

[0018] In one arrangement, the input devices may comprise touch-sensitive buttons provided over one or more additional regions of display panel. The display system may therefore include a touch sensitive display having two vertically extending touch sensitive regions on the side of a central display area, the central display area defining the upper and lower regions of the display.

[0019] Each touch sensitive region may be defined by an individual pressure sensitive pad located over a display portion. A number of buttons may be provided by a set of pads provided above a single display portion. For example, two display portions may be provided with a set of pressure sensitive pads above each one, the display portions comprising a strip aligned with a vertical side of the main display.

[0020] In this case, a label may be provided on the portion of the display associated with each touch sensitive region within an outline of a button, the function associated with the label being accessed when the driver touches the display within the button outline.

[0021] It has been found in some cases that the provision of touch sensitive regions is difficult to use in a moving vehicle due to a lack of tactile feedback to the driver.

[0022] In one arrangement, therefore, a portion of the display system defining the pressure sensitive face of a touch sensitive button may be displaceable against a resistance which provides tactile feedback to the user.

[0023] The resistance may be provided by a spring or springs which is/are compressed as the button is pressed. The resistance may prevent movement of the button until it is pressed hard enough to activate it.

[0024] A guide means may be provided which controls the path of the button when depressed against the resistance.

[0025] A locking means may also be provided which prevents movement of the button when the button is inactive. This may, for instance comprise a solenoid having an armature which is movable between a first position in which the button is free to move and a second position in which it cooperates with the button to prevent movement.

[0026] Working in association with the locking means, the whole display area may be formed from a single touch sensitive tactile pad where displacement of the pad may be prevented from displacement when an inactive area of the display is pressed.

[0027] Other input devices may be provided which control the function of the display. For example, one or more switches may be located above or below the display, or perhaps on a portion of the steering wheel.

[0028] The display may be rectangular. It is preferred that the display has a portrait format, i.e. the vertical dimension of the display is greater than the horizontal extent. It may have an aspect ratio of substantially 4:3 and when split provide upper and lower regions having a respective landscape aspect ratio of 2:3 for each split region. It may have an aspect ratio greater than 4:3. i.e. 5:3 or 6:4 or conveniently 16:9.

[0029] Of course, where an additional region along one or more vertical edges is provided to define touch-sensitive buttons, the overall display panel size may be different. In a

most convenient arrangement, the overall display panel may have a landscape format such as a 3:4 aspect ratio, with the main display region having a portrait format, i.e. 4:3.

[0030] The provision of a main display region having a portrait format is advantageous when combined with vertically aligned input devices as it provides a suitably sized area for displaying information for each system.

[0031] The display region may be configured to display information relating to more than two vehicle operational systems. One or more input devices may be provided which permit the driver to select which system is allocated to each of the display regions.

[0032] The operational systems may be selected from, but are not limited to the following:

[0033] Cruise control

[0034] Communication (e.g. telephone, internet)

[0035] Navigational aids (i.e. satellite navigation)

[0036] Entertainment (radio, television)

[0037] Climate control.

[0038] The display may, in a further mode of operation, display information relating to only one system. The user may select between the split screen and the full display. Alternatively, the choice may be made automatically by the display system depending on the status of one or more of the operational systems.

[0039] The display may comprise a liquid crystal display panel,

[0040] There will now be described by way of example only one embodiment of the present invention of which:

[0041] FIG. 1 illustrates a display system in accordance with the present invention in a first operational mode;

[0042] FIG. 2 illustrates the display system of FIG. 1 when in a second mode of operation;

[0043] FIG. 3 illustrates a second embodiment of a display system in accordance with the present invention;

[0044] FIG. 4 is a plan view of a first arrangement for a touch sensitive button; and

[0045] FIG. 5 is a plan view of a second arrangement for a touch sensitive button.

[0046] The display system illustrated in FIG. 1 of the accompanying drawings comprises a liquid crystal display panel having a display portion 1 portrait aspect ratio of 4:3. The panel 1 is located within a centre console (not shown) or other suitable region of a vehicle dashboard where it can be readily viewed and reached by a driver or otherwise,

[0047] Extending down each vertical side 2,3 of the display are six evenly spaced buttons 4. These are mounted behind respective openings in a surround 5 for the display to form a single integrated unit. The buttons 4 allow the driver to select the information that is to be displayed on the display panel and also to control a plurality of vehicle operational systems.

[0048] As shown in FIG. 1, the display portion 1 may be split in a first mode of operation into two regions 6,7. An first upper region 6 displays information relating to a first vehicle