

CS 147: Voice Interaction Studio

POVs and Experience Prototypes

Team 4:



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Problem Domain

In what ways can we incorporate voice interaction software to increase productivity or convenience in people's daily lives? Our initial needfinding revealed that while some people use voice interaction often, more people feel like using VI is not worth the effort, or isn't useful at all.

Initial POV



We met Allen, a police officer in SFPD.

We were amazed to realize that his police department often can't find a translator for weeks, even when on important cases.

It would be game-changing to reduce the response time for getting translations by using voice interaction.

Additional Needfinding Results

We realized that there were many areas where voice interaction software could be used, but people didn't feel like implementing it was worth the effort. We conducted four more interviews.



We talked to Caroline, who works in retail at Sweaty Betty. Caroline is bored by her job, which includes talking to customers, writing inventory on a physical spreadsheet, and clocking in and out. Caroline doesn't see a need to use any VI software in her life. In fact, although she owns a Google Assistant, she doesn't use it at all.



We talked to Hunter, who works in solar systems on the business side. He recently got two Amazon Alexa devices and uses them at home, but he feels like he can only use a few set commands. For some tasks, such as calling an Uber, he feels that using an app is more convenient.



We talked to Edwin, a nurse at Sequoia hospital. Edwin never uses voice interaction software because he feels that everything is readily available by typing on his phone. At work, he has a transcriptionist, and in his personal life, he doesn't use Siri on his phone.



We talked to Therice, a PhD student in her sixth year at Stanford. Therice doesn't use VI software and has even gone so far as to turn off the Android Assistant on her phone. She doesn't feel that it's useful, and she doesn't want the Assistant listening to what she says. At the same time, she feels that some of the apps on her phone--such as Google Calendar--require too many clicks to use, so she often uses pen and paper to write notes or keep track of her schedule.

Revised POVs

(See Appendix for full list of HMW's)

We met Caroline, a storekeeper at Sweaty Betty's.

We were amazed to realize that most of her job involves boring, menial tasks.

It would be game-changing to reduce the boredom in regards to taking inventory and waiting for customers to arrive in retail worker jobs.

How Might We...

1. Leverage her time in more productive ways?
2. Make the time go by more quickly?
3. Use her time to interact with potential customers in other ways (i.e. online)?
4. Bridge the gap between writing down inventory and typing it into a computer?
5. Connect her to other retail employees?
6. Have her customers do her job (i.e. inventory) for her?
7. Inform customers about the store's setup before they even enter the store?

We met Hunter, a business operations employee at a solar company.

We were amazed to realize that some voice commands are not intuitive.

It would be game changing to allow users to be more flexible by defining their own commands that will map to existing VI commands.

How Might We...

1. Make talking to VI software more like talking to a person?
2. Eliminate the need for canned commands?
3. Make learning new commands exciting instead of boring?
4. Make people want to teach their VI software new commands?
5. Teach humans a new language for speech recognition software to understand?
6. Make voice commands more personalized?
7. Allow voice assistants to read body language and frustration?

We met Naina, an international first-year Master's in Law student.

We were amazed to realize how intimidating and obscure the American healthcare system can be.

It would be game-changing to provide a means to more easily understand this complicated system through voice interaction.

How Might We...

1. Present healthcare information in a more digestible way?
2. Provide a way to distinguish the most important information from everything else?
3. Ensure people know what's covered in their plan?
4. Make it easy to look up the information you need and quickly?
5. Present information in brief, easily-digestible snippets?
6. Make it easier to schedule an appointment?
7. Make it easier to understand what's going to happen before an appointment?

Three Best HMW Statements

1. We met Hunter, a business operations employee at a solar company.

We were amazed to realize that some voice commands are not intuitive. It would be game changing to allow users to be more flexible by defining their own commands that will map to existing VI commands.

How might we make talking to VI software more like talking to a person?

2. We met Naina, an international first-year Master's in Law student.

We were amazed to realize how intimidating and obscure the American healthcare system can be.

It would be game-changing to provide a means to more easily understand this complicated system through voice interaction.

How might we present healthcare or health insurance information in a more digestible way?

3. We met Caroline, a storekeeper at Sweaty Betty's.

We were amazed to realize that most of her job involves boring, menial tasks.

It would be game-changing to reduce the boredom in regards to taking inventory and waiting for customers to arrive in retail worker jobs.

How might we bridge the gap between writing down inventory and typing it into a computer?

Three Best Solutions

1. Provide a means to make up your own commands when interacting with voice assistants.
2. Create a VI assistant app to answer questions about healthcare and presents information in an easily digestible way.
3. Create a VI assistant that can help take inventory and reduce the time to enter items into an inventory system.

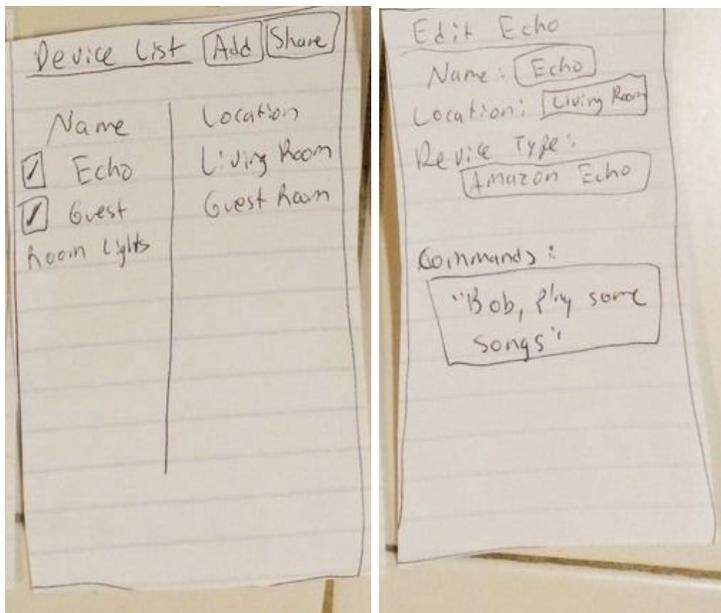
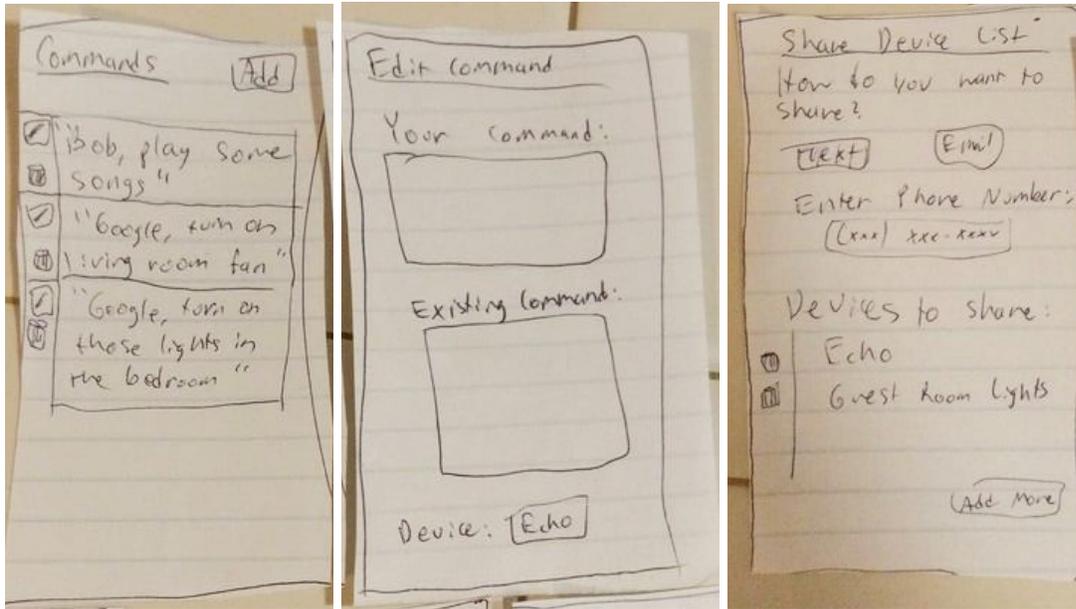
Three Experience Prototypes

Prototype 1:

We created sketches of the screens one would see in an app that allows you to customize voice commands for your voice assistants. You can add smart devices to a device list and include information on their name, location, and device type. You can also add phrases that you would like to say to your voice assistant, which will map to currently existing commands. For example, let's say you have a Google Assistant and want to call it Bob instead of Google. Lastly, you can share a list of your devices with guests so they know how to refer to your devices.

We made this prototype by drawing simulations of what the described screens would look like in a mobile app. We tested the assumptions that people own smart devices and/or voice assistants and want to be flexible in how they interact with them.

Sketches:



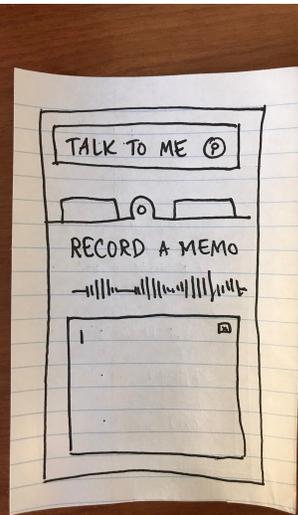
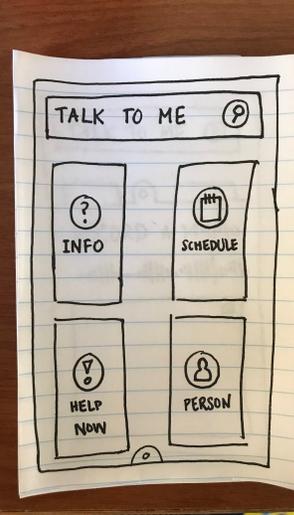
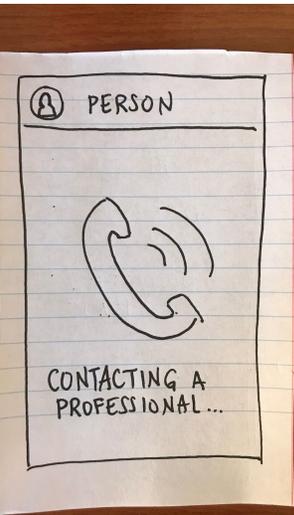
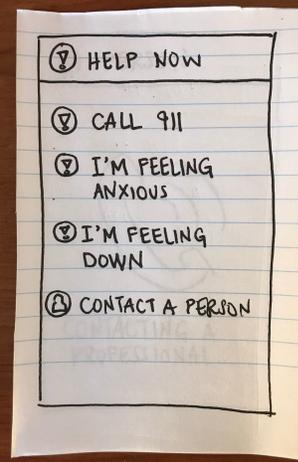
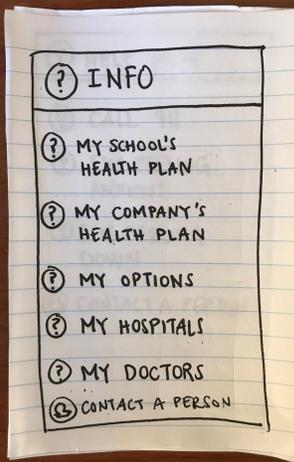
Interaction:



We met Arjun outside of Tressider and asked for his feedback on the prototype. He agreed that the app shouldn't have a ton of features, and overall he liked the idea. He wasn't sure how the mapping to voice commands could be implemented, and how the app would say the custom command to the smart device. Arjun doesn't own any smart devices himself, and we realized that this app might have a limited user base because not everyone owns smart devices. The ability to share a device list with guests, however, could be useful to a larger user base. In addition, the number of people with voice assistants is growing. Our assumption was not correct that people would necessarily own these devices. However, if they did then they would most likely want to be flexible in their commands.

Prototype 2:

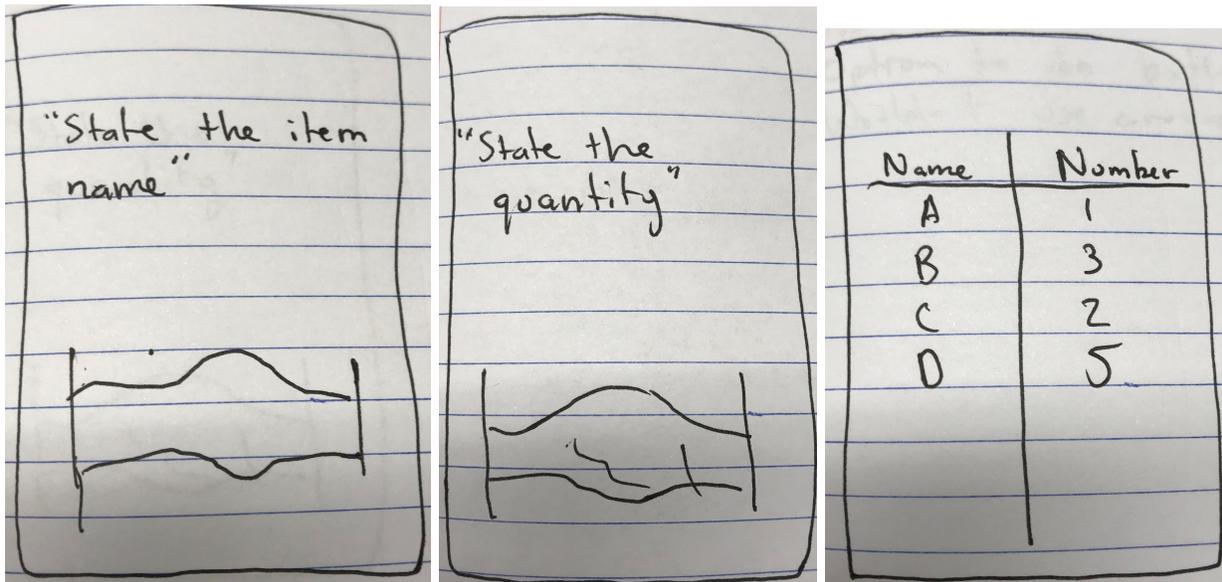
We assumed that there are people who would like to get information about healthcare just by asking verbal questions. We used sketches to create this design as well. This app is for people who want to have their questions answered without having to type them in. It might be for people who can't see as well or for older adults who are used to calling. Each of the screens is a voice assistant screen; the "buttons" below are just a list of suggested commands. The app can schedule an appointment for you, report simple information on your school or company's health plan, reach voice-assistant help hotlines or contact a professional when voice assistants aren't enough.





We met with Jackson outside of Tressider to see what he thought of our prototype. He wasn't sure who the person was that would in an emergency. For example, would it be a campus professional, suicide hotline, or the police? In general he thought the objective is pretty clear, but that we needed to make sure the app offers a unique benefit. Furthermore, the functionality of the search button was unclear to him. Not only did he agree that healthcare information can be confusing, but he also confirmed our assumption that it would be helpful to speak to the app and receive guidance.

Prototype 3:



We also used sketches for this prototype. This app's purpose is to remove the need for switching between a notepad and online inventory software when filling out an inventory datasheet. This app alternates between prompting the user for the item name and the quantity. It then presents a spreadsheet containing the values that the user dictated. In making the prototype, we assumed that retail workers want a way to reduce the effort of writing and typing inventory information each day.

This prototype was tested with Shannon at the Palo Alto Caltrain station. The user was given a drawing of three t-shirts, and then told to dictate these as the app switched between the two.

The test user wanted to ensure there was a way to edit the entries after the fact or confirm the app heard correctly. Even though she prefers auditory interaction, she would like the option to visually interact or use touch as well. Our assumption was not confirmed because Shannon was too concerned with the error rate of the app's translation. Inventory is very important in terms of how much profit businesses can make, and so there is little room for error.

Conclusion

Overall we found that our first prototype based on flexible voice commands received the most praise. Our test user, Arjun, was very interested in the future prospects of the app, even though he doesn't currently use smart devices. It would be best to move forward with this prototype for the project because of how it can transform interaction with voice

assistants into a more pleasurable experience. Not only will it let users interact with their devices in the manner they wish, but it will also help them keep track of all of their devices in one place.

Appendix

All HMW's and Revised POVs

We met Caroline, a storekeeper at Sweaty Betty's.

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It would be game-changing to reduce the boredom in regards to taking inventory and waiting for customers to arrive in retail worker jobs.

How Might We...

1. Leverage her time in more productive ways?
2. Make the time go by more quickly?
3. Use her time to interact with potential customers in other ways (i.e. online)?
4. Draw more people in, not necessarily customers
5. Make it so that she doesn't need a job?
6. Have her interact less with customers?
7. Combine her job with another one?
8. Gamify her retail store experience?
9. Connect her to other retail employees?
10. Bridge the gap between writing down inventory and typing it into a computer?
11. Make talking to clients more interesting?
12. Eliminate the need for retail jobs altogether?
13. Inform customers about the store's setup before they even enter the store?

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How Might We...

1. Make talking to VI software more like talking to a person?
2. Eliminate the need for canned commands?
3. Make learning new commands exciting instead of boring?
4. Make people want to teach their VI software new commands?
5. Make the interacting with voice assistants more straightforward?
6. Make voice assistants understand the same commands but with different wording?
7. Eliminate the need for voice assistants?
8. Cross-check the voice assistant's reading?
9. Make canned requests more natural to us?
10. Teach humans a new language for speech recognition software to understand?

11. Make voice commands more personalized?
12. Allow voice assistants to read body language and frustration?

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It would be game-changing to provide a means to more easily understand this complicated system through voice interaction.

How Might We...

1. Present healthcare information in a more digestible way?
2. Provide a way to distinguish the most important information from everything else?
3. Ensure people know what's covered in their plan?
4. Make it easy to look up the information you need and quickly?
5. Eliminate the need for a healthcare system?
6. Provide a way to ask questions and receive answers?
7. Get patients to educate each other?
8. Get rid of all disease?
9. Make it legally mandatory to learn about the American healthcare system?
10. Make the American healthcare system less complex?
11. Present information in brief, easily-digestible snippets?
12. Make learning about insurance options fun?
13. Make it easier to get a diagnosis from a doctor?
14. Make it easier to schedule an appointment?
15. Make it easier to understand what's going to happen before an appointment?
16. Reduce complex web of insurance and hospital options to a few clear choices?