



# Voice Interaction Team 4

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Rachel Jorgensen, Esther Goldstein,  
and Ron Tep



# Team Members

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Esther Goldstein

1st year MS in CS



Ronald Tep

Senior in CS



Rachel Jorgensen

Senior in SymSys

# Problem Domain

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How can we make voice interaction more accessible for people in their day-to-day lives?

# Methods: Interview questions

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- Day-to-day life
- How/if you use voice interaction in your work life
- How/if you use voice interaction in your personal life
- Tasks you think could be improved by voice interaction
- Most difficult part of using voice interaction
- Any other menial tasks/frustrations/time wasters in your daily or work life

# Interviews

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# Karan

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- Software Engineer at Google
- Technical opinion on voice interaction
- TacoMania in Mountain View



# Karan

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“I don’t want to use VI if it’s slow compared to typing”

“I don’t really want to learn to use VI software if it’s too difficult”



# Dawn and Allen

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- Dawn: Pathologist at Santa Clara Medical Center
- Allen: Police officer in San Francisco
- Town and Country



# Dawn and Allen

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“At work I have a foot pedal. When I press it I can give notes verbally, and the software transcribes them immediately” (Dawn)

“The SFPD could use VI systems in MDTs and to eliminate transcription needs” (Allen)



# Caleb

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- Marketing and Sales at Google
- Town and Country



# Caleb

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“I own six Google Assistants”

“I’ve used VI to call Ubers and order pizza”

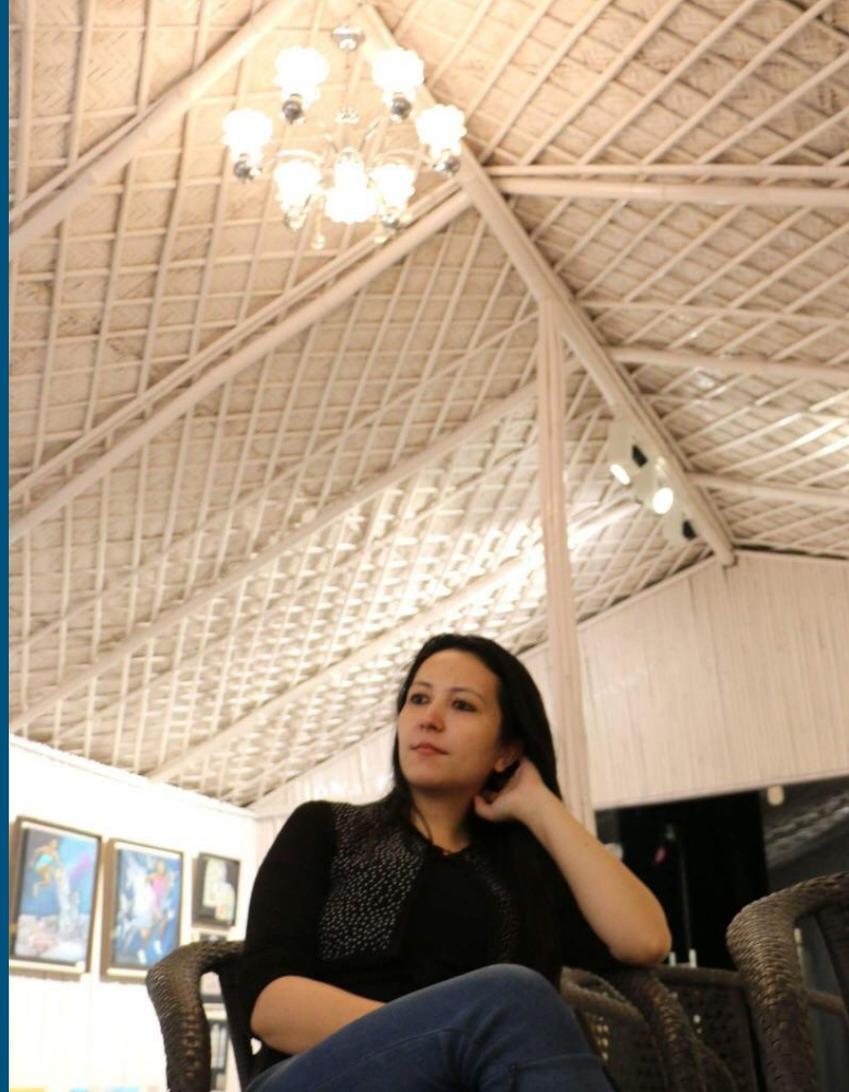
“One time we told Alexa to order toilet paper and ended up with hundreds of rolls”



# Naina

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- 1st Year LL.M. student at Stanford Law School
- At Stanford for 1 month
- Worked at National Commission for Women (government body) and The Energy and Resource Institute
- Town and Country



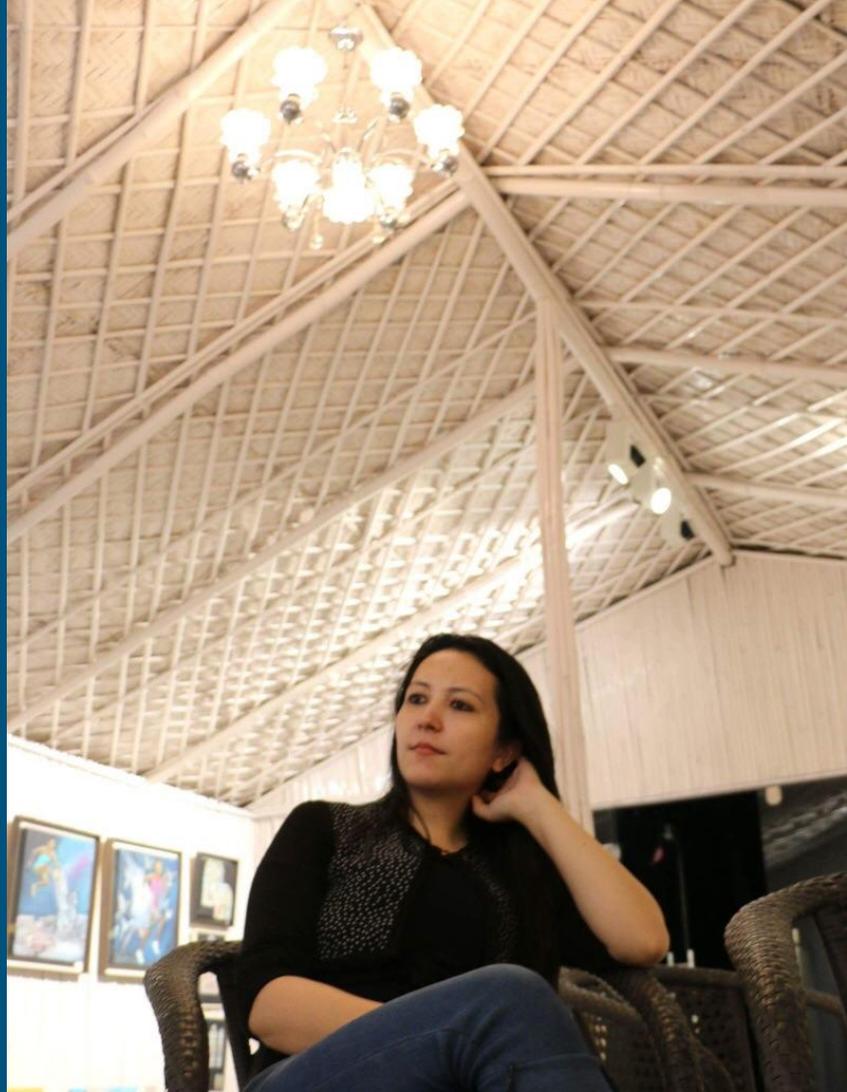
# Naina

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“I rarely use voice interaction”

“I wasn't really excited about it”

“I'm afraid it wouldn't understand my accent”



# Overall Impression

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- Dawn and Allen said VI can be useful in both the medical and police fields
- Karan preferred using apps like Evernote and Calendar out of habit
- Caleb owns 5 Google Assistants and uses them for many things (turning on the TV, locking the door, getting a recipe, etc.)



# Surprises

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- Dawn has no complaints, even though the software she uses requires human supervision
- Allen feels that the SFPD wastes a huge amount of taxpayer money when transcripts are unnecessarily re-transcribed



# Surprises

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- Naina is afraid that her accent won't be understood
- Caleb uses VI software constantly but the results are not always what he expects



# Empathy Mapping

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# SAY

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*“My work could definitely use voice interaction”*

*“Hardest part is setting up”*

*“I wasn’t super excited by voice assistants, though my peers were”*

*“Completely changed my work for the better”*

*“I think it could make tasks faster when you don’t have to use your hands”*

*“I might just try things at random”*

*“I don’t want to have to learn something new”*

# THINK

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VI software that can also translate would be useful

Using VI software is better when you're alone

My life is much easier with Google Assistants

Proofreading is still necessary

VI software would be helpful in cop car MDTs

VI software is not yet accessible, usable enough, or worth the effort

Voice technologies can make resources more available to the elderly and people who are disabled or illiterate

Don't want to use VI software if it'd be slow compared to typing

# DO

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Uses VI to turn on TV and music, order Ubers and pizzas

Uses 6 different Google Assistants

Does not really use VI tech

Voice tech and transcriptionists work together to accurately transcribe diagnoses

Evernote and Google Calendar to keep track of events and to-dos

Experiments with new commands

Rarely uses VI tech, but often has to look down in the car to press buttons

# FEEL

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*Wants more integration with visual elements*

*Grateful for time-saving at work*

*Self-conscious about saying something embarrassing in public*

*Phone is slow already; worried voice will take too long*

*Afraid that her accent won't be understood*

*Excited about the new, growing technology*

*Frustrated by unnecessary transcription costs*

# Analysis



# QUOTE

“Voice interaction technology isn’t worth the effort it takes to get it to work.”

# NEED

Setup should be easier and more intuitive.

# INSIGHT

People aren’t opposed to VI itself, they just don’t think that the payoff will be worth the effort.

# QUOTES

“The SFPD wastes a huge amount of taxpayer money on transcriptionists.”

“Cops could be safer and get more accurate information faster by implementing VI in MDTs.”

# NEED

Voice interaction software is needed in many government workplace scenarios.

# INSIGHT

Some people *would* use VI but don't have the means to implement the system.

# QUOTES

“When we’re wearing gloves and in the lab, we can’t proofread, so we don’t use VI software.”

“We told Alexa to order toilet paper and accidentally got hundreds of rolls.”

# NEED

A system where VI can be easily checked and corrected.

# INSIGHT

An easy confirmation system, with visual aids or without the use of hands, would allow to people to use VI in many more situations.

# People want...

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- To use VI at work and at home
- To use VI to multitask
- An easy way to error-check VI output
- An easy way to learn new commands
- An easier setup and installation process

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Questions/Feedback?

# Image Sources

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- [https://store.google.com/us/product/google\\_home](https://store.google.com/us/product/google_home)
- <http://www.tapsmart.com/tips-and-tricks/siri-tricks/>
- <https://www.informationweek.com/healthcare/mobile-and-wireless/voice-recognition-speeds-ehr-use-for-oklahoma-hospital/d/d-id/1113302>