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Information technology — Gesture-based interfaces across devices and methods —

Part 61: Single-point gestures for screen readers

Technologies de l'information — Interfaces gestuelles entre dispositifs et méthodes —

Partie 61: Gestes n'utilisant qu'un seul point pour lecteurs d'écran

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Foreword

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This document was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 35, *User interfaces*.

A list of all parts in the ISO/IEC 30113 series can be found on the ISO website.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Introduction

Screen readers are regarded as a default method of accessing ICT devices for people with visual impairments who are unable to see and understand the screens of these devices. The content on the screens, such as letters, words, numbers, punctuation, elements and so on, are spoken out loud by screen readers. Speakers or headphones connected to the ICT device become the main output components.

Single-point gestures are used for screen readers of several commercially available ICT devices including smart phones, PCs and so on. Potential variety and inconsistency among the single-point gestures might cause a serious accessibility problem for people with visually impairments. There is a strong need for international standards to define the single-point gesture so that visually impaired users do not get confused while they use ICT devices.

The functions of the screen readers include reading an item under the user's finger, pausing/resuming speech, speaking the location of the user's fingers on a screen, such as page numbers or rows, and so on. This document presents descriptions of single-point gestures and the corresponding functions of the screen readers.

The standard single-point gestures will harmonize with multi-point gestures for the screen readers. It is expected that users can use the screen readers easily and without confusion by executing the standard single-point gestures. The gestures are performed by the users regardless of a specific recognition technique, a certain interaction method or a device.

Information technology — Gesture-based interfaces across devices and methods —

Part 61:
Single-point gestures for screen readers

1 Scope

This document defines single-point gestures for screen readers.

It specifies movements for clear and classified single-point gestures recognized by the screen readers.

It describes single-point gestures performed by a POI (point of interest). The single-point gestures are intended to operate in a consistent manner regardless of systems, platforms, applications or devices.

NOTE A POI can be manipulated by using an object such as a fingertip, a stylus, etc.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO/IEC 30113-11:2017, *Information technology — Gesture-based interfaces across devices and methods — Part 11: Single-point gestures for common system actions*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— IEC Electropedia: available at http://www.electropedia.org/

— ISO Online browsing platform: available at https://www.iso.org/obp

3.1
gesture command
instruction to the system resulting from a gesture input by the user, e.g. select, move, delete

[SOURCE: ISO/IEC 30113-1:2015, 3.3]

3.2
screen reader
function that reads characters and other information on a screen aloud to a user in order to allow access to the information on the screen without viewing the screen

[SOURCE: ISO/IEC 24786:2009, 4.11]

3.3
tap
touch a real (or virtual) surface briefly, typically less than one second, with POI(s) and then lift-off in approximately the same position

Note 1 to entry: Example points of interest are a fingertip, pen point, hand, etc.

[SOURCE: ISO/IEC 14754:1999, 4.13, modified – changed from digitizer to 'real (or virtual) surface' and from pen to 'point(s) of interest' and note added]

3.4
double-tap
touch twice rapidly a surface with POI(s)

[SOURCE: ISO/IEC 30113-12:2019, 3.15]

3.5
triple- tap
touch three times rapidly a surface with POI(s)

3.6
direct touch gesture
gesture utilized with a body part (e.g. a finger) or a physical object (e.g. a stylus) on an input device (e.g. a touch pad or a touch screen)

[SOURCE: ISO/IEC 30113-12:2019, 3.9]

3.7
tile menu
set of options displayed with a number of rows and columns, one of which is to be selected

[SOURCE: ISO/IEC 17549-2:2020, 3.9]

4 Description of single-point gestures for screen readers

To describe single-point gestures for screen readers, this document follows the form in ISO/IEC 30113-1:2015, A.3 and ISO/IEC 30113-11:2017, 5.4.

5 Descriptions of single-point gestures

5.1 "Left" gesture

5.1.1 General

The "left" gesture for screen readers is as specified in ISO/IEC 30113-11:2017, 8.2.2.

5.1.2 Specific instance

5.1.2.1 Going to a previous item

In the context of an object related to a time-based dimension (playing a video or a sound, browsing already used applications, etc.), the "left" gesture should be used to roll back to a previous status.

5.1.2.2 Going to a previous hierarchical level

In the context of an object related to a hierarchical dimension (menu and sub-menu navigation, list browsing), the "left" gesture should be used to roll back to a previous hierarchical level.

5.1.2.3 Going to the left item in a tile menu

In tile menu navigation, the “left” gesture should be used to move from the previously focused item to the left one.

When the previously focused item is on the far left and there is a tile menu item(s) of the upper row, the focus moves to the far-right item of the upper row by the gesture.

After the focus moves to the item, the screen reader speaks the description of it.

5.2 “Right” gesture

5.2.1 General

The “right” gesture for screen readers is as specified in ISO/IEC 30113-11:2017, 8.2.3.

5.2.2 Specific instances

5.2.2.1 Going to a next item

In the context of an object related to a time-based dimension (playing a video or a sound, browsing already used applications, etc.), the “right” gesture should be used to reach a next status.

5.2.2.2 Going deeper inside the hierarchy

In the context of an object related to a hierarchical dimension (menu and sub-menu navigation, list browsing), the “right” gesture should be used to go deeper inside the hierarchy or to validate the current focused item, or both.

5.2.2.3 Going to the right item in tile menu

In tile menu navigation, the “right” gesture should be used to move from the previously focused item to the right one.

When the previously focused item is on the far right and there is a tile menu item(s) of the lower row, the focus moves to the far-left item of the lower row by the gesture.

After the focus moves to the item, the screen reader speaks the description of it.

5.3 “Up” gesture

5.3.1 General

The “up” gesture for screen readers is as specified in ISO/IEC 30113-11:2017, 8.2.4.

5.3.2 Specific instance: Going back to an upper item of a menu

When a user is using a screen reader to listen to items in a menu list from top to bottom, the “up” gesture should be used for going to an upper menu item in the menu list.

5.4 “Down” gesture

5.4.1 General

The “down” gesture for screen readers is as specified in ISO/IEC 30113-11:2017, 8.2.5.

5.4.2 Specific instance: Going back to a lower item of a menu

When a user is using a screen reader to listen to items in a menu list from top to bottom, the "down" gesture should be used for going to a lower menu item in the menu list.

5.5 "Tap" gesture

5.5.1 General

The "tap" gesture for screen readers is as specified in ISO/IEC 30113-11:2017, 8.3.2.

5.5.2 Specific instances

5.5.2.1 Reading an item under a POI aloud

The "tap" gesture should be used to get information from the selected item by playing audible feedbacks.

5.5.2.2 Stop reading aloud

While the system is reading aloud the item, the tap gesture may be used to stop reading aloud the item.

5.6 "Double-tap" gesture

5.6.1 General

The "double-tap" gesture for screen readers is as specified in ISO/IEC 30113-11:2017, 8.3.4.

5.6.2 Specific instance: Executing a selected application

The "double-tap" gesture should be used for executing an application which is represented by a selected item on a screen.

5.7 "Triple-tap" gesture

5.7.1 General

The parameters for the "triple-tap" gesture are:

— unique (internal) identifier: G61-1;

— text name of the gesture: triple-tap;

— text description of the gesture: a gesture of triple-tapping with a POI;

— graphic representation of the gesture (shown in Figure 1);

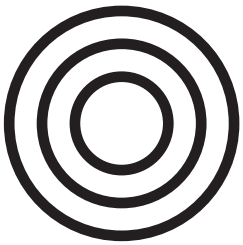

Figure 1 — Triple-tap with a POI

— number of states involved in the gesture: 3 (initial state, intermediate state, final state).

5.7.2 State description

— Initial state:

  — order identifier of the state: 1;

  — starting position(s): on the surface of an input device (i.e. touchscreen) where a user performs the gesture;

  — movement(s) or condition(s): a POI is on the surface of the touchscreen and recognized by the device.

— Intermediate state:

  — order identifier of the state: 2;

  — starting position(s): the position of the POI in the initial state;

  — movement(s) or condition(s): detaching the POI from the surface of the input device and touching it followed by detaching and touching the POI again for a short time (less than 1 second).

— Final state:

  — order identifier of the state: 3;

  — starting position(s): the final position of the POIs after the intermediate state;

  — movement(s) or condition(s): detaching one or all the POIs from the surface.

5.7.3 Specific instances

5.7.3.1 Activating secondary action

With a cursor at the end of a block of text in which a user wishes to highlight, the “triple-tap” gesture should be used for performing the “cut and paste” function in text editing applications.

5.7.3.2 Zooming in and out

When a user with low vision wants to magnify a specific part of the screen, the “triple-tap” gesture should be used for pinpointing an exact spot to be zoomed in and/or out.

5.8 “Double-tap and hold” gesture

5.8.1 General

The parameters for the “double-tap and hold” gesture are:

— unique (internal) identifier: G61-2;

— text name of the gesture: double-tap and hold;

— text description of the gesture: a gesture of double-tap and hold with a POI;

— graphic representation of the gesture (shown in Figure 2);