

One-Armed

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Who are they?

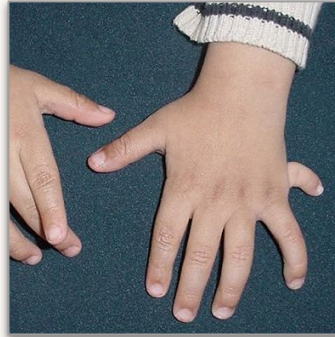
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"One-Arm" Disability Spectrum



Amputee



Congenital Deformation



Long-Term Situational



Short-Term Situational



No Disability (Mainstreamer)

Facets

Hand and Arm Mobility

One arm/hand Two arms/hands

Weight Bearing Load

<5 lbs per arm \geq 15 lbs per arm

Level of Adaptation

Low High

Level of Foresight / Planning Ahead

Low High

Underserved Persona: Will / Willow

Will, man, 35 years old

Background Knowledge and Skills

- Will is a college counselor and war veteran who lives in Portland.
- He loves his job, playing with his dog, and hosting dinner parties with his friends.
- One of the most important things to him is showing people that they can overcome difficult situations.
- He lost his arm while serving in the military, but is now thankful to be an inspiration to young minds.



Underserved Persona: Will / Willow

Hand and Arm Mobility

One arm/hand Two arms/hands

Weight Bearing Load

<5 lbs per arm ≥ 15 lbs per arm

Level of Adaptation

Low High

Level of Foresight / Planning Ahead

Low High



Will's Hand and Arm Mobility Facet

Hand and Arm Mobility

One arm/hand Two arms/hands

- One of Will's arms was amputated, and the other arm is fully functional

Relevant Research:

- User interviews – variety of hand and arm mobility experiences
- “In general, there was a tendency for activities to be more difficult to perform, if they required delicate movements and substantial force of the distal extremities.” [11]



Will's Weight Bearing Load Facet

Weight Bearing Load

<5 lbs per arm >= 15 lbs per arm

- Will can comfortably carry up to 5 pounds with his functional arm
- He's gotten used to carrying around a backpack with his laptop and everyday items

Relevant Research:

- "Grocery shopping it is not a problem, I can push a cart with one hand. Carrying bags is a problem, that is why I carry my backpack everywhere and put everything inside, only the things that fit" [3]



Will's Level of Adaptation Facet

Level of Adaptation

Low High

- Will needs to figure out new ways of getting things done with one arm, even if it involves using unconventional tools and methods
- He often uses other body parts, such as his elbows, shoulders, or mouth, to help him with daily tasks
- He enjoys improvising and finding new ways to tackle everyday life

Relevant Research:

- Lots of "using elbows, knees, and teeth" [1]
- One handed alternatives: Multi-choppers, pizza cutters instead of knives [16]



Will's Level of Foresight Facet

Level of Foresight / Planning Ahead

Low High

- Will spends more time planning meals than most people; he thinks over every step of a recipe based on his circumstances
- Will spends a lot of time planning in general; he's a very organized person who plans how to get through each day with only one arm

Relevant Research:

- "When following a recipe, I think about it ahead of time, before getting into the middle of cooking. Stuff like 'this requires a lot of chopping' and 'I need to use a can opener.'" [1]



Mainstreamer Persona: Leona

Leona, woman, 25 years old

Background Knowledge and Skills

- Leona is a newly graduated lab technician who lives in Seattle.
- She likes walking in the rain and exploring the lakes in and around seattle.
- She's a big foodie, but doesn't cook much at all. She loves coffee and trying new foods recommended by her friends.
- She's noticed her budget is strained by eating out a lot and wants to cook more, but isn't sure where to start.



Mainstreamer Persona: Leona

Hand and Arm Mobility

One arm/hand Two arms/hands

Weight Bearing Load

<5 lbs per arm ≥ 15 lbs per arm

Level of Adaptation

Low High

Level of Foresight / Planning Ahead

Low High



Leona's Physical Facets

Hand and Arm Mobility

One arm/hand Two arms/hands

Weight Bearing Load

<5 lbs per arm ≥ 15 lbs per arm

- Leona is an active person, and has no trouble carrying heavier items
- Both of Leona's arms and hands are fully functional



Leona's Level of Adaptation Facet

Level of Adaptation

Low

High

- Leona doesn't have to make adaptations to any physical disability
- However, she has not adapted her routines or mindset to cooking for herself
- She needs help adapting to cooking more regularly



Leona's Level of Foresight Facet

Level of Foresight / Planning Ahead

Low

High

- Leona often goes out for spontaneous meals with friends and prefers to improvise day-to-day
- Home cooking ventures are ill-planned and turn out poorly
- Leftover food or ingredients go bad often due to lack of planning, and her budget is still strained

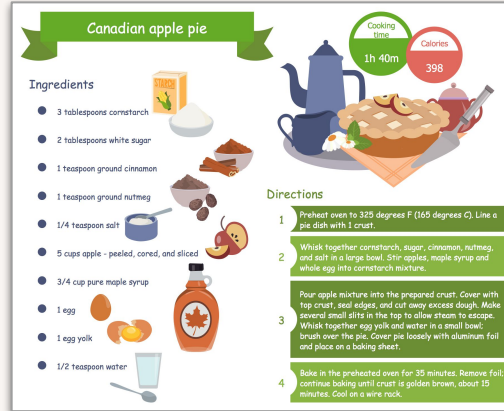


Project Overview

Software Project: Cooking App



Grocery Shopping



Recipes



Techniques

The slide features a light gray background with abstract geometric shapes in orange, gray, and red. On the left, there is a 6x5 grid of small teal dots. On the right, there is a 6x5 grid of small orange dots. The title 'Software Problem' is centered at the top in a dark blue font.

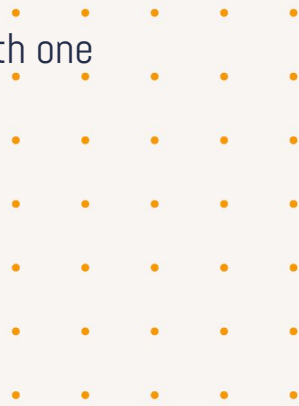
Software Problem

- There is a current lack of support for people without full use of both their arms in the logistic app marketplace
- One especially noticeable gap is that of cooking assistance apps
- Meal prep is a task that demands a lot of motor skills, and is significantly more difficult to do with only one arm
- Creating an app that anyone can use to improve their meal prep skills regardless of physical ability is our goal



Use Cases



Short summary of use cases:

1. Providing hands-free recipe assistance during cooking and condenses web recipes into more accessible formats
 2. Helps plan grocery shopping/delivery based on a week's meal plan
 3. Assists users in cooking techniques and adaptations for cooking with one arm
- 



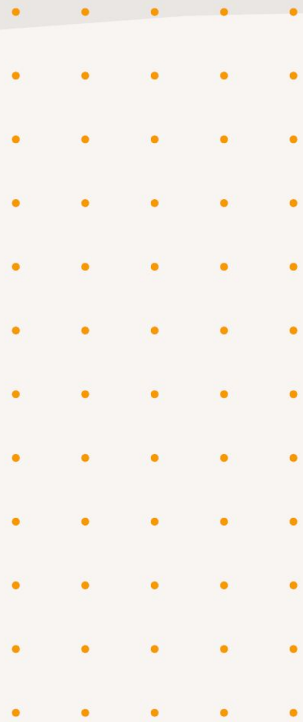
Use Case 1: Recipes

"I am trying to follow a recipe. I need to follow the step by step recipe, holding pans while scrolling through my phone. I don't know how to keep up with the recipe and dirty hands, or hot pots. So, I need to stop what I am doing, wash my hand, or turn the heat low, and grab my phone to scroll it down to the next step."

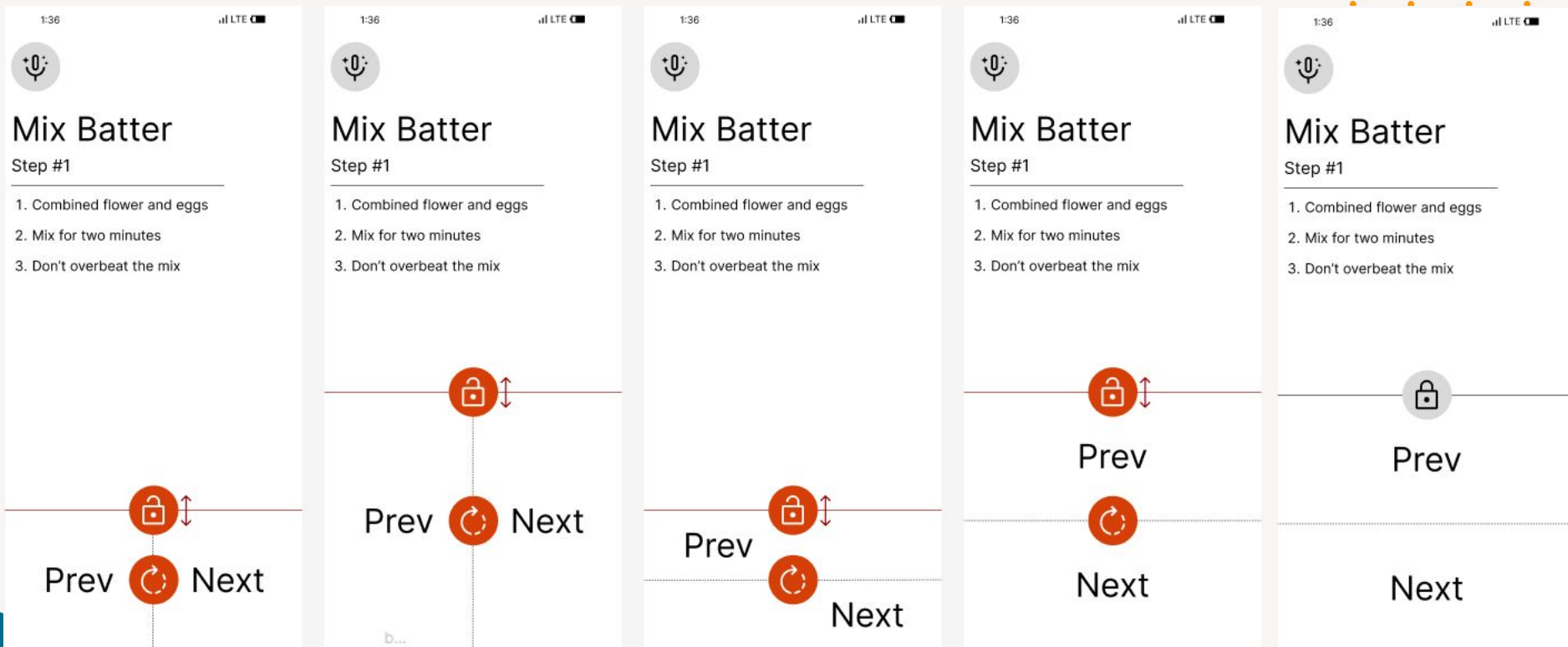




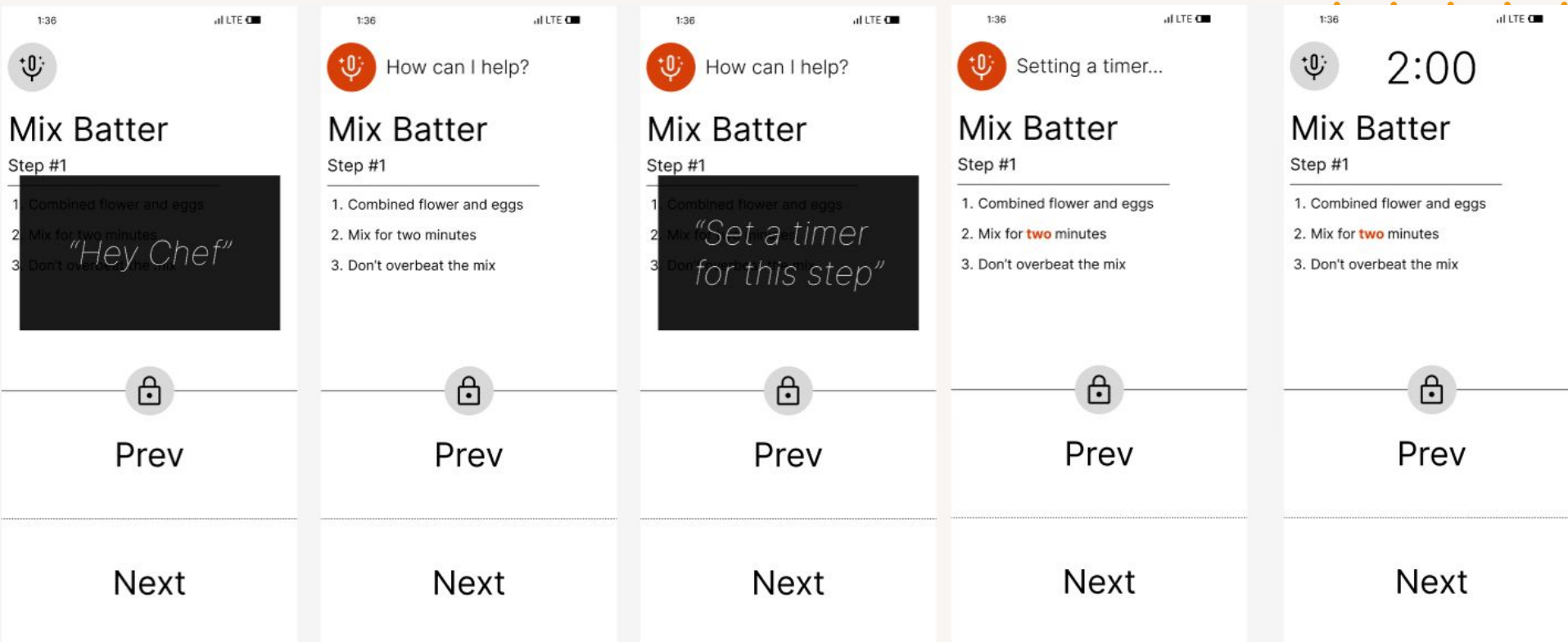
Use Case 1: Recipes



Use Case 1: Recipes



Use Case 1: Recipes





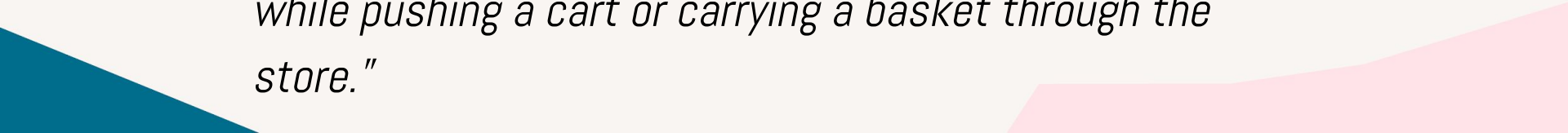

Use Case 2: Grocery Shopping

"I need to shop for the items to use in my recipe.

This includes:

- 1) creating the shopping list,*
- 2) inventorying the items I already have and,*
- 3) going to the store to buy other items.*

I need to be able to simultaneously update my list as I open drawers while inventorying items I already have, and while pushing a cart or carrying a basket through the store."



Use Case 2: Grocery Shopping

Your Meal Plan

Monday	Tuesday
Fruit Bowl 7:00 am	Pancakes 7:00 am
Snack 10:00 am	Oatmeal 10:00 am
Pasta 2:00 pm	Grocery Trip 2:30 pm
Salmon <i>Ummies</i>	Sandwich

➔

View shopping List

⬅️

Tuesday Shopping

Going to: Fred Meyer
Time: 2:30 pm

You can check all the ingredients on the shopping list to keep track of your groceries

Shopping List:

Crused Tomatoes	<input type="checkbox"/>
Stew meat	<input checked="" type="checkbox"/>
Eggs	<input type="checkbox"/>
Flour	<input type="checkbox"/>
Milk	<input checked="" type="checkbox"/>
Oats	<input type="checkbox"/>

Use Case 2: Grocery Shopping

Your Meal Plan

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Pasta 2:00 pm	Grocery Trip 2:30 pm
Salmon Veggies	Sandwich

View shopping List

Ingredients

Pancakes:

Eggs ☒

Flour ☐

Sandwich:

Bread ☒

Lettuce ☐

Tomato ☒

Bacon ☐

Oatmeal

Oats ☒

Order

Add Other Ingredients

Custom

Bread:

Whole wheat ☐

White ☐


Rye ☐

Sourdough ☐

Other:

Save

Use Case 2: Grocery Shopping

**Ingredients**

Pancakes:

Eggs ☒

Flour ☐

Sandwich:

Bread ☒

Lettuce ☐

Tomato ☒


Bacon ☐

Oatmeal

Oats ☒

Order

Add Other Ingredients

**Total \$12.65**

Address:
925 Masonic Drive,
Billings, MT, 59102

Estimated Delivery Time:
3 - 4 Hours

Selected Grocery Store:
Fred Meyer

Order Confirmation:
Eggs
Flour
Milk
..

Select payment method

Use Case 2: Grocery Shopping - Evidence

“I am not doing cutting or heavy lifting” [3]

“Buying a lot more pre-chopped, pre-shredded etc. things. Costs more than normally expected. Avoided buying things that are big and bulky”[1]

Additionally the delivery to the door concept is also a good idea and I wonder if additional delivery update information could be beneficial to add into the design. More information on the delivery the more the individual can plan to be available and ready. **[Design Gallery Feedback]**

Use Case 3: Tools and Techniques - Evidence

I'm preparing the ingredients before cooking and need to know the correct techniques for chopping vegetables, breaking down meat, etc. I need multiple technique options based on the tools I have access to and alternatives based on physical ability (e.g., how do I peel a carrot with one hand?)


Use Case 3: Tools and Techniques - Evidence


“One suggestion would be to consider using the voice assistant to navigate around the app, that way we can avoid screen interaction.” [Design Gallery feedback]

“I suggest to be more clear on the difficulty “Beginner/Intermediate/Expert” if it is for cooking, recipe, skill level with one arm, etc” [Design gallery feedback]



One of the most difficult things about living with one hand is not having an extra hand to stabilize an object while you work with it. To remedy this, get non-slip silicone pads and leave them on surfaces around your house such as kitchen counters, bathroom counters, nightstands and end tables. Then, whenever you need to open a jar or something else, you can use the silicone pad to hold it in place and prevent it from slipping. [5]

Use Case 3: Tools and Techniques



**Edit Recipe**

Start Cooking






Pancakes



Tools
Bowl
Whisk
Measuring cup

Ingredients
Eggs
Flour
.....


Instructions
1. Whisk dry ingredients in the bowl
2. Whisk in wet ingredients
3. Heat the pan
4. Spoon some butter into the bad
.....












Update Recipe



**Learn how to use it**






Check out this videos:
 Select Level of Mobility
Select Level of Mobility ▾













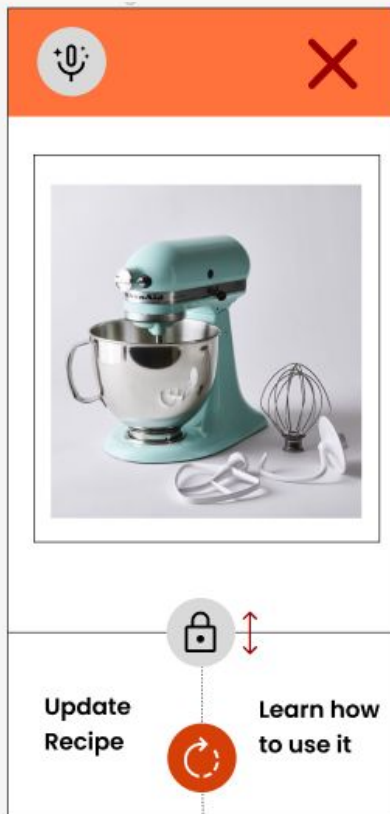
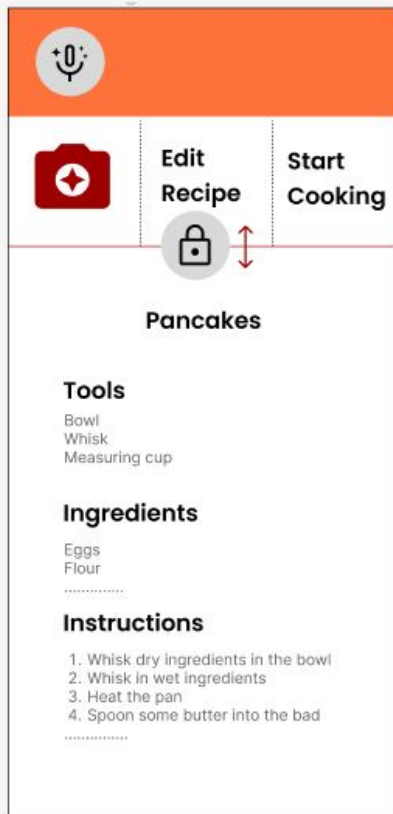
Check out this videos:
 Select Level of Mobility
Select Level of Mobility ▾







Use Case 3: Tools and Techniques



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The background is a light beige color. On the left side, there is a large red polygon and three parallel teal lines below it. On the right side, there is a grid of small orange dots. In the center, there is a white rectangular box containing the text.

Thanks!
Questions?
Comments?