Remy

By Chef Q

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Context

Assignment

Select a domain:

- In-car interaction with driverless car
- Hotel Agent
- Retail store dressing room
- **Meal ordering**

Perform competitive analysis of CUIs within the targeted application/context

Research CUIs and how form/functionality informs design choices

Create scenarios and flow diagrams through iterations
Prototype experiences

Our vision

Out of the given domains, we selected the domain ‘Meal Ordering’. We wanted to approach this in a way that gives the user more control over what they are eating, and allows for more customizability. We decided to try creating a kitchen assistant that helps users order ingredients and cook or bake their desired meal. This helps users to use their kitchen to its full potential by helping them use ingredients that they already have, and ordering only what they lack. We also thought it was important to factor in dietary restrictions, such as allergies, as well as time and budget constraints.

Our vision

We felt that meal ordering was a very promising field to explore. We were motivated by thinking of better ways we could get groceries, considering the lack of existing variety and promise for potential within pittsburgh.

We thought that exploring customizability through personal preferences would give us a promising starting point, and we prototyped around the idea of restrictions to food, mainly focusing on allergy issues, health related considerations, and eventually branched out into calories, meal preparation time, and user choices on quality versus price of ingredients and entrees.

Our vision

We designed Remy with a lot of consideration as to the type of user that will be utilizing it. We wanted Remy to be a solution to troubles that arise when people try to have more control over their diet, but are restrained in term of the time that people have. Remy is perfect for users who don’t have the time to scour the internet to find a recipe that fits their needs, in addition to spending time going out shopping, and looking for specific ingredients.

These tasks become even harder when factoring in health concerns and dietary restrictions. Remy makes this easy by doing the heavy lifting by considering problems, suggesting meals, and having ingredients delivered to your home directly.

Research

High level findings and trends

1. ***List-oriented***

   Apps and CUIs in this space tend to provide users with list read/write set of features. For example, popular Alexa apps in the grocery shopping and delivery space are essentially built around the concept of users compiling and completing lists of things they need or want.

High level findings and trends

2. Depend on participating stores

For the most part, few services leverage their own grocery inventory and distribution and so depend on local grocers. This impacts the experience in terms what items are available to users as they interact with the system.

High level findings and trends

3. Few recipe-focused aids or products

The focus for most are on grocery purchasing and depend on users to know what additional ingredients they'll need. While product recommendations are a seemingly simple addition, those seems to use purchase behavior of either the user or aggregate purchase information from the broader user base without attention to a specific recipe a user might be interested in or could be interested in based on the ingredients they're purchasing.

High level findings and trends

4. Little control or consistency over human actors

The human interaction between users and delivery personnel, or users and staff, can follow a broader set of interaction principles (eg staying on brand), but there's a tendency for a great deal of inconsistency that shapes users' mental models.

High level findings and trends

5. ***Little individual personality in virtual agents***

   On the other hand, the virtual agents or CUI's tend to follow very subtle personality cues with little opportunity for personality or spontaneity. Tones of polite interest, persistent visual cues, and remnant inflexibility/required specificity for user's' speech patterns are all present. Part of this is due to the development of commercially available AI and CUI frameworks and part of this is likely due to reluctance to alienate early adopters with strong artificial personalities.

Competitive analysis matrix

	Google assistant	Siri	Todoist	Any.do	Our groceries
Platform(s)	Android devices, Google Home	Apple devices	Alexa	Alexa	Alexa
Product maturity	Mature	Mature	Relatively new Alexa (~1 year)	Relatively new Alexa (~1 year)	Relatively new Alexa (~1 year)
Fees or charges	Google Express delivery fees apply	N/A	Amazon delivery fees apply	Amazon delivery fees apply	Amazon delivery fees apply
Geographic areas served (grocery delivery)	Most of US	N/A	Purchasing not yet supported	Purchasing not yet supported	Purchasing not yet supported
CUI agent personality	Pixar-inspired to be easygoing and friendly	Some, a little sassy	Alexa, “quirky” and outgoing	Alexa, “quirky” and outgoing	Alexa, “quirky” and outgoing
CUI gender	Female default with male option	Female default with male option	Female	Female	Female
Flexibility of NPL parameters	Relatively flexible, but still includes instructions in documentation	Somewhat specific parameters needed	Somewhat specific parameters needed	Somewhat specific parameters needed	Somewhat specific parameters needed
Basis for functionality	Google search	ML model (?)	Echo Knowledge base	Echo Knowledge base	Echo Knowledge base
Task offering	Lists and purchasing	Lists	Lists	Lists	Lists
Recipe feature or related	None	None	None	None	None

Landscape notes

Alexa
Our Groceries, Todoist, and Any.do
Experience: Primarily list functionality, but can purchase through Amazon Fresh

Microsoft Cortana
CUI gender: Female
CUI agent personality: competent, caring, confident and loyal
Not as powerful as Alexa or Google Home
Task offering: list (Wunderlist)
Recipe Feature or related: None

Siri
Experience: Only presents options and an add to list functionality.
Apple's built-in Reminders app
General purpose app isn't specifically to keep track of groceries (simple building features to build shopping list)

Google Assistant/Google Express
Experience: List functionality and purchasing through partners (in PGH, that means Walmart and Costco mainly)

Apps and websites (non CUI)

Postmates

Experience:

- Decent amount of selections (about 40-50ish);
- Order experience smooth; instructions were not hard to follow
- Delivery matched the expected delivery time (Max expected time)
- Ordered from Mercurio's in Walnut Street

Grocery:

- Whole foods ("Add your Custom Order"// user types in what they want. No selection options)
- Wall Green (Had few selections + custom order section)
- Other forms of shops: Staples, PetSmart, lululemon, Apple store, Sephora

Delivery fee:

- In general, flat rate $5.99
- Some partnered stores $3.99
- Delivery fee may surge during peak time

Service fee:

- Nine percent charge of each order

Uber eats

Experience:

- Poor selection (not a lot of participating restaurants)
- Order experience pretty smooth
- Delivery was a little late, but not bad
- Ordered from Gluuteny in Squirrel Hill, so not huge distance or traffic involved
- Apparently, Gluuteny isn't that popular of a choice (delivery driver claims that almost no one orders from there, and that he's done more Primanti Bros)

Apps and websites (non CUI)

Out of Milk

- Key Features: share your grocery lists by text and email, shows the grand total as well as running total on the list and notifies in case of good grocery deals
- Offline: yes
- Download: Android and iOS
- Multiple shopping lists, access them anywhere easily
- Save time by grouping items into categories
- To-do list
- Good history feature (remembers all items present in shopping list)
- Pantry list (tell you what is currently present in your pantry and what is not)

Supercook

This website and app provides users with a mechanism for finding recipes that use ingredients that they already have.

OurGroceries

- Key Features: An easy to use app, best for family shopping and prioritize important items
- Offline: yes
- Download: Android and iOS
- Multiple grocery lists (enter or scan barcode-Android)
- Voice control: Amazon Alexa or Google Home
- Remembers items entered in the past
- Can share your recipes w/ other people and add them to your shopping list
- Price: free for Android (more compelling)or iOS devices; $5 premium ad-free version

All Recipes

This website is a repository for a huge array of recipes, but it also has a search by ingredient feature.

Ideation

Scenario building

We brainstormed different concepts for use cases, and then fleshed out specific ones in order to generate more detailed scenarios for CUI experience testing.

The following pages will give a brief overview of some of our use cases, as well as a sampling of the more detailed versions.

Scenario building

- An administrator is ordering for food for a preschool project
- A host ordering for dinner party later that day, they will be cooking the meal in their kitchen
- New mom ordering ingredients for baby food
- A volunteer who needs to bake 100 cookies for a bake sale the following morning
- A college student needs to make breakfast, it needs to be gluten free
- Someone wants to experiment with different pie recipes tomorrow, but doesn't want to bother making crusts
- "My roommate just got their wisdom teeth out. I'm going to make them dinner but I can't make anything difficult to chew, can you recommend me some recipes and order groceries for me?"
- "I'm sick, I want to make a hot, healthy meal with a lot of nutrients."
- "I'm going hiking with Jack and Samantha over the weekend, can you order me a supply of snacks/meals?"
- "I need milk and cereal for breakfast tomorrow, can you order my regular."
- "Can you order ingredients to make my favorite Cake for Jo's birthday tomorrow"
- "Please order a selection of complimentary wine and cheese for my wine tasting tomorrow, I have 8 RSVPs"
- "I need to make a cheap, quick meal for breakfast, lunch, and dinner tomorrow."
- "I'm going to a potluck and need to make 4 tubs of hummus, as well things to dip in it"

Scenario iteration

Bob needs to cook for his friends who are visiting from out of town, but he doesn't know what to make. He is an intermediate cook, but is short on ideas.

> "Assistant, I need to make dinner for 4 tonight, can you help me out?"
> *"Yes, would you like some suggestions? Or do you have something in mind? "*
> "Can you give me some suggestions please, keep in mind that Karen is Vegetarian"
> *"Okay, how about Eggplant Lasagne [or List_Of_Ingredients]"*
> "Sounds perfect"
> *"Okay, I will order the ingredients for you and they should arrive in about 1.5 hours, I'll let you know if there are any delays".*

Once the ingredients arrive, Assistant walks Bob through the different steps in the recipe. Later that night, Assistant asks for feedback on the recipe and bob replies. If the feedback is good, Assistant will recommend this more often, and if it is bad, Assistant will not recommend again for Bob.

This case allowed us to develop different ways that the CUI can deal with remembering different user profiles, as well as pointing out dietary restrictions.

Scenario iteration

Amy is making lunch for herself this week, and wants to make a salad today. She tells her assistant

> “Assistant, I want to make a waldorf salad for myself in a few hours”.
> *“Okay, do you have any of the ingredients right now?”*
> “No”.
> *“Okay, your supplies will arrive in approximately 1 hour, I’ll let you know if there are any delays”.*

One Amy has her ingredients, Assistant asks,

> *“Do you need any help making this?”*

Amy declines

> “No, I’ve got it from here, thanks”

This case allowed us to develop different ways that the CUI can deal with remembering different user profiles. Plus, CUI places order for which includes the ingredients for the desired meal. It also keeps the user updated with the ordering/delivery process.

Scenario iteration

Jo, Jack, and Samantha are going for a semi-long hike on Saturday. Jo turns on assistant and says

> “Jack, Sam and I are going hiking over the weekend, we need some snacks for the trip”.

It's Thursday, so Assistant know they won’t need the snacks right away, and replies

> *“Ok, some Jerky, trail-mix, and energy bars will arrive on friday”*
> “Actually, Jack is allergic to peanuts, so make sure the trail mix doesn’t have any”.

Assistant responds, acknowledging the update and stores this information about jack for later use. The snacks arrive on friday and next time Jo goes hiking with jack, Assistant will reply:

> *“Alright, I will order some energy bars, and trail-mix. I’ll make sure nothing has peanuts to accommodate Jack”.*

This case deals with the CUI updating user profiles based on new knowledge. The CUI has to correct itself and offer a new solution to the user.

It also addresses the way that the CUI will deal with time, and smart scheduling to accommodate for different options that fit the user's needs.

Scenario iteration

It’s Jenny’s roommate’s birthday tomorrow, and she wants to make a cake.

“Remy, I want to bake Martha’s favorite cake tonight, I already have eggs, flour, and sugar”.

Later that day, someone delivers Milk, baking soda, chocolate, and frosting. Since both Jenny and Martha use Remy, Remy has access to their preferences and knows which cake Martha likes the most. Once the ingredient arrives, Remy asks Jenny:

“Would you like me to walk you through the recipe now?”

Jenny can either decline, but chooses to have Remy walk her through the recipe.

“Yes”.

“Start off by preheating the oven to 275”

Remy walks Jenny through the steps until she pours the batter into the pan. Then Remy sets an alarm and notifies Jenny when the cake is done.

By having multiple actors in this scenario, the CUI deals with preferences of each user. Remy displays knowledge of who they are talking to, as well as knowledge of other by knowing which cake is Martha’s favorite.

Jenny is given the option as to whether she wants assistance with the recipe or not. Once she is done with the batter, Remy sets the timer for her, and alerts her when the cake is done.

Scenario iteration

Chris has no clue how to cook, but he wants to eat healthier and after a few weeks of eating Amy's frozen food, he's ready for something else. He looks in the fridge and only sees some eggs and some wilted broccoli.

> "Remy, what should I buy at the store that will help me cook healthier?"
> *"Um, you're cooking? Do you know how to use the oven?"*
> "Yeah, yeah. I'm ready to cook something."
> *"Ok, I'm adding some staples to your grocery list for you."*
> "Thanks, Remy!"

When Chris checks his list at the store later, he sees milk, eggs, salt, pepper, and a host of other familiar-ish products.

The CUI is able to take initiative and help the user in a way that is very open to variation. In this use case, the user does not want delivery, but wants advice on what to buy

We also played around with different personalities for out CUI, giving it a bit of playful banter when reacting to Chris' sudden interest in cooking.

Scenario iteration

Natalia loves Gordon Ramsey's TV shows and tries out his recipes when she has time. Today, she needs to make a roast to show off to her parents that she can cook. She thinks it would be good to use one of his recipes for tonight's dinner.

"Remy, what do I need to make a roast like Gordon Ramsey would?"
"Umm, what kind of roast?"
"The one from the show I watched yesterday, with the Yorkshire pudding."
"Ok, I think you watched an episode of Kitchen Nightmares that covered Yorkshire Puddings, Roast, and fresh bread."
"Yeah, that episode! Can you add the ingredients I need to my shopping list?"
"Already done."

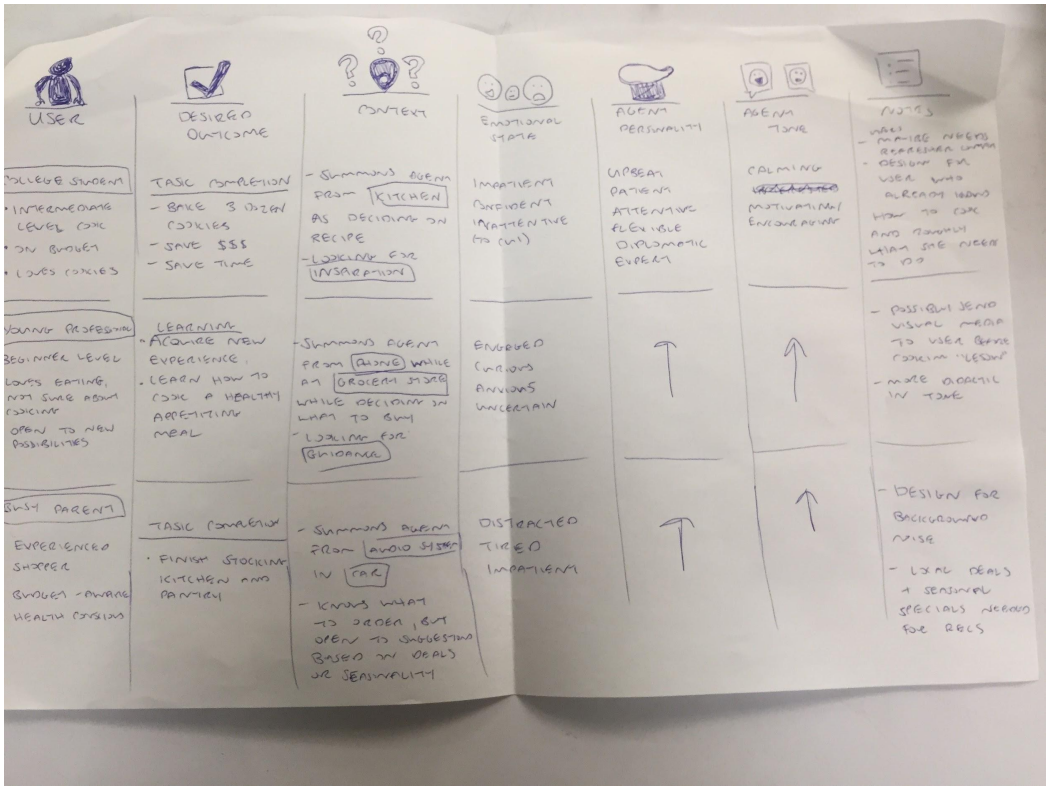
When Natalia looks at the store later, the ingredients are there in her list.

This case also deals a bit with personality. From this idea we thought a lot more about what kind of chef our CUI would be, and explored with more personas, such as a Gordon Ramsey inspired CUI.

The idea of the smart home propelled this, which had us thinking about what other information the CUI would have access to. In this case, the CUI has access to either tv history or audio, which allows it to analyze the show for context about recipes after they are unsure as to what roast Natalia wants to cook.

Scenario visualizations

To help us break visualize our system, we developed a grid that depicted a few primary users, their desired outcomes and how that would map towards a session with our CUI.



Scenario user testing

“Is there a specific store that you want me to shop?”
“Can I know compare the total price from Trader’s Joe and Whole Foods?”
“The avg. total price from Trader’s Joe is xyz. The avg. total price from Whole Foods is xyz”.
“Ok. Can you shop from Whole Foods?”
“Ok. Does Whole Foods at xyz (address) sounds good?”
“Yes. How long will it take?”
“Do you want to place the order right now or schedule different time frame?”
“For now”
“ok. For delivery, it will take approximately 50-60mins. For store pick-up it will be ready in approximately 20mins. Would you like delivery service or pick-up?”

On the left is the dialog from one of our user tests. This was extremely valuable to our process because it forced us to consider a lot of aspects to our ordering feature that we hadn’t previously considered.

Experience prototyping

Payment

How will a user want to pay?

We can assume that the cui has our credit/debit card info saved. The CUI then asks/confirms which card the user will use. If the transaction goes through, the CUI will inform the user, and send them an email receipt. If the payment method is declined, the CUI will prompt the user for a different method of payment.

Payment methods

Assuming the user has at least one card saved, the user is able to add or delete any payment methods.

When a new payment method is added, the CUI will ask if it should set this as the default payment method. The CUI will also have access to basic user info, such as the name, address, email, and phone number (this is assumed to have been entered during setup)

Experience prototyping

Budget and Brand

Ideas to consider:

- Give the option for grocery store selection
- In terms of specific products (UI will read the list and ask if there is any preference for brand on any products on the list-> after making accommodation, before transaction (like a checkout summary ish)-> UI will confirm brands for each product (maybe the price as well?) ->transaction
- We can probably make the confirmation of the shopping list a visual part. Like sending a finalized order copy /receipt via email. But, for the confirming the product (brand/price) on Kiosk or some kind of visual thing we will have? Like display small pic of the product with short description (brand, price, nutrition value) as UI adds the product to shopping list.

“Is there a specific store that you want me to shop?”
“Can I know compare the total price from Trader Joe’s and Whole Foods?”
“The avg. total price from Trader Joe’s is xyz. The avg. total price from Whole Foods is xyz”.
“Ok. Can you shop from Whole Foods?”
“Ok. Does Whole Foods at xyz (address) sounds good?”
“Yes. How long will it take?”
“Do you want to place the order right now or schedule different time frame?”
“For now”
“ok. For delivery, it will take approximately 50-60mins. For store pick-up it will be ready in approximately 20mins. Would you like delivery service or pick-up?”

Error prototyping

Context:

User wants to make pot roast…

Doesn't know ingredients for pot roast…

System responds with ingredients

User wants to make a substitution

System finds alternate recipe

User is missing ingredients

System offers to make order

User wants free range or organic

System responds with price

User wants to know when it will arrive

System responds with time

Conversation around what is available in the area for the right price and size

Request for recommendations for equipment & subsequent order placement

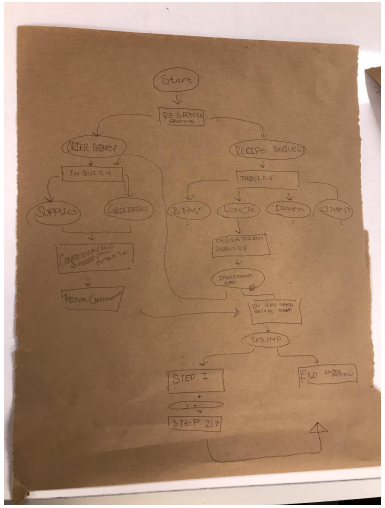
User need clarification

Recipe execution/directions -

User need more details

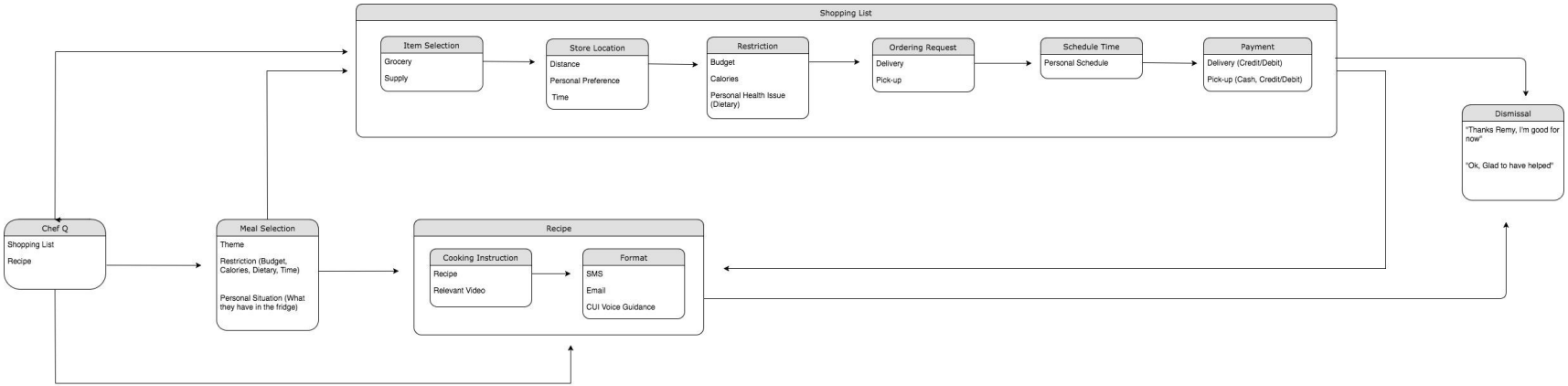
We tried to identify different ways in which the CUI could give an error, reply insufficiently, or give the user something unwanted. This helped us to identify what we needed to solidify within our concept.

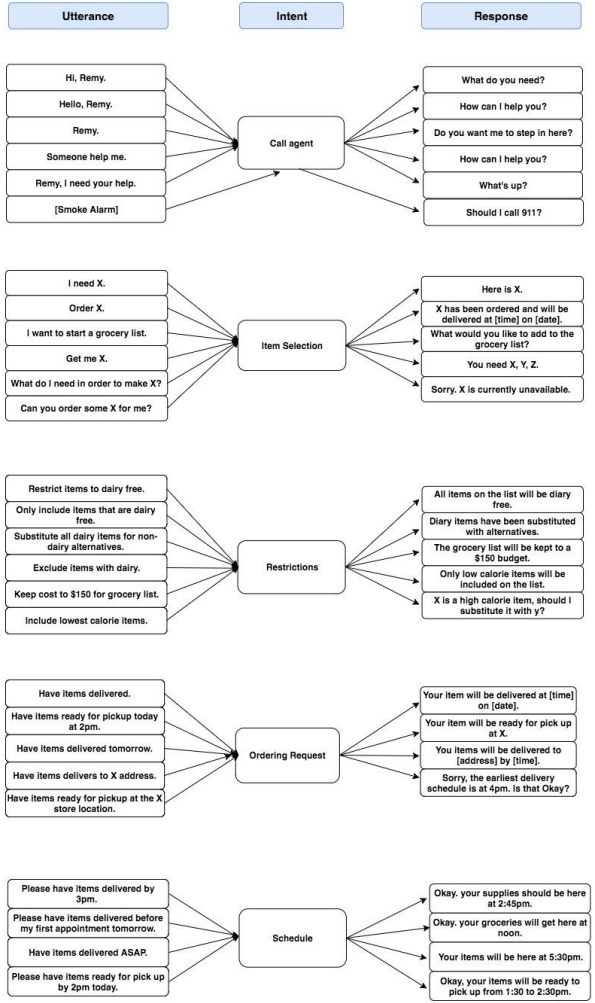
Model



Draft model

To further define our CUI system, we started with a high level diagram that split our features into larger groups. Establishing more of an architecture to the system made it easier for us to ideate and plan for more robust sessions.




Utterance
Intent
Response
Hi, Remy.
Hello, Remy.
Remy.
Someone help me.
Remy, I need your help.
[Smoke Alarm]
Call agent
What do you need?
How can I help you?
Do you want me to step in here?
How can I help you?
What's up?
Should I call 911?
I need X.
Order X.
I want to start a grocery list.
Get me X.
What do I need in order to make X?
Can you order some X for me?
Item Selection
Here is X.
X has been ordered and will be delivered at [time] on [date].
What would you like to add to the grocery list?
You need X, Y, Z.
Sorry. X is currently unavailable.
Restrict items to dairy free.
Only include items that are dairy free.
Substitute all dairy items for non-dairy alternatives.
Exclude items with dairy.
Keep cost to $150 for grocery list.
Include lowest calorie items.
Restrictions
All items on the list will be diary free.
Diary items have been substituted with alternatives.
The grocery list will be kept to a $150 budget.
Only low calorie items will be included on the list.
X is a high calorie item, should I substitute it with y?
Have items delivered.
Have items ready for pickup today at 2pm.
Have items delivered tomorrow.
Have items delivers to X address.
Have items ready for pickup at the X store location.
Ordering Request
Your item will be delivered at [time] on [date].
Your item will be ready for pick up at X.
You items will be delivered to [address] by [time].
Sorry, the earliest delivery schedule is at 4pm. Is that Okay?
Please have items delivered by 3pm.
Please have items delivered before my first appointment tomorrow.
Have items delivered ASAP.
Please have items ready for pick up by 2pm today.
Schedule
Okay. your supplies should be here at 2:45pm.
Okay. your groceries will get here at noon.
Your items will be here at 5:30pm.
Okay, your items will be ready to pick up from 1:30 to 2:30pm.
Error Message
Sorry, I did not understand. Did you need X?
Can you repeat?
Sorry. Please repeat the request.
Did you mean X?
There is no bank account associated with this account.
Are you done [doing task]?
Is [X] ready?
Did you check X?
Are you in progress with X?
How is X looking?
Utterance
Intent
Response
Charge delivered items to matstercard on file.
Charge delivered items to bank account on file.
Will pay cash at pick up.
will pay by credit at pick up.
Please split bill between card and bank account on file.
Payment
Charged to card ending in 1234.
Charged to the Discovery Checking account under Jane's name.
Okay.
Okay, would you like a 50/50 split?
Create a grocery list for aseasonal fall menu for 5 days
Create a grocery list forquick midweek meals for 5 days
I have x, y,and z, what can Imake?
I only have $20 budget constraint, what can I make?
I need to entertain vegans,what can I make for $12 a meal or a total of $50.
I am in a hurry. I only have30mins what can I make?
Meal Selection
Alright, your list has X, Y, Z.
Okay, I will text you the list, it has..
The directions to Wholefoods have been texted to you.
Show me a video for cooking X.
Bring up video for cutting X.
Bring up a 4 star reviewed recipefor X.
Bring up the easiest recipe for making X.
Can I substitute X for Y in arecipe for Z.
Recipe: Cooking Instructions
The video for X is cued. Should I play it?
The recipe for X is ready. Should I read it to you?
You can substitute X for Y, but the flavor might be saltier.
You are not recommended to substitute X for Y.
A better substitute for X would be Z.
Send me a video for cooking X via email.
Email mea 4 star reviewed recipe for X.
Text me the easiest recipe for making X.
Guide me through the recipe for making X.
Give me step-by-step instructions for cooking X.
Email me a list of possiblesubstitutions for X.
Recipe: Format
The video should be in your box now.
The review has been sent.
It has been sent to your phone.
Sorry. I could't find any relevant videos for X.
Error Message
Sorry, I did not understand. Did you need X?
Can you repeat?
Sorry. Please repeat the request.
Did you mean X?
There is no bank account associated with this account.
Are you done [doing task]?
Is [X] ready?
Did you check X?
Are you in progress with X?
How is X looking?

Video

Video planning

Conversational user interfaces are both exciting to design for and problematic because they don't leverage a traditional visual medium. While we have included a model within this document to illustrate the design of the system we created, that doesn't do a lot to bring it to life. And so, a concept video was needed.

To start with, we assessed what features or aspects of the CUI were the hardest to convey via a visual diagram and from there, we developed a story and means of communicating the value of this product.

Value proposition

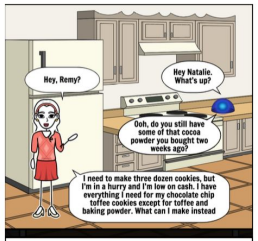
By articulating what kind of value Remy creates for our target users, we were able to prioritize features and use that to weave a story. We wanted to highlight the ease of use and convenience of bringing Remy into the kitchen. We used language to emphasize helpfulness, intelligence, friendliness and placed that into the title sequences.

Storyboards

Opening Scene : Natalie excited to bring the cookies to the party. Show the finished cookies

Scene 1: Thought bubble: Natalie has to make cookies for a holiday cookie exchange and she only has 1.5 hours

Scene 2: Thought bubble: Natalie realizes that she doesn't have all the ingredients that she needs to make the cookies she wants. Action: Natalie looking through cupboards.

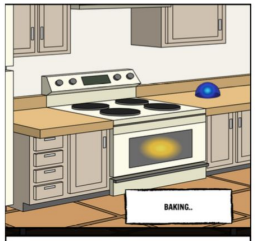


Scene 3: Dialog: Natalie summons Remy and Remy responds with a recommendation.

Scene 4: Action: Natalie checks to make sure that she has the ingredients that Remy recommends. Dialog: Natalie says she has it and she asks for the first step.

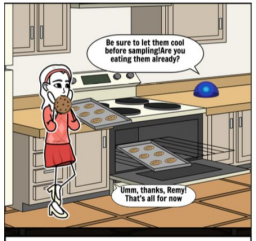
Scene 5: Dialog: Remy gives the first step in the instructions. Action: Natalie follows the step.

Scene 6: Dialog: Action: Natalie place the cookies in the oven. Dialog: Remy checks in and Natalie responds.



Scene 7: Show cookie dough being made.

Scene 8: Cookies are done. Dialog: Remy alerts Natalie that the cookies are ready. She responds. Action: She takes the cookies out of the oven.



Scene 9: Action: Natalie eats a cookie. Dialog: Remy teases her about it. Natalie dismisses Remy.

Dismissal / Closing Scene: text (closing statement) + close up

Knowing that we'd have limited time to create the video, we wanted to stay as organized as possible. To help with this, we created storyboards that helped us visualize the plot points of the story we wanted to tell. While we didn't stick strictly to the shots shown the in the storyboards, knowing how the story mapped to the visual medium was a tremendous help.

Script

Of course a video that demonstrates a conversational user interface would need a script. We leveraged the overall story from our revised scenario as a basis for the script and used the value proposition of convenient, helpful kitchen assistant to streamline the story and feature the aspects of the CUI that we were most interested in showing. The script also helped us to plan out logistics like prop and equipment needs.

Video content

To showcase the system that we designed with Remy, we created a video that depicted our primary scenario. In our experience prototyping, the areas of biggest opportunity were those that focused on providing clear direction and instruction for users. With the video, it was imperative for us to demonstrate how a user might engage the CUI to help complete a recipe.

Sequence of events

1. The user, Natalie, has already started to make cookies when she realizes she's missing a key ingredient.
2. Remy is in pre-attentive state and shifts to attentive when Natalie initiates a session, saying "Hey, Remy?".
3. Natalie inquires into an alternate recipe, triggering a recipe lookup functionality that uses recent order history and preferences as parameters.
4. At Remy's response, Natalie opts in to the recommended recipe, signaling to Remy to initiate the recipe sequence. Not shown in the video, but included in the original script is an additional alternate recipe that actually would have taken too long as well as specific quantities of the ingredients. As a team, we opted for brevity over detail, but any fully implemented prototype would need to include a higher level of detail.
5. Additionally when the recipe sequence begins, Remy tells Natalie to heat the oven to the desired temperature. Natalie is shown to continue getting the butter and chocolate ready to melt instead of setting the oven. She responds without confirming and shortly afterwards, Remy checks to make sure she followed the direction.
6. Once the cookies are ready to bake, Remy continues to help by setting a timer.
7. Once the timer is almost up, Remy signals to Natalie to come check on them.
8. When Natalie responds that the cookies look good, Remy chides her to not eat them until they've cooled. When she doesn't respond, Remy calls out. With Natalie's muffled response, Remy is able to take the context as a parameter to respond with a joke.
9. Cookies baked, Natalie terminates the session with a simple thank you and Remy warmly signs off.

Remy’s character

Remy is designed to be a gently humorous kitchen expert. With patience, lighthearted humor, and experienced guidance, Remy guides Natalie through the new recipe and reminds her to provide feedback and complete tasks along the way.

Features not fully in video

1. **Task reminders and status checks**
   For a recipe guide to work, there needs to be a feedback loop between the user and the CUI so that the CUI can provide appropriate information that helps the user move through a recipe. For example, if the recipe call for a cup of flour to be stirred in, the user would need to confirm that the task is done before moving on to stirring in chocolate chips. A more robust system would take into account approximate task completion times based off of a preset and taking into account past user behavior to time status checks appropriately. Ambient sound cues would also be a helpful reference. For example the sound of stirring food or steps walking away could cue user action.
2. **Order and delivery functionality**
   A key aspect of Remy's value proposition is the flexibility of ordering missing ingredients or kitchen items. While this is important, the sequence flow for this set of tasks is one that leaves less to be explored than that of instructional information. As shown in the conversational model, Remy is capable of placing orders and scheduling delivery using new and saved user information such as credit cards, addresses, and purchase history.
3. **Onboarding and account setup**
   The video assumes that a user already has an account and profile set up with Remy, allowing for saved preferences, allergy information, and other dietary information. Part of the onboarding process would also need to focus on setting up payment and delivery information as well as linking any applicable accounts like Google Express or Costco.

Next steps

Remy shows a lot of potential, but to move the design forward, we recommend higher fidelity prototyping and additional user testing.

With the advent of easier to use and train conversational user interface frameworks, creating a realistic low-cost prototype is within reach. Given more time, we'd like to develop an even more detailed and effective model with more attention to task status and kitchen error recovery (e.g. handling a wider variety of user error and use cases).