SIONA

A smart module assists senior shoppers, especially those diagnosed with Alzheimer Dementia for autonomous shopping experience, by smartly bridging care from family carers

Timeline
3 months , 2021- 2022

Solo Project

Inspiration

Around 25% of the Alzheimer Dementia patients worldwide are from China. 80% of them are taken care by family.

I was born and raised in China. The enthusiasm of Chinese people for Farmer Market is well-aware. The taste of life is spread by the fresh goods, and the interactive ambiance atmosphere.

How can we promote the accessibility of shopping for shopper diagnosed with Alzheimer Dementia to improve their engagement with life and family?
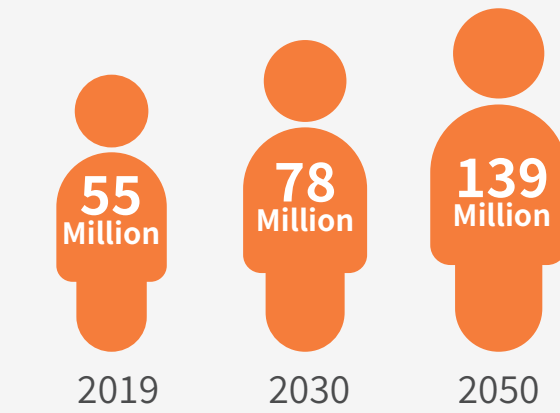
PAGE

SIONA: Shop Independently Oriented and Autonomously

A Worldwide Challenge

Dementia has become a worldwide public health challenge related to population aging.

("ADI - Dementia statistics", 2022)

Estimated Growth in a number of people with Dementia

55 Million 2019
78 Million 2030
139 Million 2050

Every 3s
Someone in the world develops Dementia

60%-70%
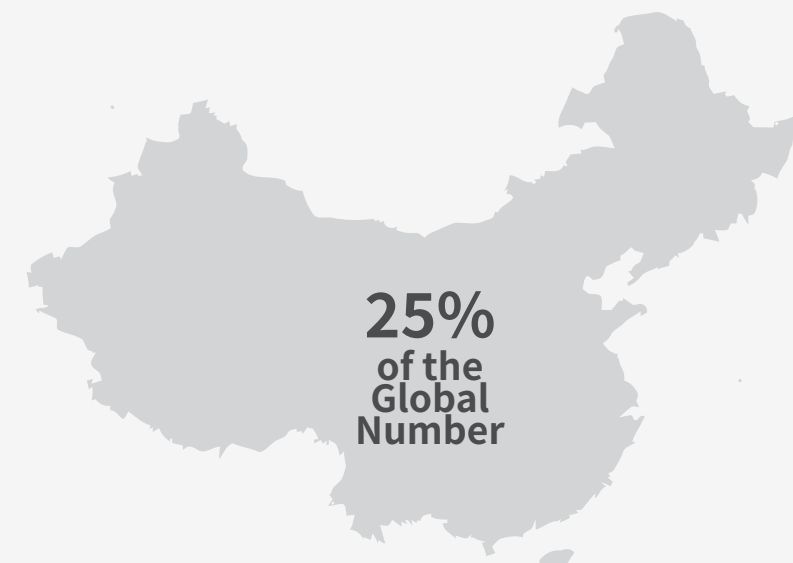of Dementia cases are Alzheimer Dementia (AD)

~80%
Be cared at home by families

~20h/week
Intense work: least 1/3 caregivers give care 20h/week

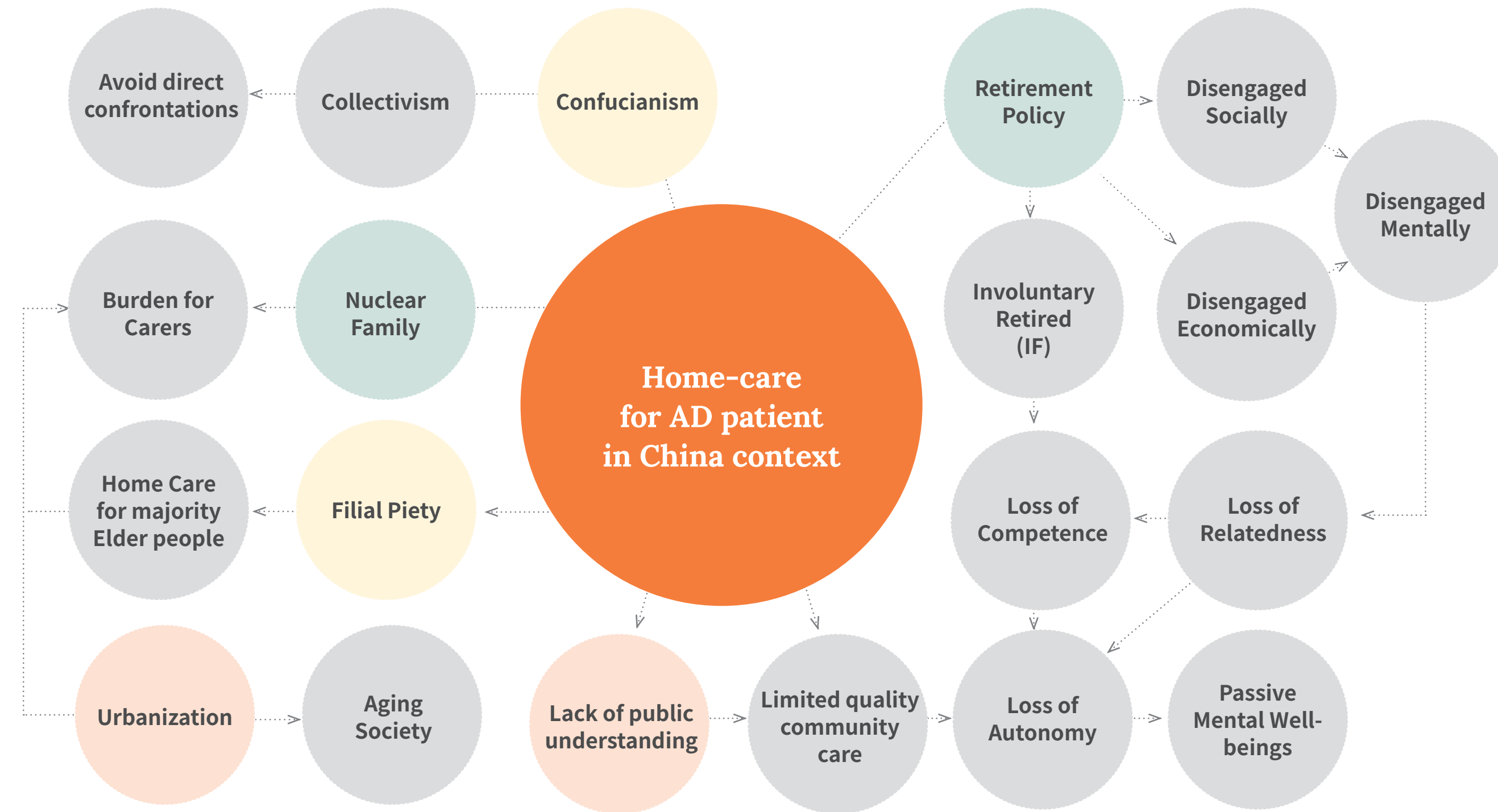*China is one of the countries with fastest growing rate.*

25% of the Global Number

TOP 4 Provinces in China with majority Dementia Cases

(The China Alzheimer Report, 2022)

Chongqing > Shanghai > Jiangsu > Zhejiang

Challenges of Dementia care in China

- Avoid direct confrontations
- Collectivism
- Confucianism
- Retirement Policy
- Disengaged Socially
- Disengaged Mentally
- Burden for Carers
- Nuclear Family
- **Home-care for AD patient in China context**
- Involuntary Retired (IF)
- Disengaged Economically
- Home Care for majority Elder people
- Filial Piety
- Loss of Competence
- Loss of Relatedness
- Urbanization
- Aging Society
- Lack of public understanding
- Limited quality community care
- Loss of Autonomy
- Passive Mental Well-beings

Color Indication
- Cultural Cause
- Social Development Cause (Education included)
- Government Policy Cause
- Results

The Core Value of Person-centered Care (PCC)
- Individuality
- Rights
- Privacy
- Choice
- Independence
- Dignity
- Respect
- Partnership

("What are the 8 core values of person-centered care?", 2022)

Potential cultural barrier & lack of understanding of Person-centered Care, results in its lacking for people with Dementia in China.

(Dai et al.,2013)

Autonomy in PCC & Intrinsic Motivation

Autonomy involves acting with a sense of volition and having the experience of choice.

Intrinsic motivation (such as Shopping) is an example of autonomous motivation.

(Gagné & Deci, 2005)

The support for Autonomy during Shopping

Autonomy Support	Shopping Context
Distinctive Cultural Approach	Cultural Context & Value in China (Intrinsic Motivation)
Interpersonal Ambiance	Social Spaces & Occasions
Choice & Meaningful Feedback	Self-selecting Goods
Economical Engagement	Value Exchange with Dealers

(Gagné & Deci, 2005)

Market Analysis in China

Market Class	Main Function	Visit In-store Main Audience	Audience Loyalty	City-tier
High-class	Tourism Cultural Label	Young & Middle-aged	Low	First-tier (e.g. Beijing, Shanghai)
Middle-class	Residents Nearby	Senior (>50 yrs old)	High	1-2 tier
Low-class	Community Residents	Senior (>50 yrs old)	High	3 tier

(Li, 2019)

Qualitative Interview

To better support the Intrinsic Motivation upon Shopping activity for China Dementia people, I interview with two Dementia family for better insights.
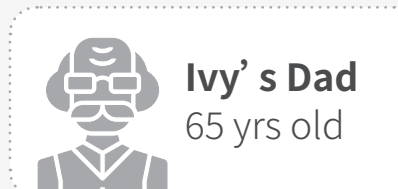
Questionnaire+Interviews
(n=5 / responded=2)

For viewing the questions & interview recordings: https://drive.google.com/drive/folders/1h8k2nVNVLWSndOS3FnYfocSI3A_G2C0m?usp=sharing

· Friends
· Volunteers

Interview 01

Ivy, Carer
29 yrs old
Freelancer

Ivy's Dad
65 yrs old

Home Care, Guangzhou

Dementia Stage
Moderate
Caring-support
· Monitor at home
· Mobile phone

With Family
· Afraid to **lose face** causing family burden due to the illness
· **Willingness to help**
· Lack of common topics with families

Shopping Experience
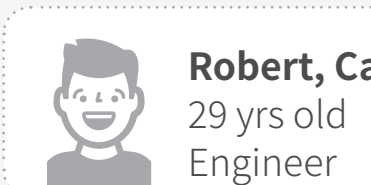· **Forget** what to buy (sometimes)
· Prefer to **pay cash in counter**

Interview 02

Robert, Carer
29 yrs old
Engineer

Rob's Mom
62 yrs old

Home Care, Shanghai

Dementia Stage
Moderate
Caring-support
· Monitor at home
· Smart door sensors
· Mobile phone calls

With Family
· **Fewer conversations**
· **Not keen to have a chat**
· **Impatient** to answer & swear at families

Shopping Experience
· **Forget** what to buy/wallets
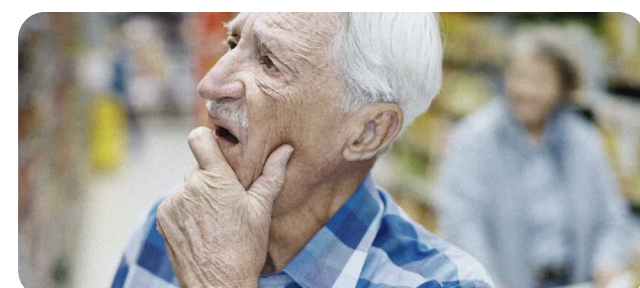· **Get lost** when locating goods/way to cashier

Insights

Difficulties for Home-care Dementia & carers in shopping scenario.
From questionnaires and interviews, there are four main perspectives.
Valuable insights support the further diagram synthesis to generate ideas.

Agitation
Less quality conversation

Carer's burden
Work & Care support

Forget what to buy/bring
Fail to locate

Overcrowded area
(get agitated for some)

d'Astous (2000)

Current Solution

| Difficulties	Solutions	✔	✘
Forget what to buy/bring	Notes on phone/paper	Family conversation encouraged	Forget to bring Easy to lose
Overcrowded Info / Fail in locating items	Signage/ Structural interior design	Relatively helpful in locating goods	· Spacious: difficult to locate · Alike columns: disoriented
Trouble in Check-out	Relaxed lanes	Pace up with customers	Limited lanes worldwide

Persona, User Perspective Analysis & Sympathy Building

I tried to map out with a typical user journey map for both family carers & Dementia patients when the latter is out for shopping.
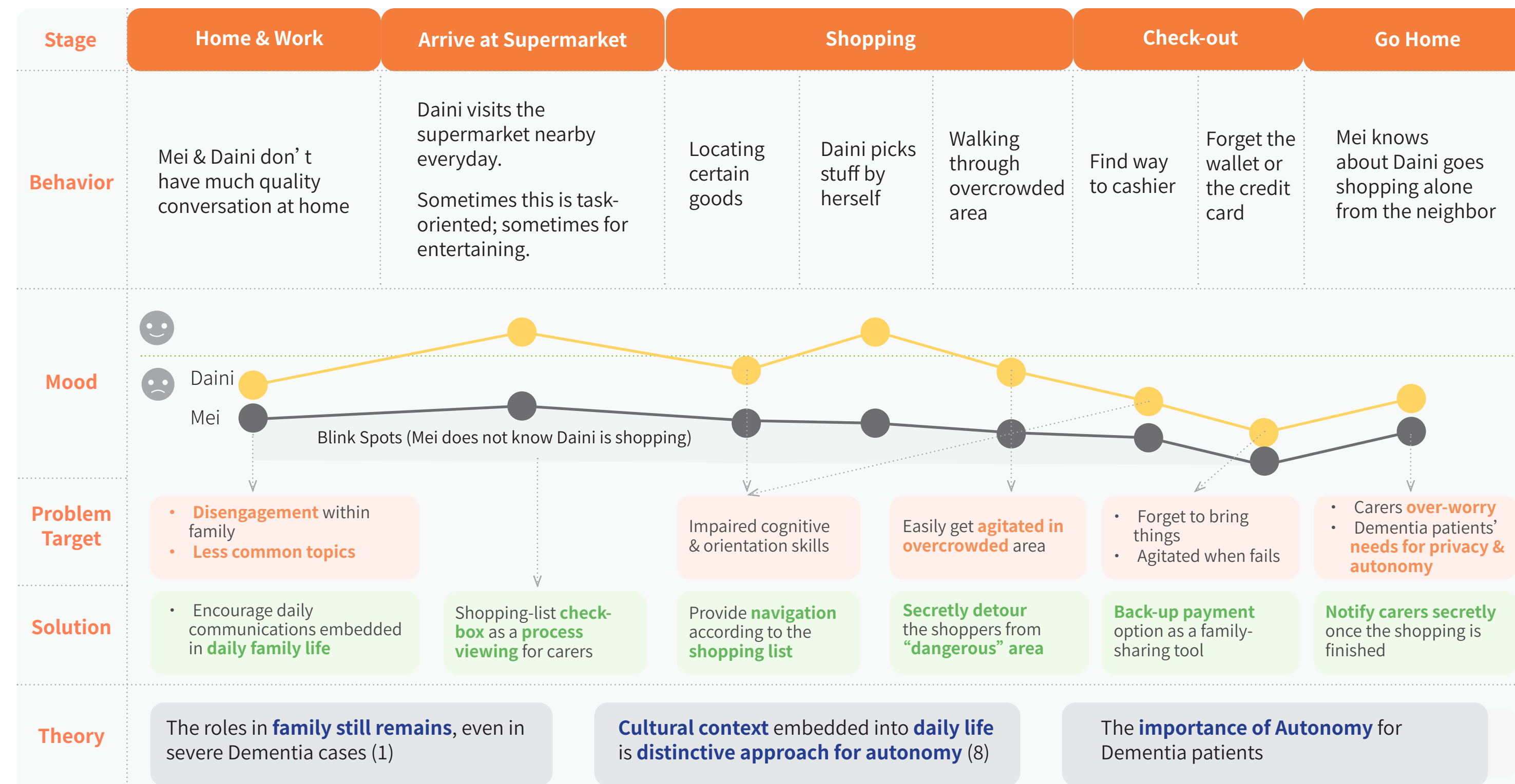
This section supports further synthesis of the concept.

Mei, home caregiver, Daini's daughter
Age: 32 years old
Residence: Shanghai, China
Marriage: no
Children: no
Occupation: accountant in company
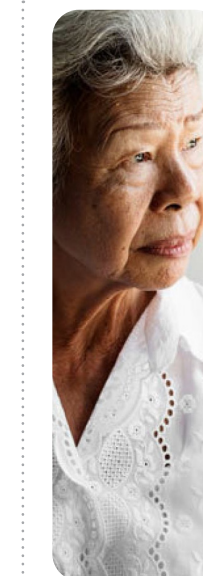
Daini, Dementia patient
Moderate-dementia patient

Age: 68 years old
Residence: Shanghai, China (1 tier)
Marriage: widow (from 60 years old)
Education: primary school
Occupation: none (retired due to Dementia at 62 years old)
Previous occupation: a prestigious toy factory manager (small enterprise)

UNABLE
Memory & Cognition & Interaction
Forget names & events
Can't recognize the currency
Can't recognize friends & colleagues
Mobility
Imbalance in walking
Mental well-beings
Depressed & unhappy
Irritable & egocentric (with home caregivers)
Visual
Visual color agnosia

Stage	Home & Work	Arrive at Supermarket	Shopping			Check-out		Go Home
Behavior	Mei & Daini don't have much quality conversation at home	Daini visits the supermarket nearby everyday. Sometimes this is task-oriented; sometimes for entertaining.	Locating certain goods	Daini picks stuff by herself	Walking through overcrowded area	Find way to cashier	Forget the wallet or the credit card	Mei knows about Daini goes shopping alone from the neighbor
Mood	Daini Mei	Blink Spots (Mei does not know Daini is shopping)						
Problem Target	· **Disengagement** within family · **Less common topics**		Impaired cognitive & orientation skills	Easily get **agitated in overcrowded** area		· Forget to bring things · Agitated when fails		· Carers **over-worry** · Dementia patients' **needs for privacy & autonomy**
Solution	· Encourage daily communications embedded in **daily family life**	Shopping-list **check-box** as a **process viewing** for carers	Provide **navigation** according to the **shopping list**	**Secretly detour** the shoppers from "**dangerous**" area		**Back-up payment** option as a family-sharing tool		**Notify carers secretly** once the shopping is finished
Theory	The roles in **family still remains**, even in severe Dementia cases (1)		**Cultural context** embedded into **daily life** is **distinctive approach for autonomy** (8)			The **importance of Autonomy** for Dementia patients		

Concept

SHOP INTRINSICALLY ORIENTED AND AUTONOMOUSLY

S I O N A

By improving accessibility of shopping for shoppers with Alzheimer Dementia to improve life and family engagement

Target Audience

Moderate Alzheimer Dementia
· Capability & Willingness to shop
· The needs for social & autonomous experience

Pilot Demonstration

1-tier city in China
Beijing, Shanghai, Guangzhou
Middle-class Markets

Goal

Emotion
Family engagement

Usability
Autonomous successful shopping

Usefulness
Navigation with optimized route "Secretly" process tracking

Metrics

Less
Less chances to get agitated

More
-More successful completion of product locating&purchase
-More family-engaging occasions
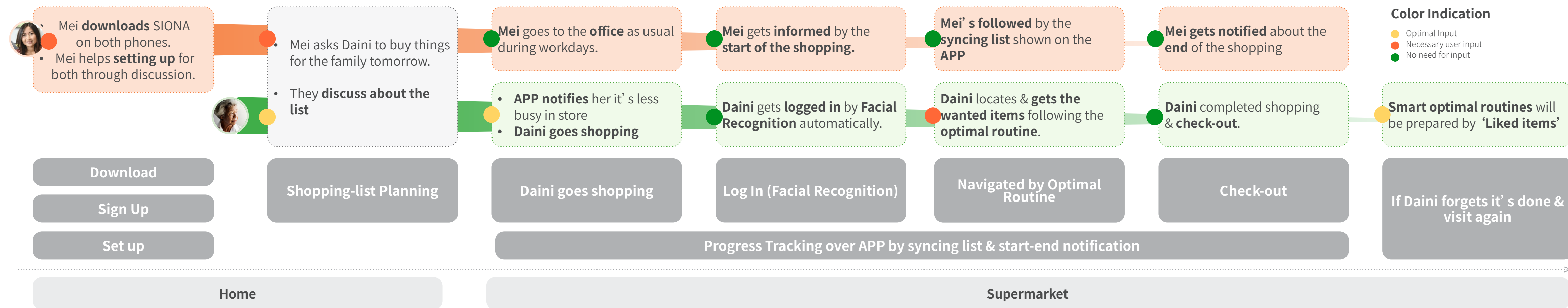-More notification of progress-tracking for carers

Products
Family App + Smart Module for Shopping Cart

Both carer & shopping have access to the App. While the main operator might be the carer, the access to the app **guarantee the autonomy of the senior.**

User Flow: Bridging Family Care with Autonomy Support

· Mei **downloads** SIONA on both phones.
· Mei helps **setting up** for both through discussion.

· Mei asks Daini to buy things for the family tomorrow.
· They **discuss about the list**

Mei goes to the **office** as usual during workdays.

Mei gets **informed** by the **start of the shopping.**

Mei's followed by the **syncing list** shown on the APP

Mei gets notified about the **end** of the shopping

· **APP notifies** her it's less busy in store
· **Daini goes shopping**

Daini gets **logged in** by **Facial Recognition** automatically.

Daini locates & **gets the wanted items** following the **optimal routine.**

Daini completed shopping & **check-out.**

Smart optimal routines will be prepared by '**Liked items**'

Color Indication
● Optimal Input
● Necessary user input
● No need for input

Download	Shopping-list Planning	Daini goes shopping	Log In (Facial Recognition)	Navigated by Optimal Routine	Check-out	If Daini forgets it's done & visit again
Sign Up						
Set up			Progress Tracking over APP by syncing list & start-end notification			

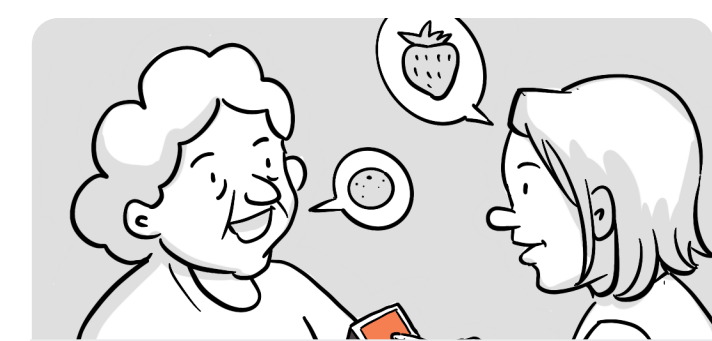| Home | Supermarket |

Service Touch-points

Relatedness
Bridging Care for the loved ones

Competence
Navigation to reach the target

Less Tech-fatigue
Beacon detection for user's confirmation page to bump out
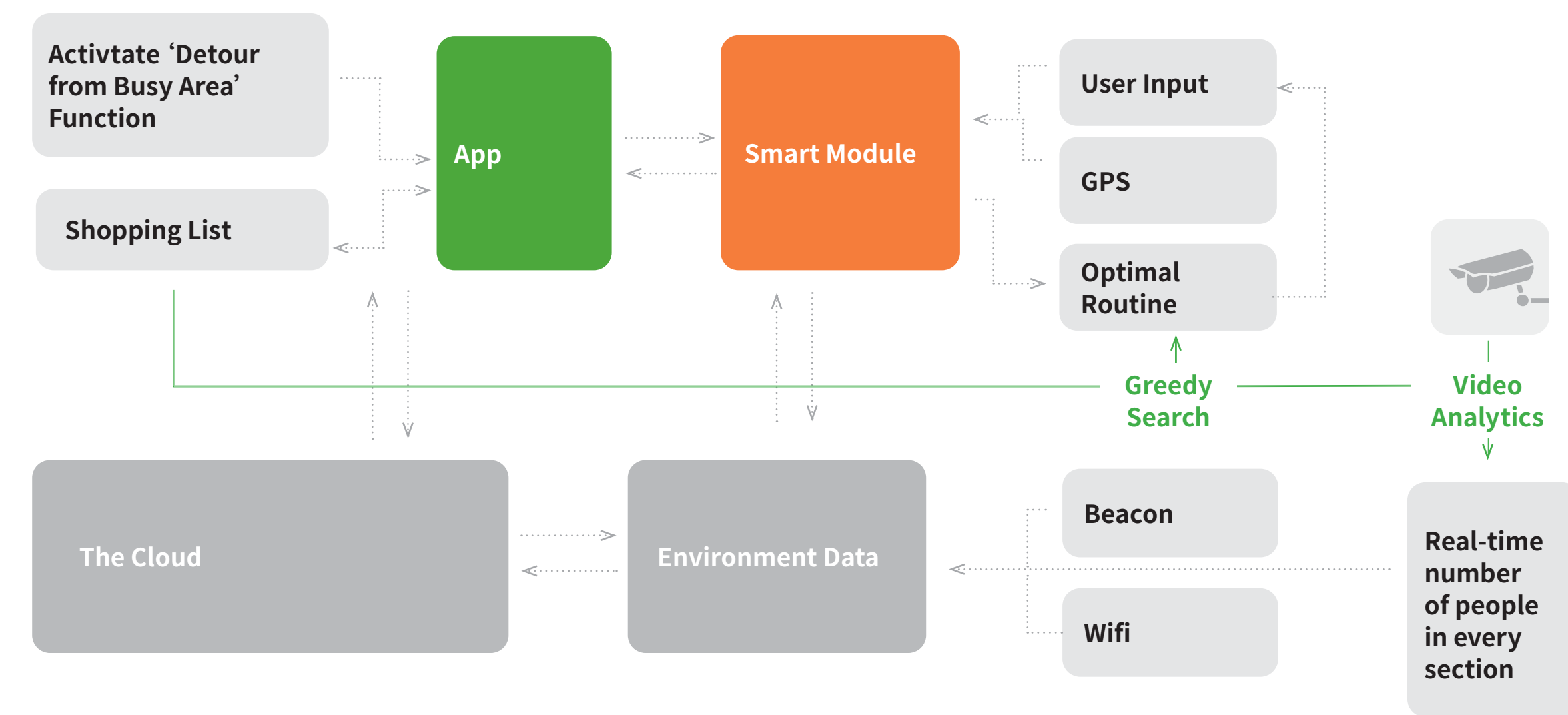
Family Engagement
Inspire everyday conversation
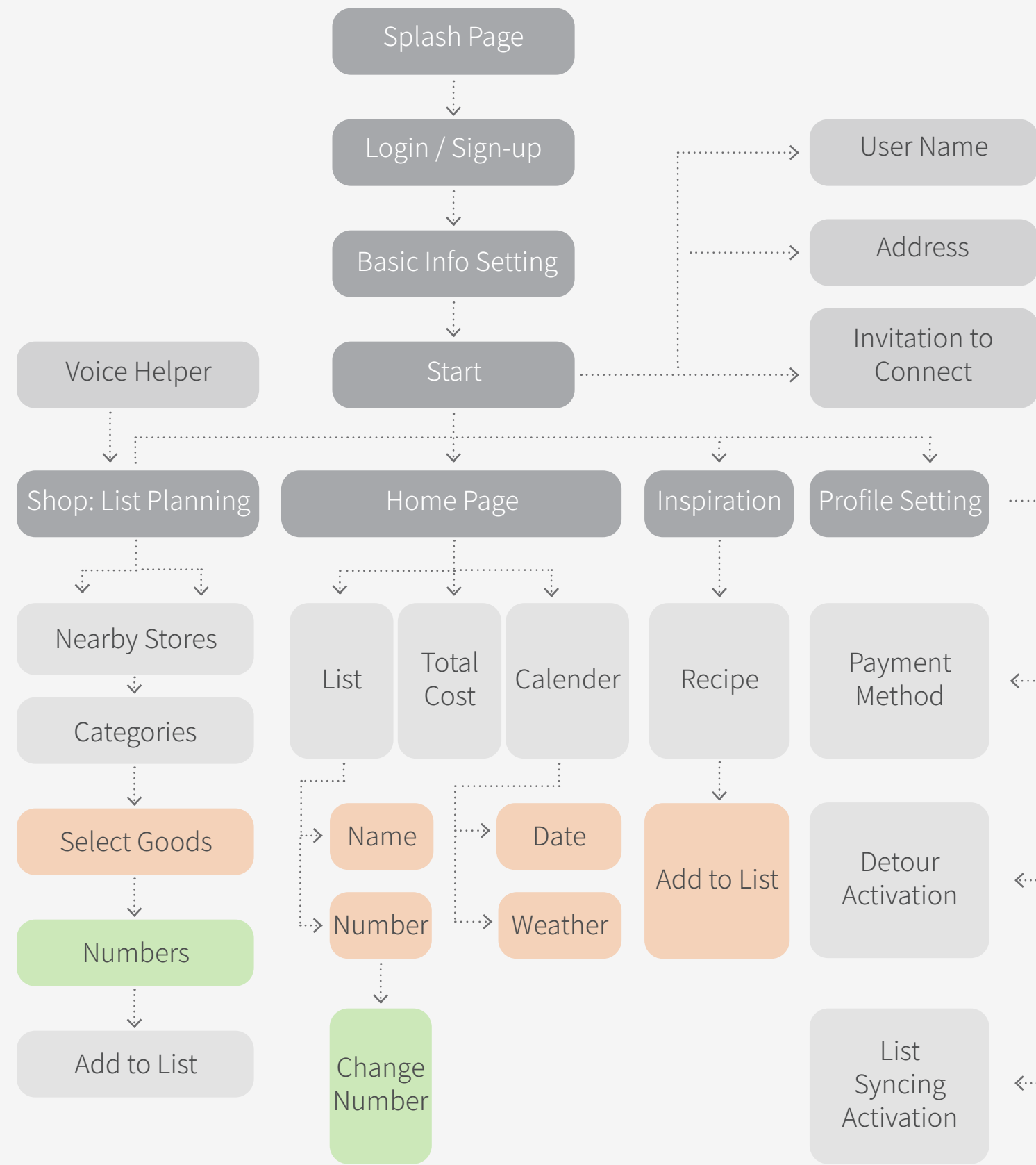
Autonomy & Safety
Secret detour from overcrowded area

Relatedness
Syncing list for progress tracking

SIONA System Diagram

Activtate 'Detour from Busy Area' Function

Shopping List

App

Smart Module

User Input

GPS

Optimal Routine

Greedy Search

Video Analytics

The Cloud

Environment Data

Beacon

Wifi

Real-time number of people in every section

Site Map

- Splash Page
- Login / Sign-up
- Basic Info Setting
- Start
  - User Name
  - Address
  - Invitation to Connect
- Voice Helper
- Shop: List Planning
- Home Page
- Inspiration
- Profile Setting
- Nearby Stores
- List
- Total Cost
- Calender
- Recipe
- Payment Method
- Categories
- Name
- Date
- Add to List
- Detour Activation
- Select Goods
- Number
- Weather
- Numbers
- Change Number
- Add to List
- List Syncing Activation

Key Design Principles for Dementia

1. **Familiar**

2. **Distinctive**

3. **Legible** (visual contrast / brighter color& heightened color contrast-less agitation) (Koss&Gilmore, 1998)

4. **Accessible**

5. **Comfortable & Stimulating**

6. **Safe**

7. **Familiar**

(Halsall & Macdonald, 2015)

Lofi-prototyping & WIP
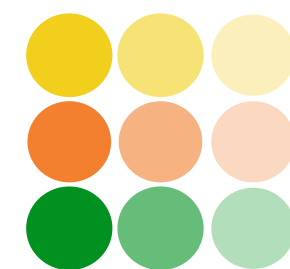

Visual Identity System

'Green' & 'Orange' as the main colors theme to be further extended, as they represent **fresh, happiness, positivity**. With this combination, **the contrast of color is strong**, ensuring the **legibility**.
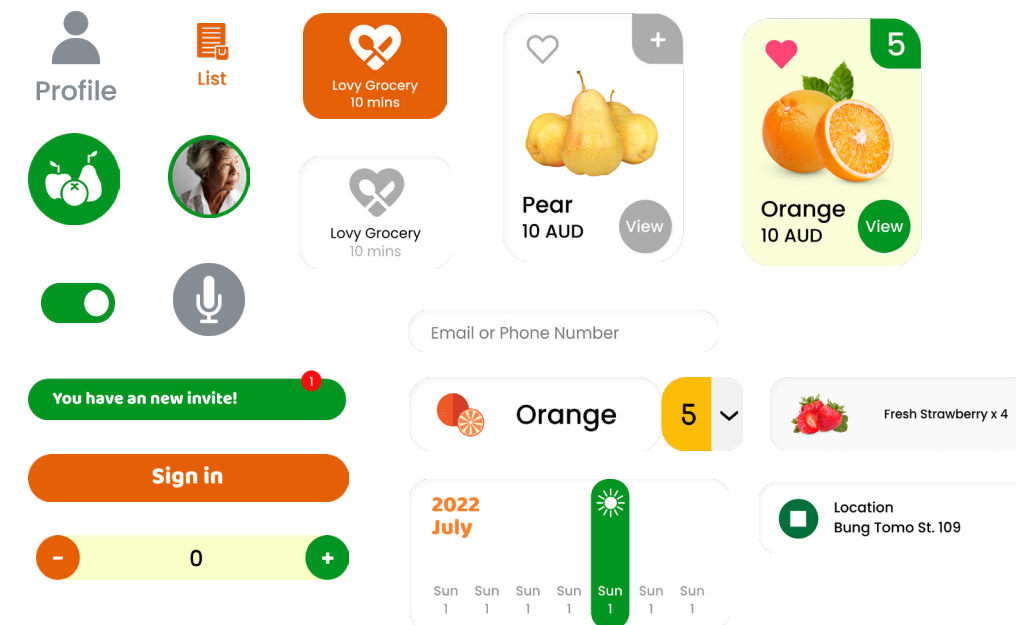
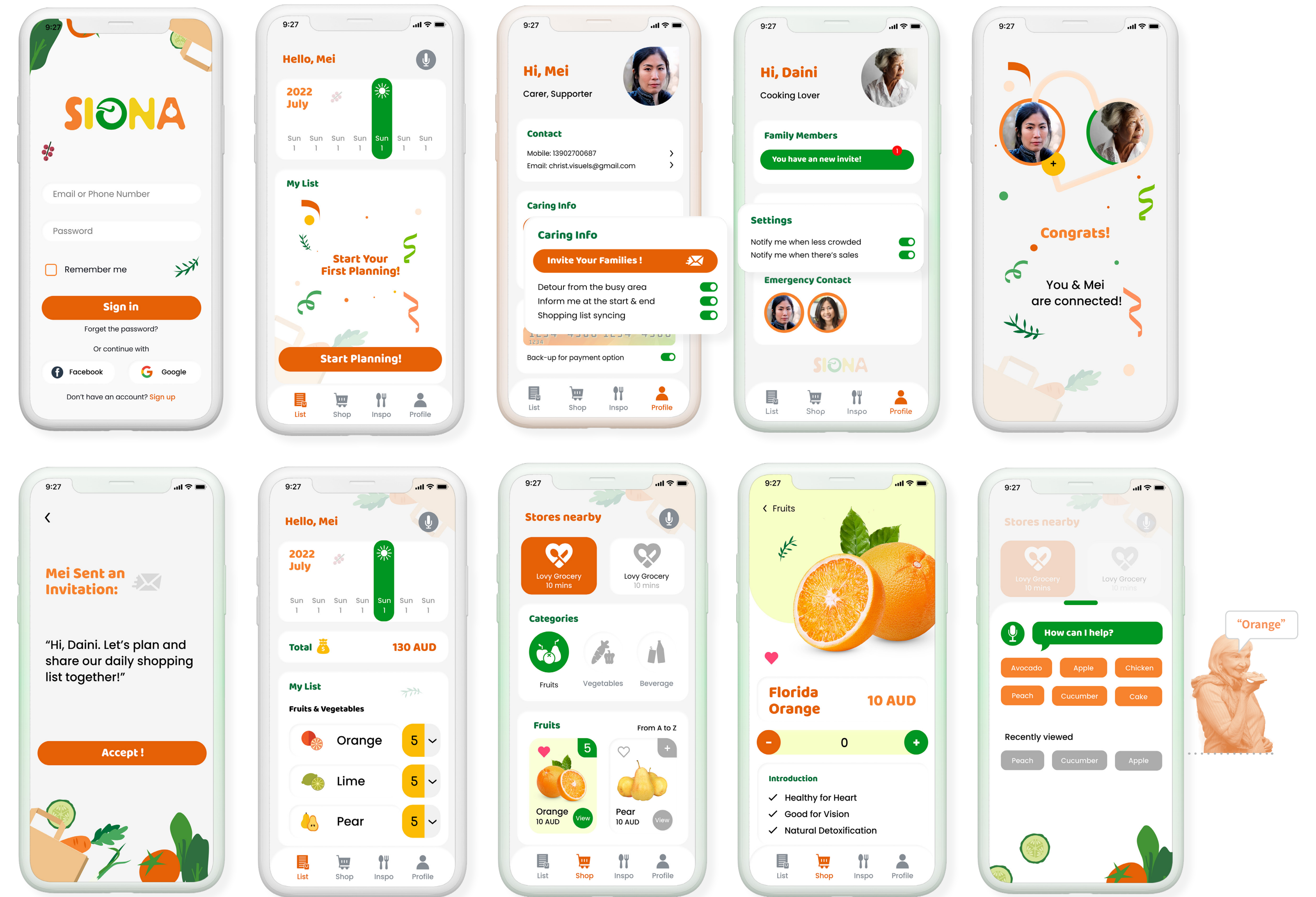**Typeface: Kabel Black**

SIONA
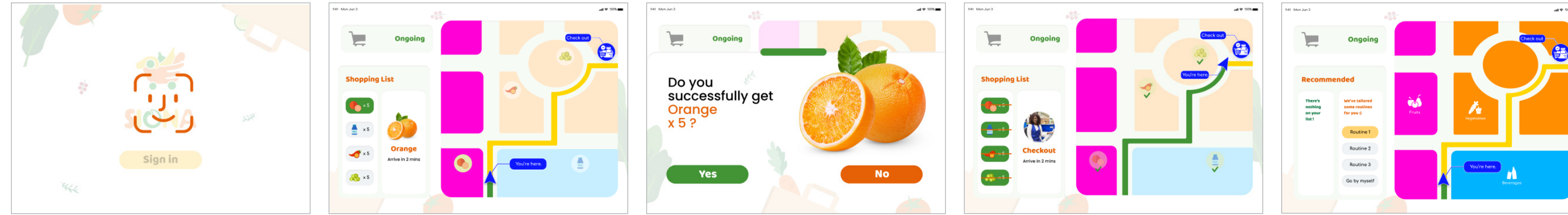
Final Logo:

SIONA

Color Theme:

UI Element

Hi-fi UI Wireframes

SIONA

Email or Phone Number

Password

Remember me

Sign in

Forget the password?

Or continue with

Facebook   Google

Don't have an account? Sign up

Hello, Mei

2022 July

My List

Start Your First Planning!

Start Planning!

List Shop Inspo Profile

Hi, Mei
Carer, Supporter

Contact
Mobile: 13902700687
Email: christ.visuels@gmail.com

Caring Info

Caring Info

Invite Your Families !

Detour from the busy area
Inform me at the start & end
Shopping list syncing

Back-up for payment option

List Shop Inspo Profile

Hi, Daini
Cooking Lover

Family Members

You have a new invite!

Settings
Notify me when less crowded
Notify me when there's sales

Emergency Contact

SIONA

List Shop Inspo Profile

Congrats!

You & Mei are connected!

Mei Sent an Invitation:

"Hi, Daini. Let's plan and share our daily shopping list together!"

Accept !

Hello, Mei

2022 July

Total 130 AUD

My List

Fruits & Vegetables

Orange 5
Lime 5
Pear 5

List Shop Inspo Profile

Stores nearby

Lovy Grocery 10 mins
Lovy Grocery 10 mins

Categories

Fruits Vegetables Beverage

Fruits   From A to Z

Orange 5
Orange 10 AUD View
Pear 10 AUD View

List Shop Inspo Profile

Fruits

Florida Orange   10 AUD

0

Introduction
✓ Healthy for Heart
✓ Good for Vision
✓ Natural Detoxification

List Shop Inspo Profile

Stores nearby

Lovy Grocery 10 mins
Lovy Grocery

How can I help?

Avocado Apple Chicken
Peach Cucumber Coke

Recently viewed

Peach Cucumber Apple

"Orange"

Smart Module User Interface

| Log In with Facial Recognition Function | Follow SIONA to successfully locate your wanted items | Confirmation | Check-out Navigation | Routines recommended based on hearted items |

If Daini forgets the list is done, and visit again: SIONA will recommend several routines based on the liked items over the APP

Product Development

Damper:
To rotate & spare the stress

Fist-size Stabilizer (the yellow part):
Strengthen the security when operating: senior friendly (support stability when user is moving: reduce the chance of accidental fall)
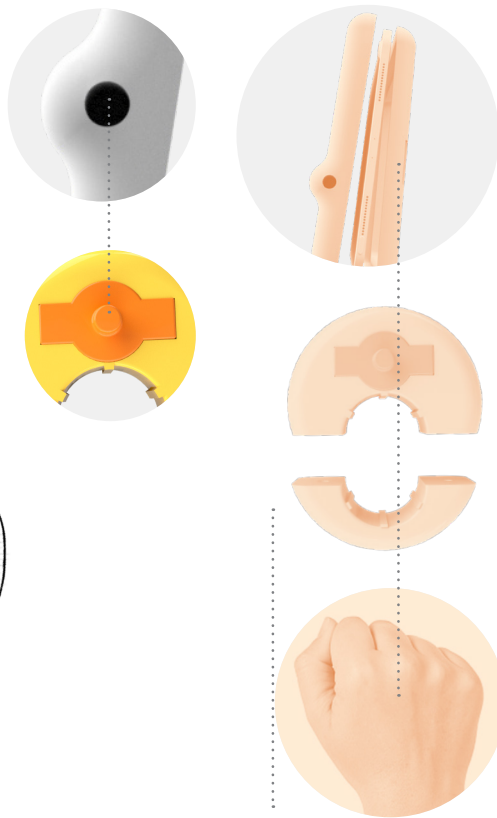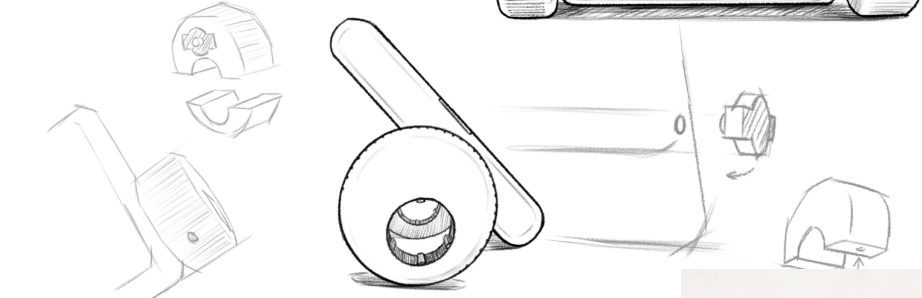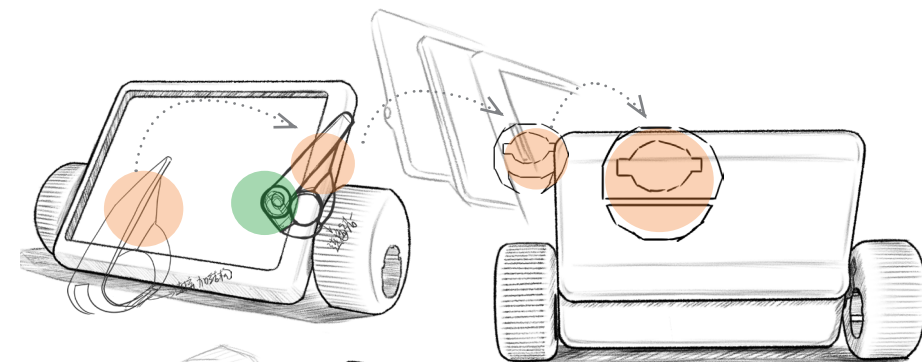
Easily Install by 3 Steps: wider accessibility
A easily self-installed Smart Module

SIONA: Shop Independently Oriented and Autonomously