Patent Owner
Global Touch Solutions, LLC
Demonstratives

IPR 2015-01023
US Patent No. 8,035,623

July 13, 2016

Instituted Grounds

- **Ground 1**: Claims **24** and **30 anticipated under 35 U.S.C. § 102(b)** by U.S. Patent Pub. No. 2001/0011995 ("Hinckley") (Ex. 1005); and
- **Ground 2**: Claim **31 obvious under 35 U.S.C. § 103(a)** by Hinckley.

Paper 10 at p. 12

‘623 Patent Claim 24

The invention claimed is:

1. A user interface unit for use with a product comprising a power source or a connection to a power source, to control a selection of functions or modes, said user interface unit comprising:

(a) a switch being a capacitive touch sensor structure; and

(b) a microchip having at least a first input coupled to the touch sensor structure, wherein the microchip is configured for controlling the display of information and/or providing information for selecting multiple modes or functions of the product or a load in response to proximity detection signals received through said first input; wherein the microchip, in response to the signals received from the touch sensor, differentiates between proximity and physical contact events detected by the touch sensor to select or control different functions respectively.

2. The interface unit of claim **1** wherein the user interface comprises multiple switches and said microchip is further configured to implement at least an indication function in response to the detection of a proximity event without affecting the operation of the mode or function of the product and wherein the function is selected from the group consisting of:

(i) an operation of a visible indicator in response to the detection of a proximity event by a user interface switch structure wherein the visible indicator at least indicates a state of the product or a condition of the product;

(ii) an operation of a display in response to the detection of a proximity event by a user interface switch and wherein said display is used to provide the user with information about the user interface switch;

(iii) an operation of a display in response to the detection of a proximity event by a user interface switch and wherein said display is operated in a way to assist in the location of the user interface switch.

3. The interface unit of claim **2**, wherein the product comprises radio frequency circuitry and audio signal generating circuitry.

4. The interface unit of claim **2**, wherein the interface unit, the power source, the load and the visible indicator or display are all attached to or enclosed in a housing.

5. The interface unit of claim **2**, wherein the microchip is further configured to provide a delayed automatic switch off action of a function that was activated in response to an activation signal received from the user interface switch.

6. The interface unit of claim **2**, configured to provide the functions in 2(i).

7. The interface unit of claim **2**, configured to provide the functions in 2(ii).

8. The interface unit of claim **2**, configured to provide the functions in 2(iii).

9. The interface unit of claim **8**, wherein the product comprises radio frequency circuitry and audio signal generating circuitry.

10. The interface unit of claim **9**, wherein the interface unit, the power source, the load and the visible indicator are all attached to or enclosed in the product housing and wherein the touch sensor user interface forms an integral part of the product housing.

11. The interface unit of claim **10**, wherein an electrically conductive fluid and/or flexible tape comprising conductive material is used in the implementation of the switch structure that is connected to the microchip.

12. The interface unit of claim **2**, wherein an electrically conductive fluid and/or flexible tape comprising conductive material is used in the implementation of the switch structure that is connected to the microchip.

13. The interface unit of claim **2**, wherein the microchip also controls an automatic delayed switch-off of a function that was activated in response to an activation command and an advance auto-off warning signal to indicate the auto delayed switch off is imminent.

14. The interface unit of claim **13**, wherein the microchip is further configured to accept a proximity detection signal to reset the auto-off timing sequence only after the advance auto off warning signal has been activated.

15. The interface unit of claim **2**, further comprising multiple switches, wherein the microchip controls the indicator to show proximity and/or physical contact detection and also to provide information to the user about the switches that are near the point of proximity detection.

16. The interface unit of claim **2**, wherein an output of the switch structure in response to a user activation depends at least on a ratio of resistances formed in the switch structure that is connected to the microchip.

17. The interface unit of claim **2**, wherein the indicator provides information to the user that will assist in guiding further switch operation.

18. The interface unit of claim **2**, wherein the mode of operation that is selected by the microchip in response to touch events depends on a combination of at least two of the following parameters:

(a) the number of touch activations;

(b) the period of a touch activation; and

(c) the periods between touch activations.

19. The interface unit of claim **1**, wherein an indicator that indicates proximity detection also provides an indication of the state of the product that is associated with the interface unit.

20. The interface unit of claim **1**, wherein the user interface comprises multiple switches and wherein upon detection of a proximity event, information is displayed about a switch approached to guide the user in the selection of the next switch to operate.

21. The interface unit of claim **20**, wherein the product further comprises audio circuitry, radio frequency circuitry and a battery that are enclosed or attached to a single housing.

22. The interface unit of claim **20**, further configured to select and/or indicate the selection of a function in response to a physical contact of a switch.

23. The interface unit of claim **1**, wherein an audible indicator comprising sound generating circuitry or digitized speech, is activated in response to the detection of a proximity event.

24. A method of using a touch sensor circuit that forms a user interface switch as part of a product, wherein a microchip and a touch sensor switch structure are used in the implementation of the user interface switch, the method comprising the steps of (1) detecting a proximity event through an object approaching the touch sensor switch, and (2) displaying information regarding the modes and/or functions associated with the switch in response to the detection of the proximity event.

25. The method of claim **24**, wherein multiple touch sensor switches are used and said method further comprises the step of operating a display in response to the detection of a proximity event by a user interface switch and wherein said display is operated in a way to assist in the location of the user interface switch and wherein the user interface switch is used to select a further function upon physical contact.

26. The method of claim **25**, wherein the method also comprises the conveyance of information to the user through the indication of the function(s) associated with the touch sensor switch that triggered the proximity detection.

24. A method of using a touch sensor circuit that forms a user interface switch as part of a product, wherein a microchip and a touch sensor switch structure are used in the implementation of the user interface switch, the method comprising the steps of (1) detecting a proximity event through an object approaching the touch sensor switch, and (2) displaying information regarding the modes and/or functions associated with the switch in response to the detection of the proximity event.

‘623 Patent Claims
Dependent Claims

- Claim 30

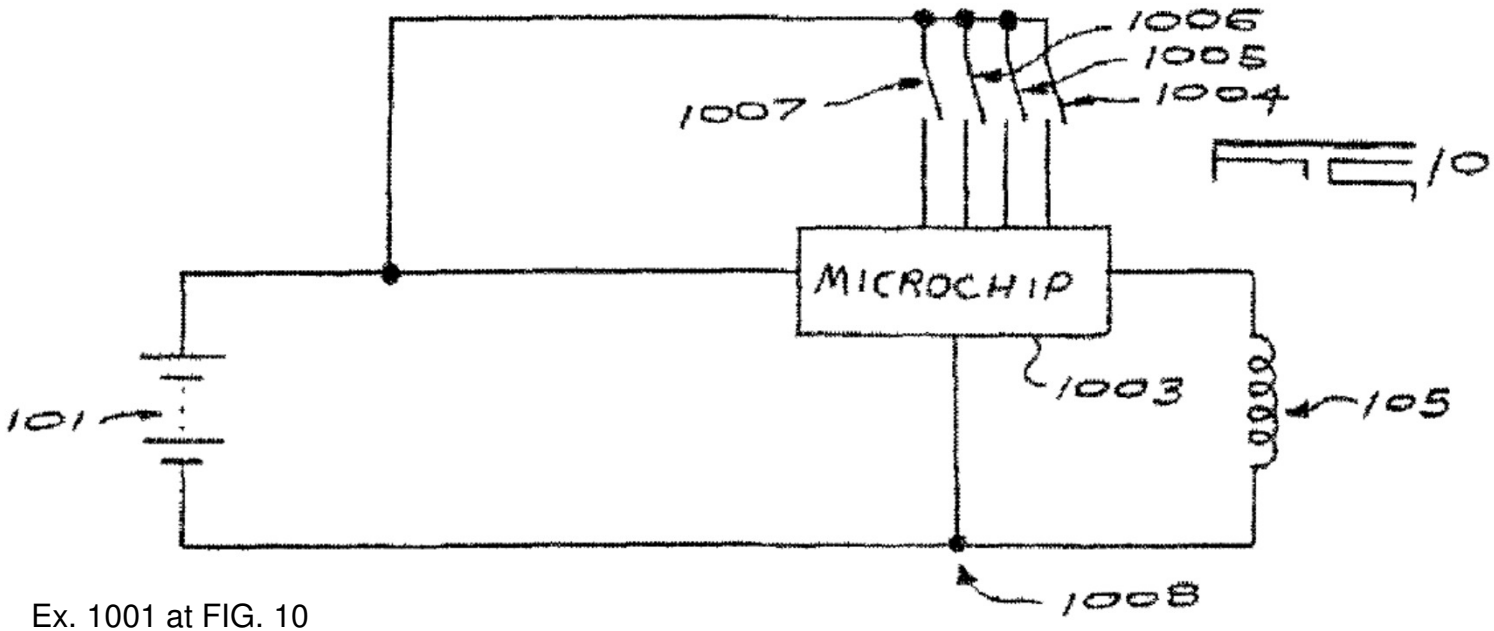
> **30**. The method of claim **24**, wherein multiple touch sensor switches are used and the step of operating a display in response to a proximity event further comprises displaying information on said display that guides the user towards a next likely switch selection to be made through physical contact.

- Claim 31

> **31**. The method according to claim **30**, further comprising a step of automatically de-activating a function that was activated upon receiving a proximity detection signal from the user interface switch.

‘623 Patent Claims
Dependent Claim 24

30. The method of claim **24**, wherein multiple touch sensor switches are used and the step of operating a display in response to a proximity event further comprises displaying information on said display that guides the user towards a next likely switch selection to be made through physical contact.



Ex. 1001 at FIG. 10

‘623 Patent Claims
Dependent Claim 24

30. The method of claim **24**, wherein multiple touch sensor switches are used and the step of operating a display in response to a proximity event further comprises displaying information on said display that guides the user towards a next likely switch selection to be made through physical contact.

to be operated next. For example if a radio is installed with this invention and in an off state, the detection of a user finger in proximity of the radio will illuminate the on switch and possibly no other switch, whereas a proximity detection when already on, will illuminate the off switch or volume control switch but not the on switch. In a sense this invention will intuitively lead the user through the next logical options when the switches are approached.

Ex. 1001 at 16:37-44

Issue

- Claim construction of “next likely switch selection”
  - Whether “next likely switch selection” refers to same limitation’s recitation of “multiple touch sensor switches are used”

Claim Construction

- Claim 24

24. A method of using a touch sensor circuit that forms a user interface switch as part of a product, wherein a microchip and a touch sensor switch structure are used in the implementation of the user interface switch, the method comprising the steps of (1) detecting a proximity event through an object approaching the touch sensor switch, and (2) displaying information regarding the modes and/or functions associated with the switch in response to the detection of the proximity event.

- Claim 30

30. The method of claim **24**, wherein multiple touch sensor switches are used and the step of operating a display in response to a proximity event further comprises displaying information on said display that guides the user towards a next likely switch selection to be made through physical contact.

Claim Construction

Claim 30 recites:

> 30. The method of claim 24, wherein ***multiple touch sensor switches*** are used and the step of operating a display in response to a proximity event further comprises displaying information on said display that guides the user towards a ***next likely switch selection*** to be made through physical contact. [Emphasis added.]

Ex. 1001 at claim 30.

Microsoft Expert Dr. Horenstein

Q So that physical contact that's recited in claim 30, what is your understanding of that phrase at the end of claim 30, physical contact?

A Well, claim 30 addresses the use of proximity sensors and touch sensors in the same apparatus, the same product, because it says you take multiple touch sensor twitches and you use them to detect a proximity event and then when you have detected the proximity event then information is displayed on a display that tells the user what touch sensor you should next touch, where the touch sensors are operating as switches that provide what is described in the claim as switch selection.

Ex. 2001 at 53-54

Microsoft Expert Dr. Horenstein

BY MR. KIBLAWI:

Q So it's your understanding that the displaying information as recited in claim 30, displaying information on said display that guides the user toward the next likely switch selection, your understanding is that that is guiding the user toward the next touch sensor switch from among multiple touch sensor switches that are recited in the claim?

MR. MURPHY: Object to form.

A Not exactly. I think that is not what the claim says.

Q What is your understanding of what the claim says?

A Perhaps I can break it down. It says you have multiple touch sensor switches that are used and what they are used for is — let me back up.

A touch sensor doesn't magically become a proximity sensor. You have to add something to the structure of the touch sensor. So if you're using the same structure that is used for touch sensing, you have to add other things to the electronic circuitry to make that into a proximity sensor. And, therefore, detecting a proximity event is different from detecting a touch event because different circuitry behind the detection is involved. And the only thing they may share in common is an electrode on the surface.

I believe what claim 30 is saying is that whatever sensor apparatus or sensor pads exist, they are operated as proximity detectors, and then when a proximity event occurs then the display guides the user as to which touch sensor to touch to make some decision about what to do next.

Ex. 2001 at 54-55

END

CERTIFICATE OF SERVICE

The undersigned certifies that a copy of the attached PATENT OWNER GLOBAL TOUCH SOLUTIONS, LLC DEMONSTRATIVES in Case IPR2015-01023 and this Certificate of Service are being served on July 8, 2016 by electronic mail upon the following:

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