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DEVICE SETTINGS ASSISTANT

ABSTRACT

An interactive assistant, referred to herein as “an interactive assistant,” “a virtual assistant,” or simply “an assistant” may execute on counter-top devices, mobile phones, automobiles, and many other type of computing devices. The interactive assistant may be configured to guide the user to access features and settings of the computer device, and may also introduce features and settings of the computer device to the user.

DESCRIPTION

An interactive assistant, such as shown in the example of Figure 1 below, may execute on a computing system that is configured to interact with one or more users. The computing system may be, include, or otherwise be included in a mobile device (e.g., smart phone, tablet computer, laptop computer, computerized watch, computerized eyewear, computerized gloves), a personal computer, a smart television, a personal digital assistant, a portable gaming system, a media player, a mobile television platform, an automobile navigation and/or entertainment system, a vehicle (e.g., automobile, aircraft) and/or cockpit display, or any other type of wearable, non-wearable, mobile, or non-mobile computing device, and the computing system may or may not include a display device. In some cases, the interactive assistant may be a voice-assistant that receives audible user commands, processes the commands based on speech recognition operations, and performs corresponding actions, such as providing audible responses to user queries and/or performing certain actions. The interactive assistant may provide or utilize a user

interface with which a user can communicate to cause the assistant to output useful information, respond to a user's queries, or otherwise perform certain operations to help the user complete a variety of real-world or virtual tasks.

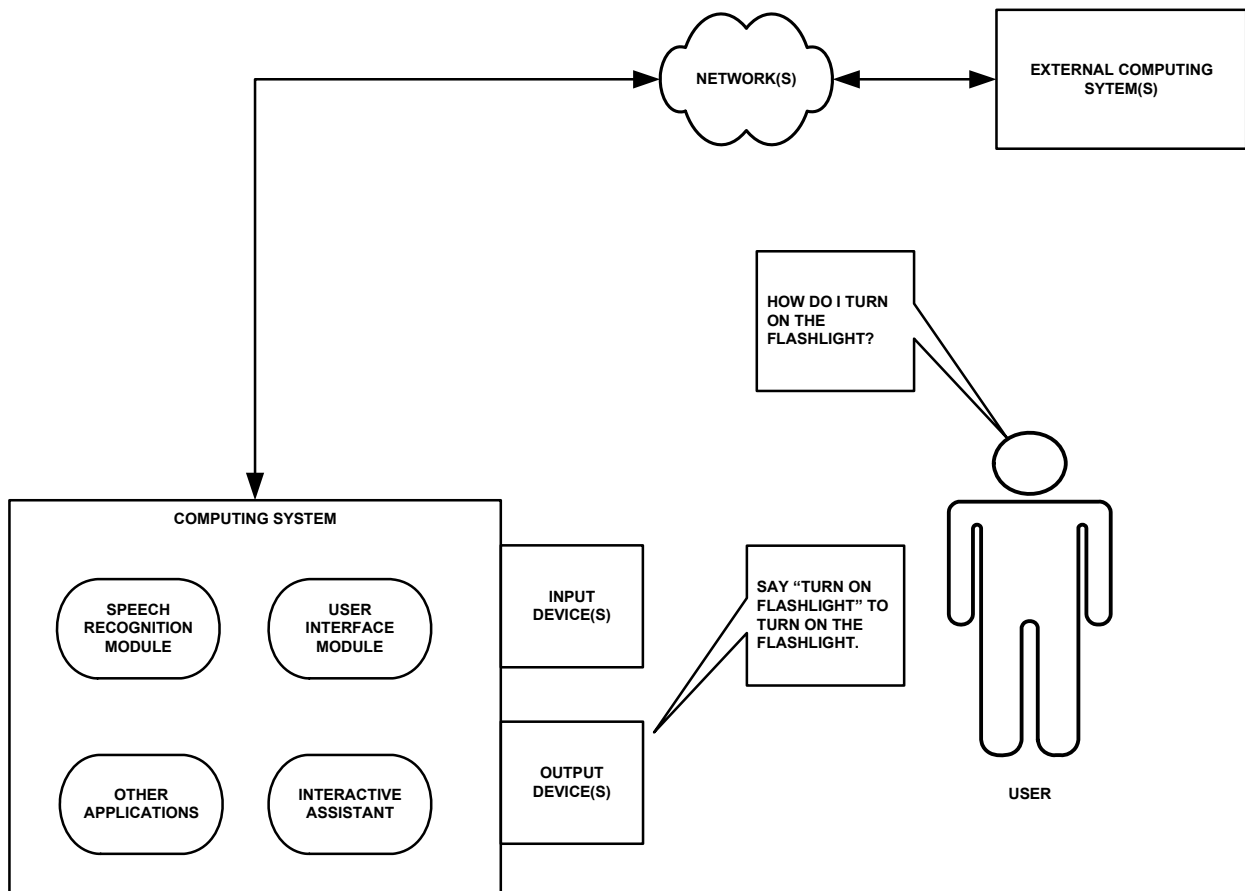


Figure 1

Figure 1 above illustrates an example of a computing system that includes an interactive assistant. The interactive assistant can guide the user to access various features and settings of the computing system and can also inform the user of various features and settings of the computing device.

The computing system may include or be communicatively coupled to one or more input devices, which may include one or more microphones, a presence-sensitive input device (e.g., a touch-sensitive screen), a mouse, a keyboard, a voice responsive system, a camera, or any other type of device for detecting input from a human or machine. In some cases, the input device may include one or more location sensors (GPS components, Wi-Fi components, cellular components), one or more temperature sensors, one or more movement sensors (e.g., accelerometers, gyroscopes), one or more pressure sensors (e.g., barometer), one or more ambient light sensors, and/or one or more other sensors (e.g., camera, infrared proximity sensor, hygrometer, and the like). Other sensors may include a heart rate sensor, magnetometer, glucose sensor, hygrometer sensor, olfactory sensor, compass sensor, step counter sensor, to name a few other non-limiting examples.

The computing system may also include or be communicatively coupled to one or more output devices, such as one or more speakers or display screens, including a presence-sensitive screen (e.g., touchscreen), or any other type of device for generating output to a human or machine. In some cases, the input devices and/or output devices may include one or more other type of wearable, non-wearable, mobile, or non-mobile computing devices that are also used by the user. One or more of the input and/or output devices may be external to and communicatively coupled (e.g., via a wired or wireless connection) with the computing system.

The computing system may also include a user interface module that is configured to manage inputs received by the interactive assistant as users interact with the computing system, and the user interface module may be configured to receive additional instructions from applications, services, platforms, or other modules of the interactive assistant that process user

input. The user interface module may also be configured to process output that is provided to users, and may be coupled to the input device(s) and output device(s) of the interactive assistant. The computing system may also include a speech recognition module, which may interface with the user interface module and/or the interactive assistant. When a user provides audible input to the interactive assistant (e.g., via commands, questions, queries, and requests), the interactive assistant may use the speech recognition module to process such audible input.

The interactive assistant is configured to receive a request to perform an action and to perform the requested action. For example, if the computing system is a mobile phone, the interactive assistant may receive a request such as “turn on the flashlight” and, in response, turn on the flashlight functionality of the mobile phone.

In addition to receiving requests to perform actions, the interactive assistant may also be configured to receive queries from the user regarding whether the computing system has certain features and/or settings, and how to access certain features and/or settings of the computing system. In response to receiving such queries, the computing system may assist the user in accessing the certain features and/or settings of the computing system.

For example, the interactive assistant may receive a query regarding whether the computing system supports a certain feature, such as “does this phone have a flashlight feature?” In response, the interactive assistant may output an indication of whether the computing system has such a feature. For example, the interactive assistant may output “this phone does have a flashlight.” In some examples, the interactive assistant may also turn on the queried feature, such as turning on the flashlight feature. In other examples, the interactive assistant may ask the user

whether she would like to turn on the feature, such as by outputting “would you like me to turn it on?”

In some examples, the interactive assistant may receive a query regarding how to access a certain feature or setting of the computing system, such as “how do I turn on the flashlight feature?” In response, the interactive assistant may assist the user to access the queried feature. For example, the interactive assistant may output “say ‘turn on flashlight’ to access the flashlight feature.”

In some examples, if the computing device is connected to a display, the interactive assistant may guide the user to access the queried feature using the graphical user interface (GUI) being displayed. For example, the interactive assistant may cause the GUI to highlight the user interface elements that the user may select in order to access the queried feature. This may be in the form of a step-by-step guide or workflow where the interactive assistant may guide the user through multiple steps of accessing various user interface elements in order to access or turn on the queried feature.

In some examples, the interactive assistant may also introduce features and settings of the computing system that are relevant to the user’s context (e.g., location, time, activity, and the like). The interactive assistant may determine the user’s context only after receiving explicit permission by the user to do so. That is, a user may be provided with controls allowing the user to make an election as to both if and when the assistant, the computing device, or the computing systems described herein can collect or make use of supplemental data (e.g., user information or contextual information about a user’s social network, social actions or activities, profession, a user’s preferences, or a user’s current location), and if and when the user is sent content or

communications from a server. In addition, certain data may be 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 may be treated so that no personally identifiable information can be determined for the user, or a user's geographic location may be 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 may have control over what supplemental data is collected about the user, how that supplemental data is used, and what supplemental data is provided to the user.

After receiving explicit permission from the user, the interactive assistant may utilize the user's context and determine, based on the context, that the current time is close to the user's bedtime. In response, the interactive assistant may introduce the night mode feature of the computing system that reduces the blue light being emitted by the computing system's display, such as by outputting "would you like to turn on night mode?" In response to receiving confirmation that the user would like to turn on the introduced feature (e.g., night mode), the interactive assistant may turn on the introduced feature.

In instances where the interactive assistant is included within an infotainment system of a vehicle or otherwise capable of controlling such an infotainment system, a user may not know how to adjust a particular setting in the car, such as to put the windshield wipers in an "up" mode to facilitate changing the wiper blades. In such an example, the user may ask the interactive assistant "how do I change the wiper blades?", "how do I put the wiper in a service position?", or other similar questions. In response to the question, the interactive assistant may cause a step-by-step process to be displayed on a screen of the vehicle's infotainment system. In some instances,

the interactive assistant, in addition to or instead of the visual guide, may output audio instructions for putting the windshield wipers into a service position.

As another example, an operating system of a computing device may be upgraded and provide new features. The interactive assistant may audibly describe or visually highlight such new features that are included in the new version of the operating system. In various instances, the interactive assistant, after receiving explicit permission from the user, may analyze the user's usage history of the computing device to determine which of the new features may be most relevant or of potential interest to the user and only highlight such features to the user. That is, rather than merely displaying a list of all of the new features or audibly describing the various new features, the interactive assistant may analyze the user's past behaviors to determine which subset of the new features may be relevant or otherwise interesting to the user and, at least initially, only highlight those features.

As can be seen, the interactive assistant may be able to help the user of a computing system to access settings and features of the computing system, while also introducing settings and features of the computing system to the user. In this way, the interactive assistant can enhance then ease of use of the computing system.