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April 05, 2017

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Recommended Citation

Park, Daniel; Graves, Roger; and McCanny, Benjamin, "Efficient application switching with a single gesture", Technical Disclosure Commons, (April 05, 2017)
http://www.tdcommons.org/dpubs_series/459



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Efficient application switching with a single gesture

ABSTRACT

This disclosure describes techniques that enable switching between applications with a single gesture. The techniques can be implemented in any device that supports gestures, e.g., a mobile phone, tablet, laptop, etc. A user can switch between applications by performing a swipe gesture from an icon, e.g., a task switcher icon, or other location. In a touchscreen implementation, as the user's finger moves, each available application window is briefly in focus. To switch to a target application, the user releases her finger. In this manner, a single continuous operation (swipe and release gesture) enables the user to switch between applications quickly and efficiently.

KEYWORDS

- User interface
- Swipe gesture
- Application switching
- Task switching

BACKGROUND

Modern operating systems support multiple applications (apps) running simultaneously. In traditional windowed user interfaces, users can view multiple applications side by side or overlaid on top of each other. In these configurations, users can switch between applications by simply selecting, e.g., by clicking or tapping on, a target application. However, mobile devices that have a relatively small display size are unsuitable for displaying multiple application windows simultaneously. User interfaces on such devices typically include only one maximized window.

While viewing multiple applications in a split-screen configuration or in tiny windows is possible, many users prefer a full-screen user interface. Such usage requires frequent switching between applications. For example, a task that requires reading an email and then checking the calendar to respond to the email is tedious on a mobile device due to the requirement to switch between the respective apps. Each time the user switches from one app to the other, current user interfaces require the user to initiate a task switch operation (e.g., by selecting a button or UI element) that brings up a display of all running applications and then select the target application. Since users need to toggle between applications frequently, techniques that facilitate efficient switching between applications are valuable.

DESCRIPTION

Fig. 1 shows a tap and select user interface that is available in current devices. Fig. 1(a) illustrates a device (100) with weather application (102) that is currently in use. In the example shown in Fig. 1, the device is a mobile device with a touchscreen. A task switcher button (104) is shown, and can be implemented as a hardware or software button. Fig. 1(b) illustrates selection of the task switcher, e.g., by a user tapping (110) on the task switcher button 104 with a finger (108).

Upon selection of the task switcher button, currently running applications (106) are displayed. In this example, representations of applications, e.g., icons A, B, C, D and E are displayed. Fig. 1(c) illustrates that the user has selected application D by tapping (114) on a corresponding icon. Fig. 1(d) illustrates the display screen of the device that now has the newly selected application (116) in focus. To switch to another application, the user can repeat the same operations - “select task switcher” followed by “select application icon.” While Fig. 1 illustrates the app icons in a grid configuration that enables selection of the application icon, some user

interfaces illustrate application icons in a stack that can be scrolled to select a desired application icon. Such user interfaces are tedious, since they involve multiple operations to switch between applications.

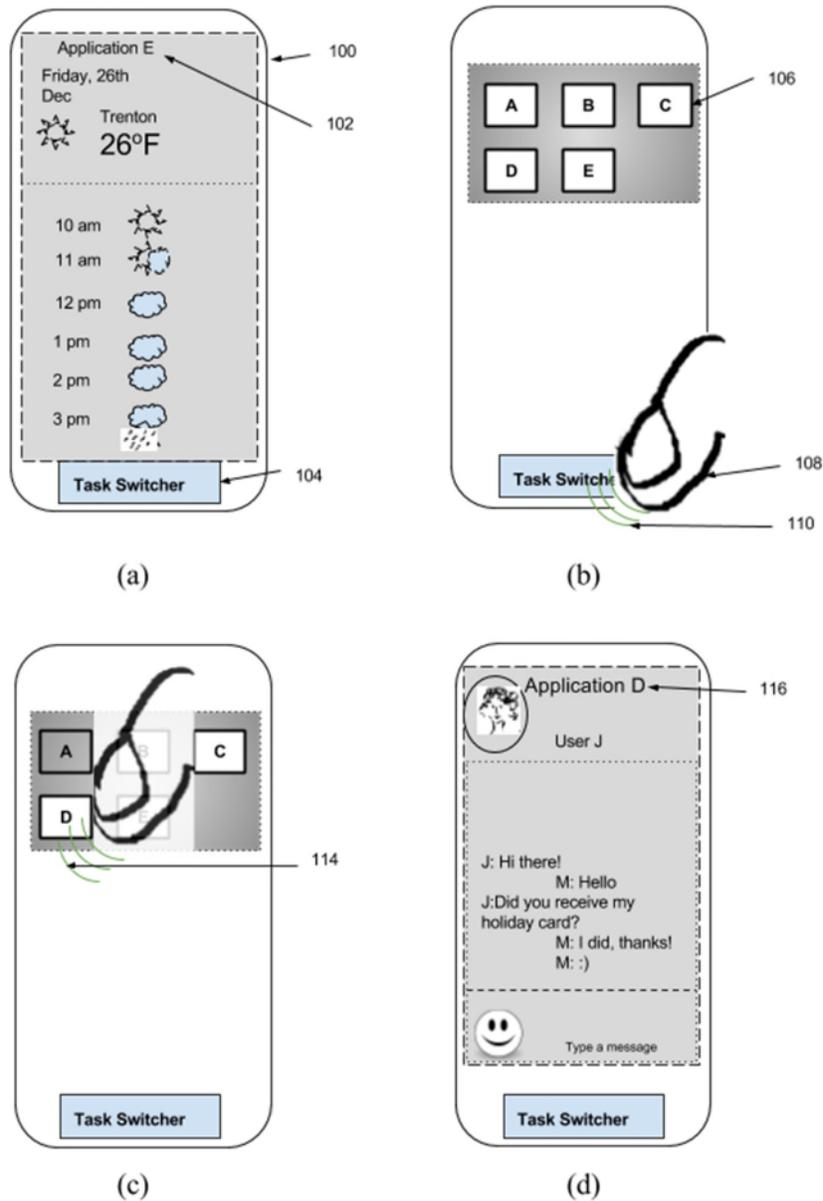


Fig. 1: Tap and select UI for application switching

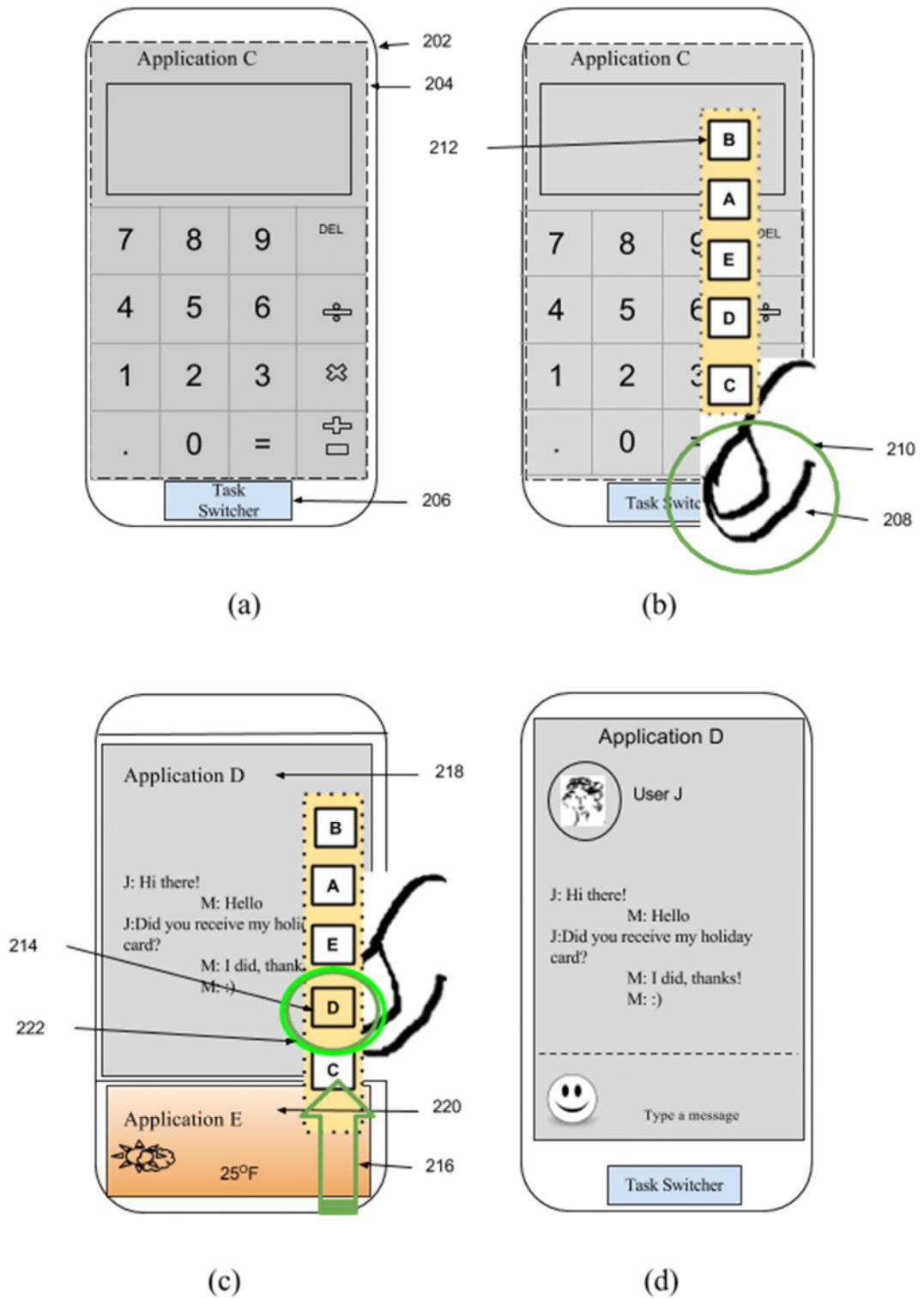


Fig. 2: Swipe and release UI for application switching

Fig. 2 illustrates a swipe and release user interface for application switching per techniques of this disclosure. The interface enables users to switch between applications with a single gesture. Fig. 2(a) illustrates a device (202) on which a calculator application (Application C, 204) is currently in use. The user interface includes a task switcher button (206). Fig. 2(b) illustrates a user's finger (208) performing a swipe gesture (210). In this gesture, the user touches the task switcher button and swipes the finger upwards in a continuous motion (216), as illustrated in Fig. 2(c).

In response to the gesture, a list of applications (212) that are currently running is displayed. In the example shown in Fig. 2(c), the list includes icons of applications C, D, E, A and B. For example, the list may be sorted such that the most recently used application is closest to the start point of the gesture and other applications are in respective positions in the list based on how recently each application was in use. For example, in Fig. 2(b), the current application C is in the bottom-most position on the list, followed by less recently used applications D, E, A, and B, that are sorted based on how recently each application was used. In the example illustrated in Fig. 2, as the user continues the swipe gesture (222), a preview of a corresponding application is displayed. Fig. 2(e) illustrates a preview (214) of an application corresponding to the current location of touch in a larger size than a preview (220) of a previous application. Upon withdrawal of the touch, the device switches to application D, as illustrated in Fig. 2(d). While Fig. 2 shows an example user interface with application preview, alternate implementations that do not include preview, use an application icon as the preview, display a full-screen preview, etc. are possible. Further, in an alternate gesture, app switching can be initiated by the user performing a long-press on the task switcher button, and then without releasing, swiping up to the desired application.

The techniques of this disclosure enable users to switch between applications with a single swipe gestures. Swiping from a task switcher button invokes an application list that permits quick selection of a target application. The user interface does not require the user to perform any additional gestures. For example, a user can change Y-axis finger position (by swiping up or down) to view the list of available applications and release the finger upon reaching a target application. Different stages of the single swipe gesture are mapped to different operations - the initial touch on the task switcher icon brings up the application list, the swipe operation scrolls the list, and the release of the finger switches to the target application. This permits the user to more efficiently switch between applications, in comparison with the tap and select interface illustrated in Fig.1.

CONCLUSION

Techniques are disclosed that allow users to switch between applications with a single gesture. The techniques permit quick switching between applications. The techniques are well-suited for mobile devices, where users frequently switch between applications. The single gesture app switching makes the limited form of multitasking offered by operating systems of mobile devices more fluid.