

10. A method of controlling surface relief of a touch-sensitive surface, comprising:

- maintaining the touch-sensitive surface in a first surface characterization;
- receiving a command for activating haptic feedback;
- activating a haptic mechanism in response to the command;
- generating the haptic feedback to change surface relief of the touch-sensitive surface from the first surface characterization to a second surface characterization.

11. The method of claim **10**, further comprising sensing a contact on the touch-sensitive surface and generating an input signal in response to the contact and sending the input signal to a processing unit.

12. The method of claim **10**, wherein maintaining the touch-sensitive surface in a first surface characterization further includes maintaining bumps on the touch-sensitive surface.

13. The method of claim **10**, wherein receiving a command for activating haptic feedback further includes receiving the command from a user.

14. The method of claim **10**, wherein generating the haptic feedback to change the touch-sensitive surface further includes creating bump sensation on the surface relief of the touch-sensitive surface.

15. The method of claim **10**, wherein generating the haptic feedback to change the touch-sensitive surface further includes moving a plurality of pins above and below the touch-sensitive surface via a set of predefined holes in the touch-sensitive surface.

16. The method of claim **10**, wherein generating the haptic feedback to change the touch-sensitive surface further includes shifting the touch-sensitive surface laterally against the haptic mechanism to form sensation of bumps and holes.

17. The method of claim **10**, wherein generating the haptic feedback to change the touch-sensitive surface further includes buckling the touch-sensitive surface to form a bump.

18. The method of claim **10**, wherein generating the haptic feedback to change surface relief of the touch-sensitive surface from the first surface characterization to a second surface characterization further includes changing from a coarse texture to a smooth texture.

19. The method of claim **10**, wherein generating the haptic feedback to change surface relief of the touch-sensitive surface from the first surface characterization to a second surface characterization further includes changing from a smooth texture to a rough texture.

20. An apparatus for controlling surface relief of a touch-sensitive surface, comprising:

- means for maintaining the touch-sensitive surface in a first surface characterization;
- means for receiving a command for activating haptic feedback;
- means for activating a haptic mechanism in response to the command;
- means for generating the haptic feedback to change surface relief of the touch-sensitive surface from the first surface characterization to a second surface characterization.

21. The apparatus of claim **20**, further comprising means for sensing a contact on the touch-sensitive surface and generating an input signal in response to the contact and sending the input signal to a processing unit.

22. The apparatus of claim **20**, wherein means for maintaining the touch-sensitive surface in a first surface characterization further includes means for maintaining bumps on the touch-sensitive surface.

23. The apparatus of claim **20**, wherein means for receiving a command for activating haptic feedback further includes means for receiving the command from a user.

24. The apparatus of claim **20**, wherein means for generating the haptic feedback to change the touch-sensitive surface further includes means for creating bump sensation on the surface relief of the touch-sensitive surface; and wherein means for generating the haptic feedback to change the touch-sensitive surface further includes means for moving a plurality of pins above and below the touch-sensitive surface via a set of predefined holes in the touch-sensitive surface.

25. A haptic interface device comprising:

- a display layer operable to display viewable images;
- a touch screen layer disposed over the display layer and capable of receiving an input by sensing one or more surface contacts;
- a haptic mechanism layer disposed over the touch screen layer and operable to provide haptic feedback in response to an activating command; and
- a touch surface layer disposed over the haptic mechanism layer and having a plurality of opens, wherein the plurality of opens facilitate a change of surface relief of the touch surface layer from a smooth surface to a coarse surface in response to the activating command.

26. The device of claim **25**, wherein the haptic mechanism layer disposed over the touch screen layer and operable to provide haptic feedback further includes a first tactile feedback and a second tactile feedback, wherein the first tactile feedback causes the touch surface layer to deform.

27. The device of claim **26**, wherein the second tactile feedback includes a haptic user acknowledgement confirming the input.

28. The device of claim **25**, wherein the haptic mechanism layer includes a plurality of pins, wherein the plurality of pins moves above the touch surface layer and moves below the touch surface layer through the plurality of opens in the touch surface layer.

29. The device of claim **25**, wherein the coarse surface includes bumps, holes, and a combination of bumps and holes.

30. The device of claim **25**, wherein the haptic mechanism layer is a rigid layer having one or more surface features

31. The device of claim **30**, wherein the touch surface layer is a flexible and deformable surface capable of forming a raised surface in response to one or more features of haptic mechanism layer.

32. The device of claim **25**, wherein the activating command is generated when a sensor detects a surface contact on the touch surface layer.

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