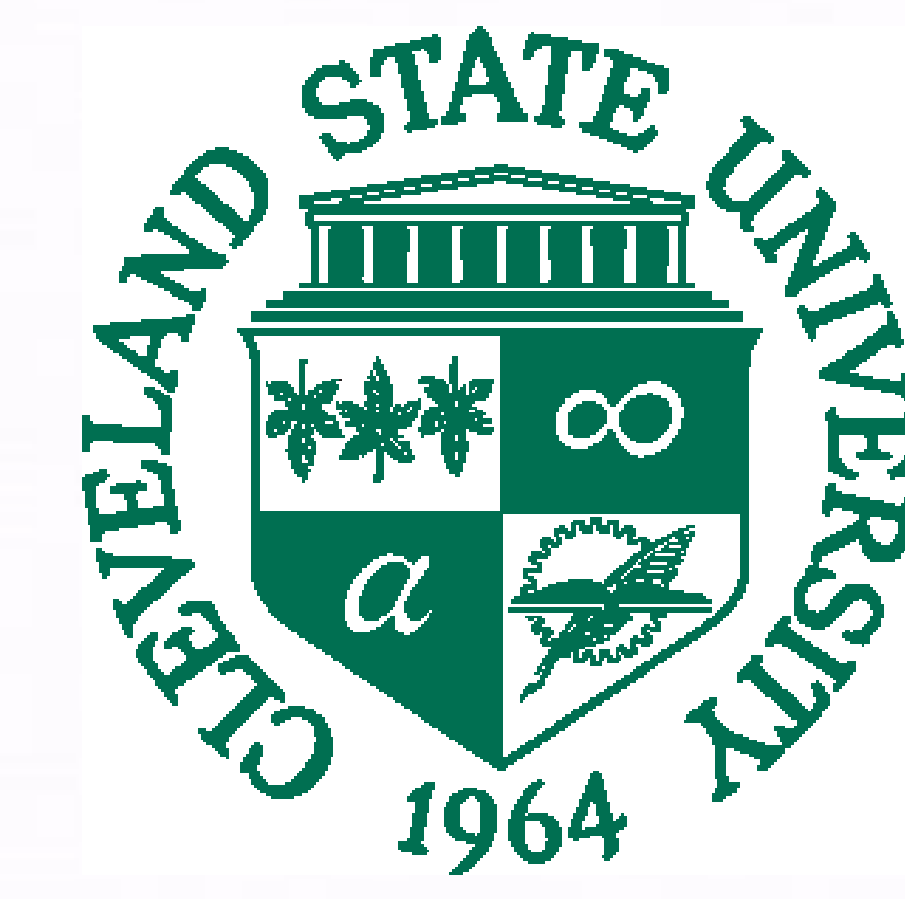




Now You See Me

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Introduction

Ultimately the only difference between blind people and people that can see is that the blind have a disability. Despite this, they still have as much potential as anyone else. Unfortunately, because of their disability, the blind are put at a disadvantage in terms of how easily they can access something; such as a book, or the internet. Another thing that works against them is the constant advancement of technology. How can they catch up when we are constantly pushing forward and jumping ahead and leaving the blind behind? In order for society to fully benefit from its advancement in technology, accessibility of this new technology must be severely stressed.

Facts About Blind People

- In 2010, the number of people visually impaired was estimated to be 285 million, of whom 39 million were blind²
- 28% of people living with moderate and severe visual impairment are in their working years²
- Around 1.4 million children are blind²

History of technological Accessibility

Assistive technology for the blind first started off with answering the most basic needs of what they needed in order to give them access to the same things a perfectly healthy human being has access to.

Screen reader

- Developed by IBM in the 1980s
- Jim Thatcher noticed the implications of screen readers and developed the IBM Screen Reader/2
- Current screen readers like JAWS (Jobs Access With Speech) allow for more interaction and control than ever before¹

Refreshable Braille Display (RBD)

- Also invented in the 1980s
- Originally very simple in design RBDs can now support multi-line text and even full screen displays that produce entire pages in braille¹
- Pictured is an RBD from Humanware.com⁶



iBill

- Available to consumers in 2015
- Is a small hand held device that can be attached to a keychain and reads the value of the bill by scanning the corner of it.

What's Going On Now

There has been a variety of innovations in assistive technology. However, this technology is always adapting, much like the people that use it do. Examples of new technology in the work include

Conversational User Interface (CUI)- The CUI allows users to interact with apps and computer programs using their voice. This eliminates the challenge assistive tech has long faced in translating the visual to the physical or audible, and makes the process of using technology more intuitive and enjoyable for blind people. Examples include Say Shopping, via the Amazon Echo, and some (but not all) interactions with Siri¹.

Self Driving Cars - Ultimately, the goal of assistive technology is to increase the amount of independence that the blind are able to have. Due to their disability, they are extremely limited in terms of transportation. Self driving cars, such as the ones that are currently in development by Uber and Google are potentially the solution to this issue¹.

Future Possibilities

In today's world, technology provides the ability to make computer generated models of almost anything, and offers limitless applications. However, blind and visually impaired people are being abandoned by technology in a sense of being able to seek a career in the field. While most computers can accommodate a broad number of functions through keyboard shortcuts and basic functions within the computer that read the content on the screen to the user, a blind person still lacks the ability to generate models, create spreadsheets, or efficiently program. Currently there are keyboards for the blind that may work well but are only capable of displaying a limited number of letters and often times require a lot of training to use.

Another challenge is comes in designing for accessibility. Usually, people design products to be aesthetically pleasing at the cost of efficiency, functionality, and usability. Designers often think they can simply rework their design to improve its accessibility which is too costly and time consuming to complete efficiently³. An example of designing for accessibility is a coding language called Quorum. It is developed with very simple, English like syntax. The developers also use feedback from the community of users to improve the language⁴. Another issue is that products designed specifically for the blind can often times be very costly. While Quorum is free, reader programs for example JAWS can cost as much as 895 dollars⁵. Refreshable Braille Displays can also be costly at 1000 dollars⁶. Designing for accessibility cheaply is where the real challenge arises.



Siri⁸



Amazon Echo⁹



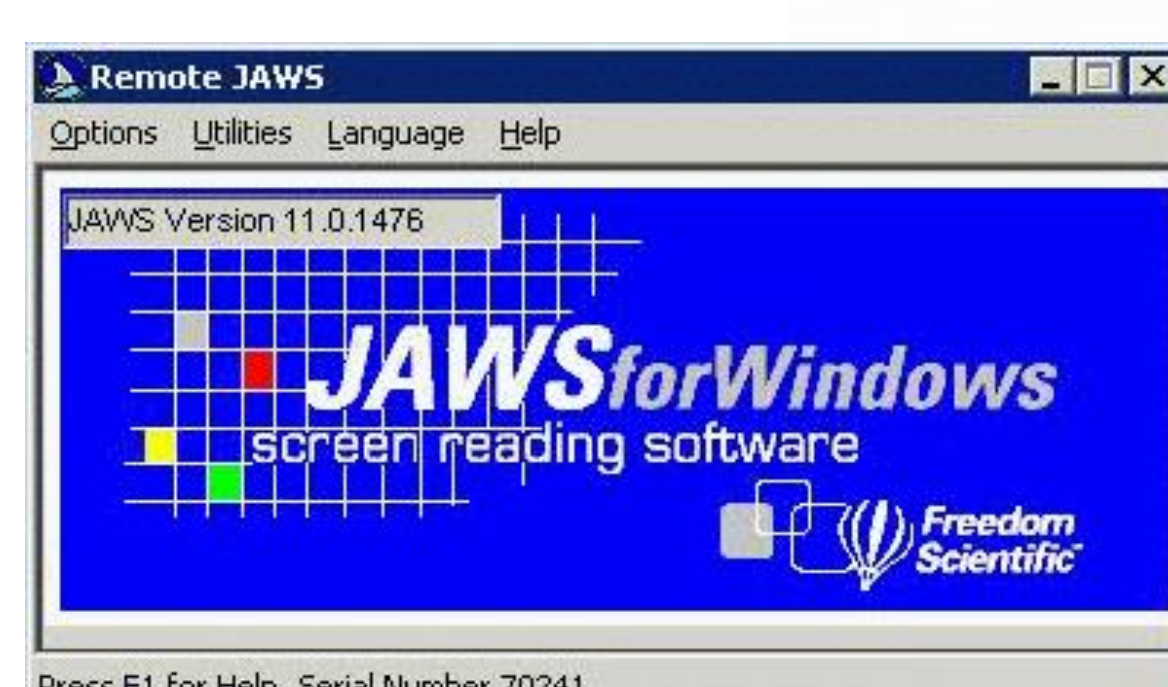
Google Car⁷

Conclusion

Designing technology with accessibility in mind has become essential for society if we want to benefit from everyone's contributions as much as possible. Everyone should be able to access and use technology to its full potential. There are many people that are capable of writing code for programs, and generating models but are unable to because the technology is unable to accommodate their needs. While the blind and visually impaired are among this population of people, there are many others presented with the same challenges. Although the innovations up to this point are a good start, it is inefficient on account of the cost to make them. Not only do we need to design products to be universally accessible, but we also have and do it from the start of the design process to keep costs lower. In the end, simplicity returns an elegant and accessible product.

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Jobs Access With Speech (JAWS), a screen reader⁵



iBill, a currency reader¹⁰