information as for example, the touch sensitive region above a graphical button. In most cases, the sensitive portions are scaled with the visually expanded portions. That is, the step of expanding includes scaling the input sensitivity with the expanded visual portions of the graphical information. The scaling may be proportional since the sensitive portions are typically a little larger than the visual portions (the visual portion and the sensitive portion aren't exactly a 1:1 relationship). By way of example, if the visual portion grows by a factor of 3 then the sensitive portion grows by a factor of 3.

[0035] During expansion, the visual and/or sensitive portions of the touchscreen display may be magnified and/or increased in size compared to the remaining visual and/or sensitive portions of the touchscreen display. By way of example, the visual portion may grow from its original size to an enlarged size (e.g., from 4 mm to 8 mm) and be magnified from its original state to a magnified state (e.g., from 1× to 2×). Although the expanded portions are enlarged and magnified, in most cases, the expanded portion maintains the same aspect ratio and shape that it has in the unexpanded state. As should be appreciated, expansion may be somewhat analogous to zooming.

[0036] The area that is expanded may be the area underneath the touch. Alternatively, the area that is expanded may be offset from the touch such as for example above, below or to the sides of the touch. This may allow the user to more clearly view the expanded area.

[0037] The size, magnification and shape of the expanded area may be widely varied. By way of example, and not by way of limitation, the expanded area may have an area of between about 100 mm^2 and about 400 mm^2, and a height and width between about 10 mm to about 20 mm. Furthermore, the expanded portions may be magnified between greater than 1 time to over a thousand times, more particularly between about 2× to about 100×, and even more particularly, the between about 2× and about 20×. Moreover, the expanded area may be formed from various shapes including but not limited to circles, ovals, squares, rectangles, triangles, and the like. Other shapes such as symbols, logos, characters may also be used.

[0038] In one embodiment, the expanded portion of the graphical information is raised relative to the non expanded portion of the graphical information. For example, the expanded portion may appear to protrude away from the non expanded portions. This is typically done graphically as both the expanded and non expanded portions are typically produced in the same plane. By way of example, shading principals may be used to make the expanded portion appear to protrude away from the non expanded portions.

[0039] In some cases, the expanded portion includes a substantially planar plateau region and a substantially sloped transition region. The planar plateau region provides a planar surface for displaying the targeted graphical information and the transition region provides a gradient of growth between the plateau region and the non expanded portion of the graphical information. The transition region, which is the edge of the plateau compacts or compresses the graphical information located between the plateau and the non expanded portion of the graphical information. For example, the graphical information contained in the transition region have compacted or compressed magnification levels (this may distort the graphical information contained therein) In alternative implementations, the plateau may be rounded rather than being planar or the expanded portion may be one large transition region without having a plateau. In either case, the expanded portion may look like a rounded pimple or bump.

[0040] The expanded portion may be a localized area, which can be any portion of the graphical information. The localized area may include any portion of the graphical information including but not limited to background (e.g., wall paper), windows, fields, text, dialog boxes, menus, icons, buttons, cursors, UI controls or any combination thereof.

[0041] The expanded portion may also be linked to a particular object of the graphical information. For example, a particular window, field, dialog box, menu, icon, button, tool bar, user interface element (e.g., scroll bar, scroll wheel, slider bar, dial), control box, footnote and the like. In some case, the entire object is expanded. For example, when the finger is placed over a window, the entire window is expanded. In other cases, only a portion of the object is expanded. For example, when the finger is placed over a tool bar, only the selectable items are expanded. As should be appreciated, these objects may need to be expanded so that they can be easily used by a human hand.

[0042] The time when expansion takes place can be widely varied. In one embodiment, expansion is activated immediately after the touch is detected. In another embodiment, expansion is activated after the touch is detected for a predetermined amount of time. In cases such as this, the user may have to hover their finger over the area desired to be expanded for the predetermined amount of time in order to initiate the expansion. By way of example, the dwell time may be between about 0.5 to about 5 seconds, and more particularly about 1 second. This embodiment may be employed to prevent inadvertent expansion. That is, the time delay may be used to avoid implementing expansion with casual contact not intended for expansion.

[0043] Once expansion is activated, the speed or rate at which the expanded area expands may be widely varied. The growth can happen quickly or slowly. In one embodiment, the expanded area grows from its normal state to the expanded state almost instantaneously. In another embodiment, the expanded area grows over some predetermined amount of time, i.e., the area expands gradually over time. The rate may be preset or it may be based on some external factor. For example, the rate of growth may be based on the touch pressure, i.e., the greater the touch pressure, the greater the rate of change. Alternatively, the rate of growth may be based on multiple taps, i.e., each tap causes incremental expansion.

[0044] The manner in which expansion is implemented may also be widely varied. In one embodiment, the amount of expansion (size, magnification, etc) is preset. The preset amount may be fixed or it may be adjustable. For example, a user may adjust the characteristics of expansion via a control menu. In another embodiment, the amount of expansion is based on some external factor. In one particular case, the amount of expansion is based on the amount of touch pressure. For example, the greater the pressure the greater the magnification or overall size of the localized area (or vice versa). In another case, the amount of expansion may be