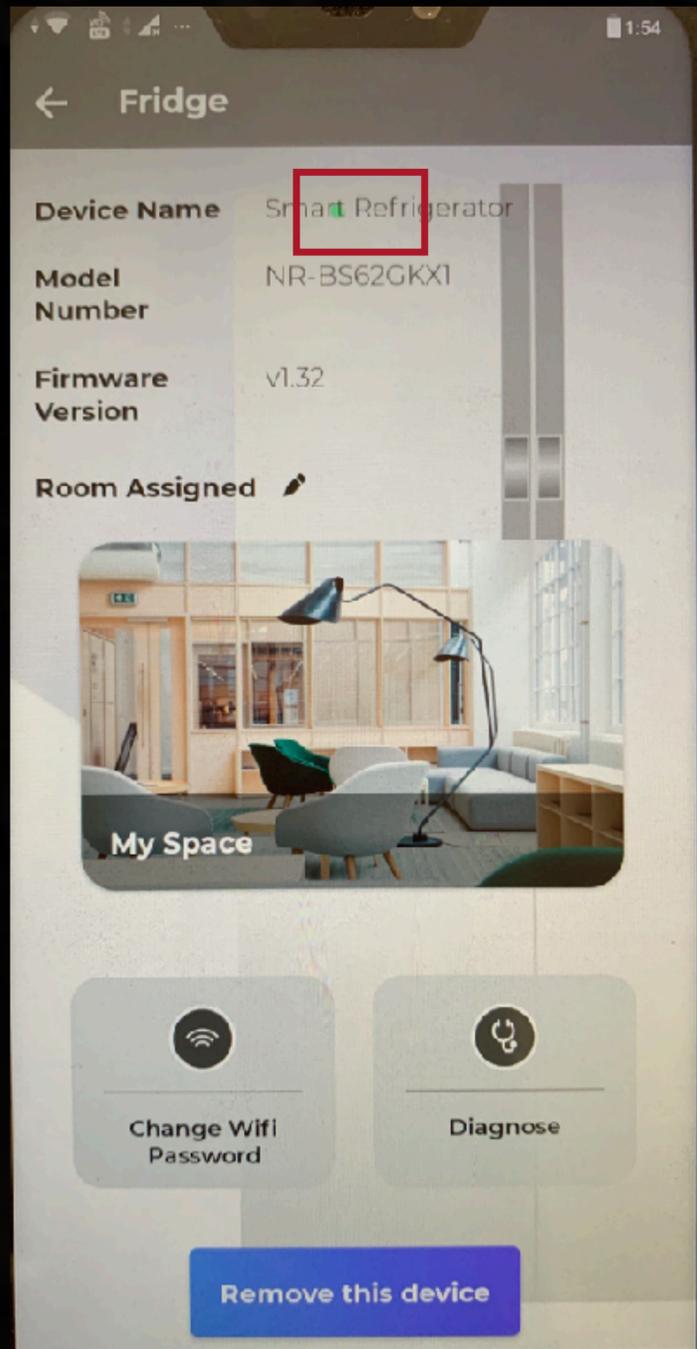


- ▶ Major portion of real estate is used in displaying static image of rooms

Solution:

- ▶ Proper layout based on settings tasks.
- ▶ Intuitive fast scannable assigned rooms.
- ▶ Use of secondary call for action based on projected tasks





- ▶ Increased visual load

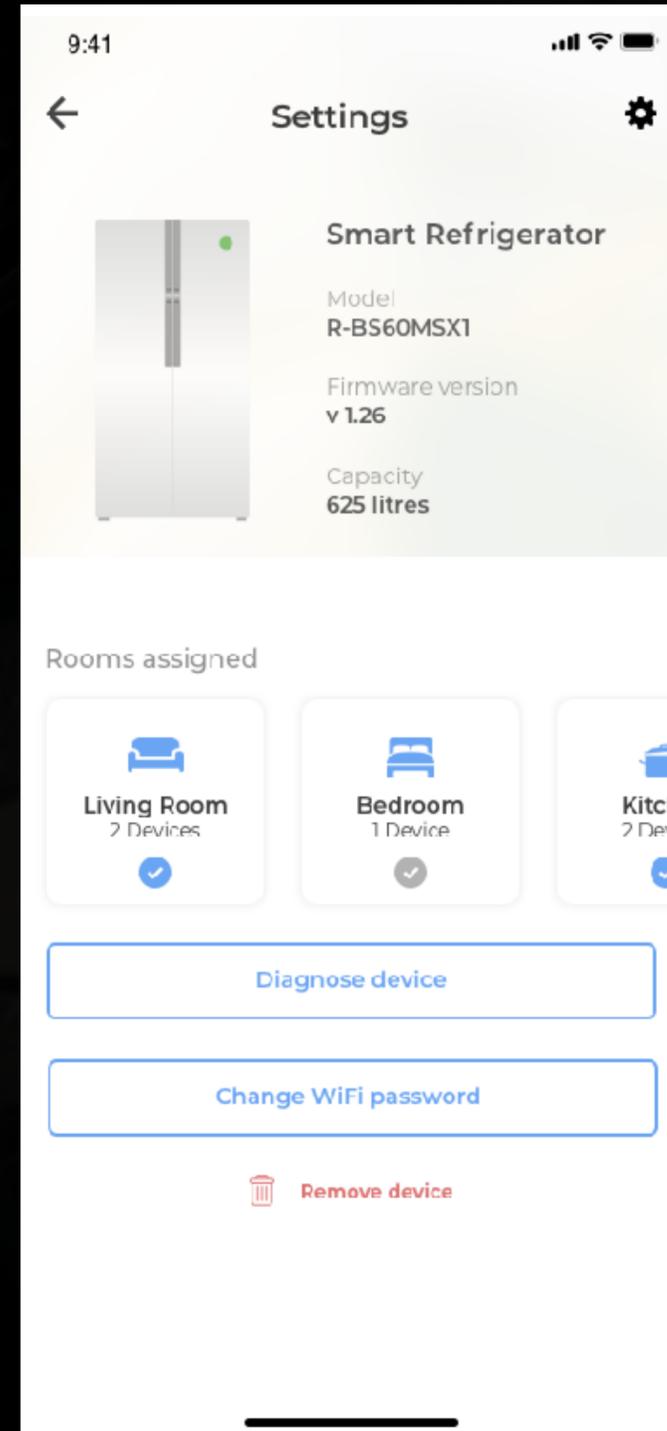
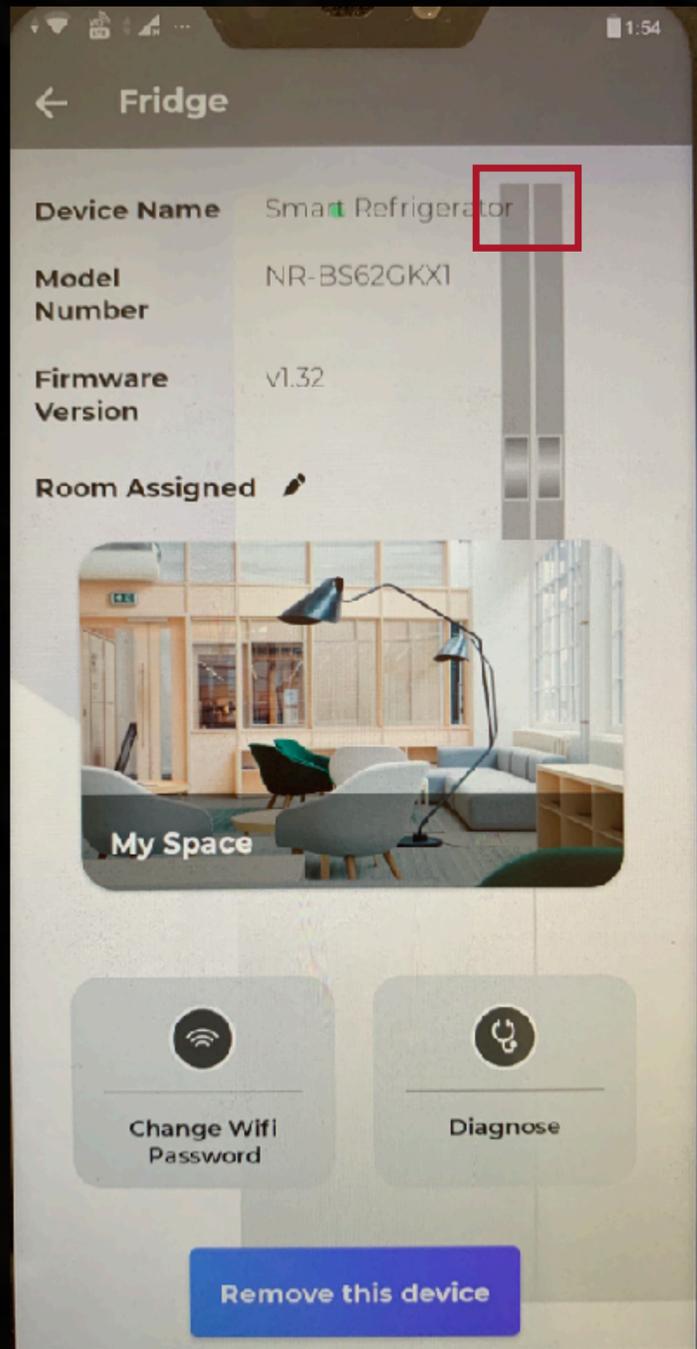
The fridge connected state overlaps with the text

Solution:

- ▶ No confusion in connection status.
- ▶ Proper use of realism.

Usability factor: Aesthetic & minimalist design





- ▶ Increased visual load

Background image is intertwined with the color scheme of information presented and is equally visible.

Solution:

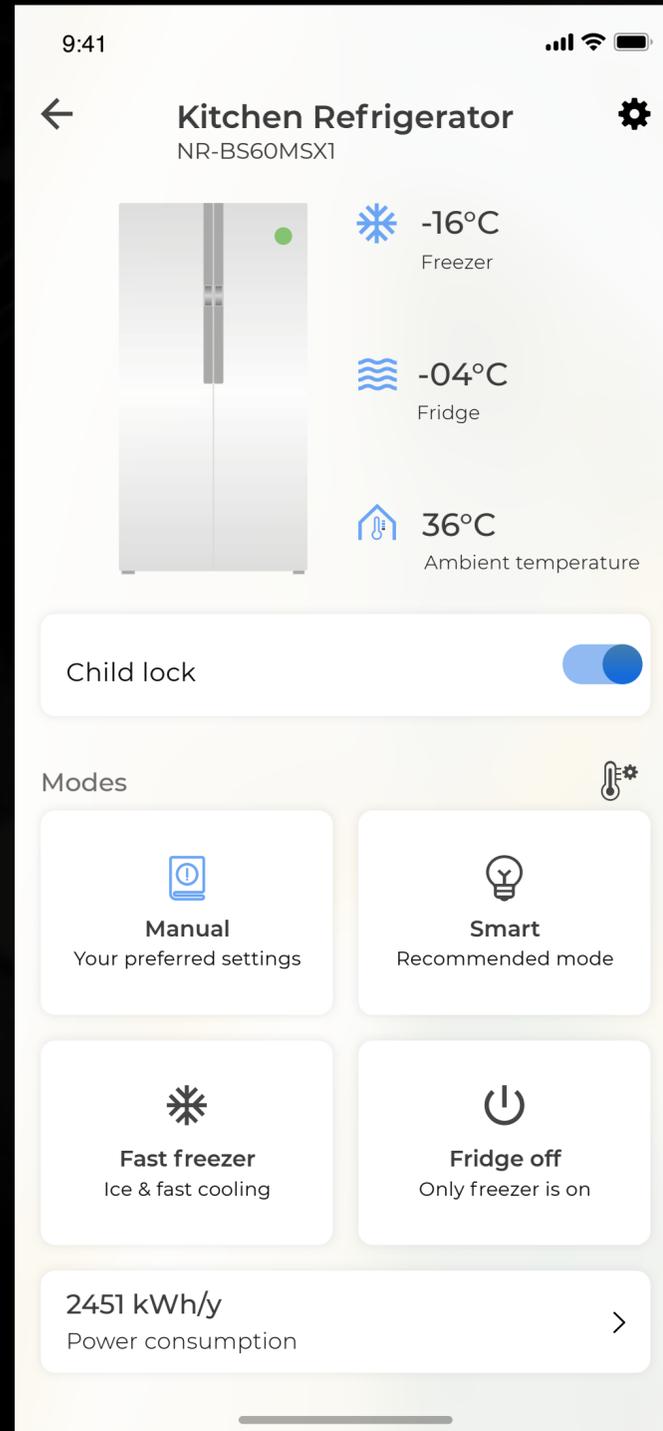
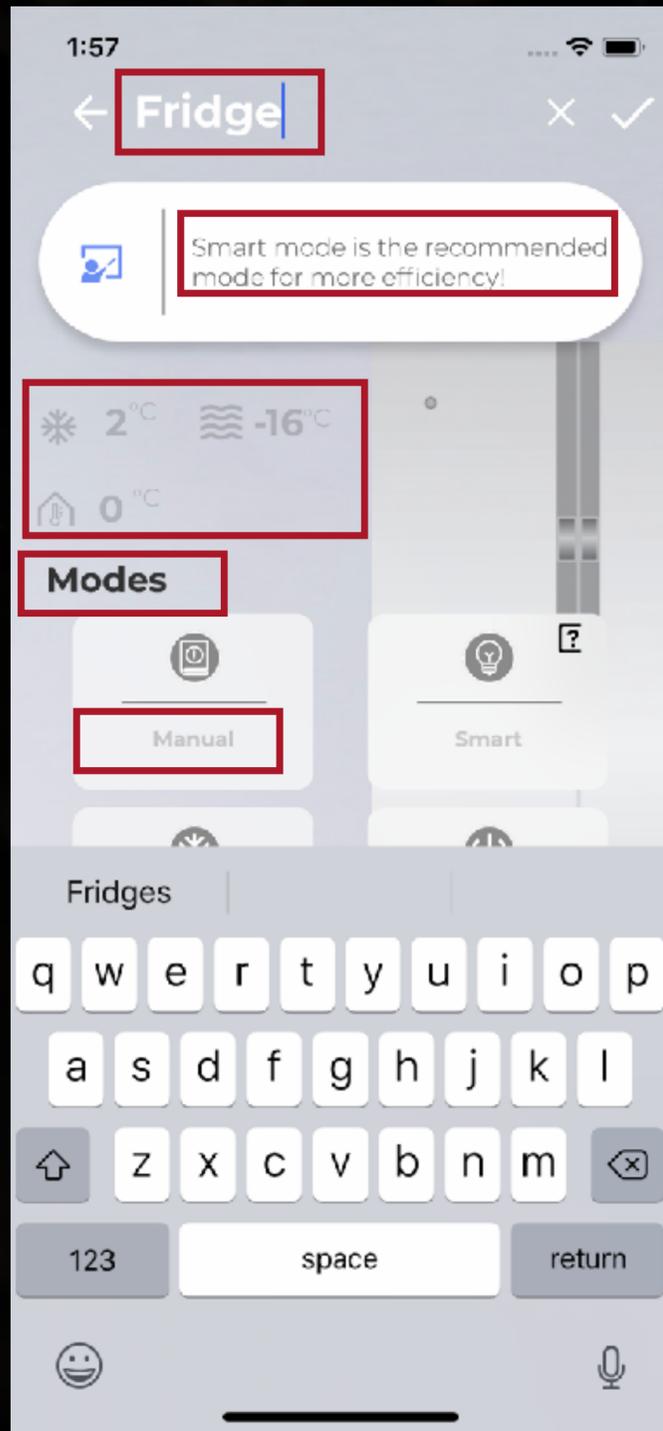
- ▶ Appropriate visual hierarchy.
- ▶ No interwind background.

Usability factor: Aesthetic & minimalist design



# VISUAL DESIGN FIXES

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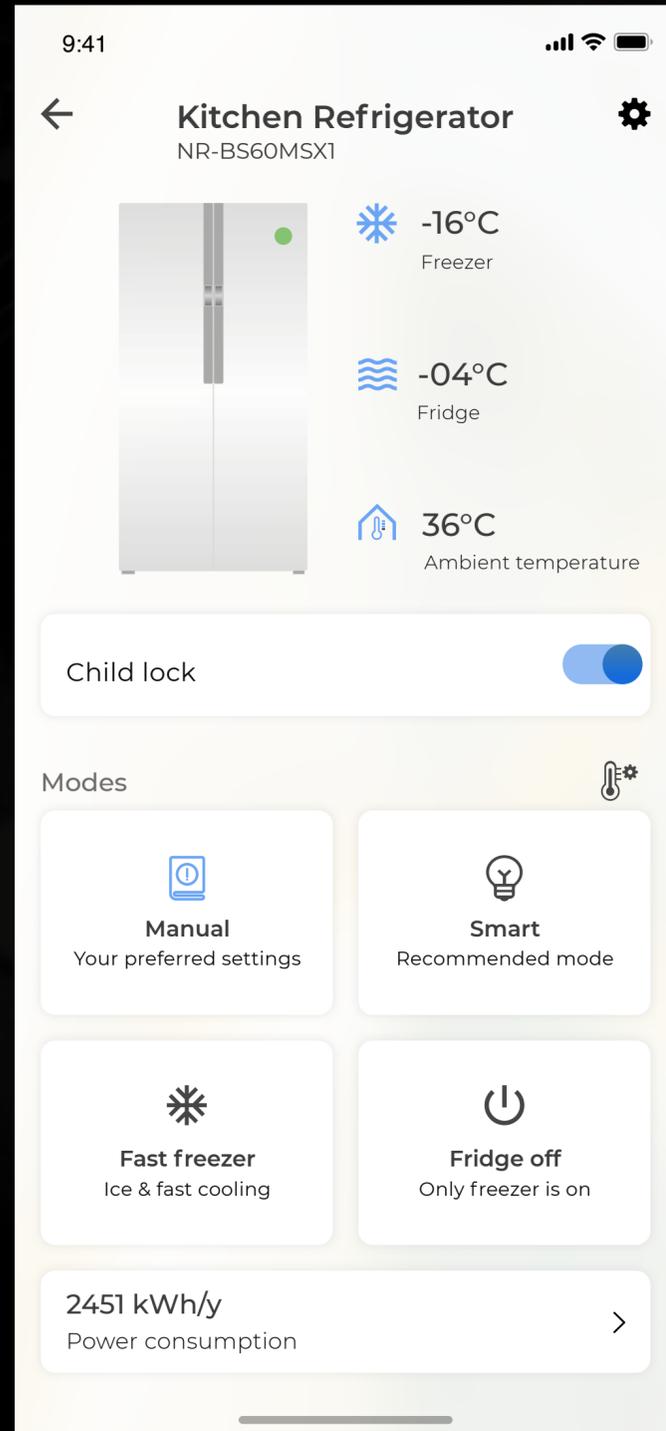
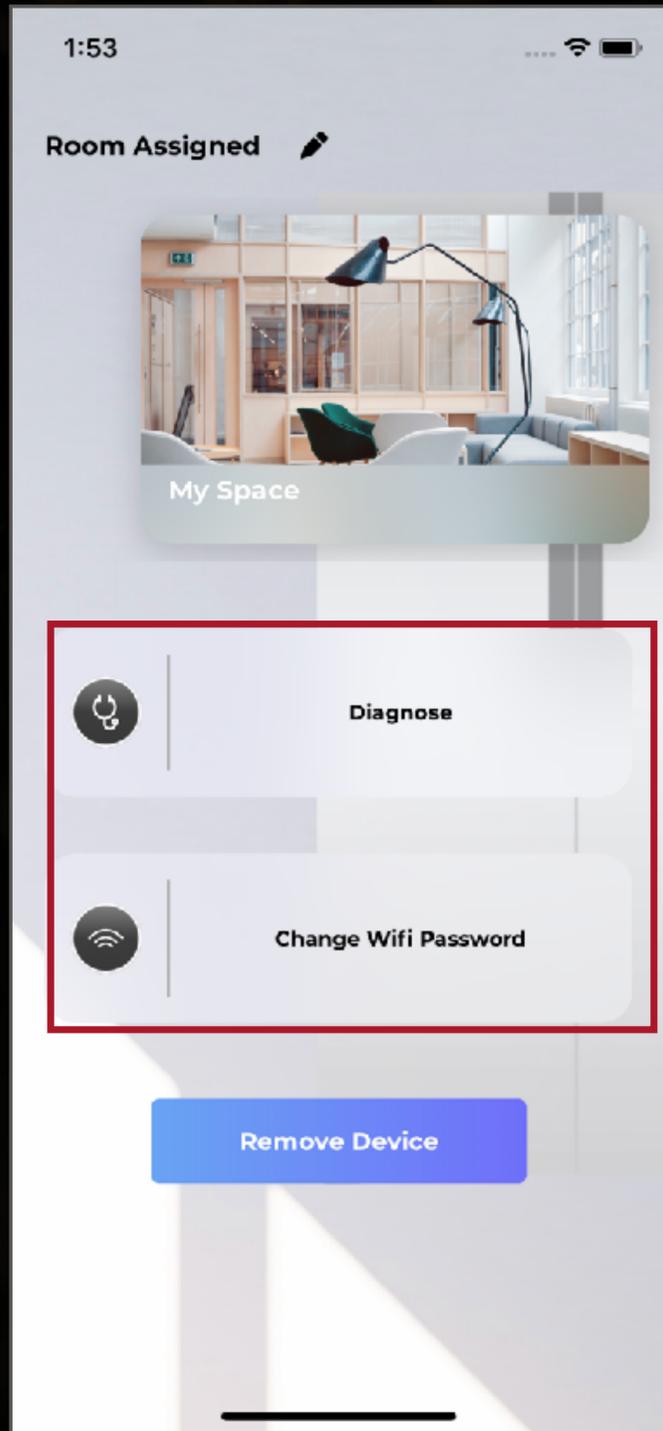


- ▶ 5 font sizes used in single screen

Solution:

- ▶ Consistent use of font sizes & combinations to form visual hierarchy.



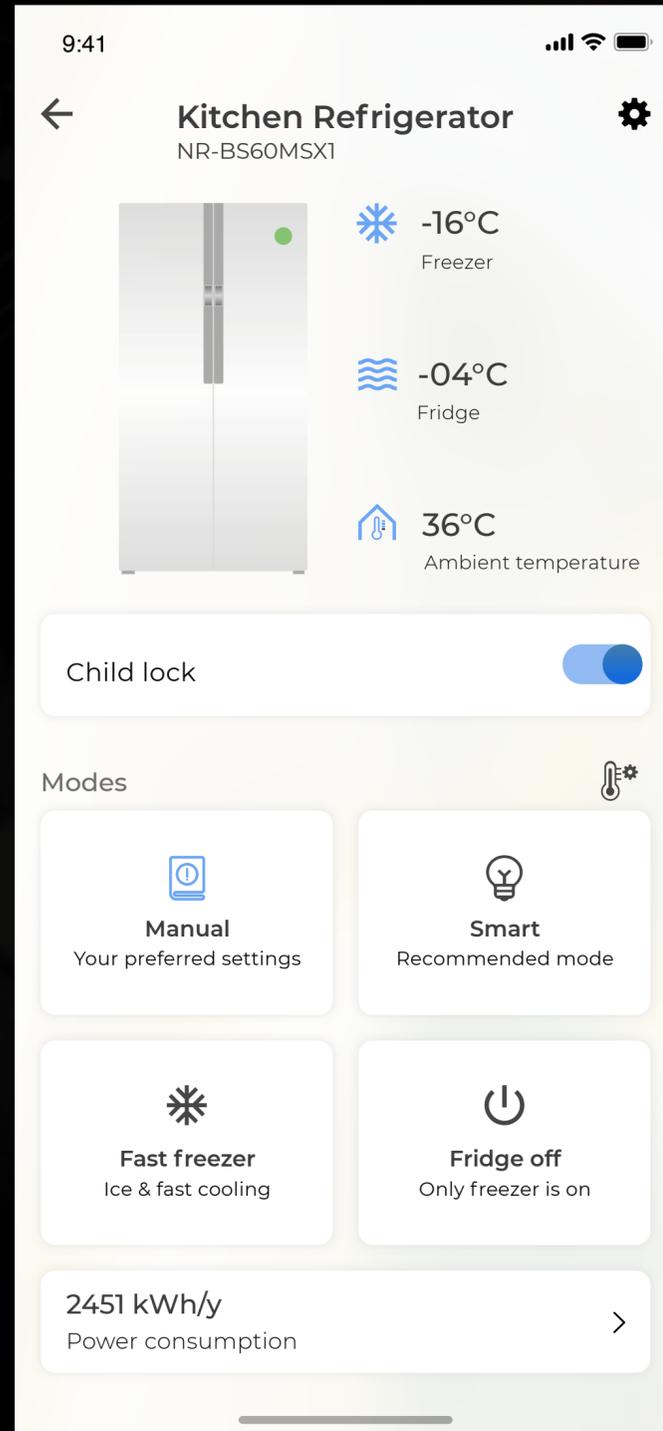
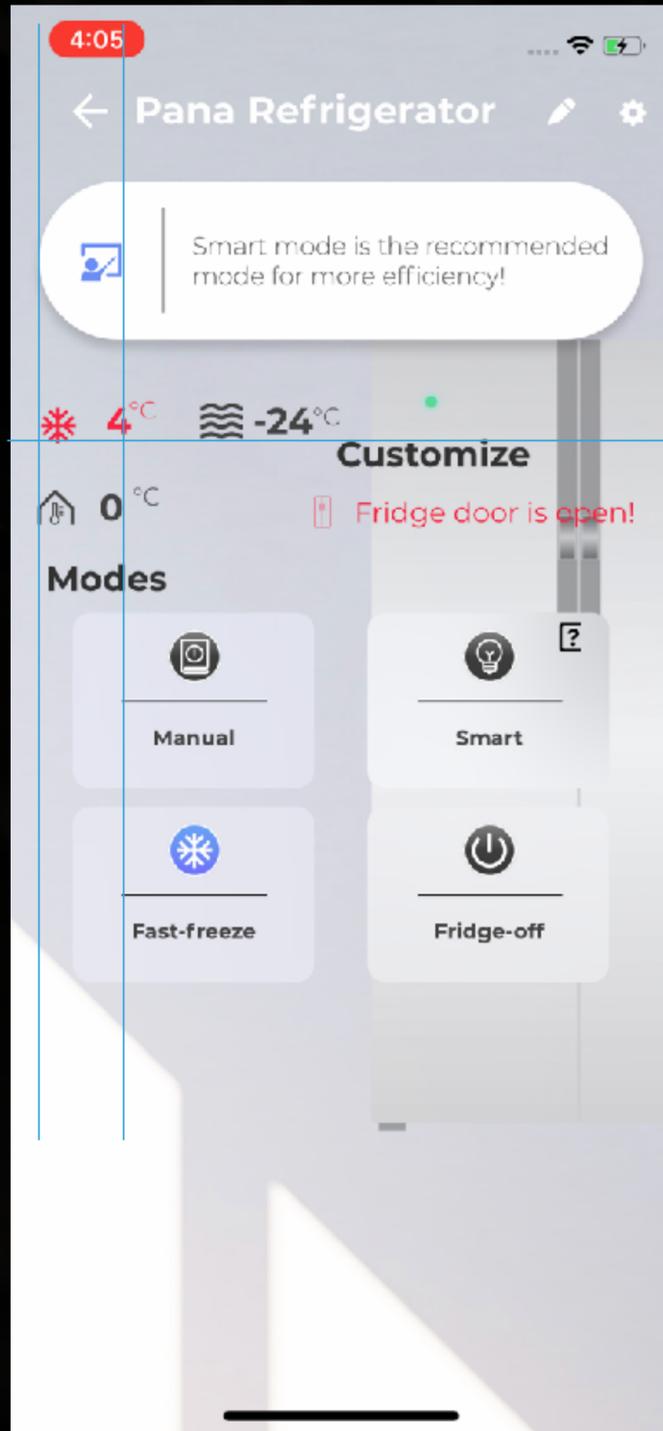


- ▶ Diagnose & Change wifi password partially convey action based on the visual language of the app

Solution:

- ▶ Correct use of call for action for secondary tasks.
- ▶ Conveys action clearly





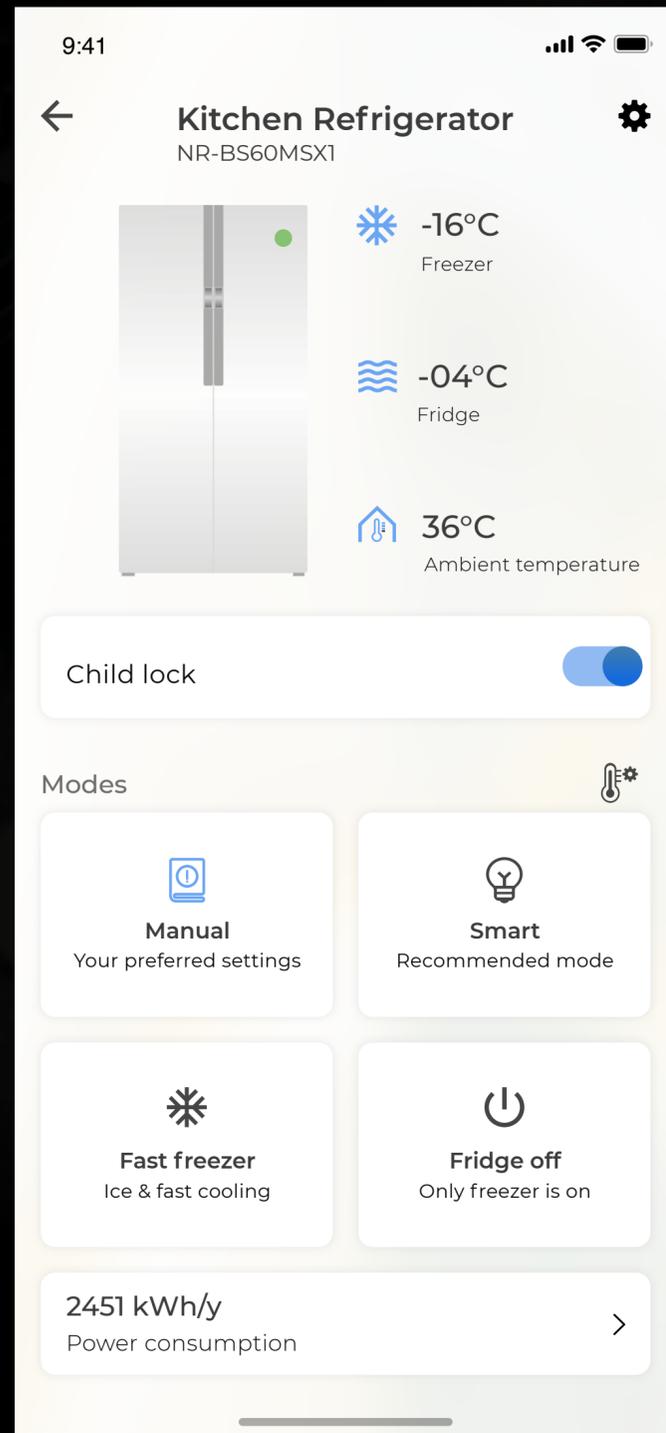
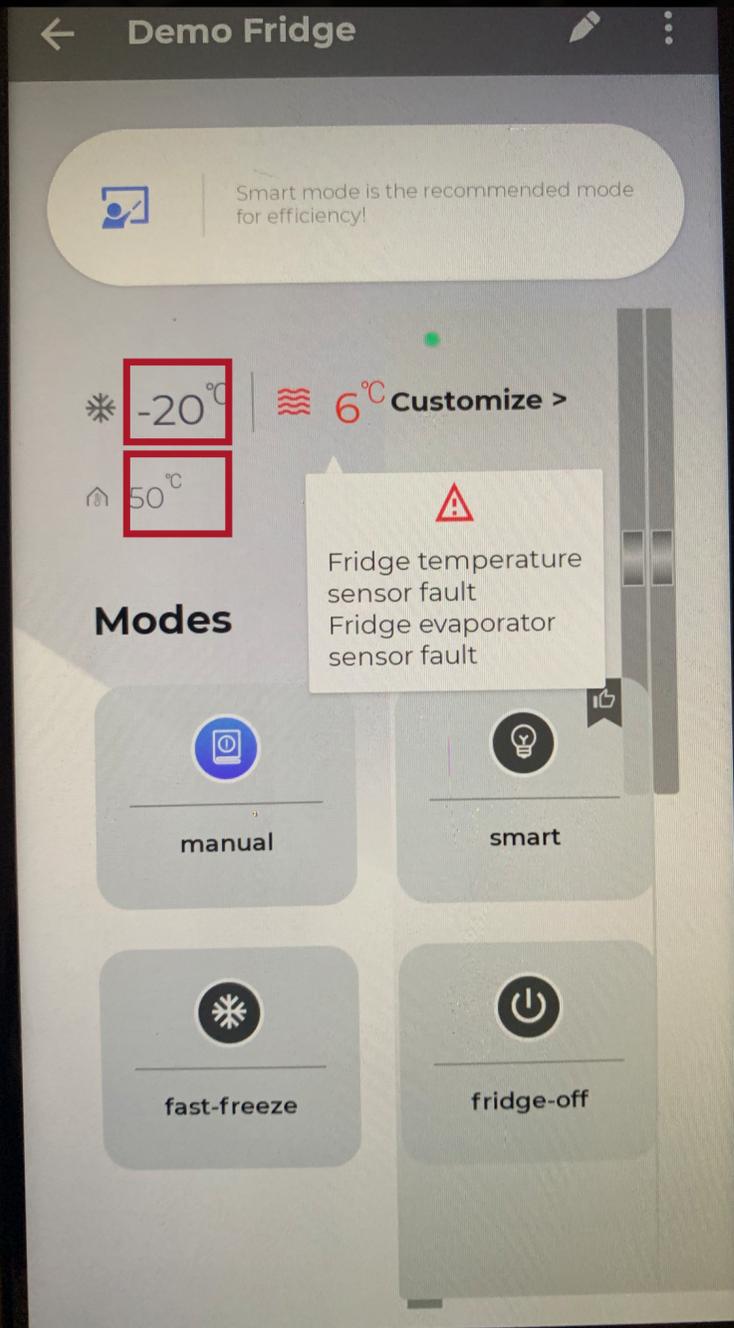
- ▶ Inconsistent alignment and spacings, information is scattered without visual hierarchy

### Solution:

- ▶ Alignment & spacings fixed.
- ▶ Consistent with 8 pixel grid.
- ▶ Proper visual hierarchy.

Usability factor: Visual hierarchy



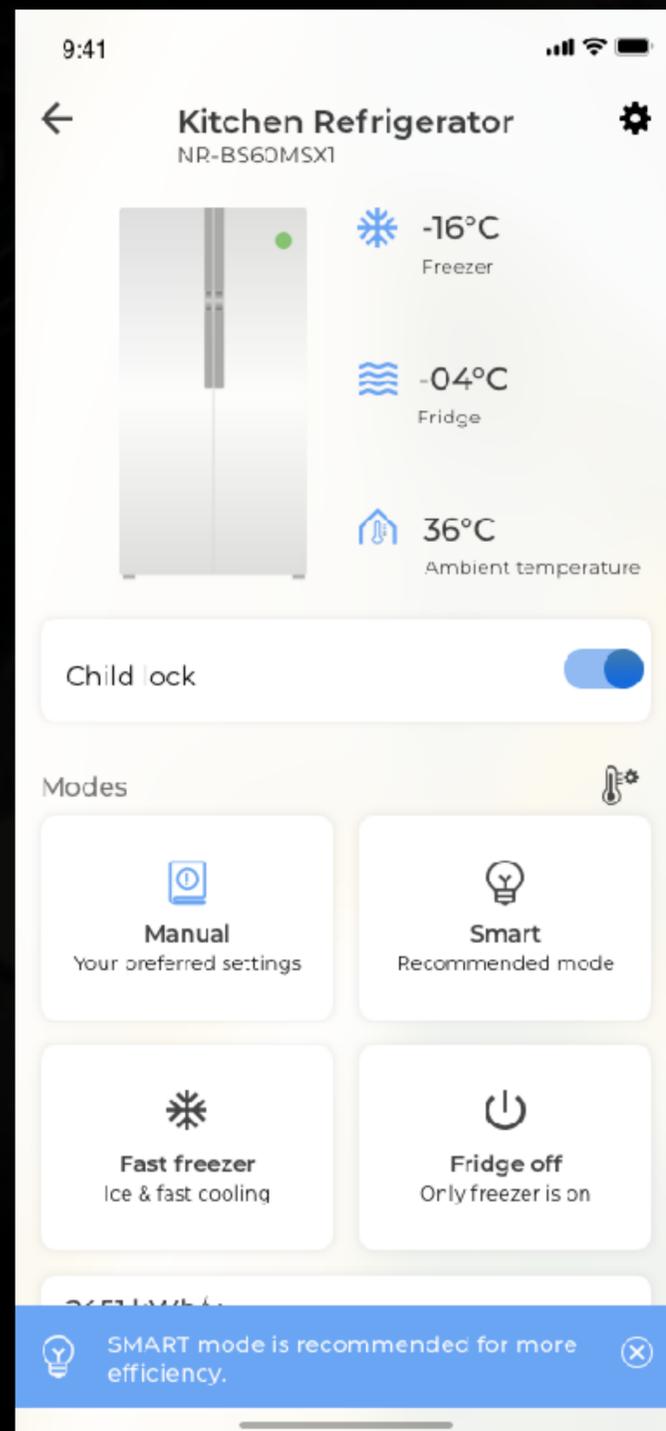
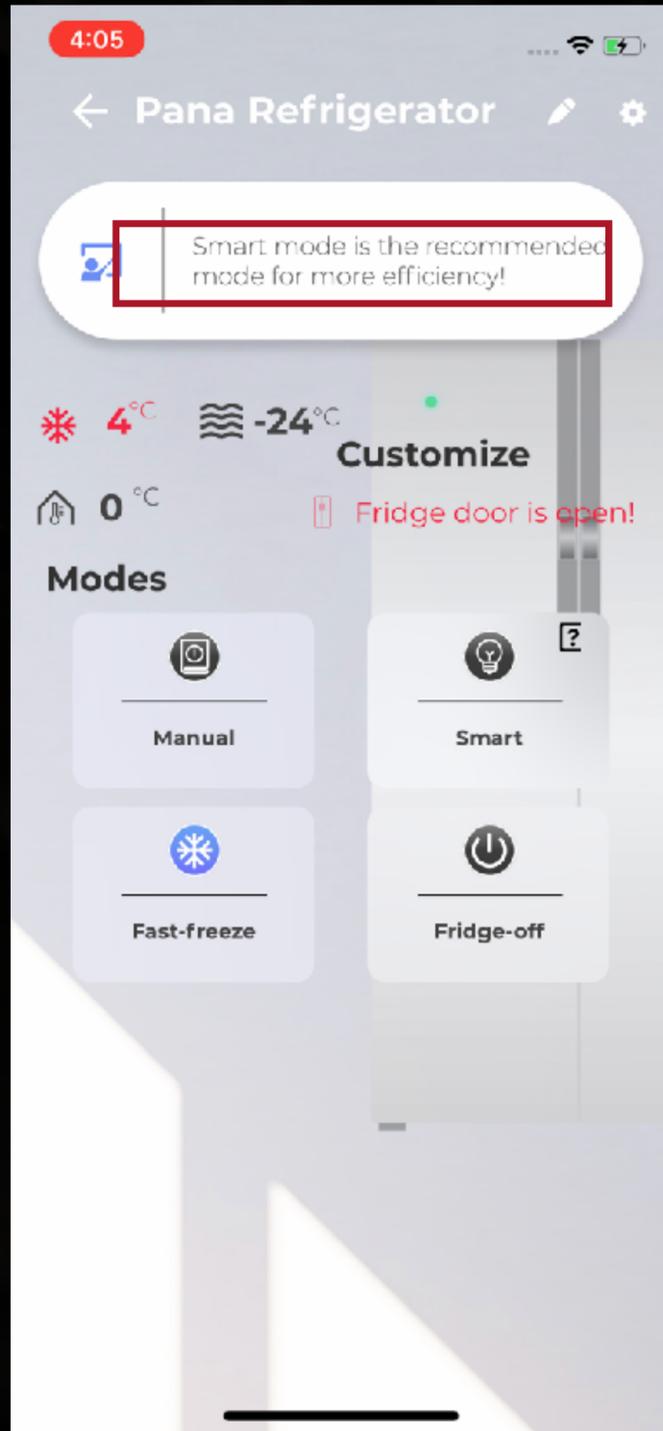


▶ Inconsistent font sizes

Solution:

- ▶ Consistent use of icon sizes.
- ▶ Aesthetic improvement

Usability factor: Consistency & Standards

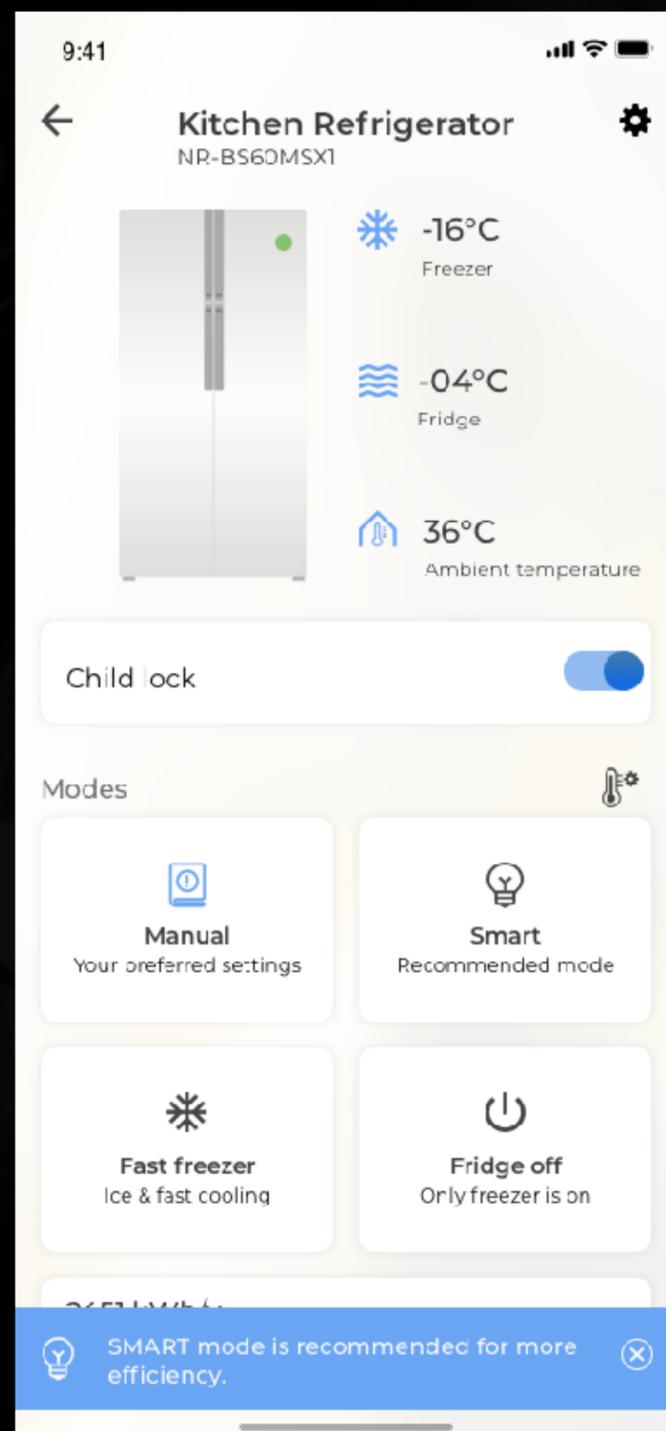
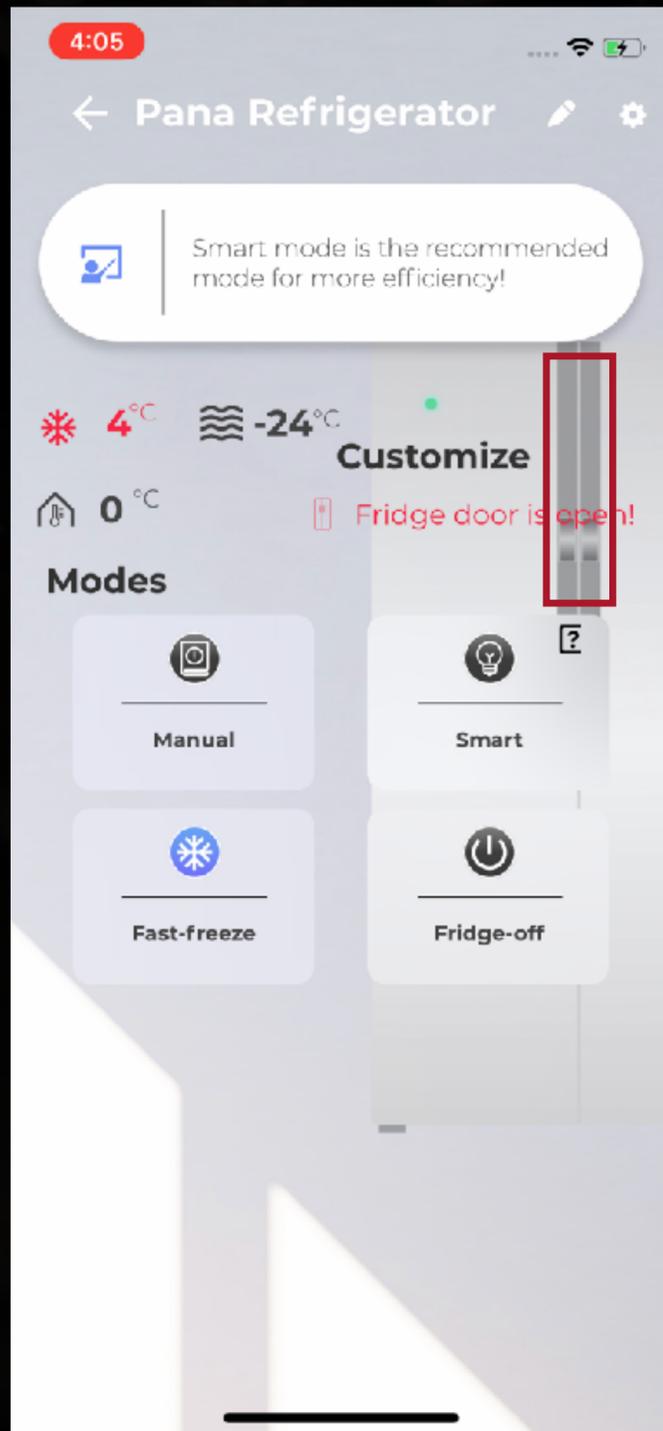


- ▶ Do we really need recommendation to be present all the time?

Solution:

- ▶ Proper use of real estate.
- ▶ Progressive disclosure of information based on context.





- ▶ Inconsistent visual language.

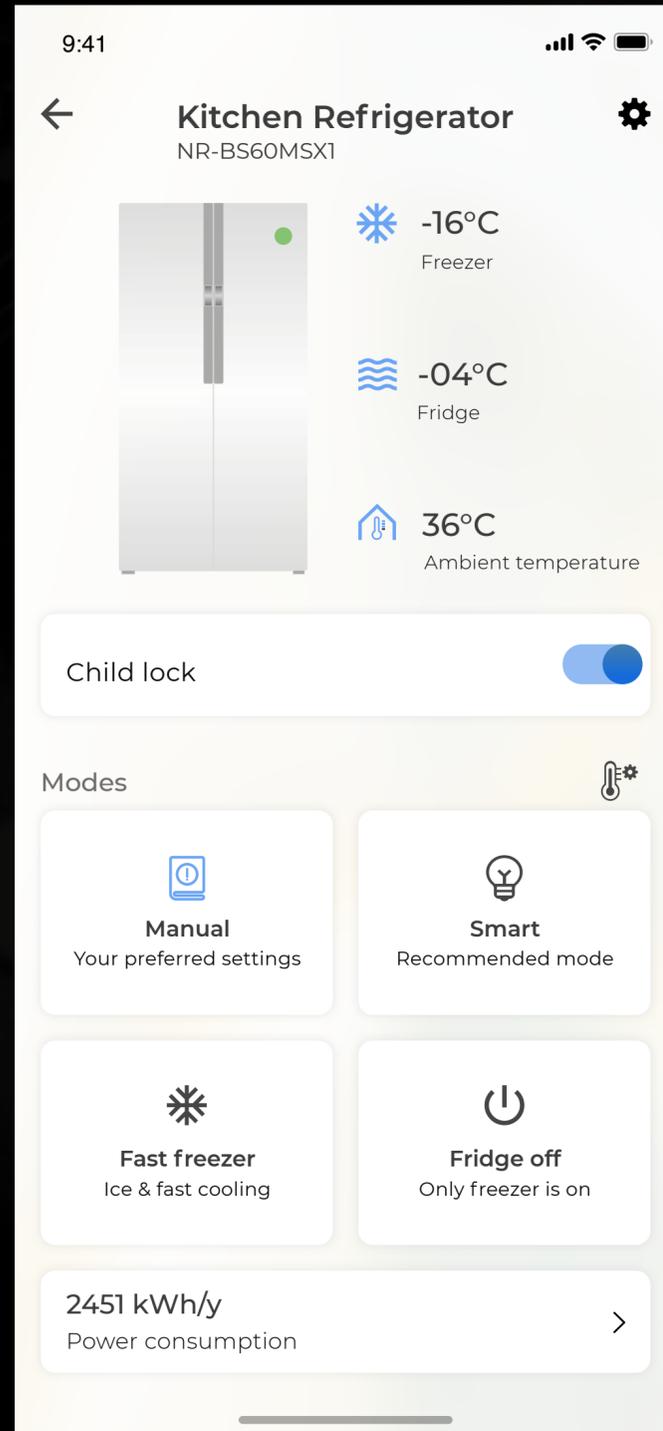
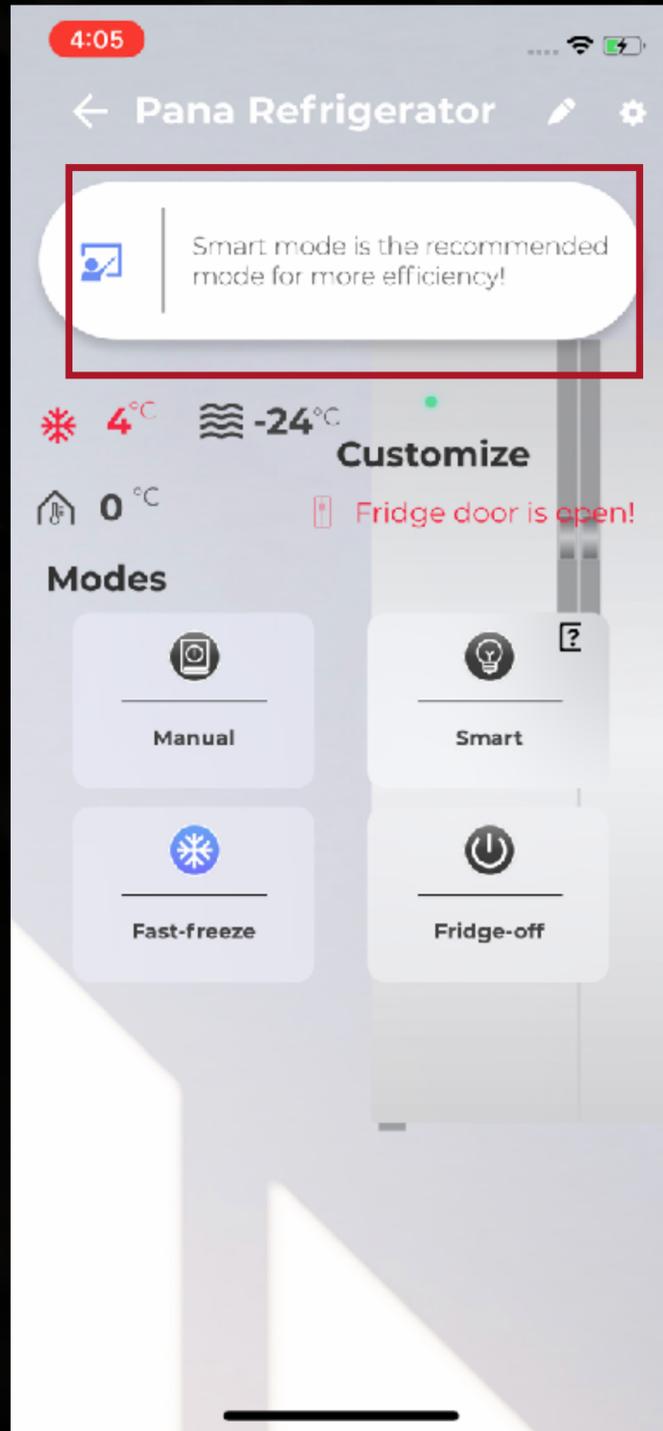
Given the colours used for the controls, the fridge background image interwinds with the UI elements

Solution:

- ▶ Use of colours & visual hierarchy to form consistent visual language.

Usability factor: Consistency & Standards





- ▶ Inconsistent information hierarchy.

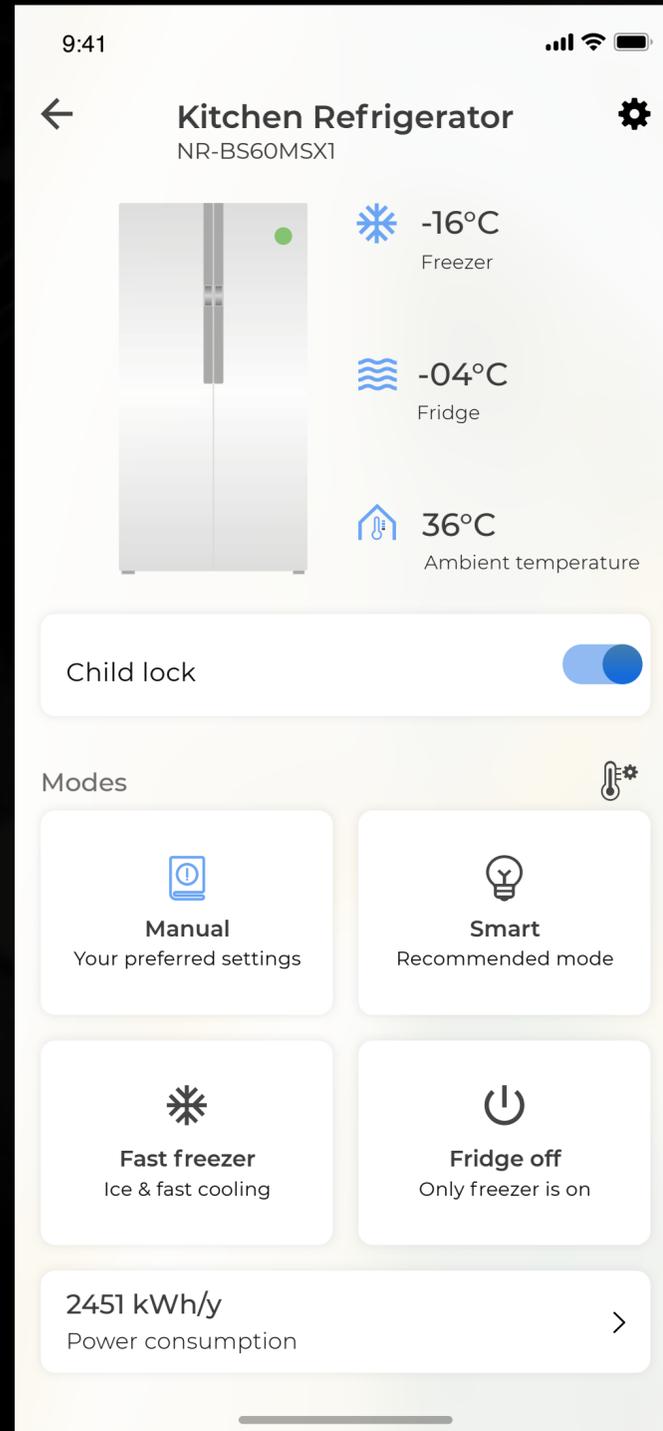
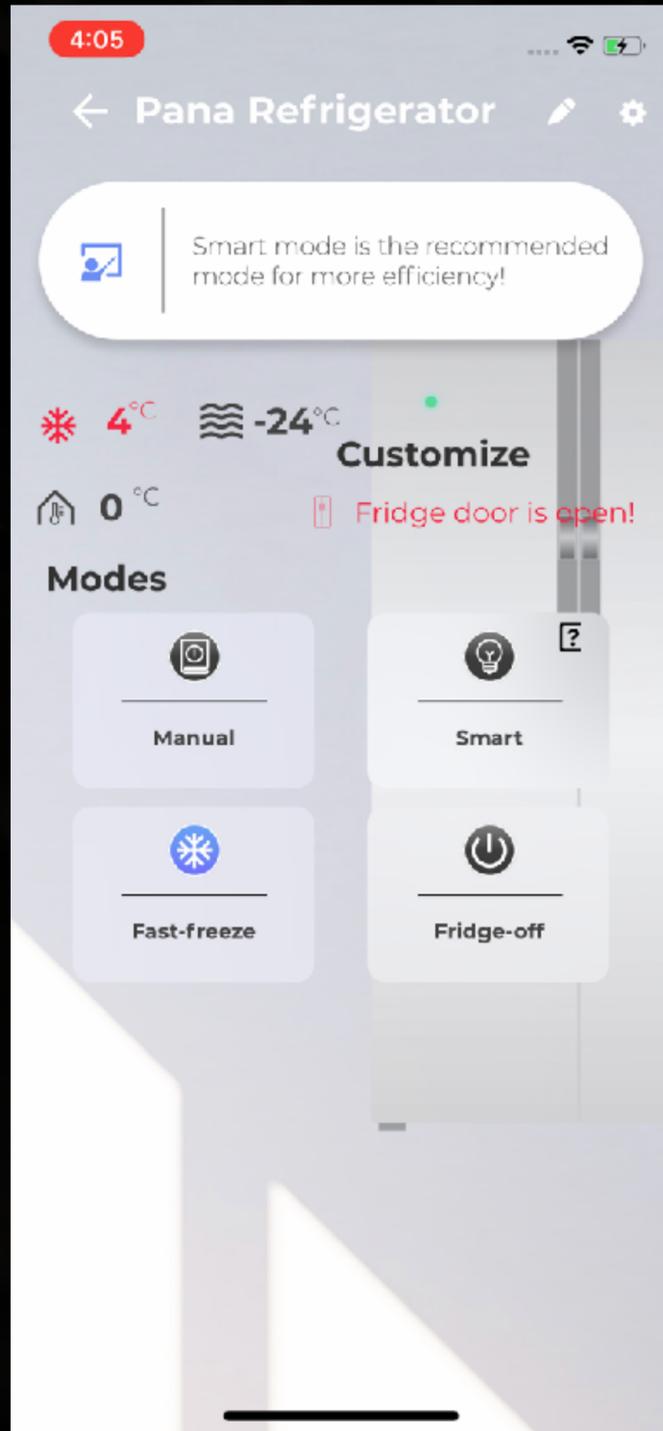
Nudge size is relatively big and seem to present primary information needed in the screen

Solution:

- ▶ Consistent use of sizes & shapes

Usability factor: Information hierarchy





## Other VD & UX issues solved

- ▶ Alignments of title.
- ▶ Clear labels for information fields.
- ▶ Forming visual consistency in the module with top fridge UI.

Usability factor: Information hierarchy



# FURTHER

## Fridge

- ▶ Diagnostics and unified error code screen
- ▶ Material design inconsistencies & application
- ▶ Beautifying the background
- ▶ Iconography
- ▶ Loading and activity indicators unification

## General

- ▶ Style guide elements : Font types & sizes, Interactive elements, Colors themes widgets
- ▶ Identification of **Golden Devices**.