SMART DOCK FOR ACTIVATING A VOICE RECOGNITION MODE OF A PORTABLE ELECTRONIC DEVICE

BACKGROUND OF THE INVENTION

The present disclosure relates generally to portable electronic devices, and more particularly to a smart dock for communicating with a portable electronic device to activate a voice recognition mode.

Portable electronic devices, such as cellular phones, have become ubiquitous in today's society, as have the peripheral electronic devices that support their use, such as docking stations and the like. Some portable electronic devices, such as the iPhone™ (made by Apple Inc., assignee of the present application), can provide users with a variety of services in addition to facilitating telephone calls. Such services can include messaging (voice, SMS, e-mail, instant messaging, application messaging, etc.), management and playback of media content (music, videos, audiobooks, photos, documents, etc.), storage of personal data (calendar, contacts, notes, etc.), Internet access, and the ability to execute various applications.

In order to utilize the various functionalities provided by a portable electronic device, a user typically must interact with their device using finger controls and/or a graphical user interface (GUI) included on their device. However, such interaction requires that the portable electronic device be in close proximity to the user (e.g., in the user's hand). If the user is not proximate to their portable electronic device (e.g., if their device is connected to a charging power source on the other side of the room), the user may be unable to utilize the various services provided by their device in a timely and convenient manner.

Some existing portable electronic devices include voice recognition capabilities that allow a user to access the various functionalities on their device using audible voice commands. However, the utilization of such voice recognition capabilities in existing devices typically involves an initial activation step requiring the user to interact with the finger controls and/or GUI of their device before voice commands can be processed.

BRIEF SUMMARY OF THE INVENTION

Embodiments of the present invention provide improved apparatus, systems and methods for communicating with a portable electronic device to activate a voice recognition mode.

In one particular embodiment, a dock for a portable electronic device comprises a housing, a connector extending from the housing to connect the portable electronic device to the dock, a microphone integrated within the housing, and a processor. The processor is operatively coupled to receive audio input from the microphone and is configured to, in response to the audio input, transmit a message to the portable electronic device via the connector to activate a voice recognition mode of the portable electronic device.

In another embodiment, the processor of the dock is operatively coupled to receive voice input from the microphone, transmit the voice input to the portable electronic device in the voice recognition mode via the connector, receive audio output from the portable electronic device in the voice recognition mode via the connector, and transmit the audio output to the speaker.

In another embodiment, a portable electronic device comprises a housing, a receptacle connector to connect the portable electronic device to a dock, and a processor. The processor is operatively coupled to receive a message from the dock via the receptacle connector and is configured to, in response to the message, activate a voice recognition mode of the portable electronic device.

In another embodiment, the portable electronic device further comprises a microphone and a speaker integrated within the housing. When the voice recognition mode of the portable electronic device is activated, the processor of the portable electronic device is further configured to receive and process voice input from the microphone, the voice input including a user request. The processor generates audio output including a response to user request, and transmits the audio output to the speaker.

In yet another embodiment, when the voice recognition mode of the portable electronic device is activated, the processor of the portable electronic device is further configured to receive voice input from the dock via the receptacle connector, the voice input including a use request. The processor retrieves the requested information and generates audio output including a response to the user request. The audio output is transmitted by the processor to the dock via the receptacle connector.

To better understand the nature and advantages of the present invention, reference should be made to the following description and the accompanying figures. It is to be understood, however, that each of the figures is provided for the purpose of illustration only and is not intended as a definition of the limits of the scope of the present invention.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. **1** illustrates a simplified perspective view of a dock **100** according to an embodiment of the present invention that activates a voice recognition mode of a portable electronic device **120**;

FIG. **2** illustrates a simplified block diagram showing various components of a system according to an embodiment of the present invention, the system including dock **100** and portable electronic device **120** shown in FIG. **1**;

FIG. **3** illustrates a flow diagram of a process **300** usable by dock **100** to activate a voice recognition mode of portable electronic device **120** according to an embodiment of the present invention;

FIG. **4** illustrates a flow diagram of a process **400** usable by dock **100** to receive voice input from a user and to provide audio output generated by portable electronic device **120** to the user according to an embodiment of the present invention.

DETAILED DESCRIPTION OF THE INVENTION

Embodiments of the present invention pertain to a smart dock for activating a voice recognition mode of a portable electronic device. In embodiments of the present invention, a smart dock can receive audio input from a user (e.g., a spoken word or phrase, hand clap, etc.) and transmit, in response to the audio input, a message to a portable electronic device to activate a voice recognition mode of the portable electronic device.

As used herein, a "portable electronic device" can include any electronic device that can operate in a voice recognition mode. Such devices may include, for example, a laptop computer, a tablet device, a key fob, a car key, an access