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(54) Abstract Title
User adaptive menu structure

(57) There is disclosed a menu structure, for example for a mobile phone, which allows the user to copy selected items into a specific dedicated branch of the structure. This has the advantage that the user will then know that all commonly used features are accessible through that branch.

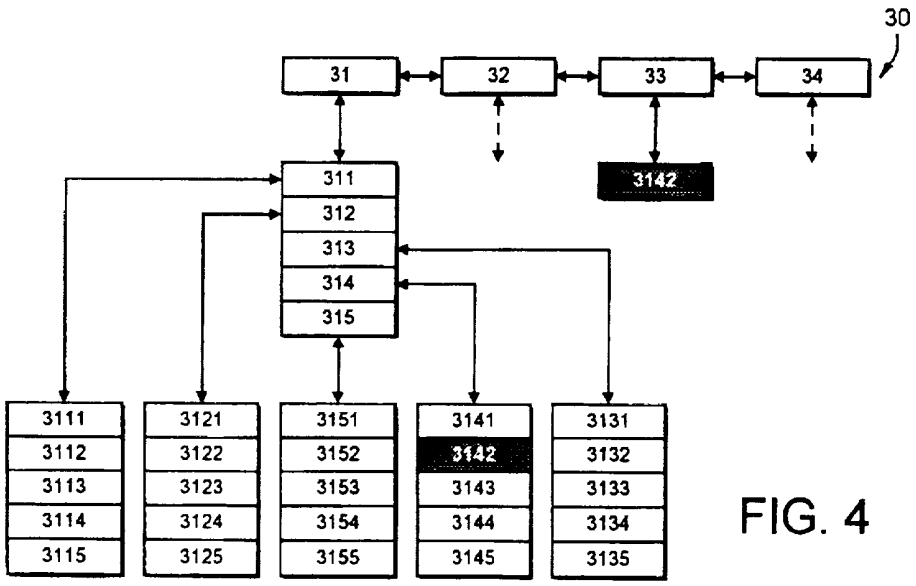

FIG. 4

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At least one drawing originally filed was informal and the print reproduced here is taken from a later filed formal copy.

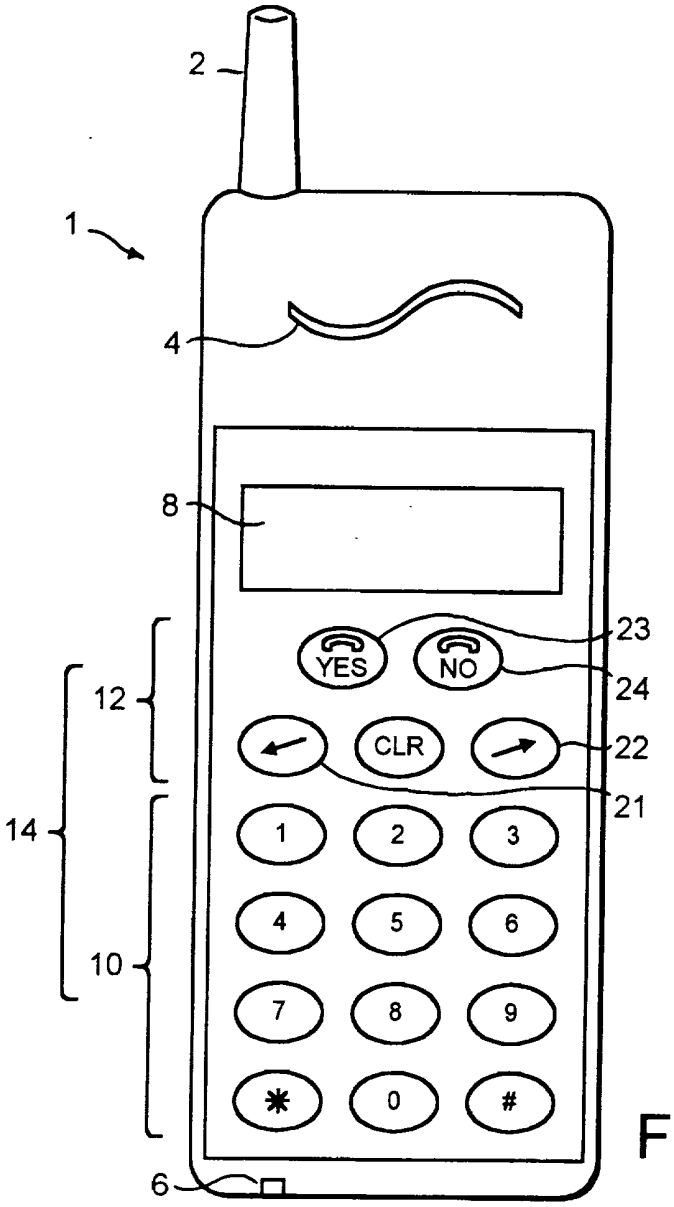

2
1
4
8
YES
NO
23
24
12
CLR
22
21
14
1
2
3
4
5
6
10
7
8
9
*
0
#
6

FIG. 1

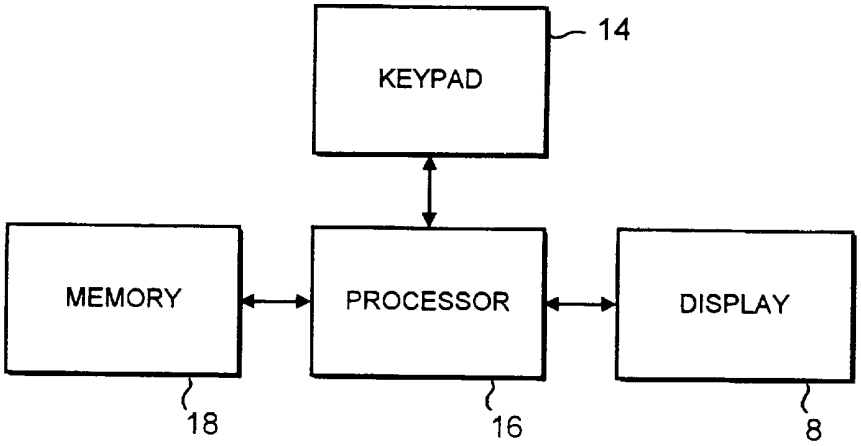
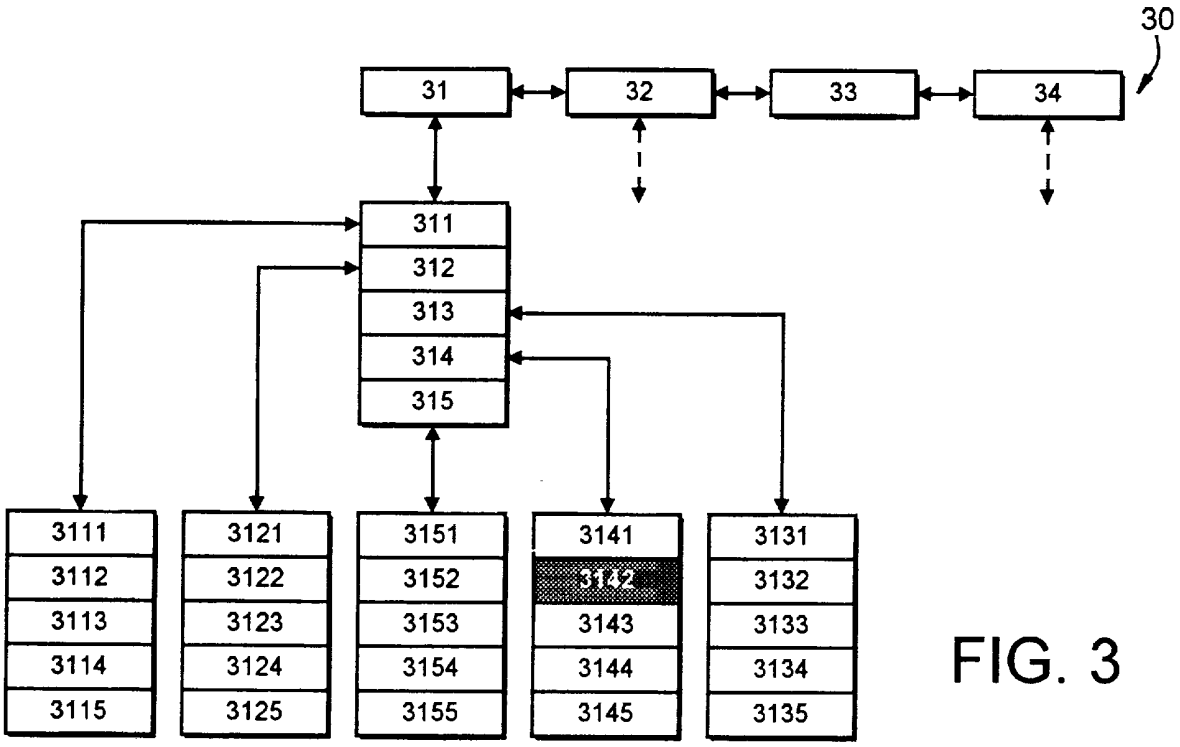

KEYPAD
14
MEMORY
PROCESSOR
DISPLAY
18
16
8

FIG. 2


30
31
32
33
34
311
312
313
314
315
3111
3112
3113
3114
3115
3121
3122
3123
3124
3125
3151
3152
3153
3154
3155
3141
3142
3143
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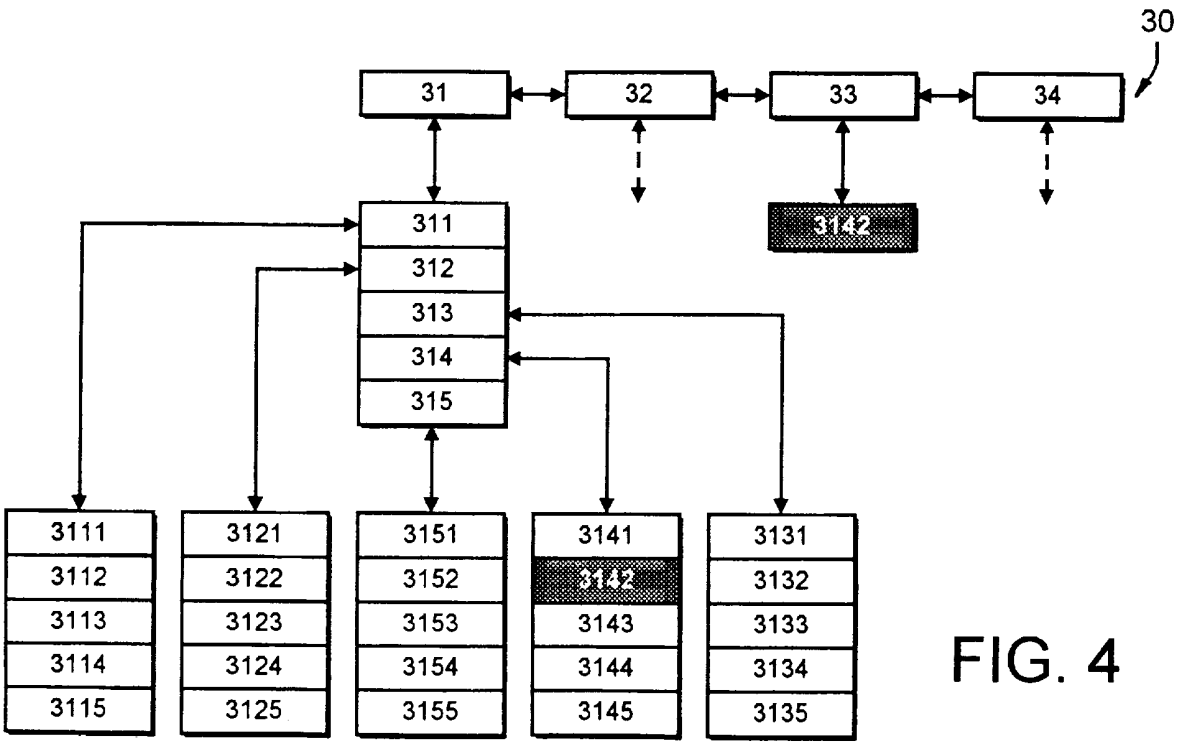
3131
3132
3133
3134
3135

FIG. 3


30
31
32
33
34
3142
311
312
313
314
315
3111
3112
3113
3114
3115
3121
3122
3123
3124
3125
3151
3152
3153
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3155
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FIG. 4

COMMUNICATIONS DEVICE

TECHNICAL FIELD OF THE INVENTION

This invention relates in preferred embodiments to a communications device, such as a mobile phone, and in particular to a menu system which may be used to access features of such a device.

BACKGROUND OF THE INVENTION

As communications devices, in common with other electronic equipment, have become more complex, with a greater range of available features, the use of a menu system to access such features has become commonplace. Thus, in use of a menu system, the user is presented with a list of headings which relate to groups of available features. Selection of one such heading presents the user with a further list, which may be a list of available features or may be a list of sub-headings, each of which allows the user to access a different respective list of available features. In principle, the menu structure may have any required number of levels, in order to present the total number of available features, while maintaining the number of items (sub-headings or features) in each list within reasonable limits.

With the increase in the number of features available on devices such as mobile phones, the structure of such menus has become more complex. Thus, it becomes more time-consuming to access any given desired feature. Meanwhile, many of the features are used only rarely by any individual user.

GB-2293951 describes a menu system for accessing features of a mobile phone. The system described therein allows the user to select features from the full menu for a short menu, which has the same structure as the full menu but may contain only those

features which the user expects to access on a regular basis. The phone has a "menu" key, which is used to enter the menu selection mode. By pressing the "menu" key for a time which is either longer or shorter than a predetermined time period, the user selects whether he wishes to view the full menu containing all available features or the short menu containing only the selected features.

This has the disadvantage that, although, the short menu includes only the reduced number of features, the user still has to learn where those features are to be found in the menu structure. As noted above, this structure may be complex. Moreover, the user is required in effect to enter a different operating mode to access items from the short menu.

SUMMARY OF THE INVENTION

In accordance with the present invention, there is provided a menu structure which allows the user to copy selected items into a specific dedicated branch of the structure. This has the advantage that the user will then know that all commonly used features are accessible through that branch. The short menu, containing items selected by the user, is then located at a specific predetermined point in the overall menu structure. Advantageously, the predetermined point is at the highest level in the menu structure.

BRIEF DESCRIPTION OF THE DRAWINGS

Figure 1 shows a mobile telephone in accordance with a preferred embodiment of the invention.

Figure 2 is a schematic representation of the mobile telephone.

Figure 3 is a representation of the menu structure of the mobile telephone.

Figure 4 is a representation of the menu structure of the mobile telephone after modification.

DETAILED DESCRIPTION OF PREFERRED EMBODIMENTS

Figure 1 shows a mobile telephone 1 which is generally conventional, except as described herein. Thus, the phone has an antenna 2, speaker 4, microphone input 6, display 8, and digit keys 10. In addition, again as is conventional, the phone has menu navigation keys 12, which, together with the digit keys 10, form the keypad 14. The functions of these keys, in the phone of the present invention, will be described in more detail later with reference to Figures 3 and 4.

Figure 2 shows schematically the internal structure of the phone 1. The keypad 14 provides inputs to a processor 16, which controls the operation of a memory 18 and the display 8. This structure of the phone according to the invention is conventional, except for those operational features described further herein.

Figure 3 shows the menu structure 30 for accessing operational features of the phone. The illustrated structure is a representation of the way in which features and lists of features are presented to the user of the device, without necessarily implying anything about the physical or logical structures actually used in the device to store information relating to the features. The user can move in the menu structure 30 using the menu navigation keys 12 on the keypad 14, namely a "down" key 21, "up" key 22, "yes" key 23 and "no" key 24.

As is conventional, this structure 30 includes a first level of headings 31-34, accessible on first entry into the menu structure. The user can scroll down the list using the "down" key 21, and up the list using the "up" key 22. In the illustrated embodiment, headings 31, 32 and 34 allow access to further sub-headings (not shown in the case of headings 32 and 34),

but heading 33 has no associated sub-headings.

Pressing the "yes" key 23 from the heading 31 allows access to the group of sub-headings 311-315. As before, the user can scroll down the list using the "down" key 21, and up the list using the "up" key 22. Each sub-heading 311-315 has an associated list of features 3111-3115, ..., 3151-3155 accessible therethrough.

Pressing the "no" key 24 from any one of the sub-headings 311-315 returns the user to the heading 31. Pressing the "yes" key 23 from the any one of the sub-headings 311-315 allows access to the respective list of features. As before, the user can scroll down that list using the "down" key 21, and up the list using the "up" key 22. Pressing the "no" key 24 from any one of the features 3111-3115 or any of the other lists of features returns the user to the sub-heading 311, or the appropriate other sub-heading.

Of course, the actual menu structure may have any desired number of levels, and any desired number of sub-headings and/or features in any list at any level within the structure.

As mentioned above, the heading 33, which may be presented to the user as "special menu", "short menu", or some such term, has no features accessible thereby on first use.

The special menu is advantageously directly accessible from the initial set of menu headings, but may be located at any convenient point in the menu structure.

To select a feature for the special menu, the user navigates through the existing menu structure from the heading through any sub-headings to the desired item, and then carries out a specific keypress operation. For example, a particular key may be pressed for a long

duration (e.g. the "yes" key 23 may be pressed for more than 0.8 seconds), or a particular combination of keys may be pressed together or in sequence, or the device may be provided with a dedicated key for the purpose.

The selected feature, for example the feature 3142, is then copied to the special menu accessible through heading 33, as shown in Figure 4. As with other items, pressing the "yes" key 23 from the heading 33 allows access to the group of selected features, the user can scroll down the list of selected features using the "down" key 21, and up the list using the "up" key 22, pressing the "yes" key 23 from any one of the selected features invokes that feature, and pressing the "no" key 24 from any one of the selected features returns the user to the heading 33.

In an alternative embodiment a selected group of features may be present in the special menu even on first use. The user therefore has a default selection of most commonly used items in the special menu on first use, and can decide thereafter whether to retain any or all of those items, and whether to add further items.

In a further alternative embodiment, it is possible to copy groups of features together into the short menu, by means of a predefined keypress operation while scrolling through a list of sub-headings. When there is a group of items which the user expects to use frequently, therefore, the user is able to copy these into the short menu in a single operation.

In further embodiments of the invention, there are items in the full menu which are not permitted to be copied into the short menu.

The user is therefore able to select items for the special menu without having to enter any special mode of operation to do so. Once items are selected they

are easily accessible in a separate menu which groups all commonly used features together.

A specific keypress operation, for example a long duration keypress, may also be provided to allow the user to delete items from the special menu. Further, specific keypress operations may also be provided to allow the user to reorder the list or even to put it into its own menu structure. Alternatively, or additionally, the user may be prompted when copying an item into the short menu to choose the position thereof.

There is thus provided a man-machine interface which allows the user to access desired features in a simple and customizable way. The invention has been described herein with reference to a mobile phone, but it will be realised that it is applicable to other portable devices, or indeed other devices which allow access to lengthy lists of features.

CLAIMS

1. A menu system, comprising:

a memory for storing information relating to features of a device;

a display, for displaying information to a user;

a user input, allowing the user to input signals to the device; and

a processor, for controlling operation of the memory and the display,

the processor being operable to display information from a menu structure having a plurality of levels, the displayed information relating to specific features or to groups of features, and

the processor being operable, in response to a specified user input, to copy information relating to a desired feature into a list of desired features at a predetermined point in the menu structure.

2. A menu system as claimed in claim 1, wherein the menu structure includes a list of headings at a highest level therein, and the list of desired features is directly accessible through one of said headings.

3. A menu system as claimed in claim 1, wherein the processor is operable, in response to a specified user input, to copy information relating to a group of desired feature into said list of desired features.

4. A menu system as claimed in claim 1, wherein the list of desired features includes at least one feature even at first use of the menu system.

5. A menu system as claimed in claim 1, wherein the processor is operable to display information relating to specific features or to groups of features, at least some of which may not be copied into the list of desired features.

6. A mobile communications device, comprising:

a memory for storing information relating to

features of the device;

a display, for displaying information to a user;

a user input, allowing the user to input signals to the device; and

a processor, for controlling operation of the memory and the display,

the processor being operable to display information from a menu structure having a plurality of levels, the displayed information relating to specific features or to groups of features, and

the processor being operable, in response to a specified user input, to copy information relating to a desired feature into a list of desired features at a predetermined point in the menu structure.

7. A mobile communications device as claimed in claim 6, wherein the menu structure includes a list of headings at a highest level therein, and the list of desired features is directly accessible through one of said headings.

8. A mobile communications device as claimed in claim 6, wherein the user input includes menu navigation keys for moving within lists of features or groups of features, and between levels within the menu structure, and wherein the processor is operable to copy information relating to the desired feature, in response to a first specified menu navigation keypress operation.

9. A mobile communications device as claimed in claim 6, wherein the processor is further operable to delete information relating to a feature from the list of desired features, in response to a second specified menu navigation keypress operation.

10. A mobile communications device as claimed in claim 6, wherein the processor is operable, in response to a specified user input, to copy information relating

to a group of desired feature into said list of desired features.

11. A mobile communications device as claimed in claim 6, wherein the list of desired features includes at least one feature even at first use of the device.

12. A mobile communications device as claimed in claim 6, wherein the processor is operable to display information relating to specific features or to groups of features, at least some of which may not be copied into the list of desired features.

The Patent Office
10.

INVESTOR IN PEOPLE

Application No: GB 9823737.3 **Examiner:** R F King
Claims searched: ALL **Date of search:** 26 January 1999

Patents Act 1977
Search Report under Section 17

Databases searched:

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:

UK Cl (Ed.Q): H4T[TBAX,TBLA,TBLM,TBLX]

Int Cl (Ed.6): H04M 001/00

Other: ONLINE:WPI

Documents considered to be relevant:

Category	Identity of document and relevant passage	Relevant to claims
X	SOFTWARE: 'WordPerfect For Windows, v 6.1', 1994, see screen dumps showing user production of eg 'justify centre' menu selector at centre of Button Bar, selector being otherwise two levels deep in 'Format' menu tree.	1, 3

X	Document indicating lack of novelty or inventive step	A	Document indicating technological background and/or state of the art.
Y	Document indicating lack of inventive step if combined with one or more other documents of same category.	P	Document published on or after the declared priority date but before the filing date of this invention.
&	Member of the same patent family	E	Patent document published on or after, but with priority date earlier than, the filing date of this application.