speed shown FIG. **15**A. In this example, like FIG. **15**A, the pushing judgment threshold Fth is preliminarily set with respect to the input detection signal S**2** obtained from the input detector means **45**. The CPU **32** controls the actuator vibration circuit **37** so that a vibration pattern Pa is generated at a time t**12** at which the rising waveform of the input detection signal S**2** goes across the pushing judgment threshold Fth and a vibration pattern Pb is generated at a time t**22** at which the falling waveform of the input detection signal S**2** goes across the pushing judgment threshold Fth.

[0173] In this case, the input detector means **45** detects the press force F caused when the button icon or the like is pushed at a speed faster than the reference pushing speed, and, when the CPU **32** or the like detects the relationship: pushing judgment threshold Fth<press force F, the haptic stimulus "A" can be started. On the other hand, when the CPU **32** or the like detects the relationship: pushing judgment threshold Fth>press force F, the haptic stimulus "B" can be started. Between the vibration pattern Pa and the vibration pattern Pb is formed a blank term Tx=T2 (T2<T1) with no vibration.

[0174] Even when pushed at a pushing speed faster than the pushing speed set at the design, the haptic stimulus "A" is propagated on the first stage to achieve a load having a feeling of clicking, and the haptic stimulus "B" is propagated on the second stage to achieve a stroke having a feeling of clicking. In this example, when the pushing judgment threshold Fth is 100 (gf), a haptic stimulus of a classic switch can be obtained.

[0175] Next, an example of the information processing in the mobile phone **400** is described. FIG. **17** is a flowchart showing an example of the information processing in the mobile phone **400** according to the fourth embodiment.

[0176] In this example, the mobile phone **400** has the touch panel supporting vibrator **100**, **200**, or **300** according to the first, second, or third embodiment, and information is input by pushing the input detection surface on the display screen of the mobile phone **400** by means of a finger **30***a* of an operator. The mobile phone **400** has a function (algorism) such that a waveform is processed using press force F caused by the finger **30***a* of the operator or the like as a parameter in the same vibration mode. The CPU **32** calculates press force F from the input detection data D**2**, and judges it according to the driving requirements a, b shown in FIG. **15**A, making it possible to generate an appropriate haptic stimulus according to the pushing action during the input operation in the same vibration mode for any types of inputs.

[0177] Under the above information processing conditions, in a step G**1** in the flowchart shown in FIG. **17**, the CPU **32** waits for a power source ON. For example, the CPU **32** detects power source ON information to start the system. The power source ON information is generally generated when a clock function or the like works and the power source switch of a mobile phone or the like in a sleeping state is turned ON.

[0178] The procedure then goes to a step G**2** and the CPU **32** controls the display means **29** so that an icon image is displayed. For example, the CPU **32** feeds display data D**4** to the display means **29** to display input information on the display screen. The input information displayed on the display screen is made visible through the input detector means **45** having an input detection surface. The procedure then goes to a step G**3** and the CPU **32** divides the control according to a button icon input mode or another processing mode. The button icon input mode is an input operation of pushing an icon button **29***a* or the like on the input detection surface when selecting a button icon.

[0179] When the button icon input mode is selected, the button icon **29***a* or the like is pushed, and hence the procedure goes to a step G**4** and the CPU **32** calculates press force F on the basis of the input detection data D**2**. In this instance, the force detector means **55***a* to **55***d* detect the press force F of the finger **30***a* of the operator in the pushed position on the input detection surface to output an input detection signal S**2** to the A/D driver **31**. The A/D driver **31** A/D-converts the input detection signal S**2**, and transfers the A/D-converted input detection data D**2** to the CPU **32**.

[0180] The procedure then goes to a step G**5**, and the CPU **32** compares the press force F with the pushing judgment threshold Fth and judges whether or not the relationship: F>Fth is satisfied. When the relationship: F>Fth is satisfied, the procedure goes to a step G**6** where the haptic stimulus "A" is started. The haptic stimulus "A" is obtained by vibrating the input detection surface by means of the piezoelectric actuators **25***a* and **25***b* in accordance with the vibration pattern Pa corresponding to the press force F of the finger **30***a* of the operator.

[0181] In the haptic stimulus "A", for example, with respect to the frequency fx, amplitude Ax, and number Nx shown in FIG. **14**A, the input detection surface is vibrated with a vibration pattern of [fx Ax Nx]=[50 5 2] on the first stage i for about 0.1 second and vibrated with a vibration pattern of [fx Ax Nx]=[100 10 2] on the second stage ii for about 0.1 second. In this case, different vibration patterns can be generated according to the "press force" of the operator (driving requirement a).

[0182] The procedure then goes to a step G**7** and the CPU **32** further detects press force F. The press force F is detected by the force detector means **55***a* to **55***d* when the operator is removed from the button icon **29***a* subsequent to pushing the button icon **29***a*. In this instance, the force detector means **55***a* to **55***d* detect press force F generated when the finger **30***a* of the operator is removed from the pushed position on the input detection surface to output the input detection signal S**2** to the A/D driver **31**. The A/D driver **31** A/D-converts the input detection signal S**2**, and transfers the A/D-converted input detection data D**2** to the CPU **32**.

[0183] The procedure then goes to a step G**8**, and the CPU **32** compares the press force F with the pushing judgment threshold Fth and judges whether or not the relationship: F<Fth is satisfied. When the relationship: F<Fth is satisfied, the haptic stimulus "B" is started. The haptic stimulus "B" is obtained by vibrating the input detection surface by means of the piezoelectric actuators **25***a* and **25***b* in accordance with the vibration pattern Pb corresponding to the press force F of the finger **30***a* of the operator. In the haptic stimulus "B" caused when the button icon **29***a* is released, for example, as shown in FIG. **14**B, the input detection surface is vibrated with a vibration pattern of [fx Ax Nx]=[80 8 2] on the first stage i for about 0.1 second and vibrated with a vibration pattern of [fx Ax Nx]=[40 8 2] on the second stage ii for about 0.1 second. In this case, different vibration patterns can be generated in accordance with the "press force" of the operator (driving requirement b).

[0184] The procedure then goes to a step G**10** where the input is settled. In this instance, the CPU **32** settles the input information displayed in the pushed position on the input operation surface. The procedure then goes to a step G**12**. When another processing mode is selected in the step G**3**, the procedure goes to a step G**11** and another processing mode is executed. Another processing mode includes a telephone