ZOE INGRAM • UCLA IRI • MAY 2018

drawTalk

Designing and developing speech driven design software for users of all abilities

question:

Can we develop inclusive and accessible design software to benefit a wider range of users without sacrificing the purpose, use and integrity of the application?

idea:

Develop an application built for users who have a disability first, then expand features to make it useful for the ‘general user’

method:

DESIGN	DEVELOPMENT	EXPERIENCE
Determined neccessary elements for basic graphic design	Used Google’s Speech-to-Text API to capture user input	Users are able to control the application entirely by speech
Mapped words to drawing actions/commands	Rendered results of captured input on a SVG canvas	Users can draw various shapes, move them, change their colors, add text, add images, define a grid, and export their designs

outcome, next steps:

Successful answer to research question

Focus on accessibility efforts at work
Stay involved in a11y (accessibility) community

Design a procedure for developing inclusive software at a large scale, propose this to other companies

Further accessibility features like sound recognition

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Designing and developing
speech driven design software
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problem:

Many companies do not incorporate accessibility needs into the foundation of their applications during the design and initial development stages, therefore many accessibility solutions tend to be hacky - and don’t always work

idea:

Develop an application built for users who have a disability first, then expand features to make it useful for the “general user”

This application would be a web based design tool

question:

Can we develop inclusive and accessible design software to benefit a wider range of users without sacrificing the purpose, use and integrity of the application?

approach:

Broke away from the usual practice of trying to develop for the optimal user: young, tech-fluent, web + software intuitive

Incorporated standard accessibility solutions according to W3 guidelines

Built my own set of accessibility guidelines based on interviews with accessibility engineers, designers, and people of many different abilities

influence:

Accessibility engineering, design software, principals of universal design, inclusive development, empathetic engineering

methods:

DESIGN	Determined essential shapes, actions, and behaviors necessary for basic graphic design	Mapped words and simple phrases to shapes, actions and behaviors, as well as basic UI commands
DEVELOPMENT	Used Google's Speech-to-Text API to capture user input	Rendered results of captured input on a SVG canvas
EXPERIENCE	Users are able to login, navigate, and control the application entirely by speech	Users can draw various shapes, move them, change their colors, add text, add images, define a grid, and export their designs

obstacles:

DEVELOPMENT TIME

More features
Cleaner code
Better implementation

SPEECH RECOGNITION SOFTWARE

Super finicky
Requires “clean” speech

USER TESTING

Many more user groups to test

demo

outcome:

We can develop inclusive and accessible design software to benefit a wider range of users without sacrificing the application.

next steps:

Focus on accessibility efforts at work
Stay involved in a11y (accessibility) community

Design a procedure for developing inclusive software
at a large scale, propose this to other companies

Further accessibility features like sound recognition