

Technical Disclosure Commons

Defensive Publications Series

October 2019

Voice interface for interaction with notifications

Victor Cărbune

Thomas Deselaers

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

Recommended Citation

Cărbune, Victor and Deselaers, Thomas, "Voice interface for interaction with notifications", Technical Disclosure Commons, (October 31, 2019)

https://www.tdcommons.org/dpubs_series/2629



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.

Voice interface for interaction with notifications

ABSTRACT

This disclosure describes techniques for a user to interact with notifications using voice commands, e.g., when the user is unable to provide touch inputs to a device, such as when driving, cooking, or engaged in other activities. At an initial stage, templated voice commands are used and additional commands are learned using machine learning techniques. Actions such as scrolling through notifications, filtering notifications by criteria, dismissing notifications, acting on notifications, etc. are made available via voice commands. Notifications are displayed or read out based on whether the user is in a context where they can view a display. A tutorial mode is provided that enables the user to provide guidance on interpreting new types of notification formats.

KEYWORDS

- Notification
- Voice UI
- Voice interaction
- Voice command
- Virtual assistant
- Notification filtering

BACKGROUND

Notification sounds are used to alert users of incoming notifications, e.g., via mobile applications such as email, text messages, chat conversations, app-specific notifications, etc. Such sounds provide an indication of activity even when the user is not looking at a device screen. However, the contents of the notification are not provided to the user; to access these, the

user needs to view the screen of the device. While notification readouts are supported on some devices, such techniques read out all notifications which is inefficient and can require substantial attention from the user. For example, if a user receives a notification for an incoming message while cooking and requests that the notifications be read out, a readout of all notifications is provided, rather than that of the specific incoming message.

DESCRIPTION

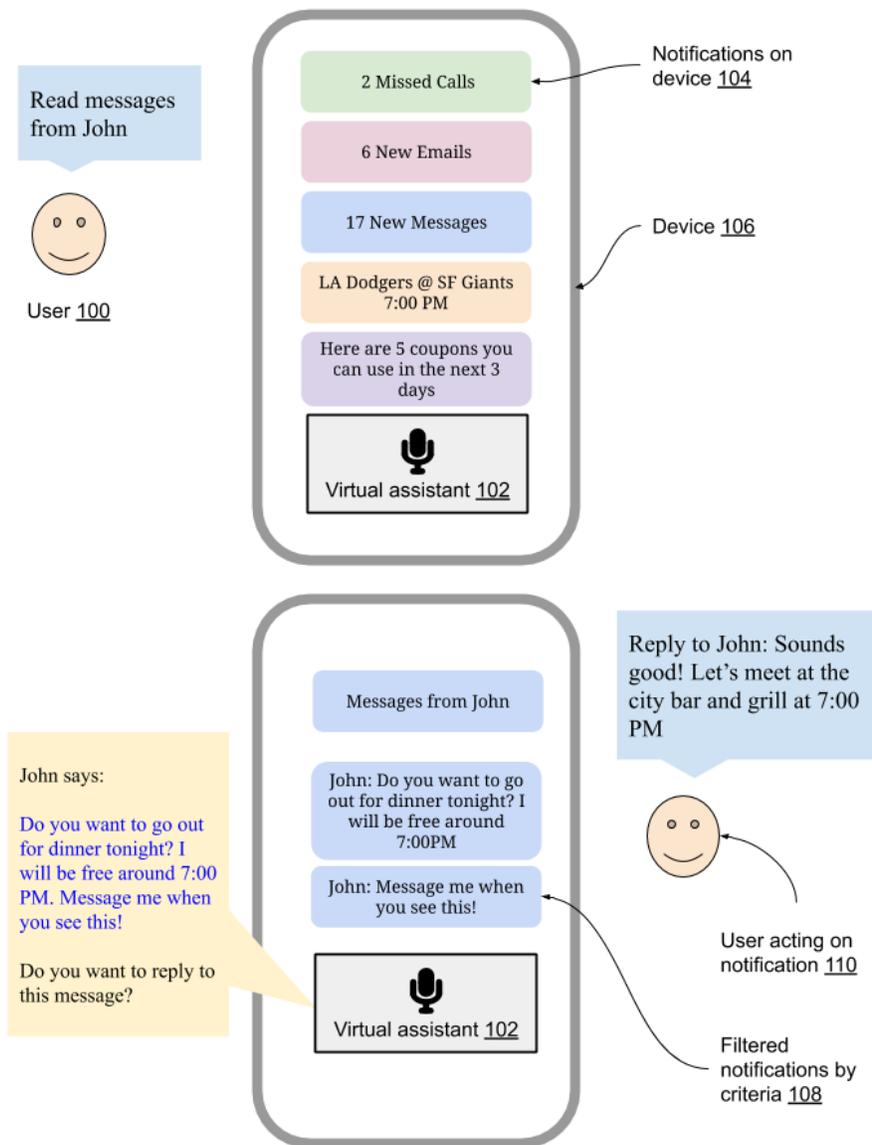


Fig. 1: Voice navigation for notifications

Fig. 1 illustrates an example in which a user (100) interacts with notifications using voice commands. A device (106) displays a list of notifications (104) to the user. In the illustrated example, the user has multiple notifications related to different applications such as missed calls, messages, emails, app notifications, etc. The user issues a voice command, e.g., to a virtual assistant application (102) (or the OS, or other app) to read out notifications, e.g., “read messages from John.” In response, the virtual assistant identifies notifications that match the user provided criteria. Such notifications are then read out (if the context is such that the user is not able to look at the screen) and/or read out (“John says: Do you want to go out for dinner tonight? I will be free around 7:00 PM. Message me when you see this!”).

Further, the user is provided with an option to act on the filtered notification (110). For example, the user can provide a command (“Reply to John: Sounds good! Let’s meet at the city bar and grill at 7:00 PM”). The virtual assistant can then send a reply message based on the user command.

Readouts and/or displayed notifications are provided based on the device usage context. For example, when the user is engaged in an activity such as driving, running, etc. where the user is not able to view the screen, readouts of notifications are provided, while during activities such as cooking, readouts and screen display of notifications can both be provided. Further, readouts may be provided such that user activities such as navigation, watching a video, playing a mobile game, etc. are not interrupted by the visual display of a notification.

The user is provided with options to configure the virtual assistant to automatically read incoming notifications during user specified contexts. For example, the user can configure a subset of notifications (e.g., messages from specific contacts, emergency alerts, etc.) to be automatically read out when listening to music using headphones or when the device connected

to a car stereo, etc. Suggestions of follow-up actions can also be provided, e.g., in response to a notification about an incoming email that requests the user to provide a Yes/No response, “Yes” and “No” may be provided as follow up actions that the user can choose from by voice input. Other options corresponding to actions such as dismissing the notification, marking the notification unread, etc. can also be provided.

Various types of voice commands to access notifications can be supported via a voice interface; some examples are listed below:

- display last notification
- read out loud last notification
- dismiss notification
- display notification from <app>
- display notifications with message from user <user>
- is there any notification from <user>?
- is there any notification related to <topic>?
- open app for this notification, reply to this message, ...
- go to next notification

While actions on common notifications can be provided via a template to enable the virtual assistant to perform quick interpretation of voice commands, a tutorial mode is provided to enable learning from granular actions provided by the user, e.g., for new notification formats for which templates are unavailable. In the tutorial mode, the virtual assistant may prompt the user by stating “Do you want me to learn how to interact with this notification? I’ll ask you later for a step-by-step demonstration”. If the user agrees, user interaction with the notification is used to learn additional voice commands. For example, if the user views a coupon provided by a

mobile app via a notification by opening the app, the virtual assistant can learn specific actions (e.g., opening the app and navigating to a coupons section) and can then support a voice command such as “Show my coupons.”

Further to the descriptions above, a user is provided with controls allowing the user to make an election as to both if and when systems, programs or features described herein enable collection of user information (e.g., information about a user’s social network, social actions or activities, profession, a user’s preferences, or a user’s current location), and if the user is sent content or communications from a server. For example, users are provided with controls that enable selection of specific factors that can or cannot be utilized to determine the user’s context. In addition, certain data is treated in one or more ways before it is stored or used, so that personally identifiable information is removed. For example, a user’s identity is treated so that no personally identifiable information can be determined for the user, or a user’s geographic location is generalized where location information is obtained (such as to a city, ZIP code, or state level), so that a particular location of a user cannot be determined. Thus, the user has control over what information is collected about the user, how that information is used, and what information is provided to the user.

CONCLUSION

This disclosure describes techniques for a user to interact with notifications using voice commands, e.g., when the user is unable to provide touch inputs to a device, such as when driving, cooking, or engaged in other activities. At an initial stage, templated voice commands are used and additional commands are learned using machine learning techniques. Actions such as scrolling through notifications, filtering notifications by criteria, dismissing notifications, acting on notifications, etc. are made available via voice commands. Notifications are displayed

or read out based on whether the user is in a context where they can view a display. A tutorial mode is provided that enables the user to provide guidance on interpreting new types of notification formats.