ACCESSIBILI TECH Solutions improving lives

Funded by European Union

Accessibility Toolkit

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Section 1

Purpose of toolkit

Why this toolkit?

This toolkit offers simple and easy to read information about the needs of people with disabilities and how to accommodate these needs in different situations.

It is intended for ICT professionals, educators, healthcare providers, carers, students, policy makers and the general public.

The **ACCESSIBILITECH** project aims to improve and enhance e-inclusion and e-accessibility for people with disabilities and other groups with similar needs. This project is based on the UN Convention on the Rights of Persons with Disabilities, that aims to empower this population, so they can realise their rights.

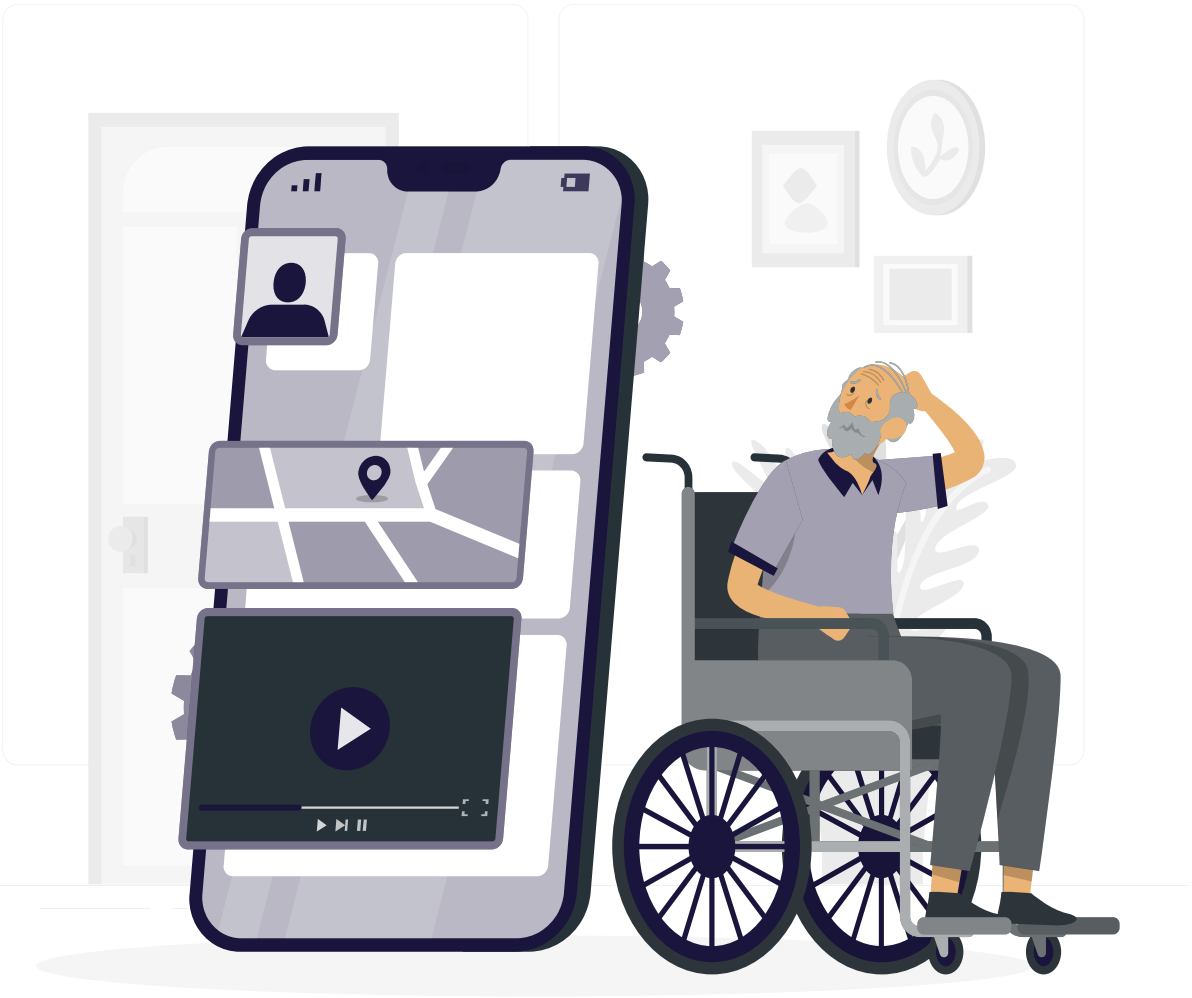
To ensure the full participation of persons with disabilities it is important to keep accessibility in mind and to comply with current standards and laws.

Although there have been many advancements in accessibility in the past few years, many technological products that are not accessible are still reaching the market. This is partly due to the fact that there is still a lack of knowledge and misinformation about accessibility and needs of users.

The goal of this toolkit is to provide knowledge about the needs of users when interacting with technology and guidelines on the following:

- Common accessibility mistakes
- How to improve accessibility in digital documents
- How to improve accessibility in videos
- Organizing accessible events
- Accessibility features in mobile devices

The toolkit also provides external resources that complement the information provided.



Section 7

Accessibility features in mobile devices

What accessibility features do mobiles offer?

Mobile devices are increasingly becoming more accessible. For several years now, developers have been including different accessibility features into their operating systems to accommodate the needs of people with disabilities.

The most notables are Android and iOS devices that offer similar options. It is worth noting that because Android is an open-source operating system, its accessibility features may vary depending on the device's range and manufacturer. Some low and mid-range devices may offer fewer features than high-end devices.

Vision

Most mobile devices in the market offer several built-in accessibility apps enable people with vision disabilities to customize their devices to their needs.

1. Screen reader

A screen reader is a software that describes aloud the visual content and acts as a guide allowing users to interact with actionable elements.

Using a screen reader requires learning a set of gestures that are different from the ones regularly used to control a touch screen device. It is important to become familiar with them before activating a screen reader. Keep in mind that gestures also differ among operating systems.

Learn the basic Voice Over gestures.

Learn the basic TalkBack gestures.

Screen readers can also be useful for people with learning, reading or cognitive disabilities.

iOS Spoken Content and **Android's Select to Speak** apps also read aloud the visual elements in the screen as well as any text selected by the user. These features are much simpler than screen readers.

Read more about Spoken Content and Select to Speak

2. Braille display

Both Android and iOS are compatible with different braille displays. Android offers its own Braille keyboard, but users can still pair an external braille display if they wish.

Learn more about using braille with iOS and Android devices.

3. Font style and size

Android and iOS offer several options to adjust the way the text is displayed on the screen:

- Bold text: this is useful for people who need more contrast between the font colour and the background.
- Larger text: provides a slider to change the font size. If the largest size is not enough, an option to make fonts even bigger is usually available.
- Color inversion: reverses foreground and background colours to improve legibility.
- Increase contrast: adds more contrast between the background and foreground colours. In some Android devices this feature works on the virtual keyboard.

4. Screen magnifier or zoom

Mobile devices usually include a zoom option for people who need to magnify the content in the screen.

iOS zoom magnifies the entire screen or part of it and can be used together with the screen reader. Moving the zoom around the display requires dragging three fingers.

The zoom feature in Android is similar to iOS and can also be used to magnify the entire screen or part of it. However, to move around the screen it is necessary to drag two fingers instead of three.

Read more about screen magnifier in iOS and Android.

5. Colour correction features

Color correction features help people with colour perception difficulties. Mobile operating systems offer several to allow users to customize the colour of their screen. These options range from from grayscale, red/green, to blue/yellow, and colour tint.

Learn more about Colour Filters (iOS) and Colour Correction (Android)

Hearing

People with hearing disability have several features available that can improve their experience with mobile technology.

6. Subtitles/captioning

This feature displays standard subtitles and captioning for videos, movies and TV. The availability and quality of subtitles depend on the material being viewed. If a movie does not support captioning, they will not be displayed in any device.

7. Hearing aid compatibility

Apple devices are compatible only with “made for iPhone” hearing aids. These hearing aids receive audio directly through Bluetooth and retransmit it through audio streaming technologies.

People who wear hearing aids on both ears may be able to hear the voice in the phone receiver in both ears, which improves the listening experience.

8. Video calls

People with hearing disabilities that prefer communicating in sign language will benefit from video calls. There are several options for video calls ranging from apps such as WhatsApp to videoconference services such as Google Meet, which offers live captioning in different languages and is compatible with iOS devices.

iOS offers FaceTime which includes an option for live captioning.

9. Mono Audio

It reproduces all sounds through one single channel. This can be helpful for people who have hearing loss in one hear or hear better in one ear.

10. Led flash alert

iPhone and smartphones running Android have an option to use the camera flash as a notification alert light. When a phone or a message enters, the light flashes. It only works when the phone is locked.

Motor

11. Switch control and access

Some people with motor disabilities need to use adaptive accessories such as switches or joysticks to perform basic tasks on a touch screen device. Switch Control (iOS) and Switch Access (Android) make this possible. Both features scan and highlight the items in the display which for users to select using an external switch.

12. Touch Assistant

AssistiveTouch (iOS) and Accessibility Menu (Android): these features provide an easier alternative to pressing side buttons. Users can carry out tasks such as taking a screen shot, locking the screen, control the volume, and so forth, just touching the screen.

13. Personal assistants

Both operating systems offer personal assistants that allow users to control their devices with their voices. iOS's Siri does not require the user to touch the screen. Android's Voice Access, hover, requires tapping the screen for the system to carry out a voice command. This can be problematic for users with severe difficulties to physically interact with a touch screen device. However, some devices running Android offer a personal assistant developed by the manufacturer, such as Samsung's Bixby.

Learn more about Siri and Voice Access.

14. Using the device with one hand

Using the phone with one hand can be useful in certain situations, such as when carrying a child, holding something or because of a disability. Both Android and iOS make this easier by allowing users to pull down the top half of the screen for easier access.

To enable this feature in Android, activate the One-Handed Mode available on Accessibility settings. In iOS you must turn on Reachability, on Accessibility settings.

Learn more about this feature in Android and iOS.

Cognition

Some people with cognitive disabilities have difficulties learning or remembering how to do simple things on a smartphone or a tablet, such as finding a contact or opening the messages app. Unfortunately, mobile phones offer very few options specifically targeted for these types of users. There are however several features for other purposes than can help improve their experience.

15. Guided access

This feature is only available in iOS. It helps people concentrate on a single task by temporarily deactivating certain buttons and icons to avoid distractions.

Learn more about Guided Access

16. Action blocks

A feature offered by Android that adds frequent actions to the home screen with a customized name or image for easier recognition, such as setting the alarm or calling someone.

Learn more about Action Blocks

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