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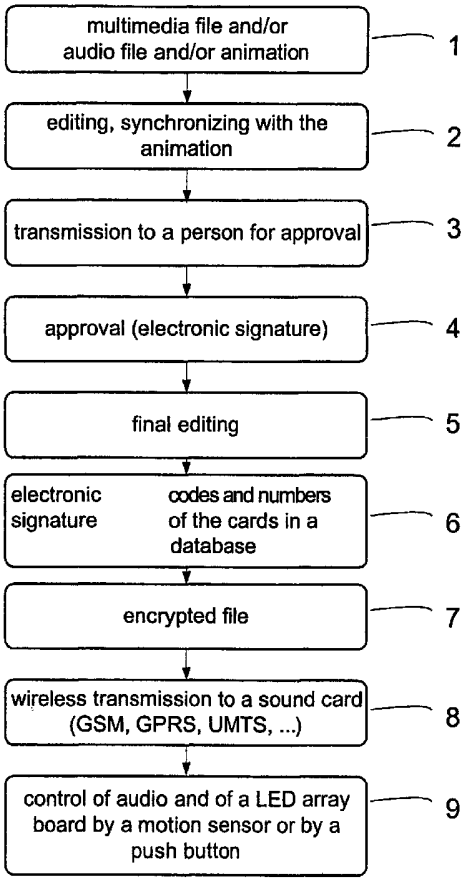
[Continued on next page]

(54) Title: SYSTEM AND METHOD FOR TRANSMITTING INFORMATION



(57) Abstract: The invention relates to a system for transmitting information, whereby the system comprises a plurality of information display devices, each of which comprises at least means for storing the information to be transmitted in an electronic form, display means for displaying the information to be transmitted, and means for changing the information to be transmitted in a wireless manner. Each display device further comprises means for starting the information display automatically on the basis of activation by the target of the information. The invention relates further to a method for transmitting information.

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

System and method for transmitting information

The invention relates to a system and to a method for transmitting information according to the preambles of the independent claims presented below.

A great number of procedures and arrangements are known for transmitting information. For instance, in order to apply some campaigns intended for sales promotion in shops and/or chain stores and/or shopping centres it has been necessary to use heavy external audio sources, which have been inconvenient and expensive to update for each campaign. In a shop environment it was therefore hardly possible to utilize multimedia and/or even audio advertising relating to a particular product, but the transmission of information was made, also regarding audio, with the aid of an arrangement like a public addressing system. Then it was almost impossible to make rapid changes of the information, and the change always concerned quite a limited area, and in any case in a rather cumbersome manner. Among commercial applications a small-sized sound source suitable for the lightweight panel speaker Kapa Sound NXT and suitable for the shop environment, as marketed by the German company Alusuisse Kapa, is quite well-known in the industry.

There are further different known systems for putting into electronic form a presentation of prices of the products for sale, with the object to speed up the updating and changing of prices. For instance the published patent applications EP 0 348 579 A1 and WO 88/06773 present systems, in which the prices of products on the shelves are presented with the aid of electrical display devices, and in which the prices can be changed by remote control. However, in practice the solutions presented in the publications are not suitable for displaying other information than the price information, so that they have a very limited use for different applications. Neither do said reference publications present any solutions for realising information transmission systems comprising a number of separate sales points, which geographically may be located even far from each other, and for changing the information transmitted via these systems.

The published patent application WO 01/31497 A1 presents a method for creating interactive multimedia files and transmitting them to a device, which presents the contents of the file. A problem with the solution presented in the reference publication regarding an effective transmission of information is that the solution requires very active actions of the target of the information. Then for instance the

relaying of information in shops may be insufficient, as it is not possible to get the target of the information to interact with the system in the manner required by the system.

Thus the object of the invention is to provide a new and inventive system by utilising different techniques, which method enables information to be transmitted to the target public in an efficient way and so that its contents can be easily changed, and thereby for instance increasing the demand for a marketed product or service. In this respect the object of the invention is also to present a very flexible and rapid method to create information and to transmit it in a controlled manner to one or more desired destinations. An object is to get the marketing message as close as possible to a person making the purchase decisions, and to change the message in an easy and controlled manner when required, because according to studies most commonly about 70 %, even more of the customers' purchases are impulse purchases. For the transmitting of information, an object of the invention is also to present audible guidance devices operating with a motion sensor, a lift or an escalator with audible guidance and/or advertisements, and return channel applications in marketing realised with the aid of pushbuttons. A further object of the invention is to present a multimedia and/or audio advertisement system, which can be moved from one place to the next in a very easy and rapid way, and which can be synchronised with animations, price announcements or other information displayed on a LED array panel or the like.
In order to attain, among other things, the above-mentioned objects the system and the method for transmitting information according to the present invention is characterised in what is defined in the characterising parts of the independent claims presented below.

A typical system for transmitting information comprises a plurality of information display devices, each one of which comprises at least means for storing information to be transmitted in an electronic form, display means for displaying the information to be transmitted, and means for changing the information to be transmitted in a wireless manner. Then each display device further comprises means for starting the information display automatically on the basis of activation by the target of the information. As display of the information is started only on the basis of activation by the target of the information there is not created an unnecessary large information flow in the space where the information is transmitted, but the information is presented only when the target of the information arrives to receive the information. Then the activation of the display device can

be advantageously realised so that the presentation of information is started on the basis of an active action performed by the target, such as the push of a button, or on the basis of a passive action, such as when the target arrives in the vicinity of the display device.

In an advantageous system according to the present invention the means comprised by the display device for starting the display of the information comprises a motion sensor, whereby the display of the information is started as the target of the information to be transmitted arrives in the vicinity of the display device. Correspondingly, the display of the information can be arranged so that it is terminated as the target of the information leaves the vicinity of the display device.

In an advantageous system according to the present invention the display device comprises a sound card having a number of memory locations, in which the information to be transmitted is arranged to be stored. This provides a display device being advantageous regarding the manufacturing costs and small in size.

In a particularly advantageous system according to the present invention the display device is attached to be a portion of a display and/or sales rack, and the information to be transmitted contains information about at least one product arranged in the rack. This provides an arrangement, which can transmit information in order to attract the interest of the target of the information, i.e. the consumer, and/or in order to provide additional information to the consumer.

In an advantageous system according to the present invention the display device comprises a terminal device for receiving the information to be transmitted, which is stored in an electronic form and transmitted utilising a GSM, GPRS, UMTS or a more advanced network. As here modern data transmission networks and protocols are utilised, which are in common use, the transmission of the information to the display devices is realised in a rapid and reliable manner without any particular difficulties and without constructing any dedicated information transmission lines or the like. Thus the location from where the information is transmitted can be geographically located even far from the location of the display device.

In an advantageous system according to the present invention the information to be transmitted is stored as an audio and/or multimedia file, whereby it is not necessary to know, when creating the information to be transmitted, the exact struc-

ture of the display device presenting the information, but it suffices to know the formats which the display device is able to play back.

In a typical method according to the present invention for transmitting information with a system comprising several information display devices, each of which comprises at least means for storing information to be transmitted in an electronic form, display means for displaying the information to be transmitted, and means for changing the information to be transmitted in a wireless manner, the display of the information is automatically started on the basis of an activation performed by the target of the information. Advantageously the display of information is started by detecting the arrival of the target of the information into the vicinity of the display device.

According to an advantageous method according to the present invention the information to be transmitted is changed by transmitting the desired information to the display device as an audio and/or multimedia file by using the GSM, GPRS, UMTS network or a more advanced network.

According to a very advantageous method according to the present invention the display device is arranged to be a part of a display and/or sales rack, and the information to be transmitted comprises information about at least one product arranged in the display and/or sales rack.

The invention is described in more detail below with reference to the enclosed drawing, in which

Figure 1 shows schematically an arrangement according to the invention for the transmission of information, and

Figure 2 shows schematically a cross-section of a display device of the system according to the invention as it is attached to a sales rack.

In figure 1 the reference numeral 1 indicates a multimedia file and/or an audio file and/or an animation, which in the next step indicated by the reference numeral 2 is edited in a desired way and synchronised with an animation, if such is used. At present there are commonly available such sound cards, which have e.g. 16 memory locations and 16 outputs for motion sensors/push button locations/analogue signals. Then these memory locations store for instance an audio file which is 4 or 8 minutes long, and which acts as audio advertisement. As the devices and the arrangements develop in the course of time the number of memory locations and the recorded time of the files will in general increase, or corre-

spondingly the price of the devices will decrease substantially. The step indicated by the reference numeral 3 presents the transmission to a person for approval, if this concerns such a particular party, who is required to approve of the information transmission for the final display. It is conceivable that the actions represented by the reference numerals 1 and 2 could be performed for instance in an advertising agency, but that the approval or rejection should be made for instance by a regional sales manager of a chain store or a corresponding representative of the orderer.

Said person who approves of the transmission might be physically located quite far away, for instance in a different region, and he or she will or will not present the approval in the form of an electronic signature. Then the final editing is made at reference numeral 5, when required. The file is ready in the step indicated by the reference numeral 6 after the final editing 5, whereby it contains the electronic signature, the codes and numbers of the cards as a database. Then the file is encrypted at reference numeral 7, and the final result is an encrypted file. At present a choice can be made among many different encryption methods, particularly regarding to the power (efficiency) of the encryption. The system and the method according to the present invention can also be realised so that the file to be transmitted is not encrypted, whereby the step indicated by 7 is omitted.

In the step indicated by the reference numeral 8 the encrypted file is transmitted by wireless transmission to a sound card using some present information transmission method or a method to be developed (GSM, GPRS, UMTS, or the like). In the desired operating location, indicated by the reference numeral 9, the control of the audio and any connected LED array board is made with the aid of a motion sensor or by a push button, or in another similar manner. The arrangement according to the invention can be used for the most different purposes in order to transmit information. One typical application is a shop advertising system, which can be applied in different departments, for instance to present special offers in the bread department, etc. For instance, if it towards the evening seems that some products with an expiring period of use will become unsold, then special offers could be made for these products. A system according to the invention can also be used already outside the actual shop area in order to tempt a customer to visit a certain department to make a purchase. For instance already at the entrance of a parking garage a display system activated by motion sensors can be used, and similarly in escalators and/or lifts. With the aid of a push button activation an arriving customer can be made to take interest in some product or service,

whereby he or she can see and/or hear the quotation after he or she has pressed a button. For instance in a lift, with the aid of an arrangement according to the invention, the customers heading for a certain level can be given a portion of information about the services and/or any special offers on that certain level.

Figure 2 shows a display device 20 according to the system of the present invention, whereby the device is attached to the lower surface of a display/sales rack 21 used in the shop. Within the casing of the display device 20 (not shown) there is arranged a battery acting as the power source for the device, a sound card having memory locations for the audio files to be stored, a terminal for receiving the messages to be stored via the GSM network, a speaker for playing back the stored audio file, and a motion sensor for detecting an approaching buyer and for starting the play-back of the audio file. Further the display device naturally comprises the required wiring and other means for functionally interconnecting the components. A display, such as a led board or LCD display can be arranged at the front edge 22 of the sales rack 21, whereby the display device can be used to display multimedia files containing both audio and video.

If the matter in question concerns a regional chain of shops, then the arrangement according to the invention can be used in a centralised manner for transmitting sales promotion or corresponding information to all shops or only to the desired shops.

The invention is not limited to the enclosed embodiment, but a great number of modifications are conceivable within the scope of the enclosed claims.

Claims

1. A system for transmitting information, whereby the system comprises a plurality of information display devices, each one of which comprises at least
- means for storing information to be transmitted in an electronic form,
- display means for displaying the information to be transmitted, and
- means for changing the information to be transmitted in a wireless manner,
characterised in that each display device further comprises means for starting the information display automatically on the basis of activation by the target of the information.

2. A system according to claim 1, **characterised** in that the means in the display device for starting the display of the information comprises a motion sensor.

3. A system according to claim 1 or 2, **characterised** in that the display device comprises a sound card having a number of memory locations, in which the information to be transmitted is arranged to be stored.

4. A system according to any previous claim, **characterised** in that the display device is attached to be a part of a display and/or sales rack, and the information to be transmitted contains information about at least one product arranged in the rack.

5. A system according to any previous claim, **characterised** in that the display device comprises a terminal device for receiving the information to be transmitted, which is stored in an electronic form and transmitted utilising a GSM, GPRS, UMTS or a more advanced network.

6. A system according to any previous claim, **characterised** in that the information to be transmitted is stored as an audio and/or multimedia file.

7. A method for transmitting information in a system comprising several information display devices, each of which comprises at least
- means for storing information to be transmitted in an electronic form,
- display means for displaying the information to be transmitted, and
- means for changing the information to be transmitted in a wireless manner,
characterised in that the display of the information is automatically started on the basis of an activation performed by the target of the information.

8. A method according to claim 7, **characterised** in that the display of information is started by detecting the arrival of the target of the information into the vicinity of the display device.

9. A method according to claim 7 or 8, **characterised** in that the information to be transmitted is changed by transmitting the desired information to the display device as an audio and/or multimedia file by using the GSM, GPRS, UMTS network or a more advanced network.

10. A method according to any of claims 7 to 9, **characterised** in that the display device is arranged to be a part of a display and/or sales rack, and the information to be transmitted comprises information about at least one product arranged in the display and/or sales rack.

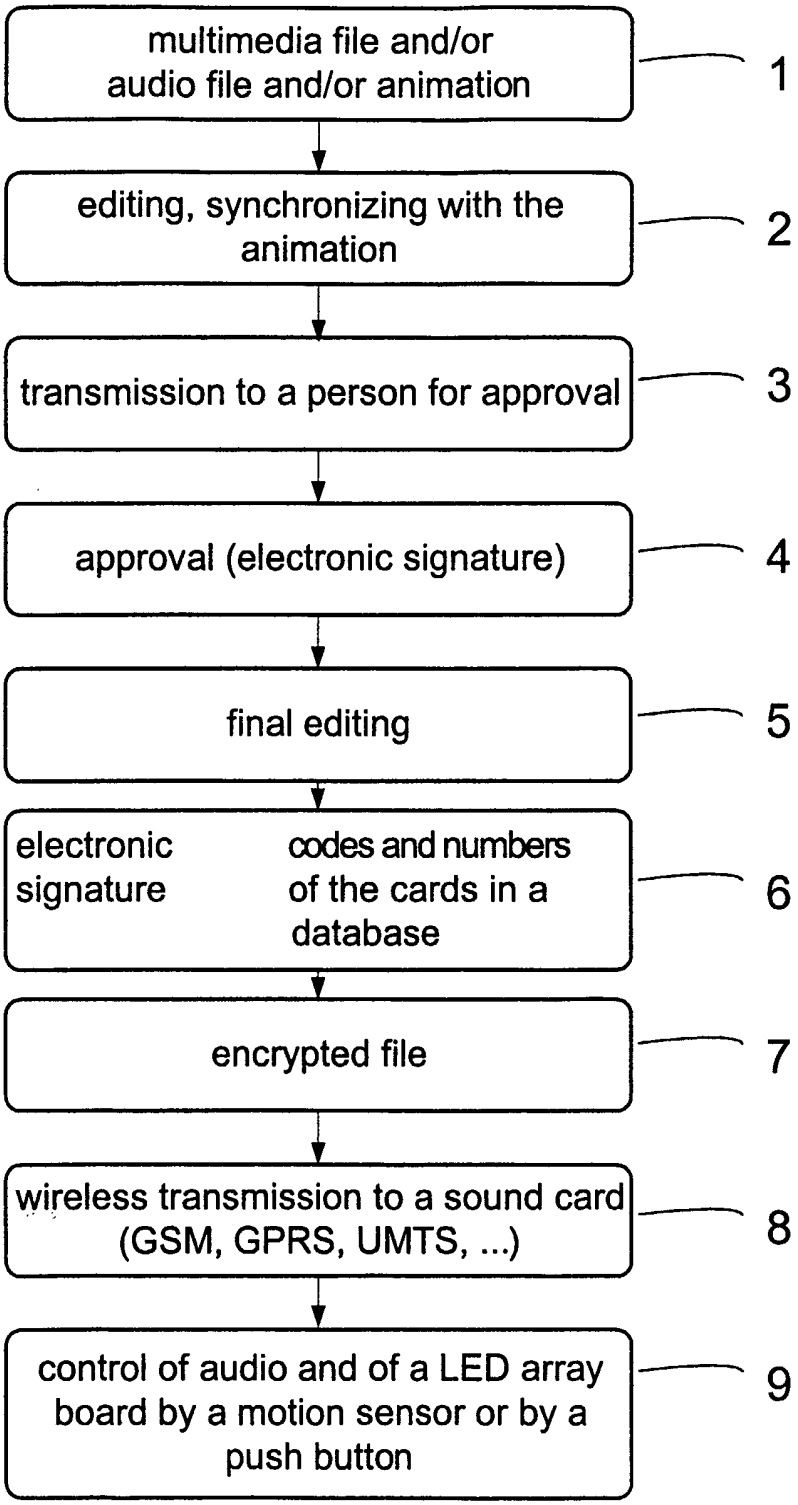
multimedia file and/or audio file and/or animation
1
editing, synchronizing with the animation
2
transmission to a person for approval
3
approval (electronic signature)
4
final editing
5
electronic signature
codes and numbers of the cards in a database
6
encrypted file
7
wireless transmission to a sound card (GSM, GPRS, UMTS, ...)
8
control of audio and of a LED array board by a motion sensor or by a push button
9

FIG. 1

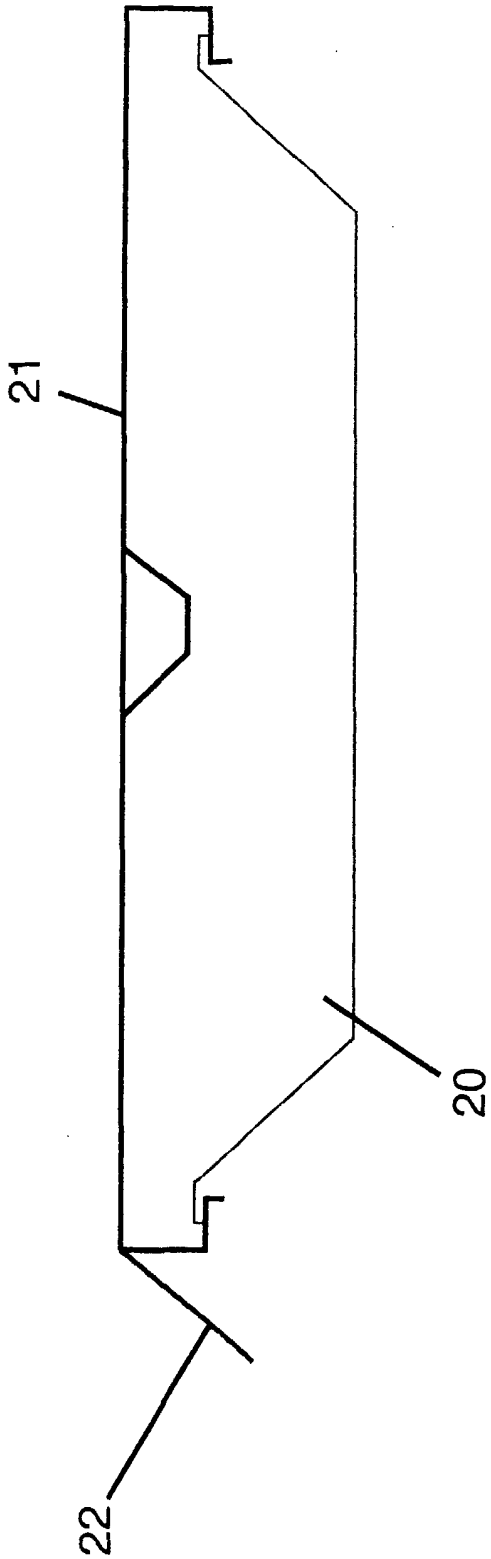

Fig. 2

INTERNATIONAL SEARCH REPORT

International application No.
PCT/FI 02/00798

A. CLASSIFICATION OF SUBJECT MATTER

IPC7: G06F 17/60, H04L 29/12
According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC7: G06F, G09F, H04L, H04B

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

SE,DK,FI,NO classes as above

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

EPO-INTERNAL, WPI DATA

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 9713239 A1 (M S INDUSTRIES PTY.LTD.), 10 April 1997 (10.04.97), page 4, line 1 - line 14, figure 6, abstract --	1-10
X	US 5642484 A (NATHANIEL C. HARRISON, III ET AL), 24 June 1997 (24.06.97), column 1, line 55 - column 2, line 11, figure 1, claims 1,9, abstract --	1-10
X	WO 0070504 A2 (HERZ, FREDRICK), 23 November 2000 (23.11.00), page 5, line 32 - page 8, line 20; page 17, line 8 - line 29, figure 1 --	1-10

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

* Special categories of cited documents:
"A" document defining the general state of the art which is not considered to be of particular relevance
"E" earlier application or patent but published on or after the international filing date
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"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
"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"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
"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
11 February 2003	12 -02- 2003
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INTERNATIONAL SEARCH REPORT

International application No.
PCT/FI 02/00798

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 4853678 A (CHESTER O. BISHOP, JR, ET AL), 1 August 1989 (01.08.89), abstract ---	1-10
A	GB 2274733 A (JOHN EDWARD SHOULER), 3 August 1994 (03.08.94), abstract --- --------	1-10

INTERNATIONAL SEARCH REPORT

Information on patent family members

30/12/02

International application No.
PCT/FI 02/00798

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