Apple iPhone

6 Great Accessibility Features for People with Vision Impairments

This document has been designed to introduce you to some of the most useful Accessibility features found on an iPhone which can be used to help people with vision impairments.

1.   The Smart Invert Feature

Smart Invert reverses the colours of the screen, except for images, media and some apps that use dark colour styles. This can make a big difference to a person with a vision impairment, as it reduces screen glare and increases the contrast between the text and the background.

To turn Smart Invert on, follow these steps:

1.   From the Home Screen, activate the "Settings" icon. Upon doing this, the Settings screen will be displayed.

2.   In the Settings screen, activate the button labelled "Accessibility". Upon doing this, the Accessibility screen will be displayed.

3.   In the Accessibility screen, activate the button labelled "Display and Text Size". Upon doing this, the Display and Text Size screen will be displayed.

4.   In the Display and Text Size screen, activate the button labelled "Smart Invert". Upon doing this, the screen colours will be reversed.

5.   Activate the "Back" button, situated at the upper left corner of the Display and Text Size screen. Upon doing this, you will be returned to the Accessibility screen.

6.   Activate the "Back" button again. Upon doing this, you will be returned to the Settings screen.

7.   Finally, press the Home button to close the Settings app and return focus to the Home Screen. Alternatively, if your device doesn't have a Home Button,

place one finger at the bottom edge of the screen and then slide it up approximately a third of the way, then lift your finger. This should take you back to the Home Screen!

Note 1: You can also turn Smart Invert on/off using Siri. To do this, simply Hold down the Home button, or the Side button on devices which don't have a Home button. Upon doing this, Siri will start listening to you. Alternatively, if you have Hey Siri set up, you can simply say "Hey Siri". Then, say "turn Smart Invert on" to turn it on, or "turn Smart Invert off", to turn it off!

2.   The Larger Text Feature

The Larger Text feature, once turned on, allows you to increase the size of the text inside apps which support dynamic type. For reference, these include Calendar, Contacts, Mail, Messages, Notes and other apps which are built-in to the iPhone.

To turn the Larger Text feature on, and then specify the text size to be used, follow these steps:

1.   From the Home Screen, activate the "Settings" icon. Upon doing this, the Settings screen will be displayed.

2.   In the Settings screen, activate the button labelled "Accessibility". Upon doing this, the Accessibility screen will be displayed.

3.   In the Accessibility screen, activate the button labelled "Display and Text Size". Upon doing this, the Display and Text Size screen will be displayed.

4.   In the Display and Text Size screen, activate the button labelled "Larger Text". Upon doing this, the Larger Text screen will be displayed.

5.   In the Larger Text screen, activate the button labelled "Larger Accessibility Sizes" to turn this feature on.

6.   Now, using the slider bar at the bottom of the screen, adjust the text size. As you do this, the text on the screen will change to the setting you specify.

7.   When you have specified your preferred text size, activate the "Back" button, situated at the upper left corner of the Larger Text screen. Upon doing this, you will be returned to the Accessibility screen.

8.   Now activate the "Back" button again. Upon doing this, you will be returned to the Settings screen.

9.   Finally, press the Home button to close the Settings app and return focus to the Home Screen. Alternatively, if your device doesn't have a Home Button, place one finger at the bottom edge of the screen and then slide it up approximately a third of the way, then lift your finger. This should take you back to the Home Screen!

Now, when you use an app which supports dynamic type, such as Mail, Messages or Notes, the text will adjust to the size you specified in the Larger Text screen.

3.   The Zoom Feature (Magnification)

Zoom is the name Apple gives to their built-in screen magnifier found on all iOS devices (iPhone, iPad and iPod). It can be toggled on/off by performing a Three Finger Double Tap. However, before you can do this, you first need to turn it on.

Turning Zoom On

To turn Zoom on, follow these steps:

1.   From the Home Screen, activate the "Settings" icon. Upon doing this, the Settings screen will be displayed.

2.   In the Settings screen, activate the button labelled "Accessibility". Upon doing this, the Accessibility screen will be displayed.

3.   In the Accessibility screen, activate the button labelled "Zoom". Upon doing this, the Zoom screen will be displayed.

4.   At the top of the Zoom screen, you will find a button which is used to turn Zoom on/off. Activate this button to turn it on. Upon doing this, a green circle will be displayed on the button. This indicates that the feature is enabled.

That's it, you have successfully enabled Zoom.

Specifying the Zoom Region

When Zoom is enabled, the screen can be magnified in a number of different ways. For example, magnification can be applied to a specific part of the screen, a particular window, or the entire screen.

To specify the Zoom region, follow these steps:

1.   In the Zoom screen, activate the button labelled "Zoom Region. Upon doing this, the Zoom Region screen will be displayed.

2.   Activate the button associated with your desired Zoom region setting. For most people, Full Screen is the best setting!

3.   When you have specified your preferred zoom region, activate the "Back" button, situated at the upper left corner of the Zoom Region screen.

Adjusting the Magnification Level

At the bottom of the Zoom screen, you will find a slider bar for adjusting the Maximum Zoom Level. It is recommended to set this to either 3x or 4.5x. You can always adjust it later if this setting is not ideal.

Adjusting the Magnification Level Using a Gesture

You can adjust the magnification level at any time, by performing a Three Finger Double Tap and hold. This means when you tap for the second time, don't let go of the screen. You can now slide your three fingers upwards to increase the magnification, or downwards to decrease the magnification.

When you slide up with three fingers, the magnification will not exceed the size you specified with the Maximum Zoom Level slider bar in the Zoom settings screen.

Note 2: The time between the taps must be less than half a second. This is a tricky gesture to master, so be patient!

Scrolling the Screen

One consequence of using magnification, is that you won't be able to see the entire contents of the screen. The higher the magnification, the less you will be able to see at any given time.

In order to see all of the screen contents, you will have to scroll the screen to the left and right as well as up and down. To scroll the screen, place Three Fingers on the screen and slide them left, right, Up and Down to scroll.

Turning Zoom On/Off Using a Gesture

To turn Zoom on/off, perform a Three Finger Double Tap. This is a great way of dipping in and out of magnification! When you turn the magnification back on, the magnification will be set to the level you were using prior to turning it off.

Magnification can be a little frustrating, however, from time to time, it can be a real godsend, especially when trying to view faces in a photograph!

4.   The Spoken Content Feature

Your iPhone has the ability to speak the contents of the screen, using a human sounding synthetic voice. This can be most useful for reading long passages of text, such as an article on the web or an email message.

To turn the Spoken Content feature on, follow these steps:

1.   From the Home Screen, activate the "Settings" icon. Upon doing this, the Settings screen will be displayed.

2.   In the Settings screen, activate the button labelled "Accessibility". Upon doing this, the Accessibility screen will be displayed.

3.   In the Accessibility screen, activate the button labelled "Spoken Content". Upon doing this, the Spoken Content screen will be displayed.

4.   In the Spoken Content screen, activate the button labelled "Speak Screen". Upon doing this, a green circle will be displayed on the button. This indicates that the feature is enabled.

5.   Now, activate the button labelled "Speech Controller". Upon doing this, the Speech Controller screen will be displayed.

6.   In the Speech Controller screen, activate the button labelled "Show Controller". Upon doing this, a green circle will be displayed on the button. This indicates that the Speech Controller will be displayed as an icon in all apps.

7.   Activate the "Back" button, situated at the upper left corner of the Speech Controller screen. Upon doing this, you will be returned to the Spoken Content screen.

8.   Activate the "Back" button again. Upon doing this, you will be returned to the Accessibility screen.

9.   Activate the "Back" button once more. Upon doing this, you will be returned to the Settings screen.

10.   Finally, press the Home button to close the Settings app and return focus to the Home Screen. Alternatively, if your device doesn't have a Home Button, place one finger at the bottom edge of the screen and then slide it up approximately a third of the way, then lift your finger. This should take you back to the Home Screen!

Using the Spoken Content Feature

Open a web page, email message or any other app which contains text information. You should find a grey coloured icon situated towards the right edge of the screen. This is the "Speak Screen" icon. You can move this icon around the screen by dragging it with one finger. The recommended place to move the icon to is the top centre of the screen, as here, it shouldn't get in the way too much when you try reading information!

Now activate the Speak Screen icon. Upon doing this, the Speaking Bar will be displayed. The Speaking Bar consists of the following options:

The Speak on Touch button

Situated at the lower left corner of the Speaking Bar, you will find the Speak on Touch button. This is denoted by a graphic of a hand. If you tap the hand, the Speaking Bar will be minimised. You can now drag one finger around the screen. Whatever text is underneath your finger, will be read aloud. Don't break contact with the screen, or the reading will stop!

If you have read all of the text on the current screen, lift your finger, scroll the screen down and then activate the Speak Screen icon once more. Tap the hand and read the next page using just one finger.

Using the Speak on Touch feature takes a little practice, however, it really can make reading text easy and accessible! Try moving your finger slowly from one part of the screen to the next, ensuring you let the speech finish before doing so!

The Play/Pause button

Situated at the lower centre of the Speaking Bar, you will find the Play/Pause button. This is denoted by a graphic of an arrow head pointing to the right. Tap the Play button and the text on the screen will be read aloud. When you do this, the Play button changes to become the Pause button. This is denoted by a graphic of two vertical lines. Tap this button to pause the speech. When you do this, the button changes to become the Play button once more. When you tap the Play button again, the speech starts from where you paused it!

When the text is being read aloud, two additional options become available on the Speaking Bar. To the left of the Play/Pause button, you will find the Rewind button, which is used to rewind the speech to the previous screen element. To the right of the Play/Pause button, you will find the Fast-Forward button, which unsurprisingly, is used to fast-forward the speech onto the next screen element.

Tip! You can also read the contents of the screen by swiping down from the top of the screen with two fingers. When you do this, everything on the screen will be read aloud, from top to bottom. However, there is no way of pausing the speech using this method!

The Playback Speed Button

Situated at the lower right corner of the Speaking Bar, you will find the Playback speed button. This is used to change the reading speed from Normal (default), to 1.5 times the original, twice the speed of the original and half the speed of the original. This is a very handy way of controlling the speed of the speech!

The Minimise Speaking Bar Button

Situated at the upper left corner of the Speaking Bar, you will find the Minimise button. Activate this button to remove the Speaking Bar from the screen. When you do this, the grey icon once again becomes available. Activate this icon to re-display the Speaking Bar.

The Spoken Content feature is a great way of having text read aloud without having to learn about using more complex features, such as VoiceOver (coming up next)!

5.   The VoiceOver Feature

VoiceOver is the built-in screen reader found on all Apple iOS devices (iPhone, iPad and iPod). When VoiceOver is turned on, your device will speak information about any item on the screen you touch. Additionally, VoiceOver will also read alerts and popup messages when they appear! VoiceOver is most commonly used by people whose vision isn't good enough to read text from the screen, even when it is magnified!

Note 3: When using VoiceOver, it is recommended to hold your iPhone in Portrait orientation, with the power button on the right edge and the volume buttons on the left edge.

Turning VoiceOver On

There are three ways in which you can turn VoiceOver on. The two most common methods are described below. The other method is a little convoluted and won't be discussed in this document.

Using Siri to Turn on VoiceOver

If your iPhone is connected to the internet, you can turn on VoiceOver by using Siri. To do this, find a quiet place and do the following:

1.   Hold down the Home button, or the Side button on devices which don't have a Home button. Upon doing this, Siri will start listening to you. Alternatively, if you have Hey Siri set up, you can simply say "Hey Siri".

2.   In a clear voice, full of pride and confidence, say "Turn VoiceOver on"!

3.   Between two and five seconds later, Siri will say, "OK, VoiceOver is now on".

For reference, to turn VoiceOver off, just invoke Siri and say "Turn VoiceOver Off".

Turning VoiceOver On Using the Accessibility Shortcut

All iOS devices (iPhone, iPad and iPod) include an option for quickly turning certain Accessibility features on and off by pressing the Home button, three times quickly. This option is known as the Accessibility Shortcut!

To enable the Accessibility Shortcut for VoiceOver, follow these suggested steps:

1.   From the Home Screen, activate the "Settings" icon. Upon doing this, the Settings screen will be displayed.

2.   In the Settings screen, activate the button labelled "Accessibility". Upon doing this, the Accessibility screen will be displayed.

3.   In the Accessibility screen, activate the button labelled Accessibility Shortcut. Upon doing this, the Accessibility Shortcut screen will be displayed.

Note 4: The Accessibility Shortcut button is the second last button in the Accessibility screen, so you might have to scroll the screen a few times in order to locate it.

4.   In the Accessibility Shortcut screen, you will find a number of buttons that represent switches for turning specific Accessibility features on and off by pressing the Home button three times quickly. Ensure that the only button that is enabled is the one for VoiceOver.

5.   Activate the "Back" button, situated at the upper left corner of the Accessibility Shortcut screen. Upon doing this, you will be returned to the Accessibility screen.

6.   Activate the "Back" button again. Upon doing this, you will be returned to the Settings screen.

7.   Finally, press the Home button to close the Settings app and return focus to the Home Screen. Alternatively, if your device doesn't have a Home Button, place one finger at the bottom edge of the screen and then slide it up approximately a third of the way, then lift your finger. This should take you back to the Home Screen!

Adjusting the Speaking Rate of VoiceOver

The speaking rate of VoiceOver can be adjusted by using the Rotor. This is a feature in VoiceOver which allows you to change various settings. However, this feature requires a significant amount of understanding. Therefore, until you have gained more experience with VoiceOver, it's recommended to change the speaking rate of VoiceOver by using the "Speaking Rate Slider Bar", found in the VoiceOver screen. This is easy for a sighted person to do when VoiceOver is turned off. So, ask a sighted friend or colleague to carry out the following steps and then give you the iPhone back when done:

1. If VoiceOver has been started, turn it off using one of the methods outlined above.

2. From the Home Screen, activate the "Settings" icon. Upon doing this, the Settings screen will be displayed.

3. In the Settings screen, activate the button labelled "Accessibility". Upon doing this, the Accessibility screen will be displayed.

4. In the Accessibility screen, activate the button labelled VoiceOver. Upon doing this, the VoiceOver screen will be displayed.

5. In the VoiceOver screen, you will find a slider bar which can be used to adjust the speaking rate of VoiceOver. Slide this bar to the centre position, or slightly to the left of this point. This will ensure that VoiceOver speaks at a comfortable rate.

6. Activate the "Back" button, situated at the upper left corner of the VoiceOver screen. Upon doing this, you will be returned to the Accessibility screen.

7. Activate the "Back" button once more. Upon doing this, you will be returned to the Settings screen.

8. Finally, press the Home button to close the Settings app and return focus to the Home Screen. Alternatively, if your device doesn't have a Home Button, place one finger at the bottom edge of the screen and then slide it up approximately a third of the way, then lift your finger. This should take you back to the Home Screen!

VoiceOver Gestures

VoiceOver uses a series of finger movements, called 'gestures', to navigate the screen and activate controls. There are many types of gesture. Some gestures use just one finger, whilst others involve the use of two, three and sometimes four fingers. Gestures can be a little tricky to learn, but with practice and determination, you will find that you can access information with relative ease!

Navigating Screens with VoiceOver

With VoiceOver turned on, you can navigate the screen in two ways. The first method involves simply placing one finger on the screen and dragging it around. In doing this, whichever item your finger passes over, VoiceOver will announce it. The last thing spoken by VoiceOver will be selected and will become the Current Item.

The second method of navigation is to use the One Finger Swipe gesture. This gesture involves swiping one finger across the screen, a little like flicking an imaginary fly that had landed on the screen off! Upon swiping to the right, the next item will be selected, announced by VoiceOver and become the Current Item. For reference, swiping to the left with One Finger results in the previous item being selected, announced by VoiceOver and becoming the Current Item.

Note 5: VoiceOver uses a cursor to navigate. This is represented by a border surrounding the currently selected item. Whatever is inside the border, will be spoken by VoiceOver!

Following are the most commonly used VoiceOver gestures.

One Finger Drag
This is known as the Explore gesture. It allows you to explore the contents of the screen. When your finger passes over an item, it is spoken by VoiceOver.

One Finger Swipe Right
This is known as the Next Item gesture. It moves the VoiceOver cursor to the next item and reads it. For reference, items can be icons on your Home Screen, blocks of text, buttons and text fields inside apps.

One Finger Swipe Left
This is known as the Previous Item gesture. It moves the VoiceOver cursor to the previous item and reads it. For reference, items can be icons on your Home Screen, blocks of text, buttons and text fields inside apps.

One Finger Double Tap
This is known as the Activate gesture. It is used to activate the Current Item. Typically, items are icons, buttons or text fields. After selecting the item you want to activate, you can perform the One Finger Double Tap anywhere on the screen!

Note 6: Buttons can have two purposes. The first is to display a new screen of information. The second is to turn a setting on or off. In either case, you activate it in the same way!

Note 7: When performing the One Finger Double Tap gesture, the taps need to be immediately after each other. You cannot delay, because if you do, VoiceOver will interpret this as two separate Explore gestures!

Two Finger Swipe Up
This is known as the Read from Top gesture. It is used to read the entire contents of the screen from top to bottom.

Two Finger Swipe Down

This is known as the Read to End gesture. It is used to read the contents of the screen from the currently selected item to the end.

Two Finger Single Tap

This is known as the Pause/Resume gesture. It is used to pause the reading. Tapping the screen again with two fingers resumes the reading.

Three Finger Swipe Left

This is known as the Scroll Right gesture. It is used on the Home Screen to display the next page. Place three fingers on the screen and swipe them across the screen horizontally to the left. Upon doing this, the next page of the Home Screen will be displayed and VoiceOver will announce "page X of Y", where X is the current page and Y is the total number of pages available. The currently selected icon on the page will then be announced by VoiceOver.

Three Finger Swipe Right

This is known as the Scroll Left gesture. It is used on the Home Screen to display the previous page. Place three fingers on the screen and swipe them across the screen horizontally to the right. Upon doing this, the page of the Home Screen will be displayed and VoiceOver will announce "page X of Y", where X is the current page and Y is the total number of pages available. The currently selected icon on the page will then be announced by VoiceOver.

It may seem a little confusing that the Three Finger Swipe Left gesture scrolls the screen to the right and the Three Finger Swipe Right gesture scrolls the screen to the left. However, imagine a paperback book. When you reach the end of the right-hand page, you turn to the next page by folding it over to the left. Similarly, if you want to go back a page, you fold the left-hand page over to the right. The concept is the same on your iPad for moving between Home Screen pages!

Three Finger Swipe Up

This is known as the Scroll Down gesture. It is used inside apps to scroll the screen down. Place three fingers on the screen, and swipe them upwards. Upon doing this, you will hear a swoosh sound and the next few options will be displayed.

Three Finger Swipe Down

This is known as the Scroll Up gesture. It is used inside apps to scroll the screen up. Place three fingers on the screen, and swipe them downwards. Upon doing this, you will hear a swoosh sound and the next few options will be displayed.

It may seem a little confusing that the Three Finger Swipe Up gesture scrolls the screen down and the Three Finger Swipe Down gesture scrolls the screen up. However, imagine a wall calendar, with the currently displayed month being March.

You want to display the next month, so you flip the page up and over away from you. Upon doing this, the month of April is displayed. You have effectively scrolled down to display the next page. Now, you want to display the month of February. You flip the page up and over towards you twice until the month of February is displayed. You have effectively scrolled up two pages!

Note 8: When performing gestures that involve two or more fingers, leave a small gap between the fingers. This will help VoiceOver to recognise how many fingers are touching the screen!

VoiceOver is a very powerful feature and can be used to access all of the apps built-in to the Apple iPhone, as well as hundreds of third party apps. However, it can also be very difficult for some people to get to grips with. If you want to find out more about VoiceOver, and how to customise it to meet your needs, you can download a set of introductory lessons from the Sight For Surrey website. The direct link to these resources is as follows:

https://sightforsurrey.org.uk/get-help/vision-impairment/technology-and-equipment/ict-handouts-tutorials/

6.   The Web Page Zoom Feature

For many people with vision impairments, reading web pages can be very problematic, as the text size can vary from website to website, making it extremely difficult to see clearly. Fortunately, Safari, the default web browser on all iPhone's, has a feature which allows you to specify the default zoom level. This means you can set the size of the text to meet your needs for all web pages!

To specify the default page zoom level for all websites, follow these steps:

1.   From the Home Screen, activate the "Settings" icon. Upon doing this, the Settings screen will be displayed.

2.   In the Settings screen, activate the button labelled "Safari". Upon doing this, the Safari screen will be displayed.

Note 9: The Safari button is quite a long way down the screen, so you may need to scroll the screen a few times in order to locate it.

3.   In the Safari screen, activate the Page Zoom button. Upon doing this, the Page Zoom screen will be displayed. This contains a number of zoom levels ranging from 50% (half the original size), all the way up to 300% (3 times the original size).

Note 10: The Page Zoom button is quite a long way down the screen, under a heading labelled "Settings for Websites", so you may need to scroll the screen a few times in order to locate it.

4.   Activate the button associated with the desired zoom setting. For reference, a good setting to choose for starters is 150%. When you have selected the desired setting, activate the "Back" button, situated at the upper left corner of the Page Zoom screen. Upon doing this, you will be returned to the Safari screen.

5.   Activate the "Back" button once more. Upon doing this, you will be returned to the Settings screen.

6.   Finally, press the Home button to close the Settings app and return focus to the Home Screen. Alternatively, if your device doesn't have a Home Button, place one finger at the bottom edge of the screen and then slide it up approximately a third of the way, then lift your finger. This should take you back to the Home Screen!

Now, open a web page and see if you can read the text comfortably. If you can't, go back to the Home Screen and follow the steps outlined above. This time though, from the Page Zoom screen, choose a higher zoom setting and try reading the web page again!

Note 11: you might need to try out a few different zoom settings before you find the one which meets your needs! If none of the settings meet your needs, then you can always try the Spoken Content feature or even VoiceOver to read the contents of web pages!

This is the end of the introduction to some of the most useful Accessibility features for people with vision impairments, found on an iPhone. Although there are other features available, one or two of the features covered in this document will most likely meet your needs!

For more information regarding Accessibility features found on an iPhone, please contact the author, Gary Eady, using the following email address:

geady@sightforsurrey.org.uk