Thesis Assignment 02

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MOBILE DEVELOPMENT
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Accessibility

ACCESSIBILITY

DESIGNING FOR ACCESSIBILITY

A FRUSTRATION THAT A PERSON WITH A DISABILITY EXPERIENCES WHEN WORKING WITH MOBILE APPS THAT LIMIT ACCESSIBILITY.

Disabilities come in many different forms. People with disabilities have the same desires that those without disabilities have for using technology like websites or applications, whether their mobile or desktop. One major disability that affects many individuals is their life is a visual impairment disability. When your visually impaired things like text can be hard to read, buttons can be hard to define and navigation can simulate being trapped in a maze with no end. It is important to recognize this disability and make sure that a screen reader can reference all elements on the screen, in an order that makes sense. If the screen reader reads elements with the wrong hierarchy then people with this disability may not understand the importance of the elements that they are trying to interact with.

> **Put yourself in their shoes, walk in their footprints.**

Among the many disabilities, one disability individuals are faced with is cognitive impairments and illiteracy. Some people with this condition have trouble remembering or determining what needs to be done to interact properly with certain elements on the application. Often people with this type of condition can forget what they're supposed to be entering in a field half way through them typing, so it's important to have labels clearly representing what belongs in the controls plus easy to read and understand instructions so users with this condition can have a meaningful user experience.

Physical, motor and dexterity impairments are another type of disability that could be frustrating to users. People with this condition find challenges when using an application that has not been designed properly for them to interact with. A major frustration that individuals with this condition face is pushing buttons that are too small or in a location that is not in a "reachable" area for the way that they hold the device. If the buttons are too close together then the users often finds themselves pushing the wrong button by accident, this action could turn a quick, enjoyable task into one that is frustrating and takes much longer to complete.

ACCESSIBILITY & MOBILE APPLICATIONS

Many applications that are on the market today are compliant with accessibility standards, but there are still some applications that are not compliant. One application that is not able to interact with the screen reader is Pokémon Go. This is partially due to the fact that this is a gaming application and some of the elements are not set up like a text based application with lists, checkboxes and radio buttons so the screen reader is not able to decipher what is to be said to describe the elements.

Many gaming applications are restricted when it comes being able to provide accessibility. This is partly due to the fact that removing or changing certain features can take away from the experience that's meant to be provided. But there is some consideration that could be made when it comes to making a gaming application like Pokémon Go a little bit more accessible. Considerations like button size, text size, color contrast, reminders and screen reading.

Pokémon Go screen shot (2016)

Because the accessibility options in the device itself are incapable of managing the limitations being had by individuals with disabilities, applications like Pokémon Go should maybe consider giving options to be able to turn on and off certain features like large buttons, navigation wizards and flashing graphics. In the code itself, the applications needs to be written in a way that screen readers could read and give a general location of the elements.

A common development technique the production of Pokémon Go could have adapted, if didn't already, is agile designing. By utilizing the agile design technique they could have still released this application at the time desired but over a course of time start to implement some accessibility features. Slowly adding features to an application that is as popular as this one could make for a highly praised reputation for the company's name that developed this app and allow individuals with disabilities a chance to feel normal by enjoying the world's most popular game like everyone else.

ACCESSIBILITY & MOBILE APPLICATIONS (CONTINUED)

As the population grows for applications like this one, so will the demand by users of all kinds, even those with disabilities. So it's important to have tools that could be used to save time while they were implementing the accessibility features into the application. The use of software libraries could help with making text sizes larger and creating code that provides a hierarchy for a screen reader to read text; and in a way that is meaningful to someone that has visual impairment issues.

There are many features that could be chosen to make Pokémon Go more accessible for users with disabilities. People of all kinds wish to interact with this application, even if they have cognitive problems. One way could be use of a navigation wizard; this would help people with cognitive problems remember what to do next. This feature could have an option to be turned on and off, as many other applications do.

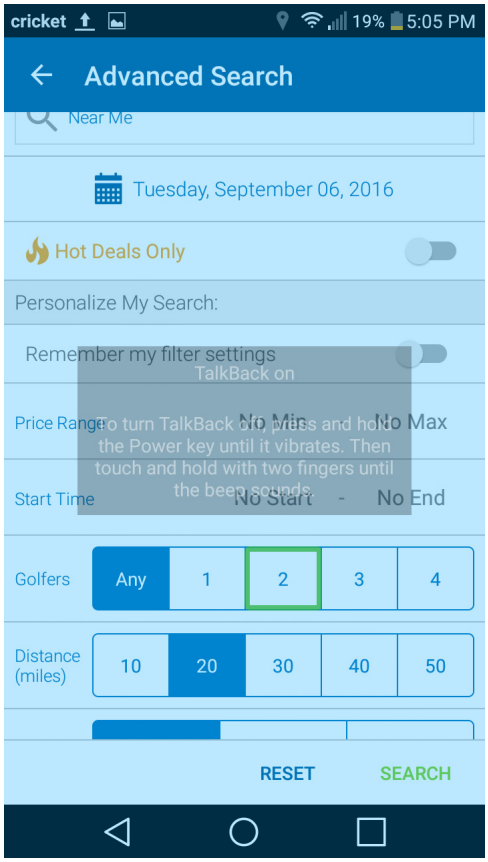
People with visual impairments need to be able to know if there are items on the screen that they can interact with. Pokémon Go does not implement a screen reader, but there are many occasions where a screen reader could help. When buttons are present on the screen a screen reader could tell the user how many buttons there are and iterate through them, telling the user what each button does.

Some of the buttons on this application are really small and could be hard to push for users with physical impairments. The buttons on this application have good spacing already, but by having a means of resizing buttons and features, users of all kinds could personalize their user experience to suit their needs.

ACCESSIBILITY COMFORMED MOBILE APPLICATIONS

A visual impairment has to be one of the hardest conditions to have in order to live life in a normal fashion. By making sure your application is catered to people with this condition, you could provide a meaningful experience to someone that struggles day in and day out. One application that does a great job at making sure that the screen reader can help them navigate efficiently is Golf Now.

This application has been designed in a way that the screen reader can tell what information need to be entered. When you select a textbox control the screen reader reads the text inside the box. The default text inside the box tells the user what kind of information needs to be entered and the screen reader conveys that message to the user. When an item is checkable the reader tells the state of the radio button and sequenced position of the radio button. Also when a list is present the reader tells how many items are in the current list and which listing is selected. One couldn't even begin to understand the struggles that the visually impaired deal with when trying to use mobile applications but by having apps like Golf Now implement the use of a screen reader, the task of using an application is much more manageable.



GolfNow screen shot (2016)

ACCESSIBILITY COMFORMED MOBILE APPLICATIONS (CONTINUED)

As of 1998, Congress amended the Rehabilitation Act of 1973. This amendment requires federal agencies to make electronic an informational technology accessible to people with disabilities (section 508, 2016). One mobile application that complies with many standards of section 508 is Instagram. Mainly because this application is very simple, a way that this application complies is through part d of § 1194.21. Sufficient information about a user interface element shall be available through assistive technology (section 508, 2016). Each time you navigate to different elements that reader explains the element and its state.

Part g of § 1194.21, the technical standards states that an application cannot overwrite the user selected contrast and color selections (section 508, 2016), Instagram left these settings alone to provide accessibility to individuals with visual disabilities. Part c indicates that a well defined on-screen indication of the current focus shall be provided that moves among interactive interface elements as the input focus changes (section 508, 2016). The assisted technology can distinguish whatever element is in focus and convey a description for each item on the screen, even images, thus complying with section 508 standards.

Instagram screen shot (2016)

AUTHOR'S EXPERIENCE

There are many individuals in this world that need special features on websites and mobile applications. It's inevitable that many of us could find ourselves one day being aided by some kind of accessibility feature. As people get old certain senses start to fade, so the need for large text content has to be accessible in order for us to be able read content while still getting the kind of user experience that was intended to be given. There is a story on w3.org, which talks about a man who has bad hand tremors, which impairs him when trying to click on small links. He also suffers from low vision and has to change the text to a larger size using his web browser. These are just a couple of the daily constraints that impair this person with disabilities; sadly there are many people that deal with these issues. So it's very important to design applications to accommodate with these types of constraints. (Abou-Zahra, 2012)

Before this recent discovery of constraints I did not have many thoughts about how people with disabilities use applications. The need and the requirements for applications to be accessible for individuals with disabilities was not what came to mind when thinking of developing applications. Being ignorant to constraints has caused me to only see what was best for people without special needs, but now having a better understanding of how constraints need to be addressed; I can start to think about how I can make applications more accessible.

As I develop a better understanding for the needs of others, when it comes to using applications, I can start thinking of these problems in the earlier stages of the application development process. Though I realize that most likely not everything I develop in my early career as a mobile developer will meat these standards. I know that it will be best to implement some sort of accessibility feature if I wish to appeal to all walks of life. Starting simple by making sure any actions and input controls have been clearly labeled and given easy to understand instructions will help compliment individuals with cognitive impairments. Also making sure that elements are listed in a meaningful and sequential manor is a great way to convey information on the screen to users with visual impairments through the use of screen readers. These are just two small steps that could make a big difference for users with impairments.

ACCESSIBILITY

RESOURCES

Abou-Zahra, S. (2012, August). Stories of Web Users [Draft] How People with Disabilities Use the Web. Retrieved September 05, 2016, from https://www.w3.org/WAI/intro/people-use-web/stories#retiree

GolfNow - Mobile Development Team - August 16, 2016 - Everyone. (2016). GolfNow – Book Tee Times - Android Apps on Google Play. Retrieved September 07, 2016, from https://play.google.com/store/apps/details?id=com.golfnow.android.teetimes screenshot

Instagram - September 7, 2016 - Teen. (2016). Instagram - Android Apps on Google Play. Retrieved September 07, 2016, from https://play.google.com/store/apps/details?id=com.instagram.android screenshot

Niantic, Inc. - August 23, 2016 - Everyone. (2016). Pokémon GO - Android Apps on Google Play. Retrieved September 07, 2016, from https://play.google.com/store/apps/details?id=com.nianticlabs.pokemongo screenshot

Section 508 Law and Related Laws and Policies. (n.d.). Retrieved September 05, 2016, from https://www.section508.gov/content/learn/

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