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## User Assistant Device

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## **USER ASSISTANT DEVICE**

### **Introduction**

The present disclosure provides a device that enables a user to automatically trigger an action to be performed by one or more computing devices by activating a remote input device. In particular, the input device can be user assistant device such as, for example, a wireless button coupled to an assistant enabled computing device. Existing assistant enabled computing devices can be configured to accept user text or voice commands or queries to perform certain actions. Typically, in order to repeat a common action, the user must repeatedly enter the same text or voice commands or queries. Despite the frequency of a particular command or query, user assistant enabled devices cannot perform an action automatically.

### **Summary**

The present disclosure proposes to solve the challenges described above by introducing a user assistant device (e.g., an assistant button) that, when activated, triggers an action for a computing device to perform. In this manner, a user may automate one or more interactions with a computing device by activating the user assistant device, thereby eliminating the need to duplicate common commands or queries. The user assistant device can be a re-configurable and customizable device associated with one or more user assistant enabled computing device(s) (e.g., an at-home assistant, navigation system, etc.). In particular, the user assistant device can be configured to communicate with these computing device(s) (e.g., via Bluetooth protocol).

In one aspect of the present disclosure, a user can activate the user assistant device by activating an activation component. For instance, the activation component may be a physical button that is activated when a user applies enough pressure to depress the button. Pressing the user assistant device can activate the activation component, causing to user assistant device to

transmit a signal. The transmitted signal can enable one or more user computing device(s), such as a smart phone, at-home assistant, etc., to discover the user assistant device via a wireless connection such as a Bluetooth connection.

A user can select an option indicating the user assistant device on the one or more user computing device(s). For instance, a particular user computing device may have a user display interface. The display interface may list one or more surrounding computing devices discovered by the user computing device. The user may select the user assistant device by selecting the option indicative of the user assistant device within the list of discovered computing devices.

Once selected, the user computing device can prompt the user for a command or query via voice or text. The user may input a common command or query in response via voice or text. For instance, the user may say, “How is the weather?” a vocal input commanding the user computing device to query the weather and display the result to the user. In some implementations, a user computing device can seek the user’s confirmation of the command or query by repeating the command or query via voice or text. If confirmed, the user computing device can map the particular command or query to the user assistant device by tagging the command with an identifier associated with the user assistant device. The user computing device can then store the mapped command or query in memory.

In the future, when the user activates the user assistant device, the user assistant device will send a signal (e.g., via the Bluetooth connection) to the user computing device. Upon receiving the signal, the computing device (e.g., at home device) can repeat the stored command and perform the configured action. For instance, in the weather example provided above, upon pressing the activation component (e.g., button), the user computing device can output the weather forecast for the day. The user assistant device is not limited to querying weather

forecasts and may be configured to benefit from the entirety of the computing device's ecosystem, in a way acting as a natural extension of the user computing device.

The user assistant device can be configured to be customizable and re-configurable. For instance, the user assistant device can be manipulated to trigger a different command or query based on the command or query last stored by the user computing device. In some implementations, the user may interact with the user assistant device or the user computing device to trigger the user computing device to replace a previously stored command. For instance, the user may hold down the activation component of the user assistant device for a period of time to initiate a new command. In this way the user may change the command triggered by the user assistant device over time.

### **Detailed Description.**

Figure 1 depicts an example user assistant device system **100**. A user assistant device **102** may be any device capable of taking in a user input (e.g. when activated by a user). The user assistant device **102** may be limited to one or more activation components (e.g. physical buttons, soft buttons, toggles, switches, or other mechanical components configured to activate and/or deactivate the device), a transmitter and a limited amount of memory. For instance, the user assistant device **102** can include a light hardware infrastructure for transmitting a signal indicative of the user input. The transmitter may be a radio frequency transmitter, or any other type of device that can transmit data. In some implementations, the user assistant device **102** can include a limited display capability with one or more designated regions of a touch sensitive exterior (e.g., soft buttons), such that contact with the designated region sends an instruction to the user assistant device **102**. In some implementations, the user assistant device **102** may include internet connectivity components; however, to save size and/or power requirements

internet connectivity components can be omitted from the user assistant device **102**. As such, the user assistant device **102** can be light-weight and easily transportable.

The user assistant device **102** can be paired via a wireless technology **104** such as Bluetooth with one or a plurality of more robust user computing devices **106**. Other examples of wireless technology **104** include but are not limited to any other communication technologies such as, for example, WiFi. In some implementations, the user assistant device **102** may be configured to transmit one or more wireless signals **104** to one or more user computing devices **106** when an action component is activated (e.g., pressed) by a user.

The user computing device **106** can include one or more processor(s) **106A** and one or more memory device(s) **106B**. The one or more processor(s) **106B** can include any suitable type of processing device, such as a microprocessor, microcontroller, integrated circuit, one or more central processing units (CPU's), processing units performing other specialized calculation, etc. The memory device(s) **106B** can include, for example, one or more non-transitory computer-readable media, RAM, ROM, hard drives, flash memory, and/or other memory devices. The memory device(s) **106B** can store information accessible by the one or more processor(s) **106A**, including instructions **106C**. The instructions **106C** can be executed by the processor(s) **106A** to cause the processor(s) **106A** to perform operations. For instance, the processor(s) **106A** can perform operations such as receiving a wireless signal transmitted from an user assistant device **102**; receiving user input indicative of a voice message **108** from a user of the user computing device **106**; identifying data associated with the user input **108**; storing data mapped to the signal received from the user assistant device **102** in the memory device(s) **106C**; and providing an output in response to the user input **108**. The memory device(s) **106B** can also include data **106D** that can be retrieved, manipulated, created, or stored by the processor(s) **106A**.

The user computing device **106** can also include a communication interface **106E** used to communicate with one or more other component(s) of system **100** (e.g., user assistant device **102**) for example, to provide and/or receive data. The communication interface **106E** can include any suitable components, (e.g., transmitters, receivers, ports, controllers, antennas, other suitable communication components). The user computing device **106** can be configured to communicate via Bluetooth low energy protocol, Zigbee based communication, near-field communication, etc.

The user computing device **106** can include one more activation component(s) **106F** and/or input device(s) **106G**. The activation component(s) **106F** can include physical buttons, soft buttons, toggles, switches, other mechanical components, etc. and can be configured to activate and/or de-activate the input device(s) **106G**. The input device(s) **106G** can include devices, such as, a microphone suitable for voice recognition. The input device(s) **106G** can receive a user input indicative of a voice message from a user of the user computing device **106**. In some implementations, the user computing device **106** can include one or more output device(s) such as one or more speaker(s) (e.g., for playback of a voice message) and/or one or more display interface(s) (e.g., screens). Additionally, and/or alternatively, the user computing device **106** can include a power source (not shown) (e.g., battery) that can be charged (e.g., via wired and/or wireless connection) and provide power to the user computing device **106**.

Figure 2 is a flow chart illustrating the process **200** for automating a command on a user computing device **106** by interacting with the user assistant device **102**, in accordance with one aspect of the disclosure. Although the operations in process **200** are shown and described in a particular order, certain operations can be performed in different orders or at the same time. The process begins at operation **202** when a user activates the user assistant device **102**. In some

implementations, the user can activate the user assistant device **102** by pressing and/or holding down one or more activation components of user assistant device **102**.

At **204**, the user assistant device **102** receives the user input indicative of activation. In some implementations, the user assistant device **102** may have one or more processor(s) configured to recognize the nature of the user's input. In response to the user's input, at **206**, the user assistant device **102** transmits a signal **104** indicative of the user's input to one or more user computing devices **106**. The signal at **206** may be any wireless signal such as a Bluetooth and/or WiFi signal. In some implementations, the user assistant device **102** can transmit one or more different signals depending on the nature of the user's input. For instance, the user assistant device **102** can transmit a signal instructing a user computing device **106** to configure the user assistant device **102** when the user holds down the activation component for a first predetermined amount of time. Additionally and/or alternatively, the user assistant device **102** can send a signal indicative of an action to be performed by the computing device **106** when the user holds down the activation component for a second predetermined amount of time. In some implementations, the user assistant device **102** can have a plurality of activation components each indicative of one or more signals.

At **208**, the user computing device **106** receives the signal transmitted from the user assistant device **102**. In some implementations, the signal includes identification data indicative of the user assistant device **102** and/or a particular activation component of the user assistant device **102**. For instance, the signal can include an identifier (e.g., unique identifier, etc.) to help identify an address assigned to the user assistant device **102**. Additionally and/or alternatively the user assistant device **102** can have a user-friendly name presented to the user, in place of the address on the user computing device's display interface.

The signal can indicate an action signal **210** or a configuration signal **212**. If the signal is indicative of an action signal the signal can trigger the user computing device **106** to perform a pre-configured action, at **214**. In some implementations, the action signal **210** can trigger any action available for use by the user computing device **106**. In this way, the user assistant device **102** can act as a natural extension of the user computing device **106**.

If the signal is indicative of a configuration signal **212**, the user computing device **106** can prompt the user to enter input **216**. In some implementations, the user computing device **106** can display, via a display interface, a user-friendly name indicative of the user assistant device **102** in a list of one or more computing devices discovered by the user computing device **106**. The user computing device **106** can prompt the user to enter input in response to the user selecting the user-friendly name indicative of the user assistant device **102** in the display interface.

The prompt may be displayed in text on the user display interface of the user computing device **106** and/or vocalized by a speaker interface of the user computing device **106**. In response to the prompt, the user can input data **218** indicative of a command and/or query to the user computing device **106**. In some implementations, the user can use any method offered by the user computing device **106** to input data **218** via voice, text, etc. to the user computing device **106**. Input data can indicate any action enabled by the user computing device **106**. For instance, input data can include asking about the weather, purchasing goods, changing the temperature of a room, etc.

At **220**, the user computing device **106** determines a command and/or query associated with the input data by analyzing the content of the input data. In some implementations, at **222** the user computing device **106** can output the determined command to the user via a display



and/or speaker interface. At **224**, the user can have the option to accept or reject the determined command via voice or text. If the determined command is rejected, the user computing device can again prompt the user for input, at **216**. If the determined command is accepted, the user computing device **106** can store and map the command to the signal received from the user assistant device **102**, **226**. For instance, the user computing device **106** can tag the determined command with an identifier indicative of the user assistant device **102** or a particular activation component of the user assistant device **102** and store the determined command with the tagged identifier in memory **106D**. In this way, the user computing device **106** can associate an identifier of the user assistant device **102** or a particular activation component of the user assistant device **102** with a command indicative of a desired action to be performed. Thus, the next time the user activates the user assistant device **102**, the user assistant device **102** can send an action signal that triggers the user computing device **106** to perform the desired action.

The user assistant device **102** can be configured to be customizable and re-configurable. For instance, the user assistant device **102** can be manipulated to trigger a different command depending on the nature of the user input. Additionally and/or alternatively the user assistant device **102** can trigger a different action depending on the command last stored by the user computing device **106**. In some implementations, the user computing device **106** can replace the command associated with the user assistant device **102** depending on the user's interaction with the user assistant device **102** or the user computing device **106**. For instance, the user assistant device **102** can send a configure signal instead of an action signal if the user interacts with the user assistant device **102** in a pre-determined way. In this way, the user may change the command triggered by the user assistant device over time.

Figures

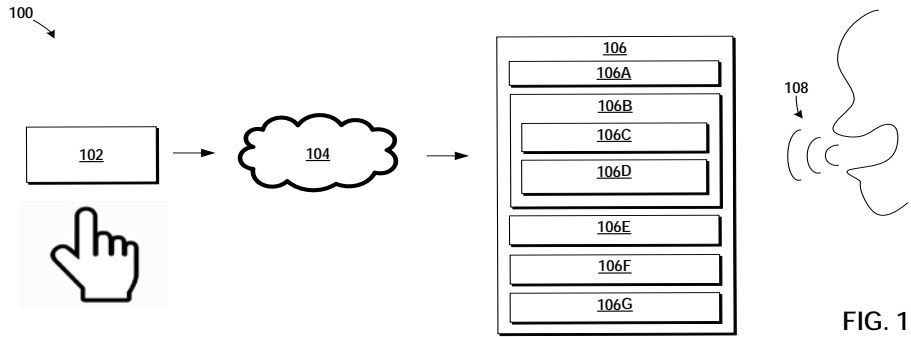


FIG. 1

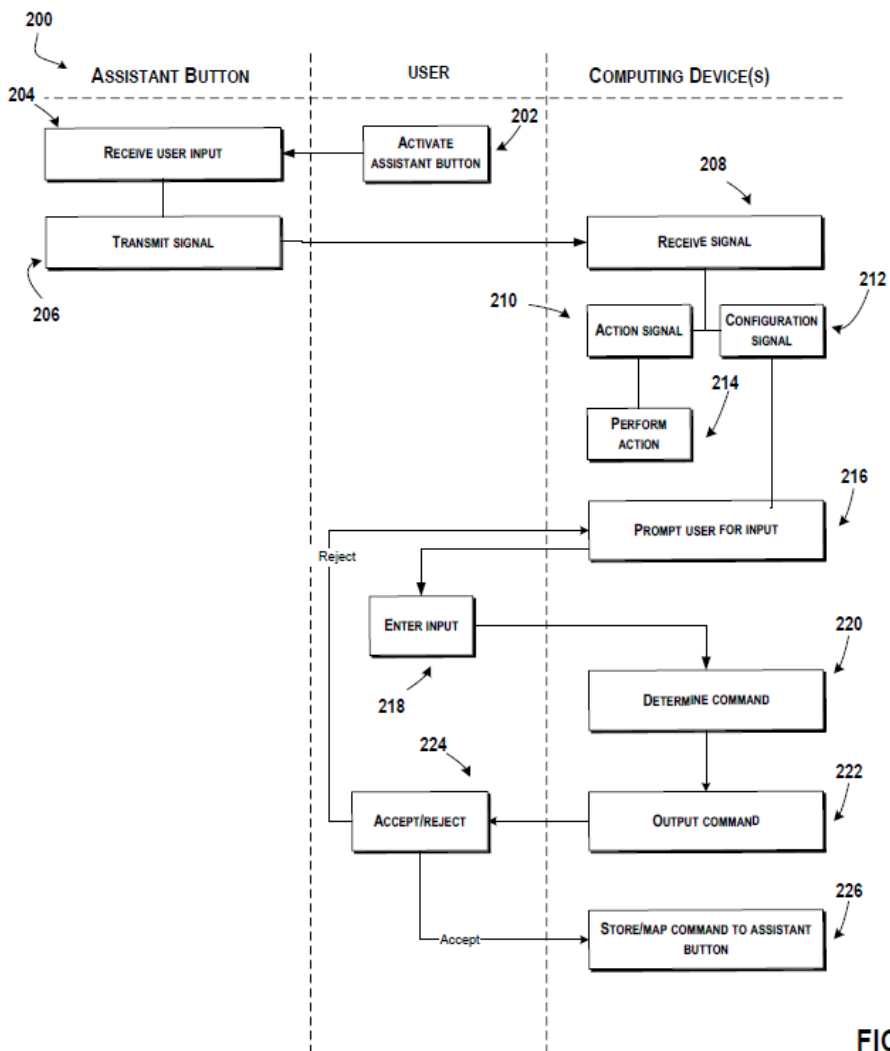


FIG. 2

## **Abstract**

The present disclosure provides a device that enables a user to automatically trigger an action to be performed by one or more computing devices with the push of a button. In particular, the device can be a wireless button coupled to a user assistant enabled computing device. Existing user assistant enabled computing devices can be configured to accept user text or voice commands or queries to perform certain actions. To repeat a common action the user must repeatedly enter the same text or voice commands or queries. Despite the frequency of a particular command or query, user assistant enabled devices cannot perform an action automatically. Keywords associated with the present disclosure include: Assistant; button; wireless; configure; re-configure; command; query; Bluetooth; WiFi; transmitter.