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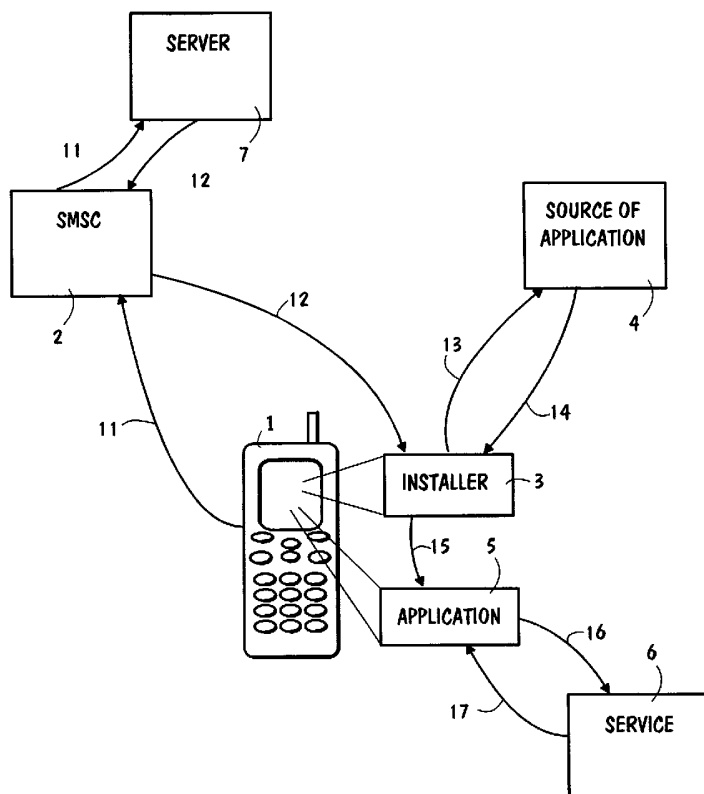
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[Continued on next page]

(54) Title: METHOD AND ARRANGEMENT FOR INSTALLING AN APPLICATION IN WIRELESS ENVIRONMENT



(57) Abstract: This invention relates to installing an application in a mobile terminal. In an inventive solution an installer is in the mobile terminal. When a user desires to download an application for his use, he writes an SMS message that is sent to the service provider's server via SMSC. As a response the provider's server sends to the installer an SMS message, which contains setup information for the telecommunication connections of the installer so that the installer is capable to download the desired application. The SMS message may also contain setup information for the desired application.

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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.

Method and Arrangement for Installing an Application in Wireless Environment

Field of the Invention

5 This invention relates to the installing of an application in a mobile terminal. Particularly the invention relates to downloading a service to the terminal. Further, the invention relates to the telecommunications of the mobile terminal for making the downloaded application possible to use properly.

Background of the Invention

10 It is known to install an application through the Internet to a distant terminal. Particularly, this is the situation in fixed terminals, which have been connected to the Internet via subscriber lines. The fixed terminals have usually good resources for telecommunications. Practically every terminal in a
15 fixed network is capable just to download and install a desired application.

 The situation is not so good in mobile networks. The resources of the mobile networks are limited to handle telecommunication, as are the resources of mobile terminals as well. The bandwidth of the wireless path is narrow, and the memory size and processing power is limited in a mobile
20 terminal. If the user of a mobile terminal desires to download and install an application, he must study detailed instructions, which is very tedious and error prone.

 In other words, the downloading and the installing of an application requires special knowledge, so that these can be done properly. A normal
25 user of a mobile terminal becomes confused when reading the downloading installing instructions. The complexity rises from the fact that a number of different wireless telecommunication solutions require their own type of connections. The solutions in the fixed network side are not possible, since the resources of the communications paths and the mobile terminals are limited.

30 The object of the invention is to eliminate these drawbacks and to achieve a solution, which is capable to download and install an application in a mobile terminal and which is user-friendly. The object is achieved in a way described in the claims.

Summary of the Invention

In an inventive solution a special component, called an installer, which can be pre-installed or installable from a service provider's server, is in a mobile terminal. When a user desires to download an application for his use, he writes an SMS message that is sent to the service provider's server via SMSC. As a response the provider's server sends to the installer in the user's mobile terminal an SMS message that contains setup information for the telecommunication connections of the installer so that the installer is capable to download the desired application. The SMS message may also contain setup information for the desired application.

So, the underlying principle of the invention is that the installer is a small application that does not consume much memory in the mobile terminal, and for setting the installer up for a required use the setup data comes from outside the terminal. The same applies to the desired application as well. In other words, the installer is adaptable to any download and installation situation with minimum memory consumption. Furthermore, the required operations are made automatically without any actions by the user.

Brief Description of the Drawings

In the following the invention is described in more detail by means of Figs 1 - 3 in the attached drawings where,

- FIG. 1 illustrates an example of an arrangement according to the invention;
- FIG. 2 illustrates an example of the installer according to the invention; and
- FIG. 3 illustrates an example of a flow chart describing an embodiment of the inventive method.

Description of the Invention

FIG. 1 shows an example of an inventive arrangement. When the user of a mobile terminal 1 desires to use a certain application or service, he writes an SMS (Short Message Service) message, containing the information of the desired application or service, which message the mobile terminal sends 11 to a server 7 of a provider, who offers installation services for pro-

viders of different applications. The SMS message is transferred via a SMSC (Short Message Service Center) **2**.

The server **7** sends **12**, as a response to the received message, an SMS message back to the mobile terminal **1** via the SMSC. More particularly, this message is sent to an installer **3** in the mobile terminal. The response SMS contains setup data for the installer's telecommunication settings. The setup data is not pre-installed in the installer, since the memory resources of the terminal are limited, and service providers and application providers have usually their own requirements for telecommunication settings. The installer would become large and tedious to update, if the installer contained telecommunication settings for all possible providers. However, it is possible to have some initial telecommunication settings in the installer according to the invention. The response SMS contains an address information of the desired application or application, which is needed for the desired service.

The installer **3** sets up its telecommunication settings and requests **13** the application from a network element **4**, where the application is according to the address information. The request may, for example, be according to the HTTP protocol using its GET command: GET <http://www.serviceprovider.com/video/news/band34.html>. As a response the application is sent **14** to the installer - in other words the installer downloads the application utilizing the telecommunication connection just set up. After the download, the installer may preferably delete the telecommunication settings.

The installer is now capable to install **15** the required application **5**. It should be noted that there are actually two possible ways to deliver the needed application information to the installer. The preferable way is that the SMS message from the SMS server **7** to the installer also contains setup information, such as different parameters, for the telecommunication settings and other possible settings of the application. In other words, the application may be a simple platform, which is configured to run in the installer according to the setup information received from another source than the application itself. The benefit of this solution is that application providers may manufacture a generic application that is suitable for different solutions. Customer specific settings can be in the installer as described, or using pre-installed settings information, but this alternative is not the preferable one. The other

way is that the application itself contains setup information, or the setup data is sent to the installer with the application. It may also be possible that the message from the source of the application to the mobile terminal contains the basic application and separately the setup information of the application.

5 After the installation **15** the application in the mobile terminal is ready to run.

Let's think of an example in which the user has ordered in the SMS message a pay-TV service for viewing news in his terminal. The application that is required for seeing the news has been downloaded to the terminal in the above-described way. The application requests **16** the news from a certain news service **6**, such as a server of an international media house. As a response, the service element **6** sends **17** the news to the terminal. After the news the application is preferably deleted, or it may alternatively be stored for later use.

The telecommunication settings for the connection between the installer **3** and the source **4** of an application can be any suitable type of connection. It can be, for example a GSM-data connection that means data transmission in a GSM network. Other alternatives are, for example, HSCSD (High Speed Circuit-Switched Data) and GPRS (General Packet Radio System). The HSCSD utilizes 2 - 8 timeslots for data transmission instead of one timeslot as the basic transmission in the GSM network. The GPRS is a third generation technique and a packet switched transmission system. It makes possible direct transmission between the mobile network and the Internet or another packet switched network, such as X.25. TCP/IP based and WAP based protocols are possible to use for the communication between the installer and the source of the application. As can be noted, a variety of different techniques and protocols exist. Furthermore, operators and providers may have specific settings for their applications and/or services.

For example, in the case of the GPRS/TCP/IP connection the telecommunication settings are:

30 Name of the connection <name>
Access Point Name <operator defined name>
Transport <GPRS>
User Identification <Uid>
Password prompting <yes/no>
35 Password to be used <*****>
Authentication <Strong/weak>

Gateway IP address <123.122.5.0> .

The telecommunication settings of the application **5** are usually different than the communication settings of the installer **3**. The application's settings may, for example, configure a connection for an MSS (Multimedia
5 Messaging Service).

FIG. **2** illustrates an installer according to the invention. It comprises a first means **21** for receiving a message, which contains setting information for the installer, a second means **22** for setting up communication settings of the installer according to the received setting information; a third
10 means **23** for downloading the application from a source of the application to the mobile terminal by utilizing the communications settings, and a fourth means **24** for installing the downloaded application.

FIG. **3** illustrates an example of an embodiment of the inventive method. At first, a first message is sent **31** from a terminal to a first server for requesting the application. The terminal may be the mobile terminal whereto
15 the application will be downloaded or any other terminal. The inventive installer comprises the steps of receiving **32** the second message from the first server to an installer in the mobile terminal, the second message containing setting information for the installer, setting up **33** communication settings of the installer according to the setting information, downloading **34** the applica-
20 tion from a source of the application to the mobile terminal by utilizing the communications settings, and installing **35** the downloaded application.

Since the installer may be a software application, the invention also concerns a computer program product, which has been stored on a
25 computer readable storage media. The storage media may be a hard disk in a network server, a memory in a mobile terminal, CD-disk, etc. The product has been adapted to perform the steps of the installer, mentioned in claim 1, when run on a computer. The computer may be a computer of a mobile terminal.

30 As mentioned the invention makes it possible to download the same application for different utilization environments. The local installation conditions are taken into account in a setup information message from another server than the source of the application. Network, operator and service specific requirements are handled in a simple and efficient way. The setup
35 message may contain only data for the communication settings of the installer, or it may also contain other setting information for the installer. Fur-

ther the setup message may contain data for the communication settings of the application and/or other setting information for it. The important matter is that the setup message may furthermore contain an address information wherefrom the application is downloaded and/or an address information
5 wherefrom the application may request the desired service or other matters needed. The setup message may also be compressed, for example an entropy encoded WINZIP-file.

The invention is a sophisticated solution for operators and service providers. The providers who make applications may manufacture a single
10 product that is useable in different situations. The service providers may utilize the product of the application providers when offering their services to customers. A possibly different provider, who handles the server wherefrom the setup messages are delivered to mobile terminals, in turn offers the inventive concept to the other providers.

15 The installer may be pre-installed in a mobile terminal, but it can be delivered to the mobile terminal preferably in the same message that contains setup information. In this case, the installer is preferably installed before the setup information is used, since the setup information has been addressed to the installer. In the pre-installation the installer can be a separate
20 application or a part of an operating system, such as SYMBIAN. The application to be downloaded may be a video player, and the service that the customer uses a video service. As can be noted, the invention can be formed and used for many different applications and services.

In reference to the abovementioned matters it is evident the invention
25 tion can be modified to a number of different solutions. For example, the setup messages can be other messages than SMS messages. Thus the invention is not restricted to the examples mentioned in this text, but it can be used in other possible realizations, in the scope of the inventive idea.

30

Claims

1. A method for installing an application in a mobile terminal, in which method the application is downloaded to the mobile terminal, characterized in that a first message is sent from a terminal to a first server for requesting the application, and in the mobile terminal the method comprises the steps of:

- as a response to the first message receiving the second message from the first server to an installer in the mobile terminal, the second message containing setting information for the installer;
- setting up communication settings of the installer according to the setting information;
- downloading the application from a source of the application to the mobile terminal by utilizing the communications settings;
- installing the downloaded application.

2. A method according to claim 1, characterized in that the setting information of the second message comprises the detailed communication settings and address information of the application for the communication settings.

3. A method according to claim 2, characterized in that the setting information of the second message further comprises setting information for the application.

4. A method according to claim 3, characterized in that the setting information for the application further comprises communication setting information.

5. A method according to claim 2 or 4, characterized in that the setting information of the second message further comprises other setting information for the installer.

6. A method according to any of claims 1 to 5, characterized in that the setting information for the installer is deleted after downloading the application.

7. A method according to any of claims 1 to 6, characterized in that the terminal, which sends the first message, is said mobile terminal.

8. A method according to any of claims 1 to 7, characterized in that the first and the second messages are SMS messages.

9. A method according to any of claims 1 to 8, characterized in that the downloading step comprises the steps of sending a third message from the mobile terminal to the source of the application for requesting the application; and as a response to the third message receiving the fourth message from the source of the application to the installer in the mobile terminal, the fourth message containing the application.

10. A method according to claim 9, characterized in that the fourth message further comprises settings for the application if they fail to be delivered in another way to the mobile terminal or the application fails to comprise said settings.

11. A method according to claim 10, characterized in that the application setting information of the fourth message further comprises communication setting information of the application.

12. A method according to any of claims 1 to 11, characterized in that the communication settings for the installer or the application are GSM-data settings, HSCSD settings or GPRS settings.

13. A method according to claim 12, characterized in that the communication settings are operator specific and/or service provider specific.

14. A method according to any of claims 1 to 13, characterized in that the installer comprises initial settings for its communication needs.

15. A method according to any of claims 1 to 14, characterized in that the application is a video player.

16. A method according to claim 1 or 13, characterized in that when the application belongs to a service, which is desired to be used and mentioned in the first message, the method further comprises the steps of:

- sending a fifth message from the application in the mobile terminal to a second server for requesting the service; and
- as a response to the fifth message receiving the sixth message from the second server to the application in the mobile terminal, the second message containing the service data requested.

17. A method according to claim 15, characterized in that the service is a video service.

18. An arrangement for installing an application in a mobile terminal, in which arrangement the application is downloaded to the mobile terminal, characterized in that the arrangement comprises an installer in the mobile terminal for downloading and installing the application, the installer comprising:

- a first means for receiving a message, which contains setting information for the installer;
- 10 - a second means for setting up communication settings of the installer according to the received setting information;
- a third means for downloading the application from a source of the application to the mobile terminal by utilizing the communications settings;
- 15 - a fourth means for installing the downloaded application.

19. An arrangement according to claim 18, characterized in that the received message is a response message to a second message sent by a terminal for requesting the application from a first server.

20. An arrangement according to claim 18 or 19, characterized in that the setting information comprises the detailed communication settings and address information of the application for the communication settings.

21. An arrangement according to claim 20, characterized in that the setting information further comprises setting information for the application.

22. An arrangement according to claim 21, characterized in that the setting information for the application further comprises communication setting information.

23. An arrangement according to claim 20 or 22, characterized in that the setting information further comprises other setting information for the installer.

24. An arrangement according to any of claims 18 to 23, characterized in that the setting information for the installer is deleted after the downloading of the application.

25. A method according to any of claims 19 to 24, characterized in that the terminal, which sends the second message, is said mobile terminal.

26. An arrangement according to any of claim 19 to 25, characterized in that the received message and the second message are SMS messages.

27. An arrangement according to any of claims 18 to 26, characterized in that in the downloading step a third message is sent from the mobile terminal to the source of the application for requesting the application; and as a response to the third message a fourth message is received from the source of the application to the installer in the mobile terminal, the fourth message containing the application.

28. An arrangement according to claim 27, characterized in that the fourth message further comprises settings for the application if they fail to be delivered in another way to the mobile terminal or the application fails to comprise said settings.

29. An arrangement according to claim 28, characterized in that the application setting information of the fourth message further comprises communication setting information of the application.

30. An arrangement according to any of claims 18 to 29, characterized in that the communication settings for the installer or the application are GSM-data settings, HSCSD settings or GPRS settings.

31. An arrangement according to any of claims 18 to 30, characterized in that the installer comprises initial settings for its communication needs.

32. An arrangement according to any of claims 18 to 31, characterized in that the application is a video player.

33. An arrangement according to any of claims 18 to 32, characterized in that if the installer fails to be pre-installed, it is sent with the same message as the setting information to the mobile terminal.

34. An arrangement according to claim 18 or 33, characterized in that when the application belongs to a service, which is desired to be used and mentioned in the received message, the application sends a fifth message to a second server for requesting the service, and as a response to the fifth message the application receives the sixth message from the second

server to the application in the mobile terminal, the second message containing the service data requested.

35. An arrangement according to claim 34, characterized in that the service is a video service.

5 36. A computer program product stored on a computer readable storage media, the product being adapted to perform the steps of claim 1 when run on a computer.

37. A computer program product according to claim 36, characterized in that the computer is a computer of a mobile terminal.

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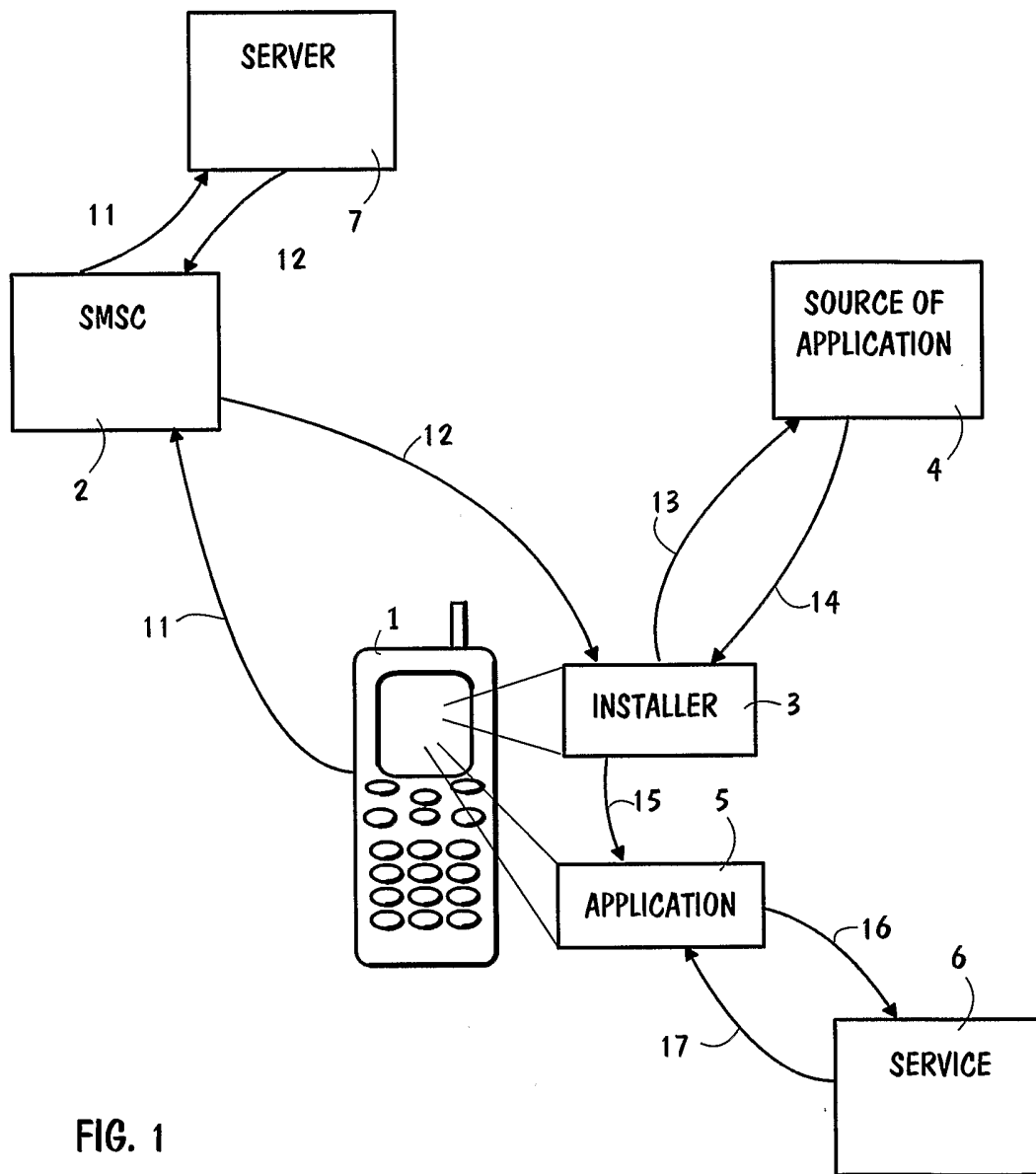


FIG. 1

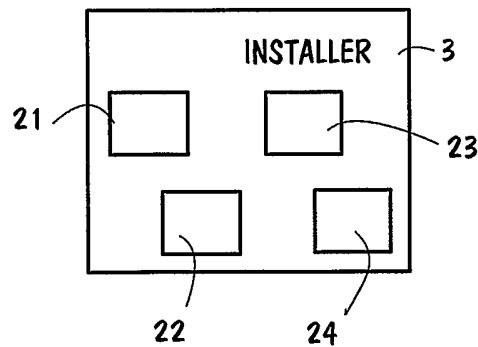


FIG. 2

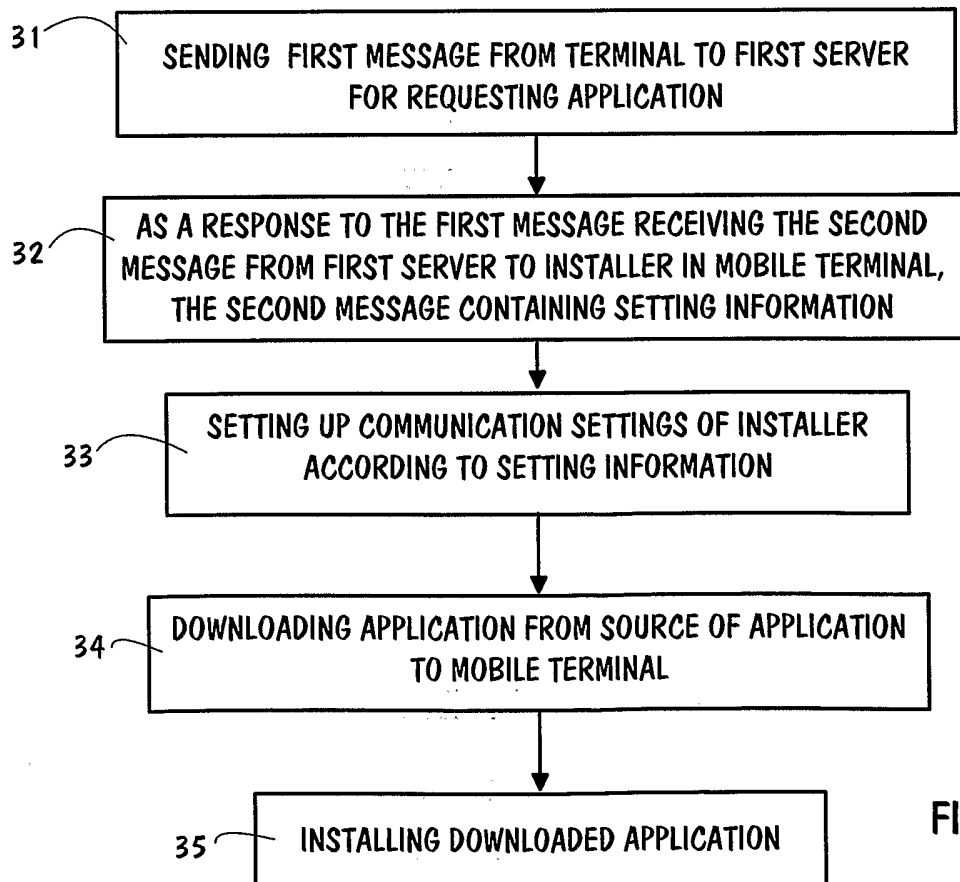


FIG. 3

INTERNATIONAL SEARCH REPORT

International application No.

PCT/FI 02/00873

A. CLASSIFICATION OF SUBJECT MATTER

IPC7: H04L 29/06, G06F 6/44

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)

IPC7: H04Q

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

SE,DK,FI,NO classes as above

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

EPO-INTERNAL, WPI

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 0219116 A2 (F-SECURE OYJ), 7 March 2002 (07.03.02), page 1 - page 10, abstract --	1-37
Y	WO 02080606 A1 (TELECOM ITALIA LAB S.P.A.), 10 October 2002 (10.10.02), page 1 - page 10, abstract --	8-12,26-30
Y	US 5860012 A (LINDA LUU), 12 January 1999 (12.01.99), column 1, line 60 - column 2, line 17, abstract --	2-17,19-37

Further documents are listed in the continuation of Box C. See patent family annex.

<p>* Special categories of cited documents:</p> <p>"A" document defining the general state of the art which is not considered to be of particular relevance</p> <p>"E" earlier application or patent but published on or after the international filing date</p> <p>"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)</p> <p>"O" document referring to an oral disclosure, use, exhibition or other means</p> <p>"P" document published prior to the international filing date but later than the priority date claimed</p>	<p>"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention</p> <p>"X" document of particular relevance: the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone</p> <p>"Y" document of particular relevance: the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art</p> <p>"&" document member of the same patent family</p>
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Date of the actual completion of the international search	Date of mailing of the international search report
19 May 2003	21 -05- 2003

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INTERNATIONAL SEARCH REPORT

International application No.

PCT/FI 02/00873

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 6088457 A (D.PARKINGSON ET AL), 11 July 2000 (11.07.00), column 2, line 32 - line 43, figures 1-2, abstract --	2-17,19-37
Y	PATENT ABSTRACTS OF JAPAN SHARP CORP 200206 4 JUNE 2002 (2002-06-04) & JP 2002049434 A 20020215 ABSTRACT --	1,18
A	WO 9217943 A1 (MOTOROLA,INC.), 15 October 1992 (15.10.92) --	1-37
E,X	US 6496979 B1 (J.CHEN ET AL), 17 December 2002 (17.12.02), column 2, line 60 - column 3, line 40, abstract -----	1-37

INTERNATIONAL SEARCH REPORT

Information on patent family members

29/04/03

International application No.

PCT/FI 02/00873

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