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VOICE RECOGNITION CONTROL FOR NOTEBOOKS WITH INTUITIVE INTERACTION BY LIGHT RING

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Voice Recognition Control for Notebooks
With Intuitive Interaction by Light Ring

Abstract: A voice recognition control mechanism for a portable computer uses a light ring embedded around the touchpad in a manner similar to voice-controlled speakers to provide intuitive operation.

This disclosure relates to the field of voice recognition computer interfaces.

A technique is disclosed that integrates a voice recognition interface into a notebook or laptop computer with an embedded touchpad.

Voice recognition has become a popular function with voice-controlled bluetooth speakers that work with voice AI software such as Google and Alexa. While some portable computers include voice recognition capability, such as for example Cortana, it often is not used. One of the reasons is due to a weak user interface and user interactions. In addition, there is no concentrated control center in a standard notebook or laptop device even where the voice recognition is available.

According to the present disclosure, and as understood with reference to the Figure, a user interface incorporates an intuitive light ring design around the touchpad which provides multiple status and activity feedback.

A light ring 5 similar in concept to those of voice-controlled speakers is implemented around the touchpad. In one example, the light ring 5 provides a rim of a thickness that emits illuminating light generated by LEDs inside the keyboard portion of the clamshell. The LEDs may be placed on a daughter board to embed them in the rectangular touchpad outline to provide continuous illumination. The LED daughter board can connect to the touchpad PCB which in turn is connected to the main board of the notebook or laptop device. The OS controls and manages voice recognition through the embedded microphone, and provides interaction feedback through this LED to confirm the operation for users.

In one example, the LED behavior may be the same as or similar to that of voice-controlled speakers: illuminated Red for MIC mute, flashing Purple for "Do Not Disturb" functionality, Solid blue illumination for listening to voices, and so on.

In operation, when the voice control mode is activated, the LED is illuminated blue, as in view 60, to provide feedback which confirms that the voice mode is 'ON'. It also may turn on an EL layer underneath a glass overlay on the touchpad in order to illuminate control icon buttons formed on the touchpad. These control buttons can include a Microphone 62, Volume up/down buttons 64, 66, and one or more action buttons 68 such as a "Do Not Disturb" button. These icons are not visible when the voice control mode is off, as illustrated in view 10, as the EL layer is not illuminated in this state.

A power button to enable/disable the voice control function can be implemented as a small toggle switch 20 on a corner of the touchpad with a dimmed circle. When voice control is turned on by tapping the circle switch area, then the blue light will illuminate. Turning off voice control is the reverse process: tapping the toggle switch 20 causes the ring color to be swirled in order to show it's going to be turned off.

Instead of using the toggle switch 20, the voice control function may alternatively be activated in response to a spoken command by the user. The light ring is illuminated blue in response.

The disclosed technique provides a seamless user interface for portable computers using a light ring design with colored feedback similar to that of voice-controlled speakers, and supports the control center for voice control mode on the touchpad.

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