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grams, the present invention can be used in a game program which must simulate physical force depending on the intensity of touch pressure or must control the force or express the degree of variation in force. For example, in the case of a fighting game, the intensity of striking impact can vary depending on the intensity of touch pressure. In the case of a golf game, the intensity at which a ball is struck can be controlled in proportion to the intensity of touch pressure.

As well, in a sports game, the jumping motion of a character, for example, the height of jumping motion, can be varied by the intensity of touch pressure to increase the sensation of reality. As yet another example, in the conventional touch screen, one key has only one or two functions in a manner similar to that of a keypad of a typical mobile phone. However, in the present invention, one key can create various input signals depending on the intensity with which the user pushes the key. For example, a mobile phone having the touch screen of the present invention can be designed such that a digit key can have functions of inputting not only numerals but also other various operations depending on the intensity with which the key is pushed.

Although the touch screen 1 of the present invention has been illustrated as having a general rectangular shape, it may have other shapes, for example, a circular shape, etc.

The invention claimed is:

1. A capacitive touch screen, comprising:

a substrate (10) comprising a plate which is open in a central portion thereof other than a rim (11) or comprising a transparent solid plate;

a first electrode plate (20) placed on an upper surface of the rim (11) of the substrate (10);

an elastic spacer (30) placed on an upper surface of the first electrode plate (20), the elastic spacer (30) being variable in thickness in response to application of an external pressure so as to be restorable to original shape thereof;

a second electrode plate (40) placed on an upper surface of the elastic spacer (30); and

a transparent panel (50) placed on an upper surface of the second electrode plate (40) to cover an entire area of the substrate (10);

wherein one electrode plate of the first electrode plate (20) and the second electrode plate (40) comprises four or more electrode plates arranged along the rim (11) of the substrate (10) at positions spaced apart from each other at predetermined intervals, the other electrode plate comprises a single electrode plate arranged over the rim (11) along the overall length thereof; and

when a contact pressure is applied to a portion of the transparent panel (50), a distance (d) between the first electrode plate (20) and the second electrode plate (40) is restorably varied by elastic height variation of the elastic spacer (30), so that capacitances are varied at sensing points (S) corresponding to locations of the four or more electrode plates (20) or (40), and a touch location and a touch pressure are determined by variation rates of the capacitances measured at the sensing points (S).

2. A capacitive touch screen, comprising:

a substrate (10) comprising a plate which is open in a central portion thereof other than a rim (11) or comprising a transparent solid plate;

a first electrode plate (20) placed on an upper surface of the rim (11) of the substrate (10);

an elastic spacer (30) placed on the upper surface of the rim (11) of the substrate (10), the elastic spacer (30) being

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variable in thickness in response to application of an external pressure so as to be restorable to original shape thereof;

a transparent panel (50) placed on an upper surface of the elastic spacer (30) to cover an entire area of the substrate (10); and

a second electrode plate (40) placed beneath a lower surface of the transparent panel (50) such that the second electrode plate (40) is spaced apart from the first electrode plate (20) by a predetermined distance;

wherein one electrode plate of the first electrode plate (20) and the second electrode plate (40) comprises four or more electrode plates arranged along the rim (11) of the substrate (10) at positions spaced apart from each other at predetermined intervals, the other electrode plate comprises a single electrode plate arranged over the rim (11) along the overall length thereof; and

when a contact pressure is applied to a portion of the transparent panel (50), a distance (d) between the first electrode plate (20) and the second electrode plate (40) is restorably varied by elastic height variation of the elastic spacer (30), so that capacitances are varied at sensing points (S) corresponding to locations of the four or more electrode plates (20) or (40), and a touch location and a touch pressure are determined by variation rates of the capacitances measured at the sensing points (S).

3. A capacitive touch screen, comprising:

a substrate (10) comprising a plate which is open in a central portion thereof other than a rim (11) or comprising a transparent solid plate;

a first elastic spacer (30a) placed on an upper surface of the rim (11) of the substrate (10), the first elastic spacer (30a) being variable in thickness in response to application of an external pressure so as to be restorable to original shape thereof;

a first electrode plate (20) placed on an upper surface of the first elastic spacer (30a);

a second elastic spacer (30b) placed on an upper surface of the first electrode plate (20), the second elastic spacer (30b) being variable in thickness in response to application of external pressure so as to be restorable to original shape thereof;

a transparent panel (50) placed on an upper surface of the second elastic spacer (30b) to cover an entire area of the substrate (10); and

a pair of second electrode plates (40) respectively placed on the upper surface of the rim (11) of the substrate (10) and beneath a perimeter of a lower surface of the transparent panel (50) such that the second electrode plates (40) are spaced apart from the first electrode plate (20) by predetermined distances;

wherein one electrode plate of the first electrode plate (20) and the second electrode plate (40) comprises four or more electrode plates arranged along the rim (11) of the substrate (10) at positions spaced apart from each other at predetermined intervals, and the other electrode plate comprises a single electrode plate arranged over the rim (11) along the overall length thereof; and

when a contact pressure is applied to a portion of the transparent panel (50), a distance (d) between the first electrode plate (20) and the second electrode plate (40) is restorably varied by elastic height variation of the elastic spacers (30a) and (30b), so that capacitances are varied at sensing points (S) corresponding to locations of the four or more electrode plates (20) or (40), and a touch