PCT

INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification 6:
H04H 9/00

A1

(11) International Publication Number: WO 95/19669
(43) International Publication Date: 20 July 1995 (20.07.95)

(21) International Application Number: PCT/NL94/00302
(22) International Filing Date: 30 November 1994 (30.11.94)
(30) Priority Data:
9400053 13 January 1994 (13.01.94) NL

(71) Applicant (for all designated States except US); QMEDIA B.V. [NL/NL]; 's Gravendijkwal 71, NL-3021 EE Rotterdam (NL).

(72) Inventors; and
(75) Inventors/Applicants (for US only); BOS, Arie, Cornelis [NL/NL]; Graaf Florisstraat 92b, NL-3021 CL Rotterdam (NL); DE JAGER, Rudolf [NL/NL]; Vletkade 46, NL-2725 AZ Zoetermeer (NL).

(74) Agent: VAN DOORNE, Trenté; Hooiveld, Arjen Jan Winfried c.s., De Lairessestraat 133, NL-1075 HJ Amsterdam (NL).


Published
With international search report.
Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.
In English translation (filed in Dutch).

(54) Title: A TELECOMMUNICATION SYSTEM

(57) Abstract

In a telecommunication system (1) a central receiving unit (2) is coupled with several devices (4) via a transmission network (3), which devices (4) transmit data input with the aid of data input means (8) to the central receiving unit (2), usually within a short period of time. The data transmitted has at least partly been created on the basis of interactive communication with for example a television programme (6) being broadcast. The data to be transmitted is stored in a temporary memory (10) of the device (4), in groups accessible for being read jointly. The device (4) comprises a local processing unit (9) coupled with the temporary memory (10), by means of which said joint reading is started on command and the groups of input data are made ready for being transmitted contiguous thereto. Due to the resulting compact set-up of the data to be transmitted the transmission network (3) is occupied only briefly and congestion problems are reduced.
FOR THE PURPOSES OF INFORMATION ONLY

Codes used to identify States party to the PCT on the front pages of pamphlets publishing international applications under the PCT.

| AT  | Austria       | GB  | United Kingdom | MR  | Mauritania |
| AUS | Australia     | GE  | Georgia        | MW  | Malawi     |
| BB  | Barbados      | GN  | Guinea         | NE  | Niger       |
| BE  | Belgium       | GR  | Greece         | NL  | Netherlands |
| BF  | Burkina Faso  | HU  | Hungary        | NO  | Norway      |
| BG  | Bulgaria      | IE  | Ireland        | NZ  | New Zealand |
| BJ  | Benin         | IT  | Italy          | PL  | Poland      |
| BR  | Brazil        | JP  | Japan          | PT  | Portugal    |
| BY  | Belarus       | KE  | Kenya          | RO  | Romania     |
| CA  | Canada        | KG  | Kyrgyzstan     | RU  | Russian Federation |
| CF  | Central African Republic | KP  | Democratic People’s Republic of Korea | SD  | Sudan |
| CG  | Congo         | KR  | Republic of Korea | SE  | Sweden |
| CH  | Switzerland   | KZ  | Kazakhstan     | SI  | Slovenia |
| CI  | Côte d’Ivoire | LI  | Liechtenstein  | SK  | Slovak     |
| CM  | Cameroon      | LK  | Sri Lanka      | SN  | Senegal    |
| CN  | China         | LU  | Luxembourg     | TD  | Chad       |
| CS  | Czechoslovakia | LV  | Latvia         | TG  | Togo       |
| CZ  | Czech Republic | MC  | Monaco         | TJ  | Tajikistan |
| DE  | Germany       | MD  | Republic of Moldova | TT  | Trinidad and Tobago |
| DK  | Denmark       | MG  | Madagascar     | UA  | Ukraine     |
| ES  | Spain         | ML  | Mali           | US  | United States of America |
| FI  | Finland       | MN  | Mongolia       | UZ  | Uzbekistan  |
| FR  | France        |     |                | VN  | Viet Nam    |
A TELECOMMUNICATION SYSTEM

The present invention relates to a telecommunication system, comprising a central receiving unit, a transmission network and at least one device, each being coupled with said transmission network and being provided with data input means, for transmitting data to the central receiving unit.

Telecommunication systems which are arranged in the manner indicated above are known in the digital communication industry, and are especially used in for example computer or telemetry systems and/or in speech communication, which may or may not be mobile speech communication, irrespective of the fact whether said communication takes place over comparatively small distances or over larger distances, for example intercontinental, for example via satellites.

In those cases where several transmitters or transceivers wish to communicate with a central receiving or transceiving unit via a transmission network or transmission channel in a certain manner, as may for example be the case in telephone systems, the transmission network is occupied in such manner as to make it impossible for other parties connected to the same network to use the same channel, which is often the only channel, in the transmission network at that point of time.

In the present telephone systems it is necessary to redial the same number in case the party called or the receiver is engaged. In order to facilitate said dialling the current telephones, which transfer speech in two directions, have a permanent memory, in which a group of associated data is stored in each memory location with a view to said one group being read.
Due to the current intensifying use of transmission networks blocking or congestion problems arise, therefore. As a result of the present intense occupation of the transmission network each form of communication via the transmission network has appeared to be impossible under certain circumstances. This is unacceptable, however, especially with certain forms of communication, since it is in the public interest that a number of instances, think for example of the police, the fire brigade, hospitals and the like, can be reached at all times.

Still the perception seems to be growing that a further intensification of telecommunication, in particular via telephone or cable networks or via glass fibre networks provides possibilities for offering a multitude of further services in the broadest sense of the word, in particular with a view to an active participation or interactive communication of the general public.

The known telecommunication systems, however, have appeared to be less well suited for enabling an active participation of for example a public of millions, let alone that this happens in a technical manner, whereby acceptance by the said public takes place smoothly.

The object of the present invention is to provide a telecommunication system which generally comprises a large number of devices, which can be operated in a simple manner which is readily acceptable for the general public, utilizing transmission networks which are already generally used, such as telephone networks, central antenna networks or other networks, in a manner which moreover allows active or interactive participation by the general public in a comfortable manner.

In order to accomplish that objective the telecommunication system according to the invention is characterized in that
said device comprises a temporary memory for the storage of
groups of input data accessible for being read jointly, and
that said device comprises a local processing unit coupled
to said temporary memory for starting said joint reading at
the command of the local processing unit and for making
said groups of input data ready for transmission, whereby
each device possesses a timer connected to said local
processing unit, said timer having a period time which
determines the time of transmission, which point of time is
slightly different for each timer (statistically).

The advantage of the telecommunication system according to
the invention is that the input, the storage and the
eventual making ready for transmission of the data to be
transmitted takes place prior to the actual transmission of
said data, namely at a time when the transmission network
is not occupied yet. The internal organisation of the
compact structure of the said data preceding transmission
moreover ensures a short duration of the transmission, with
the result that the transmission network is occupied only
briefly, as a result of which the risk of congestion
problems is reduced.

Advantageous is furthermore the fact that the memory may be
a temporary memory, because the data may be erased from the
memory after being transmitted, as a result of which the
memory only requires a small amount of energy during a
relatively short time for storing data. In its simplest
form the device only needs to be provided with means for
transmitting the data and not necessarily with means for
receiving any information to be transmitted to the devices
by the central receiving unit via the transmission network.
Generally this will allow a simpler design of the devices.

A further advantage is that when a command to read the data
and make them ready for transmission, and to actually
transmit the data is given on the basis of the timer, this
transmission will in principle also take place at random, seen from a statistical point of view, as a result of which the possibility of several devices within the telecommunication system wishing to transmit simultaneously or during overlapping periods of time, which may lead to congestion problems, has been reduced. But even if the period times of the timer in the various devices are deterministic, and it is therefore accurately known at what moments actual transfer of data takes place after the starting command has been given, the risk of congestion will be reduced, partly due to the fact that no synchronisation takes place among the locals timer within the device, since the different period times in practice do not have to lead to transmission of data being started at the same time. It will be apparent that it is to be preferred to keep the transmission time itself as brief as possible, in order to further reduce the congestion problems.

One embodiment of the telecommunication system according to the invention is characterized in that the device is provided with transmission means connected to the local processing unit, which are activated at the command of said local processing unit.

If there is a possibility that the data to be transmitted has not been received after a first transmission to the central receiving unit, said transmission may be repeated by the transmission means until the transmission has been successful. In practice this actual transfer of data from all devices to the central receiving unit is not always necessary for that matter. Think for example of those cases where only one representative random check may be taken, for example within one hour, during a radio or television broadcast.
Another embodiment of the telecommunication system according to the invention is characterized in that the transmission network is of the type which carries a signal when transmission of data to the central receiving unit is allowed.

The advantage of this embodiment is that the transmission of data does not need to take place at random, but that the transmission of data will take place successfully directly after the signal present on the transmission network is detected by the device. Thus retransmission has become redundant.

Another preferred embodiment of the telecommunication system according to the invention is characterized in that with a view to further reduce the congestion problems, the period times are interrelated in a manner which results in data transmission times which are connected in accordance with the magnitudes of the elements of an arithmetic progression. In this case simple implementation, using the digital means of the timer, is possible. A concrete embodiment is for example an embodiment wherein the transmission times are spaced apart, by a 5-second interval for example, a whole number of times in a deterministic manner.

Yet another embodiment of the telecommunication system according to the invention is characterized in that additional data to be processed in the central receiving unit is combined with the groups of input data to form a compact package of data to be transmitted.

The advantage of a compact package being transmitted is that actual transmission will only take little time in that case, as a result of which the transmission network is occupied only briefly. Said additional data usually comprises selection or call data, which may be utilized in
the transmission network, if necessary, in order to be able to select the central receiving unit as the party being called, for example when being used in the public telephone network. Said further data inter alia comprises unique data, such as the subscriber number or for example the identity of the subscribers or of the person who has input the groups of data in the temporary memory with the help of the data input means.

Another preferred embodiment of the telecommunication system according to the invention is characterized in that said device comprises a temporary memory for the storage of groups of input data accessible for being read jointly, and that said device comprises a local processing unit coupled with said temporary memory for starting the joint reading and making ready for transmission of the groups of input data at the command of the local processing unit, whereby said data input means comprise a keyboard, which is arranged for placing a template or mask thereon, which will cover those keys on the keyboard which are not programmed at that point of time.

The advantage is that the template or mask offers possibilities for several devices and operators to participate interactively with several radio or television networks simultaneously, insofar as the same keys on the keyboard are not simultaneously programmed for different programmes, of course. Furthermore it is possible to participate in different programmes with one and the same device at different times, interactively if desired, by simply exchanging the template between programmes. If desired the templates may for example be provided with publicity or instructions for use, or contain data or illustrations of programmes to be broadcast or explanatory information. The templates may be purchased from a newsstand, for example, or be appended to a magazine or
weekly or be sent to people's homes in case they wish to take part in an action on radio or television.

In one possible embodiment of the telecommunication system according to the invention the template is provided with openings, through which access can be gained to the keys of the keyboard located under said openings.

Another embodiment of the telecommunication system comprises a central transceiving unit, a transmission network and at least one device, each being coupled with said central transceiving unit and being provided with data input and output means, for communication with the central transceiving unit, whereby said data output means comprise a display unit, which embodiment is according to the invention characterized in that said device comprises a template memory for the storage of at least part (inclusively in the order of nil or the integer) of the data required for the eventual local set-up of a virtual template to be displayed on said display unit, whereby the complementary part (inclusively in the order of the integer or nil) of the data required for the local set-up may be made available (downloaded) by the central transceiving unit.

The advantage of this is that it is no longer necessary to maintain an apparatus for manufacturing, distributing, offering for sale and obtaining payment for the templates. Instead of this the complementary part of the data required for locally preparing the template is not supplied to a user on demand until the sum of the virtual template has been paid. Alternatively, if all the information is already present locally, the key(s) required for setting up the template are not supplied until all sums have been paid, or all information required is downloaded from the central unit to the device once all money due has been paid. In
that case there is no need to maintain the apparatus, which has thus become redundant.

The present invention will be explained in more detail with reference to the accompanying drawing. The drawing comprises Figures, in which like parts are numbered alike, and in which:

Figure 1 schematically shows a preferred embodiment of the telecommunication system and the device for use in said communication system;

Figure 2 shows the possible exterior of the device for use in the telecommunication system of Figure 1;

Figure 4 shows a possible embodiment of the template for use on the device of Figure 2; and

Figure 3 schematically shows an implementation of a system in which the telecommunication system, the device and the template according to the invention find application.

Figure 1 shows a telecommunication system 1, comprising a central receiving unit 2, which is coupled, through a transmission network 3, to a device 4, whose exterior is shown in Figure 2. Several such devices 4 are connected to the transmission network 3. Only one of said devices 4 is shown in the Figure. Usually the transmission network 3 contains amplifiers, switching stations or processing units, which are not explained in more detail within the framework of the description of this Figure. The transmission network 3 may for example be a telephone network already present, or a central antenna cable network or an ISDN-like network, or be comprised of a glass fibre network. If the transmission network is for example a telephone network, the device 4 may be connected to the telephone network together with the telephone devices which
are usually present. In case of a telephone network it will be easy for the administrator of the network to charge costs to the possessor of the device 4, that is the subscriber, usually in proportion to the duration of the communication over the transmission network 3. In its simplest form the transmission network 3 only needs to be suitable for transmitting data in the direction of the device 4 to the central receiving unit 2. If the device 4 is of a more advanced design the device, as well as the transmission network 4, will be suitable for exchanging information in two opposite directions. In that case it is a transceiver, therefore.

The data transmitted to the central receiving unit 2 by the various devices 4 is processed in the receiving unit 2 and can be used directly there, for example in a studio 5, in which a programme 6 (schematically indicated) is recorded, which programme is available to viewers of a television 7 upon being broadcast, which viewers can participate interactively in the programme 6, dependent on the contents of the programme, by transmitting data to the central receiving unit 2 by means of the device 4.

The device 4 is provided with data input means 8, usually in the shape of a keyboard, to be used for inputting data. The device 4 furthermore comprises a local processing unit 9 coupled to the keyboard 8 and the transmission network 3. In addition to the local memory, usually in the form of a ROM or a RAM, which is necessary for the operation of the local processing unit 9, also a temporary memory 10 is coupled with the processing unit 9. On the basis of questions asked in the programme 6 the respective replies are input in the device 4 by the operator of the device 4, by pushing the appropriate buttons (yet to be explained) on the keyboard 8. Each reply or series of replies constitutes a group and the groups are successively stored in the temporary memory 10, in a manner which makes it possible to
read the temporary memory 10 in its entirety by means of the processing unit 9. Also in case only one reply is transmitted more than one group will usually be transmitted, because in addition to the group comprising the one reply also a group of data, which will for example comprise the identification of the receiving unit and/or the transmitting device, will be transmitted. The device 4 is provided with a command key 11, which makes it possible for the data in question to be transmitted to the central receiving unit 2 over the transmission network 3, by means of the local processing unit 9, usually by using suitable transmission means 12 and by following a prescribed protocol. The compactness of the data then transmitted determines the duration of the transmission of the data to the receiving unit 2 to a considerable degree. When the respective channel in the transmission network 3 to the receiving unit 2 allows so, the highest possible transmission speed is selected, in order that the transmission of information to the receiving unit 2 again lasts as briefly as possible and congestion problems can thus be avoided. Only after the data has been made ready for transmission by the local processing unit 9, at the command of the command key 11, the actual brief transmission of said data will take place.

The device 4 is provided with a local clock or timer 13, which is usually necessary for the internal synchronisation of the local processing unit 9, which is provided with a microprocessor in most cases. When the local timers 13 of the various devices 4 provide the local synchronisation in a device 4 at mutually different rhythms, using different period times, which will result in information being transmitted to the receiving unit 2 at times which are mutually divergent, random or pseudo-random among the various devices 4, this will reduce the risk of congestion. This will be explained in more detail hereafter.
It is also possible, however, that a central timer in the central receiving unit 2 prescribes which of the respective devices 4 and in which order said devices are allowed to transmit the information stored in their memories over the transmission network 3. The existing telephone transmission network does not provide for this, however.

When the period times and in particular the starting times of the transmission of information to the receiving unit 2 derived therefrom are mutually divergent, which is for example the case when said starting times in the various devices 4 are interrelated in accordance with the magnitudes of the elements of an arithmetic progression, the possibility of congestion will be further reduced.

The device 4 is provided with a read/write unit 14 to be used for a memory card, a magnetic card, a smart card or a chip card 15. The card 15 may or may not be provided with electric contacts, or be suitable for being read and/or written on magnetically as well as for containing electric, magnetic, mechanical and/or optical data, for example bar code data. In most cases certain parts of the card cannot be written on by the operator of the device 4 himself, although reading is usually possible in order to add the identity of the subscriber of the device 4 to the data being transmitted to the central receiving unit 2, if desired. Of course it will be possible to transmit programme codes along with the data, or other codes which make it possible for the central receiving unit 2 to select to what programme the data received relates or to what question the data in question relates. In some cases also data relating to the identity of the subscriber is transmitted along with the other data. When orders are placed by means of the device 4, the identity of the subscriber is indeed relevant, of course, but when polls or other anonymous activities are being conducted the opposite is the case. Protection of the device 4 may take place by
means of a certain PIN code, which needs to be input before
the device can be operated. If desired the card 15 contains
further data for setting the timer 13, or significant
routing data, relevant telephone numbers, for example.
The device 4 comprises a suitably controlled display unit
16, an LCD-display for example, but not necessarily so, on
which information input by means of the keyboard 8 may be
displayed, together with other information read from the
card 15, if desired. The device 4 is provided with a
correction or recovery key 17 for correcting the previously
input data, if desired. The device 4 may furthermore be
provided with sound means, in particular for reproducing
sound, which sound means cooperate with the display unit
16, if desired.

The advantage of using a display unit on the device is that
this makes it possible to display what data has been input,
which is of importance when interactively replying to
questions being asked in a programme. Correction of a reply
once it has been input has thus become possible in a simple
manner. Furthermore the status of the data stored in the
device may be displayed on the display unit. After the
command to start the joint reading and make ready for
transmission has been given, for example, the display may
indicate whether the data in question have already been
actually transmitted to the central receiving unit.

A mask or template 18 according to Figure 3 may be put on
the keyboard 8, which mask or template makes it possible to
cover certain keys not required for the programme in
question, whereas the template leaves other keys uncovered,
thus providing access to said keys through openings 19
provided in said mask or template. The template 18 will be
provided with a print, which indicates what functions are
aimed at with the keys that are left open. In the
illustrated case only four keys have been left open,
indicated by: A, B, C, D, to show that the operator must select one of said four possibilities once or a number of times. Of course also the other keys on the keyboard 8 may be permanently accessible, to make it possible to perform certain fixed functions. Although the programming and allocating of functions to keys might in principle be done by the central receiving unit 2, if the device 4 were also suitable for receiving information from the transmission network 3, a directly practicable solution is a solution whereby the allocation of the functions in question to keys on the keyboard 8 takes place on the basis of information read from the card 15 by means of unit 14. The card 15 may contain information for allocating functions to a group of keys, but also to several groups of keys for different interactive programmes, if desired. A maximum flexibility with regard to the programming of keys is achieved. For example, during a first period a first group of keys may be allocated or hired out to a first programme, which is broadcast at a first transmitting frequency, whilst during a second period, which may very well overlap said first period, another second group of keys is allocated to another second programme, which may or may not be broadcast at the same time at a second transmitting frequency, etc. The device 4 is provided with means 20 for holding down the template 18 on the keyboard. The keyboard 8, the display unit 16 and/or the read/write unit 14 are preferably housed within one convenient housing.

Figure 1 shows that the read/write unit 14 is provided with switch means 21, which are arranged in such a manner that the device 4 can be operated as soon and as long as the card 15 is inserted in the read/write 14. The device 4 is preferably provided with a power supply unit 22, in order to keep the amount of electric energy that is withdrawn from the telephone network for feeding as low as possible. The power supply unit 22 is connected to the switch means 21, so that the device 4 only operates or receives supply
voltage when the card 15 is inserted in the read/write unit 14. The power supply unit 22 may withdraw energy from the electricity grid, but it may also be autonomous, in that it is provided with a battery unit.

The device 4 provides further applications for directly controlling a data processing system, for example a voice response system, in particular when the device 4 is connected in parallel to the telephone apparatus. Thus it is possible to access the transmission network 3 directly by means of the device 4, if desired, by using DTMF or another suitable code of the keys on the keyboard 8. The possibilities of the telephone apparatus are extended by using the device 4. Thus it is for example possible to transfer alphanumeric symbols or for example text data, if desired. Certain applications may be realized by means of the card 15, if desired. A special application is the text telephone.

As already explained before it is important to take measures in order to minimize the (congestion) possibility of one or more devices 4 transferring data at the same time. It is possible thereby to use a number which is input by the user himself or which is read from the card 15 or from a memory within the device 4. The number may be a number that is unique for each device 4, for example one from a series of numbers available from the device. This number, which itself may indeed be encoded as well, is encoded in some manner, for example by means of a suitable algorithm or a cyclic clock. From this another number is obtained, which forms the basis for calculating the time of transmitting data. With regard to the sensitiveness to fraud of the telecommunication system it is important that a possibility is provided to verify at the receiving end of the system whether data received actually originates from a subscriber who is authorized to participate. Such a system may for example be realized by means of a number, which is
known at the receiving end, to be allocated to each device 4, which is encoded in a manner known at the receiving end. In this way a unique transmission time may be determined for each device, which is only known at the end of the central receiving unit. This renders the system fraud-proof. When congestion occurs with one or more other devices during a transmission attempt, a next transmission time known to the receiving unit may be determined, for example on the basis of a next number in a series of permutated numbers, of which the actual permutation is only known to the receiving unit.

When only one group of data is transmitted to the receiving unit 2 by a device 4, this group will usually contain data that does not make it necessary or desirable for the receiving unit 2 to be able to identify the transmitting device 1. In that case the group does not contain any identification data, but for example opinion data or the like. When the user participates in a quiz, lottery or game, for example, or when orders are placed, the data containing the identity is sent along, however. In that case the data will also contain name/address/residence information and/or Giro and bank information and the like, so that when an order is placed for which a certain amount has to be paid, this amount can be debited from the bank or postal account. Possibly the device 4 will contain a second read/write unit 14’ (not shown), similar to the read/write unit 14, in which a second card 15’ (not shown), similar to the card 15, may be inserted, which card contains information representing money or being equivalent thereto and which is debited by the unit 14’ at the command of the receiving unit 2 upon acceptance/registration of the order. The identification data is read from the card 15, for example when the correct PIN code is input, whereby the card will then transmit the data, for example in encoded form. Alternatively the encoded PIN code or another unique code is for example transmitted on the card 15, so that the
group of data to be transmitted remains small, whereby the central receiving unit 2 will search the identification data associated with the code received, thus making the identity of the party placing the order known by the central receiving unit.

In another embodiment the device 4 comprises a (usually permanent) memory, hereinafter called the template memory. Said template memory may be detachable and for example contain a ROM, CD-ROM, CD-I, CD-RAM, CCD or the like. It may also be a chip card, memory card, smart card, magnetic card or similar card 15, 15', however, which may be inserted in the read/write unit 14, 14'. Although in principle the device 4 may contain all information required for locally setting up a virtual, that is an at least partially software-implemented template or mask, usually a complementary data part is required in addition to the data part stored in the template memory, in order to complete the template. Said complementary part, which for example contains a software-implemented key for accessing the information, whether or not in encoded form, which is stored in the template memory, is made available (downloaded) from the central unit 2 by the device 4 on request, in a manner yet to be explained. In spite of the fact that extensive information is available in the device 4 in that case, the transmission network is occupied very briefly and the transmission time is very short, at least if not all the information has to originate from the unit 2. The software-implemented template to be displayed on the display unit 16, which usually contains graphic and/or textual information, may be combined with the previously explained template 18, which only provides access to predetermined keys on the keyboard 8 being programmed at that point of time. The virtual template uses keys or blocks to be activated by hand or by means of tools, such as a reading pen, mouse or the like, whereby one or more additional templates are displayed on the display unit 16.
upon activation, if necessary. The display unit 16 is for example an LCD comprising a touchscreen. The various types of templates are especially relevant with direct marketing applications or when participating in activities on radio or television.

Transmission of information from the unit 2 to the device 4 preferably takes place at times, for example at night, when there is less traffic over the network 3. In that case the unit 2 itself will call those devices 4 that have previously made a request for transmission of the desired complementary data, whereupon the complete template can be set up in the device 4 the next day.

The advantage of the card or CD-reading unit is that the card to be inserted therein or the CD may contain information on which the aforesaid data can be stored magnetically or in some other manner. This information carrier, which may be collected from an issuing instance or be purchased or sent to people's homes and which may be used for providing publicity thereon, can provide access to the communication system, by means of codes (statements) included therein, in order to take part in one or more games, opinion polls, fund-raising drives, competitions, the pools, the lottery and the like, all this in an interactive manner. Accessing an interactive activity, such as a service to be provided or a game takes place, directly if desired, by depressing a quick-action key (not shown) on the device 4, whereby a data link is directly established between the device 4 and the central unit 2 in order to make an interactive request, place an order or the like. The device 4 may be used for making telephone calls in place of a conventional telephone by means of audio means known per se, which are provided on the device 4.

Furthermore symbols may for example be keyed in on the keyboard 8 and be transferred directly to the unit 2 and vice versa. The device 4 may be in communication, hands-
free and possibly wirelessly, with a part thereof that is
connected to the transmission network 3. Preferably the
central receiving unit 2 comprises a provision which
arranges that the connection with a device 4 is broken when
there has been no communication over the network to the
respective device 4 for some time, for example 2 minutes.

If the codes stored on the card in the unit 14 contain a
PIN code, a check may be made to ascertain whether the user
is authorized to take part or to communicate interactively,
by performing verification activities when the user inputs
his PIN code on the data input means.

Figure 4 diagrammatically illustrates a system in which the
telecommunication system 1 may be used. The Figure shows
the users 40, of whom there may in principle be several
millions, who are each provided with a device 4 and who are
each coupled with the central transceiving unit 2 via the
transmission network 3. On the other hand also the offerers
50 of merchandise, services and information are coupled
with the unit 2. The material and/or virtual templates are
made available to the user, by mail, as an appendix to a
magazine or the like, or, in case the template is a
completely virtual template, it is transmitted either
completely, for example at night, or partially (as
complementary information) in the form of a software-
implemented key to the users 40, in which case the
(template) memory will contain the larger amount of
information, so as to reduce the time during which the
transmission network 3 is occupied. The data, which may or
may not be offered free of charge by an offerer of
information, may be transmitted over the transmission
network 3 to the user who ordered said data, at least
insofar as this possibility is provided. Ordered
merchandise, goods etc. will usually be delivered by the
deliverer, at which time payment may be effected in case
this has not taken place automatically before, whether or
not by means of the telecommunication system. The system 1 includes code selection means 60, which select the code of the required offerer 50, who is to perform the service requested, on the basis of the code data included in the data transmitted to the unit 2. The data transmitted furthermore contains transaction data, which records the contents of the transaction requested, which contents have been indicated before on a respective, real (material) or virtual template by the user 40. The code data has for example been input by the user himself, been read from a card or from the template memory or originate from the template, which contains this data in an electrical, magnetic, mechanical and/or optical manner. Of course it depends on the kind of transaction whether the data transmitted does or does not contain identification data.

In case for example two devices 4 wish to transfer fax messages to each other, at least one of said devices will be provided with video or scanning means, and a transmitting user 40 will be able to transmit a fax message, which will usually contain textual, photographic or graphic information, to a mailbox memory in for example the receiving device 40 by inputting an appropriate code. If the receiving unit 2 is active, also direct communication may take place without the intermediary of the mailbox memory, if desired. Usually the device 4 will be provided with a printing device (printer), which may or may not be an external printing device.
CLAIMS

1. A telecommunication system, comprising a central receiving unit, a transmission network and at least one device, each being coupled with said transmission network and being provided with data input means, for transmitting data to the central receiving unit, characterized in that said device comprises a temporary memory for the storage of groups of input data accessible for being read jointly, and that said device comprises a local processing unit coupled to said temporary memory for starting said joint reading at the command of the local processing unit and for making said groups of input data ready for transmission, whereby each device possesses a timer connected to said local processing unit, said timer having a period time which determines the time of transmission, which point of time is slightly different for each timer (statistically).

2. A telecommunication system according to claim 1, characterized in that said device is provided with transmission means connected to said local processing unit, which are activated at the command of said local processing unit.

3. A telecommunication system according to claim 1 or 2, characterized in that said transmission network is of the type which carries a signal when transmission of data to the central receiving unit is allowed.

4. A telecommunication system according to any one of the claims 1 - 3, characterized in that said period times are interrelated in a manner which results in data
transmission times which are connected in accordance with the magnitudes of the elements of an arithmetic progression.

5. A telecommunication system according to claim 4, characterized in that additional data to be processed in the central receiving unit is combined with the groups of input data to form a compact package of data to be transmitted.

10. A telecommunication system according to claim 1 - 5, characterized in that said additional data contains data which is unique for the respective device.

15. A telecommunication system, comprising a central receiving unit, a transmission network and at least one device, each being coupled with said transmission network and being provided with data input means, for transmitting data to the central receiving unit, characterized in that said device comprises a temporary memory for the storage of groups of input data accessible for being read jointly, and that said device comprises a local processing unit coupled to said temporary memory for starting said joint reading at the command of the local processing unit and for making said groups of input data ready for transmission, whereby said data input means comprise a keyboard, which is arranged for placing a template or mask thereon, which will cover those keys on the keyboard which are not programmed at that point of time.

8. A telecommunication system according to claim 7, characterized in that said template is provided with openings, through which access can be gained to the keys that are located under said openings.
9. A telecommunication system according to claim 7 or 8, characterized in that said device is provided with means for holding down said template on said keyboard.

10. A telecommunication system according to any one of the claims 1 - 9, characterized in that the keyboard of said data input means is provided with a display unit.

11. A telecommunication system according to claim 10, characterized in that an indication, which may or may not move, is displayed on said display unit, which indication will be stationary or disappear after the time of the actual transmission of the data to the central receiving unit.

12. A telecommunication system according to claim 10 or 11, characterized in that said keyboard is provided with a correction key for altering the data of the group of input data stored in said temporary memory.

13. A telecommunication system according to any one of the claims 10 - 12, characterized in that said keyboard is provided with a command key, which may be used to give the command to start the local processing unit at a certain point of time for jointly reading the groups of input data and making them ready for transmission.

14. A telecommunication system according to any one of the claims 10 - 13, characterized in that at least said keyboard and said display unit are accommodated in one housing.

15. A telecommunication system according to any one of the claims 10 - 14, characterized in that said template contains electric, magnetic, mechanical and/or optical information, which is representative of the type of template by means of which a user of the device makes
his wishes known, whereby said device is provided with reading means identifying said information, which are coupled with said programmable data input means.

16. A telecommunication system according to claim 15, characterized in that the information read from said template is used as index information when reading the memory means, which contain the programming data associated with each type of template for the data input means, for example.

17. A telecommunication comprising a central transceiving unit, a transmission network and at least one device, each being coupled with said central transceiving unit and being provided with data input and output means, for communication with said central transceiving unit, whereby said data output means comprise a display unit, characterized in that said device comprises a template memory for the storage of at least part (inclusively in the order of nil or the integer) of the data required for the eventual local set-up of a virtual template to be displayed on said display unit, whereby the complementary part (inclusively in the order of the integer or nil) of the data required for the local set-up may be made available (downloaded) by the central transceiving unit.

18. A telecommunication system according to claim 17, characterized in that said virtual template is suitable for activating selection blocks or keys displayed therein.

19. A telecommunication system according to claim 18, characterized in that said template is made in the form of a touchscreen.
20. A telecommunication system according to any one of the claims 17 - 19, characterized in that upon activation of the selection blocks or keys one or more next templates are displayed on the display unit.

21. A telecommunication system according to any one of the claims 17 - 20, characterized in that said template contains graphic and/or textual information.

22. A transmission network according to any one of the claims 17 - 21, characterized in that said making available of the complementary part of the data required takes place at times, for example at night, that there is little communication over the transmission network (statistically).

23. A transmission network according to any one of the claims 17 - 22, characterized in that said template memory contains at least one detachable memory, such as a ROM, CD-ROM, CD-RAM, CD-I, chip card, memory card, smart card, magnetic card, cash card, bank or Giro card or the like.

24. A telecommunication system according to any one of the claims 17 - 23, characterized in that said device is provided with at least one read and/or write unit for reading and/or writing the detachable memory to be introduced into the respective unit.

25. A telecommunication system according to any one of the claims 17 - 24, characterized in that said complementary part of the data required contains at least one key for accessing or decoding information stored in said detachable memory.
26. A telecommunication system according to any one of the claims 17 - 25, characterized in that furthermore one or more codes, for example PIN codes, service codes, template codes, or codes relating to templates, which may or may not be virtual templates, programming data, interactive programming data, user identification data, communication protocols, card and/or CD (read) data, bank or Giro card data, money-equivalent codes, (information on) control systems, call data, network routing data, telephone numbers, etc., are readably stored, whether or not in encoded form, on said detachable memory.

27. A telecommunication system according to any one of the claims 24 - 26, characterized in that said device is provided with switch means connected to said read and/or write unit for keeping the device turned on only during the time that the card(s) and or CD(s) is (are) inserted in the read and/or write unit.

28. A telecommunication system according to any one of the claims 17 - 27, characterized in that said device is provided with an autonomous power supply unit, which is connected to said switch means.

29. A device suitable for being used in the telecommunication system according to any one of the claims 1 - 28.

30. A template for being used in the telecommunication system according to any one of the claims 7 - 28.

31. A template or mask according to claim 30, characterized in that said template or mask is provided with one or more openings and that it is on at least one flat side provided with text and/or illustrations, which may or may not be in colour.
32. A method for operating the telecommunication system according to any one of the claims 7 - 28, whereby data is transmitted to said central unit by means of devices available to users, said data in addition to possible user identity data at least comprising transaction data and code data, on the basis of which (an) offerer(s) of merchandise, services or information coupled to the central unit is (are) selected by code selection means, which selected offerer(s) will receive the transaction data input on the device by a user, wherein said transaction data have been created by activating a field or key on said template, which has been made available to the (possibly authorized) user.

33. A method according to claim 32, wherein said template according to claim 31 or 30 comprises a (material) template and/or a virtual template.

34. A method according to claim 32 or 33, wherein said data comprises or does not comprises, as the case may be, identification data, dependent on the type of transaction, which may be an anonymous transaction, as is the case with opinion polls, elections, inspection of data or information, or not anonymous, as is the case when participating in a game or a quiz or when placing an order.

35. A method according to any one of the claims 32 - 34, wherein dependent on the type of transaction, such as a purchase, signals are generated in the telecommunication system, on the basis of which signals a balance of for example a bank or postal account or possibly on a credit card which is locally inserted in the read/write unit is debited.
INTERNATIONAL SEARCH REPORT

A. CLASSIFICATION OF SUBJECT MATTER
IPC 6 H04H9/00

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

B. FIELDS SEARCHED
Minimum documentation searched (classification system followed by classification symbols)
IPC 6 H04H

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

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

C. DOCUMENTS CONSIDERED TO BE RELEVANT

<table>
<thead>
<tr>
<th>Category</th>
<th>Citation of document, with indication, where appropriate, of the relevant passages</th>
<th>Relevant to claim No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>WO,A,90 10988 (VIEWFACTS, INC.) 20 September 1990 see page 6, line 7 – page 7, line 4 see page 7, line 31 – line 32 see figure 1</td>
<td>1-3, 10-14,29</td>
</tr>
<tr>
<td>A</td>
<td>EP,A,0 263 635 (IKEGAMI TSUSHINKI CO., LTD.) 13 April 1988 see figures 1,2,5B,7B see abstract</td>
<td>1-3, 10-14,29</td>
</tr>
<tr>
<td>A</td>
<td>US,A,5 173 589 (DIEHL ET AL.) 22 December 1992 see claim 1; figure</td>
<td>1,10,15, 16,29</td>
</tr>
<tr>
<td>A</td>
<td>EP,A,0 425 347 (SOCIETE AUDEBERT DELAHAYE VENTURE) 2 May 1991 see the whole document</td>
<td>1,10,15, 16,29</td>
</tr>
</tbody>
</table>

Further documents are listed in the continuation of box C.

Patent family members are listed in annex.

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

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"I" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"X&" document member of the same patent family

Date of the actual completion of the international search
7 June 1995

Date of mailing of the international search report
22 June 1995

Name and mailing address of the ISA
European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax (+31-70) 340-3016

Authorized officer
Goossens, A.
<table>
<thead>
<tr>
<th>Category</th>
<th>Citation of document, with indication, where appropriate, of the relevant passages</th>
<th>Relevant to claim No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>WO,A,91 08810 (INTERACTIVE NETWORK, INC.) 27 June 1991 see page 1, line 7 - page 3, line 14</td>
<td>1,29</td>
</tr>
<tr>
<td>A</td>
<td>EP,A,0 128 481 (ADTEL PRODUCTS INC.) 19 December 1984 see abstract</td>
<td>1,29</td>
</tr>
<tr>
<td>A</td>
<td>WO,A,90 13088 (JOHNSON ET AL.) 1 November 1990 see the whole document</td>
<td>7-16, 29-35</td>
</tr>
<tr>
<td>A</td>
<td>EP,A,0 275 328 (VIDEO RESEARCH LTD) 27 July 1988 see page 20, line 4 - line 16 see figures 6A-6E</td>
<td>7,10,11</td>
</tr>
<tr>
<td>A</td>
<td>US,A,4 398 086 (SMITH III) 9 August 1983 see the whole document</td>
<td>7</td>
</tr>
</tbody>
</table>
**INTERNATIONAL SEARCH REPORT**

**Box I  Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)**

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. 
   - Claims Nos.: because they relate to subject matter not required to be searched by this Authority, namely:

2. 
   - Claims Nos.: because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:

3. 
   - Claims Nos.: because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

**Box II  Observations where unity of invention is lacking (Continuation of item 2 of first sheet)**

This International Searching Authority found multiple inventions in this international application, as follows:

**SEE ANNEX**

1. 
   - As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.

2. 
   - As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.

3. 
   - As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:
     
     1-6 and 10-16
     as far as dep. on 1
     7-9 and 10-16, 29-35
     as far as dep. on 7

4. 
   - No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

**Remark on Protest**

- 
  - The additional search fees were accompanied by the applicant’s protest.
- 
  - No protest accompanied the payment of additional search fees.
Claims 1-6 and 10-16,29 as far as dependent on claim 1:
A telecommunication system comprising a transmission network and a device being coupled thereto, the device having data input means, a memory and a timer for determining the time of transmission, whereby said memory is a temporary memory for the storage of input data.

Claims 7-9 and 10-16,29-35 as far as dependent on claim 7:
A telecommunication system comprising a transmission network and a device being coupled thereto, the device having data input means, a memory and a keyboard which is arranged for placing a template or mask; whereby said memory is a temporary memory for the storage of input data.

Claims 17-28 and 29-35 as far as dependent on claim 17:
A telecommunication system comprising a transmission network and a device being coupled thereto, the device having data input means, a memory and a display unit for displaying a virtual template, whereby said memory is a template memory for the local set-up of a virtual template.
<table>
<thead>
<tr>
<th>Patent document cited in search report</th>
<th>Publication date</th>
<th>Patent family member(s)</th>
<th>Publication date</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>DE-D- 3788105</td>
<td>16-12-93</td>
</tr>
<tr>
<td></td>
<td></td>
<td>DE-T- 3788105</td>
<td>28-04-94</td>
</tr>
<tr>
<td></td>
<td></td>
<td>NZ-A- 235927</td>
<td>25-03-94</td>
</tr>
<tr>
<td></td>
<td></td>
<td>AT-T- 120291</td>
<td>15-04-95</td>
</tr>
<tr>
<td></td>
<td></td>
<td>AU-B- 636410</td>
<td>29-04-93</td>
</tr>
<tr>
<td></td>
<td></td>
<td>AU-A- 6644590</td>
<td>31-05-91</td>
</tr>
<tr>
<td></td>
<td></td>
<td>DE-D- 69018007</td>
<td>27-04-95</td>
</tr>
<tr>
<td></td>
<td></td>
<td>WO-A- 9106914</td>
<td>16-05-91</td>
</tr>
<tr>
<td></td>
<td></td>
<td>JP-T- 5501463</td>
<td>18-03-93</td>
</tr>
<tr>
<td></td>
<td></td>
<td>AT-T- 109018</td>
<td>15-08-94</td>
</tr>
<tr>
<td></td>
<td></td>
<td>DE-D- 69011128</td>
<td>01-09-94</td>
</tr>
<tr>
<td></td>
<td></td>
<td>DE-T- 69011128</td>
<td>12-01-95</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ES-T- 2056628</td>
<td>01-10-94</td>
</tr>
<tr>
<td></td>
<td></td>
<td>AU-B- 567168</td>
<td>12-11-87</td>
</tr>
<tr>
<td></td>
<td></td>
<td>AU-A- 2916884</td>
<td>13-12-84</td>
</tr>
<tr>
<td></td>
<td></td>
<td>CA-A- 1202714</td>
<td>01-04-86</td>
</tr>
<tr>
<td></td>
<td></td>
<td>DE-A- 3474396</td>
<td>03-11-88</td>
</tr>
<tr>
<td></td>
<td></td>
<td>US-A- 4546382</td>
<td>08-10-85</td>
</tr>
<tr>
<td></td>
<td></td>
<td>AU-A- 5441790</td>
<td>16-11-90</td>
</tr>
<tr>
<td></td>
<td></td>
<td>CA-A- 2014791</td>
<td>20-10-90</td>
</tr>
<tr>
<td></td>
<td></td>
<td>CN-A- 1047598</td>
<td>05-12-90</td>
</tr>
<tr>
<td>Patent document cited in search report</td>
<td>Publication date</td>
<td>Patent family member(s)</td>
<td>Publication date</td>
</tr>
<tr>
<td>--------------------------------------</td>
<td>----------------</td>
<td>-------------------------</td>
<td>-----------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td>JP-A- 63303414</td>
<td>12-12-88</td>
</tr>
<tr>
<td></td>
<td></td>
<td>JP-A- 63037726</td>
<td>18-02-88</td>
</tr>
<tr>
<td></td>
<td></td>
<td>JP-A- 63037727</td>
<td>18-02-88</td>
</tr>
<tr>
<td></td>
<td></td>
<td>WO-A- 8801117</td>
<td>11-02-88</td>
</tr>
<tr>
<td>US-A-4398086</td>
<td>09-08-83</td>
<td>NONE</td>
<td></td>
</tr>
</tbody>
</table>