DT07 Rec'd PCT/PTO 28 JAN 2003

FORM PTO-1390 (Modified) (REV 11-2000) U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE

# TRANSMITTAL LETTER TO THE UNITED STATES DESIGNATED/ELECTED OFFICE (DO/EO/US) CONCERNING A FILING UNDER 35 U.S.C. 371

| ATTORNEY'S DOCKET NUMBER | U.S. APPLICATION NO. (IF KNOWN, SEE 37 CFR 1.5) |
|---|---|
| 5035.133US | 10/343333 |

| INTERNATIONAL APPLICATION NO. | INTERNATIONAL FILING DATE | PRIORITY DATE CLAIMED |
|---|---|---|
| PCT/GB01/03387 | July 27, 2001 | July 28, 2000 |

TITLE OF INVENTION

**COMPUTING DEVICE WITH IMPROVED USER INTERFACE FOR APPLICATIONS**

APPLICANT(S) FOR DO/EO/US

**Matthieu Kennedy MARTYN**

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**Demand (3 pages)**
**Form PCT/IPEA/402 (1 page)**
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| 24. The following fees are submitted:. | | CALCULATIONS PTO USE ONLY | |
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| **BASIC NATIONAL FEE ( 37 CFR 1.492 (a) (1) - (5)) :** | | | |
| ☐ Neither international preliminary examination fee (37 CFR 1.482) nor international search fee (37 CFR 1.445(a)(2)) paid to USPTO and International Search Report not prepared by the EPO or JPO . . . . . | **$1000.00** | | |
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| Surcharge of **$130.00** for furnishing the oath or declaration later than ☐ 20 ☐ 30 months from the earliest claimed priority date (37 CFR 1.492 (e)). | | **$0.00** | |

| CLAIMS | NUMBER FILED | NUMBER EXTRA | RATE | | |
|---|---|---|---|---|---|
| Total claims | 23 - 20 = | 3 | x $18.00 | **$54.00** | |
| Independent claims | 2 - 3 = | 0 | x $80.00 | **$0.00** | |
| Multiple Dependent Claims **(check if applicable)**. | | | ☐ | **$0.00** | |
| **TOTAL OF ABOVE CALCULATIONS =** | | | | **$954.00** | |
| ☐ Applicant claims small entity status. (See 37 CFR 1.27). The fees indicated above are reduced by 1/2. | | | | **$0.00** | |
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| | | | | **Amount to be: refunded** | $ |
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a. ☒ A check in the amount of **$954.00** to cover the above fees is enclosed.

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c. ☒ The Commissioner is hereby authorized to charge any additional fees which may be required, or credit any overpayment to Deposit Account No. **23-3040** A duplicate copy of this sheet is enclosed.

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SEND ALL CORRESPONDENCE TO:

**Richard C. Woodbridge, Esq.**
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**Richard C. Woodbridge**
NAME

**26,423**
REGISTRATION NUMBER

Jan 28, 2003
DATE

10/343333
DT11 Rec'd PCT/PTO 28 JAN 2003

FILE NUMBER 5035-133US

"EXPRESS MAIL CERTIFICATE"

"Express Mail" Mailing Label Number: EV 044712424 US

Express Mail Corporate Account Number: X085783

Date of Deposit: Jan. 28, 2003

**Title: COMPUTING DEVICE WITH IMPROVED USER INTERFACE FOR APPLICATIONS**

INVENTOR: Matthieu Kennedy Martyn

Type of Documents:

1. PCT National Phase Transmittal Letter (x2) together with our check for $954.00;
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9. Declaration and Power of Attorney (unsigned) - 3 pages;
10. One page of formal drawings;
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Richard C. Woodbridge, Esq.
(Typed or printed name of person mailing paper or fee)

Richard C. Woodbridge
(Signature of person mailing paper or fee)

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Richard C. Woodbridge
(Signature of person mailing paper or fee)

# COMPUTING DEVICE WITH IMPROVED USER INTERFACE FOR APPLICATIONS

## BACKGROUND TO THE INVETION

### 1. Field of the Invention

This invention relates to a computing device with an improved user interface for applications. The term 'computing device' refers to any kind of device which can process and display information. The invention has specific application to mobile telephones. The term 'mobile telephone' refers to any kind of mobile device with communications capabilities and includes radio (mobile) telephones, smart phones, communicators, PDAs and wireless information devices. It includes devices able to communicate using not only mobile radio such as GSM or UMTS, but also any other kind of wireless communications system, such as Bluetooth.

### 2. Description of the Prior Art

One of the problems facing the designers of computing devices with small screens is how to allow the user to navigate quickly and efficiently to access data and activate a desired function. Computing devices with small screens tend to need data and functionality divided into many layers or views: for example, the small display size of mobile telephones has conventionally meant that several hierarchies of functions have to be offered to a user. The interface can be thought of as having many layers, with the user having to first locate the correct top level function and then, within that function, progressively drill down (sometimes through 3 or more layers) to complete the required task. Where a mobile telephone includes several different applications (e.g. a message application, a contacts/address book application, a calendar application and a telephone application), then the user normally has to first of all locate, then start/open the required application and then may need to navigate to the required function (e.g. create a new contact entry) or cause the required stored data (e.g. display names beginning with the

letter 'A') to be displayed. This process can seem slow, complex and difficult to learn, particularly to novice users.

Hence, with conventional user interfaces, a user may need to scroll around and switch views many times to find the right data/functionality. An effective user interface would ideally enable the user to readily and rapidly access the right data/functionality. Designing such an interface is however a complex human factors problem, especially for computing devices such as mobile telephones.

In some mobile telephones, a menu of several available options is displayed: the menu commands may then be divided into functional groups, with the most useful functional group at the top of the menu; the most useful command within that group is then placed at the top of group. In other devices, only one option is shown on the screen at any one time, making it harder for a user to appreciate the available options and therefore navigate effectively.

Some mobile telephones also offer limited shortcuts to get straight to a particular function. This usually involves memorising various keyboard input sequences, corresponding to different menu positions at different levels in the menu hierarchy. These shortcuts appeal only to a small number of expert users. Most mobile telephones also include idle screens (i.e. a display which is shown when the mobile telephone is switched on but not in use); these idle screens often carry alerting messages (e.g. "1 missed call").

On a more theoretical basis, a user interface typically has to demonstrate or make explicit the changing internal status of the mobile telephone as navigation proceeds. For example, to select or initiate a function (e.g. to open an address book function, enter a PIN security number or to alter the ring melody) a user has to understand (a) how to navigate to that function in order to select that function and (b) that the status of the telephone is such that the function can be selected or initiated. The technical problem of effectively enabling the user to understand this changing internal state has to date been inadequately addressed. The object of the

present invention is to provide an improved form of user interface which addresses this problem.

## SUMMARY OF THE PRESENT INVENTION

According to a first aspect of the invention there is provided a computing device comprising a display screen, the computing device being able to display on the screen an application summary window, the summary window comprising a limited list of (i) common functions offered within an application and/or (ii) data stored in that application.

Hence, the present invention envisages, in one implementation, a 'snap-shot' view of an application in which the snap-shot view brings together, in one summary window, a limited list of common functions and commonly accessed stored data.

Preferably, where the summary window for a given application shows data or a function of interest, the user can directly select that data or function; this causes the application to open and the user to be presented with a screen in which the data or function of interest is prominent. This saves the user from navigating to the required application, opening it up, and then navigating within that application to enable the data of interest to be seen or a function of interest to be activated.

In another aspect, there is a computer program which when running on a computing device (such as a mobile telephone), enables the device to operate in accordance with the above aspects of the invention. The program may be an operating system.

## BRIEF DESCRIPTION OF THE FIGURES

The invention will be described with reference to the accompanying Figures, in which:

**Figures 1-3** are screen shots showing an implementation of the present invention.

## DETAILED DESCRIPTION

The present invention offers, in one implementation, a snap-shot view which brings together, in one summary window, a limited list of common functions and commonly accessed stored data which itself can be reached directly from the main menu listing some or all applications. This yields many advantages in ease and speed of navigation, particularly on small screen devices. For example, a user can get to the summary window in just two steps – first, launch a main view which shows various applications; then, launch the appropriate summary window for the application of interest. This is far faster and easier than conventional navigation approaches. Once the summary window is launched, core data/functionality is displayed and can be accessed in more detail can typically be reached simply by selecting that data/functionality. Hence, only three steps may be needed from start up to reaching the required data/functionality; navigating from between each step is clear and straightforward.

As an example, the main view may be an Application Launcher for several applications such as 'Messages', 'Contacts', 'Calendar' and 'Phone'. The Application Launcher view is then presented as a standard scrolling list of application names with appropriate application icons next to them. The list is vertical and only one application is presented per line. Standard highlight functions apply in that when the Application Launcher view is opened the highlight defaults to the first item in the list of applications. This is shown in **Figure 1**, in which the screen display 1 includes a list of applications ('Messages'; 'Contacts'; 'Calendar'; and 'Phone'), including a highlighted 'Messages' at 2. Alternatively, the highlight may default to the middle item in the list of applications. At this point, the user may take conventional navigation steps, such as scrolling, to move the highlight and using the available select function to navigate to the required highlighted application.

The innovative summary window functionality can be accessed as follows: should the highlight rest on the name of an application in the App Launcher for a certain amount of time (say a 1.2 second timeout), the summary window (the "App Snapshot") drops down from the highlight bar. The App Snapshot for any given application is a window which includes commonly requested data associated with that application and links to common functionality in that application. The App Snapshot is shown at 3 in **Figure 2**; it includes the number of new messages ('0') and links to the two most common functions (as defined by the system designer, or selected by the user, or learned by the device) in the Messages application – 'Create Messages' and 'Enter chat room'. In **Figure 3**, a slightly longer App Snapshot is shown, indicating at 4 that there are '2 new SMS' messages and '1 Chat Ongoing'. Other selection processes could also be used (e.g. voice activation, softkey selection etc) to access the App Snapshot. For example, the App Snapshot may be 'called' or 'fired' by using a right scroll function (if the mobile telephone has 4-way scrolling capacity); a press and hold of the select function when an application name is highlighted; or using a right cursor key on a highlighted application name.

A highlight is available in the App Snapshot dropdown which may be scrolled in order to select a required item. When an item in the App Snapshot is selected (e.g. by being highlighted and then selected using a conventional selection technique such as pressing a right cursor), the device displays the relevant data in the application details view, or displays the relevant screen offering the relevant functionality. The required application may be automatically opened when the item in the App Snapshot is selected. The App Snapshot can therefore display data from an application and functions of that application without actually opening the application up: only once a user has selected an item in the App Snapshot associated with a given application does that application have to be opened. For example, when 'Create Messages' in an App Snapshot is selected, then the messaging application is opened up; that application does not however have to be opened up prior to that stage.

Although the term 'window' has been used to describe the drop down summary, the summary does not have to be presented within any kind of frame. Any manner of presenting the common functions offered within an application and/or data stored in that application will constitute a 'window' as such.

The App Snapshot dropdown may be dismissed in the following ways:

- If a timeout is used to call the App Snapshot, scrolling the highlight back to the relevant application name (i.e. back up to 'Messages' in **Figure 2** or 3) removes the App Snapshot. Scrolling down through the App Snapshot and off the end moves the highlight to the next application in the list (i.e. to 'Contacts' if the Messages App Snapshot has been scrolled through).
- If scroll functions (e.g. right scroll) call the App Snapshot the opposite scroll function removes the snapshot.

When a user scrolls off the end of the App Snapshot, the main list from which the App Snapshot was opened de-compresses to regain the display estate that was taken up by the App Snapshot (i.e. the screen reverts to that shown **Figure 1**). If the user has scrolled up back to the application name (so that the highlight moves up), this application name stays where it was and the next main list item draws back up to abut it. If the user scrolls off the end of the App Snapshot, the highlight moves down to the next item in the main list and this item together with the highlight move up the screen to regain the App Snapshot estate (i.e. taking the place of the App Snapshot).

Another caveat regarding the main list is that when the App Snapshot opens, there will typically be one item in the main list above and below it to preserve context – (i.e. to reduce any feeling in the user of having been transported somewhere else in the UI. They have not gone anywhere yet; the App Snapshot is just showing where they could easily go to). Hence in **Figure 2**, the term 'Launcher' remains at the top of the screen, and the word 'Phone' and its associated icon remains at the bottom.

App Snapshots are not intended to replace notifications, but to complement them by providing non-intrusive reminders for the user, as well as rapid shortcuts to key application functionality.

The mobile telephone may be able to learn what functionality and/or stored data types are most likely to be of interest to a given user and which should therefore be included in a summary view to any given user. Alternatively, the user or system designer may define the kinds of functionality and/or stored data to be included in the App Snapshot for a given application. The constituency of the App Snapshot can therefore vary as determined by the user and/or system designer and/or thae usage patterns of the user. The consistent goal however is for the App Snapshot to show only the most useful views and states.

Another possible feature is that the constituency of the App Snapshot may vary with the environment in which the mobile telephone finds itself. For example, if the telephone is Bluetooth enabled, then there may be a Bluetooth application which has associated with it a summary window which lists the other Bluetooth devices in the vicinity.

A further possible feature is that the constituency of the App Snapshot may vary with the actions of the user. For example, if the mobile telephone has an active Calendar application, and the user opens the App Snapshot for Contacts, then the Contacts App Snapshot may include contact information for parties in the previously or currently open Calendar application. But if the user opened the Contacts App Snapshot when the Phone application was current, then the Contacts App Snapshot may instead include contact information of the most called party, or a missed call party, or a party whose call the user is auto-replying to.

In a Messages view, when the highlight rests on a message entry, further information on that message becomes visible such as date and time it arrived and the first line/subject of the message. Rather than an App Snapshot opening here, the highlight expands to cover this extra information as well as the list item. It

does this here because the extra information displayed is not 'fireable' like App Snapshot items in the application switcher.

In the Contacts manager, the App Snapshot opens (using whatever mechanism is implemented) to display phone numbers and email addresses which may be 'fired' (i.e. a phone number is dialled, an email address is seeded into a new message). The Contacts manager can have a base view - a list of names of the people stored in a device. It opens to show usable contact details like phone numbers and email addresses for each contact so you can initiate communication from here rather than navigating further within the Contacts Manager application. For example, the contact John Smith would have a snapshot which expands to show his phone number and email address. A user can scroll to the email address and hit the select button - the display then changes to a new email form seeded with his email address and all the user need do is input some body text and hit a 'Do It' button.

The present invention can also be used in systems which do not have a concept of separate applications as such. Then, the snapshot views are then views of commonly used functions and/or data, selected by the system designer, user or through a machine learning process.

As explained above, the present invention is particularly useful for mobile telephones because of their user interface constraints. However, it may also be used in environments outside of mobile telephony. For example, desktop and laptop PCs may also benefit from the present invention. The present invention may therefore be used in any computing environment, including both keyboard and keyboard-less devices.

## CLAIMS

1. A computing device comprising a display screen, the computing device being able to display on the screen an application summary window, the summary window comprising a limited list of (i) common functions offered within an application and/or (ii) data stored in that application.

2. The computing device of Claim 1 in which selecting a common function listed in the summary window causes the related application to open and that selected common function to be activated.

3. The computing device of Claim 1 or 2 in which an application launcher lists the names and/or icons of several applications and selecting a name or icon causes the summary window for that application to be opened.

4. The computing device of any preceding claim in which the kinds of content of a summary window for a given application is selected using a process in which the device learns what functionality and/or stored data types are of interest to any given user.

5. The computing device of any preceding claim in which the user can define what functionality and/or stored data types are of interest to that user for the summary window for an application.

6. The computing device of any preceding claim in which the functionality and/or stored data types for a summary window for a given application varies with the environment of the device.

7. The computing device of any preceding claim in which the functionality and/or stored data types for a summary window for a given application varies with the actions of the user.

8. The computing device of any preceding claim in which opening a summary window for a given application does not result in that application being opened.

9. The computing device of any preceding claim in which the summary window is a frame which includes the name of the associated application.

10. A computing device as claimed in any preceding claim, being a mobile telephone.

11. A computing device as claimed in any preceding claim 1 – 9, being a PC.

12. A computer program which, when running on a computing device, causes the computing device to operate as a computing device as claimed in Claim 1 – 11.

13. The computer program of Claim 12, being an operating system program.

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
7 February 2002 (07.02.2002)

PCT

(10) International Publication Number
WO 02/10893 A2

(51) International Patent Classification[7]: G06F 3/00

(21) International Application Number: PCT/GB01/03387

(22) International Filing Date: 27 July 2001 (27.07.2001)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
0019459.7 28 July 2000 (28.07.2000) GB

(71) Applicant *(for all designated States except US)*: **SYMBIAN LIMITED** [GB/GB]; Sentinel House, 16 Harcourt Street, London W1H 1DS (GB).

(72) Inventor; and
(75) Inventor/Applicant *(for US only)*: **MARTYN, Matthieu, Kennedy** [GB/GB]; 61 Strahan Road, London E3 5DA (GB).

(74) Agent: **ORIGIN LIMITED**; 52 Muswell Hill Road, London N10 3JR (GB).

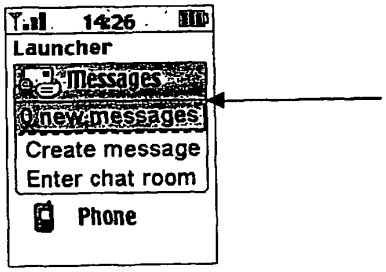
(81) Designated States *(national)*: CN, JP, US.

(84) Designated States *(regional)*: European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR).

**Published:**
— *without international search report and to be republished upon receipt of that report*

*For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*

(54) Title: COMPUTING DEVICE WITH IMPROVED USER INTERFACE FOR APPLICATIONS




(57) Abstract: The present invention offers a snap-shot view which brings together, in one summary window, a limited list of common functions and commonly accessed stored data which itself can be reached directly from the main menu listing some or all applications. This yields many advantages in ease and speed of navigation, particularly on small screen devices.

WO 02/10893 A2

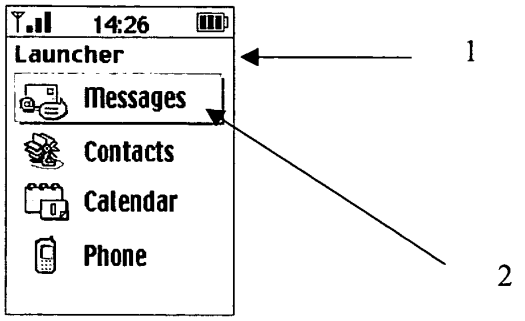



Figure 1

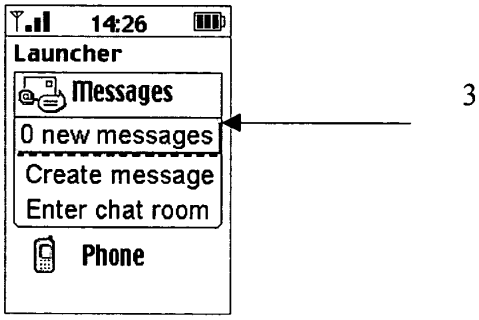



Figure 2

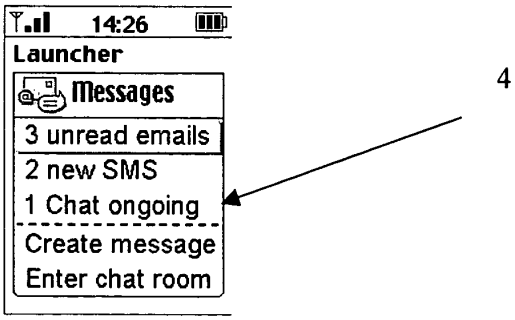



Figure 3

Docket No.
**5035-133US**

# Declaration and Power of Attorney For Patent Application
# English Language Declaration

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name.

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor) if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled

**COMPUTING DEVICE WITH IMPROVED USER INTERFACE FOR APPLICATIONS**

The specification of which

(check one)

☐ is attached hereto.

☒ was filed on **JULY 27, 2001** as United States Application No. or PCT International Application Number **PCT/GB01/03387**
and was amended on_____
(if applicable)

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose to the United States Patent and Trademark Office all information known to me to be material to patentability as defined in Title 37, Code of Federal Regulations, Section 1.56.

I hereby claim foreign priority benefits under Title 35, United States Code, Section 119(a)-(d) or Section 365(b) of any foreign application(s) for patent or inventor's certificate, or Section 365(a) of any PCT International application which designated at least one country other than the United States, listed below and have also identified below, by checking the box, any foreign application for patent or inventor's certificate or PCT International application having a filing date before that of the application on which priority is claimed.

| Prior Foreign Application(s) | | | Priority Not Claimed |
|---|---|---|---|
| **0019459.7** (Number) | **GB** (Country) | **28 July 2000** (Day/Month/Year Filed) | ☐ |
| (Number) | (Country) | (Day/Month/Year Filed) | ☐ |

I hereby claim the benefit under 35 U.S.C. Section 119(e) of any United States provisional application(s) listed below:

| (Application Serial No.) | (Filing Date) |
|---|---|
| (Application Serial No.) | (Filing Date) |
| (Application Serial No.) | (Filing Date) |

I hereby claim the benefit under 35 U.S.C. Section 120 of any United States application(s), or Section 365© of any PCT International application designating the United States, listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States or PCT International application in the manner provided by the first paragraph of 35 U.S.C. Section 112, I acknowledge the duty to disclose to the United States Patent and Trademark Office all information known to me to be material to patentability as defined in Title 37, C.F.R., Section 1.56 which became available between the filing date of the prior application and the national or PCT International filing date of this application:

| (Application Serial No.) | (Filing Date) | (Status) (patented, pending, abandoned) |
|---|---|---|
| (Application Serial No.) | (Filing Date) | (Status) (patented, pending, abandoned) |
| (Application Serial No.) | (Filing Date) | (Status) (patented, pending, abandoned) |

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

POWER OF ATTORNEY: As a named inventor, I hereby appoint the following attorney(s) and/or agent(s) to prosecute this application and transact all business in the Patent and Trademark Office connected therewith. *(list name and registration number)*

| | |
|---|---|
| **Richard C. Woodbridge** | **26,423** |
| **Stuart H. Nissim** | **33,541** |
| **Thomas J. Onka** | **42,053** |
| **Roy Rosser** | **P53,533** |

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|---|
| Full name of second inventor, if any |
| Second inventor's signature Date |
| Residence |
| Citizenship |
| Post Office Address |
| |

10/343333
DT11 Rec'd PCT/PTO 28 JAN 2003


**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

| | |
|---|---|
| APPLICANTS | Matthieu Kennedy MARTYN |
| TITLE | COMPUTING DEVICE WITH IMPROVED USER INTERFACE FOR APPLICATIONS |
| FILING DATE | Herewith |
| INTERNATIONAL APPLICATION NO. | PCT/GB01/03387 |
| INTERNATIONAL FILING DATE | 27 July 2001 |
| PRIORITY DATE | 28 July 2000 |

ASSISTANT COMMISSIONER OF PATENTS
WASHINGTON, D.C. 20231

**PRELIMINARY AMENDMENT**

Dear Sir:

Preliminary to a first office action on the merits of this US national phase application, please amend the specification as follows:

**In the Specification:**

page 1, below the title — Please insert:

- CROSS REFERENCE TO RELATED APPLICATIONS

This application claims the priority of PCT Application No. PCT/GB01/03387 filed July 27, 2001 and British application GB 0019459.7 filed July 28, 2000. -

page 1, line 6 — Please delete "BACKGROUND TO THE INVETION" and insert:

- BACKGROUND OF THE INVENTION -

**In the Claims:**

Please cancel claims 1 through 13. Please add claims 14 - 36. There are 23 claims pending in this application.

-- 14. A computing device comprising a display screen, the computing device being able to display on the screen an application summary window, in which the summary window displays a limited list of several common functions offered within an application, any item in the list being selectable to initiate the respective function, the limited list being a sub-set of all of the functions offered by a given application but not being scrollable to reveal additional functions outside of the sub-set.

15. The computing device of Claim 14 in which selecting a common function listed in the summary window causes the related application to open and that selected common function to be activated.

16. The computing device of Claim 14 in which an application launcher lists the names and/or icons of several applications and selecting a name or icon causes the summary window for that application to be opened.

17. The computing device of Claim 14 in which the kinds of content of a summary window for a given application is selected using a process in which the device learns what functionality and/or stored data types are of interest to any given user.

18. The computing device of Claim 14 in which the user can define what functionality and/or stored data types are of interest to that user for the summary window for an application.

19. The computing device of Claim 14 in which the functionality and/or stored data types for a summary window for a given application varies with the environment of the device.

20. The computing device of Claim 14 in which the functionality and/or stored data types for a summary window for a given application varies with the actions of the user.

21. The computing device of Claim 14 in which opening a summary window for a given application does not result in that application being opened.

22. The computing device of Claim 14 in which the summary window is a frame which includes the name of the associated application.

23. The computing device of Claim 14 in which the summary window further display a list of data stored in that application.

24. The computing device of Claim 14, being a mobile telephone.

25. The computing device of Claim 14, being a PC.

26. A computer program which, when running on a computing device, causes the computing device to display on a screen of the device an application summary window, in which the summary window displays a limited list of several common functions offered within an application, any item in the list being selectable to initiate the respective function, the limited list being a sub-set of all of the functions offered by a given application but not being scrollable to reveal additional functions outside of the sub-set.

27. The computer program of Claim 26, being an operating system program.

28. The computer program of Claim 26 operable such that selecting a common function listed in the summary window causes the related application to open and that selected common function to be activated.

29. The computer program of Claim 26 operable to cause the screen to display an application launcher which lists the names and/or icons of several applications, wherein selecting a name or icon causes the summary window for that application to be opened.

30. The computer program of Claim 26 in which the kinds of content of a summary window for a given application can be selected using a process in which the device learns what functionality and/or stored data types are of interest to any given user.

31. The computer program of Claim 26 which enables a user to define what functionality and/or stored data types are of interest to that user for the summary window for an application.

32. The computer program of Claim 26 in which the functionality and/or stored data types for a summary window for a given application varies with the environment of the device.

33. The computer program of Claim 26 in which the functionality and/or stored data types for a summary window for a given application varies with the actions of the user.

34. The computer program of Claim 26 in which opening a summary window for a given application does not result in that application being opened.

35. The computer program of Claim 26 in which the summary window is a frame which includes the name of the associated application.

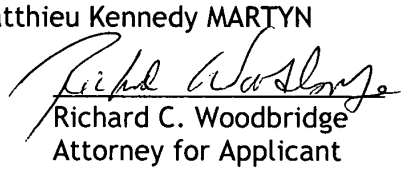
36. The computer program of Claim 26 in which the summary window further displays a list of data stored in that application. --

## REMARKS

This application is a National Stage filing of PCT application PCT/GB01/03387 filed July 27, 2001. The U.S. Patent Office is hereby requested to examine the application based upon the substitute specification and claims. Original claims 1 -13 have been deleted and replaced with claims 14 - 36 to eliminate the multiple dependencies and to place them in proper US format. If the patent examiner has any questions or comments, he is respectfully requested to contact applicant's attorney at the telephone number indicated below so that additional amendments may be added as required.

Respectfully submitted,

Matthieu Kennedy MARTYN

By 
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Attorney for Applicant
Reg. No. 26,423

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P.O. Box 592
Princeton, NJ 08542-0592
Tel (609) 924-3773
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cc: Peter Langley, Esq.
origin

Marked Up Version of Specification

## CROSS REFERENCE TO RELATED APPLICATIONS

This application claims the priority of PCT Application No. PCT/GB01/03387 filed July 27, 2001 and British application GB 0019459.7 filed July 28, 2000.

## BACKGROUND OF THE INVENTION

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
7 February 2002 (07.02.2002)

PCT

(10) International Publication Number
WO 02/010893 A3

(51) International Patent Classification[7]: G06F 3/033

(21) International Application Number: PCT/GB01/03387

(22) International Filing Date: 27 July 2001 (27.07.2001)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
0019459.7 28 July 2000 (28.07.2000) GB

(71) Applicant *(for all designated States except US)*: **SYMBIAN LIMITED** [GB/GB]; Sentinel House, 16 Harcourt Street, London W1H 1DS (GB).

(72) Inventor; and

(75) Inventor/Applicant *(for US only)*: **MARTYN, Matthieu, Kennedy** [GB/GB]; 61 Strahan Road, London E3 5DA (GB).

(74) Agent: **ORIGIN LIMITED**; 52 Muswell Hill Road, London N10 3JR (GB).

(81) Designated States *(national)*: CN, JP, US.

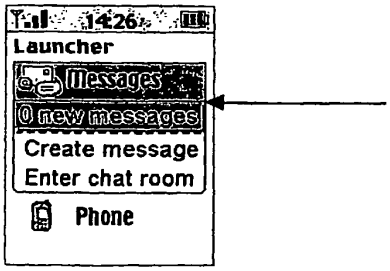
(84) Designated States *(regional)*: European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR).

**Published:**
— *with international search report*

(88) Date of publication of the international search report:
28 November 2002

*For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*

(54) Title: COMPUTING DEVICE WITH IMPROVED USER INTERFACE FOR APPLICATIONS




(57) Abstract: The present invention offers a snap-shot view which brings together, in one summary window, a limited list of common functions and commonly accessed stored data which itself can be reached directly from the main menu listing some or all applications. This yields many advantages in ease and speed of navigation, particularly on small screen devices.

WO 02/010893 A3

# INTERNATIONAL SEARCH REPORT

International Application No
PCT/GB 01/03387

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 G06F3/033

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 7 G06F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)
EPO-Internal, WPI Data, PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

| Category ° | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. |
|---|---|---|
| X | EP 0 844 553 A (PHILIPS ELECTRONICS NV)<br>27 May 1998 (1998-05-27)<br>column 2, line 33 -column 3, line 2<br>column 3, line 45 - line 49<br>column 6, line 8 -column 9, line 5<br>figures 4-6<br>--- | 1-13 |
| X | EP 0 607 731 A (IBM)<br>27 July 1994 (1994-07-27)<br>column 3, line 6 -column 4, line 32<br>figures 2,3<br>--- | 1-9,<br>11-13 |

-/--

[X] Further documents are listed in the continuation of box C.

[X] Patent family members are listed in annex.

° Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

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|---|---|
| 30 July 2002 | 06/08/2002 |

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|---|---|
| European Patent Office, P.B. 5818 Patentlaan 2<br>NL - 2280 HV Rijswijk<br>Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,<br>Fax: (+31-70) 340-3016 | Rydman, J |

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# INTERNATIONAL SEARCH REPORT

International Application No
PCT/GB 01/03387

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

| Category ° | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. |
|---|---|---|
| X | "REORGANIZATION MENU HIERARCHY TO BEST FIT THE INDIVIDUAL USER" IBM TECHNICAL DISCLOSURE BULLETIN, IBM CORP. NEW YORK, US, vol. 37, no. 2B, 1 February 1994 (1994-02-01), pages 349-350, XP000433874 ISSN: 0018-8689 page 349, paragraph 5 --- | 1-4,8,9, 12,13 |
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| X | EP 0 891 066 A (NOKIA MOBILE PHONES LTD) 13 January 1999 (1999-01-13) abstract ----- | 1,12,13 |

Form PCT/ISA/210 (continuation of second sheet) (July 1992)

## INTERNATIONAL SEARCH REPORT

Information on patent family members

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PCT/GB 01/03387

| Patent document cited in search report | | Publication date | Patent family member(s) | | Publication date |
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| | | | EP | 0891066 A2 | 13-01-1999 |

Form PCT/ISA/210 (patent family annex) (July 1992)

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
7 February 2002 (07.02.2002)

PCT

(10) International Publication Number
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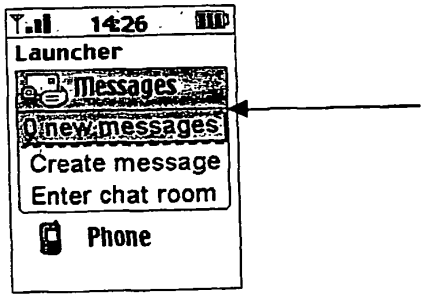
**Published:**
— *without international search report and to be republished upon receipt of that report*

*For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*

(54) Title: COMPUTING DEVICE WITH IMPROVED USER INTERFACE FOR APPLICATIONS




(57) Abstract: The present invention offers a snap-shot view which brings together, in one summary window, a limited list of common functions and commonly accessed stored data which itself can be reached directly from the main menu listing some or all applications. This yields many advantages in ease and speed of navigation, particularly on small screen devices.

WO 02/10893 A2

# COMPUTING DEVICE WITH IMPROVED USER INTERFACE FOR APPLICATIONS

## BACKGROUND TO THE INVETION

### 1. Field of the Invention

This invention relates to a computing device with an improved user interface for applications. The term 'computing device' refers to any kind of device which can process and display information. The invention has specific application to mobile telephones. The term 'mobile telephone' refers to any kind of mobile device with communications capabilities and includes radio (mobile) telephones, smart phones, communicators, PDAs and wireless information devices. It includes devices able to communicate using not only mobile radio such as GSM or UMTS, but also any other kind of wireless communications system, such as Bluetooth.

### 2. Description of the Prior Art

One of the problems facing the designers of computing devices with small screens is how to allow the user to navigate quickly and efficiently to access data and activate a desired function. Computing devices with small screens tend to need data and functionality divided into many layers or views: for example, the small display size of mobile telephones has conventionally meant that several hierarchies of functions have to be offered to a user. The interface can be thought of as having many layers, with the user having to first locate the correct top level function and then, within that function, progressively drill down (sometimes through 3 or more layers) to complete the required task. Where a mobile telephone includes several different applications (e.g. a message application, a contacts/address book application, a calendar application and a telephone application), then the user normally has to first of all locate, then start/open the required application and then may need to navigate to the required function (e.g. create a new contact entry) or cause the required stored data (e.g. display names beginning with the

letter 'A') to be displayed. This process can seem slow, complex and difficult to learn, particularly to novice users.

Hence, with conventional user interfaces, a user may need to scroll around and switch views many times to find the right data/functionality. An effective user interface would ideally enable the user to readily and rapidly access the right data/functionality. Designing such an interface is however a complex human factors problem, especially for computing devices such as mobile telephones.

In some mobile telephones, a menu of several available options is displayed: the menu commands may then be divided into functional groups, with the most useful functional group at the top of the menu; the most useful command within that group is then placed at the top of group. In other devices, only one option is shown on the screen at any one time, making it harder for a user to appreciate the available options and therefore navigate effectively.

Some mobile telephones also offer limited shortcuts to get straight to a particular function. This usually involves memorising various keyboard input sequences, corresponding to different menu positions at different levels in the menu hierarchy. These shortcuts appeal only to a small number of expert users. Most mobile telephones also include idle screens (i.e. a display which is shown when the mobile telephone is switched on but not in use); these idle screens often carry alerting messages (e.g. "1 missed call").

On a more theoretical basis, a user interface typically has to demonstrate or make explicit the changing internal status of the mobile telephone as navigation proceeds. For example, to select or initiate a function (e.g. to open an address book function, enter a PIN security number or to alter the ring melody) a user has to understand (a) how to navigate to that function in order to select that function and (b) that the status of the telephone is such that the function can be selected or initiated. The technical problem of effectively enabling the user to understand this changing internal state has to date been inadequately addressed. The object of the

present invention is to provide an improved form of user interface which addresses this problem.

## SUMMARY OF THE PRESENT INVENTION

According to a first aspect of the invention there is provided a computing device comprising a display screen, the computing device being able to display on the screen an application summary window, the summary window comprising a limited list of (i) common functions offered within an application and/or (ii) data stored in that application.

Hence, the present invention envisages, in one implementation, a 'snap-shot' view of an application in which the snap-shot view brings together, in one summary window, a limited list of common functions and commonly accessed stored data.

Preferably, where the summary window for a given application shows data or a function of interest, the user can directly select that data or function; this causes the application to open and the user to be presented with a screen in which the data or function of interest is prominent. This saves the user from navigating to the required application, opening it up, and then navigating within that application to enable the data of interest to be seen or a function of interest to be activated.

In another aspect, there is a computer program which when running on a computing device (such as a mobile telephone), enables the device to operate in accordance with the above aspects of the invention. The program may be an operating system.

## BRIEF DESCRIPTION OF THE FIGURES

The invention will be described with reference to the accompanying Figures, in which:

**Figures 1-3** are screen shots showing an implementation of the present invention.

## DETAILED DESCRIPTION

The present invention offers, in one implementation, a snap-shot view which brings together, in one summary window, a limited list of common functions and commonly accessed stored data which itself can be reached directly from the main menu listing some or all applications. This yields many advantages in ease and speed of navigation, particularly on small screen devices. For example, a user can get to the summary window in just two steps – first, launch a main view which shows various applications; then, launch the appropriate summary window for the application of interest. This is far faster and easier than conventional navigation approaches. Once the summary window is launched, core data/functionality is displayed and can be accessed in more detail can typically be reached simply by selecting that data/functionality. Hence, only three steps may be needed from start up to reaching the required data/functionality; navigating from between each step is clear and straightforward.

As an example, the main view may be an Application Launcher for several applications such as 'Messages', 'Contacts', 'Calendar' and 'Phone'. The Application Launcher view is then presented as a standard scrolling list of application names with appropriate application icons next to them. The list is vertical and only one application is presented per line. Standard highlight functions apply in that when the Application Launcher view is opened the highlight defaults to the first item in the list of applications. This is shown in **Figure 1**, in which the screen display 1 includes a list of applications ('Messages'; 'Contacts'; 'Calendar'; and 'Phone'), including a highlighted 'Messages' at 2. Alternatively, the highlight may default to the middle item in the list of applications. At this point, the user may take conventional navigation steps, such as scrolling, to move the highlight and using the available select function to navigate to the required highlighted application.

The innovative summary window functionality can be accessed as follows: should the highlight rest on the name of an application in the App Launcher for a certain amount of time (say a 1.2 second timeout), the summary window (the "App Snapshot") drops down from the highlight bar. The App Snapshot for any given application is a window which includes commonly requested data associated with that application and links to common functionality in that application. The App Snapshot is shown at 3 in **Figure 2**; it includes the number of new messages ('0') and links to the two most common functions (as defined by the system designer, or selected by the user, or learned by the device) in the Messages application – 'Create Messages' and 'Enter chat room'. In **Figure 3**, a slightly longer App Snapshot is shown, indicating at 4 that there are '2 new SMS' messages and '1 Chat Ongoing'. Other selection processes could also be used (e.g. voice activation, softkey selection etc) to access the App Snapshot. For example, the App Snapshot may be 'called' or 'fired' by using a right scroll function (if the mobile telephone has 4-way scrolling capacity); a press and hold of the select function when an application name is highlighted; or using a right cursor key on a highlighted application name.

A highlight is available in the App Snapshot dropdown which may be scrolled in order to select a required item. When an item in the App Snapshot is selected (e.g. by being highlighted and then selected using a conventional selection technique such as pressing a right cursor), the device displays the relevant data in the application details view, or displays the relevant screen offering the relevant functionality. The required application may be automatically opened when the item in the App Snapshot is selected. The App Snapshot can therefore display data from an application and functions of that application without actually opening the application up: only once a user has selected an item in the App Snapshot associated with a given application does that application have to be opened. For example, when 'Create Messages' in an App Snapshot is selected, then the messaging application is opened up; that application does not however have to be opened up prior to that stage.

Although the term 'window' has been used to describe the drop down summary, the summary does not have to be presented within any kind of frame. Any manner of presenting the common functions offered within an application and/or data stored in that application will constitute a 'window' as such.

The App Snapshot dropdown may be dismissed in the following ways:

- If a timeout is used to call the App Snapshot, scrolling the highlight back to the relevant application name (i.e. back up to 'Messages' in **Figure 2** or 3) removes the App Snapshot. Scrolling down through the App Snapshot and off the end moves the highlight to the next application in the list (i.e. to 'Contacts' if the Messages App Snapshot has been scrolled through).
- If scroll functions (e.g. right scroll) call the App Snapshot the opposite scroll function removes the snapshot.

When a user scrolls off the end of the App Snapshot, the main list from which the App Snapshot was opened de-compresses to regain the display estate that was taken up by the App Snapshot (i.e. the screen reverts to that shown **Figure 1**). If the user has scrolled up back to the application name (so that the highlight moves up), this application name stays where it was and the next main list item draws back up to abut it. If the user scrolls off the end of the App Snapshot, the highlight moves down to the next item in the main list and this item together with the highlight move up the screen to regain the App Snapshot estate (i.e. taking the place of the App Snapshot).

Another caveat regarding the main list is that when the App Snapshot opens, there will typically be one item in the main list above and below it to preserve context – (i.e. to reduce any feeling in the user of having been transported somewhere else in the UI. They have not gone anywhere yet; the App Snapshot is just showing where they could easily go to). Hence in **Figure 2**, the term 'Launcher' remains at the top of the screen, and the word 'Phone' and its associated icon remains at the bottom.

App Snapshots are not intended to replace notifications, but to complement them by providing non-intrusive reminders for the user, as well as rapid shortcuts to key application functionality.

The mobile telephone may be able to learn what functionality and/or stored data types are most likely to be of interest to a given user and which should therefore be included in a summary view to any given user. Alternatively, the user or system designer may define the kinds of functionality and/or stored data to be included in the App Snapshot for a given application. The constituency of the App Snapshot can therefore vary as determined by the user and/or system designer and/or thae usage patterns of the user. The consistent goal however is for the App Snapshot to show only the most useful views and states.

Another possible feature is that the constituency of the App Snapshot may vary with the environment in which the mobile telephone finds itself. For example, if the telephone is Bluetooth enabled, then there may be a Bluetooth application which has associated with it a summary window which lists the other Bluetooth devices in the vicinity.

A further possible feature is that the constituency of the App Snapshot may vary with the actions of the user. For example, if the mobile telephone has an active Calendar application, and the user opens the App Snapshot for Contacts, then the Contacts App Snapshot may include contact information for parties in the previously or currently open Calendar application. But if the user opened the Contacts App Snapshot when the Phone application was current, then the Contacts App Snapshot may instead include contact information of the most called party, or a missed call party, or a party whose call the user is auto-replying to.

In a Messages view, when the highlight rests on a message entry, further information on that message becomes visible such as date and time it arrived and the first line/subject of the message. Rather than an App Snapshot opening here, the highlight expands to cover this extra information as well as the list item. It

does this here because the extra information displayed is not 'fireable' like App Snapshot items in the application switcher.

In the Contacts manager, the App Snapshot opens (using whatever mechanism is implemented) to display phone numbers and email addresses which may be 'fired' (i.e. a phone number is dialled, an email address is seeded into a new message). The Contacts manager can have a base view - a list of names of the people stored in a device. It opens to show usable contact details like phone numbers and email addresses for each contact so you can initiate communication from here rather than navigating further within the Contacts Manager application. For example, the contact John Smith would have a snapshot which expands to show his phone number and email address. A user can scroll to the email address and hit the select button - the display then changes to a new email form seeded with his email address and all the user need do is input some body text and hit a 'Do It' button.

The present invention can also be used in systems which do not have a concept of separate applications as such. Then, the snapshot views are then views of commonly used functions and/or data, selected by the system designer, user or through a machine learning process.

As explained above, the present invention is particularly useful for mobile telephones because of their user interface constraints. However, it may also be used in environments outside of mobile telephony. For example, desktop and laptop PCs may also benefit from the present invention. The present invention may therefore be used in any computing environment, including both keyboard and keyboard-less devices.

CLAIM S

1. A computing device comprising a display screen, the computing device being able to display on the screen an application summary window, the summary window comprising a limited list of (i) common functions offered within an application and/or (ii) data stored in that application.

2. The computing device of Claim 1 in which selecting a common function listed in the summary window causes the related application to open and that selected common function to be activated.

3. The computing device of Claim 1 or 2 in which an application launcher lists the names and/or icons of several applications and selecting a name or icon causes the summary window for that application to be opened.

4. The computing device of any preceding claim in which the kinds of content of a summary window for a given application is selected using a process in which the device learns what functionality and/or stored data types are of interest to any given user.

5. The computing device of any preceding claim in which the user can define what functionality and/or stored data types are of interest to that user for the summary window for an application.

6. The computing device of any preceding claim in which the functionality and/or stored data types for a summary window for a given application varies with the environment of the device.

7. The computing device of any preceding claim in which the functionality and/or stored data types for a summary window for a given application varies with the actions of the user.

8. The computing device of any preceding claim in which opening a summary window for a given application does not result in that application being opened.

9. The computing device of any preceding claim in which the summary window is a frame which includes the name of the associated application.

10. A computing device as claimed in any preceding claim, being a mobile telephone.

11. A computing device as claimed in any preceding claim 1 – 9, being a PC.

12. A computer program which, when running on a computing device, causes the computing device to operate as a computing device as claimed in Claim 1 – 11.

13. The computer program of Claim 12, being an operating system program.

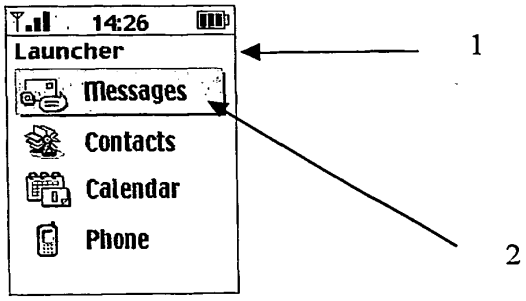



Figure 1

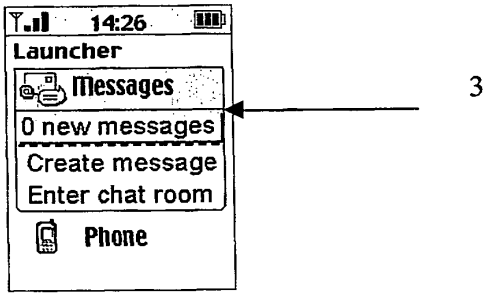



Figure 2

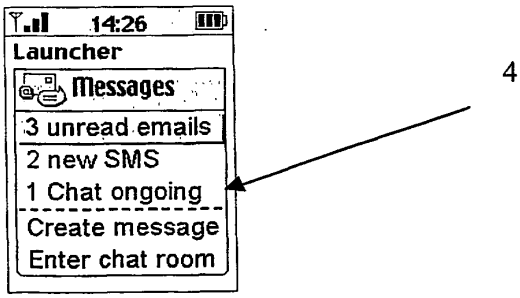



Figure 3

# PATENT COOPERATION TREATY

# PCT

## INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

| Applicant's or agent's file reference | **FOR FURTHER ACTION** | see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below. |
|---|---|---|
| --- | | |
| International application No. | International filing date *(day/month/year)* | (Earliest) Priority Date *(day/month/year)* |
| PCT/GB 01/03387 | 27/07/2001 | 28/07/2000 |
| Applicant | | |
| SYMBIAN LIMITED | | |

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 3 sheets.

[X] It is also accompanied by a copy of each prior art document cited in this report.

1. **Basis of the report**

   a. With regard to the **language,** the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

   [ ] the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

   b. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international search was carried out on the basis of the sequence listing :

   [ ] contained in the international application in written form.

   [ ] filed together with the international application in computer readable form.

   [ ] furnished subsequently to this Authority in written form.

   [ ] furnished subsequently to this Authority in computer readble form.

   [ ] the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

   [ ] the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished

2. [ ] **Certain claims were found unsearchable** (See Box I).

3. [ ] **Unity of invention is lacking** (see Box II).

4. With regard to the **title,**

   [X] the text is approved as submitted by the applicant.

   [ ] the text has been established by this Authority to read as follows:

5. With regard to the **abstract,**

   [X] the text is approved as submitted by the applicant.

   [ ] the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. The figure of the **drawings** to be published with the abstract is Figure No. 2

   [X] as suggested by the applicant.

   [ ] because the applicant failed to suggest a figure.

   [ ] because this figure better characterizes the invention.

   [ ] None of the figures.

Form PCT/ISA/210 (first sheet) (July 1998)

# PATENT COOPERATION TREATY

From the
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

**PCT**

To:

ORIGIN LIMITED
52 Muswell Hill Road
London N10 3JR
GRANDE BRETAGNE

NOTIFICATION OF RECEIPT
OF DEMAND BY COMPETENT INTERNATIONAL
PRELIMINARY EXAMINING AUTHORITY

(PCT Rules 59.3(e) and 61.1(b), first sentence
and Administrative Instructions, Section 601(a))

| | |
|---|---|
| Date of mailing *(day/month/year)* | 15.03.02 |
| Applicant's or agent's file reference: Appln Snapshot PCT | IMPORTANT NOTIFICATION |

| International application No. | International filing date *(day/month/year)* | Priority date *(day/month/year)* |
|---|---|---|
| PCT/GB 01/03387 | 27/07/2001 | 28/07/2000 |

Applicant

SYMBIAN LIMITED et al.

1. The applicant is hereby **notified** that this International Preliminary Examining Authority considers the following date as the date of receipt of the demand for international preliminary examination of the international application:

27/02/2002

2. This date of receipt is:

☒ the actual date of receipt of the demand by this Authority (Rule 61.1(b)).

☐ the actual date of receipt of the demand on behalf of this Authority (Rule 59.3(e)).

☐ the date on which this Authority has, in response to the invitation to correct defects in the demand (Form PCT/IPEA/404), received the required corrections.

3. ☐ **ATTENTION:** That date of receipt is **AFTER** the expiration of 19 months from the priority date. Consequently, the election(s) made in the demand does (do) not have the effect of postponing the entry into the national phase until 30 months from the priority date (or later in some Offices) (Article 39(1)). Therefore, the acts for entry into the national phase must be performed within 20 months from the priority date (or later in some Offices) (Article 22). For details, see the *PCT Applicant's Guide*, Volume II.

☐ *(If applicable)* This notification confirms the information given by telephone, facsimile transmission or in person on: _____

4. Only where paragraph 3 applies, a copy of this notification has been sent to the International Bureau.

| Name and mailing address of the IPEA/ | Authorized officer |
|---|---|
| European Patent Office<br>D-80298 Munich<br>Tel. (+49-89) 2399-0, Tx: 523656 epmu d<br>Fax: (+49-89) 2399-4465 | CHAVONAND F H<br>Tel. (+49-89) 2399-2390 |

Form PCT/IPEA/402 (July 1998) P20452 (12/03/2002)

ATENT COOPERATION TREATY

# PCT

## INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

**(Rationalised Report according to the Notice of the President of the EPO published in the OJ11/2001)**

| Applicant's or agent's file reference | FOR FURTHER ACTION | See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416) |
|---|---|---|
| Appln Snapshot PCT | | |
| International application No. | International filing date *(day/month/year)* | Priority date *(day/month/year)* |
| PCT/GB 01/ 03387 | 27/07/2001 | 28/07/2000 |
| International Patent Classification (IPC) or national classification and IPC | | |
| G06F3/00 | | |
| Applicant | | |
| SYMBIAN LIMITED et al. | | |

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 2 sheets, including this cover sheet.

   ☐ This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

   These annexes consists of a total of _____ sheets.

3. This report contains indications relating to the following items:

   I ☒ Basis of the report

   II ☐ Priority

   III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability

   IV ☐ Lack of unity of invention

   V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

   VI ☐ Certain documents cited

   VII ☐ Certain defects in the international application

   VIII ☐ Certain observations on the international application

| Date of submission of the demand | Date of completion of this report |
|---|---|
| 27/02/2002 | 07/11/2002 |
| Name and mailing address of the IPEA/ | Authorized officer |
| European Patent Office<br>D-80298 Munich<br>Tel. (+49-89) 2399-0, Tx: 523656 epmu d<br>Fax: (+49-89) 2399-4465 | NESSMANN C A<br><br>Tel. (+49-89) 2399 2828 |

Form PCT/IPEA/409 (cover sheet) P20476 (October 2002)

## I. Basis f the r port

The basis of this international preliminary examination is the application as originally filed.

## V. Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability

In light of the documents cited in the international search report, it is considered that the invention as defined in at least some of the claims does not appear to meet the criteria mentioned in Article 33(1) PCT, i.e. does not appear to be novel and/or to involve an inventive step (see international search report, in particular the documents cited X and/or Y and corresponding claim references).

# ATENT COOPERATION TREATY

From the INTERNATIONAL BUREAU

## PCT

NOTICE INFORMING THE APPLICANT OF THE COMMUNICATION OF THE INTERNATIONAL APPLICATION TO THE DESIGNATED OFFICES

(PCT Rule 47.1(c), first sentence)

To:
ORIGIN LIMITED
52 Muswell Hill Road
London N10 3JR
ROYAUME-UNI

15 February 2002

| Date of mailing (day/month/year) | |
|---|---|
| 07 February 2002 (07.02.02) | |
| Applicant's or agent's file reference | IMPORTANT NOTICE |
| Application Snapshot (PCT) | |

| International application No. | International filing date (day/month/year) | Priority date (day/month/year) |
|---|---|---|
| PCT/GB01/03387 | 27 July 2001 (27.07.01) | 28 July 2000 (28.07.00) |

Applicant
SYMBIAN LIMITED et al

1. Notice is hereby given that the International Bureau has **communicated**, as provided in Article 20, the international application to the following designated Offices on the date indicated above as the date of mailing of this notice:
   US

   In accordance with Rule 47.1(c), third sentence, those Offices will accept the present notice as conclusive evidence that the communication of the international application has duly taken place on the date of mailing indicated above and no copy of the international application is required to be furnished by the applicant to the designated Office(s).

2. The following designated Offices have waived the requirement for such a communication at this time:
   CN,EP,JP

   The communication will be made to those Offices only upon their request. Furthermore, those Offices do not require the applicant to furnish a copy of the international application (Rule 49.1(a-bis)).

3. Enclosed with this notice is a copy of the international application as published by the International Bureau on
   07 February 2002 (07.02.02) under No. WO 02/10893

### REMINDER REGARDING CHAPTER II (Article 31(2)(a) and Rule 54.2)

If the applicant wishes to postpone entry into the national phase until 30 months (or later in some Offices) from the priority date, a **demand for international preliminary examination** must be filed with the competent International Preliminary Examining Authority before the expiration of 19 months from the priority date.

It is the applicant's sole responsibility to monitor the 19-month time limit.

Note that only an applicant who is a national or resident of a PCT Contracting State which is bound by Chapter II has the right to file a demand for international preliminary examination (at present, all PCT Contracting States are bound by Chapter II).

### REMINDER REGARDING ENTRY INTO THE NATIONAL PHASE (Article 22 or 39(1))

If the applicant wishes to proceed with the international application in the **national phase**, he must, within 20 months or 30 months, or later in some Offices, perform the acts referred to therein before each designated or elected Office.

For further important information on the time limits and acts to be performed for entering the national phase, see the Annex to Form PCT/IB/301 (Notification of Receipt of Record Copy) and the PCT Applicant's Guide, Volume II.

| The International Bureau of WIPO<br>34, chemin des Colombettes<br>1211 Geneva 20, Switzerland | Authorized officer<br>J. Zahra |
|---|---|
| Facsimile No. (41-22) 740.14.35 | Telephone No. (41-22) 338.91.11 |

Form PCT/IB/308 (April 2001) 4631685

*The demand must be filed directly with the competent International Preliminary Examining Authority or, if two or more Authorities are competent, with the one chosen by the applicant. The full name or two-letter code of that Authority may be indicated by the applicant on the line below:*

IPEA/ _____

# PCT

**CHAPTER II**

## DEMAND

under Article 31 of the Patent Cooperation Treaty:
The undersigned requests that the international application specified below be the subject of international preliminary examination according to the Patent Cooperation Treaty.

For International Preliminary Examining Authority use only

| Identification of IPEA | Date of receipt of DEMAND |
|---|---|
| | |

| **Box No. I IDENTIFICATION OF THE INTERNATIONAL APPLICATION** | | Applicant's or agent's file reference **Appln Snapshot PCT** |
|---|---|---|
| International application No. **PCT/GB01/03387** | International filing date *(day/month/year)* **27 July 2001 (27.07.01)** | (Earliest) Priority date *(day/month/year)* **28 July 2000 (28.07.00)** |
| Title of invention **Computing device with improved user interface for applications** | | |

**Box No. II APPLICANT(S)**

| Name and address: *(Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country.)* | Telephone No.: |
|---|---|
| **Symbian Limited**<br>**Sentinel House**<br>**16 Harcourt Street**<br>**London**<br>**W1H 1DS**<br><br>**GB** | Facsimile No.:<br><br>Teleprinter No.: |

| State *(i.e. country)* of nationality: | State *(i.e. country)* of residence: |
|---|---|
| **GB** | **GB** |

Name and address: *(Family name followed by given name: for a legal entity, full official designation. The address must include postal code and name of country.)*
**Martyn, Matthieu Kennedy**
**61 Strahan Road**
**London**
**E3 5DA**
**GB**

| State *(i.e. country)* of nationality: | State *(i.e. country)* of residence: |
|---|---|
| **GB** | **GB** |

Name and address: *(Family name followed by given name: for a legal entity, full official designation. The address must include postal code and name of country.)*

| State *(i.e. country)* of nationality: | State *(i.e. country)* of residence: |
|---|---|
| | |

☐ Further applicants are indicated on a continuation sheet.

International application No.
PCT/GB01/03387

**Box No. III AGENT OR COMMON REPRESENTATIVE; OR ADDRESS FOR CORRESPONDENCE**

The following person is [X] agent [ ] common representative

and [X] has been appointed earlier and represents the applicant(s) also for international preliminary examination.

[ ] is hereby appointed and any earlier appointment of (an) agent(s)/common representative is hereby revoked.

[ ] is hereby appointed, specifically for the procedure before the International Preliminary Examining Authority, in addition to the agent(s)/common representative appointed earlier.

Name and address: *(Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country.)*

Origin Limited
52 Muswell Hill Road
London N10 3JR
GB

Telephone No.: +44-208-444-2148

Facsimile No.: +44-208-444-4137

Teleprinter No.:

[ ] Mark this check-box where no agent or common representative is/has been appointed and the space above is used instead to indicate a special address to which correspondence should be sent.

**Box No. IV STATEMENT CONCERNING AMENDMENTS**

The applicant wishes the international Preliminary Examining Authority*

(i) [X] to start the international preliminary examination on the basis of the international application as originally filed.

(ii) [ ] to take into account the amendments under Article 34 of

- [ ] the description (amendments attached).
- [ ] the claims (amendments attached).
- [ ] the drawings (amendments attached).

[ ]

(iii) [ ] to take into account any amendments of the claims under Article 19 filed with the International Bureau (a copy is attached).

(iv) [ ] to disregard any amendments of the claims made under Article 19 and to consider them as reversed.

(v) to postpone the start of the international preliminary examination until the expiration of 20 months from the priority date unless that Authority receives a copy of any amendments made under Article 19 or a notice from the applicant that he does not wish to make such amendments (Rule 69.1(d)). *(This check-box may be marked only where the time limit under Article 19 has not yet expired.)*

* Where no check-box is marked, international preliminary examination will start on the basis of the international application as originally filed or, where a copy of amendments to the claims under Article 19 and/or amendments of the international application under Article 34 are received by the International Preliminary Examining Authority before it has begun to draw up a written opinion or the international preliminary examination report, as so amended.

**Box No. V ELECTION OF STATES**

[☒] The applicant hereby elects all eligible States *(that is, all States which have been designated and which are bound by Chapter II of the PCT)* except .....

*(If the applicant does not wish to elect certain eligible States, the name(s) or country code(s) of those States must be indicated above.)*

International application No.
**PCT/GB01/03387**

**Box No. VI CHECK LIST**

The demand is accompanied by the following documents for the purposes of international preliminary examination:

| | | | For International Preliminary Examining Authority use only | |
|---|---|---|---|---|
| | | | received | not received |
| 1. amendments under Article 34 | | | | |
| description | : | sheets | ☐ | ☐ |
| claims | : | sheets | ☐ | ☐ |
| drawings | : | sheets | ☐ | ☐ |
| 2. letter accompanying amendments under Article 34 | : | sheets | ☐ | ☐ |
| 3. copy of amendments under Article 19 | : | sheets | ☐ | ☐ |
| 4. copy of statement under Article 19 | : | sheets | ☐ | ☐ |
| 5. other *(specify)*: | : | sheets | ☐ | ☐ |

The demand is also accompanied by the item(s) marked below:

1. ☐ separate signed power of attorney
2. ☐ copy of general power of attorney
3. ☐ statement explaining lack of signature
4. ☒ fee calculation sheet
5. ☐ other *(specify)*:

**Box No. VII SIGNATURE OF APPLICANT, AGENT OR COMMON REPRESENTATIVE**

*Next to each signature, indicate the name of the person signing and the capacity in which the person signs (if such capacity is not obvious from reading the demand).*

ORIGIN LIMITED
(PETER LANGLEY; DIRECTOR)

For International Preliminary Examining Authority use only

1. Date of actual receipt of DEMAND:

2. Adjusted date of receipt of demand due to CORRECTIONS under Rule 60.1(b):

3. ☐ The date of receipt of the demand is AFTER the expiration of 19 months from the priority date and item 4 or 5, below, does not apply. ☐ The applicant has been informed accordingly.

4. ☐ The date of receipt of the demand is WITHIN the period of 19 months from the priority date as extended by virtue of Rule 80.5.

5. ☐ Although the date of receipt of the demand is after the expiration of 19 months from the priority date, the delay in arrival is EXCUSED pursuant to Rule 82.

For International Bureau use only

Demand received from IPEA on:

PATENT APPLICATION SERIAL NO. 10/343333

U.S. DEPARTMENT OF COMMERCE
PATENT AND TRADEMARK OFFICE
FEE RECORD SHEET

02/04/2003 GFREY1 00000128 10343333

01 FC:1613 900.00 OP
02 FC:1615 54.00 OP

PTO-1556
(5/87)

*U.S. Government Printing Office: 2002 — 489-267/69033

# PATENT APPLICATION FEE DETERMINATION RECORD

Effective January 1, 2003

Application or Docket Number

10/343333

## CLAIMS AS FILED - PART I

| | (Column 1) | (Column 2) |
|---|---|---|
| TOTAL CLAIMS | | |
| FOR | NUMBER FILED | NUMBER EXTRA |
| TOTAL CHARGEABLE CLAIMS | 23 minus 20= | * 3 |
| INDEPENDENT CLAIMS | 2 minus 3 = | * |
| MULTIPLE DEPENDENT CLAIM PRESENT | | ☐ |

* If the difference in column 1 is less than zero, enter "0" in column 2

| SMALL ENTITY TYPE ☐ | | OR | OTHER THAN SMALL ENTITY | |
|---|---|---|---|---|
| RATE | FEE | | RATE | FEE |
| BASIC FEE | | OR | BASIC FEE | 400 |
| X$ 9= | | OR | X$18= | 54 |
| X42= | | OR | X84= | |
| +140= | | OR | +280= | |
| TOTAL | | OR | TOTAL | 954 |

## CLAIMS AS AMENDED - PART II

| AMENDMENT A | (Column 1) CLAIMS REMAINING AFTER AMENDMENT | | (Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR | (Column 3) PRESENT EXTRA |
|---|---|---|---|---|
| Total | * | Minus | ** | = |
| Independent | * | Minus | *** | = |
| FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM | | | | ☐ |

| SMALL ENTITY | | OR | OTHER THAN SMALL ENTITY | |
|---|---|---|---|---|
| RATE | ADDITIONAL FEE | | RATE | ADDITIONAL FEE |
| X$ 9= | | OR | X$18= | |
| X42= | | OR | X84= | |
| +140= | | OR | +280= | |
| TOTAL ADDIT. FEE | | OR | TOTAL ADDIT. FEE | |

| AMENDMENT B | (Column 1) CLAIMS REMAINING AFTER AMENDMENT | | (Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR | (Column 3) PRESENT EXTRA |
|---|---|---|---|---|
| Total | * | Minus | ** | = |
| Independent | * | Minus | *** | = |
| FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM | | | | ☐ |

| RATE | ADDITIONAL FEE | | RATE | ADDITIONAL FEE |
|---|---|---|---|---|
| X$ 9= | | OR | X$18= | |
| X42= | | OR | X84= | |
| +140= | | OR | +280= | |
| TOTAL ADDIT. FEE | | OR | TOTAL ADDIT. FEE | |

| AMENDMENT C | (Column 1) CLAIMS REMAINING AFTER AMENDMENT | | (Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR | (Column 3) PRESENT EXTRA |
|---|---|---|---|---|
| Total | * | Minus | ** | = |
| Independent | * | Minus | *** | = |
| FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM | | | | ☐ |

| RATE | ADDITIONAL FEE | | RATE | ADDITIONAL FEE |
|---|---|---|---|---|
| X$ 9= | | OR | X$18= | |
| X42= | | OR | X84= | |
| +140= | | OR | +280= | |
| TOTAL ADDIT. FEE | | OR | TOTAL ADDIT. FEE | |

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20."
*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3."
The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

# MULTIPLE DEPENDENT CLAIM FEE CALCULATION SHEET

*(FOR USE WITH FORM PTO-875)*

SERIAL NO.

FILING DATE

APPLICANT(S) 10/343333

CLAIMS

| | AS FILED | | AFTER 1st AMENDMENT | | AFTER 2nd AMENDMENT | |
|---|---|---|---|---|---|---|
| | IND. | DEP. | IND. | DEP. | IND. | DEP. |
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| TOTAL IND. | | | | | | |
| TOTAL DEP. | | | | | | |
| TOTAL CLAIMS | | | | | | |

* MAY BE USED FOR ADDITIONAL CLAIMS OR AMENDMENTS

FORM PTO-1360 (REV. 3-78)

U.S. DEPARTMENT OF COMMERCE
Patent and Trademark Office

DT20 Rec'd PCT/PTO 02 APR 2003

| TRANSMITTAL OF INFORMATION DISCLOSURE STATEMENT (Under 37 CFR 1.97(b) or 1.97(c)) | Docket No. 5035-133US |
|---|---|

OIPE
APR 02 2003
PATENT & TRADEMARK OFFICE

In Re Application Of: **Martyn Matthieu Kennedy**

| Serial No. | Filing Date | Examiner | Group Art Unit |
|---|---|---|---|
| 10/343,333 | January 28, 2003 | | |

Title: **COMPUTING DEVICE WITH IMPROVED USER INTERFACE FOR APPLICATIONS**

Address to:
**Assistant Commissioner for Patents**
**Washington, D.C. 20231**

**37 CFR 1.97(b)**

1. ☒ The Information Disclosure Statement submitted herewith is being filed within three months of the filing of a national application other than a continued prosecution application under 37 CFR 1.53(d); within three months of the date of entry of the national stage as set forth in 37 CFR 1.491 in an international application; before the mailing of a first Office Action on the merits, or before the mailing of a first Office Action after the filing of a request for continued examination under 37 CFR 1.114.

**37 CFR 1.97(c)**

2. ☐ The Information Disclosure Statement submitted herewith is being filed after the period specified in 37 CFR 1.97(b), provided that the Information Disclosure Statement is filed before the mailing date of a Final Action under 37 CFR 1.113, a Notice of Allowance under 37 CFR 1.311, or an Action that otherwise closes prosecution in the application, and is accompanied by one of:

   ☐ the statement specified in 37 CFR 1.97(e);

   **OR**

   ☐ the fee set forth in 37 CFR 1.17(p).

| TRANSMITTAL OF INFORMATION DISCLOSURE STATEMENT (Under 37 CFR 1.97(b) or 1.97(c)) | Docket No. 5035-133US |
|---|---|

OIPE U.S. PATENT & TRADEMARK OFFICE APR 0 2 2003

In Re Application: **Martyn Matthieu Kennedy**

| Serial No. | Filing Date | Examiner | Group Art Unit |
|---|---|---|---|
| 10/343,333 | January 28, 2003 | | |

**COMPUTING DEVICE WITH IMPROVED USER INTERFACE FOR APPLICATIONS**

**Payment of Fee**

**(Only complete if Applicant elects to pay the fee set forth in 37 CFR 1.17(p))**

☐ A check in the amount of is attached.

☒ The Assistant Commissioner is hereby authorized to charge and credit Deposit Account No. **23-3040** as described below. A duplicate copy of this sheet is enclosed.

- ☐ Charge the amount of
- ☐ Credit any overpayment.
- ☒ Charge any additional fee required.

**Certificate of Transmission by Facsimile***

I certify that this document and authorization to charge deposit account is being facsimile transmitted to the United States Patent and Trademark Office (F

_____
(Date)

*Signature*

*Typed or Printed Name of Person Signing Certificate*

**Certificate of Mailing by First Class Mail**

I certify that this document and fee is being deposited Mar 27, 2003 with the U.S. Postal Service as first class mail under 37 C.F.R. 1.8 and is addressed to the Assistant Commissioner for Patents, Washington, D.C. 20231.

*Signature of Person Mailing Correspondence*

Richard C. Woodbridge

*Typed or Printed Name of Person Mailing Certificate*

***This certificate may only be used if paying by deposit account.**

*Signature*

Dated: Mar 27, 2003

**Richard C. Woodbridge**
**Woodbridge & Associates, P.C.**
**P.O. Box 592**
**Princeton, NJ 08542**
**609-924-3773 phone**
**609-924-1811 fax**

cc: **Origin**

## INFORMATION DISCLOSURE CITATION

*(Use several sheets if necessary)*

OIPE APR 0 2 2003 PATENT & TRADEMARK OFFICE

| ATTY DOCKET NO. | SERIAL NO. |
|---|---|
| 5035-133US | 10/343,333 |
| FILING | GROUP |
| 28 January 2003 | |

### U.S. PATENT DOCUMENTS

| *EXAMINER INITIAL | | DOCUMENT NUMBER | DATE | NAME | CLASS | SUBCLASS | FILING DATE IF APPROPRIATE |
|---|---|---|---|---|---|---|---|
| | A | 6,456,841B1 | 09/24/2002 | Tomimori | | | |
| | B | 6,144,863 | 11/07/2000 | Charron | | | |
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### FOREIGN PATENT DOCUMENTS

| | | DOCUMENT NUMBER | DATE | COUNTRY | CLASS | SUBCLASS | TRANSLATION YES | TRANSLATION NO |
|---|---|---|---|---|---|---|---|---|
| | C | EP 0 891 066 A2 | 13/01/1999 | European | | | | |
| | D | EP 0 844 553 A1 | 27/05/1998 | European | | | | |
| | E | EP 0 607 731 A2 | 27/07/1994 | European | | | | |
| | F | GB 2 335 822 A | 25/03/1998 | UK | | | | |
| | | | | | | | | |

### OTHER DOCUMENTS *(Including Author, Title, Date, Pertinent Pages, Etc.)*

| | | | |
|---|---|---|---|
| | | G | IBM Technical Disclosure Bulletin; Vol. 37; No. 02B; February 1994 "Reorganizing Menu Hierachy to Best Fit the Individual User"; Pages 349 - 350 |
| | | | |

| EXAMINER | DATE CONSIDERED |
|---|---|
| | |

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

(19) Eur päisches Patentamt
European t Office
Offi urop´ n des brev ts

(11) EP 0 891 066 A2

# (12) EUROPEAN PATENT APPLICATION

(43) Date of publication:
**13.01.1999 Bulletin 1999/02**

(51) Int Cl.[6]: **H04M 1/00**, G06F 3/033

(21) Application number: **98660070.8**

(22) Date of filing: **09.07.1998**

(84) Designated Contracting States:
**AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE**
Designated Extension States:
**AL LT LV MK RO SI**

(30) Priority: **09.07.1997 FI 972908**

(71) Applicant: **NOKIA MOBILE PHONES LTD.**
**02150 Espoo (FI)**

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  **02320 Espoo (FI)**
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(74) Representative: **Brax, Matti Juhani et al**
**Berggren Oy Ab,**
**P.O. Box 16**
**00101 Helsinki (FI)**

## (54) Adaptable menu-controlled man-machine interface.

(57) In an electronic device, such as a mobile station equipped with a small display (41), a certain menu of the most used functions is used to control the device. In this menu, either the user collects the most often used functions ($B_1$ - $B_N$) or the device selects the functions automatically ($A_1$ - $A_N$), depending on which functions the user uses most often. This menu is located high in the hierarchy of menus, so that opening the menu and selecting the functions included in it can be done quickly and easily. The functions can contain links to the functions which according to the frequency array (45e) are most often used after a certain function.

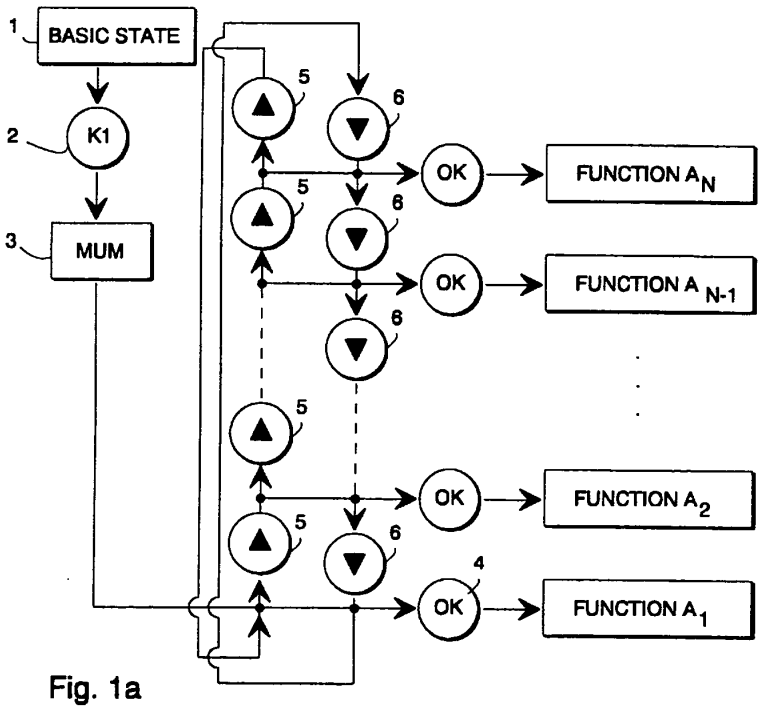



Fig. 1a

EP 0 891 066 A2

**D scription**

The invention relates to the interface between a user and an electronic device, the so called man-machine interface in general, and to adapting a menu-based interface to the personal requirements of the user in particular. The most advantageous application of the invention is in mobile phones with a display, but it can also be used in other electronic devices.

Many modern electronic devices are designed as menu-controlled. In the following, a digital mobile station with a display is described by way of example, but with certain generalizations, the description also pertains to many other kinds of devices. Because the display of the mobile station is small, it can only display a very small menu with a limited number of options at a time. In order to implement a wide range of control possibilities, the menus are divided into several levels, forming a hierarchical tree structure. On the upper level, the user selects a certain group of functions, whereby a number of lower level operations belonging to the selected group is shown on the display. The most common way of expressing the selection is to use certain control and function keys. In this patent application, the entity formed by the display, menus and keys is called the Man Machine Interface (MMI).

A typical MMI of a mobile station and the tree structure of its menus is known, for example, from the operation manual of the Nokia 2110 mobile station published by Nokia Mobile Phones. The user can perform a large number of different selections controlling the operation of the mobile station by using three or four control keys. However, the large number of consecutive keystrokes needed is often a problem. As an example, we can imagine a situation in which the user wants to change the alarm sound from an ordinary alarm to a mere beep. The user presses the Menu key and then selects the option corresponding to the alarm sound by arrow keys. With a certain Start key, the user can display the various possibilities for the alarm sound, from which he selects the desired alternative by pressing the arrow keys. To confirm the selection, the OK and Exit keystrokes are still needed. Seven keystrokes, including all the four control keys, are needed to complete the entire procedure. Because of meetings or other occasions where a different telephone behaviour is required, the user may have to change the alarm sound several times during the day, in which case he may find the long series of keystrokes frustrating.

A few prior art solutions to the problem described above are known. For example, the user of the Nokia 2110 mobile station can memorize the numbers of the most frequently used menus and functions, whereby he can get the desired function on the display by pressing the Menu key and selecting the correct number with the numeric keys of the mobile station. However, this solution requires menorizing numbers with as much as five digits, which is not suitable for all users. The Motorola Micro T.A.C 8400 has a corresponding system, in which the numbers of the nine functions regarded as the most common have only one digit, whereby the user selects the desired function by pressing a certain arrow key and one numeric key 1-9. Motorola's solution does not help a user who often needs a function which was not regarded as common by the manufacturer, who has therefore not added it to the quick selections. Besides, even memorizing one-digit numbers correctly is difficult for many users.

The patent application GB-2 293 951 discloses a mobile station and a menu system for using it, consisting of branches equipped with titles, subtitles, sub-subtitles and selections. The user can either browse a short menu, which contains only some of the titles, or a long menu, which contains all the titles. By using certain series of keystrokes, the user can also move titles from the short menu to the long menu or vice versa. In this solution, the user must be able to use complicated key commands of the mobile station.

The patent specification FI-89652 and a corresponding United States patent US-5 267 308 describe a telephone memo, in which the mobile station sorts the telephone numbers in an order according to the frequency of use. However, in order to start using the telephone memo, the user must use menu commands as usually, and so this solution does not make the problem of the present menu-based MMI any easier. Some methods for adapting menu-based interfaces to the user's requirements are known from software intended for personal computers. In many programs of the Microsoft company, a certain menu includes a list of recently accessed files, whereby the user can open the file by selecting its name from the menu. However, the frequently used function or file is not always the same as the one that was used last; if the user handles dozens of files a day, only a few of which are needed often, their names may be dropped from the list when the user accesses other files. It is also a known technique that the user can remove commands he regards as unnecessary from the program menus and add new commands based on self-made macros. However, the large display of a personal computer allows using large menus with many different alternatives, and thus the known solutions cannot as such be applied to devices such as mobile stations, which have a small display with a modest resolution. Even if the user of a mobile station can add the desired commands to a certain menu of the prior art kind, he would nevertheless either have to browse the menu with the function keys to find the desired option or remember the number of the option added, whereby no real advantage compared to the prior art would be achieved.

The object of this invention is to present a method by which the user can select the desired options by means of a menu-based MMI quickly and easily. It is also an object of the invention to present a method by which the quick use of a menu-based interface can be

(*) Registered trademark of the Motorola Company

modified to correspond to the different needs of the users. In addition, it is an object of the invention to present an electronic device, in which the control method according to the invention is used.

The objects of the invention are achieved by adding to the menu-based MMI a special menu of the often needed functions and by selecting the options of this menu according to the user's needs.

The method according to the invention is characterized in that as a response to the user's operation, certain options intended to be the most easily selected are collected to a certain menu.

The invention also relates to a man-machine interface for controlling the electronic device. The interface according to the invention is characterized in that it comprises a certain menu for showing the options which the user wants to be the most easily selected, whereby the options contained in the menu are determined on the basis of the user's operation.

According to the invention, a new menu branch is added on a suitable level of the branched, tree-like menu structure, preferably on the upmost level, for the most frequently used functions. Most advantageously, the new menu is located high up in the hierarchical menu structure, so that opening or displaying it does not require many keystrokes. Alternatively, it is possible to specify a certain simple key command, by which the user can always display the menu of the most frequently used functions regardless of the level on which the menu is located and which other part of the menu structure is displayed at the beginning. In the following, the menu of the frequently used functions is called the MUM (Most Used Menu) for shortness.

In order that the MUM would be useful for the user in all situations, the user must be able to influence the contents of the menu. A MUM according to the invention can either be updated automatically, whereby the mobile station or other device in question itself records the frequency of various operations and produces the selections corresponding to the most often used functions to the menu according to the invention, or the user can determine the contents of the menu by using key commands. Various compromises can also be formed of these two alternatives, whereby the user, for example, selects the functions contained in the menu. but the device arranges the menu so that the most often used function is always the first in the menu. The MMI can also include a function in which the user selects which procedure he wants to use for maintaining a MUM menu according to the invention.

In the embodiment of the invention in which the user selects the functions to be included in the menu according to the invention by key commands, the functions selected need not be the most often needed functions. The user can also place a rarely needed function in the MUM for it to be available as easily as possible when quick action is required.

In the following, the invention will be described in more detail with reference to the exemplary embodiments and the appended drawings, in which

Figure 1a shows the proceeding of an embodiment of the method according to the invention as a state diagram,

Figure 1b shows the maintenance of the MUM in the case of Figure 1a,

Figure 2a shows the maintenance of the MUM in another case,

Figure 2b shows the proceeding of a second embodiment of the method according to the invention as a state diagram,

Figure 3 shows the proceeding of a third embodiment of the method according to the invention as a state diagram, and

Figure 4 shows a block diagram of a mobile station according to the invention.

In the figures, the same reference numbers are used for corresponding parts.

Figure 1a shows a state diagram, in which rectangles are used to depict the states of the controlled electronic device and circles to depict the key commands by which the state is changed. With regard to the invention, it does not matter in which state the user starts using the Most Used Menu. The text "basic state" used to describe state 1 in the figure means this starting state. At point 2, the user gives a certain key command K1, such as a long press of the Menu key. By this command, the device is switched to the MUM state 3, in which it shows the user the alternatives in the Most Used Menu. To advantage, the display of the device has a cursor or other pointer to indicate which of the menu alternatives has been selected. In state 3, the cursor indicates the first function of the MUM, which is here called function $A_1$, and which the user can perform by pressing the OK key at point 4. The other functions of the menu from $A_2$ to AN require moving the cursor at the desired function by pressing the up and down arrow keys 5, 6 before pressing the OK key. Using the menu by the arrow and OK keys is a technique known as such. The invention does not limit the number of functions in the Most Used Menu.

Figure 1b shows the formation and maintenance of the Most Used Menu in the case that the device which is the object of the invention performs the procedures relating to the formation and maintenance automatically. Forming a user-specific menu for use according to the invention requires that a certain capacity is reserved for this in the memory of the device. In an embodiment in which the device updates the Most Used Menu automatically, the memory of the device must also contain an array which describes the frequency of the functions

performed through the menus. Always when the user selects a certain function from a menu, as in block 10, the device adds an entry to the frequency array at the function as in block 11 and updates the Most Used Menu, or fills it with the most used functions in the array, as in block 12. In this embodiment, the device only records the lowest level functions of the menus and not the menus or submenus, because otherwise the upper level menus would be automatically the most often used; they are used frequently when the user moves through them to the lower menu levels. The functions from $A_1$ to AN are here ordered according to the frequency of use.

For saving calculation capacity, filling the Most Used Menu, the operation of block 12, can be conditional so that it takes place only when as a result of an entry made in the frequency array, the observed frequency of use of a function in the array becomes higher than a certain threshold value, for instance three times a day. Operation according to block 12 can also take place at a specified time, whereby the device can update the Most Used Menu once in an hour, for example.

In an embodiment, in which the user determines the contents of the MUM manually, adding a certain operation to the array takes place according to Figure 2a, for instance. The user retrieves the text indicating the desired function according to block 20, in a well known manner. After this, the user gives a certain key command according to block 21, such as a long press of the OK key. The device can add the function to the MUM directly or ask the user to confirm this by pressing the OK key again, as in block 22. After the confirm command, the device adds the function to the MUM, as in block 23. In an embodiment based on manual maintenance, the function to be added to the MUM can be a function of the lowest level of the menus or a certain menu or submenu. The order of the functions $B_1$ - $B_N$ is determined by which function the user wants to be the most easily accessible (with the fewest keystrokes) ($B_1$), which the next easily accessible ($B_2$) and so forth. From Figure 2b it can easily be seen how many keystrokes are required by each function.

One simple way by which the user can determine a certain place for a desired function in a manually maintained Most Used Menu, is using the numeric keys instead of or in addition to the OK key when the user accepts the desired function to the Most Used Menu. It can be assumed, for instance, that the user wants a certain function to appear as the second in the MUM (function $B_2$ in Figure 2b). When the user selects this function according to Figure 2a, he gives a long press of the OK key at block 21 and presses the numeric key 2 at block 22. It is also possible to present a combined embodiment, in which the user selects which functions should be included in the MUM, but the terminal device determines the mutual order of the functions automatically so that the most frequently used of the functions selected by the user is the first in the MUM, the next frequently used is the second and so forth.

In the preferred embodiment of the invention, removing functions from the MUM is done in the same way as adding functions, as shown in Figure 2a. The user retrieves the MUM to the display, moves the cursor at the function which he wants to remove, and gives a long press of the OK key. The device can remove the function from the MUM directly or at first ask the user to press the OK key again for confirmation. If the Most Used Menu is full, but the user tries to add one more function to it, the device can either notify that the menu is full and ask the user to remove a function, or it can automatically remove the last or least used function from the menu.

Figure 3 shows a combination of the embodiments described above. The functions from $A_1$ to AN are functions of the MUM, which the device has included in the MUM according to their frequency of use, like in the case of Figures 1a and 1b above. The functions from $B_1$ to $B_N$ have been added to the MUM manually by the user in the same way as in the case of Figures 2a and 2b. When the user has reached the MUM state 3, he can start function $A_1$ by pressing the OK key or browse the list of A functions or B functions by pressing the arrow keys 5 and 6. Like in Figures Ia and 2b, the functions of the MUM form a loop-like list, which means that after pressing a certain arrow key consecutively as many times as there are functions in the MUM, the user is at the same point in the menu as before the keystrokes on the arrow key. There is no advantage in keeping a certain function in the MUM in more than one place. If, for instance, the user has selected function $B_4$ in the MUM and uses it so often that the device includes it in the A functions, such as function $A_2$, it is advantageous to skip this function in the B group, whereby one press of the arrow key moves the cursor in the MUM directly from $B_3$ to $B_5$ or vice versa. It is also possible to present an embodiment as in Figure 3, in which the device does not include in the A functions any of the functions selected by the user manually in the MUM as a B function.

The functions of the Most Used Menu can also contain links to other functions, particularly in an embodiment in which the device automatically measures the frequency of occurrence of various functions. It is namely typical of certain situations that the user must make many consecutive changes of operation. For example, a mobile phone user who is leaving a meeting often wants to switch the sound alarm and key sounds on and the call transfer off. The most often used of these functions is switching the sound alarm, and thus it is likely to be included in the MUM with the highest priority. When the user accepts the switching on of the sound alarm by pressing the OK key, the mobile station detects that in a certain frequency array modelling the sequence of functions, the switching of the sound alarm is often followed by the switching of the key sounds. Thus the device automatically moves the cursor in the display to indicate the switching of the key sounds, whereby the user only needs to press the OK key again to select this func-

tion or press Ignore, if he does not want to switch the key sounds on.

In order to form a frequency array for modelling the linked function groups or the sequence of functions, the device continuously follows the functions selected by the user and saves information on which operations the user selects consecutively within a certain short period of time, for instance during one minute. It is then not expected that the user would select certain functions always in the same order. For example, the consecutive switching off of the key sounds and sound alarm and the activation of the call transfer in this order are statistically, as a function group, the same as the switching off of the sound alarm followed by the switching off of the key sounds and the activation of the call transfer in this order, within the specified period.

It is common that the user frequently needs functions of the ON-OFF type in his device, such as switching the call transfer on and off. Because the switching on is always at some next stage followed by switching off and vice versa, the user uses both of these functions equally often. Thus the Most Used Menu should have two alternatives with the same frequency: switching on and off. However, this is not practical, because when the call transfer is switched on, the only possible function is switching it off and vice versa. Therefore it is recommended to arrange the MUM according to the invention practically so that the device examines which of the ON-OFF statees is in use and shows in the Most Used Menu only the alternative for changing the state. There can also be more than two mutually exclusive alternatives, that is, there may be the alternatives A, B, C and D available for a function, and only one of them, a function or a group of functions, is possible at a time.

Figure 4 shows a simplified block diagram of a mobile station. The microphone 40, the transmission block 46, the duplexing block 47, the reception block 43 and the speaker 49 can be of the prior art kind, as well as the display 41, in which the mobile station shows the user the function menus, among other things, and the keypad 42, by which the user gives the mobile station key commands. The control block 44 is preferably a well known microprocessor, which controls the operation of the mobile station by executing a program saved in the memory 45. The memory 45 can be an integral part of the mobile station, or it can be partly located in a separate storage medium, such as a SIM card (Subscriber Identity Module). The lower part of the Figure shows the contents of the memory 45 in more detail. The block 45a contains the names and/or other identification codes of the functions which form the Most Used Menu at a time. The block 45b is an array, which contains the values describing the frequency of use of each function. On the basis of the values contained in block 45b, the mobile station can maintain the MUM automatically. The block 45c contains information of mutually exclusive functions, of which it is practical to have only one or a certain smaller group at a time in the Most Used Menu. Using the block 45 takes place so that always before showing the Most Used Menu or a part of in the display, the mobile station checks the functions of the MUM one by one by comparing them to the contents of the block 45c. If it appears for a function that in the present situation it is not possible or practical to show it in the MUM, it is left out of it for the time being.

Block 45d contains the whole menu structure, that is, all the functions of all the menus and information of their mutual relations (which functions belong to which menu etc.). This is the necessary basis that enables showing menus to users. Block 45e contains the links between consecutive operations, or in other words, information of the groups or chains of operations which the user often uses in connection with one another. The block 45e can be arranged in two parts (not shown in the figure) so that the first part only comprises those function groups which include functions used at least three times in connection with one another during the last two weeks, for example; these are mutually linked functions, whereby as a result of performing one of them, the mobile station immediately offers the user the next function of the same group. The second part can comprise those function groups which include functions used once or twice in connection with one another during the last two weeks; these groups are "candidates" for the first part, and they are moved to it if the detected frequency of use of the functions in connection with one another grows high enough. The block 45f contains, in a known manner, a program code by which the control block 44 controls the operation of the mobile station. Naturally, the memory 45 can also contain a lot of other information.

Many modern, portable communication devices provide various program applications which are not related to the actual use of the mobile station in the same way as the properties mentioned above, such as setting the sound alarm and the key sounds and using the call transfer. Examples of such applications include an internet connection, teleshopping, telebanking, calendar and games. The invention can also be applied in connection with the program applications, either so that commands relating to the applications are in the same Most Used Menu as the menu options relating to the normal use of the mobile station, or so that there are separate Most Used Menus for the program applications and the normal use properties. Combining into the same menu can take place directly, whereby all the functions and application commands are in the menu in an absolute order by the frequency of use or in an user-specified order, or, for example, ordered by the principle shown in Figure 2b, whereby pressing an "up" arrow key from the "topmost" function of the MUM (function $A_1$ in Figure 2b) is browsing towards the program applications, and pressing a "down" arrow key is browsing towards the functions related to the normal use properties.

The invention provides an advantage as compared to the prior art, because the number of keystrokes or

other commands required by the most frequent functions in controlling the electronic device is reduced. In addition, the degree of necessity and generality of the functions can be personally decided by each user. It is clear to a person skilled in the art that the key commands named above, such as pressing the Menu and OK keys, are used by way of example and do not limit the invention. Many different methods of giving commands are known in the technology of devices controlled by key commands, which methods can be applied in the case of the present invention. In addition, there are voice-controlled electronic devices, to which the invention can also be applied, whereby the opening of the Most Used Menu is performed by a certain speech command, and moving the cursor in the menu and selecting a certain option are performed by other speech commands.

**Claims**

1. A man-machine interface for controlling an electronic device, which interface comprises menus for showing alternative functions to the user, **characterized** in that it comprises a certain menu for showing the options ($A_1$ - $A_N$, - $B_1$ - $B_N$) which shoud be the most easily selected, whereby the options contained in said menu are determined on the basis of the user's operation.

2. A method for implementing the interaction between the electronic device and its user in an electronic device, in which method options are shown in the form of menus, **characterized** in that as a response to the user's operation, certain options intended to be the most easily selected ($A_1$ - $A_N$, $B_1$ - $B_N$) are collected to a certain menu.

3. A method according to Claim 2, **characterized** in that said options intended to be the most easily selected are determined as a response to commands given by the user for selecting certain options (21, 22).

4. A method according to Claim 2, **characterized** in that said options intended to be the most easily selected are determined on the basis of how often the user selects each option (11).

5. A method according to Claim 3 or 4, **characterized** in that while the options intended to be the most easily selected comprise at least two mutually exclusive options, said menu shows only those of the mutually exclusive options which are possible to perform in the state of operation of the device at the moment.

6. A method according to any one of the Claims 2 to 5, **chara teriz d** in that as a response to a command given by the user, which command corresponds to selecting a certain first option from said menu, the next option shown by the device is the one which on the basis of previous use is the most likely to follow said first option.

7. A mobile station arranged to show function options as a response to control commands, **characterized** in that it is equipped (45a) to specify a certain group of most often used functions and to display (41) these functions in a certain menu of the most used functions as a response to a certain first control command.

8. A mobile station according to Claim 7, **characterized** in that it is also equipped to perceive that certain functions are repeatedly used in connection with one another, and to form linked groups of these functions (45c), whereby as a response to the user's selection and execution of a function belonging to a linked function group, the mobile station offers the user another function belonging to the same linked function group.

9. A mobile station according to Claim 7, **characterized** in that in the case of mutually exclusive functions (45c), it shows in said menu of the most used functions only the functions that can be performed in the state of operation at the moment.

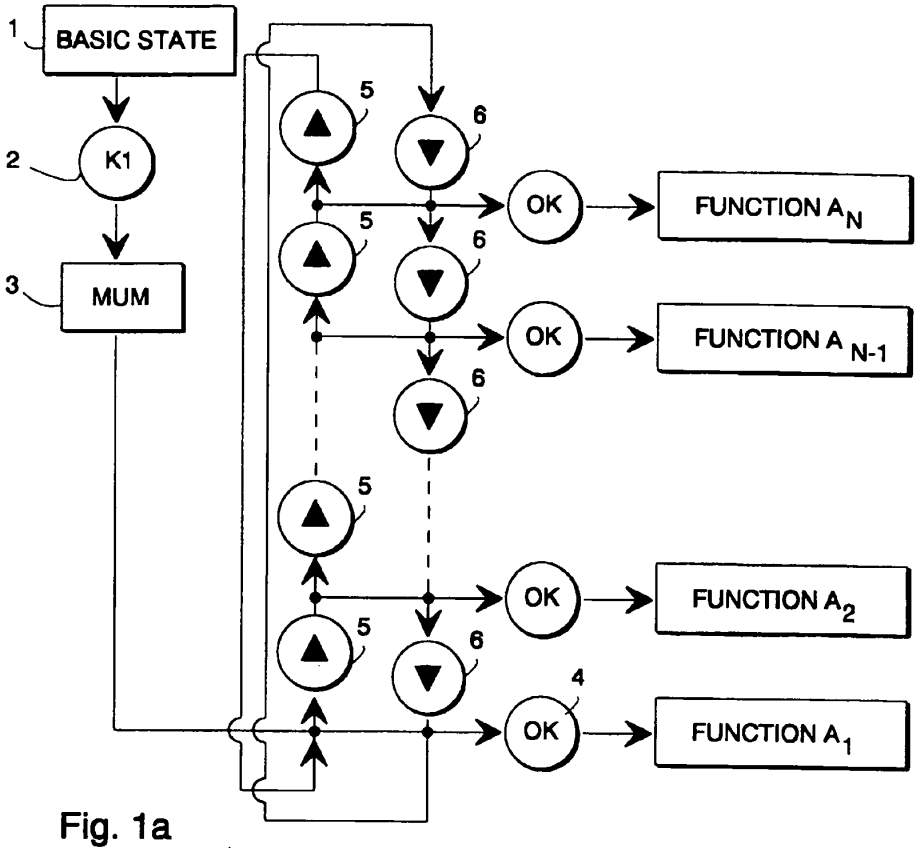

1
BASIC STATE
2
K1
3
MUM
5
6
OK
FUNCTION $A_N$
FUNCTION $A_{N-1}$
FUNCTION $A_2$
FUNCTION $A_1$
4

Fig. 1a

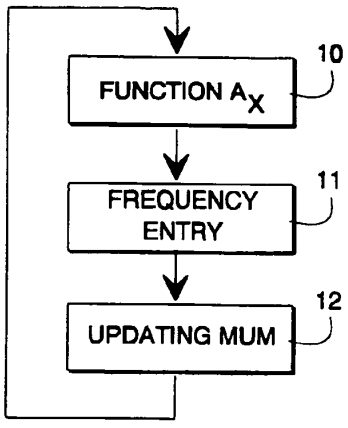

FUNCTION $A_X$
10
FREQUENCY ENTRY
11
UPDATING MUM
12

Fig. 1b

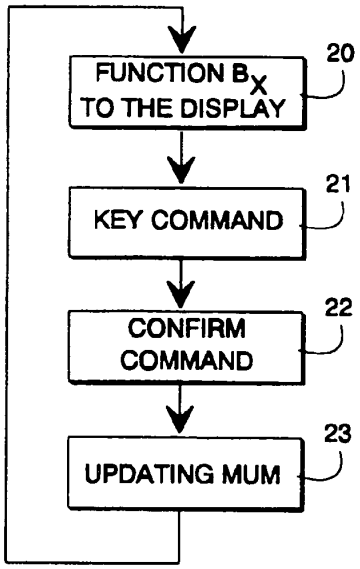

FUNCTION $B_X$ TO THE DISPLAY
20
KEY COMMAND
21
CONFIRM COMMAND
22
UPDATING MUM
23

Fig. 2a

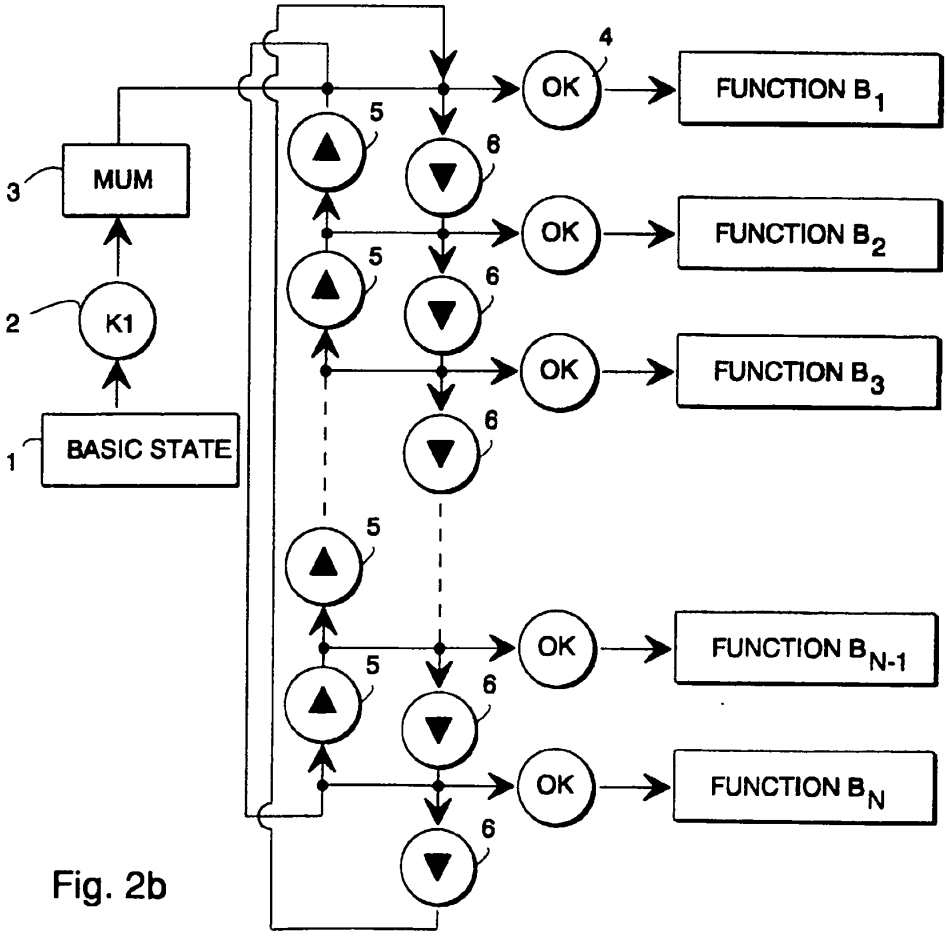

1
BASIC STATE
2
K1
3
MUM
4
OK
5
6
FUNCTION $B_1$
FUNCTION $B_2$
FUNCTION $B_3$
FUNCTION $B_{N-1}$
FUNCTION $B_N$

Fig. 2b

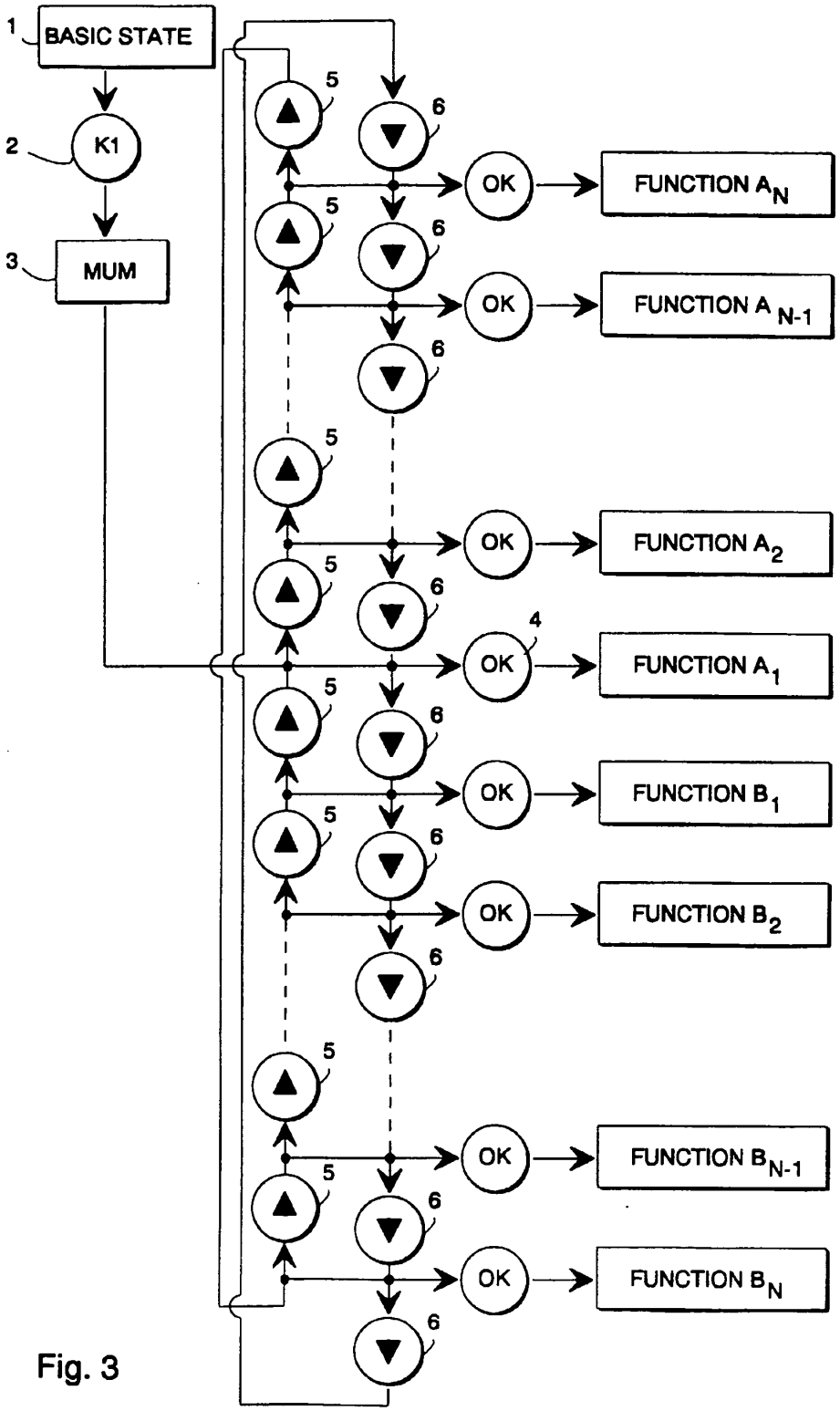
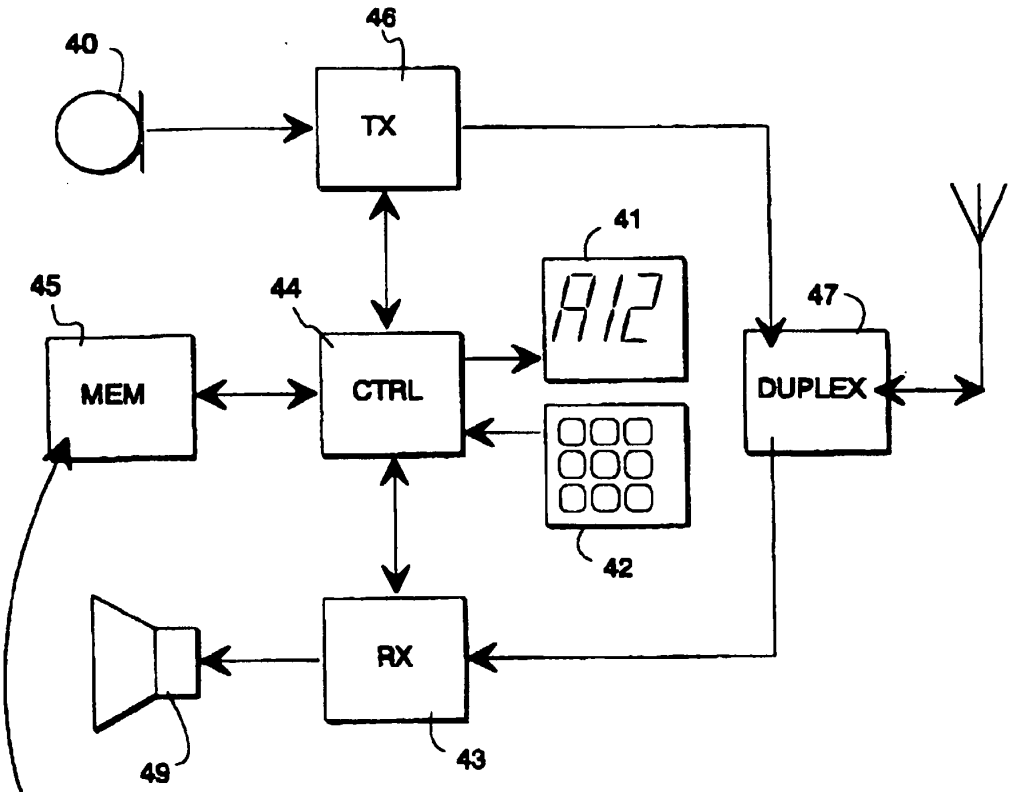

1
BASIC STATE
2
K1
3
MUM
4
5
6
OK
FUNCTION $A_N$
FUNCTION $A_{N-1}$
FUNCTION $A_2$
FUNCTION $A_1$
FUNCTION $B_1$
FUNCTION $B_2$
FUNCTION $B_{N-1}$
FUNCTION $B_N$

Fig. 3


40
46
TX
41
A12
45
44
47
MEM
CTRL
DUPLEX
42
RX
49
43

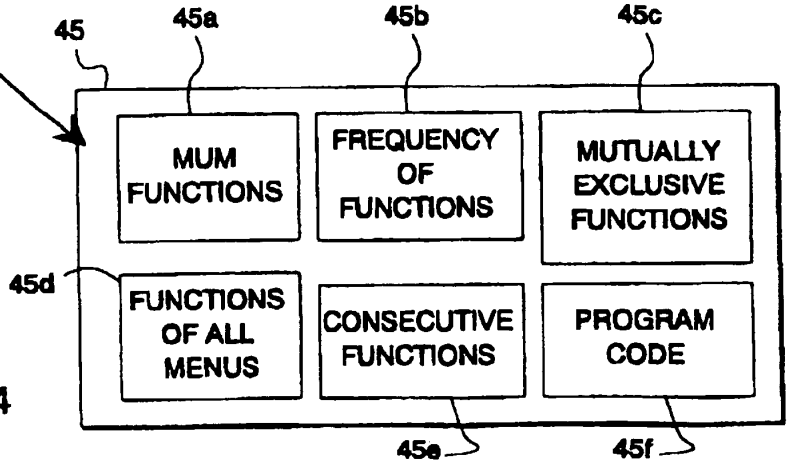

45
45a
45b
45c
MUM FUNCTIONS
FREQUENCY OF FUNCTIONS
MUTUALLY EXCLUSIVE FUNCTIONS
45d
FUNCTIONS OF ALL MENUS
CONSECUTIVE FUNCTIONS
PROGRAM CODE
45e
45f

Fig. 4

(19) Europäisches Patentamt
European t Office
Office européen des brevets

(11) EP 0 844 553 A1

# (12) DEMANDE DE BREVET EUROPEEN

(43) Date de publication:
**27.05.1998 Bulletin 1998/22**

(51) Int. Cl.[6]: **G06F 3/023**

(21) Numéro de dépôt: **97203650.3**

(22) Date de dépôt: **21.11.1997**

(84) Etats contractants désignés:
**AT BE CH DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE**
Etats d'extension désignés:
**AL LT LV MK RO SI**

(30) Priorité: **26.11.1996 FR 9614474**

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## (54) Dispositif électronique à écran comportant un menu susceptible d'être personnalisé par un utilisateur

(57) L'invention concerne un dispositif électronique à écran doté d'une mémoire (34) pour stocker un menu composé d'éléments susceptibles d'être paramétrés par un utilisateur, d'un dispositif d'affichage (11) pour afficher ledit menu à l'écran et d'un dispositif de personnalisation (31, 32) pour personnaliser l'affichage dudit menu. Il comporte un dispositif de verrouillage/déverrouillage (38) pour mettre en position verrouillé/déverrouillé des paramètres du menu, et un dispositif d'affichage/masquage (11, 30, 35) coopérant avec le dispositif de verrouillage/déverrouillage (38) pour afficher (resp. masquer) sélectivement les éléments de menu dont les paramètres sont mis en position "déverrouillé" (resp. "verrouillé").

Applications : téléphones portables et tous dispositifs à écrans dotés d'un menu.

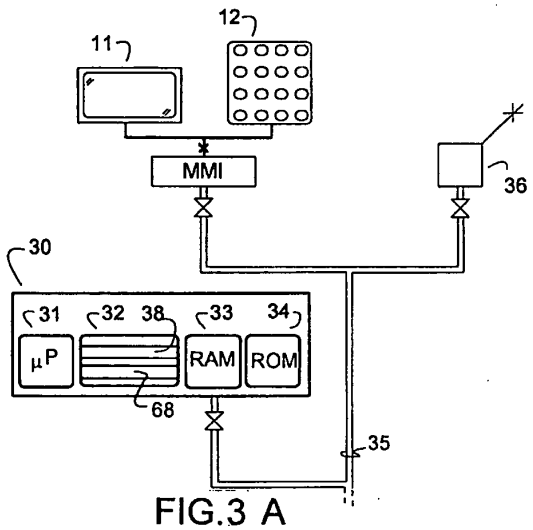



FIG.3 A

EP 0 844 553 A1

## Description

L'invention concerne un appareil électronique à écran, comportant :

- une mémoire pour stocker un menu composé d'éléments de menu susceptibles d'être paramétrés par un utilisateur,
- un dispositif d'affichage pour afficher ledit menu à l'écran,
- un dispositif de personnalisation pour personnaliser l'affichage dudit menu.

Les appareils électroniques à écran actuels, notamment les téléphones fixes ou portables, offrent un choix de fonctions plus en plus grand à l'utilisateur. Par exemple, de nombreux radiotéléphones proposent des fonctions de messagerie vocale, transfert d'appel, réglage de nombreux paramètres tels que le niveau sonore, le type de sonnerie, l'activation d'un signal lumineux pour indiquer la décharge de la batterie, etc.

Cependant, la plupart des utilisateurs de ces appareils n'utilisent fréquemment qu'un très petit nombre seulement de leurs fonctions. D'une part, parce qu'il n'ont pas besoin de toutes les fonctions proposées ou que l'effort à fournir pour étudier la documentation de l'appareil leur semble relativement important par rapport au bénéfice qu'ils en attendent, d'autre part, parce que le prix d'abonnement à certaines de ces fonctions est jugé excessif. Ainsi, de nombreux utilisateurs s'abonnent au minimum de fonctions nécessaires à leur utilisation personnelle bien qu'elles apparaissent toutes au menu de leur appareil. Par conséquent, ces menus standards se sont révélés inadaptés à une utilisation quotidienne et efficace pour la plupart des utilisateurs.

Des recherches ont donc été faites dans le but de faciliter l'utilisation des menus de ces appareils destinés à un large public.

Un système de menu définissable par l'utilisateur est connu du brevet français publié sous le numéro 2731578. Il permet à l'utilisateur de créer son propre menu en sélectionnant dans un menu standard, les éléments dont il a le plus souvent besoin, pour les recopier dans un menu personnel. L'utilisateur pressé pourra donc accéder presque directement à la fonction qu'il recherche au moyen de son menu personnel.

Un tel système de menu, bien qu'il propose à l'utilisateur un menu de taille réduite donc plus vite exploitable présente néanmoins des inconvénients.

La création du menu personnel prévoyant de réserver dans la mémoire de l'appareil la place nécessaire au stockage dudit menu, constitue un premier inconvénient. En effet ces éléments, recopiés du menu standard, sont redondants et augmentent la quantité de mémoire nécessaire à l'implantation du menu. Or, la capacité de stockage des appareils de ce type étant limitée, la taille du menu personnel se trouve de ce fait également limitée. Enfin, et cela constitue un deuxième inconvénient, la programmation de ce menu personnel n'est pas aisée pour un public non expérimenté qui recherche avant tout une utilisation simple de son appareil. De plus, en cas de prêt de l'appareil, son propriétaire peut retrouver son menu personnel modifié, et devoir le reprogrammer.

Un objet de la présente invention est de remédier dans une large mesure à ces inconvénients et de prévoir un appareil électronique à écran, comportant un système de menu susceptible d'être configuré selon les besoins de l'utilisateur, économique en terme de place mémoire et dont la manipulation est simple et rapide.

Pour cela, un appareil du genre mentionné dans le préambule est caractérisé en ce que ledit dispositif de personnalisation comporte :

- un dispositif de verrouillage/déverrouillage pour mettre en position verrouillé/déverrouillé des paramètres des éléments de menu,
- un dispositif d'affichage/masquage coopérant avec le dispositif de verrouillage/déverrouillage pour afficher (resp. masquer) sélectivement les éléments de menu dont les paramètres sont mis en position "déverrouillé" (resp. "verrouillé").

Selon une caractéristique importante de l'invention, un appareil du type mentionné ci-dessus, comportant de plus, un clavier muni d'un ensemble de touches, est remarquable en ce qu'il est prévu un premier mode d'utilisation dudit appareil, appelé mode manuel, dans lequel le dispositif de verrouillage/déverrouillage est commandé à partir d'au moins une touche dudit clavier.

Dans ce mode manuel, l'utilisateur configure lui-même le menu standard selon ses propres besoins à l'aide du clavier de son appareil.

Selon une autre caractéristique importante de l'invention, un appareil du type déjà mentionné est remarquable en ce qu'il est prévu un deuxième mode d'utilisation dudit appareil, appelé mode automatique, dans lequel un dispositif de comptage statistique du taux d'utilisation des éléments de menu coopère avec le dispositif de verrouillage/déverrouillage pour mettre automatiquement les paramètres desdits éléments de menu les plus (resp. moins) fréquemment utilisés en position "déverrouillé" (resp. "verrouillé").

Dans ce mode automatique, ledit menu est automatiquement configuré en fonction de la fréquence d'utilisation de chaque élément de menu. Ce dispositif de comptage peut avantageusement comporter des moyens de calcul utilisant une logique floue comme le décrit la demande de brevet français déposée le 6 mars 1996 par la demanderesse sous le numéro 9602813. Ainsi, un appareil du type déjà mentionné est caractérisé en ce que le dispositif de comptage statistique comporte :

- des moyens de modélisation du comportement de l'utilisateur lorsqu'il parcourt le menu,

- des moyens d'adaptation [redacted] menu pour tenir compte dudit comportement.

Selon l'invention, l'affectation d'un paramètre d'un élément du menu standard ainsi que la décision d'afficher ledit élément à l'écran sont effectués, en mode manuel, en une seule opération. En mode automatique, les éléments déjà paramétrés les moins souvent utilisés sont automatiquement supprimés à l'affichage du menu standard. Dans les deux modes, l'utilisateur dispose d'un menu raccourci, dans lequel il est plus facile de trouver la fonction qu'il utilise fréquemment.

Ce système de menu permet également d'optimiser l'utilisation de la mémoire puisqu'on ne fait pas de recopies. Les éléments à afficher sont sélectionnés en fonction : des choix de l'utilisateur en mode manuel, de la fréquence d'utilisation de ces éléments en mode automatique. De plus, l'invention permet, de façon très avantageuse, de restreindre le nombre d'éléments du menu afin d'interdire l'accès de certaines fonctions à un utilisateur occasionnel ou bien l'empêcher de modifier les paramètres verrouillés.

La description suivante, faite en regard des dessins ci-annexés, le tout donné à titre d'exemple non limitatif fera bien comprendre comment l'invention peut être réalisée.

La figure 1 représente un exemple d'appareil électronique à écran selon l'invention.

La figure 2 représente une vue de face de l'appareil représenté à la figure 1.

La figure 3 représente :

- en A, un schéma synoptique illustrant un circuit de l'appareil représenté à la figure 1,
- en B, une table de données illustrant à un instant donné le contenu de la mémoire 32 faisant partie du circuit représenté en A.

Les figures 4 et 5 représentent un organigramme illustrant le fonctionnement du système de menu personnalisé, dans deux configurations différentes.

La figure 6 représente en A et B deux tables de données illustrant le contenu de la mémoire 32 à deux instants différents.

L'appareil électronique représenté à la figure 1 est un radiotéléphone, mais le système de menu personnalisé peut être appliqué à tout autre appareil électronique doté d'un processeur, d'une mémoire, d'un système d'affichage et d'un clavier.

Le radiotéléphone représenté à la figure 1 comporte un boîtier 10 renfermant des circuits électroniques dont celui représenté à la figure 2, un écran 11, un clavier 12, un haut-parleur 13, un microphone 14, un dispositif d'émission/réception (non représenté) coopérant avec une antenne 15 pour échanger des signaux radioélectriques avec un site de base 16. Le clavier 12 comporte deux sortes de touches : des touches permanentes qui ont la même fonction quelque soit le contexte de menu dans lequel [redacted] trouve et des touches contextuelles dont la fonction dépend de l'élément de menu affiché. Cette fonction est affichée à l'écran au dessus de la touche à actionner.

Dans un mode de réalisation préféré de l'invention représenté à la figure 2, le clavier 12 comporte deux touches contextuelles 20 et 21 dont l'une, 20 a trois fonctions et l'autre, 21 deux. La touche 20 permet selon le contexte d'accéder au menu par la fonction MENU, de sortir d'un programme par la fonction SORTIE et d'invalider un choix par la fonction NON. La touche 21 permet de sélectionner un élément de menu par la fonction OK et de valider un choix par la fonction OUI. Les autres touches sont permanentes. Outre des touches alphanumériques 22, une touche de correction 23 et une touche de recomposition automatique du dernier numéro appelé 24, le clavier comporte une touche de direction 25 (une flèche vers le haut et une flèche vers le bas) qui permet de faire défiler les éléments de menu à l'écran 11. Les touches contextuelles OK, OUI et NON permettent également d'actionner un dispositif de verrouillage/déverrouillage représenté à la figure 3 pour mettre en position "verrouillé" ou "déverrouillé" le paramètre de l'élément de menu préalablement sélectionné à l'aide de la touche OK.

La figure 3 montre le fonctionnement des dispositifs de verrouillage/déverrouillage et d'affichage/masquage. Du point de vue matériel, ces dispositifs utilisent les mêmes composants électroniques, ce qui explique qu'ils soient représentés en A par un seul schéma. Celui-ci montre comment coopèrent l'organe de commande 30 et l'interface homme/machine MMI (Man Machine Interface) composée de l'écran 11 et du clavier 12, pour mettre en oeuvre lesdits dispositifs de personnalisation du menu.

L'organe de commande 30 est composé d'un processeur 31, d'une mémoire morte programmable électriquement effaçable 32, de type EEPROM (Electricaly Erasable Programmable Read Only Memory), d'une mémoire vive à accès aléatoire 33 de type RAM (Random Access Memory) et d'une mémoire morte 34 de type ROM (Read Only Memory). Le programme principal de fonctionnement de l'appareil ainsi que les différents éléments de menu sont stockés en mémoire morte 34. La mémoire vive 33 est utilisée en parallèle avec la mémoire morte 34, pour positionner les variables utiles.

Les données paramétriques des éléments de menu sont stockés en EEPROM 32 pour être modifiées par l'utilisateur. Un réseau de bus 35 contient un bus d'interruptions pour transmettre les signaux du clavier 12 vers le processeur 31 et un bus série du type IIC (Inter Integrated Circuit) destiné aux signaux transitant entre le processeur 31, l'EEPROM 32 et l'écran 11. Le bus IIC dirige sélectivement les données venant du processeur 31 vers leur destinataire, EEPROM 32 ou écran 11, selon qu'elles doivent être mises en mémoire ou affichées. Par l'intermédiaire du réseau de bus de données

35, l'organe de commande 30 it les signaux d'entrée du clavier 12 pour lire les données des différentes mémoires 32, 33 et 34, les afficher sur l'écran 11 et éventuellement écrire des données en EEPROM 32.

Un dispositif d'émission/réception 36 coopère avec les dispositifs précédemment décrits pour relier l'utilisateur au réseau de radiotéléphonie.

Les données de l'EEPROM 32, correspondant aux paramètres des éléments de menu que l'utilisateur peut modifier sont stockées dans une table 38 représentée en B à la figure 3. Ces paramètres sont référencés dans la colonne de gauche à l'aide d'un numéro. Un drapeau pouvant prendre quatre valeurs est associé à chaque paramètre numéroté et est mis à jour dans la colonne de droite par le processeur 31 en fonction des informations qu'il reçoit du clavier 11. Chaque drapeau émet un signal destiné au processeur 31 pour déclencher le dispositif d'affichage/masquage. Les quatre valeurs de drapeaux disponibles correspondent aux quatre états dans lesquels l'utilisateur peut placer les paramètres des éléments de son menu. En B sur la figure 3 :

- "Y" représente l'état "valide/verrouillé",
- "N" représente l'état "invalide/verrouillé",
- "y" représente l'état "valide/déverrouillé",
- "n" représente l'état "invalide/déverrouillé".

Les drapeaux "y" et "n" émettent un signal pour afficher à l'écran 11, les paramètres auxquels ils sont affectés. Sur l'exemple représenté, seuls les paramètres des deuxième et quatrième lignes de la table 38 seront affichés à l'écran 11.

Le fonctionnement en mode manuel du dispositif de personnalisation pour paramétrer des éléments du menu va maintenant être décrit depuis l'entrée des données au clavier 12 jusqu'à leur affichage à l'écran 11 en référence aux figures 2 et 3. La description s'appuiera sur des exemples générant des écritures dans la table 38 de la mémoire 32.

Selon un mode de réalisation préféré de l'invention, une pression de certaines touches du clavier 11, (les touches 20 et 21 représentées à la figure 2) déclenche une temporisation, synchronisée sur l'horloge interne du processeur 31, qui permet audit processeur 31 d'évaluer le temps de pression de ladite touche 20 ou 21 et d'émettre le signal adéquat pour exécuter la routine correspondant à la commande du clavier 11.

Par exemple, une longue (resp. courte) pression de la touche contextuelle OUI (touche 21) du clavier 12 indique au processeur 31 qu'il doit affecter le drapeau "Y" (resp. "y") dans la table 38, au paramètre correspondant à celui affiché à l'écran 11, pour le mettre en position "verrouillé" (resp. "déverrouillé"). De même, une longue (resp. courte) pression de la touche NON (touche 20) lui indique qu'il doit affecter le drapeau "N" (resp. "n") dans la table 38, au paramètre correspondant à celui affiché à l'écran 11, pour le mettre en position "verrouillé" (resp. "déverrouillé").

Comme indiqué ci-dessus, l'organe 30 commande également le dispositif d'affichage/masquage coopérant avec le dispositif de verrouillage/déverrouillage par le bus de données IIC, pour masquer (resp. afficher) à l'écran 11, les éléments de menu dont les paramètres sont verrouillés (resp. déverrouillés), c'est-à-dire affectés des drapeaux "Y" ou "N" (resp. "y" ou "n").

Les organigrammes des figures 4 et 5 illustrent sur un exemple de menu, le fonctionnement, en mode manuel, du dispositif de personnalisation.

L'exemple représenté à la figure 4 comporte des sous menus dont la liste des éléments est représentée par des pavés identifiés par des icônes symbolisant leur fonction. Les pavés 40, 50, 60, 70 et 80 désignent des sous menus comportant chacun plusieurs éléments à paramétrer. Le pavé 40 désigne le menu pour paramétrer les options de configuration de l'interface MMI. Le pavé 50 désigne le menu de choix du réseau de l'opérateur de radiotéléphonie. Le pavé 60 désigne le menu de contrôle d'appels permettant de visualiser des données statistiques, par exemple la durée moyenne d'un appel, etc. Le pavé 70 désigne le menu de sécurité permettant de limiter l'accès de son téléphone aux tiers, par exemple en exigeant un code secret pour passer des appels.

Les flèches $\wedge$ et $\vee$ de part et d'autre des traits fin continus indiquent que le processeur 31 affiche de façon séquentielle les éléments du menu lorsque l'utilisateur actionne la touche de direction 25 représentée à la figure 2. Les flèches en gras indiquent que l'élément de menu représenté par le pavé pointé, est sélectionné par la touche contextuelle OK du clavier 12. Les flèches en trait interrompu indiquent que le processeur 31 peut à tout moment revenir à l'élément d'entête de sous menu par la touche contextuelle SORTIE.

Selon l'élément 401 à 404 du menu 40, sélectionné par la touche OK du clavier, l'utilisateur peut choisir le type de sonnerie de son appareil (401) ou son volume (402), illuminer les touches du clavier (403) ou les rendre sonores lorsqu'on les presse (404). Sur l'exemple de la figure 4, l'élément 404 a été sélectionné. Pour simplifier, on considère que cet élément n'a qu'un paramètre. Le processeur 31 affiche alors un écran de menu représenté par le pavé de décision 500 pour proposer à l' utilisateur quatre possibilités "y", "n", "Y" et "N" pour paramétrer l'élément 404, correspondant aux quatre valeurs de drapeaux disponibles dans la table 38. Le processeur 31 affecte le drapeau "y" (resp. "n") lorsque la touche contextuelle OUI (resp. NON) est actionnée par une pression courte (flèche à une pointe), et le drapeau "Y" (resp. "N") lorsque la touche contextuelle OUI (resp. NON) est actionnée par une pression longue (flèche à double pointe).

S'il modifie souvent le paramètre de l'élément 404, l'utilisateur peut trouver commode de ne pas le verrouiller pour que ledit élément reste toujours visible au menu de son appareil. Dans ce cas il effectue une pression courte de la touche contextuelle OUI (resp. NON) pour commander au processeur 31 d'affecter le dra-

peau "y" (resp. "n") au paramètre de l'élément 404 dans la table 38 pour rendre sonore (resp. silencieux) le clavier de son téléphone en position "déverrouillé". Le drapeau "y" (resp. "n") génère alors un signal pour commander au processeur 31 d'actionner le dispositif d'affichage/masquage pour que le paramètre de l'élément 404 soit affiché au menu.

En revanche, si l'utilisateur modifie rarement ce paramètre ou souhaite empêcher un tiers de le modifier il peut le verrouiller pour qu'il ne figure pas au menu de l'appareil. Il effectue alors une pression longue de la touche contextuelle OUI (resp. NON) pour commander au processeur 31 d'affecter audit paramètre le drapeau "Y" (resp. "N") qui génère alors un signal commandant au processeur 31 d' actionner le dispositif d'affichage/masquage pour que ledit paramètre ne soit pas affiché au menu.

La figure 5 détaille les opérations du processeur 31 pour faire réapparaître au menu l'élément 404 et éventuellement le déverrouiller. Pour cela, le sous menu 40, dans lequel se trouve l'élément verrouillé 404 doit être préalablement sélectionné à l'aide du clavier, puis une longue pression de la touche OK, représentée par une flèche à double pointe en trait gras, suivie de courtes pressions des touches de défilement commande au processeur 31 d'afficher de façon séquentielle tous les éléments du menu standard parmi lesquels figure l'élément recherché. Le processus permettant ensuite d'activer/désactiver en position verrouillé/déverrouillé ledit élément est identique à celui décrit en référence à la figure 4. En revanche, une courte pression de la touche OK, lorsqu'un sous menu est sélectionné, permet d'afficher uniquement les éléments non verrouillés.

Un mode de réalisation du dispositif de personnalisation du menu en mode automatique va maintenant être décrit.

La figure 6 illustre le fonctionnement du dispositif de comptage statistique du taux d'utilisation des différents éléments de menu coopérant avec le dispositif de verrouillage/déverrouillage (illustré par la table 38 à la figure 3) pour mettre automatiquement les paramètres desdits éléments de menu les plus (resp. moins) fréquemment utilisés en position "déverrouillé" (resp. "verrouillé"). Les données de l'EEPROM 32 correspondant auxdits paramètres sont stockées dans une table 68 et référencées dans la colonne de gauche comme dans la table 38 représentée en B à la figure 3.

Un compteur est associé à chaque paramètre de la table 68, également référencé dans la table 38 sous le même numéro. Il est positionné en standard à une valeur initiale maximum lors de la première mise sous tension de l'appareil et est initialisé périodiquement par le processeur 31. Entre deux initialisations successives, la valeur du compteur diminue d'une unité sous l'action du processeur 31, chaque fois que celui-ci reçoit du clavier 12, une commande pour modifier dans la table 38 la valeur du drapeau symbolisant l'état du paramètre associé audit compteur.

La mise hors tension de l'appareil coupant l'alimentation du processeur arrête donc tous les mécanismes synchronisés sur son horloge. En particulier, les compteurs sont gelés jusqu'à la prochaine mise sous tension de l'appareil. Si la valeur du compteur ne s'annule pas entre deux initialisations, le processeur 31 place son paramètre en position "verrouillé", c'est-à-dire qu'il affecte dans la table 38, le drapeau "Y" à la place du drapeau "y" ou le drapeau "N" à la place du drapeau "n". En revanche, si la valeur du compteur devient nulle, le processeur 31 place le paramètre associé en position "déverrouillé" en affectant dans la table 38, le drapeau "y" à la place du drapeau "Y" et le drapeau "n" à la place du drapeau "N". Si le bon drapeau est déjà positionné, le processeur 31 ne fait rien. On peut envisager que la valeur maximum du compteur ainsi que sa période d'initialisation puissent être déterminées par l'utilisateur à l'aide de son clavier.

Comme en mode manuel, le dispositif d'affichage/masquage est également mis en oeuvre en mode automatique par le processeur 31 pour masquer à l'écran les paramètres verrouillés.

Le contenu des tables 38 et 68 est illustré à deux instants t1 et t2, respectivement en A et B, sur un exemple de cinq paramètres d'éléments de menu. L'horloge du processeur 31 constituant la référence temporelle, les instants t1 et t2 sont espacés d'un seul top d'horloge. Une initialisation des compteurs se produit à l'instant t2.

A l'instant t1, précédant juste ladite initialisation, les compteurs des trois premiers paramètres des tables 38 et 68 sont à une valeur non nulle tandis que ceux des deux derniers sont à zéro. Les trois premiers paramètres ont donc été moins souvent modifiés par l'utilisateur que les deux derniers.

A l'instant t2, tous les compteurs de la table 68 sont initialisés à la valeur maximum, prise égale à 100 dans l'exemple illustré à la figure. Le processeur 31 place donc le paramètre de la deuxième ligne de la table 38 dont le compteur indique de rares modifications, en position "verrouillé" ("Y" remplace "y"), et celui de la cinquième ligne dont le compteur indique des modifications fréquentes, en position "déverrouillé" ("y" remplace "Y"). En revanche, Il laisse les autres paramètres dans l'état qu'ils avaient à l'instant t1 qui correspond à leur fréquence réelle d'utilisation.

Ainsi, on a décrit un appareil électronique à écran comportant un menu destiné à être facilement personnalisé pour s'adapter à l'usage quotidien ou occasionnel de tous types d'utilisateurs.

Bien entendu, l'invention n'est pas limitée aux modes de réalisations qui viennent d'être décrits et représentés. D'autres variantes de réalisation de l'invention apparaîtront à l'homme ou la femme de l'art par exemple en ce qui concerne le fonctionnement du clavier, de l'affichage ou du dispositif de verrouillage/déverrouillage. En particulier, le dispositif de comptage statistique du taux d'utilisation des éléments

de menu pour mettre en oeuvre le mode automatique peut être modifié pour prendre en compte d'autres données notamment concernant le comportement de l'utilisateur lorsqu'il parcourt le menu. Toutes ces variantes ne sortant pas du cadre de l'invention.

**Revendications**

1. Appareil électronique à écran, comportant :

   - une mémoire pour stocker un menu composé d'éléments de menu susceptibles d'être paramétrés par un utilisateur,
   - un dispositif d'affichage pour afficher ledit menu à l'écran,
   - un dispositif de personnalisation pour personnaliser l'affichage dudit menu, caractérisé en ce que ledit dispositif de personnalisation comporte :
   - un dispositif de verrouillage/déverrouillage pour mettre en position verrouillé/déverrouillé des paramètres des éléments de menu,
   - un dispositif d'affichage/masquage coopérant avec le dispositif de verrouillage/déverrouillage pour afficher (resp. masquer) sélectivement les éléments de menu dont les paramètres sont mis en position "déverrouillé" (resp. "verrouillé").

2. Appareil selon la revendication 1 comportant, de plus, un clavier muni d'un ensemble de touches, caractérisé en ce qu'il est prévu un premier mode d'utilisation dudit appareil, appelé mode manuel, dans lequel le dispositif de verrouillage/déverrouillage est commandé à partir d'au moins une touche dudit clavier.

3. Appareil selon l'une des revendications 1 ou 2, caractérisé en ce qu'il est prévu un deuxième mode d'utilisation dudit appareil, appelé mode automatique, dans lequel un dispositif de comptage statistique du taux d'utilisation des éléments de menu coopère avec le dispositif de verrouillage/déverrouillage pour mettre automatiquement les paramètres desdits éléments de menu les plus (resp. moins) fréquemment utilisés en position "déverrouillé" (resp. "vérrouillé").

4. Appareil selon la revendication 3, caractérisé en ce que le dispositif de comptage statistique comporte :

   - des moyens de modélisation du comportement de l'utilisateur lorsqu'il parcourt le menu,
   - des moyens d'adaptation dudit menu pour tenir compte dudit comportement.

5. Appareil électronique à écran selon l'une des revendications 1 à 4, caractérisé en ce que ledit appareil est un radiotéléphone.

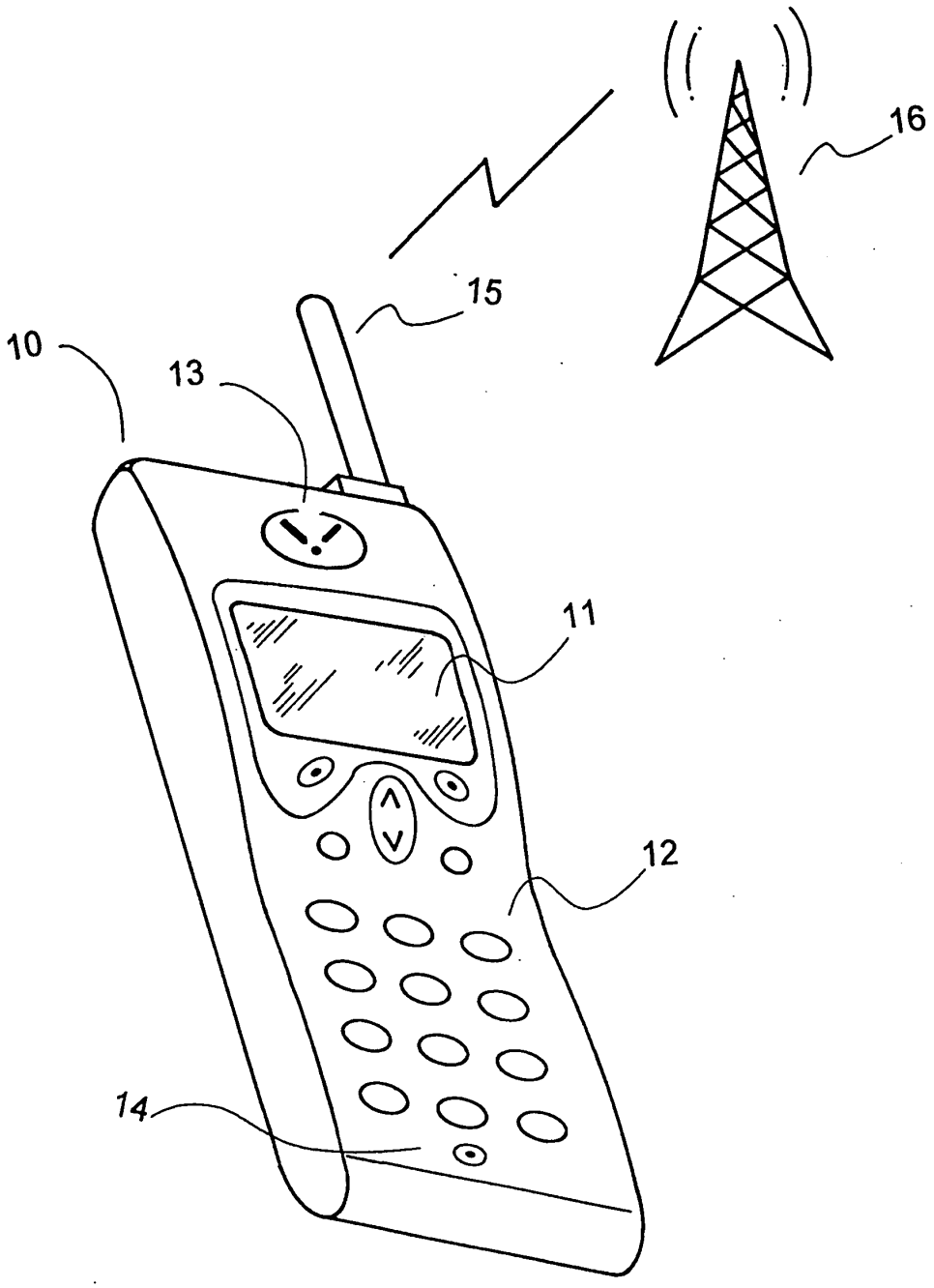
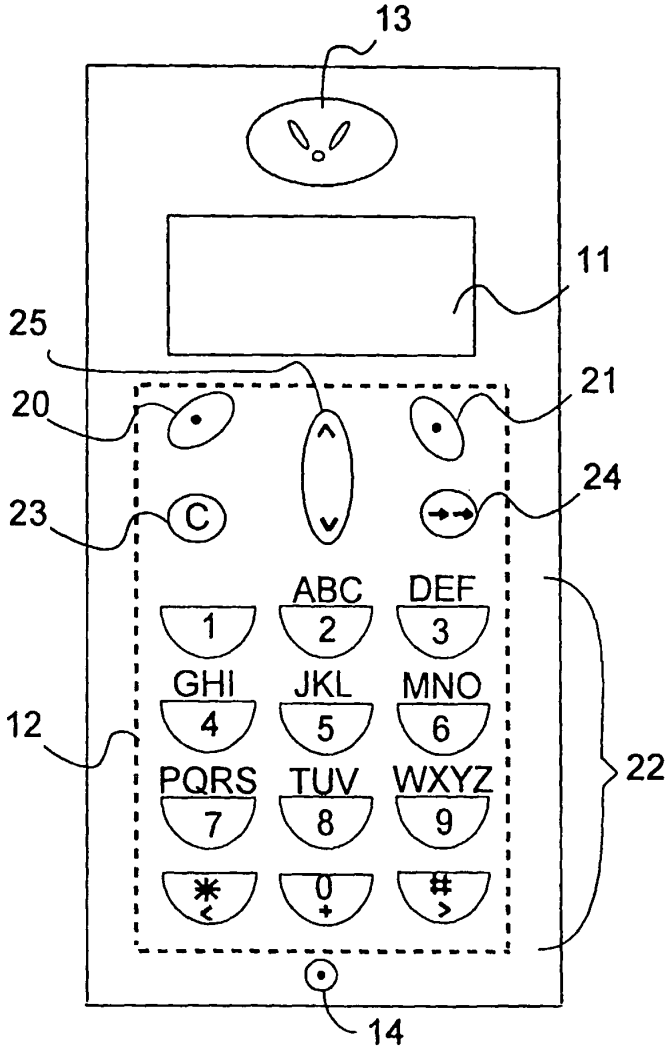



FIG.1


13
11
25
20
21
24
23
C
ABC
DEF
1
2
3
GHI
JKL
MNO
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6
12
PQRS
TUV
WXYZ
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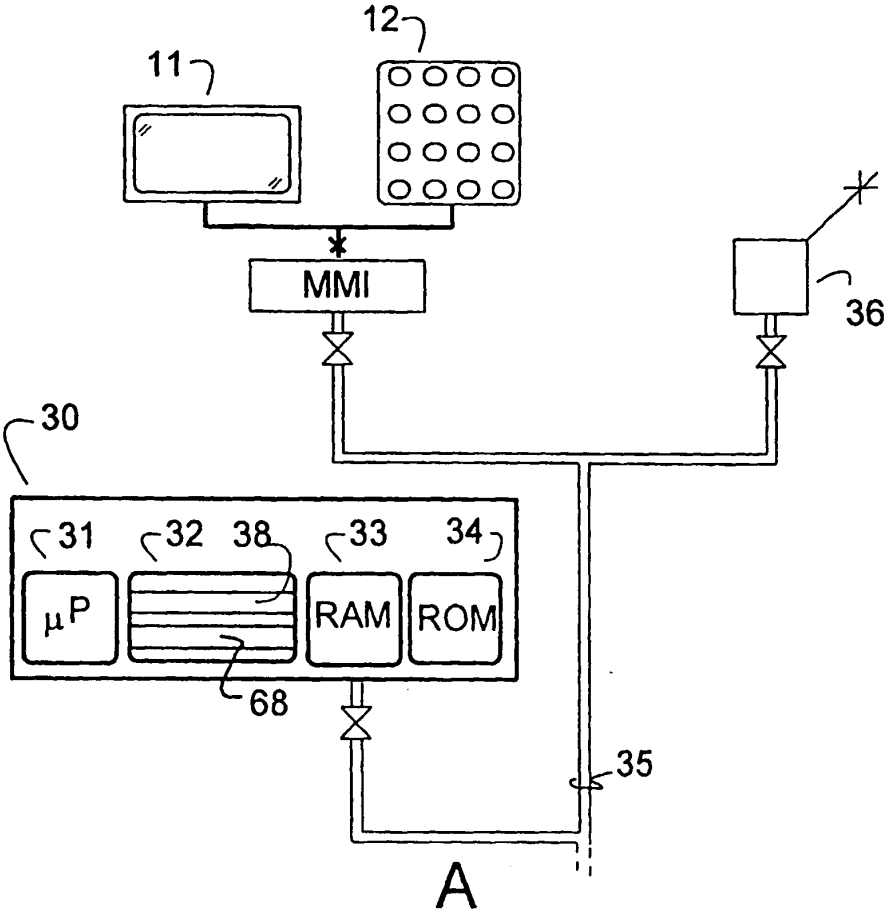
22
14

FIG.2




38

| | |
|---|---|
| 1 | "Y" |
| 2 | "y" |
| 3 | "N" |
| 4 | "n" |
| 5 | "Y" |

B

FIG.3

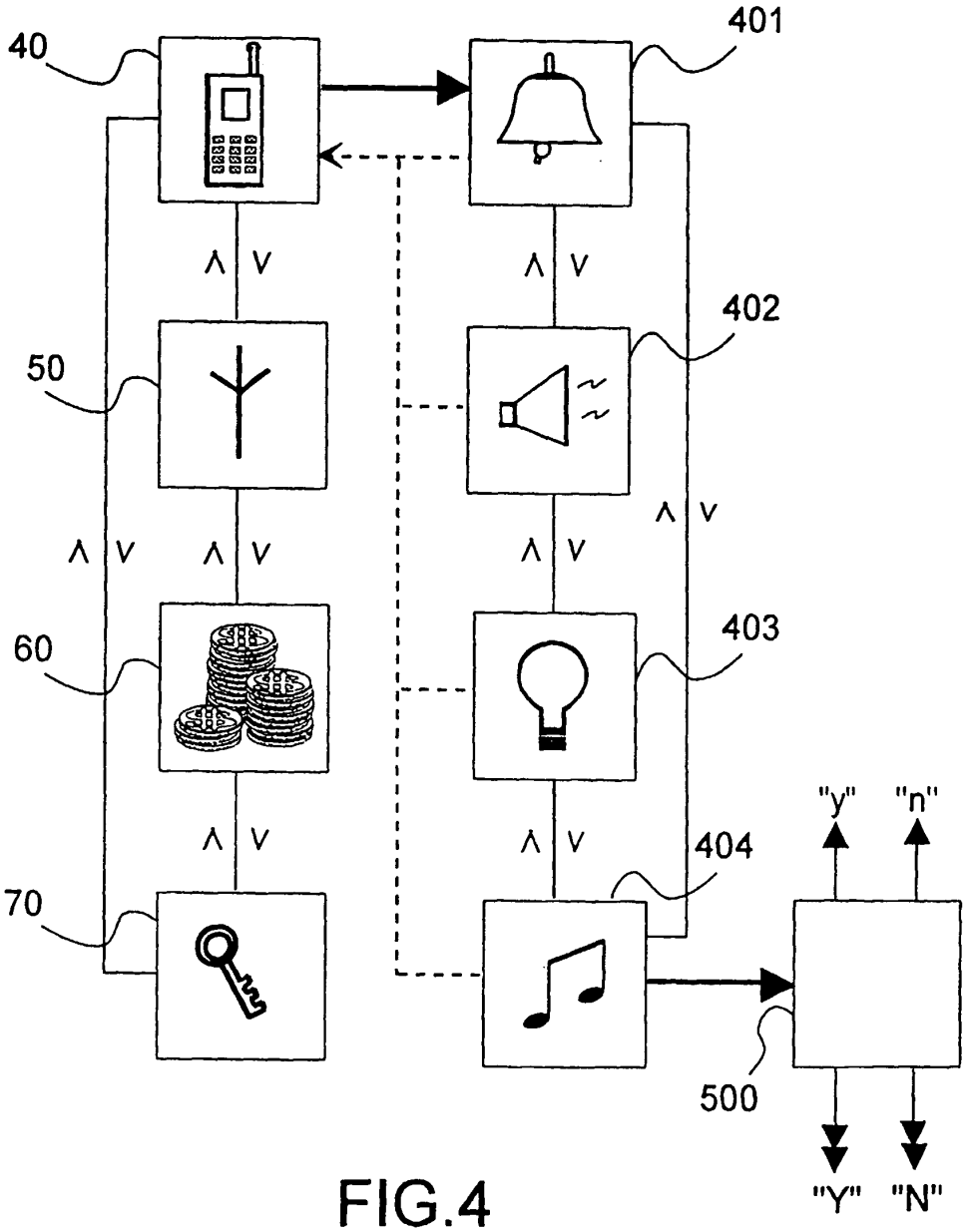



FIG.4

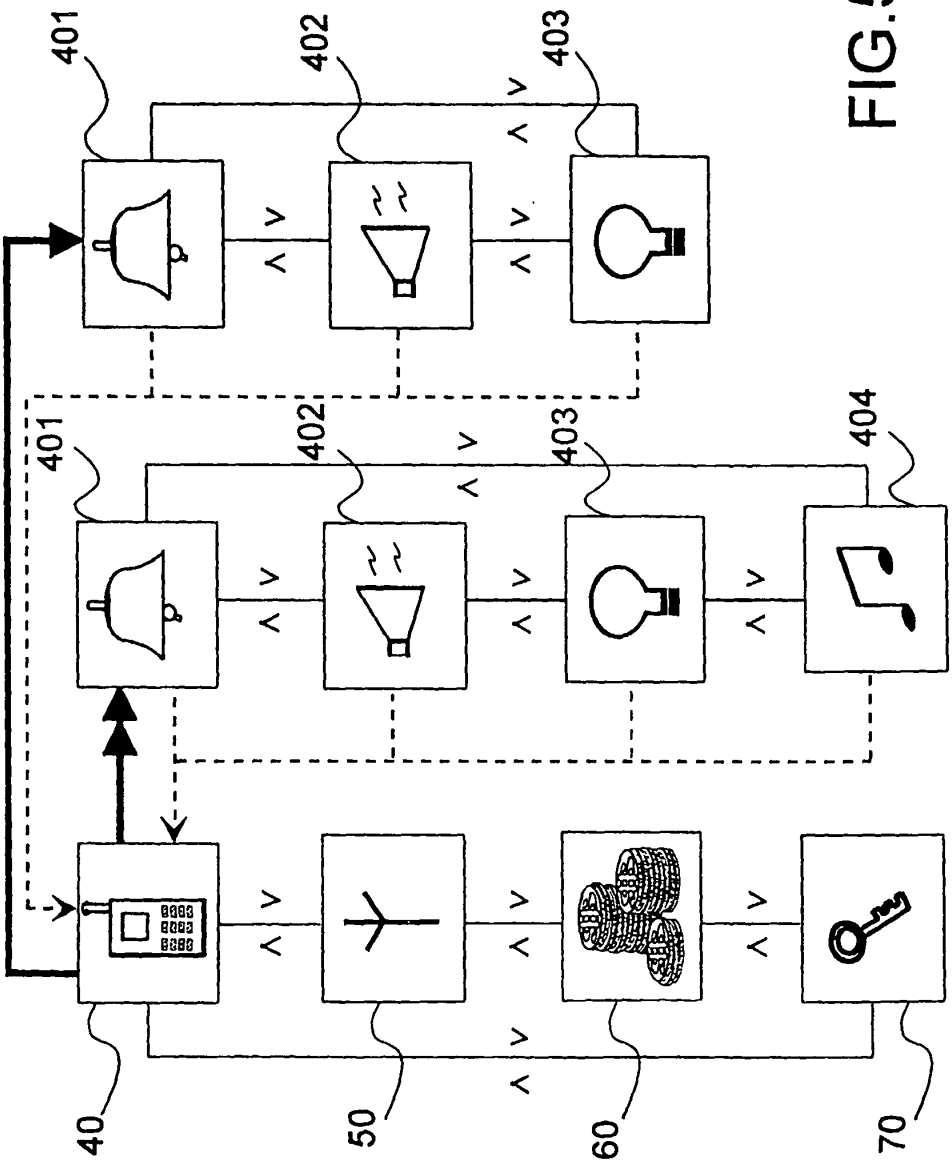



FIG.5

38

| | |
|---|---|
| 1 | "Y" |
| 2 | "y" |
| 3 | "N" |
| 4 | "n" |
| 5 | "Y" |

68

| | |
|---|---|
| 1 | 100 |
| 2 | 50 |
| 3 | 20 |
| 4 | 0 |
| 5 | 0 |

A

38

| | |
|---|---|
| 1 | "Y" |
| 2 | "Y" |
| 3 | "N" |
| 4 | "n" |
| 5 | "y" |

68

| | |
|---|---|
| 1 | 100 |
| 2 | 100 |
| 3 | 100 |
| 4 | 100 |
| 5 | 100 |

B

FIG.6

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# RAPPORT DE RECHERCHE EUROPEENNE

Numéro de la demande
EP 97 20 3650

## DOCUMENTS CONSIDERES COMME PERTINENTS

| Catégorie | Citation du document avec indication, en cas de besoin, des parties pertinentes | Revendication concernée | CLASSEMENT DE LA DEMANDE (Int.Cl.6) |
|---|---|---|---|
| X | EP 0 607 731 A (IBM) 27 juillet 1994<br>* colonne 2, ligne 6 - ligne 14 *<br>* colonne 7, ligne 13 - ligne 47; figures 4B,4E *<br>--- | 1-3 | G06F3/023 |
| X | EP 0 322 332 A (IBM) 28 juin 1989<br>* abrégé; revendications *<br>--- | 1,2 | |
| X | GB 2 162 393 A (PLESSEY THE COMPANY PLC) 29 janvier 1986<br>* abrégé; figure *<br>--- | 1 | |
| A,D | FR 2 731 578 A (MOTOROLA INC) 13 septembre 1996<br>* abrégé; revendications *<br>--- | 1,2,5 | |
| A | "REORGANIZATION MENU HIERARCHY TO BEST FIT THE INDIVIDUAL USER"<br>IBM TECHNICAL DISCLOSURE BULLETIN,<br>vol. 37, no. 2B, 1 février 1994,<br>page 349/350 XP000433874<br>* le document en entier *<br>--- | 1-4 | DOMAINES TECHNIQUES RECHERCHES (Int.Cl.6)<br>G06F |
| A | EP 0 579 501 A (INSTITUTE FOR PERSONALIZED INFORMATION ENVIRONMENT) 19 janvier 1994<br>* colonne 6, ligne 2 - ligne 54 *<br>* colonne 8, ligne 8 - ligne 35; revendication 1 *<br>--- | 1,3,4 | |
| A | "MENU METHOD"<br>IBM TECHNICAL DISCLOSURE BULLETIN,<br>vol. 32, no. 1, 1 juin 1989,<br>page 452/453 XP000121571<br>* le document en entier *<br>--- | 3 | |
| | -/-- | | |

Le présent rapport a été établi pour toutes les revendications

| Lieu de la recherche | Date d'achèvement de la recherche | Examinateur |
|---|---|---|
| BERLIN | 9 janvier 1998 | Durand, J |

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| | | | DOMAINES TECHNIQUES RECHERCHES (Int.Cl.6) |

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EPO FORM 1503 03.82 (P04C02)

(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) Publication number : **0 607 731 A2**

# (12) EUROPEAN PATENT APPLICATION

(21) Application number : **93480212.5**

(51) Int. Cl.[5] : **G06F 3/023**

(22) Date of filing : **03.12.93**

(30) Priority : **28.12.92 US 997418**

(43) Date of publication of application :
**27.07.94 Bulletin 94/30**

(84) Designated Contracting States :
**DE FR GB**

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## (54) Method and system for automatic alteration of display of menu options.

(57) A method and system for the automatic alteration of a display of multiple user selectable menu options. A counter is associated with each user selectable menu option. The counter associated with a user selectable menu option is then incremented in response to each selection by a user of the user selectable menu option. The display of the user selectable menu option is automatically altered in response to a state of the associated counter.

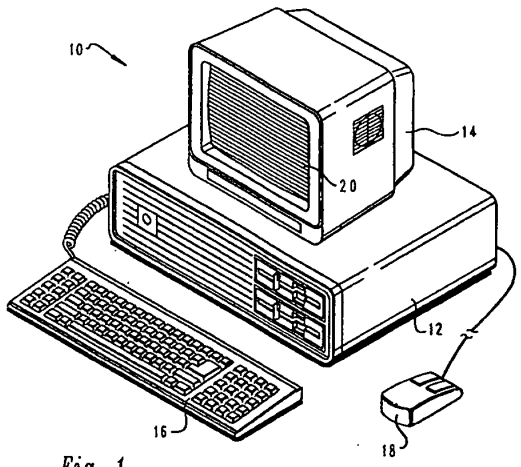


*Fig. 1*

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## BACKGROUND OF THE INVENTION

### 1. Technical Fi ld:

The present invention relates in general to a method and system for the automatic alteration of a display of user selectable menu options within a data processing system and in particular to a method and system for the association of a counter with each user selectable menu option within a data processing system. Still more particularly, the present invention relates to a method and system within a data processing system for the incrementing of a counter associated with each user selectable menu option in response to each selection of the menu option by a user.

### 2. Description of the Related Art:

In known computer systems graphic menus are provided which include menu options that a user may select in order to perform various tasks such as creating or opening files, deleting files, or changing the format of a document. A user typically selects a menu by utilizing a mouse or other input device. Once a menu is selected menu options included within that menu are displayed. Often there are more menu options to be displayed than space within a computer display screen to display them. In these situations a portion of the menu options is displayed. The user is permitted to scroll through the options causing different portions of the menu options to be displayed until the user finds the desired menu option.

Some known systems permit a user to delete menu options which are not frequently used from future displays of the menu while others permit a user to predetermine which menu options will be displayed. In some of these systems a usage history is maintained and displayed to the user. A user may also change the display order of menus so that menus which contain more advanced menu options do not appear to the user who is utilizing the basic menu options.

It should therefore be apparent that a need exists for a method and system for automatically altering a display of user selectable menu options without a direct action by a user.

## SUMMARY OF THE INVENTION

It is therefore one object of the present invention to provide an improved method and system for the automatic alteration of a display of user selectable menu options within a data processing system.

It is another object of the present invention to provide an improved method and system for the association of a counter with each user selectable menu option within a data processing system.

It is yet another object of the present invention to provide an improved method and system for the incrementing of a counter associated with a user selectable menu option in response to a user selection of the menu option within a data processing system.

The foregoing objects are achieved as is now described. A method and system are provided for the automatic alteration of a display of multiple user selectable menu options. A counter is associated with each user selectable menu option. The counter associated with a user selectable menu option is then incremented in response to each selection by a user of the user selectable menu option. The display of the user selectable menu option is automatically altered in response to a state of the associated counter.

The above as well as additional objects, features, and advantages of the present invention will become apparent in the following detailed written description.

## BRIEF DESCRIPTION OF THE DRAWINGS

The novel features believed characteristic of the invention are set forth in the appended claims. The invention itself however, as well as a preferred mode of use, further objects and advantages thereof, will best be understood by reference to the following detailed description of an illustrative embodiment when read in conjunction with the accompanying drawings, wherein:

Figure 1 depicts a pictorial representation of a data processing system which may be utilized to implement the method and system of the present invention;

Figures 2 and 3 illustrate a display screen and two displayed menus which include user selectable menu options in accordance with the present invention;

Figures 4A - 4E together form a high level flow chart which illustrates an automatic alteration of a display of user selectable menu options in accordance with the present invention.

## DETAILED DESCRIPTION OF PREFERRED EMBODIMENT

With reference now to the figures and in particular with reference to Figure 1, there is depicted a pictorial representation of a data processing system 10 which may be utilized in accordance with the method and system of the present invention. Data processing system 10 preferably includes a processor 12, preferably provided by utilizing an International Business Machines Personal System/2 or similar system. Data processing system 10 generally includes a video display device 14 including a display screen 20, keyboard 16, and a graphical data entry device such as a mouse 18. Video display device 14, keyboard 16, and mouse 18 may be utilized to allow user input to processor 12 and to provide user discernable mes-

sages. In a preferred embodiment of the present invention, processor 12 is suitably programmed to provide the automatic alteration of a display of menu options, and to implement the processes set forth in the logic flow chart included herein.

Referring to Figure 2, there is depicted display screen 20 and two displayed menus 22 and 24 which include user selectable menu options 26 - 44 in accordance with the present invention. A computer application may include multiple menus from which a user may choose in order to complete tasks. For example, a menu 22 of file utilities or menu options such as open 26, delete 28, print 30 or rename 32 may be provided. In addition, a menu 24 of format menu options may be provided such as line numbers 34, justification 36, tabs 38, fonts 40, line spacing 42, and page numbers 44.

For each menu, a counter is provided which counts the number of times a user selects the particular menu. Each time menu 22 is selected, its associated counter is incremented. Each time menu 24 is selected, its associated counter is incremented. A counter is also provided for each menu option within a menu. Each time open file 26 is selected, its associated counter is incremented. Each user has an associated set of counters. Each user has a counter for each menu and each menu option. Therefore, each user will have associated counters for menus 22 and 24 and for menu options 26 - 44.

A threshold is established for each menu for each user. If the menu option counter divided by the menu counter is less than the established threshold for the particular menu, the display of the menu option associated with the menu option counter is automatically altered. The same threshold may be established for all menus, or different thresholds may be established for each user. The display may be altered by deleted the menu option from the menu, dimming the intensity of the display of the menu option, changing the displayed color of the menu option, or any other manner of alteration. All menu options may be altered in the same manner such as by deleting them from the display, or menu options may be altered in a different manner such as by deleting those in one menu while dimming those in a different menu. In this manner, each user selection of a menu option is utilized in order to continuously and automatically update and alter the display without the need for the user to reconfigure the display. To those skilled in the art, it is apparent that when little used menu options are to be deleted, there could be another threshold such as a minimum menu counter threshold. For example, a minimum menu counter threshold could be set to 50 indicating that the menu must be utilized 50 times before options within that menu are deleted. Another approach is to define non-zero initial values for the menu option counter.

With reference now to Figure 3, there is depicted display 20 and two displayed menus 22 and 24 which include an automatically altered display of user selectable menu options in accordance with the present invention. A user has utilized menu options within menu 22. Menu options 26, 28, and 30 have been utilized enough times so that the solution of the counters associated with those menu options divided by the counter associated with menu 22 is greater than the established threshold. Therefore, each of these menu options is displayed in an unaltered manner. However, the rename menu option 32 has not been selected enough times and the display is altered by dimming the intensity of the display.

A user has also utilized menu options within menu 24. Menu options 36, 38, 40, and 44 have been utilized enough times so that the solution of the counters associated with those menu options divided by the counter associated with menu 24 is greater than the established threshold. Therefore, each of these menu options is displayed in an unaltered manner. However, the line numbers menu option 34 and the line spacing menu option 42 have not been selected enough times and the display is altered by deleting these menu options from menu 24.

Some menus include menu options as well as submenus. These submenus may also include menu options as well as submenus. Some menus may have common submenus. In these situations there are multiple paths a user may take in order to arrive at the same submenu. It should be appreciated by those skilled in the art that in these situations each common submenu may have its own counter.

Referring now to Figures 4A - 4E, there is depicted a high level flow chart which illustrates an automatic alteration of a display of user selectable menu options in accordance with the present invention. The process starts as depicted at block 60 and thereafter passes to block 62 which illustrates the establishment of a counter for each menu for each user. For example, the menu counter could be initialized to the number of menu options the menu includes. Next the process passes to block 64 which illustrates the establishment of a counter for each menu option for each user. For example, each menu option counter could be initialized to "1". The process then passes to block 66 which illustrates a determination of whether or not the same threshold for each menu for each user should be utilized. If a determination is made that the same threshold for each menu for each user should be utilized, the process passes to block 68 which illustrates the establishment of the same threshold for each menu for each user. The process thereafter passes to block 70. Referring again to block 66, if a determination is made that the same threshold for each menu for each user should not be utilized, the process passes to block 72 which depicts the establishment of a threshold for each menu for each user. The process then again passes to block 70 which il-

lustrates a user selecting a menu. The process then passes to block 73 which depicts the incrementing of a menu counter for the user. The process next passes to block 76 as illustrated through block 74. Block 76 depicts the displaying of the selected menu.

Thereafter, block 78 illustrates a determination of whether or not a menu option counter divided by the menu counter is greater than the menu threshold for the user. If a determination is made that the menu option counter divided by the menu counter is greater than the menu threshold for the user, the process passes to block 80 which illustrates a determination of whether or not the hide flag is on. If a determination is made that the hide flag is not on, the process passes to block 82 which illustrates the displaying of the menu option. Thereafter, the process passes to block 84. Referring again to block 80, if a determination is made that the hide flag is on, the process passes to block 86 which illustrates the hiding of the menu option. Thereafter, the process again passes to block 84.

Referring again to block 78, if a determination is made that the menu option counter divided by the menu counter is not greater than the menu threshold for the user, the process passes to block 88 which illustrates a determination of whether or not the show flag is on. If a determination is made that the show flag is not on, the process again passes to block 86 which illustrates the hiding of the menu option. Referring again to block 88, if a determination is made that the show flag is on, the process passes to block 90 which depicts the displaying of the menu option. Thereafter, the process again passes to block 84 which illustrates a determination of whether or not this is the last menu option. If a determination is made that this is not the last menu option, the process passes to block 92 which depicts the getting of the next menu option. The process then again passes to block 78. Referring again to block 84, if a determination is made that this is the last menu option, the process passes to block 96 as depicted through block 94.

Block 96 illustrates a determination of whether or not the user has selected a menu option. If a determination is made that a user has selected a menu option, the process passes to block 98 which depicts the incrementing of the user's menu option counter for the selected menu option. Thereafter, the process passes to block 100 which illustrates going to the selected menu option. Next the process passes to block 102 which illustrates a determination of whether or not a user immediately exits the menu option utilizing the escape key or exit key. If a determination is made that a user does not immediately exit the menu option utilizing the escape key or exit key, the process passes to block 70 as depicted through block 104. Referring again to block 102, if a determination is made that a user does immediately exit the menu option utilizing the escape key, the process passes to block 106 which illustrates the d crementing of the user's menu option counter by two. It should be apparent that the user's menu option counter may be decremented by any value selected to more quickly remove that menu option from the display. The process then passes to block 70, again as depicted through block 104.

Referring again to block 96, if a determination is made that a user has not selected a menu option, the process passes to block 108 which illustrates a determination of whether or not a user has highlighted a menu option. If a determination is made that a user has not highlighted a menu option, the process passes to block 112 as illustrated through block 110. Block 112 depicts a determination of whether or not a user has clicked the right or middle button of a mouse. If a determination is made that a user has not clicked the right or middle button of a mouse, the process again passes to block 96 as illustrated through block 94. Referring again to block 112, if a determination is made that a user has clicked the right or middle button of a mouse, the process passes to block 114 which illustrates the popping up of a menu control window. Thereafter, the process passes to block 116 which depicts the getting of a user input. Next the process passes to block 118 which illustrates a determination of whether or not a user has selected the option of "showing all menu options." If a determination is made that the selected option is not the "show all menu options," the process passes to block 120 which depicts a determination of whether or not the selected option is the "resume normal menu options." If a determination is made that the selected option is not a "resume normal menu options," the process passes back to block 116.

Referring again to block 120, if a determination is made that the selected option is the "resume normal menu options," the process passes to block 122 which illustrates the restoring of the saved menu thresholds. Thereafter, the process passes to block 124 which depicts the toggling of the "resume normal menu options" to the "show all menu options." Next the process passes to block 126 which depicts the removal of the menu option window. The process thereafter passes to block 70 as illustrated through block 104.

Referring again to block 118, if a determination is made that the selected option is the "show all menu options," the process passes to block 128 which illustrates the saving of the current menu threshold. Thereafter, the process passes to block 130 which depicts the setting of the menu threshold to "display all." In order to display all, the menu threshold could be set to a negative value or a predetermined value indicative of the "display all" mode. Next the process passes to block 132 which illustrates the toggling of the "show all menu options" to the "resume normal menu options." Thereafter, the process passes to

block 134 which illustrates the removal of the menu control window. The process then passes to block 70 as illustrated through block 104.

Referring again to block 108, if a determination is made that a user has high-lighted a menu option, the process passes to block 137 as illustrated through block 136. Block 137 illustrates a determination of whether or not a user has clicked the right or middle mouse button on a highlighted menu option. If a determination is made that a user has not clicked a right or middle mouse button on a highlighted menu option, the process passes to block 96 as illustrated through block 94. Referring again to block 137, if a determination is made that a user has clicked a right or middle mouse button on a highlighted menu option, the process passes to block 138 which illustrates the popping up of a menu option show/hide window. Next the process passes to block 140 which illustrates the getting of a user input. The process then passes to block 142 which illustrates a determination of whether or not a selected option is the "always show menu option." If a determination is made that a selected option is the "always show menu option," the process passes to block 144 which illustrates the setting of the menu option show flag on. Thereafter, the process passes to block 146 which depicts the setting of the menu option hide flag off. Next, the process passes to block 148 which illustrates the removal of the menu option show/hide window. The process then again passes to block 70 as depicted through block 104.

Referring again to block 142, if a determination is made that the selected option is not the "always show menu option," the process passes to block 150 which depicts the determination of whether or not the selected option is the "always hide menu option." If a determination is made that the selected option is not the "always hide menu option," the process passes again to block 140. Referring again to block 150, if a determination is made that the selected option is the "always hide menu option," the process passes to block 152 which illustrates the setting of the menu option hide flag on. Thereafter, the process passes to block 154 which depicts the setting of the menu option show flag off. The process then passes to block 156 which illustrates the removal of the menu option show/hide window. Thereafter, the process again passes to block 70 as illustrated through block 104.

The "show all" function could be implemented utilizing other methods. For example, an additional push button may be provided with menus where choices have been deleted. The push button could display "show all" if choices have been deleted and then toggled to "hide unused" after the push button has been pressed.

While the invention has been particularly shown and described with reference to a preferred embodiment, it will be understood by those skilled in the art that various changes in form and detail may be made therein without departing from the spirit and scope of the invention.

## Claims

1. A method in a data processing system having a plurality of displayed menus, each of said plurality of displayed menus including a plurality of user selectable menu options for automatically altering a display of said plurality of user selectable menu options, said method comprising the data processing implemented steps of:

   associating a counter with each of said plurality of user selectable menu options;

   incrementing said counter in response to each selection by a user of one of said plurality of user selectable menu options; and

   automatically altering a display of each of said plurality of user selectable menu options in response to a state of said associated counter.

2. The method of claim 1 wherein said step of automatically altering a display comprises the step of automatically deleting from a display each of said plurality of user selectable menu options in response to a state of said associated counter.

3. The method of claim 1 wherein said step of automatically altering a display comprises the step of automatically altering a display color of each of said plurality of user selectable menu options in response to a state of said associated counter.

4. The method of claim 1 wherein said step of automatically altering a display comprises the step of automatically dimming the display intensity of each of said plurality of user selectable menu options in response to a state of said associated counter.

5. The method of claim 1 further comprising the step of restoring said altered display of each of said plurality of user selectable menu options to an original display of each of said plurality of user selectable menu options in response to a user selection.

6. The method of claim 1 further comprising the step of decrementing said counter in response to each deselection by a user of said one of said plurality of user selectable menu options immediately following said selection of said one of said plurality of user selectable menu options.

7. The method of claim 1 further comprising the steps of:

associating a second counter with each displayed menu; and

incrementing said second counter in response to each selection by a user of said each displayed menu.

8. The method of claim 7 wherein said step of automatically altering a display of each of said plurality of user selectable menu options in response to a state of said associated counter further comprises the step of automatically altering a display of each of said plurality of user selectable menu options in response to said counter divided by said second counter being greater than a threshold.

9. The method of claim 1 further comprising the step of setting said counter to a predetermined value.

10. A data processing system having a plurality of displayed menus, each of said plurality of displayed menus including a plurality of user selectable menu options for automatically altering a display of said plurality of user selectable menu options, comprising means to carry out the method of any one of claims 1 to 9.

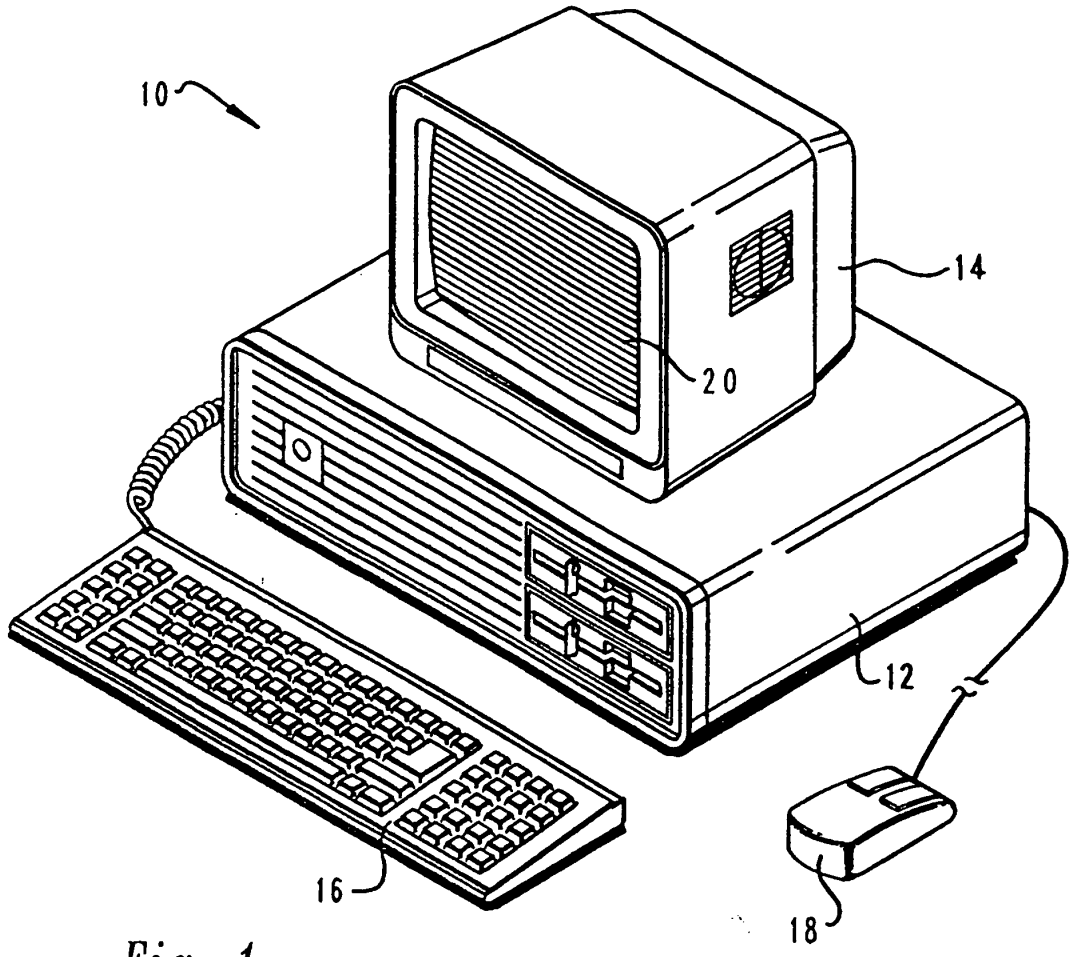


*Fig. 1*

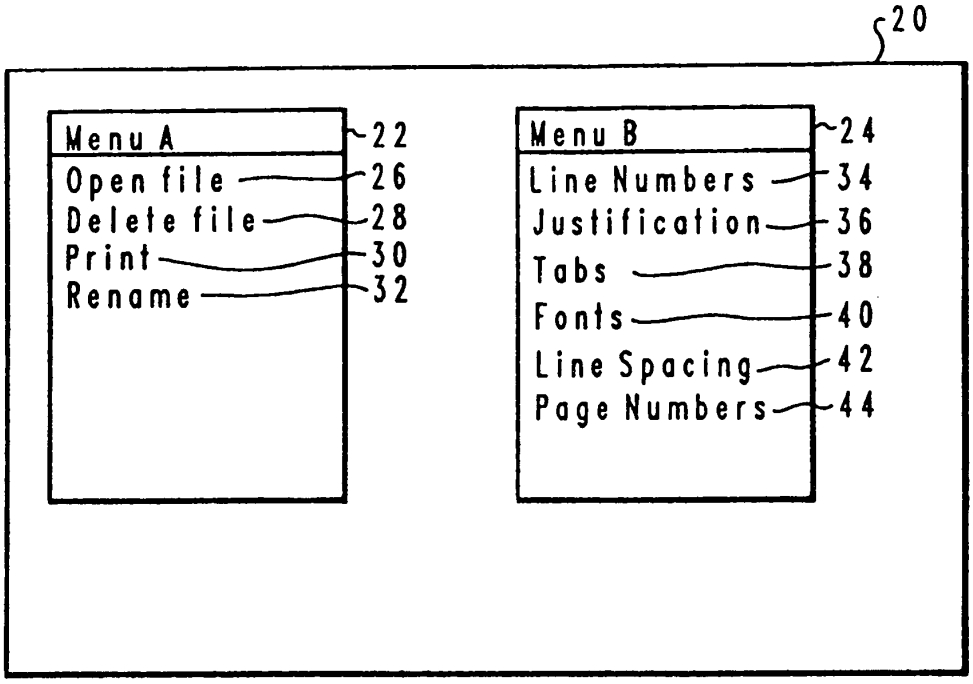
20
Menu A
22
Open file
26
Delete file
28
Print
30
Rename
32
Menu B
24
Line Numbers
34
Justification
36
Tabs
38
Fonts
40
Line Spacing
42
Page Numbers
44

*Fig. 2*

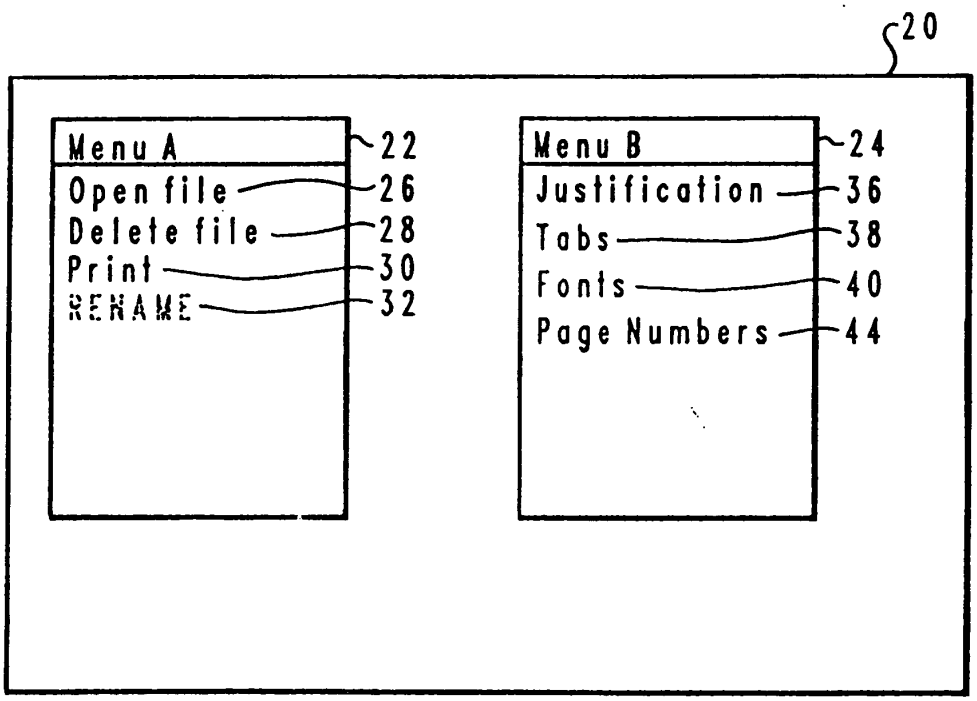
20
Menu A
22
Open file
26
Delete file
28
Print
30
RENAME
32
Menu B
24
Justification
36
Tabs
38
Fonts
40
Page Numbers
44

*Fig. 3*

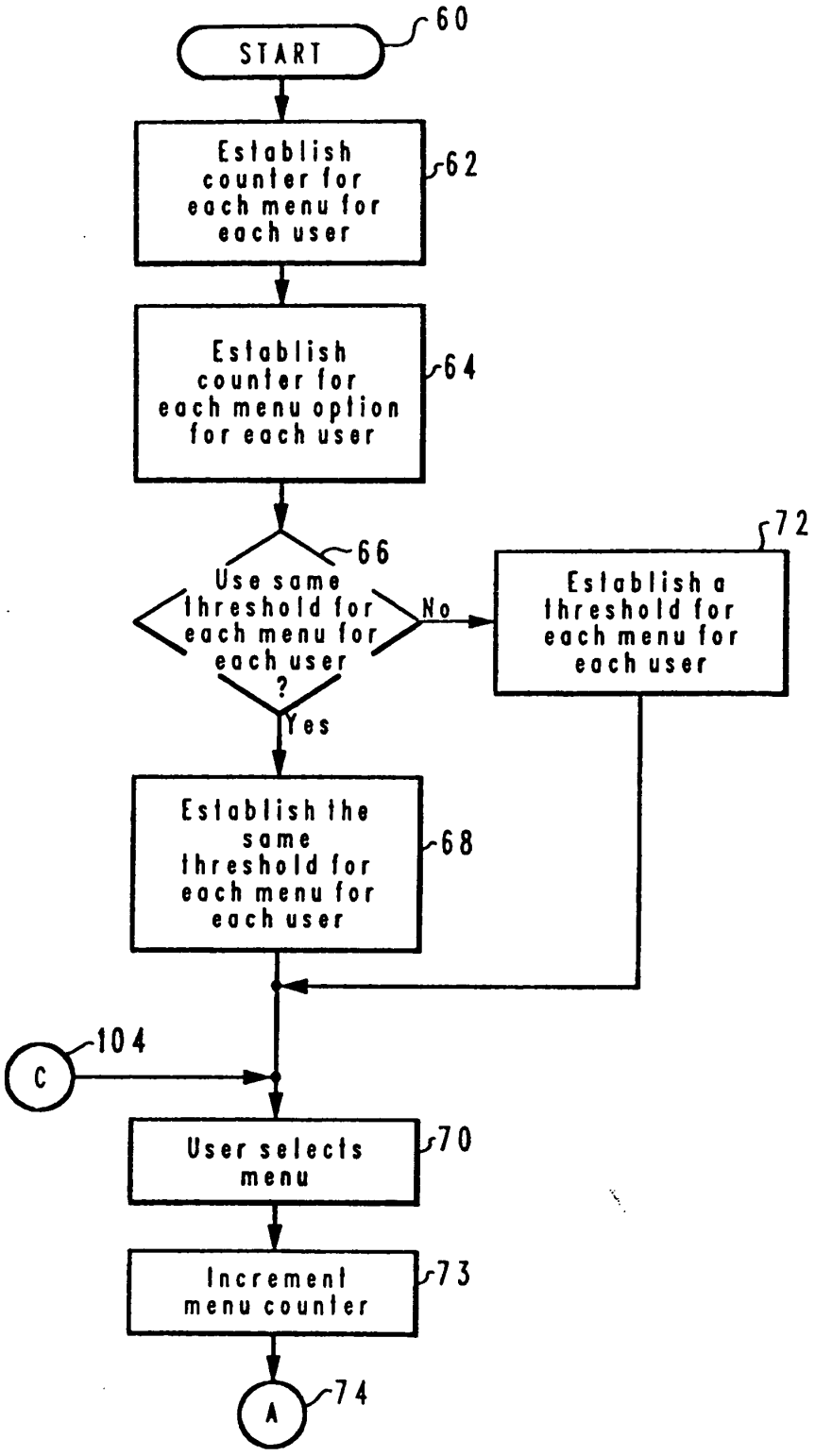
START
60
Establish counter for each menu for each user
62
Establish counter for each menu option for each user
64
Use same threshold for each menu for each user ?
66
No
Yes
Establish a threshold for each menu for each user
72
Establish the same threshold for each menu for each user
68
C
104
User selects menu
70
Increment menu counter
73
A
74

*Fig. 4A*

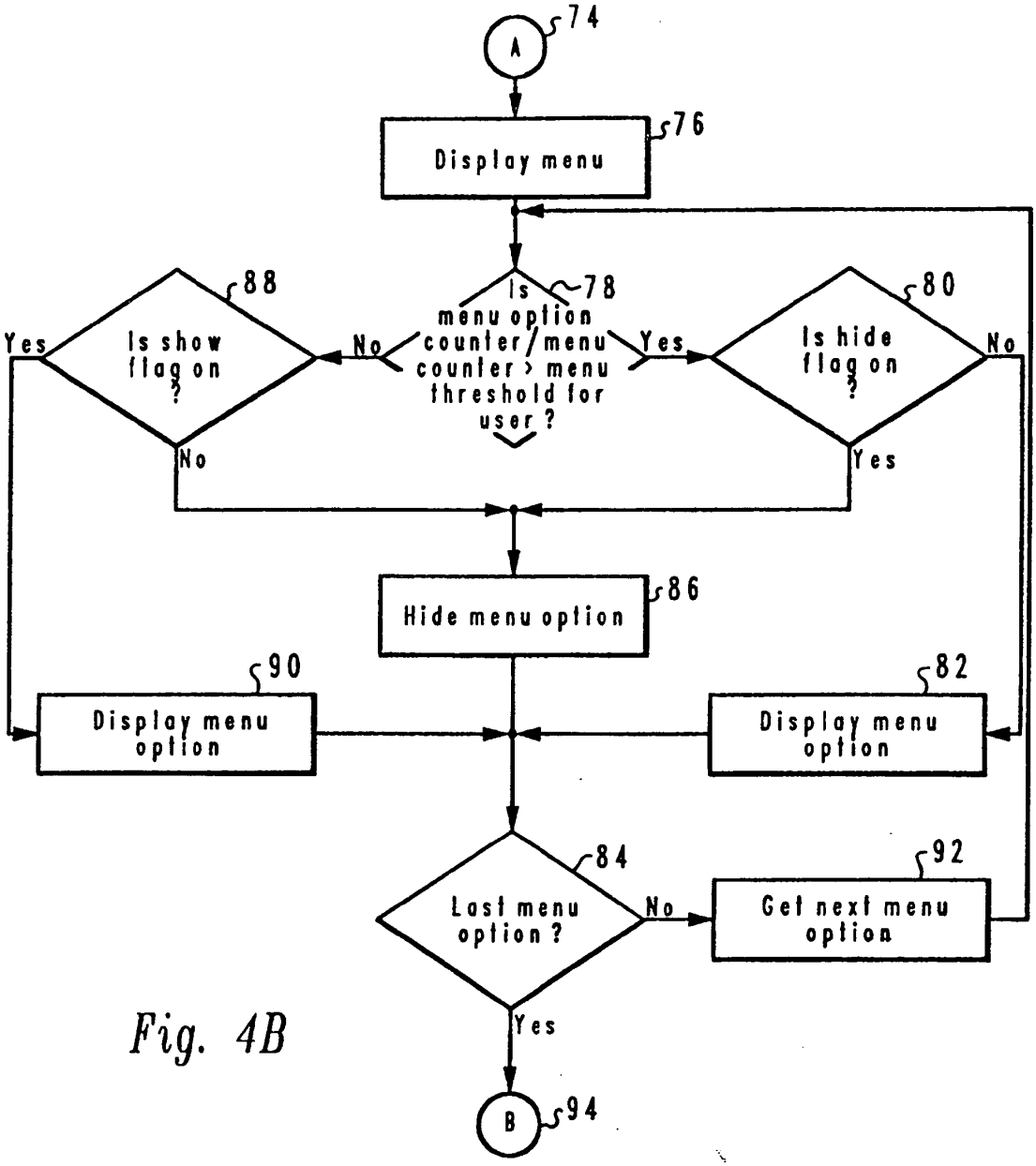
A
74
Display menu
76
Is menu option counter / menu counter > menu threshold for user ?
78
Yes
No
Is show flag on ?
88
No
Yes
Is hide flag on ?
80
No
Yes
Hide menu option
86
Display menu option
90
Display menu option
82
Last menu option ?
84
No
Get next menu option
92
Yes
B
94

*Fig. 4B*

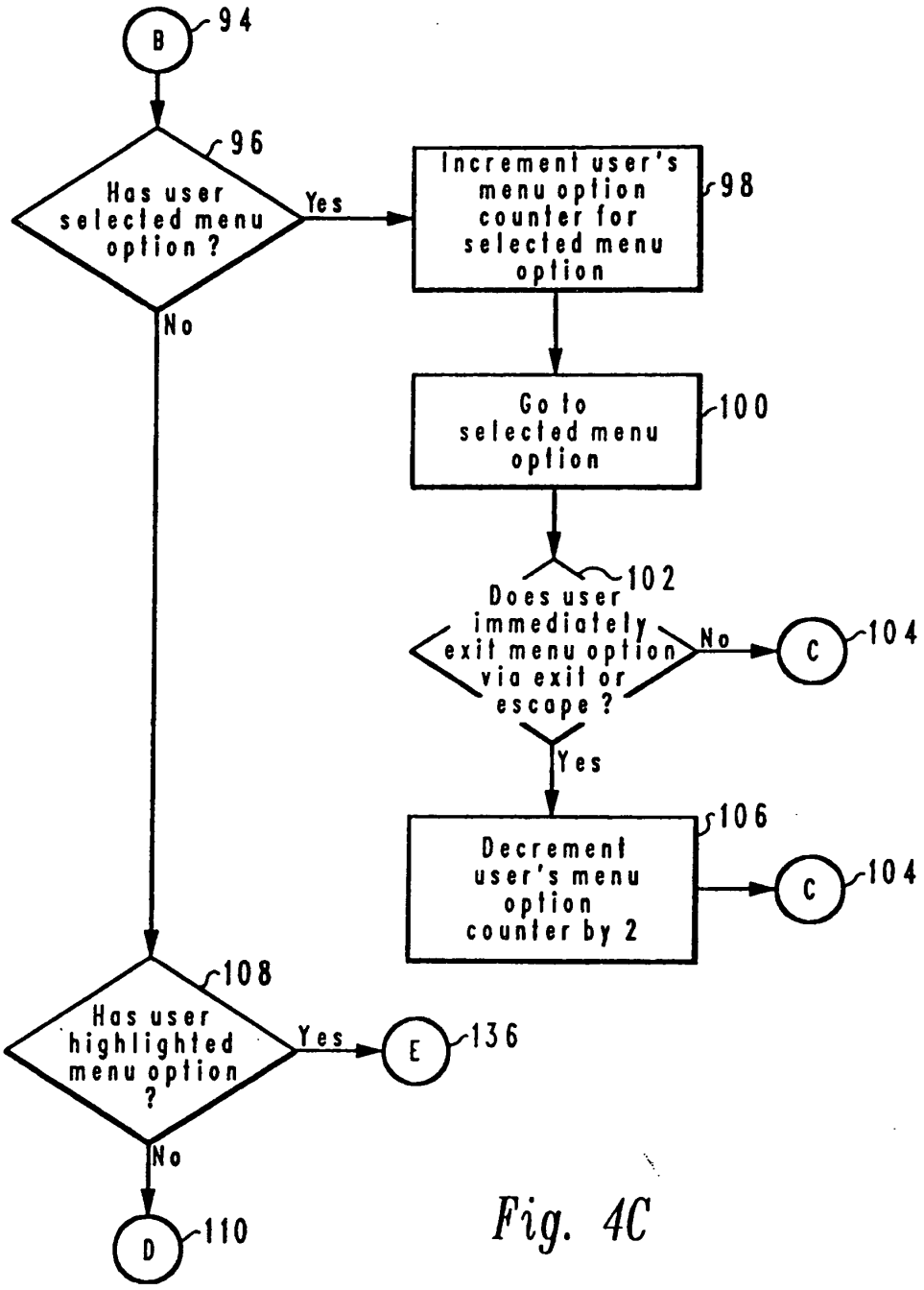
B
94
96
Has user selected menu option ?
Yes
No
Increment user's menu option counter for selected menu option
98
Go to selected menu option
100
102
Does user immediately exit menu option via exit or escape ?
No
C
104
Yes
106
Decrement user's menu option counter by 2
C
104
108
Has user highlighted menu option ?
Yes
E
136
No
D
110

*Fig. 4C*

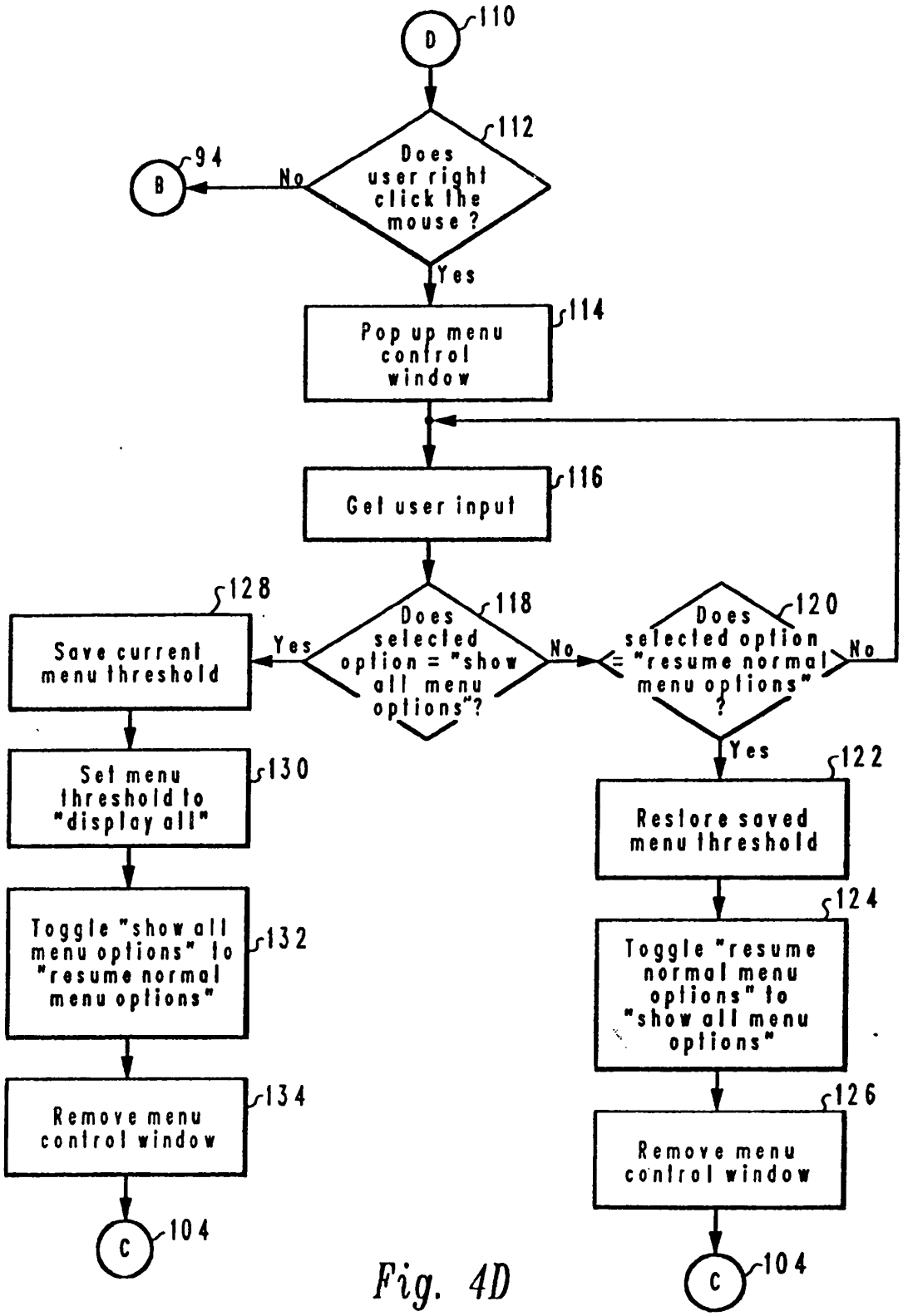
D
110
Does user right click the mouse ?
112
No
B
94
Yes
Pop up menu control window
114
Get user input
116
Does selected option = "show all menu options"?
118
Yes
Save current menu threshold
128
No
Does selected option "resume normal menu options" ?
120
No
Yes
Set menu threshold to "display all"
130
Restore saved menu threshold
122
Toggle "show all menu options" to "resume normal menu options"
132
Toggle "resume normal menu options" to "show all menu options"
124
Remove menu control window
134
Remove menu control window
126
C
104
C
104

*Fig. 4D*

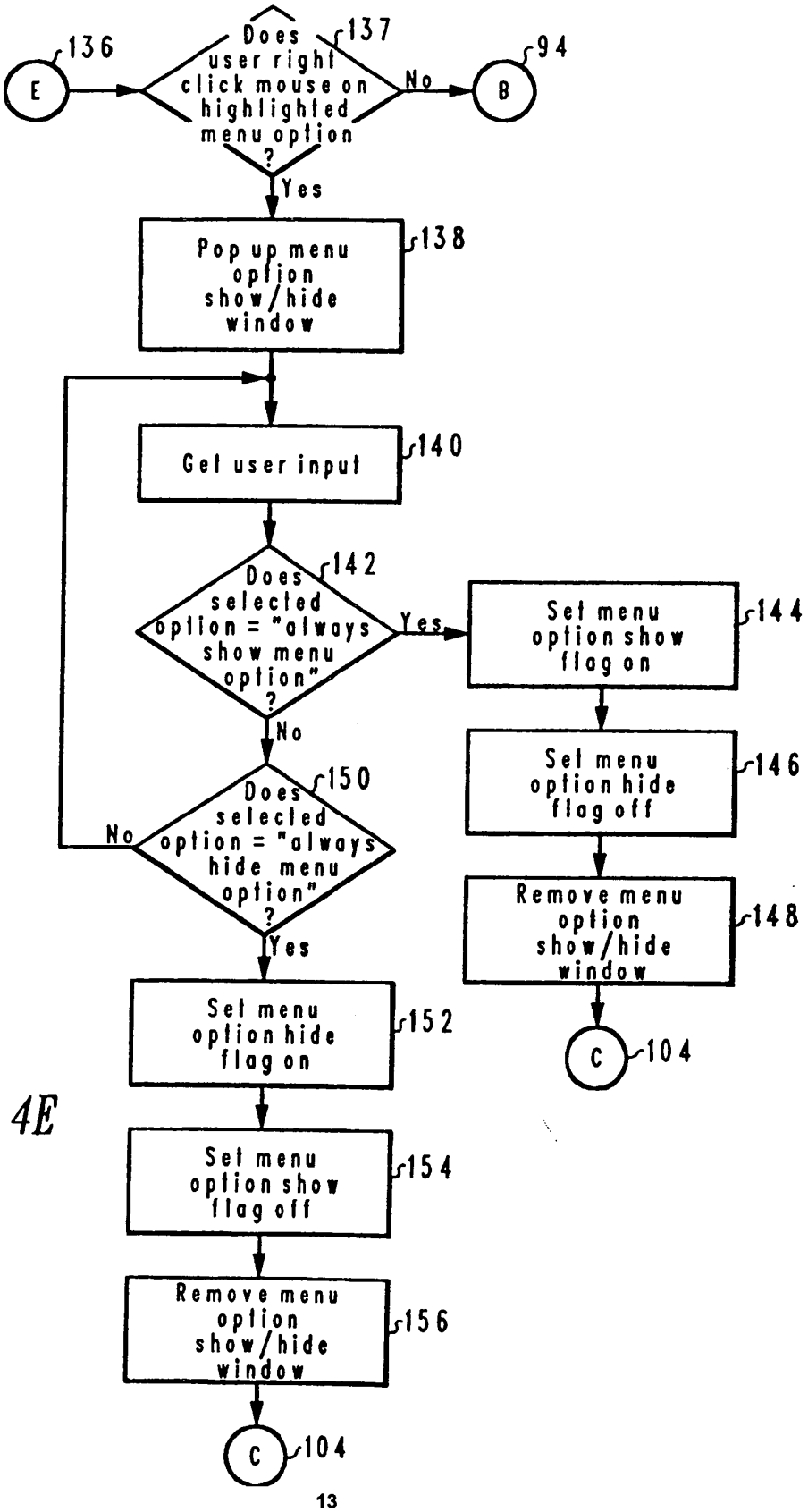
136
E
Does user right click mouse on highlighted menu option ?
137
No
94
B
Yes
Pop up menu option show/hide window
138
Get user input
140
Does selected option = "always show menu option" ?
142
Yes
Set menu option show flag on
144
No
Set menu option hide flag off
146
Does selected option = "always hide menu option" ?
150
No
Remove menu option show/hide window
148
Yes
C
104
Set menu option hide flag on
152
Set menu option show flag off
154
Remove menu option show/hide window
156
C
104

*Fig. 4E*

(12) UK Patent Application (19) GB (11) 2 335 822 (13) A

(43) Date of A Publication 29.09.1999

(21) Application N 9806325.8

(22) Date of Filing 25.03.1998

(51) INT CL[6]
H04Q 7/32 , H04M 1/00 1/02

(52) UK CL (Edition Q )
H4K KFH
H4L LECX L30
U1S S2215

(56) Documents Cited
EP 0715441 A1 EP 0651544 A2 WO 97/50264 A1

(58) Field of Search
UK CL (Edition P ) H4K KFH , H4L LECX
INT CL[6] H04M 1/00 1/02 1/22 1/23 , H04Q 7/32
On-Line - WPI

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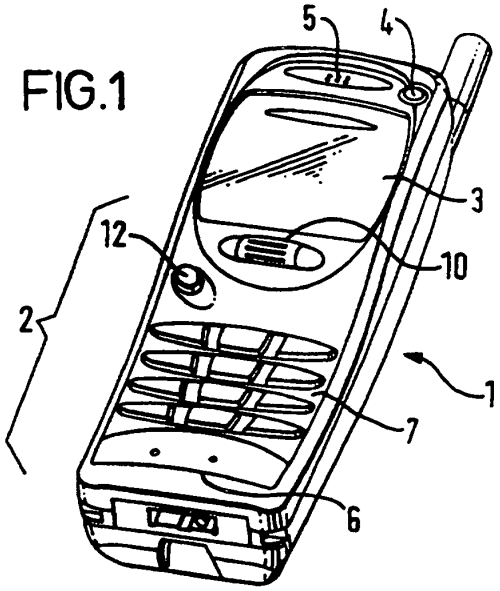
(54) Abstract Title
**Context sensitive pop-up window for a portable phone**

(57) A portable phone has a display, input means for inputting information and instructions, and a control unit controlling the display in dependence on the operation of the input means The input means includes navigation means for moving a marker in an active part of the display. The navigation means is provided with a roller body and includes means for detecting the rolling and depression of the roller body and for providing control signals in response thereto. In an information input mode, the control unit moves the marker in the display in dependence on the rolling control signal and generates a pop-up window upon reception of the depression control signal, said pop-up window covering a part of the active display and containing operations which are allowed in a position defined by said marker.

FIG.1

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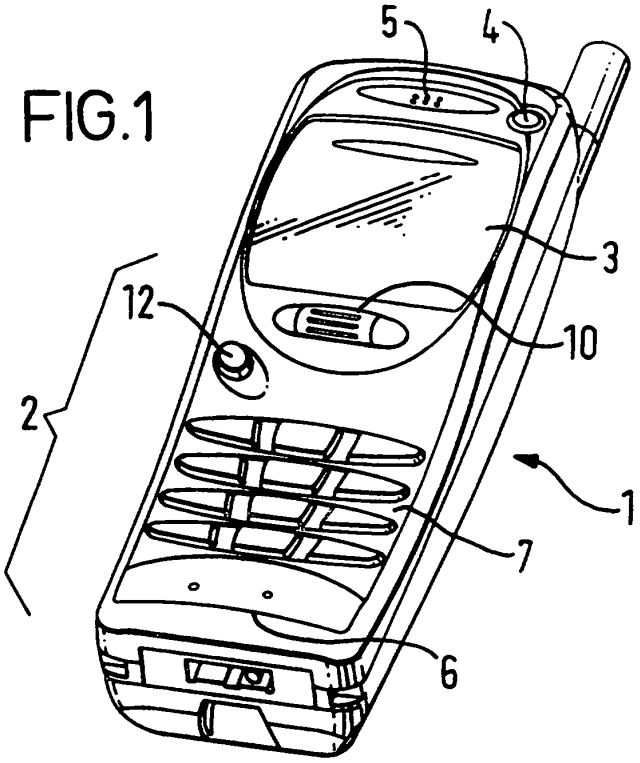
At least one drawing originally filed was informal and the print repr duced here is taken from a later filed formal copy.

FIG.1


5
4
3
12
10
2
1
7
6

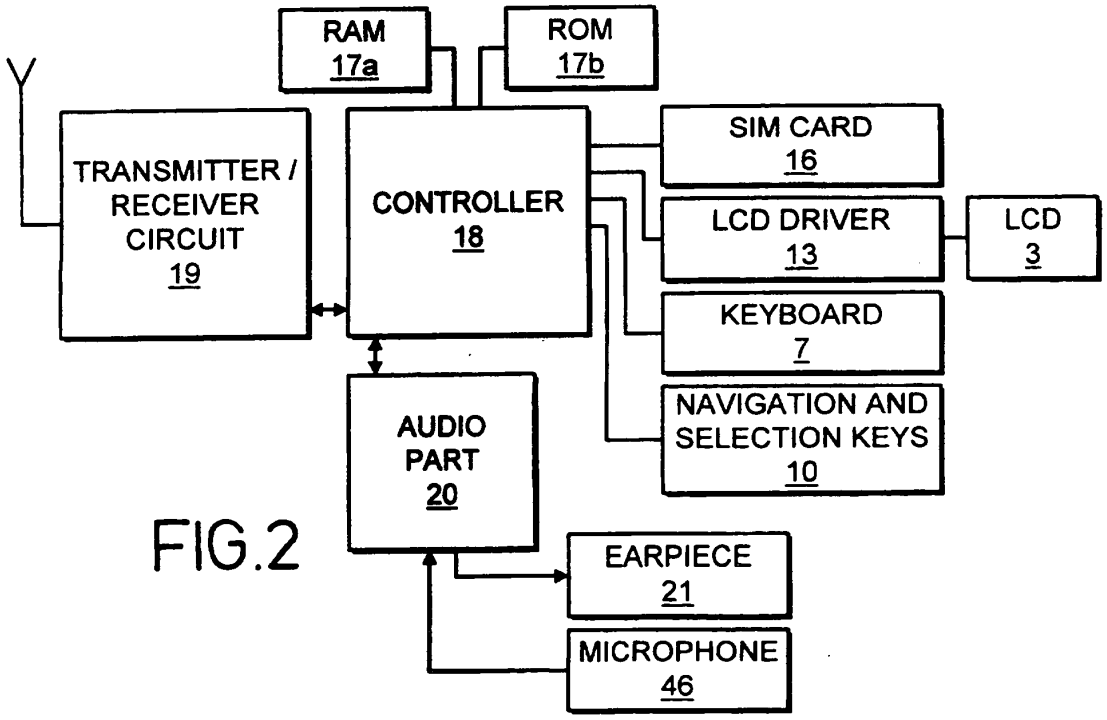

RAM
17a
ROM
17b
TRANSMITTER / RECEIVER CIRCUIT
19
CONTROLLER
18
SIM CARD
16
LCD DRIVER
13
LCD
3
KEYBOARD
7
NAVIGATION AND SELECTION KEYS
10
AUDIO PART
20
EARPIECE
21
MICROPHONE
46

FIG.2

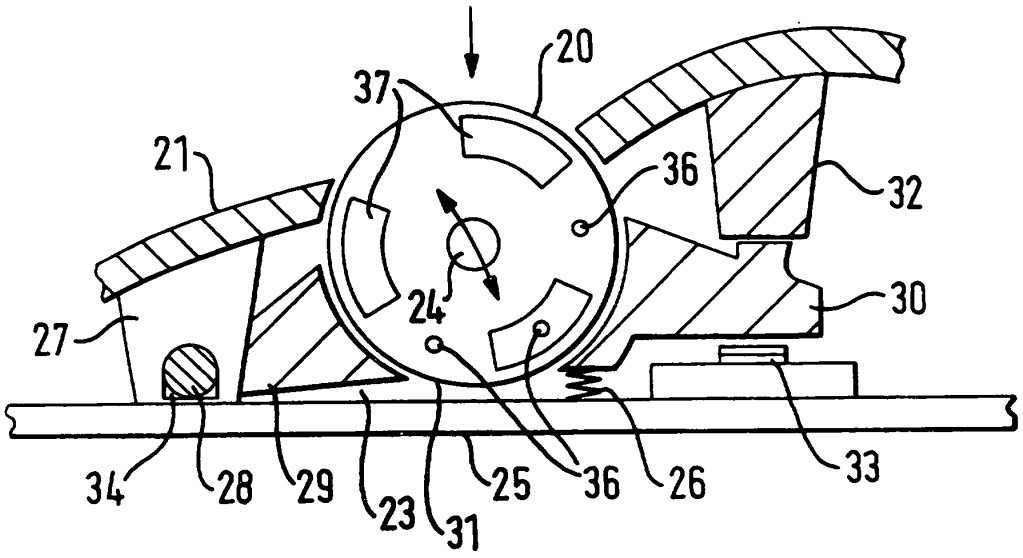



FIG. 3

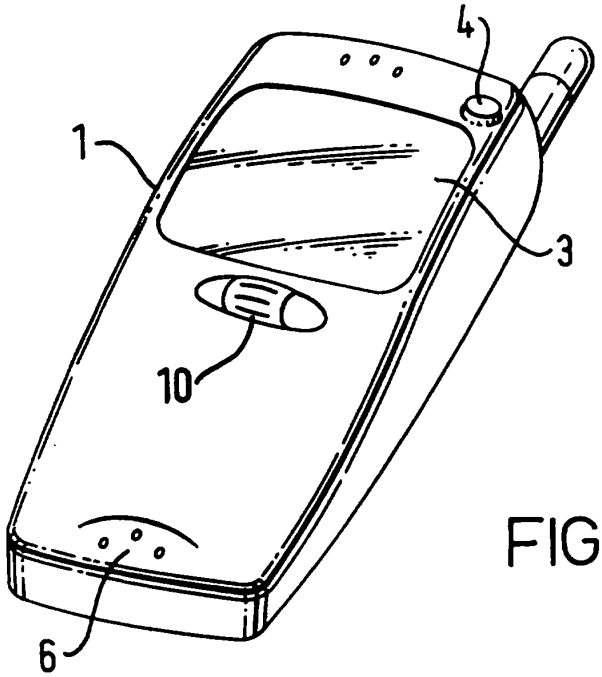



FIG. 6

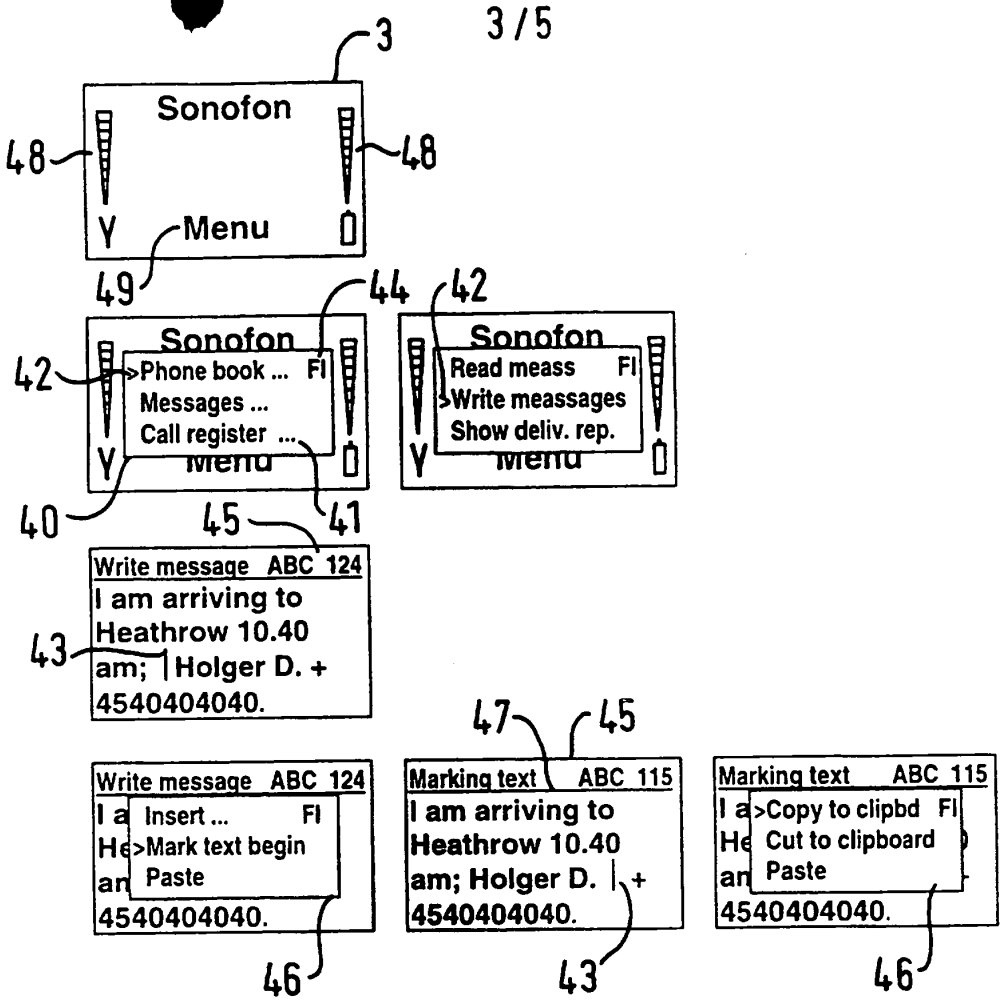

3
Sonofon
48
48
Menu
49
44
42
Sonofon
>Phone book ... FI
Messages ...
Call register ...
42
Menu
Sonofon
Read meass FI
>Write meassages
Show deliv. rep.
Menu
40
41
45
Write message ABC 124
I am arriving to
Heathrow 10.40
43
am; Holger D. +
4540404040.
47
45
Write message ABC 124
Insert ... FI
>Mark text begin
Paste
4540404040.
Marking text ABC 115
I am arriving to
Heathrow 10.40
am; Holger D. +
4540404040.
Marking text ABC 115
>Copy to clipbd FI
Cut to clipboard
Paste
4540404040.
46
43
46

FIG. 4

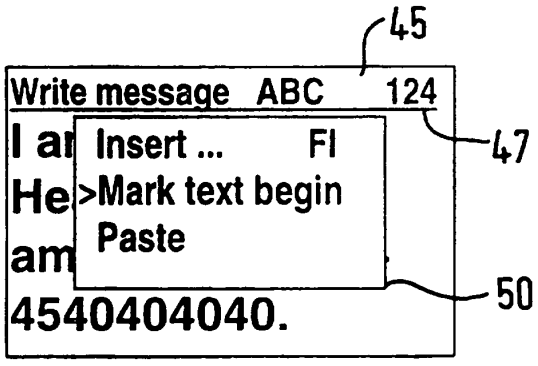

45
Write message ABC 124
Insert ... FI
>Mark text begin
Paste
47
4540404040.
50

FIG. 5

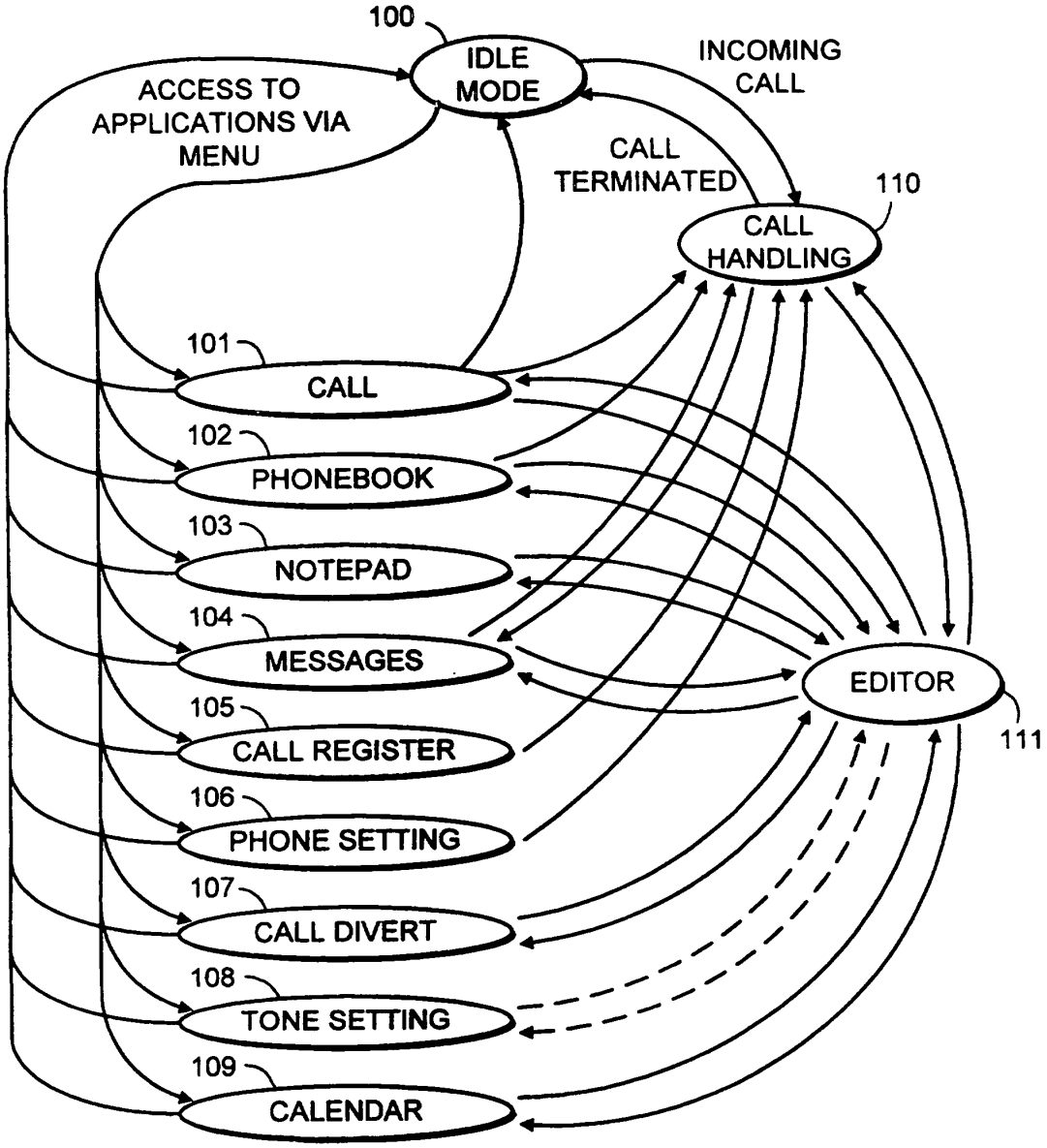

100
IDLE MODE
ACCESS TO APPLICATIONS VIA MENU
INCOMING CALL
CALL TERMINATED
110
CALL HANDLING
101
CALL
102
PHONEBOOK
103
NOTEPAD
104
MESSAGES
105
CALL REGISTER
106
PHONE SETTING
107
CALL DIVERT
108
TONE SETTING
109
CALENDAR
EDITOR
111

FIG. 7

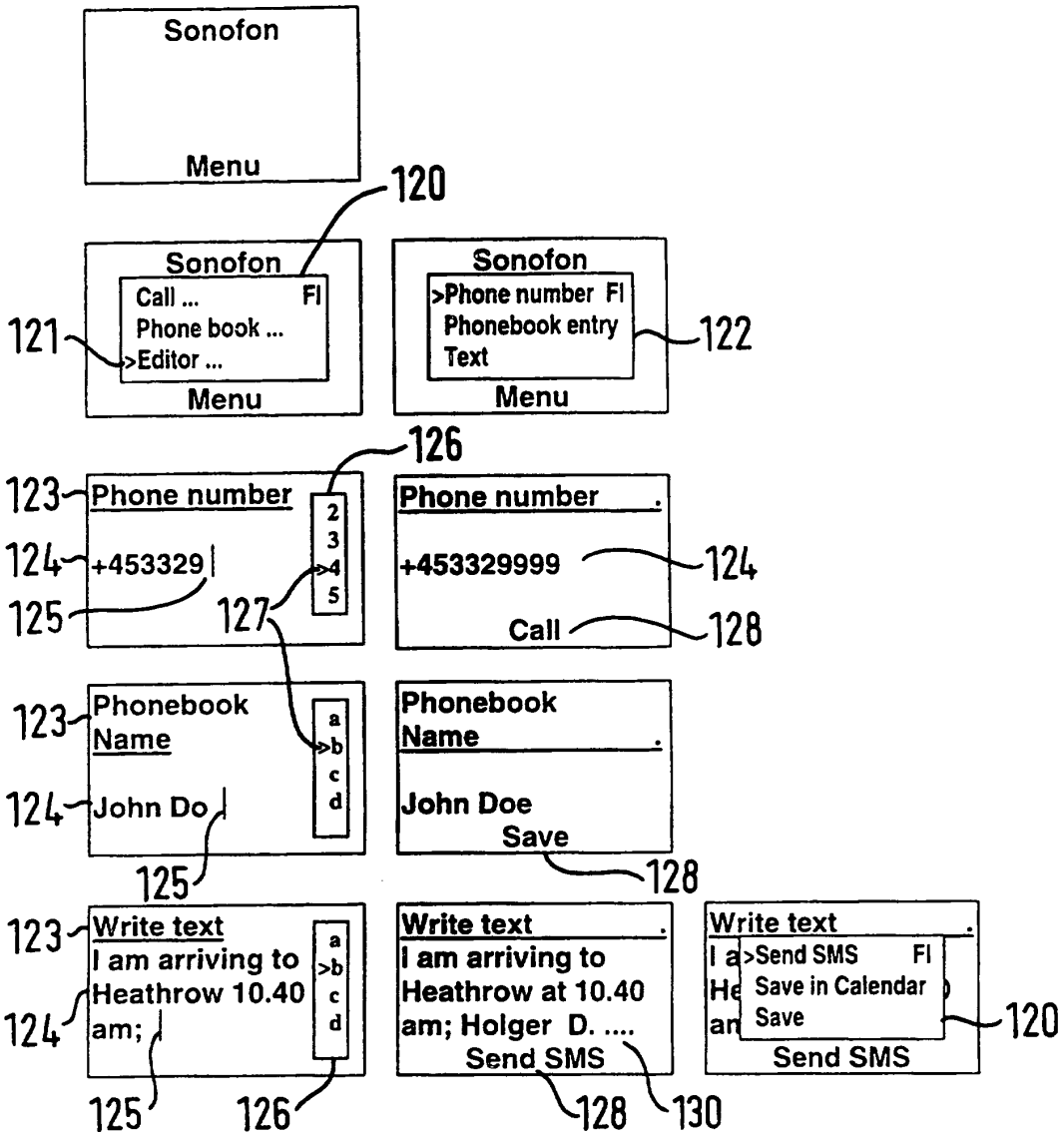

Sonofon
Menu
120
Sonofon
Call ... FI
Phone book ...
>Editor ...
Menu
121
Sonofon
>Phone number FI
Phonebook entry
Text
Menu
122
126
123
Phone number
2
3
>4
5
124
+453329
125
127
Phone number .
+453329999
124
Call
128
123
Phonebook
Name
a
>b
c
d
124
John Do
125
Phonebook
Name .
John Doe
Save
128
123
Write text
I am arriving to
Heathrow 10.40
am;
124
125
126
Write text .
I am arriving to
Heathrow at 10.40
am; Holger D. ....
Send SMS
128
130
Write text .
>Send SMS FI
Save in Calendar
Save
120
Send SMS

FIG. 8

# CONTEXT SENSITIVE POP-UP WINDOW FOR A PORTABLE PHONE

The invention relates to a new and improved user interface (UI) for a telephone handset. The UI of hand portable phones for cellular or cordless systems does not just support the call handling alone. In the recent generations of hand portable phones more and more new applications have been integrated in the phones.

Navigation among the menu items, handling of the individual applications and editing of text as input for the applications are very difficult to perform, because the most commonly used type of navigation is carried out by an up/down scroll key. The number of operations that may be performed by a hand portable phone continues to increase. However, in order to make the phone more user-friendly it is desired to simplify the keypad, since many non-technical users take fright at keys if they do not know how to handle these keys. In general, customers are frightened when they see a keypad overwhelmed with special keys.

In order to reduce the number of keys on a handset more and more functions and operations are integrated in a reduced number of keys. A phone named Nokia 3110® marketed by the applicant has a very limited number of keys having the most commonly used functions and operations as default options, while the functions and operations not used so often are alternative options. This concept is described in a UK patent application 9624520.4 and was fully accepted by the user group when introduced.

Even though this concept makes it much easier for new phone users to become familiar with the most commonly used operations, such as making calls, handling the electronic phone book, etc., it does not improve the usability of the more rarely used operations, such as making conference calls, message handling, etc.

UK patent application 9703646.1 describes a concept accor to which a window pops up when a soft key is depressed. This window contains a list including operations available through the soft key.

In accordance with the invention there is provided a portable phone having a display, input means for inputting information and instructions to a control unit in the phone, said control unit controlling the display in dependence on the operation of the input means; said input means including means for moving a marker in the display; and means for providing a request to the control unit for displaying operations which are allowed in a position defined by said marker; said control unit generating a pop-up window which covers a part of the display upon reception of the request, and which includes said allowed operations. Hereby both the options normally present in the soft keys and the navigation of the cursor may be integrated in the roller body of the navigation means.

One important advantage is that the active part of the display may be increased, because one out of three to five text lines of the display does no longer have to be dedicated to the displaying of the soft key functionality. Another advantage is that a number of the keys may simply be left out. In a simple way, it is hereby easy to obtain a navigation and selection key with the desired properties.

An embodimentt of the invention provides a new and improved user interface for a telephone hand set, wherein the default and alternative options available are displayed in a way giving the user a better view of the available options.

Advantageously, the means for moving a marker in the display comprises a navigation key means having a roller body whose rolling is detected by means of an encoder operatively connected to the control unit which controls the movement of the marker in the display in dependence thereon. Preferably, the request means comprises a sensor integrated in a support structure for the roller body, said moving and request means being integrated in the navigation key means. The contents of the pop-up window in an entry or editing mode show marker determined context

sensitivity. At present, the LCD displays are the preferred type of displays used for e.g. phones, and this type of display is a dot matrix display in which the display signs are preferably arranged in a predetermined number of lines in the active part of the display, each of said lines may contain a plurality of signs, and said marker is provided as a gleaming bar which may be positioned between two of said signs. A new sign is entered to the right of the gleaming bar, and the gleaming bar is moved to the right of the newly entered sign.

Advantageously, the phone changes state upon the occurrence of the context sensitive pop-up window to a listing mode in which a plurality of allowable operations are listed in the pop-up window, and wherein said request providing input means changes functionality to a selection means which, when depressed, selects the operation marked by the cursor. Hereby the same key may be used for different types of navigation in dependence on the present mode of the phone.

By providing the phone with an editor not depending on an alphanumeric keypad, but controlled by the control unit and operated by the navigation key means, the alphanumeric keypad may simply be left out. Hereby it is possible to have the roller body based navigation key as the sole input key. A power on/off key may be present on the phone. The control unit defines for the editor a first display part in the display for displaying a string of entered information; a second display part in the display for displaying a string of a plurality of possible information candidates; one of the candidates in the candidate string being highlighted by the cursor whose movement through information candidates is controlled by the rolling of the navigation key means, and said highlighted candidate being selectable for entering into the string of entered information by pressing the navigation key means.

The invention therefore also relates to a portable phone having a display, input means for inputting information and instructions to a control unit in the phone, said control unit controlling the display in dependence on the operation of the input means; said input means including a depressable roller body; a support structure for the roller body; an encoder operativ ly connected to the control unit for detecting the

rolling of the roller body; and a sensor operatively connected to the control unit for detecting the depression of the roller body; said control unit generating a pop-up window which includes a set of allowed operations and which covers a part of the display upon reception of a request provided by depressing the roller body. According to a preferred embodiment of the invention, the navigation key is the only input means of the phone.

The pop-up window is demarcated from the active display area by means of borderlines defining a rectangular frame. When the text is black on a light (yellow or green) background, the rectangular frame may advantageously be black like the text and have a line width corresponding to 2-3 pixels or dots. When the pop-up window area covers from 30 percent to 70 percent of the full active display area, the user will always have the possibility of seeing a part of the background display which is sufficient to recognize the mode or display.

According to the preferred embodiment, the pop-up window contains two-four selectable operations within the rectangular frame. However, the control unit handles a list including a plurality of selectable operations arranged in a predetermined order with only a fractional set of the full set of operation shown simultaneously in the pop-up window. Rolling of the navigation key means causes scanning through the full set of operations. The window thereby moves along the full list.

Preferably, the full list is not provided as an endless loop. Preferably, the full set of operations is arranged with two operations defined as a first item and a last item in the list, respectively; and in the listing mode, when the cursor passes outside the first or the last item in the list, the pop-up window disappears and the phone goes from listing mode to the mode associated with the background display.

Preferably, the context sensitive pop-up window includes all available operations. These are available from a number of sub-menus according to the state of the art. Now the user does no longer have to remember the path to the sub-menu - he can just select from a list.

Figure 1 schematically illustrates a preferred embodiment of a hand portable phone according to the invention.

Figure 2 schematically shows the essential parts of a telephone for communication with a cellular or cordless network.

Figure 3 schematically and in cross-section shows the part of the phone shown in figure 1 included in the navigation and selection key according to the invention.

Figure 4 schematically illustrates a preferred embodiment of a display with a pop-up window according to the invention.

Figure 5 schematically illustrates one of the displays shown in figure 4 on an enlarged scale.

Figure 6 schematically illustrates an alternative embodiment of a hand portable phone according to the invention.

Figure 7 shows a state diagram for the hand portable phone according to the invention.

Figure 8 shows an example of the editor used in the hand portable phone according to the invention.

Figire 1 shows a preferred embodiment of a phone according to the invention, and it will be seen that the phone, which is generally designated by 1, comprises a user interface having a keypad 2, a display 3, an on/off button 4, an ear-piece 5, and a microphone 6. The phone 1 according to the preferred embodiment is adapted for communication via a cellular network, but could have been designed for e.g. a cordless network as well. The keypad 2 has a first group 7 of keys as alphanumeric keys, by means of which the us r can enter a telephone number, write a text

message (SMS), write a name (associated with the phone number), etc. Each of the twelve alphanumeric keys 7 is provided with a figure "0-9" or a sign "#" and "*", respectively. In alpha mode each key is associated with a number of letters and special signs used in the text editing.

The keypad 2 additionally comprises a navigation and selection key 10 and a clear key 12. The clear key 12 may be used e.g. for erasing the digit or letter entered last by brief depression, while depression of a longer duration will erase the entire number or word.

The phone may comprise two call handling keys like in Nokia 8110™, but according to the preferred embodiment the call handling is included in the navigation and selection key 10. This means that depressing the navigation and selection key 10 once in idle mode with at least one digit in the display will cause a pop-up window having "call establishment" as one item to appear, and when the call has been established by selecting "call establishment" by pressing the navigation and selection key 10, the items in the pop-up window will change to "call termination", "conference call", etc.

The navigation and selection key 10 is placed centrally on the front surface of the phone between the display 3 and the group of alphanumeric keys 7. Hereby the user will be able to control this key with his thumb. This is the best site to place an input key requiring precise motoric movements. Many experienced phone users are used to one-hand handling. They place the phone in the hand between the finger tips and the palm of the hand. Hereby the thumb is free for inputting information.

As will be seen from figure 3, the navigation and selection key 10 includes a roller body 20 which extends partly through an opening in the front cover 21 of the phone, and said roller body 20 is essentially cylindrical with a length and diameter of the same size as the width of the keys in the alphanumeric group of keys 7. When the axis of rotation of the roller body 20 is provided such that it extends perpendicularly to the longitudinal axis of the phone 1, the rolling of the roller body 20 will move a

cursor in the display in an up/down direction corresponding to the movement of the thumb. For fulfilling this purpose the navigation and selection key is provided with encoder means (not shown) converting the rotation of the roller body into a train of electronic pulses fed to a processor 17 of the phone. The navigation and selection key structure is furthermore provided with a microswitch (not shown) for detecting the depression of the roller body 20, thereby providing a selection signal for the processor 17 indicating that the item pointed out in the display has been selected. The navigation and selection key is described in detail in GB patent applications 9727062.3, 9727058.1 and 9727060.7 filed by the applicant on 22 December 1997. These pending applications are hereby incorporated by reference.

When the navigation and selection key 10 is arranged as an extension of the central column of the alphanumeric keys 7, the navigation and selection key 10 can be accessed optimally by both left- and right-handed users.

Figure 2 schematically shows the most important parts of a preferred embodiment of a portable phone, said parts being essential to the understanding of the invention. The preferred embodiment of the phone of the invention is adapted for use in connection with the GSM network, but, of course, the invention may also be applied in connection with other phone networks, such as cellular networks and various forms of cordless phone systems. The microphone 6 records the user's speech, and the analog signals formed thereby are A/D converted in an A/D converter 15 before the speech is encoded in an audio codec unit 14. The encoded speech signal is transferred to a physical layer processor 17, which i.a. supports the GSM terminal software. The processor 17 also forms the interface to the peripheral units of the apparatus, including the memories (RAM, ROM), the display 3 and the keypad 2 (as well as SIM, data, power supply, etc.). The processor 17 communicates with the RF part 19 via a baseband converter 18 and a channel equalizer 16. The audio codec unit 14 speech-decodes the signal, which is transferred from the processor 17 to the ear-piece 5 via a D/A converter 13. The units 13-18 are usually integrated in a chip set - either a commercially available one or in a set of specially designed chips (ASIC's).

The processor 17, which serves as the controller unit in a manner known per se in the preferred embodiment, is connected to the user interface. Thus, it is the processor which monitors the activity in the phone and controls the display 3 in response thereto.

Therefore, it is the processor 17 which detects the occurrence of a state change event and changes the state of the phone and thus the display text. A state change event may be caused by the user when he activates the keypad including the navigation and selection key 10, and this type of events is called entry events or user events. The processor 17 is able to detect the rolling and depression of the roller body 20 by means of a microswitch and an encoder, as will be explained briefly with reference to figure 3. However, also the network in communication with the phone may cause a state change event. This type of events and other events beyond the user's control are called non user events. Non user events comprise status change during call set-up, change in battery voltage, change in antenna conditions, message on reception of SMS, etc.

Figure. 3 illustrates how the navigation and selection key structure according to the invention is placed in a hand portable phone. The navigation and selection key structure comprises a roller body 20 acting as a navigation and selection key and a carrier 23 for carrying the roller body 20. The carrier 23 comprises a beam 29 carrying the stub shaft 28 as hinge parts, a beam 30 and a shaft 24 carrying the roller body 20. The two beams 29, 30 and the shaft 24 are parallel and are interconnected by bearings 31, 35 at each end.

A part of the roller body 20 extends through a close fitting opening (no contact) of the front cover 21 of the phone. The rear side of the front cover 21 is provided with two gripping arms 27 having U-shaped recesses 34 for receiving stub shafts 28, thereby, as a supporting means, defining a hinge axis for the carrier 23. The gripping arms 27 act as spacer members between the front cover 21 of the phone and the printed circuit board (PCB) 25. The latter constitutes a locking member for the shaft

bearing provided by the recesses 34 of the gripping arms 27. The distance between the gripping arms 27 is slightly smaller than the length of a shaft body 24 to avoid axial displacement of the carrier 23.

A spring 26 is provided as a biasing means for urging the carrier 23 away from the printed circuit board 25 towards the front cover 21 of the phone. The front cover 21 is provided with two stop legs 32 which cooperate with an upper surface of the part 30 of the carrier facing away from the hinge 28,34. The lower surface of the carrier part 30 is adapted for cooperation with a microswitch 33. The distance between the contact faces on the microswitch 33 and the stop legs 32 is slightly greater than the thickness of the corresponding carrier part. The coil 26 urges the carrier 23 towards the stop legs 32. When the user depresses the roller with a force greater than the coil force, the carrier will be urged against the microswitch 33 giving an output signal in dependence thereon. The microswitch 33 acts as a detection means for detecting the force counteracting the biasing force provided by the coil 26.

When the roller body 20 is depressed, the whole navigation and selection key structure performs a swing movement around the hinge axis defined by the gripping means 28, 34.

The end wall of the roller body 20 is provided with a number of conducting areas 37. As indicated in figure 3, a number (three according to the preferred embodiment) of sliding shoes 36 (contact springs) of the metallic strips slide along a circular path passing the conductive areas. The sliding shoes 36 and the conducting areas 37 are the interacting part of the encoder by means of which the control unit 17 detects the rolling of the roller body 20. The sliding shoes are mounted on a surface of the carrier 23 facing towards the end face of the roller body 20.

The processor 17 handles a number of displays - normally one for each open application, and the display for the presently active application is actually displayed in the display 3. When the phone is in idle mode, it just monitors the network looking for an incoming call. The idle mode display, seen as the first display in figure 4, will

include information identifying the network operator, here "[redacted]nofon", and indicate that the depression of the roller body 20 of the navigation and selection key 10 will give access to the menu of the phone. The display may furthermore include some status indications informing the user about the battery level, the quality of the RF connection, local time, etc.

As will be seen from the second display in figure 4, pressing the navigation and selection key 10 will cause a pop-up window 40 to appear on top of the previous display. The pop-up window 40 covers the underlying display partly, but in a way so that the user will still be able to recognize the background display. The number of text lines that may occur in the pop-up display 40 depends on the font used, of course. But if the full display includes five text lines, the pop-up display may advantageously include three text lines. The number of options or items available at a certain cursor position will in general exceed the number of lines, but then only a part of the list will be displayed.

The list of menu items shown in the pop-up window 40 in figure 4 normally includes up to ten items or even more. The list could be as follows:

1. Phone book - FI
2. Messages
3. Call register
4. Phone settings
5. Call divert services
6. Calendar
7. Tone settings - LI

The functionality associated with the individual menu items is well known from commercial products, e.g. Nokia 3110™, from the applicant. As will be seen from figure 4, only the items 2-4 in the menu list are displayed in the pop-up window 40. It will be seen that one of the items in the list is marked by an icon acting as a cursor 42. Alternatively, the item could be marked by a bar with inverted colors. The cursor

42 is controlled by rolling the roller body 20 of the navigation and selection key 10, and the item pointed out by the cursor may be selected by pressing the roller body 20.

The items on the list are followed by an icon (here three dots) 41 when the selection of the item generates a new list of items to be displayed. This will basically be the situation for all items in the main menu list. It should be noted that the first and the last items in the list are marked by respective border icons 44 as FI (first item) and LI (last item). When the cursor 42 is moved outside the borders defined by these items (e.g. passing the first item in an upward direction), the pop-up window 40 will automatically disappear.

In the first display in the second row in figure 4 the user selects the "Message" menu item and this will cause a new menu list to pop up, and, as will be seen from the second display in the second row, this menu list will include standard message handling menus, such as:

1. Read messages
2. Write messages
3. Show delivery report
4. Message Center number
5. Reply via own center.
6. Delivery reports.
7. Voice mailbox number.

The idle mode display will still be present as a background display, and the phone will return to this idle mode display if no items are selected with a time-out of e.g. 5 seconds. If the user selects the "write message" item, the pop-up window will disappear and the background display will change from the "idle mode" display to the "text entry" display ,as shown in the sole display in the third row of figure 4 with a status line 45 at the top of the display informing the user that the text entry is for a message sending application (write message), that the text entry application is in

alpha mode (ABC), and that the cursor 43 is in position [redacted] (an SMS message contains max. 160 characters, and position 124 means that max. 124 characters follow).

The display 3 is provided as a dot matrix display for displaying signs arranged in a predetermined number of lines, each of which may contain a plurality of signs. The cursor 43 or the marker is provided as a gleaming bar that may be positioned between two of said signs. When the roller body 20 is depressed with the cursor 43 placed in the text, the processor starts displaying a context sensitive pop-up window including a number of selectable items or operations. The context sensitive pop-up window 46 covers a part of the active display, and it contains operations that are allowed in a position defined by the cursor 43 prior to the depression of the roller body 20.

When the context sensitive pop-up window 46 appears in a part of the display, the list of selectable items may include both SMS message related items and text editing related items. The list could include items such as:

1. Insert
2. Mark text begin
3. Paste
4. Send
5. Save
6. Exit
7. Erase

If "Insert" is selected, the user will be requested in a new pop-up window to specify what he wants to insert and where to find it - e.g. an electronic business card (note pad), a name or a number (electronic phone book), etc.

If "Mark text begin" is selected by the user, as is the situation in the first display in the fourth row in figure 4, this cursor position will be handled as a first position. As

will be seen in the second display in the fourth row in figure 4, the user is allowed to move the cursor 43 to a new position by rolling the roller body 20. It should be noted that the status line 45 indicates that the present status is marking text. When the cursor 43 has been moved to a new position by means of the navigation and selection key 10, a context sensitive pop-up window 46 will appear upon pressing the navigation and selection key 10, as will be seen in the third display in the fourth row of figure 4. The user may now select from the list in the pop-up window 40 which operation he wants to perform on the marked text. It does not matter whether the first cursor position is the first or the second one.

In response to the selection of the marked text the controller 17 generates a context sensitive pop-up window 46 (third display in the fourth row of figure 4) asking whether the user wants to cut or copy to the clipboard or replace (paste) the marked text with the content of the clipboard. If he copies the marked text to the clipboard, the paste operation allows the user to transfer the copied text to another application or to another file or record in the same application. The "Paste" option does not appear in the pop-up window when the clipboard memory is empty.

Upon selection of the "Send" option the processor 17 will generate a pop-up window (with the message beneath) asking for the receiving phone number, followed by a request for entering the message center number if that is not stored in the phone already.

When the user selects the "Save" option, the phone suggests saving the entered text and gives the record a name, such as 98.03.26-10:45 (point of time for saving "year.month.date-hour:minutes"). The "Exit" option will cause leaving the application without saving or sending the edited text, while the "Erase" option will erase the edited text but the user will remain in the application.

It should be noted that the pop-up window in the second row appears upon pressing the navigation and selection k y 10 when it acts as a soft key. According to the preferred embodiment this will be the situation when the phone is in a mode without

entry of a user input. There will be no cursor in the display during these modes without user input. This will typically be the situation when the user navigates in the menu structure, e.g. initiated in idle mode, until he needs to enter an input.

When the user is requested to enter an input, e.g. to write a message, as explained in relation to figure 4, the full active part of the display is available for the data entry. It will be seen from figure 4, third and fourth rows, how the antenna and battery indicator disappears. Also the soft key text disappears. In data entry mode, the navigation and selection key 10 will no longer have a special functionality or give access to the menu structure. When the navigation and selection key 10 is pressed in this mode, the context sensitive pop-up window 46 will appear, and the processor 17 will only allow operations which are allowable in the present application and with the present cursor position to be displayed in the context sensitive pop-up window 46.

Both the context sensitive pop-up window 46 and the ordinary menu item containing the pop-up window 40 may be escaped by moving the cursor 42 outside the borders of the window or by pressing the "clear" key 12. The phone will then go back to the application related to the underlying display partly visible behind the pop-up window.

A display for a phone according to the invention may e.g. be of the LCD type having a dot matrix display area of a size of 30 x 44 mm (height x width). The dots may preferably be rectangular, e.g. with a size of 0.42 x 0.34 mm (height x width - corresponding to a resolution of 57 x 70 dpi in a vertical and a horizontal direction, respectively) and being arranged with a 0.02 mm spacing. This will approximately provide 68 x 120 dots (height x width) or pixels in the active part.

As will be seen from figure 4, the phone uses a number of e.g. three standard fonts in the display, and the processor 17 changes the fonts dynamically (without actions from the user) in dependence on predetermined rules. Typically, each sign uses (height x width) 10 x 7 pixels in the biggest font and 7 x 5 pixels in the smallest font. The fonts used in the embodiment shown in figure 4 do not have a fixed width -

letters like "I" require less width than the letter "m". The height is the same for all the signs in the font, and the width varies from two pixels (for "I") up to seven pixels (for "M" and "W") with an average width in the range of about five pixels. Generally, two neighbor signs are spaced by a single pixel and two lines are spaced by three pixels. In the idle mode display, columns with a width of ten pixels are used in each side of the display for the status bars 48, and a row with a height corresponding to thirteen pixels is used for the soft key text 49.

In text entry mode the full active display area will be available (here 68 x 120 pixels). The status line 45 has a width corresponding to 120 pixels, and with a font based on a width of approximately five pixels and a spacing of one pixel there between, approximately twenty characters will be allowed in the status line. The character height may be nine pixels. The status line 45 is separated from the text part by a line 47, whereby 51 x 120 pixels will be available for the text - and this will correspond to four lines with up to approximately twenty characters in each line.

The cursor 43 will be implemented as a gleaming bar (1 x 11 pixels) gleaming (pixels go on and off) approximately once per second. When the pop-up window 40 or 46 appears, it is surrounded by a rectangular borderline 50, as will be seen from fig 5. Outside this borderline 50 the underlying display is visible. The borderline 50 may have a width corresponding to two pixels. As will be seen from figure 5, a slightly smaller font is used, and this allows the pop-up window to contain three text lines with the status line 45 and the last line in the text part being fully visible. According to the preferred embodiment of the invention the pop-up window will use 40 x 84 pixels. With the present borderline width and a spacing of some pixels between the borderline and the text, the part of the pop-up window useable for displaying the functionality text may include 32 x 76 pixels. With a 7 x 5 font, three lines having 12-15 characters may be displayed. With the above-mentioned size of the display, the pop-up window will cover just above 40 percent of the full active display. It has been found that a pop-up window may advantageously cover from 30 percent to 60 percent, preferably between 35 and 50 percent, of the full active display when the display has a size corresponding to 50-100 x 75-200 pixels. When the pop-up

window becomes too small, the text will be difficult to read and when the pop-up window covers a substantial part of the display, the user will no longer be able to recognize the background display.

Figure 6 shows an alternative embodiment of a hand portable phone according to the invention, and this phone is remarkable in that the alphanumeric keys are left out, and that all functions are available via the navigation and selection key 10. The navigation and selection key 10 is actually the only input key of the phone. Today, all phones have between 15 and 20 keys or even a higher number of keys.

From idle mode, pressing the navigation and selection key 10 gives access to the menu of the phone. Here the menu list used in the embodiment explained with reference to figure 1 needs some further items. The list could be as follows:

1. Call - FI
2. Phone book
3. Editor
4. Messages
5. Call register
6. Phone settings
7. Call divert services
8. Tone settings - LI

As will be seen from the list, only two new menu items are necessary, and these are "Call" and "Editor". Figure 7 illustrates how the applications interact in the phone shown in figure 6.

Advantageously, the phone is capable of assuming a plurality of states in which a group of predetermined functions or actions associated with the state concerned may be performed or accessed by means of the navigation and selection key 10. The processor 17 displays one of said group of functions as a default function. The default operation or function is executed upon pressing the navigation and selection

key 10, and the full set of operations is available upo ling the navigation and selection key 10.

Figure 7 illustrates how the one key phone according to an alternative embodiment of the invention may change state from idle mode 100 in two ways. If an in-coming call is detected, the phone changes to a call handling state 110 in which the user is allowed to answer the call by pressing the navigation and selection key 10. By rolling the navigation and selection key 10 the pop-up window with the full set of allowable actions will appear, whereby the user is allowed to reject the incoming call or to manually divert the call.

Otherwise, the user has to access the menu by pressing and rolling the navigation and selection key 10, whereby he may select an item in a pop-up window (like in figure 4). Then the above-mentioned eight menu items are available. The phone is provided with a special editor allowing the user to input all kinds of data into e.g. a phone, and this editor is basically described in a British patent application serial no. 9800746.1 filed by the applicant on 14 January 1998. This application is hereby incorporated by reference into the present application.

This editor is very useful in relation to a one key phone, and the operation of the phone will be explained with reference to figures 7 and 8. When the user selects "Menu" in idle mode (see the display in the first row in figure 8) by pressing the navigation and selection key 10, the processor 17 displays a pop-up window 120 including the items available in the menu structure. According to this embodiment these items will be :

1. Call
2. Phone book
3. Notepad
4. Messages
5. Call register
6. Phone settings

7. Call divert services
8. Tone settings
9. Calendar

When the user moves a cursor 121 to the "Notepad" option and selects this option by rolling and pressing the navigation and selection key 10, as will be seen from the first display in the second row of figure 8, the processor 17 displays a new pop-up window (second display in the second row of figure 8) asking the user to specify the kind of entry he wants to make. The phone is in state 103 in figure 7.

He may enter a phone number for making a standard call, a phone number and a corresponding name for storing a record in the phone book, an alphanumeric string ("Text") for a calendar, a message to be sent, etc. If the user selects the "Phone number" item in the second display in the second row of figure 8, the processor 17 changes the idle mode background display to an editor display shown as the first display in the third row of figure 8, and goes to the editing state 111 in figure 7.

A status line 123 indicates the kind of the present input activity, an auxiliary window 126 indicates a string of input candidates, and a candidate may be pointed out by a cursor 127. The movement of the cursor 127 is controlled by rolling the navigation and selection key 10, and the item is selected by pressing the navigation and selection key 10. When a candidate is selected, it is transferred to a character string 124 in the main part of the display in a position pointed out by a cursor 125. The auxiliary window 126 includes the numbers 0-9, a "+" sign and an "OK" icon indicating that the editing is to be terminated. If the user moves the cursor 126 outside this string (as is the case with the context sensitive pop-up window), the auxiliary window 126 will disappear and the navigation and selection key 10 will control the cursor 125 in the string 124. By pressing the navigation and selection key 10 the user may recall the auxiliary window 126 by selecting an "Insert" option in a context sensitive pop-up window including items such as: "Clear", "Insert", "Quit", "Call" and "Save".

If the user selects the "OK" icon in the auxiliary window 126, said window 126 and the cursor 125 will disappear with the entered character string 124 present in the display, as will be seen from the second display in the third row of figure 8. The navigation and selection key 10 will get the "Call" function as default option when pressed. If the navigation and selection key 10 is rolled, alternative options will appear in a new pop-up window. This pop-up window includes items such as: "Call", "Edit", "SMS", "Quit", and "Save".

With the selection of the "Edit" option the entered string will be re-opened for continued editing, the selection of the "SMS" option will request the user to enter a message text, and the selection of the "Quit" option will cause the phone to leave the editing mode and go back to idle mode without saving anything. The "call" option will initiate a call based on the phone number present in the display. The selection of the "Save" option will request the user to enter a name to be used as a label in the phone book. This is shown in the first display in the fourth row of figure 8. In the status line 123 it is indicated that the editor presently handles a name entry to the phone book. A part of a text string 124 has been entered.

It should be noted that the auxiliary window 126 contains the letters a-z (in the English language version), and an icon for switching between upper and lower cases, an icon giving access to a candidate string comprising the figures 0-9, and an icon giving access to a candidate string comprising the special characters such as the Greek letters and other signs presently used in phones. In general, the editor uses title case when used in combination with the phone book application and text case when used for entering text for a message or a calendar entry. The standard letter string displayed in the auxiliary window 126 acts as a basic character string. Selecting the "OK" icon in the figures string or the special characters string recalls the basic character string, whereas selecting the "OK" icon in the basic character string will cause the editing to terminate.

In the second display in the fourth row in figure 8 the "OK" icon in the basic character string has been selected and the editing is terminated. Pressing the

navigation and selection key 10 will save the entered name number in a record in the phone book.

If, instead of selecting the "Save" option, the user had selected the "SMS" option in the pop-up window which appeared when the navigation and selection key 10 was rolled in the second display in the third row of figure 8, he would have been requested to write a message text. The "Write text" display is shown in the first display in the fifth row in figure 8. The status line 123 indicates the kind of text presently edited, and a cursor 125 is placed in the entered text string 124, indicating the position of the next character selected from the auxiliary window 126. When the "OK" icon is selected in the auxiliary window 126, the entered string becomes truncated, as is indicated by four dots 130, thereby creating space for a soft key text for the navigation and selection key 10. The default function will send an SMS message, but when rolling the navigation and selection key 10 the alternative options will appear. When the "send SMS" is selected, the phone number entered earlier will be used as the receiving number, and the user will be requested to enter his message center number if this number is not stored in the phone yet.

The basic idea of the one key phone is that the phone has a large number of applications, each of which uses the editor for entering new data. When the "Call" application 101 in figure 7 is selected in the menu, the "Call" application 101 uses the editor application 111 for entering the phone number and the call handling application for actually setting up a connection based on the entered phone number.

When the "Phone book" application 102 is selected, the editor application 111 is likewise used for entering a phone number and a name as a new record in the phone book. The editor application 111 is also used when an existing record has to be amended, and the operation will be the same as re-opening the string for continued editing, as explained with reference to figure 8. As will be seen from figure 7, a call may be initiated from a phone book record. This is already possible in Nokia 3110™.

The "Notepad" application 103 gives direct access to the editor application 111, and the entered data may be stored in other applications afterwards. However, records may be stored in the "Notepad" application when it is used as a kind of notebook.

Also the "Message" application 104 uses the editor application 111 for entering text and phone numbers. The "Message" application 104 also uses the call handling application 110 for transmitting and receiving messages.

The "Call register" application 105 just lists the latest ingoing, outgoing and missed calls. The application does not use editing, but outgoing calls may be initiated from this application. The "Phone setting" application 106 just sets some parameters for the phone, and no editing is required.

The "Call divert" application 107 uses the editor application 111 for entering phone numbers and the call handling application 110 for transferring the divert instructions to the network.

The "Tone setting" application 108 normally does not use the editor application 111, but if the editor application is prepared for handling the input of new ringing tunes, as described in the above-mentioned British patent application serial no. 9800746.1, the "Tone setting" application 108 may benefit from inputs from the editor application, too.

The "Calendar application" 109 depends on input from the editor application 111, too. However, inputs may come from e.g. the "Notepad" application 103 or the "Message application 104 - but via the editor application.

A context sensitive pop-up window allows soft keys to be left out. This increases the part of the display available for text editing, etc. However, all the options will be available in the window popping up when the navigation and selection key 10 is pressed. The alphanumeric keys normally used may be left out by using a new editor based on input candidates. The size of the phone may be reduced hereby.

The functionality of the navigation means for moving a marker in the display and the selection means for selecting items marked by the marker, e.g. integrated in a depressable roller based navigation key 10, as described above, varies in dependence on the mode of the phone. Table 1 gives an overview of the most basic modes of the phone according to the invention.

| | Rolling the navigation key 10 | Pressing the navigation key 10 |
|---|---|---|
| Idle Mode | The phone will display one of two lists in dependence on the rolling direction, e.g. the phone book and the last-dialed stack. | The navigation key 10 has a functionality corresponding to a soft key known per se. The selection of "Menu" will cause a pop-up window including the sub-items of the Menu to appear. |
| Listing Mode | The cursor will scroll/browse through the items in the list. | The item highlighted by the cursor will be selected. If the selection of the item allows the user to select among sub-items, a pop-up window including these sub-items will appear in the window. |
| Call handling Mode | A list containing allowable operations will be accessed. | The default soft key operation will be selected, e.g. terminating an ongoing call. |
| Editing or Entry Mode | The cursor will be moved through the entered string of letters and numbers. | The context sensitive pop-up window will appear in dependence on the cursor position. |

Table 1.

According to the two described embodiments of the invention the navigation key 10 will have a functionality known per se in "Idle Mode". By rolling the navigation key 10 the phone will display one of two lists in dependence on the rolling direction, e.g. the phone book and the last-dialed stack. This corresponds to pressing the Navy-key™

on the phone Nokia 3110™ in idle mode. The navigation key 10 has a functionality corresponding to a soft key on the phone Nokia 3110™. The "Menu" will be selected by pressing the navigation key 10. However, as a novel feature a pop-up window including the sub-items of the Menu will appear.

When the pop-up window occurs - either by selecting a soft key option or the context sensitive one - the phone will be in a "Listing Mode". Rolling the navigation key 10 will cause the cursor to scroll/browse through the items in the list, and pressing the navigation key 10 will cause selection of the item highlighted by the cursor. If the selection of the item allows the user to select among further sub-items, a pop-up window including these sub-items will appear in the window. Otherwise, an operation, e.g. establishing a call, will be performed.

When a call has been set up, the phone will be in a "Call handling Mode" in which the navigation key 10 will have a default soft key functionality (call termination) when depressed. Rolling the navigation key 10 will access a list containing allowable operations in the mode in question.

During editing - either by use of an editor based on an alphanumeric key set or by use of the editor described as the alternative embodiment, the phone will be in an "Editing or Entry Mode". The navigation and selection key 10 will not act as a soft key, whereby the part of the display normally reserved for the display of the soft key operation will be available for the entry. The cursor will be moved through the entered string of letters and numbers or the entry candidate string upon rolling the navigation and selection key 10. The context sensitive pop-up window will appear in dependence on the cursor position upon pressing the navigation and selection key 10. As long as the context sensitive pop-up window is present in the display, the phone will be in the "Listing Mode".

**CLAIMS**

1. A portable phone having a display, input means for inputting information and instructions to a control unit in the phone, said control unit controlling the display in dependence on the operation of the input means;

said input means including:

means for moving a marker in the display; and

means for providing a request to the control unit for displaying operations which are allowed in a position defined by said marker;

said control unit generating a pop-up window which covers a part of the display upon reception of the request, and which includes said allowed operations.

2. A portable phone according to claim 1, wherein said means for moving a marker in the display comprises a navigation key means having a roller body whose rolling is detected by means of an encoder operatively connected to the control unit which controls the movement of the marker in the display in dependence thereon.

3. A portable phone according to claim 2, wherein said request means comprises a sensor integrated in a support structure for the roller body, said moving and request means being integrated in the navigation key means.

4. A portable phone according to claims 1-3, wherein the contents of the pop-up window in an entry or editing mode show marker determined context sensitivity.

5. A phone according to claim 4, wherein the display is a dot matrix display for displaying signs arranged in a predetermined number of lines in the active part of the display, each of said lines may contain a plurality of signs, and said marker is provided as a gleaming bar which may be positioned between two of said signs.

6. A portable phone according to claim 4, wherein the phone changes state upon the occurrence of the context sensitive pop-up window to a listing mode in which a plurality of allowable operations are listed in the pop-up window, and

wherein said request providing input means changes functionality to a selection means which, when depressed, selects the operation marked by the cursor.

7. A portable phone according to claims 3-5, comprising an editor controlled by the control unit and operated by the navigation key means, said control unit defining for the editor:

a first display part in the display for displaying a string of entered information;

a second display part in the display for displaying a string of a plurality of possible information candidates;

one of the candidates in the candidate string being highlighted by the cursor whose movement through information candidates is controlled by the rolling of the navigation key means, and said highlighted candidate being selectable for entering into the string of entered information by pressing the navigation key means.

8. A portable phone having a display, input means for inputting information and instructions to a control unit in the phone, said control unit controlling the display in dependence on the operation of the input means; said input means including:

a depressable roller body;

a support structure for the roller body;

an encoder operatively connected to the control unit for detecting the rolling of the roller body; and

a sensor operatively connected to the control unit for detecting the depression of the roller body;

said control unit generating a pop-up window which includes a set of allowed operations, and which covers a part of the display upon reception of a request provided by depressing the roller body.

9. A portable phone according to claim 8, comprising an editor controlled by the control unit and operated by the navigation key, said control unit defining for the editor:

a first display part in the display for displaying a string of entered information;

a second display part in the display for displaying a string of a plurality of possible information candidates;

one of the candidates in the candidate string being highlighted by the cursor whose movement through information candidates is controlled by the rolling of the roller body, and said highlighted candidate being selectable for entering into the string of entered information by pressing the roller body.

10. A portable phone according to claims 8-9, wherein the navigation key is the only input means of the phone.

11. A portable phone according to claim 7, wherein all inputs into the phone may be performed by rolling and pressing the navigation key means.

12. A portable phone according to claim 11, wherein the navigation key means is the only input means of the phone.

13. A portable phone according to claims 1-12, wherein the pop-up window is demarcated from the active display area by means of borderlines defining a rectangular frame.

14. A portable phone according to claim 13, wherein the pop-up window area covers from 30 percent to 70 percent of the full active display area.

15. A portable phone according to claim 13, wherein the pop-up window within the rectangular frame displays a number of selectable operations in a listing mode.

16. A portable phone according to claim 15, wherein the pop-up window within the rectangular frame displays two-four selectable operations.

17. A portable phone according to claim 15, wherein the control unit handles a list including a plurality of selectable operations arranged in a predetermined order with only a fractional set of the full set of operations shown simultaneously in the pop-up

window; and rolling of the navigation key means causes scanning through the full set of operation.

18. A portable phone according to claim 17, wherein the pop-up window displays three operations with the display updated for every step in the list, whereby the cursor will highlight the operation in the middle of the pop-up window.

19. A portable phone according to claim 17 or 18, wherein the full set of operations is arranged with two operations defined as a first item and a last item in the list, respectively; and in the listing mode, when the cursor passes outside the first or the last item in the list, the pop-up window disappears and the phone goes from listing mode to the mode associated with the background display.

20. A portable phone substantially as hereinbefore described with reference to figures 1 to 5, and 7 to 8 or 2 to 8 of the accompanying drawings.

Office

28

**Application No:** GB 9806325.8
**Claims searched:** All

**Examiner:** Jared Stokes
**Date of search:** 21 August 1998

## 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.P): H4K (KFH)
H4L (LECX)

Int Cl (Ed.6): H04M (1/00, 1/02, 1/22, 1/23)
H04Q (7/32)

Other: On-line - WPI

**Documents considered to be relevant:**

| Category | Identity of document and relevant passage | Relevant to claims |
|---|---|---|
| Y | EP 0 715 441 A1 (AT&T) See column 3 line 34-column 4 line 47 | 1-18 |
| Y | EP 0 651 544 A2 (IBM) See whole document | 1-18 |
| Y | WO 97/50264 A1 (Samsung) See whole document | 1-18 |

X Document indicating lack of novelty or inventive step
Y Document indicating lack of inventive step if combined with one or more other documents of same category.
& Member of the same patent family

A Document indicating technological background and/or state of the art.
P Document published on or after the declared priority date but before the filing date of this invention.
E Patent document published on or after, but with priority date earlier than, the filing date of this application.

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| U.S. APPLICATION NUMBER NO. | FIRST NAMED APPLICANT | ATTY. DOCKET NO. |
|---|---|---|
| 10/343,333 | Matthieu Kennedy Martyn | 5035-133US |

| INTERNATIONAL APPLICATION NO. | |
|---|---|
| PCT/GB01/03387 | |
| I.A. FILING DATE | PRIORITY DATE |
| 07/27/2001 | 07/28/2000 |

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**CONFIRMATION NO. 1608**

**371 FORMALITIES LETTER**

*OC000000010693709*

Date Mailed: 08/15/2003

## NOTIFICATION OF MISSING REQUIREMENTS UNDER 35 U.S.C. 371 IN THE UNITED STATES DESIGNATED/ELECTED OFFICE (DO/EO/US)

The following items have been submitted by the applicant or the IB to the United States Patent and Trademark Office as a Designated / Elected Office (37 CFR 1.495).

- Copy of the International Application filed on 01/28/2003
- Copy of the International Search Report filed on 01/28/2003
- Copy of IPE Report filed on 01/28/2003
- Preliminary Amendments filed on 01/28/2003
- Information Disclosure Statements filed on 04/02/2003
- Oath or Declaration filed on 01/28/2003
- Request for Immediate Examination filed on 01/28/2003
- Copy of references cited in ISR filed on 01/28/2003
- U.S. Basic National Fees filed on 01/28/2003

The following items **MUST** be furnished within the period set forth below in order to complete the requirements for acceptance under 35 U.S.C. 371:

- Oath or declaration of the inventors, in compliance with 37 CFR 1.497(a) and (b), identifying the application by the International application number and international filing date. The current oath or declaration does not comply with 37 CFR 1.497(a) and (b) in that it:
  - is not executed in accordance with either 37 CFR 1.66 or 37 CFR 1.68.

- **$130** Surcharge for providing the oath or declaration later than 30 months from the priority date (37 CFR 1.492(e)) is required.

SUMMARY OF FEES DUE:

Total additional fees required for this application is **$130** for a Large Entity:

- **$130** Late oath or declaration Surcharge.

**ALL OF THE ITEMS SET FORTH ABOVE MUST BE SUBMITTED WITHIN TWO (2) MONTHS FROM THE DATE OF THIS NOTICE OR BY 32 MONTHS FROM THE PRIORITY DATE FOR THE APPLICATION, WHICHEVER IS LATER. FAILURE TO PROPERLY RESPOND WILL RESULT IN ABANDONMENT.**

The time period set above may be extended by filing a petition and fee for extension of time under the provisions of 37 CFR 1.136(a).

Applicant is reminded that any communications to the United States Patent and Trademark Office must be mailed to the address given in the heading and include the U.S. application no. shown above (37 CFR 1.5)

*A copy of this notice **MUST** be returned with the response.*

VONDA M WALLACE

Telephone: (703) 305-3736

PART 2 - OFFICE COPY

| U.S. APPLICATION NUMBER NO. | INTERNATIONAL APPLICATION NO. | ATTY. DOCKET NO. |
|---|---|---|
| 10/343,333 | PCT/GB01/03387 | 5035-133US |

FORM PCT/DO/EO/905 (371 Formalities Notice)

Docket No.
**5035-133US**

## Declaration and Power of Attorney For Patent Application
## English Language Declaration

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name.

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor) if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled

**COMPUTING DEVICE WITH IMPROVED USER INTERFACE FOR APPLICATIONS**

The specification of which

(check one)

☐ is attached hereto.

☒ was filed on **JULY 27, 2001** as United States Application No. or PCT International Application Number **PCT/GB01/03387**
and was amended on_____
(if applicable)

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose to the United States Patent and Trademark Office all information known to me to be material to patentability as defined in Title 37, Code of Federal Regulations, Section 1.56.

I hereby claim foreign priority benefits under Title 35, United States Code, Section 119(a)-(d) or Section 365(b) of any foreign application(s) for patent or inventor's certificate, or Section 365(a) of any PCT International application which designated at least one country other than the United States, listed below and have also identified below, by checking the box, any foreign application for patent or inventor's certificate or PCT International application having a filing date before that of the application on which priority is claimed.

| Prior Foreign Application(s) | | | Priority Not Claimed |
|---|---|---|---|
| **0019459.7** | **GB** | **28 July 2000** | ☐ |
| (Number) | (Country) | (Day/Month/Year Filed) | |
| | | | ☐ |
| (Number) | (Country) | (Day/Month/Year Filed) | |

I hereby claim the benefit under 35 U.S.C. Section 119(e) of any United States provisional application(s) listed below:

| (Application Serial No.) | (Filing Date) |
|---|---|
| (Application Serial No.) | (Filing Date) |
| (Application Serial No.) | (Filing Date) |

I hereby claim the benefit under 35 U.S.C. Section 120 of any United States application(s), or Section 365© of any PCT International application designating the United States, listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States or PCT International application in the manner provided by the first paragraph of 35 U.S.C. Section 112, I acknowledge the duty to disclose to the United States Patent and Trademark Office all information known to me to be material to patentability as defined in Title 37, C.F.R., Section 1.56 which became available between the filing date of the prior application and the national or PCT International filing date of this application:

| (Application Serial No.) | (Filing Date) | (Status) (patented, pending, abandoned) |
|---|---|---|
| (Application Serial No.) | (Filing Date) | (Status) (patented, pending, abandoned) |
| (Application Serial No.) | (Filing Date) | (Status) (patented, pending, abandoned) |

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

POWER OF ATTORNEY: As a named inventor, I hereby appoint the following attorney(s) and/or agent(s) to prosecute this application and transact all business in the Patent and Trademark Office connected therewith. *(list name and registration number)*

| | |
|---|---|
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| **Stuart H. Nissim** | ~~33,541~~ |
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Full name of second inventor, if any

Second inventor's signature — Date

Residence

Citizenship

Post Office Address

DT20 Rec'd PCT/PTO 27 AUG 2003

| Response To Notice To File Missing Parts Of Application Filing Date Granted (PTO-1533) (Large Entity) | Docket No. 5035-133US |
|---|---|

In Re Application Of: **Matthieu Kennedy Martyn**

AUG 27 2003 PATENT & TRADEMARK OFFICE 2100

| Serial No. | Filing Date | Examiner | Group Art Unit |
|---|---|---|---|
| 10/343,333 | 28 January 2003 | Vonda M. Wallace | |

Invention:

**COMPUTING DEVICE WITH IMPROVED USER INTERFACE FOR APPLICATIONS**

Mail Stop Missing Parts

TO THE COMMISSIONER FOR PATENTS:

This is a response to the Notice to File Missing Parts of Application - Filing Date Granted (PTO-1533) mailed on **August 15, 2003**
*Date*

Enclosed herewith for filing are the following:

☒ A copy of the Notice to File Missing Parts of Application - Filing Date Granted (PTO-1533). **(REQUIRED)**

☐ An oath or declaration in compliance with 37 CFR 1.63, including residence information and identifying the application by the above Application Number and Filing Date.

☒ A properly signed oath or declaration in compliance with 37 CFR 1.63.

☐ An oath or declaration in compliance with 37 CFR 1.63 listing the names of all inventors and signed by the omitted inventor(s), identifying this application by the above Application Number and Filing Date.

☐ A verified English translation of the non-English language application papers as originally filed. It is requested that this translation be used as the copy for examination purposes in the United States Patent and Trademark Office.

☒ Other (list):

**Recordation of Assignment, Assignment and $40.00 filing Fee**
**Acknolwedgement Post Card**

Rec'd PCT/PTO 27 AUG 2003

| Response To Notice To File Missing Parts Of Application Filing Date Granted (PTO-1533)(Large Entity) | Docket No. 5035-133US |
|---|---|

In Re Application Of: **Matthieu Kennedy Martyn**

| Serial No. | Filing Date | Examiner | Group Art Unit |
|---|---|---|---|
| 10/343,333 | 28 January 2003 | Vonda M. Wallace | |

Invention:

**COMPUTING DEVICE WITH IMPROVED USER INTERFACE FOR APPLICATIONS**

TO THE COMMISSIONER FOR PATENTS:

Mail Stop Missing Parts

☒ Completion of application fees as calculated below:

| | |
|---|---|
| ☐ Utility application filing fee | |
| ☐ Design application filing fee | |
| ☐ Total number of independent claims = _____ | |
| ☐ Total number of claims = _____ | |
| ☐ Multiple dependent claims | |
| ☒ Surcharge for late payment of filing fee and/or late filing of original declaration or oath | **$130.00** |
| ☐ Petition and fee for filing by other than all the inventors or a person not the inventor | |
| ☐ Fee for processing an application filed with a non-English language specification | |
| ☐ Fee for processing and retention of application | |

09/08/2003 MKAYPAGH 00000094 10343333

01 FC:1817 130.00 OP

Total completion of application fees **$130.00**

This is a request under the provisions of 37 CFR 1.136(a) to extend the period for filing a response to the above-identified Notice to File Missing Parts of Application. The requested extension is as follows (check time period desired). If an additional time extension is required, please consider this a petition therefor.

☐ One month ☐ Two months ☐ Three months ☐ Four months ☐ Five months

from: _____ *Date* until: _____ *Date*

Total time extension fees _____

Total fees due **$130.00**

Rec'd PCT/PTO 27 AUG 2003

| Response To Notice To File Missing Parts Of Application Filing Date Granted (PTO-1533) (Large Entity) | Docket No. 5035-133US |
|---|---|

In Re Application Of: **Matthieu Kennedy Martyn**

| Serial No. | Filing Date | Examiner | Group Art Unit |
|---|---|---|---|
| 10/343,333 | 28 January 2003 | Vonda M. Wallace | |

Invention:

**COMPUTING DEVICE WITH IMPROVED USER INTERFACE FOR APPLICATIONS**

TO THE COMMISSIONER FOR PATENTS:

Mail Stop Missing Parts

The fee of **$130.00** is to be paid as follows:

☒ A check in the amount of the fee is enclosed.

☒ The Director is hereby authorized to charge any fees which may be required, or credit any overpayment, to Deposit Account No. **23-3040**

☐ If an additional extension of time is required, please consider this a petition therefor and charge any additional fees which may be required to Deposit Account No.

Richard C. Woodbridge Jr.
*Signature*

Dated: Aug. 25, 2003

**Richard C. Woodbridge**
**Synnestvedt Lechner & Woodbridge LLP**
**P.O. Box 592**
**Princeton, NJ 08542**
**609-924-3773 - phone**
**609-924-1811 - fax**

I certify that this document and fee is being deposited on Aug 25 2003 with the U.S. Postal Service as first class mail under 37 C.F.R. 1.8 and is addressed to the Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

Richard C. Woodbridge Jr.
*Signature of Person Mailing Correspondence*

**Richard C. Woodbridge**
*Typed or Printed Name of Person Mailing Correspondence*

cc: **Peter Langley**

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| U.S. APPLICATION NUMBER NO. | FIRST NAMED APPLICANT | ATTY. DOCKET NO. |
|---|---|---|
| 10/343,333 | Matthieu Kennedy Martyn | 5035-133US |

| INTERNATIONAL APPLICATION NO. | |
|---|---|
| PCT/GB01/03387 | |
| I.A. FILING DATE | PRIORITY DATE |
| 07/27/2001 | 07/28/2000 |

Richard C Woodbridge
Woodbridge & Associates
P O Box 592
Princeton, NJ 08542-0592

**CONFIRMATION NO. 1608**

**371 FORMALITIES LETTER**

*OC000000010693709*

Date Mailed: 08/15/2003

## NOTIFICATION OF MISSING REQUIREMENTS UNDER 35 U.S.C. 371 IN THE UNITED STATES DESIGNATED/ELECTED OFFICE (DO/EO/US)

The following items have been submitted by the applicant or the IB to the United States Patent and Trademark Office as a Designated / Elected Office (37 CFR 1.495).

- Copy of the International Application filed on 01/28/2003
- Copy of the International Search Report filed on 01/28/2003
- Copy of IPE Report filed on 01/28/2003
- Preliminary Amendments filed on 01/28/2003
- Information Disclosure Statements filed on 04/02/2003
- Oath or Declaration filed on 01/28/2003
- Request for Immediate Examination filed on 01/28/2003
- Copy of references cited in ISR filed on 01/28/2003
- U.S. Basic National Fees filed on 01/28/2003

The following items **MUST** be furnished within the period set forth below in order to complete the requirements for acceptance under 35 U.S.C. 371:

- Oath or declaration of the inventors, in compliance with 37 CFR 1.497(a) and (b), identifying the application by the International application number and international filing date. The current oath or declaration does not comply with 37 CFR 1.497(a) and (b) in that it:
  - is not executed in accordance with either 37 CFR 1.66 or 37 CFR 1.68.

- **$130** Surcharge for providing the oath or declaration later than 30 months from the priority date (37 CFR 1.492(e)) is required.

SUMMARY OF FEES DUE:

Total additional fees required for this application is **$130** for a Large Entity:

RECEIVED
AUG 20 2003
By

- **$130** Late oath or declaration Surcharge.

**ALL OF THE ITEMS SET FORTH ABOVE MUST BE SUBMITTED WITHIN TWO (2) MONTHS FROM THE DATE OF THIS NOTICE OR BY 32 MONTHS FROM THE PRIORITY DATE FOR THE APPLICATION, WHICHEVER IS LATER. FAILURE TO PROPERLY RESPOND WILL RESULT IN ABANDONMENT.**

The time period set above may be extended by filing a petition and fee for extension of time under the provisions of 37 CFR 1.136(a).

Applicant is reminded that any communications to the United States Patent and Trademark Office must be mailed to the address given in the heading and include the U.S. application no. shown above (37 CFR 1.5)

*A copy of this notice **MUST** be returned with the response.*

VONDA M WALLACE

Telephone: (703) 305-3736

PART 1 - ATTORNEY/APPLICANT COPY

| U.S. APPLICATION NUMBER NO. | INTERNATIONAL APPLICATION NO. | ATTY. DOCKET NO. |
|---|---|---|
| 10/343,333 | PCT/GB01/03387 | 5035-133US |

FORM PCT/DO/EO/905 (371 Formalities Notice)

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| U.S. APPLICATION NUMBER NO. | FIRST NAMED APPLICANT | ATTY. DOCKET NO. |
|---|---|---|
| 10/343,333 | Mathieu Kennedy Martyn | 5035-133US |

| INTERNATIONAL APPLICATION NO. | |
|---|---|
| PCT/GB01/03387 | |
| I.A. FILING DATE | PRIORITY DATE |
| 07/27/2001 | 07/28/2000 |

Richard C Woodbridge
Woodbridge & Associates
PO Box 592
Princeton, NJ 08542-0592

**CONFIRMATION NO. 1608**

**371 ACCEPTANCE LETTER**

*OC000000010889529*

Date Mailed: 09/24/2003

## NOTICE OF ACCEPTANCE OF APPLICATION UNDER 35 U.S.C 371 AND 37 CFR 1.495

The applicant is hereby advised that the United States Patent and Trademark Office in its capacity as a Designated / Elected Office (37 CFR 1.495), has determined that the above identified international application has met the requirements of 35 U.S.C. 371, and is ACCEPTED for national patentability examination in the United States Patent and Trademark Office.

The United States Application Number assigned to the application is shown above and the relevant dates are:

| 08/27/2003 | 08/27/2003 |
|---|---|
| DATE OF RECEIPT OF 35 U.S.C. 371(c)(1), (c)(2) and (c)(4) REQUIREMENTS | DATE OF RECEIPT OF ALL 35 U.S.C. 371 REQUIREMENTS |

A Filing Receipt (PTO-103X) will be issued for the present application in due course. **THE DATE APPEARING ON THE FILING RECEIPT AS THE " FILING DATE" IS THE DATE ON WHICH THE LAST OF THE 35 U.S.C. 371 REQUIREMENTS HAS BEEN RECEIVED IN THE OFFICE. THIS DATE IS SHOWN ABOVE.** *The filing date of the above identified application is the international filing date of the international application (Article 11(3) and 35 U.S.C. 363).* Once the Filing Receipt has been received, send all correspondence to the Group Art Unit designated thereon.

The following items have been received:

- Copy of the International Application filed on 01/28/2003
- Copy of the International Search Report filed on 01/28/2003
- Copy of IPE Report filed on 01/28/2003
- Preliminary Amendments filed on 01/28/2003
- Information Disclosure Statements filed on 04/02/2003
- Oath or Declaration filed on 08/27/2003
- Request for Immediate Examination filed on 01/28/2003
- Copy of references cited in ISR filed on 01/28/2003
- U.S. Basic National Fees filed on 01/28/2003
- Assignee Statement filed on 08/27/2003

Applicant is reminded that any communications to the United States Patent and Trademark Office must be mailed to the address given in the heading and include the U.S. application no. shown above (37 CFR 1.5)

VONDA M WALLACE
Telephone: (703) 305-3736

PART 3 - OFFICE COPY

FORM PCT/DO/EO/903 (371 Acceptance Notice)

# EAST Search History

| Ref # | Hits | Search Query | DBs | Default Operator | Plurals | Time Stamp |
|---|---|---|---|---|---|---|
| L1 | 1 | ("6512525").PN. | US-PGPUB; USPAT; USOCR | OR | OFF | 2006/11/09 17:16 |
| L2 | 521 | (715/762).CCLS. | US-PGPUB; USPAT; USOCR | OR | OFF | 2006/11/09 17:17 |
| L3 | 290 | (715/808).CCLS. | US-PGPUB; USPAT; USOCR | OR | OFF | 2006/11/09 17:18 |
| L4 | 136 | (715/759).CCLS. | US-PGPUB; USPAT; USOCR | OR | OFF | 2006/11/09 17:18 |
| L5 | 160 | (715/776).CCLS. | US-PGPUB; USPAT; USOCR | OR | OFF | 2006/11/09 17:18 |
| S1 | 920 | (pda or (portable near3 device)) with menu | US-PGPUB; USPAT; USOCR | OR | OFF | 2006/11/09 09:43 |
| S2 | 17 | S1 and (application near3 menu) and (plurality near3 application) | US-PGPUB; USPAT; USOCR | OR | OFF | 2006/11/09 12:03 |
| S3 | 29 | ((pda or (portable near3 device)) with menu) and (application near3 menu) and (plurality near3 application) | US-PGPUB; USPAT; USOCR | OR | ON | 2006/11/09 09:51 |
| S4 | 41 | ((pda or (portable near3 device))) and ((application near3 menu) same (plurality near3 application)) | US-PGPUB; USPAT; USOCR | OR | ON | 2006/11/09 09:57 |
| S5 | 2 | (("6456841") or ("6144863")).PN. | US-PGPUB; USPAT; USOCR | OR | OFF | 2006/11/09 09:57 |
| S6 | 79 | (pda((mobile or handheld) near3 device)) same ((adapt$4 customiz$6) with menu) | US-PGPUB; USPAT; USOCR | OR | OFF | 2006/11/09 12:03 |
| S7 | 102 | (pda((mobile or handheld) near3 device)) same ((adapt$4 customiz$6) with menu) | US-PGPUB; USPAT; USOCR | OR | ON | 2006/11/09 16:33 |

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|---|---|---|---|
| 10/343,333 | 08/27/2003 | Mathieu Kennedy Martyn | 5035-133US | 1608 |

7590 12/12/2006

Richard C Woodbridge
Woodbridge & Associates
PO Box 592
Princeton, NJ 08542-0592

| EXAMINER | |
|---|---|
| VU, THANH T | |

| ART UNIT | PAPER NUMBER |
|---|---|
| 2174 | |

DATE MAILED: 12/12/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/343,333 | MARTYN, MATHIEU KENNEDY | |
| | Examiner | Art Unit | |
| | Thanh T. Vu | 2174 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *28 January 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *14-36* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *14-36* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☒ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

## DETAILED ACTION

### *Specification*

This application does not contain an abstract of the disclosure as required by 37 CFR 1.72(b). An abstract on a separate sheet is required.

### *Claim Rejections - 35 USC § 101*

35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 26-36 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. The claims recite "a computer program" claimed as computer listing per se, i.e., the descriptions or expressions of the programs, is not a physical "thing" (see Interim Guidelines for Examination of Patent Applications for Patent Subject Matter Eligibility, page 53).

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 14-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Capps et al. ("Capps", U.S. Pat. No. 6,512,525) and Arcuri et al. ("Arcuri", U.S. Pat. No. 6,121,968).

Per claim 14, Capps teaches a computing device comprising a display screen, the computing device being able to display on the screen an application summary window, in which

summary window displays a list of several common functions offered within an application, any item in the list being selectable to initiate the respective function (figs. 7, 8b, 14; col. 2, lines 56-67;col. 3, lines 13-25 and 31-44; col. 12, lines 55-61; col. 22, lines 28; e.g. *application summary window 254, 268, or 374)*. Capps does not specifically teach a limited list of several common functions being a subset of all of the functions offered by a given application but not being scrollable to reveal additional functions outside of the subset. However, Arcuri teaches a limited list of several common functions being a subset of all of the functions offered by a given application but not being scrollable to reveal additional functions outside of the subset (figs. 2A-2B; col. 2, lines 56-65; col. 8, lines 13-15 and lines 27-32). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to include the teaching of Arcuri in the invention of Capps in order to provide a system for dynamically changing the available commands in a given menu based upon the particular needs and utilization behavior of a user (Arcuri, col. 2, lines 10-13).

Per claim 15, Capps further teaches selecting a common function listed in the summary window causes the related application to open and that selected common function to be activated (figs 8a-8b, 10a-10b; *e.g. open application 256, 274, 392, 410*; col. 13, lines 13-26; col. 16, lines 22-28, lines 39-45).

Per claim 16, Capps further teaches an application launcher lists the names and/or icons of several applications and selecting a name or icon caused the summary window for that application to be opened (figs. 15b and 15c; *names of applications 374;* e.g. summary window 400 for mail application; col. 16, lines 62).

Per claim 17, Arcuri teaches the kinds of content of a summary window for a given application is selected using a process in which the device learns what functionality and/or stored data types are of interest to any given user (col. 2, lines 9-12; col. 2, lines 15-30).

Per claim 18, Arcuri teaches the user can define what functionality and/or stored data types interest to that user for the summary window for an application (col. 2, lines 9-12; col. 2, lines 54-65; *a command is added to the subset of commands in the short form menu when the user selects a command form the long menu*).

Per claim 19, Capps the functionality and/or stored data types for a summary window for a given application varies with the environment of the device (col. 2, line 54-col. 3, line 5; col. 16, lines 54-60; *a given persona can be extended by applications running on the computer system*).

Per claim 20, Arcuri teaches the functionality and/or stored data types for a summary window for a given application varies with the actions of the user (col. 2, lines 9-12; col. 2, lines 54-65; *a command is added to the subset of commands in the short form menu when the user selects a command form the long menu*).

Per claim 21, Capps teaches opening a summary window for a given application does not result in that application being opened (figs. 7, 8b, and 14; e.g. *application summary window 254, 268, or 374).*

Per claim 22, Capps teaches the summary window is a frame which includes the name of the associated application (figs. 7, 8b, and 14; e.g. *application summary window 254, 268, or 374).*

Per claim 23, Capps teaches the summary window further display a list of data stored in that application (col. 3, lines 31-37; *multiple name records pertaining to the personas provided by the system).*

Per claim 24, Capps teaches the computing device of claim 14, being a mobile telephone (see fig. 16b).

Per claim 25, Capps teaches the computing device of claim 14, being a PC (fig. 1; col. 2, lines 52-54; col. 11, lines 40-43).

Claims 26 and 27 are rejected under the same rationale as claim 1.

Claims 28-36 are rejected under the same rationale as claims 15-23 respectively.

***Inquiries***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thanh T. Vu whose telephone number is (571) 272-4073. The examiner can normally be reached on Mon-Thur and every other Fri 7:30 AM - 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kristine L. Kincaid can be reached on (571) 272-4063. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Kristine Kincaid

KRISTINE KINCAID
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100

T. Vu

| INFORMATION DISCLOSURE CITATION (Use several sheets if necessary) | ATTY DOCKET NO. 5035-133US | SERIAL NO. 10/343,333 |
|---|---|---|
| | FILING 28 January 2003 | GROUP |

OIPE APR 0 2 2003 PATENT & TRADEMARK OFFICE

**U.S. PATENT DOCUMENTS**

| *EXAMINER INITIAL | | DOCUMENT NUMBER | DATE | NAME | CLASS | SUBCLASS | FILING DATE IF APPROPRIATE |
|---|---|---|---|---|---|---|---|
| TV | A | 6,456,841B1 | 09/24/2002 | Tomimori | | | |
| TV | B | 6,144,863 | 11/07/2000 | Charron | | | |
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**FOREIGN PATENT DOCUMENTS**

| | | DOCUMENT NUMBER | DATE | COUNTRY | CLASS | SUBCLASS | TRANSLATION YES | TRANSLATION NO |
|---|---|---|---|---|---|---|---|---|
| TV | C | EP 0 891 066 A2 | 13/01/1999 | European | | | | |
| | D | EP 0 844 553 A1 | 27/05/1998 | European | | | | |
| | E | EP 0 607 731 A2 | 27/07/1994 | European | | | | |
| ✓ | F | GB 2 335 822 A | 25/03/1998 | UK | | | | |
| | | | | | | | | |

**OTHER DOCUMENTS** *(Including Author, Title, Date, Pertinent Pages, Etc.)*

| | | | |
|---|---|---|---|
| TV | | G | IBM Technical Disclosure Bulletin; Vol. 37; No. 02B; February 1994 "Reorganizing Menu Hierachy to Best Fit the Individual User"; Pages 349 - 350 |
| | | | |

| EXAMINER | DATE CONSIDERED |
|---|---|
| [signature] | 11/9/06 |

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

| Notice of References Cited | Application/Control No. 10/343,333 | Applicant(s)/Patent Under Reexamination MARTYN, MATHIEU KENNEDY | |
|---|---|---|---|
| | Examiner Thanh T. Vu | Art Unit 2174 | Page 1 of 1 |

**U.S. PATENT DOCUMENTS**

| * | | Document Number Country Code-Number-Kind Code | Date MM-YYYY | Name | Classification |
|---|---|---|---|---|---|
| * | A | US-6,121,968 | 09-2000 | Arcuri et al. | 715/825 |
| * | B | US-6,512,525 | 01-2003 | Capps et al. | 715/762 |
| | C | US- | | | |
| | D | US- | | | |
| | E | US- | | | |
| | F | US- | | | |
| | G | US- | | | |
| | H | US- | | | |
| | I | US- | | | |
| | J | US- | | | |
| | K | US- | | | |
| | L | US- | | | |
| | M | US- | | | |

**FOREIGN PATENT DOCUMENTS**

| * | | Document Number Country Code-Number-Kind Code | Date MM-YYYY | Country | Name | Classification |
|---|---|---|---|---|---|---|
| | N | | | | | |
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| | P | | | | | |
| | Q | | | | | |
| | R | | | | | |
| | S | | | | | |
| | T | | | | | |

**NON-PATENT DOCUMENTS**

| * | | Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages) |
|---|---|---|
| | U | |
| | V | |
| | W | |
| | X | |

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
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Alexandria, Virginia 22313-1450
www.uspto.gov

Bib Data Sheet

**CONFIRMATION NO. 1608**

| SERIAL NUMBER | FILING OR 371(c) DATE | CLASS | GROUP ART UNIT | ATTORNEY DOCKET NO. |
|---|---|---|---|---|
| 10/343,333 | 08/27/2003<br>RULE | 345 | 2672 | 5035-133US |

**APPLICANTS**

Mathieu Kennedy Martyn, London, GBN, UNITED KINGDOM;

**** CONTINUING DATA ***************************

This application is a 371 of PCT/GB01/03387 07/27/2001 TV

**** FOREIGN APPLICATIONS *********************

UNITED KINGDOM 0019459.7 07/28/2000 TV

| Foreign Priority claimed | STATE OR COUNTRY | SHEETS DRAWING | TOTAL CLAIMS | INDEPENDENT CLAIMS |
|---|---|---|---|---|
| ☒ yes ☐ no | GBN | 1 | 23 | 2 |
| 35 USC 119 (a-d) conditions met ☒ yes ☐ no ☐ Met after Allowance | | | | |
| Verified and Acknowledged Examiner's Signature TV Initials | | | | |

**ADDRESS**

Richard C Woodbridge
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PO Box 592
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**TITLE**

Computing device with improved user interface for applications

| FILING FEE RECEIVED | | |
|---|---|---|
| 1084 | FEES: Authority has been given in Paper No. _____ to charge/credit DEPOSIT ACCOUNT No. _____ for following: | ☐ All Fees<br>☐ 1.16 Fees ( Filing )<br>☐ 1.17 Fees ( Processing Ext. of time )<br>☐ 1.18 Fees ( Issue )<br>☐ Other _____<br>☐ Credit |

## *Search Notes*

| Application/Control No. | Applicant(s)/Patent under Reexamination | |
|---|---|---|
| 10/343,333 | MARTYN, MATHIEU KENNEDY | |
| **Examiner** | **Art Unit** | |
| Thanh T. Vu | 2174 | |

| SEARCHED | | | |
|---|---|---|---|
| Class | Subclass | Date | Examiner |
| 715 | 762<br>776<br>759<br>808 | 11/7/2006 | TV |
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| INTERFERENCE SEARCHED | | | |
|---|---|---|---|
| Class | Subclass | Date | Examiner |
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| SEARCH NOTES (INCLUDING SEARCH STRATEGY) | | |
|---|---|---|
| | DATE | EXMR |
| East Search | 11/7/2006 | TV |
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**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

| | | |
|---|---|---|
| INVENTORS: | Mathieu K. Martyn | |
| APPLICATION NO. | 10/343,333 | Confirmation No. 1608 |
| FILED: | August 27, 2003 | Examiner: T. Vu |
| CASE NO. | 5459-141US/28418 USA | Group Art Unit: 2174 |

TITLE: COMPUTING DEVICE WITH IMPROVED USER INTERFACE FOR APPLICATIONS

# FILED ELECTRONICALLY ON June 12, 2007

MAIL STOP AMENDMENT
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

**REPLY AND AMENDMENT UNDER 37 C.F.R. §1.111**
**TO EXAMINER'S ACTION MAILED DECEMBER 12, 2006**

Sir:

This is in response to the Office Action mailed December 12, 2006, having a period for response set to expire on March 12, 2007. A Petition extending the period for response for three months, to June 12, 2007, is included herein, along with authorization to charge the extension fee to a credit card. The following amendments and remarks are respectfully submitted.

Amendments to the claims begin on page 2 of this paper; Remarks begin on page 7 of this paper.

**In the Claims**

Claims 1-13 (Canceled)

14. (Currently amended) A computing device comprising a display screen, the computing device being able to display on the screen a main menu listing one or more applications, and additionally being able to display on the screen an application summary window that can be reached directly from the main menu, wherein ~~, in which~~ the summary window displays a limited list of several common functions offered within an application, any item in the list being selectable to initiate the respective function~~, the limited list being a sub-set of all of the functions offered by a given application but not being scrollable to reveal additional functions outside of the sub-set~~.

15. (Original) The computing device of Claim 14 in which selecting a common function listed in the summary window causes the related application to open and that selected common function to be activated.

16. (Original) The computing device of Claim 14 in which an application launcher lists the names and/or icons of several applications and selecting a name or icon causes the summary window for that application to be opened.

17. (Original) The computing device of Claim 14 in which the kinds of content of a summary window for a given application is selected using a process in which the device learns what functionality and/or stored data types are of interest to any given user.

18. (Original) The computing device of Claim 14 in which the user can define what functionality and/or stored data types are of interest to that user for the summary window for an application.

19. (Original) The computing device of Claim 14 in which the functionality and/or stored data types for a summary window for a given application varies with the environment of the device.

20. (Original) The computing device of Claim 14 in which the functionality and/or stored data types for a summary window for a given application varies with the actions of the user.

21. (Original) The computing device of Claim 14 in which opening a summary window for a given application does not result in that application being opened.

22. (Original) The computing device of Claim 14 in which the summary window is a frame which includes the name of the associated application.

23. (Original) The computing device of Claim 14 in which the summary window further display a list of data stored in that application.

24. (Original) The computing device of Claim 14, being a mobile telephone.

25. (Original) The computing device of Claim 14, being a PC.

26. (Currently amended) A computer program product comprising a computer-readable storage medium having computer-readable code embodied in the medium which, when running on a computing device, causes the computing device to display on a screen of the device a main menu listing one or more applications, and additionally being able to display on the screen an application summary window that can be reached directly from the main menu, wherein~~, in which~~ the summary window displays a limited list of several common functions offered within an application, any item in the list being selectable to initiate the respective function~~, the limited list being a sub-set of all of~~

~~the functions offered by a given application but not being scrollable to reveal additional functions outside of the sub-set~~.

27. (Currently amended) The computer program product of Claim 26, ~~being~~ wherein said computer-readable code comprises an operating system program.

28. (Currently amended) The computer program product of Claim 26, wherein said computer-readable code is operable such that selecting a common function listed in the summary window causes the related application to open and that selected common function to be activated.

29. (Currently amended) The computer program product of Claim 26, wherein said computer-readable code is operable to cause the screen to display an application launcher which lists the names and/or icons of several applications, wherein selecting a name or icon causes the summary window for that application to be opened.

30. (Currently amended) The computer program product of Claim 26, wherein said computer- readable code enables ~~in which~~ the kinds of content of a summary window for a given application to ~~can~~ be selected using a process in which the device learns what functionality and/or stored data types are of interest to any given user.

31. (Currently amended) The computer program product of Claim 26, wherein said computer-readable code ~~which~~ enables a user to define what functionality and/or stored data types are of interest to that user for the summary window for an application.

32. (Currently amended) The computer program product of Claim 26, wherein said computer-readable code enables ~~in which~~ the functionality and/or stored data types for a summary window for a given application to vary ~~varies~~ with the environment of the device.

33. (Currently amended) The computer program product of Claim 26, wherein said computer-readable code enables ~~in which~~ the functionality and/or stored data types for a summary window for a given application to vary ~~varies~~ with the actions of the user.

34. (Currently amended) The computer program product of Claim 26, wherein said computer-readable code enables the ~~in which~~ opening of a summary window for a given application without resulting ~~does not result~~ in that application being opened.

35. (Currently amended) The computer program product of Claim 26, wherein said computer-readable code enables ~~in which~~ the summary window to be ~~is~~ a frame which includes the name of the associated application.

36. (Currently amended) The computer program product of Claim 26, wherein said computer-readable code enables ~~in which~~ the summary window to further display ~~displays~~ a list of data stored in that application.

37. (New) The computing device of claim 1 wherein said limited list is a sub-set of all of the functions offered by a given application.

38. (New) The computing device of claim 37 wherein said limited list displays only functions in said sub-set and thus cannot be scrolled to reveal additional functions outside of the sub-set.

39. (New) The computer program product according to claim 26 wherein said limited list is a sub-set of all of the functions offered by a given application.

40. (New) The computer program product according to claim 38 wherein said limited list displays only functions in said sub-set and thus cannot be scrolled to reveal additional functions outside of the sub-set.

## REMARKS

### Petition for Extension of Time Under 37 CFR 1.136(a)

It is hereby requested that the term to respond to the Examiner's Action of December 12, 2006 be extended three months, from March 12, 2007 to June 12, 2007.

Authorization to charge a Credit Card is given to cover the extension fee. The Commissioner is hereby authorized to charge any additional fees associated with this communication to Deposit Account No. 19-5425.

In the Office Action, the Examiner indicated that claims 14 through 36 are pending in the application and the Examiner rejected all claims.

### The §101 Rejection

On page 2 of the Office Action, the Examiner has rejected claims 26-36 under 35 U.S.C. §101 as being directed to non-statutory subject matter. The Examiner has indicated that the claims recite "a computer program" and that this is not a physical "thing." Applicant has amended the claims to recite the invention in a form appropriate to U.S. Patent practice, that is, by directing the claims to a "computer program product comprising a computer-readable storage medium having computer-readable program code embodied in the medium..." and by amending the dependent claims to enable their functions via the computer-readable code. Accordingly, applicant respectfully submits that this overcomes the rejection of claims 26-36 under 35 U.S.C. §101, and the Examiner is respectfully requested to reconsider and withdraw the rejection of claims 26-36 under 35 U.S.C. §101.

**Claim Rejections, 35 U.S.C. § 103**

On page 2 of the Office Action, the Examiner rejected claims 14-36 under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 6,512,525 to Capps et al. in view of U.S. Patent No. 6,121,968 to Arcuri et al.

**The Present Invention**

In one implementation of the present invention, a computing device displays on a display screen a main menu listing a number of applications, and additionally is able to display on the display screen an application summary window that displays a limited list of several common functions offered within an application, such that any item in the limited list is selectable to initiate its respective function.

**U.S. Patent No. 6,512,525 to Capps et al.**

U.S. Patent No. 6,512,525 to Capps et al. ("Capps") discloses a system capable of adopting a number of personas. All applications running on the system have access to a central repository of extensible personas, and the personas are each associated with a suite of parameters which are appropriate for conducting transactions under a particular persona. Figure 7 illustrates an example of a screen shot according to Capps; it shows an open *application* (an ownership record) (see col. 4, lines 65-67), and also shows a window listing a number of options displayed within the *application*.

**U.S. Patent No. 6,121,968 to Arcuri et al.**

U.S. Patent No. 6,121,968 to Arcuri et al. ("Arcuri") discloses the concept of short and long menu states, with the long menu being accessible via the short menu. As illustrated in Figs. 2A, 2B, etc., the menus become available once an *application* is opened (in the example shows in Arcuri, the application appears too be Microsoft Word); the menus are not accessible from the device's main menu.

**The Examiner has not Established a *prima facie* Case of Obviousness**

As set forth in the MPEP:

> To establish a *prima facie* case of obviousness, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skilled in the art, to modify the reference or to combine reference teachings.
> MPEP 2143

As note above, the present claimed invention, as amended, specifies that the computing device displays a *main menu* listing one or more applications, and is able to display an application summary window directly from the main window. The claims have been amended to focus more directly on this aspect, and new claims 37-40 have been added to recite limitations, now in dependent form, that have been removed from the independent claims by this amendment. The summary window displays a limited list of one or more common functions offered within an application listed on the main menu, and each item in the limited list is selectable to activate its function, instead of

requiring the user to first access the desired application and then "drill down" to the common function. Both independent claims recite these features, and thus, all claims include these features.

Neither Capps nor Arcuri teach or suggest these claimed elements. In each, the various functions described are accessible only after the user has entered the *application* of interest – they do not teach or suggest functionality that enables the functions to be accessible from the main menu and across all applications displayed in the main menu. . The present claimed invention has significant advantages over the prior art, including Capps and Arcuri. Using the present invention, a user can very quickly select the desired functionality, without needing to first launch a selected application and then enter a menu system specific to that application. Instead, the user can access a limited list of functions (which could, for example, represent the most commonly-selected functions for a particular application) directly from the main menu, as illustrated in Figures 1-3 of the present application. Neither Capps nor Arcuri, alone or combined, teach or suggest any such advantage, and do not provide a person skilled in the art with any motivation to modify the respective arrangements of Capps and Arcuri so as to make a limited set of an application's functions available to a user directly from the main menu.

Accordingly, for the reasons set forth above, it is submitted that each of claims 14-36 patentably define over Capps and Arcuri, taken alone or in combination. The Examiner is therefore respectfully requested to reconsider and withdraw the rejection of claims 14-36 under 35 U.S.C. §103.

**Conclusion**

The present invention is not taught or suggested by the prior art. Accordingly, the Examiner is respectfully requested to reconsider and withdraw the rejection of the claims. An early Notice of Allowance is earnestly solicited.

Included herein is a Petition for extension of time to respond to the Examiner's Action, and authorization to charge the extension fee to a credit card. The Commissioner is hereby authorized to charge any additional fees or credit any overpayment associated with this communication to Deposit Account No. 19-5425.

Respectfully submitted

June 12, 2007
Date

/Mark D. Simpson/
Mark D. Simpson, Esquire
Registration No. 32,942

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Telephone: 609 924 3773
Facsimile: 609 924 1811

# Electronic Patent Application Fee Transmittal

| | |
|---|---|
| **Application Number:** | 10343333 |
| **Filing Date:** | 27-Aug-2003 |
| **Title of Invention:** | Computing device with improved user interface for applications |
| First Named Inventor/Applicant Name: | Mathieu Kennedy Martyn |
| **Filer:** | Mark D. Simpson/Lynn White |
| **Attorney Docket Number:** | 5035-133US |

Filed as Large Entity

## U.S. National Stage under 35 USC 371 Filing Fees

| Description | Fee Code | Quantity | Amount | Sub-Total in USD($) |
|---|---|---|---|---|
| **Basic Filing:** | | | | |
| **Pages:** | | | | |
| **Claims:** | | | | |
| Claims in excess of 20 | 1615 | 4 | 50 | 200 |
| **Miscellaneous-Filing:** | | | | |
| **Petition:** | | | | |
| **Patent-Appeals-and-Interference:** | | | | |
| Post-Allowance-and-Post-Issuance: | | | | |
| **Extension-of-Time:** | | | | |

| Description | Fee Code | Quantity | Amount | Sub-Total in USD($) |
|---|---|---|---|---|
| Extension - 3 months with $0 paid | 1253 | 1 | 1020 | 1020 |
| **Miscellaneous:** | | | | |
| | | **Total in USD ($)** | | **1220** |

| Electronic Acknowledgement Receipt | |
|---|---|
| **EFS ID:** | 1862570 |
| **Application Number:** | 10343333 |
| **International Application Number:** | |
| **Confirmation Number:** | 1608 |
| **Title of Invention:** | Computing device with improved user interface for applications |
| **First Named Inventor/Applicant Name:** | Mathieu Kennedy Martyn |
| **Correspondence Address:** | Richard C Woodbridge<br>Woodbridge & Associates<br>PO Box 592<br>-<br>Princeton NJ 08542-0592<br>US -<br>- |
| **Filer:** | Mark D. Simpson/Lynn White |
| **Filer Authorized By:** | Mark D. Simpson |
| **Attorney Docket Number:** | 5035-133US |
| **Receipt Date:** | 12-JUN-2007 |
| **Filing Date:** | 27-AUG-2003 |
| **Time Stamp:** | 11:51:21 |
| **Application Type:** | U.S. National Stage under 35 USC 371 |

## Payment information:

| | |
|---|---|
| Submitted with Payment | yes |
| Payment was successfully received in RAM | $1220 |
| RAM confirmation Number | 5869 |

| Deposit Account | |
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## File Listing:

| Document Number | Document Description | File Name | File Size(Bytes) | Multi Part /.zip | Pages (if appl.) |
|---|---|---|---|---|---|
| 1 | | 10343333ReplytoOAof12122006.pdf | 62352 | yes | 11 |
| | Multipart Description/PDF files in .zip description | | | | |
| | Document Description | | Start | End | |
| | Amendment - After Non-Final Rejection | | 1 | 1 | |
| | Claims | | 2 | 6 | |
| | Applicant Arguments/Remarks Made in an Amendment | | 7 | 11 | |
| Warnings: | | | | | |
| Information: | | | | | |
| 2 | Fee Worksheet (PTO-06) | fee-info.pdf | 8338 | no | 2 |
| Warnings: | | | | | |
| Information: | | | | | |
| | | Total Files Size (in bytes): | 70690 | | |

**This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.**

**New Applications Under 35 U.S.C. 111**
**If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.**

**National Stage of an International Application under 35 U.S.C. 371**
**If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.**

**New International Application Filed with the USPTO as a Receiving Office**
**If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.**

PTO/SB/06 (07-06)
Approved for use through 1/31/2007. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

# PATENT APPLICATION FEE DETERMINATION RECORD

Substitute for Form PTO-875

| Application or Docket Number | Filing Date | ☐ To be Mailed |
|---|---|---|
| 10/343,333 | 08/27/2003 | |

## APPLICATION AS FILED – PART I

| | (Column 1) | (Column 2) | SMALL ENTITY ☐ | | OR | OTHER THAN SMALL ENTITY | |
|---|---|---|---|---|---|---|---|
| FOR | NUMBER FILED | NUMBER EXTRA | RATE ($) | FEE ($) | | RATE ($) | FEE ($) |
| ☐ BASIC FEE (37 CFR 1.16(a), (b), or (c)) | N/A | N/A | N/A | | | N/A | |
| ☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m)) | N/A | N/A | N/A | | | N/A | |
| ☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q)) | N/A | N/A | N/A | | | N/A | |
| TOTAL CLAIMS (37 CFR 1.16(i)) | minus 20 = | * | X $ = | | OR | X $ = | |
| INDEPENDENT CLAIMS (37 CFR 1.16(h)) | minus 3 = | * | X $ = | | | X $ = | |
| ☐ APPLICATION SIZE FEE (37 CFR 1.16(s)) | If the specification and drawings exceed 100 sheets of paper, the application size fee due is $250 ($125 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s). | | | | | | |
| ☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j)) | | | | | | | |
| * If the difference in column 1 is less than zero, enter "0" in column 2. | | | TOTAL | | | TOTAL | |

## APPLICATION AS AMENDED – PART II

| AMENDMENT | 06/12/2007 | (Column 1) CLAIMS REMAINING AFTER AMENDMENT | | (Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR | (Column 3) PRESENT EXTRA | SMALL ENTITY RATE ($) | ADDITIONAL FEE ($) | OR | OTHER THAN SMALL ENTITY RATE ($) | ADDITIONAL FEE ($) |
|---|---|---|---|---|---|---|---|---|---|---|
| | Total (37 CFR 1.16(i)) | * 27 | Minus | ** 23 | = 4 | X $ = | | OR | X $50= | 200 |
| | Independent (37 CFR 1.16(h)) | * 2 | Minus | ***3 | = 0 | X $ = | | OR | X $200= | 0 |
| | ☐ Application Size Fee (37 CFR 1.16(s)) | | | | | | | | | |
| | ☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j)) | | | | | | | OR | | |
| | | | | | | TOTAL ADD'L FEE | | OR | TOTAL ADD'L FEE | **200** |

| AMENDMENT | | (Column 1) CLAIMS REMAINING AFTER AMENDMENT | | (Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR | (Column 3) PRESENT EXTRA | RATE ($) | ADDITIONAL FEE ($) | | RATE ($) | ADDITIONAL FEE ($) |
|---|---|---|---|---|---|---|---|---|---|---|
| | Total (37 CFR 1.16(i)) | * | Minus | ** | = | X $ = | | OR | X $ = | |
| | Independent (37 CFR 1.16(h)) | * | Minus | *** | = | X $ = | | OR | X $ = | |
| | ☐ Application Size Fee (37 CFR 1.16(s)) | | | | | | | | | |
| | ☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j)) | | | | | | | OR | | |
| | | | | | | TOTAL ADD'L FEE | | OR | TOTAL ADD'L FEE | |

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.

** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".

*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".

The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

Legal Instrument Examiner:
Deborah Nash

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

*If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.*

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|---|---|---|---|
| 10/343,333 | 08/27/2003 | Mathieu Kennedy Martyn | 5035-133US | 1608 |

7590 08/22/2007

Richard C Woodbridge
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PO Box 592
Princeton, NJ 08542-0592

| EXAMINER | |
|---|---|
| VU, THANH T | |

| ART UNIT | PAPER NUMBER |
|---|---|
| 2174 | |

| MAIL DATE | DELIVERY MODE |
|---|---|
| 08/22/2007 | PAPER |

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/343,333 | MARTYN, MATHIEU KENNEDY | |
| | Examiner | Art Unit | |
| | Thanh T. Vu | 2174 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *12 June 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-40* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-40* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

## DETAILED ACTION

This communication is responsive to Amendment, filed 06/12/2007.

Claims 14-40 are pending in this application. In the Amendment, claims 37-40 were added, and claims 14, and 26 were amended. This action is made Final.

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 14-40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Capps et al. ("Capps", U.S. Pat. No. 6,512,525), Richard (U.S. Pat. No. 6,781,161) and Arcuri et al. ("Arcuri", U.S. Pat. No. 6,121,968).

Per claim 14, Capps teaches a computing device comprising a display screen, the computing device being able to display on the screen an application summary window, in which summary window displays a list of several common functions offered within an application, any item in the list being selectable to initiate the respective function (figs. 7, 8b, 14; col. 2, lines 56-67;col. 3, lines 13-25 and 31-44; col. 12, lines 55-61; col. 22, lines 28; e.g. *application summary window 254, 268, or 374)*. Capps does not specifically teach the computing device being able to display on the screen a main menu listing one or more applications, and a limited list of several common functions offered by a given application. However, Richard teaches computing device being able to display on the screen a main menu listing one or more applications (fig. 6; APP A, APP B; element 510). Arcuri teaches a limited list of several common functions offered within

an application (figs. 2A-2B; col. 2, lines 56-65; col. 8, lines 13-15 and lines 27-32). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to include the teaching of Richard, and Arcuri in the invention of Capps in order to provide a switching menu between multiple open windows in multiple applications on a computer desktop, and in order to provide a system for dynamically changing the available commands in a given menu based upon the particular needs and utilization behavior of a user (Arcuri, col. 2, lines 10-13).

Per claim 15, Capps further teaches selecting a common function listed in the summary window causes the related application to open and that selected common function to be activated (figs 8a-8b, 10a-10b*; e.g. open application 256, 274, 392, 410*; col. 13, lines 13-26; col. 16, lines 22-28, lines 39-45).

Per claim 16, Capps further teaches an application launcher lists the names and/or icons of several applications and selecting a name or icon caused the summary window for that application to be opened (figs. 15b and 15c; *names of applications 374;* e.g. summary window 400 for mail application; col. 16, lines 62).

Per claim 17, Arcuri teaches the kinds of content of a summary window for a given application is selected using a process in which the device learns what functionality and/or stored data types are of interest to any given user (col. 2, lines 9-12; col. 2, lines 15-30).

Per claim 18, Arcuri teaches the user can define what functionality and/or stored data types are of interest to that user for the summary window for an application (col. 2, lines 9-12; col. 2, lines 54-65; *a command is added to the subset of commands in the short form menu when the user selects a command from the long menu*).

Per claim 19, Capps teaches the functionality and/or stored data types for a summary window for a given application varies with the environment of the device (col. 2, line 54-col. 3, line 5; col. 16, lines 54-60; *a given persona can be extended by applications running on the computer system*).

Per claim 20, Arcuri teaches the functionality and/or stored data types for a summary window for a given application varies with the actions of the user (col. 2, lines 9-12; col. 2, lines 54-65; *a command is added to the subset of commands in the short form menu when the user selects a command from the long menu*).

Per claim 21, Capps teaches opening a summary window for a given application does not result in that application being opened (figs. 7, 8b, and 14; e.g. *application summary window 254, 268, or 374).*

Per claim 22, Capps teaches the summary window is a frame which includes the name of the associated application (figs. 7, 8b, and 14; e.g. *application summary window 254, 268, or 374).*

Per claim 23, Capps teaches the summary window further display a list of data stored in that application (col. 3, lines 31-37; *multiple name records pertaining to the personas provided by the system).*

Per claim 24, Capps teaches the computing device of claim 14, being a mobile telephone (see fig. 16b).

Per claim 25, Capps teaches the computing device of claim 14, being a PC (fig. 1; col. 2, lines 52-54; col. 11, lines 40-43).

Claims 26 and 27 are rejected under the same rationale as claim 1.

Claims 28-36 are rejected under the same rationale as claims 15-23 respectively.

Per claim 37, Arcuri teaches the computing device of claim 1, wherein said limited list if a sub-set of all of the functions offered by a given application (figs. 2A-2B; col. 2, lines 56-65; col. 8, lines 13-15 and lines 27-32).

Per claim 38, Arcuri teaches the computer device of claim 37 wherein said limited list displays only functions in said sub-set and thus cannot be scrolled to reveal additional functions outside of the sub-set (figs. 2A-2B; col. 2, lines 56-65; col. 8, lines 13-15 and lines 27-32).

Claims 39-40 are rejected under the same rationale as claims 37 and 38.

***Response to Arguments***

Applicant's arguments with respect to the amendment have been considered but are moot in view of the new ground(s) of rejection.

***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

***Inquiries***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thanh T. Vu whose telephone number is (571) 272-4073. The examiner can normally be reached on Mon-Thur and every other Fri 7:30 AM - 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kristine L. Kincaid can be reached on (571) 272-4063. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

T. Vu

Kristine Kincaid
KRISTINE KINCAID
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100

| Notice of References Cited | Application/Control No. 10/343,333 | Applicant(s)/Patent Under Reexamination MARTYN, MATHIEU KENNEDY | |
|---|---|---|---|
| | Examiner Thanh T. Vu | Art Unit 2174 | Page 1 of 1 |

**U.S. PATENT DOCUMENTS**

| * | | Document Number Country Code-Number-Kind Code | Date MM-YYYY | Name | Classification |
|---|---|---|---|---|---|
| * | A | US-6,781,611 | 08-2004 | Richard, Christian James | 715/779 |
| | B | US- | | | |
| | C | US- | | | |
| | D | US- | | | |
| | E | US- | | | |
| | F | US- | | | |
| | G | US- | | | |
| | H | US- | | | |
| | I | US- | | | |
| | J | US- | | | |
| | K | US- | | | |
| | L | US- | | | |
| | M | US- | | | |

**FOREIGN PATENT DOCUMENTS**

| * | | Document Number Country Code-Number-Kind Code | Date MM-YYYY | Country | Name | Classification |
|---|---|---|---|---|---|---|
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**NON-PATENT DOCUMENTS**

| * | | Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages) |
|---|---|---|
| | U | |
| | V | |
| | W | |
| | X | |

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

| Search Notes | Application/Control No. | Applicant(s)/Patent under Reexamination | |
|---|---|---|---|
| | 10/343,333 | MARTYN, MATHIEU KENNEDY | |
| | Examiner | Art Unit | |
| | Thanh T. Vu | 2174 | |

| SEARCHED | | | |
|---|---|---|---|
| Class | Subclass | Date | Examiner |
| 715 | Updated Search | 8/13/2007 | TV |
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| SEARCH NOTES (INCLUDING SEARCH STRATEGY) | | |
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| East Search | 8/13/2007 | TV |
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**PATENT** **Docket No. 5459-141US/28418 USA**

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

| | | |
|---|---|---|
| INVENTORS: | Mathieu K. Martyn | |
| APPLICATION NO. | 10/343,333 | Confirmation No. 1608 |
| FILED: | August 27, 2003 | Examiner: T. Vu |
| CASE NO. | 5459-141US/28418 USA | Group Art Unit: 2174 |

TITLE: COMPUTING DEVICE WITH IMPROVED USER INTERFACE FOR APPLICATIONS

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# FILED ELECTRONICALLY ON October 22, 2007

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MAIL STOP AF
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

**REPLY UNDER 37 CFR §1.116**
**TO FINAL OFFICE ACTION MAILED AUGUST 22, 2007**

Sir:

This is in response to the final Office Action mailed August 22, 2007, having a period for response set to expire on November 22, 2007. The following remarks are respectfully submitted.

Remarks begin on page 2 of this paper.

## REMARKS

In the Office Action, the Examiner indicated that claims 14 through 40 are pending in the application and the Examiner rejected all claims.

### Claim Rejections, 35 U.S.C. § 103

On page 2 of the Office Action, the Examiner rejected claims 14-40 under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 6,512,525 to Capps et al. in view of U.S. Patent No. 6,781,161 to Richard and U.S. Patent No. 6,121,968 to Arcuri et al.

### The Present Invention

In one implementation of the present invention, a computing device displays on a display screen a main menu listing a number of applications, and additionally is able to display on the display screen an application summary window that displays a limited list of several common functions offered within an application, such that any item in the limited list is selectable to initiate its respective function. In other words, the present invention displays in a main menu a list of accessible applications, and by selecting (e.g., hovering the cursor over) one of the applications listed in the main menu, a summary window is opened showing various functions that can be selected within the selected application.

**The Examiner has not Established a *prima facie* Case of Obviousness**

> As set forth in the MPEP:
>
> To establish a *prima facie* case of obviousness, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skilled in the art, to modify the reference or to combine reference teachings.
> MPEP 2143

Applicant has presented previous arguments to the Examiner regarding the Capps and Arcuri patents. In response to those arguments and amendments made in the last response by the Applicant, the Examiner cited Richard and asserted that while Capps and Arcuri do not specifically teach the computing device being able to display on the screen a main menu listing one or more applications, and a limited list of several common functions offered by one of the listed applications, Richard does teach this feature and function. The Examiner points to Figure 6 of Richard, and refers to "APP A", "APP B", and "element 510" of Figure 6 as teaching this claimed aspect of the present invention.

Applicant disagrees. As can be seen in Richard, and specifically in Figure 6 of Richard, a main menu listing one or more applications is not shown. Rather, Richard shows two *open applications* (AppA and AppB) and by clicking and holding arrow 522 (which serves as a visual indicator that there are a plurality of windows open in AppB), a pop-up menu appears listing three already-opened windows in AppB. By selecting one of the three windows listed in the pop-up menu, that window "surfaces", i.e., comes to the front as the active window. This is not the same as the claimed main menu that lists accessible applications, and selecting one of the listed

applications to display a limited list of functions offered by the application, with the selection of one of the listed functions initiating the function. While Richard does teach a way to bring to the forefront of a GUI window one of several windows already opened within an application, it contains no teaching whatsoever of a main menu listing available applications, and selection of one of the listed applications generating a list of selectable functions within that application.

Accordingly, for the reasons set forth above, it is submitted that each of claims 14-36 patentably define over Capps/Arcuri/Richards, taken alone or in combination. The Examiner is therefore respectfully requested to reconsider and withdraw the rejection of claims 14-36 under 35 U.S.C. §103.

**Conclusion**

The present invention is not taught or suggested by the prior art. Accordingly, the Examiner is respectfully requested to reconsider and withdraw the rejection of the claims. An early Notice of Allowance is earnestly solicited.

**Applicant believes that it has claimed the distinctions set forth above and set forth in previous responses in a manner that patentably defines over the cited references; however, if the foregoing remarks are not found to be persuasive in the Examiner's opinion regarding the allowability of the claims, applicant requests that the Examiner contact the undersigned attorney to set up an interview prior to the issuance of an Advisory Action. Applicant believes that agreement as to the allowability of the claims may be reached during such an interview.**

The Commissioner is hereby authorized to charge any additional fees or credit any overpayment associated with this communication to Deposit Account No. 19-5425.

Respectfully submitted

October 22, 2007
Date

/Mark D. Simpson/
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Facsimile: 609 924 1811

Q:\MSIMPSON\TO BE REVIEWED\DRAFTS FOR REVIEW\5459-141US REPLY TO FINAL OA OF 08222007SYMBIAN DUE 10-22.DOC

| Electronic Acknowledgement Receipt | |
|---|---|
| **EFS ID:** | 2353011 |
| **Application Number:** | 10343333 |
| **International Application Number:** | |
| **Confirmation Number:** | 1608 |
| **Title of Invention:** | Computing device with improved user interface for applications |
| **First Named Inventor/Applicant Name:** | Mathieu Kennedy Martyn |
| **Correspondence Address:** | Richard C Woodbridge<br>Woodbridge & Associates<br>PO Box 592<br>-<br>Princeton NJ 08542-0592<br>US -<br>- |
| **Filer:** | Mark D. Simpson |
| **Filer Authorized By:** | |
| **Attorney Docket Number:** | 5035-133US |
| **Receipt Date:** | 22-OCT-2007 |
| **Filing Date:** | 27-AUG-2003 |
| **Time Stamp:** | 18:04:44 |
| **Application Type:** | U.S. National Stage under 35 USC 371 |

## Payment information:

| | |
|---|---|
| Submitted with Payment | no |

## File Listing:

| Document Number | Document Description | File Name | File Size(Bytes) /Message Digest | Multi Part /.zip | Pages (if appl.) |
|---|---|---|---|---|---|
| 1 | | 10-343333_Response_after_final.pdf | 37104<br>6072e3d85d87f64051c27b7fdc2fd73f484434e5 | yes | 5 |

| | Multipart Description/PDF files in .zip description | | |
|---|---|---|---|
| | **Document Description** | **Start** | **End** |
| | Amendment After Final | 1 | 1 |
| | Applicant Arguments/Remarks Made in an Amendment | 2 | 5 |

| | |
|---|---|
| **Warnings:** | |
| **Information:** | |
| **Total Files Size (in bytes):** | 37104 |

**This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.**

**New Applications Under 35 U.S.C. 111**
**If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.**

**National Stage of an International Application under 35 U.S.C. 371**
**If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.**

**New International Application Filed with the USPTO as a Receiving Office**
**If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.**

PTO/SB/06 (07-06)
Approved for use through 1/31/2007. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

| **PATENT APPLICATION FEE DETERMINATION RECORD** Substitute for Form PTO-875 | Application or Docket Number 10/343,333 | Filing Date 08/27/2003 | ☐ To be Mailed |
|---|---|---|---|

## APPLICATION AS FILED – PART I

| | (Column 1) | (Column 2) | SMALL ENTITY ☐ | | OR | OTHER THAN SMALL ENTITY | |
|---|---|---|---|---|---|---|---|
| FOR | NUMBER FILED | NUMBER EXTRA | RATE ($) | FEE ($) | | RATE ($) | FEE ($) |
| ☐ BASIC FEE (37 CFR 1.16(a), (b), or (c)) | N/A | N/A | N/A | | | N/A | |
| ☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m)) | N/A | N/A | N/A | | | N/A | |
| ☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q)) | N/A | N/A | N/A | | | N/A | |
| TOTAL CLAIMS (37 CFR 1.16(i)) | minus 20 = | * | X $ = | | OR | X $ = | |
| INDEPENDENT CLAIMS (37 CFR 1.16(h)) | minus 3 = | * | X $ = | | | X $ = | |
| ☐ APPLICATION SIZE FEE (37 CFR 1.16(s)) | If the specification and drawings exceed 100 sheets of paper, the application size fee due is $250 ($125 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s). | | | | | | |
| ☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j)) | | | | | | | |
| * If the difference in column 1 is less than zero, enter "0" in column 2. | | | TOTAL | | | TOTAL | |

## APPLICATION AS AMENDED – PART II

| AMENDMENT | (Column 1) | | (Column 2) | (Column 3) | SMALL ENTITY | | OR | OTHER THAN SMALL ENTITY | |
|---|---|---|---|---|---|---|---|---|---|
| **10/22/2007** | CLAIMS REMAINING AFTER AMENDMENT | | HIGHEST NUMBER PREVIOUSLY PAID FOR | PRESENT EXTRA | RATE ($) | ADDITIONAL FEE ($) | | RATE ($) | ADDITIONAL FEE ($) |
| Total (37 CFR 1.16(i)) | * 27 | Minus | ** 27 | = 0 | X $ = | | OR | X $50= | 0 |
| Independent (37 CFR 1.16(h)) | * 2 | Minus | ***3 | = 0 | X $ = | | OR | X $210= | 0 |
| ☐ Application Size Fee (37 CFR 1.16(s)) | | | | | | | | | |
| ☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j)) | | | | | | | OR | | |
| | | | | | TOTAL ADD'L FEE | | OR | TOTAL ADD'L FEE | 0 |

| AMENDMENT | (Column 1) | | (Column 2) | (Column 3) | | | | | |
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| | CLAIMS REMAINING AFTER AMENDMENT | | HIGHEST NUMBER PREVIOUSLY PAID FOR | PRESENT EXTRA | RATE ($) | ADDITIONAL FEE ($) | | RATE ($) | ADDITIONAL FEE ($) |
| Total (37 CFR 1.16(i)) | * | Minus | ** | = | X $ = | | OR | X $ = | |
| Independent (37 CFR 1.16(h)) | * | Minus | *** | = | X $ = | | OR | X $ = | |
| ☐ Application Size Fee (37 CFR 1.16(s)) | | | | | | | | | |
| ☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j)) | | | | | | | OR | | |
| | | | | | TOTAL ADD'L FEE | | OR | TOTAL ADD'L FEE | |

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.

** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".

*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".

The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

Legal Instrument Examiner:
lavinia d. johnson

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

*If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.*

| ***Advisory Action Before the Filing of an Appeal Brief*** | **Application No.** *10/343,333* | **Applicant(s)** MARTYN, MATHIEU KENNEDY | |
|---|---|---|---|
| | **Examiner** Thanh T. Vu | **Art Unit** 2174 | |

***--The MAILING DATE of this communication appears on the cover sheet with the correspondence address --***

THE REPLY FILED 22 October 2007 FAILS TO PLACE THIS APPLICATION IN CONDITION FOR ALLOWANCE.

1. ☒ The reply was filed after a final rejection, but prior to or on the same day as filing a Notice of Appeal. To avoid abandonment of this application, applicant must timely file one of the following replies: (1) an amendment, affidavit, or other evidence, which places the application in condition for allowance; (2) a Notice of Appeal (with appeal fee) in compliance with 37 CFR 41.31; or (3) a Request for Continued Examination (RCE) in compliance with 37 CFR 1.114. The reply must be filed within one of the following time periods:
   a) ☐ The period for reply expires _____months from the mailing date of the final rejection.
   b) ☒ The period for reply expires on: (1) the mailing date of this Advisory Action, or (2) the date set forth in the final rejection, whichever is later. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of the final rejection.

   Examiner Note: If box 1 is checked, check either box (a) or (b). ONLY CHECK BOX (b) WHEN THE FIRST REPLY WAS FILED WITHIN TWO MONTHS OF THE FINAL REJECTION. See MPEP 706.07(f).

Extensions of time may be obtained under 37 CFR 1.136(a). The date on which the petition under 37 CFR 1.136(a) and the appropriate extension fee have been filed is the date for purposes of determining the period of extension and the corresponding amount of the fee. The appropriate extension fee under 37 CFR 1.17(a) is calculated from: (1) the expiration date of the shortened statutory period for reply originally set in the final Office action; or (2) as set forth in (b) above, if checked. Any reply received by the Office later than three months after the mailing date of the final rejection, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

NOTICE OF APPEAL

2. ☐ The Notice of Appeal was filed on _____. A brief in compliance with 37 CFR 41.37 must be filed within two months of the date of filing the Notice of Appeal (37 CFR 41.37(a)), or any extension thereof (37 CFR 41.37(e)), to avoid dismissal of the appeal. Since a Notice of Appeal has been filed, any reply must be filed within the time period set forth in 37 CFR 41.37(a).

AMENDMENTS

3. ☐ The proposed amendment(s) filed after a final rejection, but prior to the date of filing a brief, will not be entered because
   (a) ☐ They raise new issues that would require further consideration and/or search (see NOTE below);
   (b) ☐ They raise the issue of new matter (see NOTE below);
   (c) ☐ They are not deemed to place the application in better form for appeal by materially reducing or simplifying the issues for appeal; and/or
   (d) ☐ They present additional claims without canceling a corresponding number of finally rejected claims.

   NOTE: _____. (See 37 CFR 1.116 and 41.33(a)).
4. ☐ The amendments are not in compliance with 37 CFR 1.121. See attached Notice of Non-Compliant Amendment (PTOL-324).
5. ☐ Applicant's reply has overcome the following rejection(s): _____.
6. ☐ Newly proposed or amended claim(s) _____ would be allowable if submitted in a separate, timely filed amendment canceling the non-allowable claim(s).
7. ☐ For purposes of appeal, the proposed amendment(s): a) ☐ will not be entered, or b) ☐ will be entered and an explanation of how the new or amended claims would be rejected is provided below or appended.
   The status of the claim(s) is (or will be) as follows:
   Claim(s) allowed: _____.
   Claim(s) objected to: _____.
   Claim(s) rejected: _____.
   Claim(s) withdrawn from consideration: _____.

AFFIDAVIT OR OTHER EVIDENCE

8. ☐ The affidavit or other evidence filed after a final action, but before or on the date of filing a Notice of Appeal will not be entered because applicant failed to provide a showing of good and sufficient reasons why the affidavit or other evidence is necessary and was not earlier presented. See 37 CFR 1.116(e).
9. ☐ The affidavit or other evidence filed after the date of filing a Notice of Appeal, but prior to the date of filing a brief, will not be entered because the affidavit or other evidence failed to overcome all rejections under appeal and/or appellant fails to provide a showing a good and sufficient reasons why it is necessary and was not earlier presented. See 37 CFR 41.33(d)(1).
10. ☐ The affidavit or other evidence is entered. An explanation of the status of the claims after entry is below or attached.

REQUEST FOR RECONSIDERATION/OTHER

11. ☒ The request for reconsideration has been considered but does NOT place the application in condition for allowance because: See Continuation Sheet.
12. ☐ Note the attached Information Disclosure Statement(s). (PTO/SB/08) Paper No(s). _____
13. ☐ Other: _____.

/Sy D Luu/
Primary Examiner, Art Unit 2174

Continuation of 11. does NOT place the application in condition for allowance because: Applicant's primary argument is that the combination of Capps Richard and Arcuri does not teach "the computing device being able to display on the screen a main menu listing one or more applications and a limited list of several command functions offered by one of the listed applications".
The examiner does not agree for the following reasons:
During patent examination, the pending claims must be "given >their< broadest reasonable interpretation consistent with the specification." > In re Hyatt, 211 F.3d 1367, 1372, 54 USPQ2d 1664, 1667 (Fed. Cir. 2000). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See In re Van Geuns, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).
In this case, Richard and Arcuri teach the claim limitation because Richard teaches computing device being able to display on the screen a main menu listing one or more applications, see fig. 6, a main menu 510 listing one or more applications 512-516. Arcuri teaches a limited list of several common functions offered within an application (figs. 2A-2B; col. 2, lines 56-65 and col. 8, lines 13-15 and lines 27-32 which shows a limited set of selections (i.e. functions) offered within an application). Accordingly, the combination of Richard and Arcuri teach the claim limitation of the computing device being able to display on the screen a main menu listing one or more applications and a limited list of several command functions offered by one of the listed applications.

OK TO ENTER: /TV/ (11/01/2007)

**PATENT** **Docket No. 5459-141US/28418 USA**

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

| | | |
|---|---|---|
| INVENTORS: | Mathieu K. Martyn | |
| APPLICATION NO. | 10/343,333 | Confirmation No. 1608 |
| FILED: | August 27, 2003 | Examiner: T. Vu |
| CASE NO. | 5459-141US/28418 USA | Group Art Unit: 2174 |

TITLE: COMPUTING DEVICE WITH IMPROVED USER INTERFACE FOR APPLICATIONS

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# FILED ELECTRONICALLY ON October 22, 2007

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MAIL STOP AF
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

**REPLY UNDER 37 CFR §1.116**
**TO FINAL OFFICE ACTION MAILED AUGUST 22, 2007**

Sir:

This is in response to the final Office Action mailed August 22, 2007, having a period for response set to expire on November 22, 2007. The following remarks are respectfully submitted.

Remarks begin on page 2 of this paper.

**PATENT** **Docket No. 5459-141US/28418 USA**

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

| | | |
|---|---|---|
| INVENTORS: | Mathieu K. Martyn | |
| APPLICATION NO. | 10/343,333 | Confirmation No. 1608 |
| FILED: | August 27, 2003 | Examiner: T. Vu |
| CASE NO. | 5459-141US/28418 USA | Group Art Unit: 2174 |

TITLE: COMPUTING DEVICE WITH IMPROVED USER INTERFACE FOR APPLICATIONS

# FILED ELECTRONICALLY ON December 26, 2007

MAIL STOP AF
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

**REPLY AND AMENDMENT UNDER 37 CFR §1.116**
**TO FINAL OFFICE ACTION MAILED AUGUST 22, 2007**

Sir:

This Reply and Amendment is being filed in further response to the final Office Action mailed August 22, 2007. A Request for Reconsideration was filed in response to the final Office Action on November 22, 2007, which resulted in the present Advisory Action. A Petition extending the period for response for one month, to December 26, 2007 (December 22 being a Saturday; December 23 being a Sunday, December 24 being a Patent Office holiday, and December 25 being federal holiday), is included herein, along with authorization to charge the extension fee to a credit card. The following amendments and remarks are respectfully submitted, which Applicant believes place the application in allowable condition.

Amendments to the claims begin on page 2 of this paper; Remarks begin on page 7 of this paper.

Claims 1-13 (Canceled)

14. (Currently amended) A computing device comprising a display screen, the computing device being configured ~~able~~ to display on the screen a main menu listing one or more applications, and additionally being configured ~~able~~ to display on the screen an application summary window that can be reached directly from the main menu, wherein the application summary window displays a limited list of several common functions offered within an application, any item in the list being selectable to initiate the respective function, and wherein the application summary window is displayed while the application is in an un-launched state.

15. (Original) The computing device of Claim 14 in which selecting a common function listed in the summary window causes the related application to open and that selected common function to be activated.

16. (Original) The computing device of Claim 14 in which an application launcher lists the names and/or icons of several applications and selecting a name or icon causes the summary window for that application to be opened.

17. (Original) The computing device of Claim 14 in which the kinds of content of a summary window for a given application is selected using a process in which the device learns what functionality and/or stored data types are of interest to any given user.

18. (Original) The computing device of Claim 14 in which the user can define what functionality and/or stored data types are of interest to that user for the summary window for an application.

19. (Original) The computing device of Claim 14 in which the functionality and/or stored data types for a summary window for a given application varies with the environment of the device.

20. (Original) The computing device of Claim 14 in which the functionality and/or stored data types for a summary window for a given application varies with the actions of the user.

21. (Original) The computing device of Claim 14 in which opening a summary window for a given application does not result in that application being opened.

22. (Original) The computing device of Claim 14 in which the summary window is a frame which includes the name of the associated application.

23. (Original) The computing device of Claim 14 in which the summary window further display a list of data stored in that application.

24. (Original) The computing device of Claim 14, being a mobile telephone.

25. (Original) The computing device of Claim 14, being a PC.

26. (Currently amended) A computer program product comprising a computer-readable storage medium having computer-readable code embodied in the medium which, when running on a computing device, causes the computing device to display on a screen of the device a main menu listing one or more applications, and additionally causes the device ~~being able~~ to display on the screen an application summary window that can be reached directly from the main menu, wherein the summary window displays a limited list of several common functions offered within an application, any item in the list being selectable to initiate the respective function, and wherein the application summary window is displayed while the application is in an unlaunched state.

27. (Previously presented) The computer program product of Claim 26, wherein said computer-readable code comprises an operating system program.

28. (Previously presented) The computer program product of Claim 26, wherein said computer-readable code is operable such that selecting a common function listed in the summary window causes the related application to open and that selected common function to be activated.

29. (Previously presented) The computer program product of Claim 26, wherein said computer-readable code is operable to cause the screen to display an application launcher which lists the names and/or icons of several applications, wherein selecting a name or icon causes the summary window for that application to be opened.

30. (Previously presented) The computer program product of Claim 26, wherein said computer- readable code enables the kinds of content of a summary window for a given application to be selected using a process in which the device learns what functionality and/or stored data types are of interest to any given user.

31. (Previously presented) The computer program product of Claim 26, wherein said computer-readable code enables a user to define what functionality and/or stored data types are of interest to that user for the summary window for an application.

32. (Previously presented) The computer program product of Claim 26, wherein said computer-readable code enables the functionality and/or stored data types for a summary window for a given application to vary with the environment of the device.

33. (Previously presented) The computer program product of Claim 26, wherein said computer-readable code enables the functionality and/or stored data types for a summary window for a given application to vary with the actions of the user.

34. (Previously presented) The computer program product of Claim 26, wherein said computer-readable code enables the opening of a summary window for a given application without resulting in that application being opened.

35. (Previously presented) The computer program product of Claim 26, wherein said computer-readable code enables the summary window to be a frame which includes the name of the associated application.

36. (Previously presented) The computer program product of Claim 26, wherein said computer-readable code enables the summary window to further display a list of data stored in that application.

37. (Previously presented) The computing device of claim 1 wherein said limited list is a sub-set of all of the functions offered by a given application.

38. (Previously presented) The computing device of claim 37 wherein said limited list displays only functions in said sub-set and thus cannot be scrolled to reveal additional functions outside of the sub-set.

39. (Previously presented) The computer program product according to claim 26 wherein said limited list is a sub-set of all of the functions offered by a given application.

40. (Previously presented) The computer program product according to claim 38 wherein said limited list displays only functions in said sub-set and thus cannot be scrolled to reveal additional functions outside of the sub-set.

## REMARKS

### Petition for Extension of Time Under 37 CFR 1.136(a)

It is hereby requested that the term to respond to the Examiner's Action of August 22, 2007 be extended one month, from November 22, 2007 to December 26, 2007 (December 22 being a Saturday; December 23 being a Sunday, December 24 being a Patent Office holiday, and December 25 being federal holiday).

Authorization to charge a Credit Card is given to cover the extension fee. The Commissioner is hereby authorized to charge any additional fees associated with this communication to Deposit Account No. 19-5425.

In the Office Action, the Examiner indicated that claims 14 through 40 are pending in the application and the Examiner rejected all claims.

### Claim Rejections, 35 U.S.C. § 103

On page 2 of the Office Action, the Examiner rejected claims 14-40 under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 6,512,525 to Capps et al. in view of U.S. Patent No. 6,781,161 to Richard and U.S. Patent No. 6,121,968 to Arcuri et al.

### The Present Invention

In one implementation of the present invention, a computing device displays on a display screen a main menu listing a number of available applications, and additionally is able to display on the display screen an application summary window that displays a limited list of several common functions offered within an application, such that any item in the limited list is

selectable to initiate its respective function. The application summary window is displayed regardless of the launched or unlaunched status of this application. In other words, the present invention displays in a main menu a list of accessible applications, and by designating (e.g., hovering the cursor over) one of the applications listed in the main menu, a summary window is opened showing various functions that can be selected within the designated application even while the application is unlaunched.

**The Examiner has not Established a *prima facie* Case of Obviousness**

> As set forth in the MPEP:
>
> To establish a *prima facie* case of obviousness, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skilled in the art, to modify the reference or to combine reference teachings.
> MPEP 2143

Applicant has presented previous arguments to the Examiner regarding the Capps and Arcuri patents. In response to those arguments and amendments made in the last response by the Applicant, the Examiner cited Richard and asserted that while Capps and Arcuri do not specifically teach the computing device being able to display on the screen a main menu listing one or more applications, and a limited list of several common functions offered by one of the listed applications, Richard does teach this feature and function. The Examiner points to Figure 6 of Richard, and refers to "APP A", "APP B", and "element 510" of Figure 6 as teaching this claimed aspect of the present invention.

*Richard* describes a pop-up menu (510) on the taskbar. Applicant respectfully disagrees with the Examiner's assertion that the items in menu 510 (512, 514, 516) correspond to applications. The menu items actually correspond to *open* windows within a single application to which the entire menu relates (APP B). This is explicitly stated in the description at column 3, lines 20-44.

The 'main menu' described in *Richards* is therefore merely a menu of *open* windows within a single application, i.e., a launched application. It follows from the fact the windows are open within the application that the application must be running and therefore has been launched.

*Arcuri* describes the provision of both long and short versions of menus, the idea being that commonly selected items are offered in the short version of the menu, with an option to expand the menu to its long version in order to access less-commonly selected items. In the example of Fig 2A, to which the Examiner has referred, the short/long menu is a view menu within a word processing program (col. 8, lines 10-12). It is true that this menu offers a limited list of the common functions available within the word processing program; however, it is only ever displayed within a *running* instance of the program, i.e., only when the program is in a *launched* state.

Claim 1 requires that the application summary window including the common functions (the view menu in *Arcuri*, according to the Examiner) can be directly reached from the main menu (the pop up window in *Richard*, according to the Examiner). However, there is no suggestion in any of the cited references that would render it obvious to make the *Arcuri* menu directly reachable from the menu in *Richard*. Indeed, such a process is counter-intuitive, since the menu items in *Richard* are windows inside an application and the menu in *Arcuri* forms part of the overall application – not a specific window.

Even regardless of the "reached directly" requirement, *Richard* and *Arcuri* and/or *Capps* cannot be combined to arrive at the subject matter of amended claims 14 and 26. This is because these claims now require that summary window is displayed *while the application is in an unlaunched state*. The menu described in *Richard* relates to open windows in a *running* application and likewise the menus in *Arcuri* and *Capps* relate to functions of a *running* application. These documents all describe menus that relate to running applications and combining them does nothing to satisfy the requirement of the present claims that the application summary window is displayed without launching the application.

The underlying purpose of the application summary window of the present invention is to provide the user with a shortcut to functions within an application directly from the main menu (i.e. when the application is designated). This allows the user to launch an application in such a way that it is initiated to directly perform one of the common functions, rather than forcing the user to hunt for the function in the interface once the application has finished loading in its default (and perhaps undesired) state. This advantage cannot be achieved if the application summary window is not displayed until after the application is already running. The benefit of the claimed invention therefore cannot be achieved using only the teaching of *Richard* and *Arcuri* and/or *Capps*, alone or in combination.

Accordingly, for the reasons set forth above, it is submitted that each of claims 14-36 patentably define over Capps/Arcuri/Richards, taken alone or in combination. The Examiner is therefore respectfully requested to reconsider and withdraw the rejection of claims 14-36 under 35 U.S.C. §103.

**Conclusion**

The present invention is not taught or suggested by the prior art. Accordingly, the Examiner is respectfully requested to reconsider and withdraw the rejection of the claims. An early Notice of Allowance is earnestly solicited.

**Applicant believes that it has claimed the distinctions set forth above and set forth in previous responses in a manner that patentably defines over the cited references; however, if the foregoing remarks are not found to be persuasive in the Examiner's opinion regarding the allowability of the claims, applicant requests that the Examiner contact the undersigned attorney to set up an interview prior to the issuance of an Advisory Action. Applicant believes that agreement as to the allowability of the claims may be reached during such an interview.**

The Commissioner is hereby authorized to charge any additional fees or credit any overpayment associated with this communication to Deposit Account No. 19-5425.

Respectfully submitted

December 26, 2007
Date

/Mark D. Simpson/
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# Electronic Patent Application Fee Transmittal

| | |
|---|---|
| **Application Number:** | 10343333 |
| **Filing Date:** | 27-Aug-2003 |
| **Title of Invention:** | Computing device with improved user interface for applications |
| First Named Inventor/Applicant Name: | Mathieu Kennedy Martyn |
| **Filer:** | Mark D. Simpson/Lynn White |
| **Attorney Docket Number:** | 5035-133US |

Filed as Large Entity

## U.S. National Stage under 35 USC 371 Filing Fees

| Description | Fee Code | Quantity | Amount | Sub-Total in USD($) |
|---|---|---|---|---|
| **Basic Filing:** | | | | |
| **Pages:** | | | | |
| **Claims:** | | | | |
| **Miscellaneous-Filing:** | | | | |
| **Petition:** | | | | |
| **Patent-Appeals-and-Interference:** | | | | |
| Post-Allowance-and-Post-Issuance: | | | | |
| **Extension-of-Time:** | | | | |
| Extension - 1 month with $0 paid | 1251 | 1 | 120 | 120 |