

4. The apparatus of claim 3, wherein the haptic information generating unit further includes a haptics compressing unit compressing duplicated parts in the numerically calculated results and outputting compressed results to the storing unit, and wherein the storing unit stores the compressed results and outputs the stored results as the haptic information.

5. The apparatus of claim 3, wherein each region contains a designated number of pixels.

6. The apparatus of claim 3, wherein each region contains a designated number of voxels.

7. The apparatus of claim 5, wherein the designated number is determined based on a resolution of the haptics or a size of the portion to be touched.

8. The apparatus of claim 1, wherein the touch unit includes:

a touch checking unit checking whether the portion of the image is touched; and

a position searching unit searching for the position of the touched portion in response to checking results.

9. The apparatus of claim 1, wherein the magnetic force changing unit includes:

an upper magnetic force unit embedded in the image unit and having at least one electromagnetic cell that changes magnetic forces in response to an upper magnetic force control signal;

a lower magnetic force unit embedded in the image unit under the upper magnetic force unit and having a plurality of electromagnetic cells that change magnetic forces in response to a lower magnetic force control signal; and

a control signal generating unit analyzing the haptic information corresponding to the position and generating the upper and lower magnetic force control signals using analyzed results.

10. The apparatus of claim 9, wherein each of the upper and lower magnetic force control signals is a size of a current, a direction of the current, or a supply cycle of the current.

11. The apparatus of claim 9, wherein at least one electromagnet of the electromagnetic cell is one selected from the group consisting of a circular coil, a triangular coil, a rectangular coil, and a star-shaped coil.

12. The apparatus of claim 11, wherein a strength of the magnetic forces is determined by adjusting a thickness of wires or a number of wires included in the electromagnet.

13. The apparatus of claim 9, wherein the magnetic force changing unit includes a movement control unit moving the upper magnetic force unit from a current position to the position searched for by the touch unit,

wherein the upper magnetic force unit is movable, and a number of the electromagnetic cells included in the upper magnetic force unit is less than a number of the electromagnetic cells included in the lower magnetic force unit, and

wherein the control signal generating unit outputs the upper and lower magnetic force control signals when movement of the upper magnetic force unit is completed.

14. The apparatus of claim 1, wherein the user touches the image unit using a body part.

15. The apparatus of claim 1, further comprising a touch member which touches the portion of the image unit,

wherein the user touches the image unit using the touch member, and the user feels a change of the expressed magnetic forces as haptics of the image through the touch member.

16. The apparatus of claim 1, realized as a micro-electro-mechanical system (MEMS) or nano-electro-mechanical system (NEMS) embedded in the image unit.

17. A method of providing haptics of an image displayed through an image unit, comprising:

checking whether a user touches a desired portion of an image displayed in the image unit, and searching for a position of the portion; and

changing magnetic forces according to haptic information corresponding to the searched position and expressing the changed magnetic forces through the image unit,

wherein haptics of the portion are provided to the user through the change of the expressed magnetic forces.

18. The method of claim 17, further comprising generating information on haptics of the image to be displayed as the haptic information.

19. The method of claim 18, wherein the generating of the information includes:

dividing an image to be displayed into a plurality of regions and numerically calculating haptics of each region; and

storing numerically calculated results of each region as the haptic information.

20. The method of claim 19, wherein the generating of the information further includes compressing duplicated parts in the numerically calculated results, and wherein the compressed results are stored as the haptic information.

21. The method of claim 17, wherein the searching for the position of the portion includes:

judging whether the portion of the image is touched; and

searching for a position of the touched portion when it is judged that the portion of the image is touched.

22. The method of claim 17, performed in an image haptics providing apparatus having upper and lower magnetic force units, each of which is embedded in the image unit and has a plurality of electromagnetic cells, the method further comprising moving the upper magnetic force unit from a current position to the searched position before the changing of the magnetic forces,

wherein the upper magnetic force unit is movable, and the number of the electromagnetic cells included in the upper magnetic force unit is less than the number of the electromagnetic cells included in the lower magnetic force unit.

23. An image haptics providing apparatus, comprising:

a touch unit determining whether a user has touched a portion of a displayed image displayed on an image unit and determining a position of the touched portion; and

a magnetic force changing unit selecting haptic information corresponding to the determined position among input haptic information and communicating magnetic