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**GSM NETWORK ADAPTED TO PROVIDE A SHORT MESSAGE SERVICE AND WITH DATABASES BEING SYNCHRONISED DURING SMS MESSAGES**

5 The invention relates to a communication system particularly a radio-based communication system including a cellular radio communication network, such as a Global System for Mobile Communication (GSM) network, that is adapted to effect synchronisation of computer-stored information using a 'short message service' (SMS). The invention also relates to a method for providing assistance to a subscriber to the systems of the present invention using synchronised databases.

10 The mobile cellular radio communication network, known as GSM, which is covered by standards developed and promulgated by the European Telecommunications Standards Institute (ETSI), offers a variety of services to users, other than voice, including, inter alia, data services, short message services, and broadcast services. The ETSI GSM Standards specify, in addition to the radio interface, a complete telecommunications network with radio access by the user. Since the architecture, and operational aspects, of GSM are well known to persons skilled in the art, only those aspects of GSM which are of direct relevance to the present invention will be described in this patent specification.

20 SMS is a feature which is incorporated into digital mobile telephone networks, and can be divided into two types, point-to-point services (SMS-PP), and broadcast services (SMS-CB).

25 SMS-PP allows a brief message (up to 160 characters) to be sent between a mobile telephone and a Service Centre (SC). Larger messages can optionally be created by concatenating multiple messages (the protocol allows up to 10 messages to be concatenated in this way). The SC operates is adapted to send, or receive, messages from a wide variety of sources, in addition to a GSM mobile telephone, for example, fax, normal telephone, dial up modems, public, or private data networks etc.. This means that the service is not limited to sending messages between GSM mobile telephones, but can be used to send, or receive, messages from the wider telecommunications network.

35 At the present time, high-quality multimedia services are not available in a fully mobile environment. The main reasons for this are:

- lack of bandwidth;
- difficulty in meeting real time requirements; and
- 5 - the ability to run speech in parallel with data (image, video, etc.).

There is, therefore, a need to find a technical solution to this problem which will enable users to experience a high-quality multimedia service in a fully mobile environment.

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It is an object of the present invention to provide a communication system, particularly a radio-based communication system including a cellular radio communication network, such as a Global System for Mobile Communication (GSM) network, that is adapted to effect synchronisation of computer-stored information using a 'short message service' (SMS).

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It is another object of the present invention to provide a method for the provision of assistance to a subscriber to the systems of the present invention using synchronised databases.

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According to a first aspect of the present invention, there is provided, a data communication system including a communication network including a computer terminal for each subscriber to the network requiring access to a data transfer service, said computer terminal being adapted to communicate with other subscriber computer terminals; and at least one communication unit adapted to communicate with each of said subscriber computer terminals, characterised in that said system includes synchronisation means for enabling a database associated with a subscriber's computer terminal to be synchronised with a database associated with said at least one communication unit. The database associated with a subscriber computer terminal is similar to a database associated with the said at least one communication unit. The communication network is preferably a cellular radio communication network, such as a GSM network, adapted to provide a short message service (SMS), in which case, the synchronisation means are adapted to synchronise said databases using SMS messages.

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The synchronisation means are preferably adapted to enable identical information to be retrieved from each of said databases and respectively displayed

on a display screen of said subscriber's computer terminal and on a display screen of said at least one communication unit. The system may be a multimedia system adapted to provide assistance to said subscriber, in which case, the synchronisation means would be adapted to be controlled by said at least one communication unit, the databases would be adapted to hold information data relating, at least in part, to a subject matter in respect of which said subscriber requires assistance, and the displayed information would be adapted to facilitate the provision of a response to said subscriber request.

According to a second aspect of the present invention, there is provided, a multimedia radio-based communication system including a cellular radio communication network, adapted to provide a short message service (SMS), and including a mobile station (MS) for each subscriber to the network; and a number of base stations (BSs), each one of which is connected to a public switched telephone network and adapted to communicate with a number of MSs; and a computer terminal for each subscriber requiring access to the multimedia system, each of said subscriber computer terminals having a display screen and being adapted to communicate with said network via a respective MS using SMS messages, characterised in that said system includes at least one communication unit including a computer having a display screen and adapted to communicate with said subscriber computer terminals using SMS messages; and synchronisation means for remotely synchronising a database of a subscriber's computer terminal with a database of said communication unit's computer using SMS messages, and in that each of said subscriber computer terminals and said communication unit's computer have two cursors displayed thereon, one of which is locally controlled and the other one of which is remotely controlled using SMS messages, said remotely controlled cursors enabling said subscriber and an operator of said at least one communication unit to respectively point to different parts of the other party's displayed information.

According to a third aspect of the present invention, there is provided, a multimedia radio-based communication system including a cellular radio communication network, adapted to provide a short message service (SMS), and including a mobile station (MS) for each subscriber to the network; and a number of base stations (BSs), each one of which is connected to a public switched telephone network and adapted to communicate with a number of MSs; and a computer terminal for each subscriber requiring access to the multimedia system, each of said subscriber computer terminals having a display screen and being adapted to

communicate with said network via a respective MS using SMS messages, characterised in that said system includes at least one communication unit including a computer having a display screen, and adapted to communicate with said subscriber computer terminals and to facilitate the provision of a response to a request from a subscriber for assistance, in that said subscriber's computer terminal has associated therewith a software and database for subject matter in respect of which a subscriber requires assistance, said software and associated database being adapted to be controlled locally by said subscriber and remotely by said communication unit, using SMS messages, in that said communication unit has access to a software and database similar to that associated with said subscriber's computer terminal and to retrieve therefrom, and display, information required to enable a response to be provided to said subscriber request, and in that said communication unit causes, through use of said remote control, identical information to be retrieved from, and displayed on, the subscriber's computer terminal, said locally and remotely displayed information being controllable by said communication unit and used to provide the assistance requested by said subscriber. The network is preferably adapted, in response to a request from a subscriber requiring assistance, to install said software on said subscriber's computer terminal using said SMS messages. In addition, the network is preferably adapted, in response to a request from a subscriber requiring assistance, to provide said database for said subscriber's computer terminal.

The communication unit may be adapted to communicate with said subscriber in respect of the displayed information using SMS messages that define textual information for display on said subscriber's computer terminal.

The communication unit may also be adapted to communicate with said subscriber in respect of the displayed information using a speech connection to said subscriber's MS, and/or SMS messages that define textual information for display on said subscriber's computer terminal.

The remote control capabilities of said communication unit may be adapted to selectively zoom in on part of said retrieved information displayed on said subscriber's computer terminal.

The display screens of said subscriber's computer terminal and said communication unit's computer may each have two cursors displayed thereon, one

of which is adapted to be locally controlled and the other of which is adapted to be remotely controlled. The remotely controlled cursors may enable said subscriber and an operator of said communication unit to respectively point to different parts of the other party's displayed information.

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The communication means may be adapted to selectively change displayed information in the event that the assistance requested by the subscriber requires access to different sections of the database.

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The communication network is preferably a GSM network.

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According to a fourth aspect of the present invention, there is provided, a visual display unit in which control codes are used to dictate character positions and to control document formats presented on a display screen of the visual display unit, in which the position of a displayed character is highlighted by the movement of a cursor, characterised in that said visual display unit has two cursors, one of which is adapted to be locally controlled and the other of which is adapted to be remotely controlled.

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According to a fifth aspect of the present invention, there is provided, a data communication network, characterised in that said network includes at least two visual display units (VDUs) as outlined in the preceding paragraph, and communication means for communicating each of said VDUs to control operation of said remotely controllable cursor of the other of said VDUs. The network may be a cellular radio communication network, such as a GSM network, having a short message service (SMS), in which case, said control means use SMS messages to effect said remote cursor control.

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According to a sixth aspect of the present invention, there is provided, a multimedia radio-based communication system, characterised in that said system includes a network as outlined in the preceding paragraph, in that each of said VDUs includes a database, in that said control means are adapted to remotely synchronise the databases of said at least two VDUs using SMS messages and to selectively retrieve and simultaneously display identical information on each of said VDUs, and in that said remotely controlled cursors enable an operator of either of the VDUs to point to different parts of the information displayed on the other VDU.

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According to a seventh aspect of the present invention, there is provided, in a multimedia radio-based communication system including a cellular radio communication network, such as a GSM network, adapted to provide a short message service (SMS), and including a mobile station (MS) for each subscriber to the network; and a number of base stations (BSs), each one of which is connected to a public switched telephone network and adapted to communicate with a number of MSs; and a computer terminal for each subscriber requiring access to the multimedia system, each of said subscriber computer terminals having a display screen and being adapted to communicate with said network via a respective MS using SMS messages, a method for providing assistance to a subscriber, characterised by the steps of said subscriber requesting assistance from an expert and outlining a problem in respect of which assistance is required from said expert, said subscriber's computer terminal having associated therewith software and a database for subject matter in respect of which the subscriber has requested assistance, said software and associated database being adapted to be controlled locally by said subscriber; and remotely by said expert using SMS messages, said expert having access to a software and database similar to that associated with said subscriber's computer terminal; said expert retrieving from said similar software and associated database information required to respond to said subscriber request; displaying said retrieved information on a display screen of a communication unit of said expert; and said expert remotely retrieving and displaying identical information on the subscriber's computer terminal using SMS messages, said locally and remotely displayed information being controllable by said expert and used to enable the expert to provide the assistance requested by the subscriber.

The method may be further characterised by the step of said network operator, in response to said subscriber request for assistance, installing said software on said subscriber's computer terminal using SMS messages, in response to said subscriber's request for assistance, provide said database for said subscriber's computer terminal.

The method may be further characterised by the step of communicating with said subscriber in respect of the displayed information using SMS messages for remotely synchronising a database of said subscriber's computer terminal with a database of said communication unit, and defining textual information for display on said subscriber's computer terminal.



The method may be further characterised by the steps of communicating with said subscriber in respect of the displayed information using SMS messages for remotely synchronising a database of said subscriber's computer terminal with a database of said communication unit; defining textual information for display on said subscriber's computer terminal; and for transmission of speech messages between the subscriber and the expert.

The method may be further characterised by the step of using SMS messages to enable said expert to selectively zoom in on part of said retrieved information displayed on said subscriber's computer terminal.

The display screens of said subscriber's computer terminal and said communication unit may each have two cursors displayed thereon, one of which is locally controlled and the other one of which is remotely controlled using SMS messages, and the method may include the step of using said remotely controllable cursors to facilitate communication between said subscriber and said expert by said subscriber manoeuvring the remotely controllable cursor on the display screen of said communication unit to selectively point to a part(s) of the displayed information in respect of which assistance is required; and said expert manoeuvring the remotely controllable cursor on the display screen of said subscriber's computer terminal to selectively point to a part(s) of the displayed information to provide, at least in part, the assistance required by using SMS messages to change the locally and remotely displayed information in the event that the assistance requested by the subscriber requires access to different sections of the database.

The displayed information may include image information and may further include audio, and/or video, and/or textual information.

The software and associated database may be held on a CD-ROM and/or a hard disc of said subscriber computer terminals.

According to an eighth aspect of the present invention, there is provided, in a data communication system including a communication network including a computer terminal for each subscriber to the network requiring access to a data transfer service, said computer terminal being adapted to communicate with other subscriber computer terminals; and at least one communication unit adapted to

communicate with each of said subscriber computer terminals, a method for providing assistance to a subscriber, characterised by the step of remotely synchronising a database, associated with a subscriber's computer terminal, with a database, associated with said at least one communication unit, to convey to said subscriber information required to provide said assistance. The communication network may be a cellular radio communication network, such as a GSM network, adapted to provide a short message service (SMS), in which case, the method includes the step of synchronising said databases using SMS messages. This method may be further characterised by the steps of retrieving identical information from each of said databases; and displaying the retrieved on a display screen of said subscriber's computer terminal and on a display screen of said at least one communication unit. The system may be a multimedia system adapted to provide assistance to said subscriber, in which the method includes the steps of controlling synchronisation of said databases by said at least one communication unit, said databases holding information data relating, at least in part, to a subject matter in respect of which said subscriber requires assistance; and said expert providing a response to said subscriber request using said displayed information.

According to a ninth aspect of the present invention, there is provided, in a multimedia radio-based communication system including a cellular radio communication network, such as a GSM network, adapted to provide a short message service (SMS) and including a mobile station (MS) for each subscriber to the network and a number of base stations (BSs), each one of which is connected to a public switched telephone network and adapted to communicate with a number of MSs, and a computer terminal for each subscriber requiring access to the multimedia system, each of said subscriber computer terminals having a display screen and being adapted to communicate with said network via a respective MS using SMS messages, a method for providing assistance to a subscriber, characterised by the steps of an expert communicating with said subscriber, using SMS messages, to identify the subject matter in respect of which assistance is required; and remotely synchronising a database of the subscriber's computer terminal with a database of a communication unit of said expert using SMS messages to convey to said subscriber information required to provide said assistance; the display screen of said subscriber's computer terminal and a display screen of said communication unit each having two cursors displayed thereon, one of which is locally controlled and the other one of which is remotely controlled using SMS messages, said method also including the step of said remotely controllable

5 cursors being used to facilitate communication between said subscriber and said expert by said subscriber manoeuvring the remotely controllable cursor on the display screen of said communication unit to selectively point to a part(s) of the displayed information in respect of which assistance is required; and said expert  
10 manoeuvring the remotely controllable cursor on the display screen of said subscriber's computer terminal to selectively point to a part(s) of the displayed information to provide, at least in part, the assistance required by said subscriber, each of said subscriber computer terminals and said communication o cursors displayed thereon, one of which is locally controlled and the other one of which is remotely controlled, said remotely controlled cursors enabling said subscriber and said network operator to respectively point to different parts of the other party's displayed information.

15 The subscriber computer terminal may be a portable personal computer.

20 According to a tenth aspect of the present invention, there is provided, and arrangement for the provision of expert advice on a range of applications, characterised in that said arrangement includes a system as outlined in preceding paragraphs, or uses a method as outlined in preceding paragraphs. The range of applications may include, inter alia, the following applications:

- 25 - a salesman requiring technical sales support;
- a builder requiring assistance from an architect, for example, a need to ask the architect about a detail in a drawing;
- a repairer/renovator who needs to consult an expert;
- 30 - a private person who has sustained an engine breakdown on his/her boat, motor car, or the like, and needs assistance with fault-finding;
- a private person who needs help in the renovation/decoration of his/her house; or
- 35 - multimedia mail, i.e. mail with audio, video, and data.

The forgoing and other features of the present invention will be better understood from the following description with reference to the single figure of the accompanying drawings which diagrammatically illustrates, in the form of a block diagram, a data communication system of the present invention.

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It will be seen from the subsequent description that the invention enables a user to obtain a high-quality multimedia service in a fully mobile environment through use of a communication network and, in particular, a cellular radio communication network, such as a GSM network, that offers a 'short message service' (SMS).

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In accordance with the present invention, each subscriber to a data communication system will, as is illustrated in the single figure of the accompanying drawings, have a computer terminal 1, with a display screen, for example, a portable personal computer, which is adapted to communicate with the computer terminals of other subscribers. This can be effected, as shown in the drawing, by a mobile station, i.e. a radio-telephone handset, 2 which is connected to the computer terminal 1 and forms part of a communication network, particularly a cellular radio communication network, such as the GSM network 4 shown in the drawing.

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In practice, the GSM network 4 includes a mobile station 2 for each subscriber and a number of base stations 3, only one of which is shown in the drawing. Each base station is connected to a public switched telephone network, via the GSM network, and adapted for radio communication with a number of mobile stations.

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As shown in the drawing, a communication unit 5, in the form of a computer terminal with a display screen, is connected to the GSM network 4 and adapted for radio communication with each of the subscriber computer terminals. The radio communication, shown in the drawing by the arrows 6 and 7, is preferably effected using SMS messages. It will be seen from the subsequent description that the communication unit 5 provides the means to enable an expert to give advice to a subscriber. In practice, it may be necessary to provide communication units 5 for a number of experts.

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At the present time, technical developments in computer-based information storage have reached the stage where very large volumes of information can be

stored in a portable computer (PC). Also, PCs have become so small that more and more people are using them in mobile situations. On the software side, the technology is also sufficiently developed for a major expansion of multimedia-based applications, for example, in the form of directories and guidance programs.

5 Furthermore, more and more people have access to a cellular mobile telephone system, such as, for example, the GSM network which offers SMS. It will be seen from the subsequent description that all of these features are used by the present invention to enable SMS messages to be used for the synchronisation of a database, associated with the subscriber computer terminal 1, with a database,

10 associated with the communication unit 5. It will also be seen that the synchronisation process can be effected in parallel with an ongoing telephone call.

In essence, computer-stored information stored, for example, on CD-ROM and/or hard disc, of the computer terminal 1, is remotely controlled by means of the

15 communication unit 5, using SMS messages, to selectively cause identical information to be displayed on the display screens of the computer terminal 1 and the communication unit 5. The displayed information can be used for a number of applications, for example, the provision of assistance to a subscriber requiring a solution to a problem in respect of subject matter represented by the computer-

20 stored information. The stored information can include image information, but may also include audio, video, and textual information. In other words, the present invention is adapted to offer a high-quality multimedia service to subscribers in a fully mobile environment with high quality remote guidance to subscribers.

25 In practice, a subscriber requiring assistance, in respect of a particular subject matter, purchases software with an associated database for that subject matter from, for example, an operator of the GSM network 4. The software and database are adapted to be controlled locally, by the subscriber, using his/her computer terminal 1 and remotely, by an expert in the subject matter, using the

30 communication unit 5. Thus, the software and database associated with the computer terminal 1 can be remotely controlled, within a subscriber's selected areas of interest, by the expert.

As stated above, a required database is provided by the network operator,

35 for example, on a CD-ROM, and the associated software may be installed on the computer terminal 1 using SMS messages. As stated above, the software and database can be controlled locally by the subscriber to selectively retrieve

information from the database for display on the display screen of the subscriber's computer terminal.

5 When the subscriber requires assistance in respect of the computer-stored information, he/she telephones the expert, via the GSM network 4, using the mobile telephone 2 and outlines the problem to the expert.

10 The expert, has access to software and a database similar to that which is associated with the subscriber's computer terminal 1, i.e. contains the same information as the database associated with the subscriber's computer terminal 1. The expert uses that software and database to retrieve relevant information therefrom, i.e. information required to respond to the subscriber and provide a solution to the subscriber's problem.

15 The retrieved information is displayed on the display screen of the communication unit 5. The retrieved and displayed information will, in practice, be dependant upon the nature of the subscriber's problem and the subject matter concerned but will, for some applications, be image information. The retrieved information may, however, include audio, video, and textual information.

20 After retrieval and display of the relevant information by the expert, a SMS message is sent, by the expert, from the communication unit 5, via the GSM network 4 and mobile telephone 2, to the subscriber's computer terminal 1, as shown by the arrows 7 in the drawing. The SMS message causes the software and database associated with the subscriber's computer terminal to retrieve and display information identical to that which is displayed on the display screen of the communication unit 5. In other words, the SMS message is adapted to remotely synchronise the database, associated with the computer terminal 1, with the database, associated with the communication unit 5, and to thereby provide identical information displays for simultaneous viewing by the subscriber and the expert.

35 The identical information displays provide the means for the expert to respond to the subscriber and provide the requested assistance and/or respond to other questions raised by the subscriber.

In some instances, it may be necessary for the expert to have access to other information from the database in order to provide the requested assistance to the subscriber. In this event, the expert repeats the process, outlined above, in respect of the other information, i.e. the expert retrieves and displays the other information using the software and database, associated with the communication unit 5, and sends an SMS message to the computer terminal 1 to selectively change the display to bring it into conformity with the new information displayed on the display screen of the communication unit 5. It is also possible for the subscriber to initiate a change in the displayed information.

It will be seen from the foregoing description that a fundamental aspect of the communication system of the present is the ability to effect synchronisation of a database, associated with a subscriber's computer terminal, with a database, associated with an expert's communication unit, and to thereby provide identical information displays for the subscriber and expert for use in resolving subscriber problems and/or responding the subscriber queries.

The display screens of the subscriber's computer terminal 1 and the communication unit 5, each form part of a visual display unit (VDU), which uses control codes to dictate character positions and to control document formats presented on the VDU's display screen. In addition, the position of a displayed character is highlighted by the movement of a cursor. In accordance with the present invention, a VDU has two cursors, one of which is adapted to be locally controlled and the other of which is adapted to be remotely controlled.

Thus, the use of two cursors on the VDU of the computer terminal 1 and on the VDU of the communication unit 5, enhances the remote control facility of the present invention, in that the subscriber and the expert will each have the ability to control operation of a remotely controllable cursor on t is preferably effected using SMS messages.

The practical effect of this is that both the expert's and the subscriber's cursors are shown on both display screens, i.e. two cursors on each screen, one of which is locally controlled and the other of which is remotely controlled using SMS messages. This means that dialogue between the subscriber and the expert is made more effective through each party being able to point to different parts of the other party's displayed information using the remotely controllable cursor.

The remote control capabilities of the present invention may be further enhanced through the communication unit 5 having the capability to selectively zoom in on a part of the displayed information of the display screen of the computer terminal 1, using SMS messages. This will enable the expert and/or the subscriber to enlarge part of a displayed image in order to more readily explain a problem and/or provide a solution to a problem.

In some instances, the provision of assistance to a subscriber may require, in addition to synchronisation of the databases, the transfer of text messages between the expert and the subscriber for display on the display screen of the computer terminal 1 and/or the display screen of the communication unit 5. This can be achieved, when required, by using SMS messages that define the textual information required to be displayed on, for example, the subscriber's computer terminal 1.

The SMS messages can also be used for the transmission of speech messages either alone, or in combination with, the textual information. Clearly, situations may arise where no speech messages are required, in which case, remote expert guidance to subscribers will be supported by synchronisation of the databases, together with text messages.

The multimedia service provided by the present invention is a narrow-band multimedia communication service, which is primarily intended for use by subscribers requiring access to expert help, through use of a mobile radiocommunication system in combination with a portable computer. In essence, SMS messages are used, as an integral part of this service, to:

- synchronise locally computer-stored information, i.e. on a database associated with a subscriber's computer terminal, for example, a portable computer, with identical information stored on a remotely located database associated with an expert's computer system; and
- when necessary, establish a parallel speech connection between the subscriber and the expert.



In other words, the narrow-band multimedia communication service provided by the present invention makes it possible for an expert to control remotely located computer-based information to provide expert advice to a subscriber in respect of a subject matter defined by the stored information.

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It will be directly evident to persons skilled in the art that the data communication systems of the present invention are adapted for use in a number of applications including, inter alia, the following applications:

- 10 - a salesman requiring technical sales support - in this case, the image display may be in the form of extracts from a product brochure and/or the electronic circuit, or logic, diagram for a product, or system;
- 15 - a builder requiring assistance from an architect, for example, a need to ask the architect about a detail in a drawing - in this case, at least part of the architect's drawing would form the image display and the zoom facility of the present invention would enable the architect to enlarge the detail of the drawing in respect of which assistance is required by the builder;
- 20 - a repairer/renovator who needs to consult an expert - in this case, the displayed information could be textual information and/or image information, depending on the subject matter and nature of the problem in respect of which assistance is required;
- 25 - a private person who has sustained an engine breakdown on his/her boat, motor car, or the like, and needs assistance with fault-finding - in this case, the image display may be in the form of an extract from a service manual (drawing and/or text) for the boat, or motor car, as the case may be;
- 30 - a private person who needs help in the renovation/decoration of his/her house - in this case, the displayed information could be textual information and/or image information, and possibly also audio and video information, but would, in any event, be dependant on the subject matter and nature of the problem in respect of which assistance is required; and
- 35 - multimedia mail, i.e. mail with audio, video, and data.

5 It will be directly evident to persons skilled in the art that a distinct advantage of the present invention, in comparison to known multimedia systems, is the ability to synchronise local databases using a GSM SMS service and to thereby offer multimedia services, in narrow-band systems, as against known arrangements which use extremely wide-band systems (with a very limited coverage).

**CLAIMS**

1. A data communication system including:

- a communication network including a computer terminal for each subscriber to the network requiring access to a data transfer service, said computer terminal being adapted to communicate with other subscriber computer terminals; and

- at least one communication unit adapted to communicate with each of said subscriber computer terminals,

characterised in that said system includes synchronisation means for enabling a database associated with a subscriber's computer terminal to be synchronised with a database associated with said at least one communication unit.

2. A system as claimed in claim 1, characterised in that the database associated with a subscriber computer terminal is similar to the database associated with the said at least one communication unit.

3. A system as claimed in claim 1, or claim 2, characterised in that said communication network is a cellular radio communication network, such as a GSM network, adapted to provide a short message service (SMS), and in that said synchronisation means are adapted to synchronise said databases using SMS messages.

4. A system as claimed in claim 3, characterised in that said synchronisation means are adapted to enable identical information to be retrieved from each of said databases and respectively displayed on a display screen of said subscriber's computer terminal and on a display screen of said at least one communication unit.

5. A system as claimed in claim 4, characterised in that said system is a multimedia system adapted to provide assistance to said subscriber, in that said synchronisation means are adapted to be controlled by said at least one communication unit, in that said databases are adapted to hold information data relating, at least in part, to a subject matter in respect of which said subscriber

requires assistance, and in that said displayed information is adapted to facilitate provision of a response to said subscriber request.

6. A multimedia radio-based communication system including:

- a cellular radio communication network, adapted to provide a short message service (SMS), and including:

- a mobile station (MS) for each subscriber to the network; and

- a number of base stations (BSs), each one of which is connected to a public switched telephone network and adapted to communicate with a number of MSs; and

- a computer terminal for each subscriber requiring access to the multimedia system, each of said subscriber computer terminals having a display screen and being adapted to communicate with said network via a respective MS using SMS messages,

characterised in that said system includes:

- at least one communication unit including a computer having a display screen and adapted to communicate with said subscriber computer terminals using SMS messages; and

- synchronisation means for remotely synchronising a database of a subscriber's computer terminal with a database of said communication unit's computer using SMS messages,

and in that each of said subscriber computer terminals and said communication unit's computer have two cursors displayed thereon, one of which is locally controlled and the other one of which is remotely controlled using SMS messages, said remotely controlled cursors enabling said subscriber and an operator of said at least one communication unit to respectively point to different parts of the other party's displayed information.

7. A multimedia radio-based communication system including:

- a cellular radio communication network, adapted to provide a short message service (SMS), and including:

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- a mobile station (MS) for each subscriber to the network; and

- a number of base stations (BSs), each one of which is connected to a public switched telephone network and adapted to communicate with a number of MSs; and

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- a computer terminal for each subscriber requiring access to the multimedia system, each of said subscriber computer terminals having a display screen and being adapted to communicate with said network via a respective MS using SMS messages,

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characterised in that said system includes at least one communication unit including a computer having a display screen, and adapted to communicate with said subscriber computer terminals and to facilitate the provision of a response to a request from a subscriber for assistance, in that said subscriber's computer terminal has associated therewith software and a database for subject matter in respect of which a subscriber requires assistance, said software and associated database being adapted to be controlled locally by said subscriber and remotely by said communication unit, using SMS messages, in that said communication unit has access to a software and database similar to that associated with said subscriber's computer terminal and to retrieve therefrom, and display, information required to enable a response to be provided to said subscriber request, and in that said communication unit causes, through use of said remote control, identical information to be retrieved from, and displayed on, the subscriber's computer terminal, said locally and remotely displayed information being controllable by said communication unit and used to provide the assistance requested by said subscriber.

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8. A system as claimed in claim 7, characterised in that said network is adapted, in response to a request from a subscriber requiring assistance, to install said software on said subscriber's computer terminal using said SMS messages.

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9. A system as claimed in claim 7, or claim 8, characterised in that said network is adapted, in response to a request from a subscriber requiring assistance, to provide said database for said subscriber's computer terminal.

5 10. A system as claimed in any of claims 4 to 9, characterised in that said communication unit is adapted to communicate with said subscriber in respect of the displayed information using SMS messages that define textual information for display on said subscriber's computer terminal.

10 11. A system as claimed in claim 4 to 9, characterised in that said communication unit is adapted to communicate with said subscriber in respect of the displayed information using a speech connection to said subscriber's MS, and/or SMS messages that define textual information for display on said subscriber's computer terminal.

15 12. A system as claimed in claim 7, or any of claims 8 to 11 when appended thereto, characterised in that said remote control capabilities of said communication unit are adapted to selectively zoom in on part of said retrieved information displayed on said subscriber's computer terminal.

20 13. A system as claimed in claim 4, or claim 5, or claim 7, or any of claims 8 to 12 when appended to claim 7, characterised in that the display screens of said subscriber's computer terminal and said communication unit's computer each have two cursors displayed thereon, one of which is adapted to be locally controlled and  
25 the other of which is adapted to be remotely controlled.

30 14. A system as claimed in claim 13, characterised in that said remotely controlled cursors enable said subscriber and an operator of said communication unit to respectively point to different parts of the other party's displayed information.

35 15. A system as claimed in any of claims 4 to 14, characterised in that said communication means are adapted to selectively change displayed information in the event that the assistance requested by the subscriber requires access to different sections of the database.

16. A system as claimed in any of claims 4 to 15, characterised in that said displayed information includes image information.

17. A system as claimed in claim 16, characterised in that said displayed information includes audio, and/or video, and/or textual information.

5 18. A system as claimed in any of claims 4 to 17, characterised in that said software and associated database is held on a CD-ROM and/or a hard disc of said subscriber computer terminals.

10 19. A system as claimed in any preceding claim, characterised in that said communication network is a GSM network.

15 20. A visual display unit in which control codes are used to dictate character positions and to control document formats presented on a display screen of the visual display unit, in which the position of a displayed character is highlighted by the movement of a cursor, characterised in that said visual display unit has two cursors, one of which is adapted to be locally controlled and the other of which is adapted to be remotely controlled.

20 21. A data communication network, characterised in that said network includes at least two visual display units (VDUs) as claimed in claim 20, and communication means for communicating between said at least two VDUs, said communication means including control means for enabling each of said VDUs to control operation of said remotely controllable cursor of the other of said VDUs.

25 22. A network as claimed in claim 21, characterised in that said network is a cellular radio communication network having a short message service (SMS), and in that said control means use SMS messages to effect said remote cursor control.

30 23. A network as claimed in claim 22, characterised in that said cellular radio communication network is a GSM network.

35 24. A multimedia radio-based communication system, characterised in that said system includes a network as claimed in claim 22, or claim 23, in that each of said VDUs includes a database, in that said control means are adapted to remotely synchronise the databases of said at least two VDUs using SMS messages and to selectively retrieve and simultaneously display identical information on each of said VDUs, and in that said remotely controlled cursors enable an operator of either of

the VDUs to point to different parts of the information displayed on the other VDU.

25. In a multimedia radio-based communication system including:

- 5 - a cellular radio communication network, adapted to provide a short message service (SMS), and including:
  - a mobile station (MS) for each subscriber to the network; and
  - 10 - a number of base stations (BSs), each one of which is connected to a public switched telephone network and adapted to communicate with a number of MSs; and
  - a computer terminal for each subscriber requiring access to the multimedia system, each of said subscriber computer terminals having a display screen and being adapted to communicate with said network via a respective MS using SMS messages,

a method for providing assistance to a subscriber, characterised by the steps of:

- 20 - said subscriber requesting assistance from an expert and outlining a problem in respect of which assistance is required from said expert, said subscriber's computer terminal having associated therewith a software and database and for subject matter in respect of which the subscriber has requested assistance, said software and associated database being adapted to be controlled:
  - locally by said subscriber; and
  - 30 - remotely by said expert using SMS messages, said expert having access to a software and database similar to that associated with said subscriber's computer terminal;
  - said expert retrieving from said similar software and associated database information required to respond to said subscriber request;



- displaying said retrieved information on a display screen of a communication unit of said expert; and
- said expert remotely retrieving and displaying identical information on the subscriber's computer terminal using SMS messages, said locally and remotely displayed information being controllable by said expert and used to enable the expert to provide the assistance requested by the subscriber.

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26. A method as claimed in claim 25, characterised by the step of said network operator, in response to said subscriber request for assistance, installing said software on said subscriber's computer terminal using SMS messages.

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27. A method as claimed in claim 25, or claim 26, characterised in that said network operator, in response to said subscriber's request for assistance, provides said database for said subscriber's computer terminal.

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28. A method as claimed in any of claims 25 to 27, characterised by the step of communicating with said subscriber in respect of the displayed information using SMS messages:

- for remotely synchronising a database of said subscriber's computer terminal with a database of said communication unit; and
- defining textual information for display on said subscriber's computer terminal.

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29. A method as claimed in any of claims 25 to 27, characterised by the steps of communicating with said subscriber in respect of the displayed information using SMS messages:

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- for remotely synchronising a database of said subscriber's computer terminal with a database of said communication unit;
- defining textual information for display on said subscriber's computer terminal; and

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- for transmission of speech messages between the subscriber and the expert.

5 30. A method as claimed in any of claims 25 to 29, characterised by the step of using SMS messages to enable said expert to selectively zoom in on part of said retrieved information displayed on said subscriber's computer terminal.

10 31. A method as claimed in any of claims 25 to 31, characterised in that the display screens of said subscriber's computer terminal and said communication unit each have two cursors displayed thereon, one of which is locally controlled and the other one of which is remotely controlled using SMS messages, and in that said method includes the step of using said remotely controllable cursors to facilitate communication between said subscriber and said expert by:

- 15 - said subscriber manoeuvring the remotely controllable cursor on the display screen of said communication unit to selectively point to a part(s) of the displayed information in respect of which assistance is required; and
- 20 - said expert manoeuvring the remotely controllable cursor on the display screen of said subscriber's computer terminal to selectively point to a part(s) of the displayed information to provide, at least in part, the assistance required by said subscriber.

25 32. A method as claimed in any of claims 25 to 31, characterised by the step of using SMS messages to change the locally and remotely displayed information in the event that the assistance requested by the subscriber requires access to different sections of the database.

30 33. A method as claimed in any of claims 25 to 32, characterised in that said retrieved and displayed information includes image information.

34. A method as claimed in claim 33, characterised in that said retrieved and displayed information includes audio, and/or video, and/or textual information.

35 35. A method as claimed in any of claims 25 to 34, characterised in that said software and associated database is held on a CD-ROM and/or a hard disc of said subscriber computer terminals.

36. A method as claimed in any of claims 25 to 35, characterised in that said cellular radio communication network is a GSM network.

5 37. In a data communication system including:

- a communication network including a computer terminal for each subscriber to the network requiring access to a data transfer service, said computer terminal being adapted to communicate with other subscriber computer terminals; and

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- at least one communication unit adapted to communicate with each of said subscriber computer terminals,

15 a method for providing assistance to a subscriber, characterised by the step of remotely synchronising a database, associated with a subscriber's computer terminal, with a database, associated with said at least one communication unit, to convey to said subscriber information required to provide said assistance.

20 38. A method as claimed in claim 37, characterised in that the database associated with a subscriber computer terminal is similar to the database associated with the said at least one communication unit.

25 39. A method as claimed in claim 31, or claim 38, characterised in that said communication network is a cellular radio communication network, such as a GSM network, adapted to provide a short message service (SMS), and in that said method includes the step of synchronising said databases using SMS messages.

30 40. A method as claimed in claim 39, characterised by the steps of:

- retrieving identical information from each of said databases; and

- displaying the retrieved on a display screen of said subscriber's computer terminal and on a display screen of said at least one communication unit.

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41. A method as claimed in claim 40, characterised in that said system is a multimedia system adapted to provide assistance to said subscriber, and in that

said method includes the steps of:

- controlling synchronisation of said databases by said at least one communication unit, said databases holding information data relating, at least in part, to a subject matter in respect of which said subscriber requires assistance; and
- said expert providing a response to said subscriber request using said displayed information.

42. In a multimedia radio-based communication system including a cellular radio communication network, such as a GSM network, adapted to provide a short message service (SMS) and including a mobile station (MS) for each subscriber to the network and a number of base stations (BSs), each one of which is connected to a public switched telephone network and adapted to communicate with a number of MSs, and a computer terminal for each subscriber requiring access to the multimedia system, each of said subscriber computer terminals having a display screen and being adapted to communicate with said network via a respective MS using SMS messages, a method for providing assistance to a subscriber, characterised by the steps of:

- an expert communicating with said subscriber, using SMS messages, to identify the subject matter in respect of which assistance is required; and
- remotely synchronising a database of the subscriber's computer terminal with a database of a communication unit of said expert using SMS messages to convey to said subscriber information required to provide said assistance;

the display screen of said subscriber's computer terminal and a display screen of said communication unit each having two cursors displayed thereon, one of which is locally controlled and the other one of which is remotely controlled using SMS messages, said method also including the step of said remotely controllable cursors being used to facilitate communication between said subscriber and said expert by:

- said subscriber manoeuvring the remotely controllable cursor on the display screen of said communication unit to selectively point to a part(s) of the

displayed information in respect of which assistance is required; and

- said expert manoeuvring the remotely controllable cursor on the display screen of said subscriber's computer terminal to selectively point to a part(s) of the displayed information to provide, at least in part, the assistance required by said subscriber, each of said subscriber computer terminals and said communication unit's computer having two cursors displayed thereon, one of which is locally controlled and the other one of which is remotely controlled, said remotely controlled cursors enabling said subscriber and said network operator to respectively point to different parts of the other party's displayed information.

43. A system as claimed in any of claims 1 to 19, or a method as claimed in any of claims 25 to 42, characterised in that said subscriber computer terminal is a portable personal computer.

44. An arrangement for the provision of expert advice on a range of applications, characterised in that said arrangement includes a system as claimed in any of claims 1 to 19, or uses a method as claimed in any of claims 25 to 42.

45. An arrangement as claimed in claim 44, characterised in that said range of applications includes, inter alia, the following applications:

- a salesman requiring technical sales support;
- a builder requiring assistance from an architect, for example, a need to ask the architect about a detail in a drawing;
- a repairer/renovator who needs to consult an expert;
- a private person who has sustained an engine breakdown on his/her boat, motor car, or the like, and needs assistance with fault-finding;
- a private person who needs help in the renovation/decoration of his/her house; or
- multimedia mail, i.e. mail with audio, video, and data.

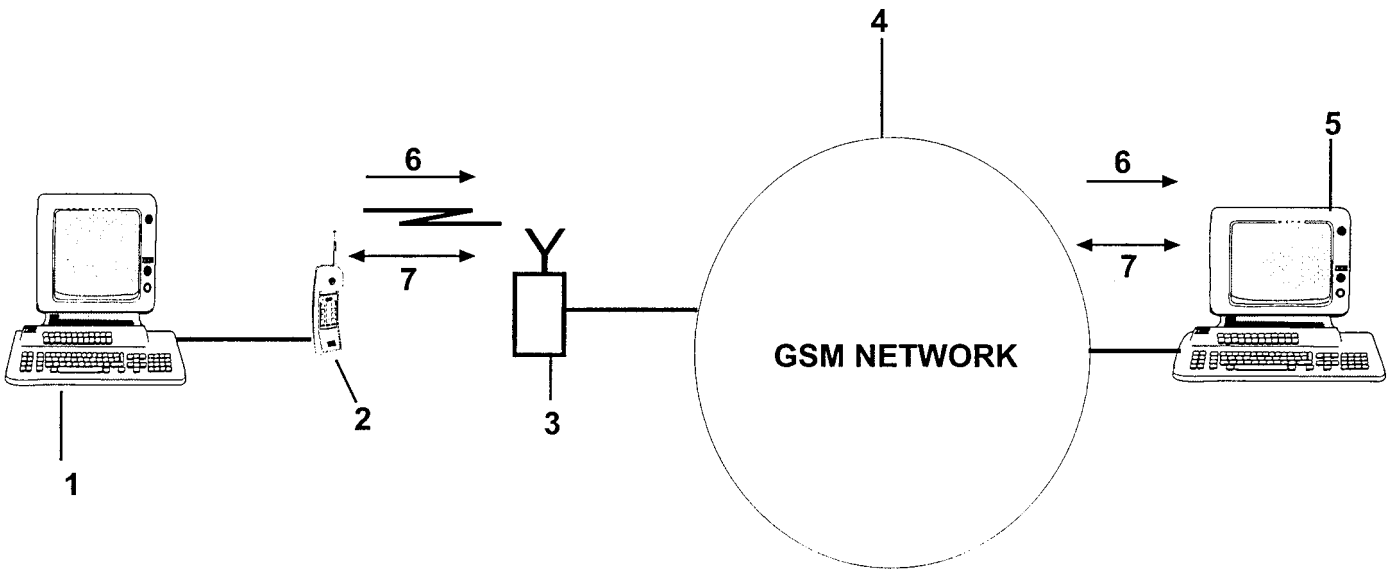


Fig 1