



uOttawa

USER MANUAL

Introduction to Product Development & Management for Engineers
GNG2101-A

Deliverable J - User Manual

Team A9

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Abstract

A need exists for visually impaired individuals to read and reply to messages using their voice, and not having to rely on memory to see buttons on their phones. Our client is visually impaired and has a difficult time reading and replying to his messages through iMessage and other third party messaging apps ie. Facebook, messenger, skype, etc.

He finds it frustrating using the small icon at the bottom of his screen as he often cannot find it, or struggles to locate the button. He also experiences difficulty when sending messages as the voice command may not read his voice correctly, and he cannot read over what dialogue was just sent. Overall, he has not been able to find any application on iPhones that allows him to confidently use his phone for messaging, causing him to resort to larger screens using his iPad or Computer.

We want our client to have the easiest experience possible and we can truly empathize with what he is feeling. This is why we have created our app called “Guidey”. Guidey allows our client to have our application on the screen at all times, with being able to move it around as we have incorporated it into the accessible touch feature. Guidey allows the user to read or reply to a message using voice and large buttons, as well as it will read the message back to them, confirming the message is correct. The user then will simply just need to paste the message and it will send.

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1. Introduction

a) The Problem and Its Importance

When companies are developing an app, accessibility of the app for visually impaired people is not usually one of the main concerns. After talking to our client we have realized how difficult it is for the client to read and reply to their messages in messaging applications, and the client said that there are many others with the same problem. The client also mentioned having to rely on memory for knowing where each app is. We have done some research and found out that “an estimated 500,000 Canadians are blind or partially sighted”.^[1]

We have also looked for applications that already exist but we haven't found any app that can be used for an iPhone which has all the messaging apps in one app.

So we have decided to help to make it easier to send and reply to messages for the visually impaired by making an application that can be used for all common messaging apps and also supports text-to-speech and speech-to-text.

b) User Requirements

Aside from the minor ones, there are 4 main user requirements that are aimed to be met for this application. First one is reading messages to the user and giving him/her the option to reply to the messages with voice input. Second one is being compatible with iOS devices. Third one is providing functionality while using both iOS messaging app, iMessage, and third party messaging apps, i.e. WhatsApp, Messenger, Skype. Last requirement for this application is to be easily accessible and practical which is achieved by both being available in iOS while functioning in all messaging apps and enabling the user to reply to messages with voice input.

Accessibility and ease of use is our foremost priority as we believe our application can present a better daily experience to those of us having difficulty using messaging apps by introducing them a quicker and effortless way of reaching the messaging services. We are focused on the quality of individual experiences as we believe serving convenience to every person in our communities can make an impact.

c) Advantages

The advantages of using Guidey are plentiful and unique. The first being that Guidey is completely compatible with the latest IOS software and any Iphone. This is key as several clients that wish to use iPhones may not have the applications and accessibility features that could be provided on android. Our application gives them just that, the accessibility features they've been missing on IOS. Along with functionality on IOS, Guidey is extremely easy to use and install. All the user must do is download the shortcut from our link, and activate it by touch or utilizing IOS' Siri voice control function. In addition, Guidey is fully customizable by and for the user, given that the application is run through shortcuts, it can be added onto and changed by the user, if one desires. Finally, another key advantage of the Guidey is that, as it is a shortcut, it is fully compatible with third-party applications of any kind. These advantages truly separate Guidey from the competition and in the eyes of its users.

2. Our App - Guidey

a) Important Features and Capabilities

Guidey allows users to reply to messages with their voice and reads messages out loud. Guidey can be accessed from anywhere on the users iPhone as long as they have it installed in the Shortcuts app. After downloading the Shortcut, users can add it to an accessible touch which allows them to access Guidey from whatever app they are in.



Figure 1: Guidey Shortcut Application Logo



Figure 2: Accessible Touch

b) How Guidey was Made

Guidey was created using the Apple Shortcuts app provided by Apple. Design and implementation of the Shortcut was done using Apple's user friendly Shortcut interface. Doing

research on Shortcut’s capabilities we carefully designed and chose the appropriate functions to run our application.

Link to download shortcut:

<https://www.icloud.com/shortcuts/85af274379244f64b604bfef64ee6849>

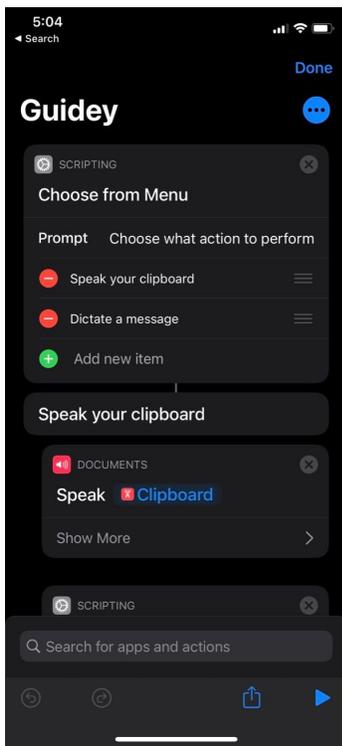


Figure 3: Shortcut Development Environment

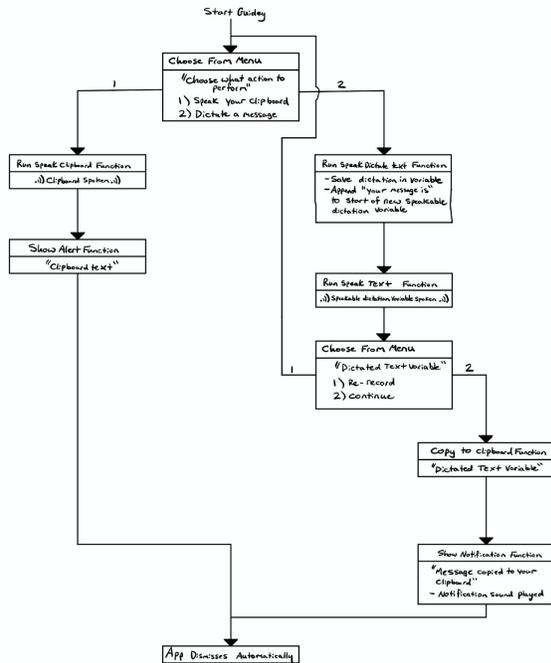


Figure 4: Guidely Function Flow Diagram

c) How does Guidely Work?

Guidely works by reading and replying to messages using a shortcut. When a message is received, the user will quickly and easily activate Guidely through accessible touch where the user will then copy the message to their clipboard and guidely will read it. If the user decides to send a message, they will dictate a message, Guidely will read it back to confirm the message, and it will copy the message to the user’s clipboard. From here the user will click “paste” and send the message.

To see the full functionality of Guidely, Click on the link below.

Video Link:

https://www.youtube.com/watch?v=p_orE4Xm0Dg&feature=youtu.be

d) How to Install Guidey

First step the user must take is ensuring that the shortcuts app downloaded on the user's iPhone. To download the shortcuts app, go to the App Store and search “shortcuts”, figure 5 displays what the app will look like. When this is downloaded, open it. Our team will have a link provided to the shortcut “Guidey”, in which the user will be able to add to their phone by pressing “add untrusted shortcut”.



Figure 5: Shortcuts on the App Store

When adding our team’s shortcut, Guidey is added to the users phone, the user must now add it to the accessible touch feature. *Go to settings → Accessibility → Touch (Physical and Motor) → Accessible Touch → turn on and scroll down to find “Customize Top Level Menu”, click on this → hit the + → scroll to the bottom to find “Guidey” → Tap on Guidey and press done.* Now the Shortcut is added to the accessible touch. The user's phone will not look similar to Figure 6.

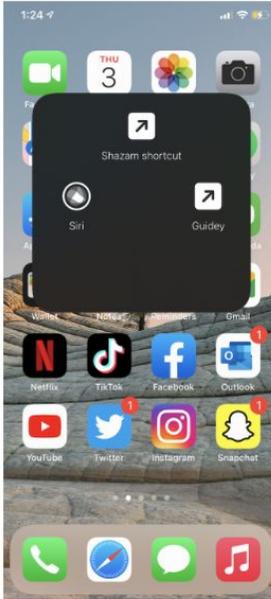


Figure 6: Guidey Shortcut Successfully Added to Accessible Touch

e) Maintenance and Troubleshooting

Maintenance is fully customizable and user friendly. The user has full access to the history of the app and can change their settings according to their needs. Although, if there is a “glitch” with the shortcut, the user just has to delete it from the accessible touch component and re-add it. *Go to settings → Accessibility → Touch (Physical and Motor) → Accessible Touch → scroll down to find “Customize Top Level Menu”, click on this → scroll to the bottom to find “Guidey” → Tap on Guidey → hit the - button, this will delete it off of accessible touch → re-add Guidey by hitting the + button → and press done.* Of course our team is always available to help and can be reached through MakerRepo.

Link to MakerRepo: <https://makerepo.com/meghanmilando/gng2101-a9-accessible-messaging>

f) Health and Safety Guidelines and Precautions

There are no health and safety precautions to take. This application runs no risk to any individual's safety. Our team does not support using this application while driving.

Design Files

By downloading this link, one can see all the code and functionality of the shortcut. This can only be downloaded using iPhone and be ipperating using IOS 14.

Link to download shortcut:

<https://www.icloud.com/shortcuts/85af274379244f64b604bfef64ee6849>

Link to MakerRepo: <https://makerepo.com/meghanmilando/gng2101-a9-accessible-messaging>

3. Conclusion and Recommendations for Future Work

Conclusions reached at the end of this project would be that developing an application for a specific software, such as IOS in this case, can be extremely difficult and tedious. However, this allows for other, more obtainable options to be explored. Options such as utilizing the IOS softwares own features to our clients needs and satisfaction. Other lessons learned would be proper time management and planning. Without planning and understanding not all of our initial ideas would be the final solution, the team would have struggled to get the product working properly and on time. This product was limited by time and resources, but there is a great potential for future work. Such as the implementation of a language translation, in this case english to spanish. This would be done by having a database collect and store all the words that would be read back to the user in english and have these words transported to an excel file for a rough translation, then have the translated words sent back and read aloud in spanish. This would give a rough translation but other options would include, enlisting the service of an established translation feature and outsourcing our translations to a company for a fee of some kind. Obviously, the idea of the application through shortcuts was done to effectively convey the solution, but moving forward the team could work with Apple and Facebook API to create a proper application that would be sold on the Apple app store. This method would require familiarization with several APIs and access to Apple developer software and far more of a budget.

Bibliography

[1] Blindness. (2020, December 4). CNIB. <https://cnib.ca/en/sight-loss-info/blindness?region=on>

[2] Shortcuts user guide. (2020, December 5). Apple Support.

<https://support.apple.com/en-ca/guide/shortcuts/welcome/ios>

[3] Siri. (2020, December 5). Apple (CA). <https://www.apple.com/ca/siri/>

Appendix

Item Number	Part Name	Description	Quantity	Unit Cost	Extended Cost
1	IOS Shortcut App	Application that allows developers to create custom shortcuts	1	\$0.00	\$0.00
2	Accessible Touch	This is the a user to access a helpful button that developers can implement shortcuts into	1	\$0.00	\$0.00
3	App Store fees	This is the fee that will be need to paid to have the application available for download from the app store	1 (Yearly Payment)	\$100.00+	\$100.00

Table 1: Bill of Materials for Guidey