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WO 02/058329 A2

(54) Title: IMPROVEMENTS IN OR RELATING TO ELECTRONIC DISPLAY SYSTEMS

(57) Abstract: An electronic display system comprising a communication system including modulator means arranged to modulate electromagnetic radiation inadvertently radiated from an electronically operated display with which said modulator means is operatively associated, (e.g. radiation emanating from an electronic screen), for the purpose of transmitting information to portable receivers (e.g. appropriately adapted mobile phones, MP3 players, Personal Digital Assistants, portable radios, music players or the like), whereby the portable receivers are enabled to receive the information.

**Improvements in or relating to electronic display
systems.**

This invention relates to electronic display systems and more especially but not exclusively it relates to advertising display panels.

Most commercial advertising and sales promotion presently involves the media, however it would clearly be highly desirable to communicate directly with shoppers whilst they are out and about, and preferably when they are actually in or around a sales outlet, for the purpose of drawing to their attention the goods or services available, and more particularly to acquaint them with goods/services of special interest.

It is one object of this invention to provide an electronic display system suitable for the aforementioned purpose, which to a large extent utilises existing apparatus and which accordingly involves little or no addition cost to implement.

According to the present invention, an electronic display system comprises a communication system including modulator means arranged to modulate electromagnetic radiation inadvertently radiated from an electronically operated display with which said modulator means is operatively associated, (e.g. radiation emanating from an electronic screen), for the purpose of transmitting information to portable receivers (e.g. appropriately adapted mobile phones, MP3 players, Personal Digital Assistants, portable radios, music players or the like), whereby the portable receivers are enabled to receive the information.

The electronically operated display, may be a plasma display, an electroluminescent VFD display, an LCD display, or a CRT display.

It is especially envisaged that this facility could be offered by mobile phone manufacturers as a sales feature and in this context it is particularly attractive since it will involve zero or minimal hardware cost to the electronic display owner, or

to the mobile phone user. Moreover, it is envisaged that the display owner will find the facility commercially attractive since it may be rented out for sales promotion and/or advertising purposes.

The modulator means may comprise software adapted to select and facilitate impression of appropriate modulation chosen in accordance with the application in view using data transmitted in any suitable format, such as ASK, or spread spectrum.

Although the invention is eminently suitable for the purpose of facilitating communication between electronic display apparatus and mobile phones or the like carried by shoppers, it will be appreciated that it may equally well be applied to facilitate communication between a service information centre and members of the public such as travellers, at an airport for example, who in this case require instant updates appertaining to arrival times and/or departure times and/or delays.

Moreover, if travellers are provided with an appropriate receiver, which may be part of a boarding voucher, they can be individually identified and contacted if appropriate.

Thus the modulation may be impressed on any unwanted electromagnetic screen radiation, and the receiver may be operatively associated with any piece of portable electronic apparatus such as Personal Digital Assistants (PDAs), personal radio/music devices, or specifically designed electronic loyalty tokens, or electronic airport departure tags or boarding passes for example.

One embodiment of the invention will now be described by way of example only, with reference to the accompanying drawing which is a somewhat schematic block diagram of a display system.

Referring now to the drawing, an electronic display screen 1, embodies a modulator 2, which serves to modulate electromagnetic radiation unintentionally radiated therefrom, with sales promotion information . The radiation thus modulated, which is essentially short range, is arranged to be received by the mobile phone 3, of a shopper 4, in the immediate vicinity, wherein it is demodulated and made available to the shopper . It is envisaged that the mobile phone 3, will optionally include a

function, which must be selected by the user in order to enable the user to receive the information. Thus, in operation of the system, the mobile phone 3, if appropriately enabled, will provide the user with information, during a shopping trip, appertaining to items/goods/services of interest in the immediate vicinity.

It will be appreciated that the foregoing example, is given by way of example only, and that various other applications using the principle of modulating inadvertently radiated electromagnetic screen radiation to transmit information, as hereinbefore mentioned, will also fall with the scope of this invention such as for example use with display panels in fast food restaurants to communicate with appropriately equipped customers.

CLAIMS.

1. An electronic display system comprising a communication system including modulator means arranged to modulate electromagnetic radiation inadvertently radiated from an electronically operated display with which said modulator means is operatively associated, (e.g. radiation emanating from an electronic screen), for the purpose of transmitting information to portable receivers, whereby the portable receivers are enabled to receive the information.
2. An electronic display system as claimed in Claim 1, wherein the portable receiver is an appropriately adapted mobile phone.
3. An electronic display system as claimed in Claim 1, wherein the portable receiver is an appropriately adapted MP3 player.
4. An electronic display system as claimed in Claim 1, wherein the portable receiver is an appropriately adapted Personal Digital Assistant.
5. An electronic display system as claimed in Claim 1, wherein the portable receiver is an appropriately adapted portable radio.
6. An electronic display system as claimed in Claim 1, wherein the portable receiver is an appropriately adapted music player.
7. An electronic display system as claimed in any preceding claim wherein the electronically operated display, is a plasma display.
8. An electronic display system as claimed in any of claims 1 to 6, wherein the display is an electroluminescent VFD display.
9. An electronic display system as claimed in any of claims 1 to 6, wherein the display is an LCD display.
10. An electronic display system as claimed in any of claims 1 to 6, wherein the display is a CRT display.

11. An electronic display system as claimed in any preceding claim wherein the modulator means comprises software adapted to select and facilitate impression of appropriate modulation chosen in accordance with the application in view.
12. An electronic display system as claimed in any preceding claim used to facilitate communication between a service information centre and members of the public.
13. An electronic display system substantially as hereinbefore described with reference to the accompanying drawing.

1/1

Fig. 1