

Technical Disclosure Commons

Defensive Publications Series

January 31, 2017

Shifting The Screen Input Area On A Handheld Device For Accessibility

Peter Shintani

Follow this and additional works at: http://www.tdcommons.org/dpubs_series

Recommended Citation

Shintani, Peter, "Shifting The Screen Input Area On A Handheld Device For Accessibility", Technical Disclosure Commons, (January 31, 2017)

http://www.tdcommons.org/dpubs_series/384



This work is licensed under a [Creative Commons Attribution 4.0 License](https://creativecommons.org/licenses/by/4.0/).

This Article is brought to you for free and open access by Technical Disclosure Commons. It has been accepted for inclusion in Defensive Publications Series by an authorized administrator of Technical Disclosure Commons.

SHIFTING THE SCREEN INPUT AREA ON A HANDHELD DEVICE FOR ACCESSIBILITY

ABSTRACT

A system and method are disclosed to automatically detect with which hand the user is holding a mobile device, and then automatically shift the device input/screen area for optimal accessibility. The orientation sensor or gyro (if present) in the mobile handheld device is used to detect the asymmetry of the human hand and the angle at which a given hand holds a device. The controls that are customized for the user's handedness could be any kind of button controls, or menus, popup boxes etc. The device using the method could be any handheld touchscreen device with screen controls such as a smartphone or a tablet. Advantages of the system and method include better user experience due to automatic shifting of the appropriate screen input area to the side of the device that is easiest for the thumb to reach.

BACKGROUND

A user typically holds a small mobile device with the left or the right hand. Often, a user operates the device with a single dominant hand, although many users are ambidextrous and may use either hand. Because the user's fingers typically are wrapped around the device, the user moves the thumb for input to either the touch screen or keyboard. As devices increase in size, a user's thumb's length may be a limitation and it may be difficult to reach all the areas of the screen necessary for typing or other operations. Existing solutions provide an option to shift the touch screen area or touch screen key area to either the left or the right; however, implementation requires direct user action. The user must choose to shift the input area option to either the left or the right. This is not always the best approach, as many users do not consistently hold the device

with either the left or right hand. A method is therefore needed to improve the single-handed operation accessibility of mobile devices.

DESCRIPTION

A system and method are disclosed to automatically detect with which hand the user is holding a mobile device, and then automatically shift the device input/screen area for optimal accessibility, as illustrated in FIG. 1. The orientation sensor or gyro (if present) in the mobile handheld device is used to detect the asymmetry of the human hand and the angle at which a given hand holds a device. This sensor detects the tilt or offset as to how the device is held to determine whether it is in the left or right hand. Another implementation of the method uses the camera to watch the user and determine which hand is holding the device. The camera function can recognize the user's body and or face, thus determining the position of the device. In addition, or as alternative, the method can use the camera to look at the user's eyes to determine which hand is holding the device by the difference viewing angle when the device is held by either hand.

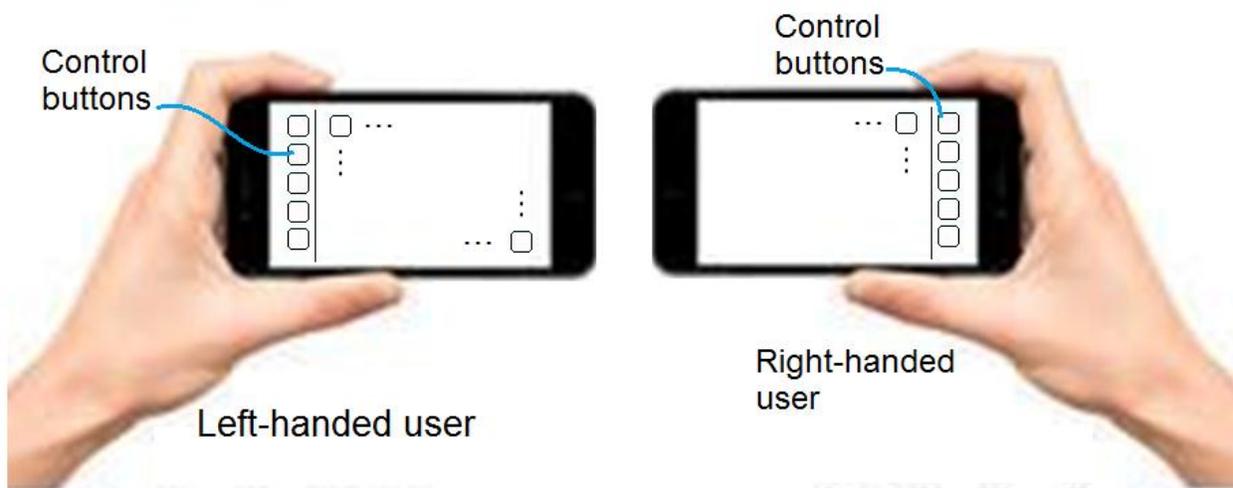


FIG. 1: Method of shifting the screen input area on a handheld device for accessibility

The controls that are customized for the user's handedness could be any kind of button controls such as shown in FIG. 1, or they could be menus, popup boxes etc. Although a phone held in landscape orientation is illustrated, the method could be equally implemented for the portrait orientation also. The device using the method could be any handheld touchscreen device with screen controls such as a smartphone or a tablet.

Advantages of the system and method include better user experience due to automatic shifting of the appropriate screen input area to the side of the device that is easiest for the thumb to reach. It decreases the distance that the user needs to move the thumb to operate the device functions.