Office de la Propriété Intellectuelle du Canada
Un organisme d'Industrie Canada

Canadian Intellectual Property Office
An agency of Industry Canada

CA 2896390 A1 2013/08/29

(21) 2 896 390

(12) DEMANDE DE BREVET CANADIEN
CANADIAN PATENT APPLICATION

(13) A1

(86) **Date de dépôt PCT/PCT Filing Date:** 2013/02/15
(87) **Date publication PCT/PCT Publication Date:** 2013/08/29
(85) **Entrée phase nationale/National Entry:** 2015/06/25
(86) **N° demande PCT/PCT Application No.:** AT 2013/050040
(87) **N° publication PCT/PCT Publication No.:** 2013/123541
(30) **Priorités/Priorities:** 2012/02/20 (AT A 212/2012); 2012/03/05 (AT A 275/2012); 2012/05/14 (US61/646,599); 2012/11/22 (AT A 50531/2012)

(51) **Cl.Int./Int.Cl.** ***H04W 4/00*** (2009.01), ***G06F 3/01*** (2006.01), ***G06Q 30/02*** (2012.01), ***G06Q 30/06*** (2012.01), ***H04M 1/67*** (2006.01)

(71) **Demandeur/Applicant:**
ABALO MEDIA HOLDING GMBH, AT

(72) **Inventeurs/Inventors:**
GOTZL, PETER, AT;
MASS, MICHAEL, AT

(74) **Agent:** MARKS & CLERK

(54) **Titre : PROCEDE DE TRANSMISSION ET DE REPRESENTATION D'IMAGES**
(54) **Title: METHOD FOR TRANSMITTING AND DISPLAYING IMAGES**

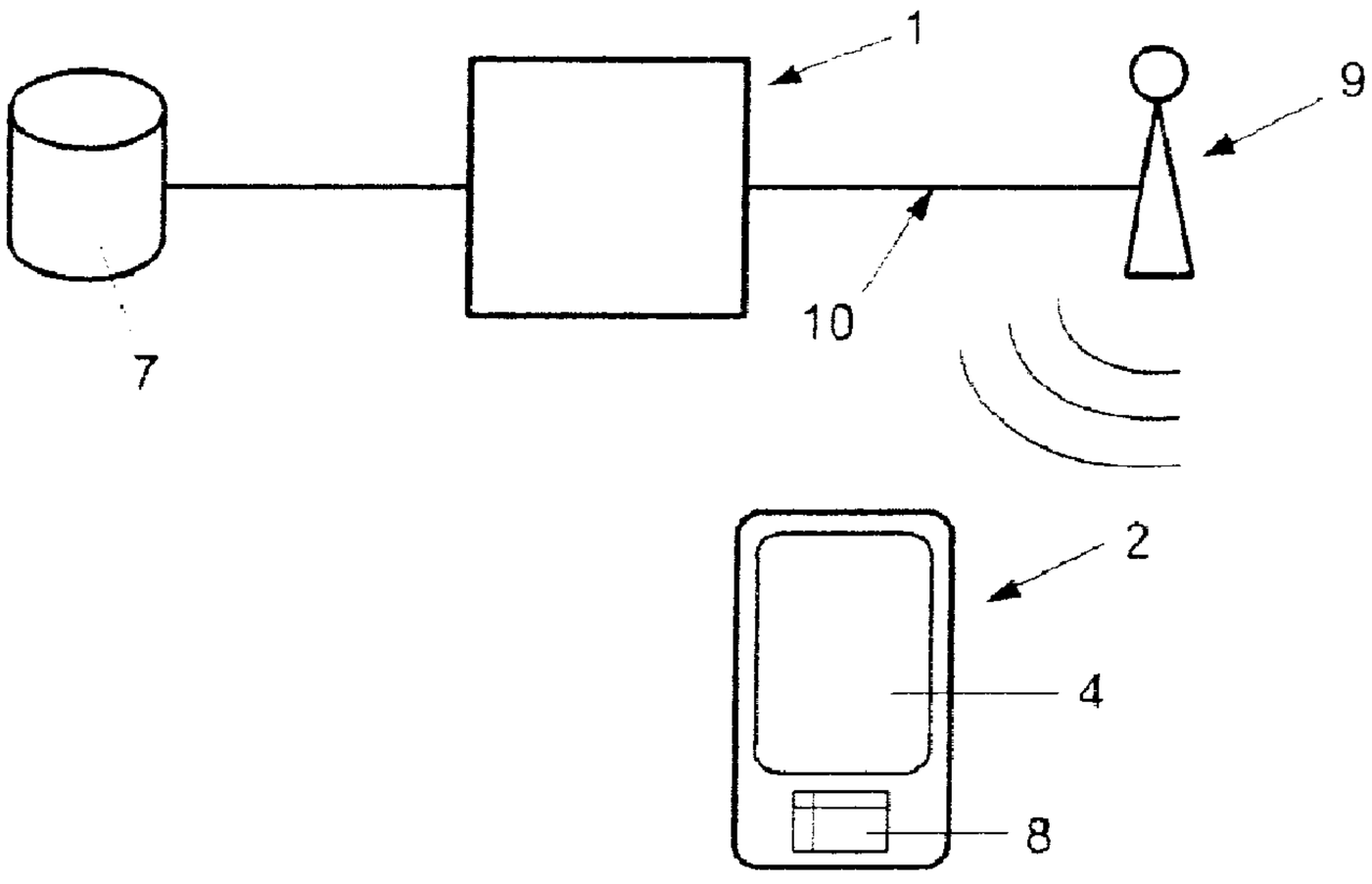

Fig. 1

(57) **Abrégé/Abstract:**
The invention relates to a method for transmitting and displaying images (3) on at least one mobile telephone (2) and for determining the frequency with which individual images (3) are displayed with the mobile telephone (2), wherein the images (3) are

CA 2896390 A1 2013/08/29

(21) 2 896 390

(13) A1

(57) **Abrégé(suite)/Abstract(continued):**
provided by a server (1) which has a data connection to the mobile telephone (2) via a mobile radio network, and wherein the mobile telephone (2) is changed to an inactive state (30) after a predefined time of non-use (23) or by the input of a user command (23), wherein the mobile telephone (2) is changed from the inactive state (30) to a locked active state (31) when carrying out an activation operation (21) and the mobile telephone (2) is changed from the locked active state (31) to an unlocked active state (32) when carrying out an unlocking operation (22), wherein the mobile telephone (2) accepts user inputs only in the unlocked active state, wherein the server (1) selects a number of images (3) and transmits these images (3) to the mobile telephone (2), one of the images (3) transmitted from the server (1) to the mobile telephone (2) is selected and is kept available for display, the selected image (3) is displayed by the mobile telephone (2) during the locked active state (31) of the mobile telephone (2), and a count value is determined for each of the images (3) transmitted from the server (1) to the mobile telephone (2) and indicates how often the particular image (3) has been displayed on the mobile telephone (2), and the particular count value for each of the images (3) is transmitted from the mobile telephone (2) to the server (1).

ABSTRACT

This invention relates to a method for transmitting and representing images (3) on at least one mobile phone (2) as well as for determining the frequency of the representation of individual images (3) with the mobile phone (2), wherein the images (3) are provided by a server (1) in data communication with the mobile phone (2) via a cellular network, and wherein after a predefined time of non-use (23) or via input of a user command (23), the mobile phone (2) is switched into an inactive mode (30), wherein when an activating operation (21) is performed, the mobile phone (2) is switched from inactive (30) mode into locked active mode (31), and when an unlocking operation (22) is performed, the mobile phone (2) is switched from locked active mode (31) into unlocked active mode (32), with the mobile phone (2) accepting user input exclusively in unlocked active mode, wherein the server (1) selects a number of images (3) and transmits said images (3) to the mobile phone (2), one of the images (3) transmitted from the server (1) to the mobile phone (2) is selected and kept available for display, during the locked active mode (31) of the mobile phone (2), the selected image (3) is displayed by the mobile phone (2), and for each the images (3) transmitted from the server (1) to the mobile phone (2), a count value is established, indicating how many times the respective image (3) has been represented on the mobile phone (2), and the respective count value for each of the images (3) is transmitted from the mobile phone (2) to the server (1).

Fig. 1

This invention relates to a method for transmitting and representing images on at least one mobile phone according to the preamble of patent claim 1.

Such methods are commercially implemented in the field of transmitting commercial advertising on individual mobile phones.

In systems for transmitting images known from prior art, in particular for transmitting advertising images, there is frequently a problem in that when displayed on the mobile phone the images transmitted will interrupt the remaining program flow, in particular take too much priority, so that the user is disturbed or distracted by the image. This effect occurs in particular if advertising or other images are inserted from the side while occupying part of the screen as this action will cover or hide part of the screen. Also, selecting or setting a certain background image is often disadvantageous in that symbols represented on the background image are more difficult to see or cannot be found any more, or in that symbols represented on the background image are mistaken for program symbols and selected, thereby irritating the user.

It is an object of the invention to solve the problems mentioned in the beginning and to make the user aware of the images transmitted in an unobtrusive manner, wherein in particular the program flow and operation of the mobile phone must not be disturbed by the representation of the respective image.

Furthermore, it is an object of the invention to ascertain how many times each user has viewed an image or how many times an image has been represented for a user on his or her mobile phone.

This problem is solved by the invention in a method of the type mentioned in the beginning having the characterizing features of patent claim 1.

This invention relates to a method for transmitting and representing images on at least one mobile phone as well as for determining the frequency of the representation of individual images by the mobile phone. According to the invention, provision is made for the server to select a number of images and transmit said images to the mobile phone, for one of the images transmitted to the mobile phone by the server to be selected and made available for display, for the selected image to be displayed by the mobile phone during the locked active mode of the mobile phone, and for a count value to be established for each of the images transmitted to the mobile phone by the server, said value indicating how many times the respective image has been represented on the mobile phone, and for the respective count value for each of the images to be transmitted to the server by the mobile phone.

This procedure allows the user to be provided with the contents of the image, without operation of the mobile phone being affected by this action.

In order to ascertain how many times an image has been viewed in total, provision can be made for the server to determine for each of the images respectively one separate total count value corresponding to the sum of the count values established for the server by the mobile phones.

In order to prevent the same image from being displayed to a user, provision can be made for a maximum counter value to be transmitted for each image when the images are transmitted by the server to the respective mobile phone, said value specifying the maximum display frequency of the individual images, and in case the image has been displayed as many times as defined by the respective maximum count value for the image, display of the respective image is omitted, and a different image is selected for representation.

In order to display images to a user depending on his or her respective location, provision can be made for the

location of the mobile phone to be determined by the mobile phone itself, in particular by means of a GPS, and for images to be transmitted to the mobile phone depending on this location, and if appropriate, for images already stored on the mobile phone to be deleted.

For the same purpose, provision can also be made for the location of the mobile phone to be determined by the mobile phone itself, in particular by means of a GPS, and for the individual images to be provided with location information and transmitted to the mobile phone, wherein from the images stored on the mobile phone the image selected is the one having associated location information closest to the established location of the mobile phone, or for the representation of the images to be done according to random criteria provided the selection of an image is more likely the closer the associated location information is to the established location of the mobile phone.

In order for interference of the program flow on the mobile phone to be kept to a minimum, provision can be made for the selected image to be displayed in locked active mode and to be hidden after an unlocking operation has been performed, or at a time situated after the unlocking operation by a predefined time interval.

In a mobile phone with several displays, for improved utilization of the display surface available, provision can be made advantageously for the selected image to be represented on the display or on at least one of the displays.

So as to count only representations of images which have actually been viewed by the respective user, provision can be made for an image to be regarded as represented only if it is displayed for more than a predefined minimum time interval, in particular one second.

For the same purpose, provision can be made for an image to be selected and represented only, or regarded as

represented only if a minimum time interval, in particular 10 minutes, has elapsed since the last representation of an image.

In order to evaluate the intensity of the viewing of the respective image, provision can be made for the number of user activities to be established in locked active mode, to be associated with the respectively displayed image and transmitted to the server, with the server in particular determining the total number of all user activities performed while an image is being displayed, and making the same available, in particular separately for the respective image.

Alternatively or additionally, for the same purpose, provision can be made for the time interval of the locked active mode to be established, associated with the respectively displayed image, and transmitted to the server, with the server determining the total time interval of the display of an image, and making the same available, in particular separately for the respective image.

In order to enable globally ascertaining the activity of a user, provision can be made for the time interval between consecutive unlocking operations or between consecutive activating operations of the mobile phone to be determined and transmitted to the server, and for the server to provide the average time between respectively two consecutive unlocking operations or between two consecutive activating operations.

In view of resource-saving execution, provision can be made for the image selected after the unlocking operation during the unlocked active mode of the mobile phone to be the one represented in the subsequent locked active mode.

In order to allow for easy counting of the representation of the images stored on the mobile phone, provision can be made both for respectively one counter to be provided in the mobile phone and respectively one total counter to be provided in the server, with the counter associated with the respective

image being increased by one when this image is represented, the value of the counter being transmitted as a count value to the server by the mobile phone, and the total counter being defined as the total value of the count values transmitted to the server by the mobile phone for the respective image, and made available.

As an alternative thereto, provision can be made for the respectively selected image to be deleted or tagged as represented after representation on the mobile phone, and for a message indicating this situation to be transmitted to the server by the mobile phone, and for the server to count the number of the messages having arrived separately for each of the images and provide the total count value thus established separately for each of the images, wherein in particular continued display of images already tagged as represented is omitted.

In order to make images preferably available for persons in specifically defined areas, provision can be made for respectively one item of location information to be indicated for each of the images in the form of a two-dimensional geometric surface area in the GPS coordinate system, and for an image to be selected and/or displayed if the mobile phone is located within the surface area.

In order to determine how long the respective viewer is actually viewing an image, provision can be made for a picture of the viewer, in particular of his or her face, to be taken by a camera, and for establishing for which time interval the viewer is viewing the display while the image is being displayed in locked active mode.

In order to ensure a given continuous time interval of viewing of an image by the user, provision can be made for an image to be regarded as represented only if the determined time interval during which the viewer has viewed the display

without interruption is longer than a predefined minimum time interval, in particular one second.

In order to ensure a total period of time of the viewing of an image by the user, provision can be made for all of the time intervals during which the user has viewed the same image to be added up, and for a time interval to be established as a sum, and for an image to be regarded as represented only if the established time interval during which the viewer has viewed the display in total, possibly with interruptions, is longer than a predefined other minimum time interval, in particular comprised between 20 and 30 seconds.

In order to determine how long individual images are being viewed by a plurality of viewers, provision can be made for the respectively determined period of time or time interval for which the viewer has viewed the image to be associated with the respectively displayed image and possibly transmitted to the server, wherein the total viewing time of an image by all users is established by the server as a sum of the respective established periods of time or time intervals transmitted to the server, respectively associated with said image, with the server providing in particular the respective total viewing time separately for each image.

In order to avoid for the user to switch off the images immediately, provision can be made for the selected image to be displayed for a given display time after the unlocking operation has been performed and to be hidden again after this display time.

Hereafter, a practical sample embodiment of the invention with several variants will be represented in detail by means of the present figures of the drawings.

Fig. 1 shows a network comprising a central server as well as a mobile phone.

Fig. 2 schematically shows the modes of the mobile phone during the inactive mode until the transition to the unlocked active mode as well as subsequent locking of the mobile phone.

Fig. 3 schematically shows the contents of a database residing in the server.

Fig. 4 schematically shows the contents of a data storage list located within the mobile phone.

Fig. 5 shows a network comprising a central server as well as a mobile phone fitted with a camera.

In Fig. 1, the typical structure of a system for transmitting data between a central server 1 and a mobile phone 2 is represented. The mobile phone 2 has a display 4 for displaying images 3.

The server 1 is connected via a network 10 to a communication station 9 in wireless data communication with the mobile phone 2. The server 1 has a database 7, the mobile phone 2 has a data storage list 8.

In the database 7 of the server 1, a number of images 3 are stored which are to be transmitted to a plurality of users, e.g. for advertising purposes. In the database 7, each of the images 3 is respectively associated with a count value indicating how many times the respective image 3 has already been represented on one of the mobile phones 2. In the present sample embodiment, for determining the count value, respectively one counter 6 is used which is associated with the respective image 3 and indicates for the respective image 3 how many times it has been represented or displayed in total on one of the mobile phones 2 communicating with the server 1.

The images 3 stored in the database 7 are provided by the server to the individual mobile phones 2 of the users via a cellular network. Herein, the server 1 selects a number of images 3 from the database 7 and transmits said images 3 to the mobile phone 2.

In the present sample embodiment, the images 3 are additionally provided with further location information 11 which is stored in the database 7 and associated with the respective image 3. The location information indicates the geographic location of the respective image 3, for instance in the form of coordinates. In predefined time intervals, the respective mobile phone 2 respectively establishes its own location and transmits said location to the server 1. Depending on the respective location of the mobile phone 2, the server 1 selects images 3 the respective associated location information 11 is situated within a predefined environment around the established location of the mobile phone 2. In the present sample embodiment, images 3 are used which are associated with locations 11 situated within a perimeter of 100 m around the respective established location of the mobile phone 2. Alternatively, the perimeter around the location of the mobile phone 2 can be increased or decreased until a certain amount of images 3 has been established the respectively associated location 11 of which is situated within the respective perimeter. In case such an amount of images 3 cannot be established, it is also possible to transmit to the mobile phone 2 other images 3 the associated location information 11 of which is not situated in any direct geographic proximity with the location of the mobile phone. With the above described procedure, an image 3 is associated with a circular surface area. However, this surface area is not necessarily circular.

Alternatively, the location information 11 may also consist of one or more geometric surface areas in the two-dimensional GPS coordinate system, wherein all of the geographic coordinates within the geometric figures are then associated with the image 3. If the mobile phone 2 is located within the geometric surface areas associated with the image

3, the image 3 is transmitted and/or represented on the display 4 of the mobile phone 2 in locked active mode.

In this preferred example, the selection of the images 3 for display in locked active mode is such that for each image 3, a surface area in the form of one or more geometric figures is defined in the two-dimensional GPS coordinate system. The representation of the images 3 with one or more surface areas is only performed if the established location of the mobile phone 2 is situated within a surface area of the respective surface areas.

Alternatively, it may also be provided for part of the images 3 which are transmitted to the mobile phone 2 to be established based on the location information 11 thereof in comparison with the respective location of the mobile phone 2, and for the remaining images 3 to be selected and established independently from the respective location of the mobile phone 2.

Images 3 thus selected and/or established are transmitted by the server 1 to the mobile phone 2 and stored in a local data storage list 8 (Fig. 4) residing in the mobile phone 2.

For each image 3, respectively one count value, which can be determined by the mobile phone 2, is provided and indicates how many times the respective image 3 has already been displayed on the mobile phone 2. In the present sample embodiment, in the local data storage list 8, for each of the images 3 stored, respectively one local counter 5 is provided in which the respective count value is present as stored.

As represented in Fig. 2, the mobile phone 2 has three basic operating modes 30, 31, 32, namely an inactive operating mode 30, a locked active mode 31, as well as an unlocked active mode 32. When the mobile phone 2 is turned on, it is typically in the unlocked active mode 32. In this unlocked active mode 32, the mobile phone 2 accepts any user input, it is possible in particular to establish communications with

other parties, various applications (apps) can be retrieved or selected, it is possible to send SMS, etc. In the mobile phone 2, it is possible to lock the same by performing a locking operation 23, for instance by entering a certain key combination. Also, it is possible for the mobile phone 2 to lock down automatically and to be put into locked mode 30, if for a predefined period of time no user activities are performed by the user. Locking 23 the mobile phone 2 or omitting operating activities of the mobile phone 2 will put the same into inactive mode 30, in this case the display 4 of the mobile phone 2 is switched off to be inactive or dark, basically no user input is accepted until an activating operation 21.

When an activating operation 21 is performed, the mobile phone 2 is transitions from inactive mode 30 to locked active mode 31. The activating operation 21 is for instance pushing a button or touching the touch screen 4. Once the mobile phone 2 has been transitioned by the activating operation 21 into the locked active mode 31, the selected image 3 will be represented on the display 4 of the mobile phone. Said selected image 3 is displayed during the entire locked active mode 31 of the mobile phone 2. While in locked active mode 31, the respective user proceeds to an unlocking operation 22 transitioning the mobile phone 2 from locked active mode 31 into unlocked active mode 32. In locked active mode 31, the mobile phone 2 exclusively accepts an unlocking operation 22, other operations being ignored, with the mobile phone 2 respectively staying in locked active mode 31. If during the locked active mode 31, no unlocking operations 22 are performed, upon expiry of a predefined time or in case of inactivity of the user, the mobile phone 2 will return to inactive mode 30 via deactivation 24. Once the unlocking operation 22 has been performed, the mobile phone 2 is placed into unlocked active mode 32, and the image 3 represented on

the display 4 is hidden once the unlocking operation 22 has been performed. Alternatively in this case, provision can be made for the respective selected image 3 to stay represented for a predefined time range or a predefined time interval after the unlocking operation 22 and to be hidden only upon expiry of this time interval after the unlocking operation 22.

In an alternative embodiment of the invention, the selected image 3 is hidden via a fading method for a predefined period of time, with the background of the display 4 of the mobile phone 2, which is represented in unlocked active mode 32, progressively coming into the foreground.

In another alternative embodiment of the invention, the selected image 3 is only inserted after a predefined display time once the unlocking operation 22 has been performed, and hidden again when the display time has expired. The background of the display 4 of the mobile phone 2, which is represented in active unlocked mode, will come back to the foreground. It is particularly advantageous if the image moves into the foreground continuously as a fading process.

When the individual images 3 have been transmitted to the mobile phone 2, the mobile phone 2 will respectively select one image 3 to be displayed during the next locked active mode 31. The selection of the image 3 to be displayed is done from the latest images 3 transmitted by the server 1, and can be performed in different ways.

The choice of the respective image 3 to be represented during the next locked active mode 31 of the mobile phone 2 is in the present sample embodiment always done during the immediately preceding unlocked active mode, wherein the respective image 3 is selected directly and immediately after the unlocking operation 22 and is available from then on.

One possibility for making a choice from the images 3 transmitted by the server 1 can consist in selecting an image 3 at random.

Another possibility is for the location information 11 transmitted with the respective image to be compared to the location of the mobile phone 2 itself, currently established by the mobile phone 2. From the images 3 stored on the mobile phone 2, the image 3 selected is the one having associated location information 11 which are closest to the established location of the mobile phone.

Alternatively, the choice of the image 3 to be displayed can also be done according to random criteria, wherein the choice of an image 3 is all the more probable the closer the location information 11 thereof is to the established location of the mobile phone 2.

In all of the represented selection mechanisms, there is the possibility to avoid that an image 3 is displayed too frequently, that when the images 3 are transmitted from the server 1 to the respective mobile phone 2, respectively for each of the images 3, a maximum count value is transmitted specifying the maximum display frequency of the individual image 3. It is verified, respectively, whether the respective image 3 selected for display has already been displayed as many times as defined by the respective maximum count value for the respective image 3. In this case, display of the respective image 3 is omitted, and another image 3 is selected for representation. This other image 3 can be established for instance by repeated retrieval of the random method or can consist in selecting not the image 3 with the location information 11 closest to the location of the mobile phone 2, but the image with the second closest, third closest, fourth closest coordinates.

For each of the images 3 transmitted to the mobile phone 2 by the server 1, a count value is established indicating how many times the respective image 3 has been represented on the mobile phone 2. In the present sample embodiment, a counter 5 is used for this purpose, which is increased by 1,

respectively, when the image 3 has been displayed in locked active mode. Once the count value has been increased, a message to this effect is transmitted to the server 1 by the mobile phone 2. For each of the images 3, in the database 7 (Fig. 3) of the server 1, respectively one separate total counter value 6 is available which corresponds to the sum of count values 5 established for the server 1 by the mobile phones.

One possibility for establishing the count value for an image 3 stored on the mobile phone 2 is to implement in the database 7 for each record with one image 3, respectively one counter 6 associated with the respective image 3.

Alternatively, there is also the possibility for the respective image 3 to be deleted after representation on the mobile phone 2 or to be tagged as represented, and for a message designating this situation to be transmitted to the server 1 by the mobile phone 2. In this case, the mobile phone 2 may ascertain the respective count value by checking the existence of the respective image file, and if the respective image 3 in the memory of the mobile phone 2 or the respective tag is available, a related count value is delivered which in this case may simply have the value 0 or 1.

When the respective message has been transmitted by the mobile phone 2 to the server 1, the total count value for the respective image 3 is incremented, respectively, with a counter 6 being provided advantageously for the respective total count value.

In the present sample embodiment, an image 3 is only regarded as represented if it has been represented in locked active mode 31, and the locked active mode 31 has lasted longer than a predefined minimum time interval of 1 second. Thereby it can be avoided that the user ignores the image 3 represented and performs the unlocking operation very quickly.

In addition, in the present sample embodiment, it is avoided that the user views a plurality of different images 3 in rapid succession. This is obtained in that an image 3 is only selected and represented, or is only regarded as represented, if a minimum time interval of 10 minutes has elapsed since the last representation of an image 3 on the display 4 of the mobile phone 2.

In locked active mode 31, the number of operating activities performed by the user is established and associated with the respective image 3. The number of user activities is associated as a distinct data field 12 with the record of the respective image 3 and stored in a separate memory in the data storage list 8 of the mobile phone 2 and transmitted to the server 1 together with the other information regarding the image 3, in particular the number of representations. The server 1 establishes the total number of all user activities performed during the display of an image of the users of all mobile phones 2 and keeps it available for further usage. In this case, the database 7 of the server 1 respectively has a data field 13 for summing user activities performed during the display of an image 3. For each of the images 3 stored in the database 7 of the server 1, thus, respectively the total number of all user activities performed during the display of the image 3 is available.

Moreover, the time interval is also established for which the respective image 3 was displayed during locked active mode 31. This time interval is established separately for each of the images 3 displayed, and is respectively transmitted to the server 1 by the mobile phone 2. For each image 3, a distinct data field 14 in the data storage list 8 of the mobile phone 2 is created on the mobile phone 2, where the respective display contents of the image 3 is stored. The server 1 calculates the total time interval of the display of each image 3 separately and keeps the time interval of display available separately

for all of the images 3, respectively, wherein for each image 3, a distinct data field 15 is created in the database 7 of the server 1.

Moreover, the time interval between consecutive unlocking operations or between consecutive activating operations of the mobile phone 2 is established, and this time interval is respectively transmitted to the respective server 1 when unlocking or activating has been performed. The server 1 keeps the average time between respectively two consecutive unlocking operations or two consecutive activating operations available.

In Fig. 5, a further alternative embodiment of an inventive method is represented schematically. This method corresponds to the method already presented, wherein hereafter, additional features and distinctions will be discussed.

This mobile phone 2 has a vision recognition unit 16 which can recognize whether the user is looking at the display 4. One such vision recognition unit 16 is disclosed for instance in the US patent application US 2011/0074822 A1 (Yao-Tsung Chang) and has a camera as well as a processing unit connected downstream of the camera, which recognizes faces, in particular eyes, from the respective image taken by the camera and identifies the viewing direction of the eyes. In particular, the vision recognition unit 16 can recognize whether the eyes of a person represented in the image of the camera are directed towards the mobile phone 2. In this case, the vision recognition unit 16 delivers a related viewing signal.

By using the vision recognition unit 16, it is now also possible to ascertain for how long the respective user is viewing the image 3 represented on the display 4. In contrast to the previous sample embodiment of the invention, an image 3 is only regarded as represented if it has been represented in

locked active mode 31 and if the vision recognition unit 16 has ascertained that the user has viewed the respective image 3 for more than a predefined minimum time interval of 1 second. The respective time interval is established for which the respective user has viewed the image 3, and this time interval is associated with the image.

Alternatively or additionally, an image 3 can also be regarded as viewed and can only be tagged as selected and represented if the represented image 3 has been viewed in total, i.e. even with multiple viewing by the user, for a cumulated period of time of 30 seconds.

In principle, a timing unit, not shown, may be associated with or connected downstream of the vision recognition unit 16, determining how long the user has viewed the respective image and how long the viewing signal of the vision recognition unit 16 has been active. As a timing unit, for instance a timer or counter can be used, the value of which is incremented when the viewing signal is applied, starting with an initial value. Thereby, both the time interval mentioned above and the period mentioned above can be established.

The following considerations can be made both with the established time interval or with the established period of time, which will hereafter be generically designated as the viewing time. The viewing time established for the respective image 3 is associated with the respective image 3. In order to determine how long individual images 3 have been viewed in total by users of all mobiles phones 2 connected to the server 1, the individual viewing time intervals or periods of time stored in the mobile phones 2 and associated with the images 3 are transmitted to the server 1 together with an identifier of the respective image 3. All of the periods of time transmitted and associated with the same image 3, respectively, as well as the same identifier, are added by the server 1, and associated with the identifier of the respective image 3 as the total

viewing time. The server 1 keeps the respective total viewing time available for later access for each image 3 separately.

PATENT CLAIMS

1. A method for transmitting and representing images (3) on at least one mobile phone (2), as well as for determining the frequency of the representation of individual images (3) by the mobile phone (2), wherein

- the images (3) are provided by a server (1) in data communication with the mobile phone (2) via a cellular network, and

- after a predefined time of non-use (23), or via input of a user command (23), the mobile phone (2) is switched into an inactive mode (30),

- when an activating operation (21) from the inactive (30) mode is performed, the mobile phone (2) is switched into a locked active mode (31), and

- when an unlocking operation (22) from the locked active mode (31) is performed, the mobile phone (2) is switched into in an unlocked active mode (32), with the mobile phone (2) accepting user input exclusively in unlocked active mode,

characterized in that

- the server (1) selects a number of images (3) and transmits said images (3) to the mobile phone (2),

- one of the images (3) transmitted to the mobile phone (2) by the server (1) is selected and kept available for display, and

- during the locked active mode (31) of the mobile phone (2), the selected image (3) is displayed by the mobile phone (2).

2. A method according to claim 1, characterized in that for each of the images (3) transmitted to the mobile phone (2) by the server (1), a count value is determined, indicating how many times the respective image (3) has been represented on the mobile phone (2), and

- the respective count value for each of the images (3) is transmitted to the server (1) by the mobile phone (2).

3. A method according to claim 1 or 2, characterized in that the display of the mobile phone is set inactive and dark and does not accept any user input except an activating operation (21).

4. The method according to any of the proceeding claims, characterized in that the server (1) determines for each of the images (3), respectively, a separate total count value corresponding to the sum of the count values established for the server (1) by the mobile phones (2).

5. The method according to any of the proceeding claims, characterized in that upon transmission of the images (3) from the server (1) to the respective mobile phone (2), for each of the images (3) a maximum counter value is transmitted specifying the maximum display frequency of the individual image (3), and in case the image (3) has been displayed as frequently as defined by the respective maximum count value for the image (3), display of the respective image (3) is omitted and another image (3) is selected for representation.

6. The method according to any of the preceding claims, characterized in that the location of the mobile phone (2) is determined by the mobile phone (2) itself, in particular by means of a GPS, and that depending on this location, images (3) are transmitted to the mobile phone, and if appropriate, images already stored on the mobile phone are deleted.

7. The method according to any of the preceding claims, characterized in that the location of the mobile phone (2) is determined by the mobile phone (2) itself, in particular by means of a GPS, and that the individual images (3) are provided with location information and transmitted to the mobile phone (2),

wherein from the images (3) stored on the mobile phone (2), the image (3) selected is the one having associated location information closest to the established location of the mobile phone (2), or

- that representation of the images (3) is performed according to random criteria provided that the selection of an image (3) is more likely the closer the associated location information thereof is to the established location of the mobile phone (2), or

- that for each of the images (3), respectively one piece of location information (11) in the form of a two-dimensional geometric surface area in the GPS coordinate system is indicated, and an image (3) is selected and/or displayed if the mobile phone (2) is situated within the surface area.

8. The method according to any of the preceding claims, characterized in that the selected image (3) is displayed in locked active mode (31), and is hidden when the unlocking operation (22) has been performed, or at a time situated a predefined time interval after the unlocking operation (22).

9. The method according to any of the preceding claims, wherein the mobile phone (2) has at least one display (4), characterized in that the selected image (3) is represented on the display (4) or on at least one of the displays (4).

10. The method according to any of the preceding claims, characterized in that an image (3) is only regarded as represented if it is displayed for more than a predefined minimum time interval, in particular one second.

11. The method according to any of the preceding claims, characterized in that an image (3) is only selected and represented or only regarded as represented if a minimum time interval of in particular 10 minutes has elapsed since the last representation of an image (3).

12. The method according to any of the preceding claims, characterized in that in locked active mode, the number of user activities is established, associated with the image (3) respectively displayed, and transmitted to the server (1), wherein the server (1) establishes in particular the total number of all user activities performed while an image (3) is being displayed, and provides the same in particular separately for the respective image (3).

13. The method according to any of the preceding claims, characterized in that the time interval of the locked active mode (31) is established, associated with the image (3) respectively displayed, and transmitted to the server (1), wherein the server (1) establishes the total time interval of the display of an image (3), and provides the same in particular separately for the respective image (3).

14. The method according to any of the preceding claims, characterized in that the time interval between consecutive unlocking operations (22) or between consecutive activating operations (21) of the mobile phone (2) is established, and transmitted to the server (1), and the server (1) provides the average time between respectively two consecutive unlocking operations (22) or between two consecutive activating operations (21).

15. The method according to any of the preceding claims, characterized in that after the unlocking operation during the unlocked active mode (32) of the mobile phone (2), the image (3) selected is the one represented during the next locked active mode (31).

16. The method according to any of the preceding claims, characterized in that for each of the images (3), both in the mobile phone (2) respectively a counter (5) and in the server (1) respectively a total counter (6) is provided, wherein the counter (5) associated with the respective image (3) is raised by one when said image (3) is represented, the value of the

counter (5) is transmitted as a count value from the mobile phone (2) to the server (1), and the total counter (6) is defined as the total value of the count values transmitted for the respective image (3) from the mobile phone (2) to the server (1), and is kept available.

17. The method according to any of the preceding claims, characterized in that after representation on the mobile phone (2), the respective selected image (3) is deleted or tagged as represented, and a message indicating this situation is transmitted from the mobile phone (2) to the server (1), and that the server (1) counts the number of the messages received separately for each of the images (3) and provides the total count value thus established separately for each of the images (3),

wherein in particular any further display of images tagged as already represented is omitted.

18. The method according to any of the preceding claims, characterized in that a picture of the viewer, in particular his or her face, is taken with a camera, and it is determined for which time interval the viewer is viewing the display (4) while the image (3) is being displayed in locked active mode.

19. The method according to claim 18, characterized in that an image (3) is only regarded as represented if the established time interval for which the viewer has viewed the display (4) without interruption is longer than a predefined minimum time interval, in particular one second.

20. The method according to claim 18 or 19, characterized in that all of the time intervals for which the user is viewing the same image (3) are added up, and a period of time is established as the sum, and an image (3) is only regarded as represented if the established period of time for which the viewer has viewed the display (4) in total, possibly with interruptions, is longer than a predefined other minimum time interval, in particular between 20 and 30 seconds.

21. The method according to any of claims 17 to 19, characterized in that the respectively established period of time or time interval for which the viewer has viewed the image (2) is associated with the respectively displayed image (3) and transmitted to the server (1) if appropriate,

wherein the total viewing time of an image (3) by all of the users of the server (1) is established as the sum of the established periods of time or time intervals, respectively associated with said image (3) and transmitted to the server (3), wherein the server (1) provides in particular the respective total viewing time separately for each image (3).

22. The method according to any of the preceding claims, characterized in that the selected image (3) is displayed for a certain display time when the unlocking operation (22) has been performed, and is hidden again after this display time.

23. A data medium, on which is stored a program for executing the method steps performed on the mobile phone (2) of any of the methods according to any of claims 1 to 22.

24. A data medium, on which is stored a program for executing the method steps performed on the server (1) of any of the methods according to any of claims 1 to 22.

25. A program for executing the method steps performed on the mobile phone (2) of any of the methods according to any of claims 1 to 22.

26. A program for executing the method steps performed on the server (1) of any of the methods according to any of claims 1 to 22.

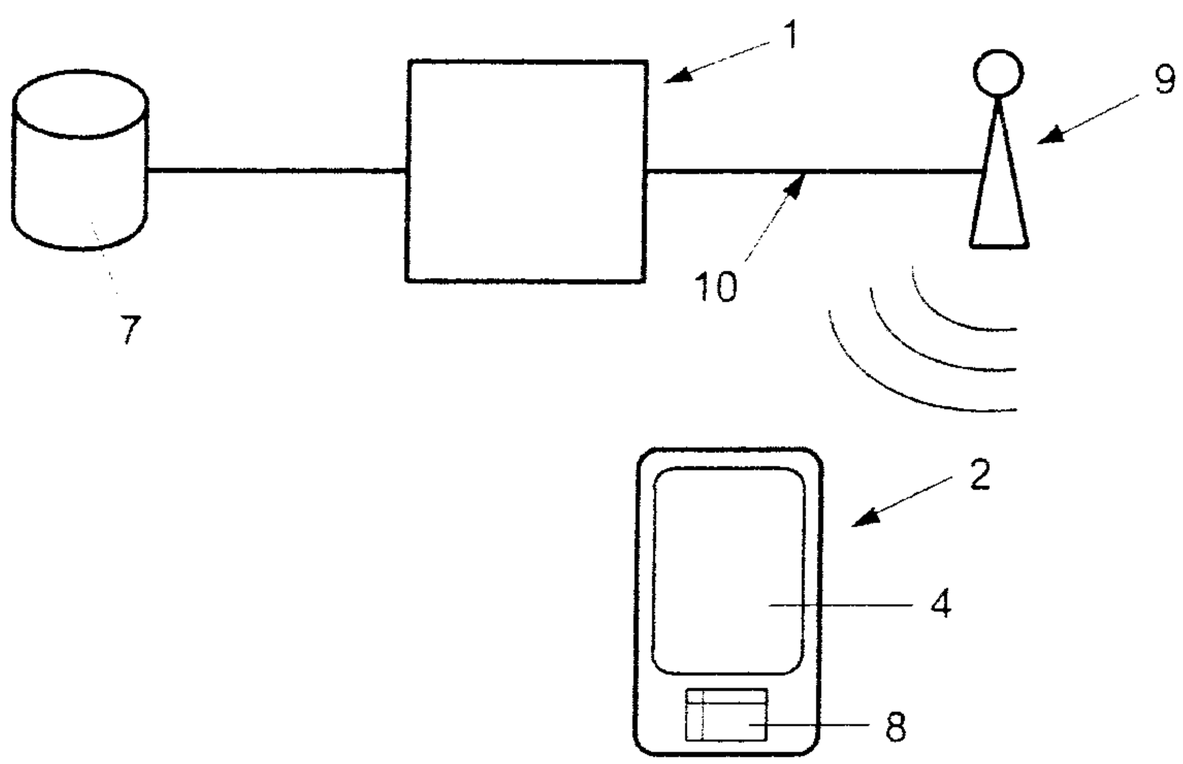

Fig. 1

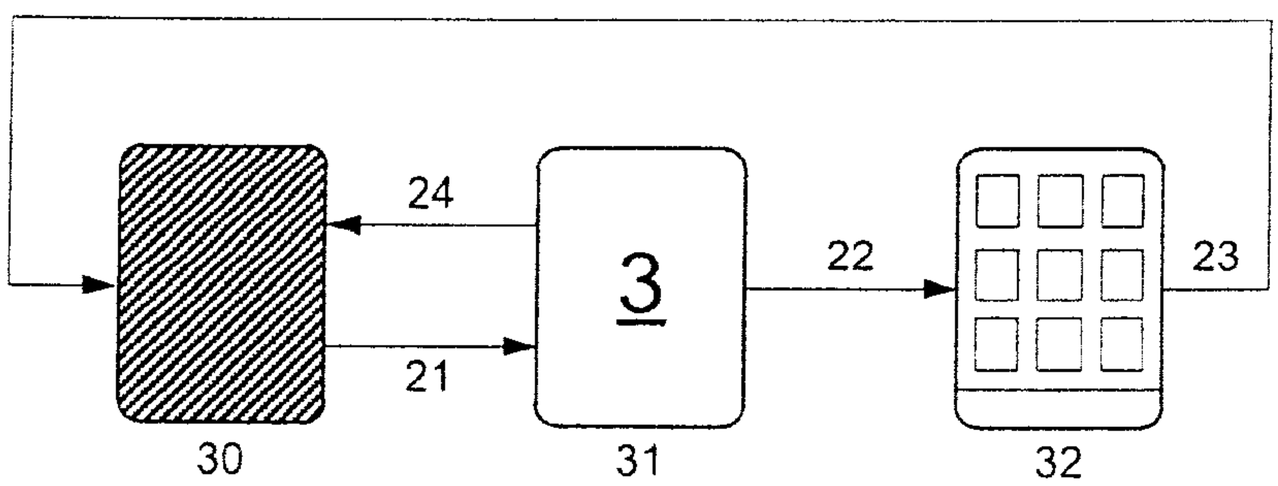

Fig. 2

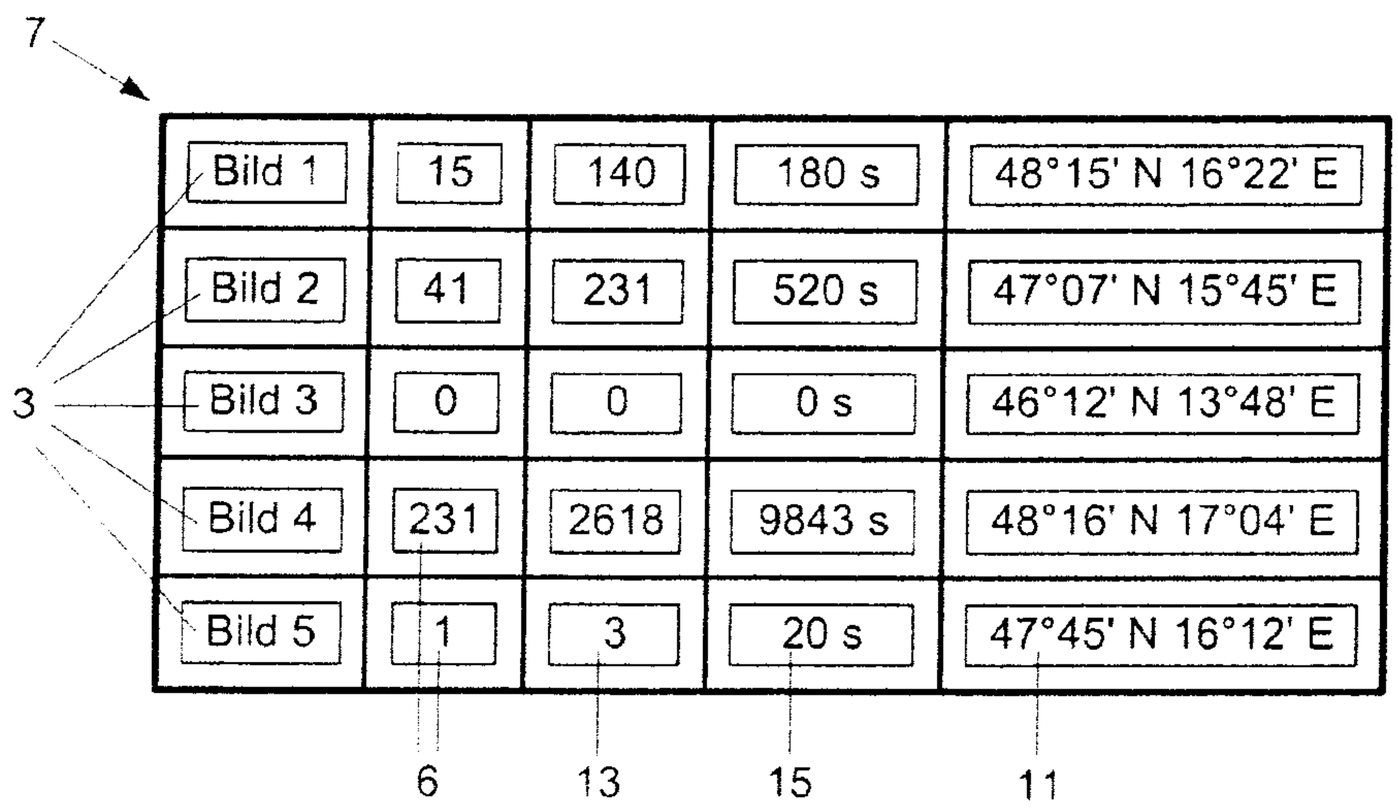
7
3
Bild 1
15
140
180 s
48°15' N 16°22' E
Bild 2
41
231
520 s
47°07' N 15°45' E
Bild 3
0
0
0 s
46°12' N 13°48' E
Bild 4
231
2618
9843 s
48°16' N 17°04' E
Bild 5
1
3
20 s
47°45' N 16°12' E
6
13
15
11

Fig. 3

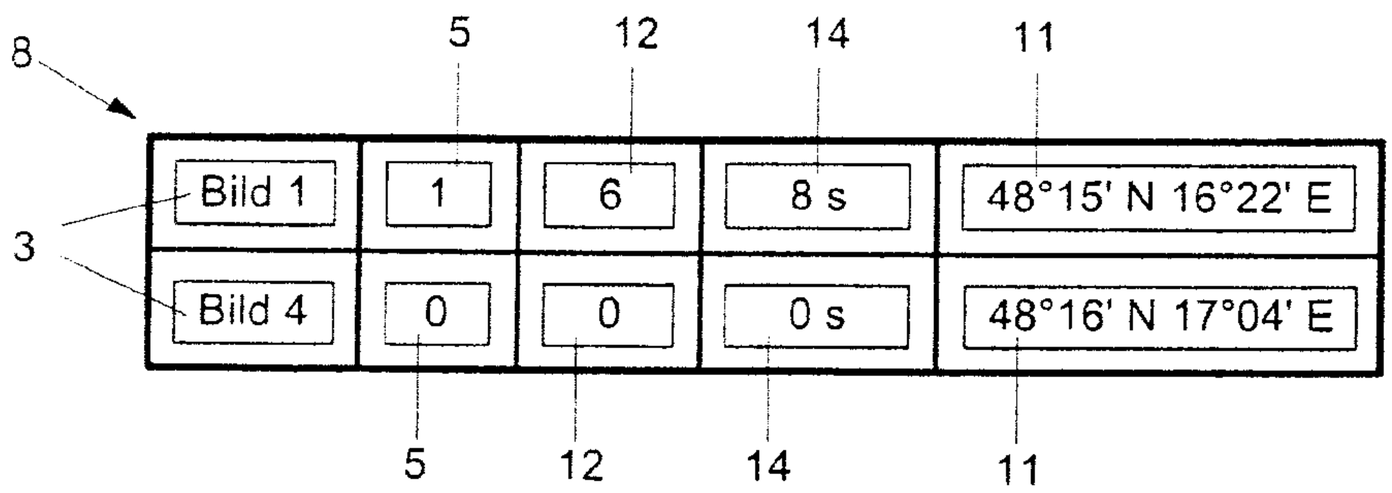
8
3
5
12
14
11
Bild 1
1
6
8 s
48°15' N 16°22' E
Bild 4
0
0
0 s
48°16' N 17°04' E
5
12
14
11

Fig. 4

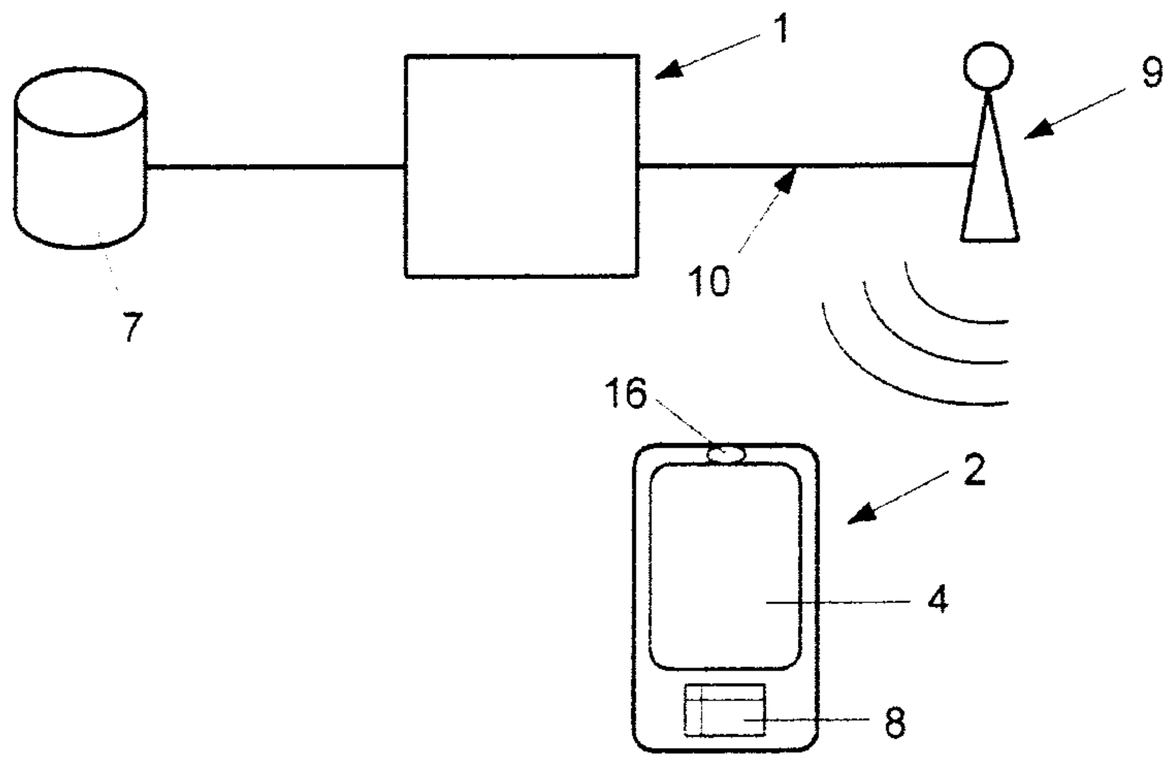

Fig. 5

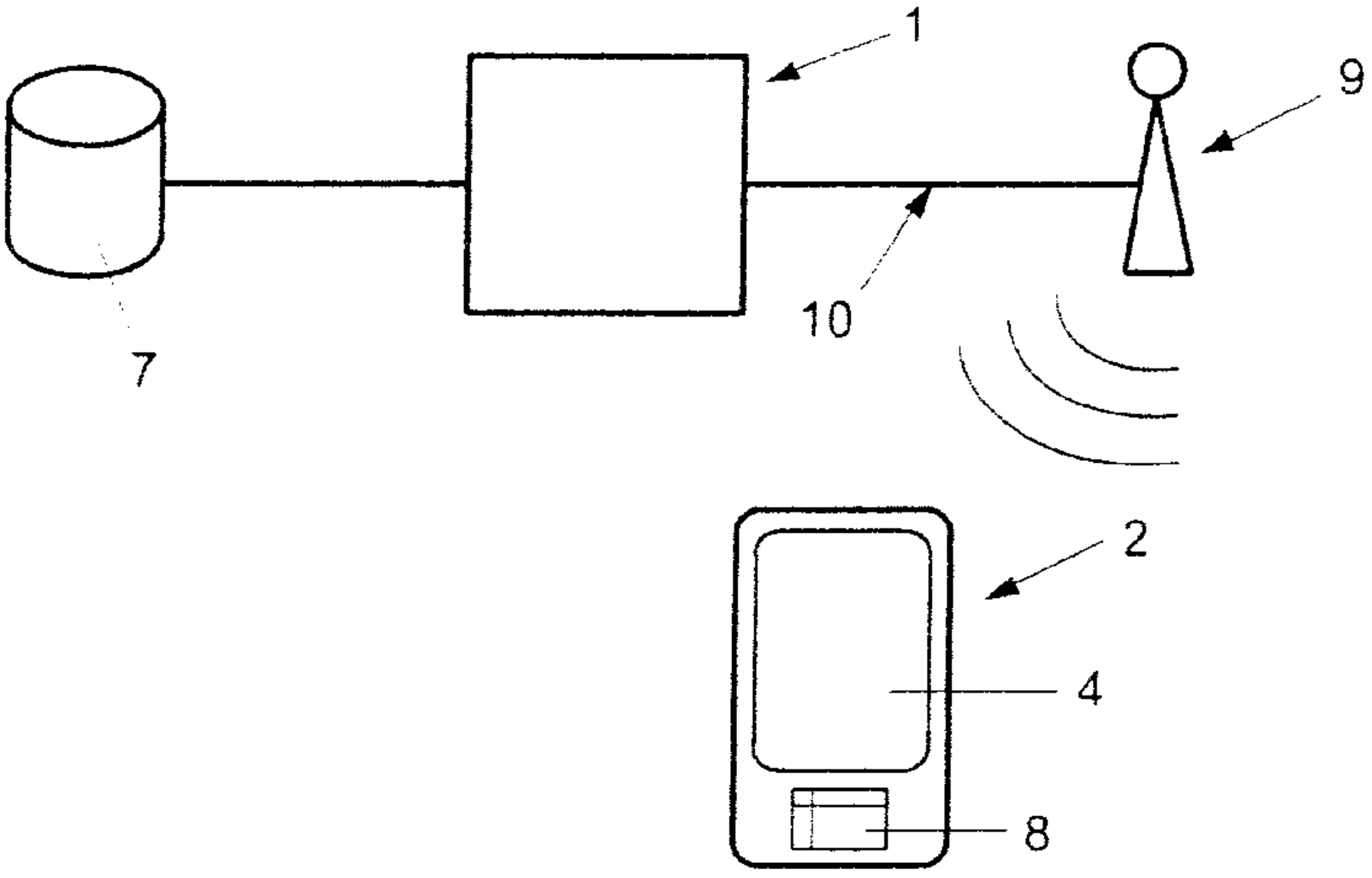

Fig. 1