

It is straightforward to design a music appliance to respond to usage limits of zero (e.g. "do not copy") and infinity (e.g. "unrestricted copying permitted," and "unrestricted playing permitted"). The device simply examines one or more bits in the watermark data, and permits (or refuses) an operation based on the value thereof.

5 Implementation of the other usage-control restrictions can proceed in various ways. Generally speaking, the stored music can be altered to give effect to the usage-control restrictions. For example, if the music is "record-once," then at the time of recording, the appliance can alter the music in a fashion indicating that it now has "do not record" status. This alteration can be done, e.g., by changing the watermark data embedded in the stored music (or  
10 adding watermark data), by changing other data stored in association with the music, etc. If the original signal is stored (as opposed, e.g., to a streaming signal, such as an internet or wireless transmission), it too should be so-altered.

Likewise with playback limitations. The number of playbacks remaining can, e.g., be encoded in an updated watermark in the music, be tracked in a separate counter, etc.

15 More particularly considering the "copy once" usage restriction, an illustrative embodiment provides two distinct watermark payload bits: a "copy once" bit and a "copy never" bit. When originally distributed (whether by internet, wireless, or otherwise), the "copy once" bit is set, and the "copy never" bit is un-set.

When music encoded in this fashion is provided to a compliant recording device, the  
20 device is authorized to make one copy. (A compliant device is one that recognizes encoded watermark data, and behaves as dictated by the watermark.) When this privilege is exercised, the recording device must alter the data to ensure that no further copying is possible. In the illustrated embodiment, this alteration is effected by the recording device adding a second watermark to both the music, with the "copy never" bit asserted. The second watermark must  
25 generally be encoded in an "orthogonal" domain, so that it will be detectable notwithstanding the continued presence of the original watermark. Compliant equipment must then check for both watermarks, and refuse to copy if either is found to have the "copy never" bit asserted.

One advantage to this arrangement is that if the watermark signal has undergone some form of corruption (e.g. scaling or resampling), the first watermark may have been weakened.  
30 In contrast, the second watermark will be native to the corrupted signal, and thus be more easily detected. (The corruption may also contribute to the orthogonality of one watermark relative to the other, since the two watermarks may not have precisely the same time base or other foundation.)

An alternative approach is not to encode the "copy never" bit in the original music, but leave this bit (in whatever manifestation) blank (i.e. neither "1" nor "0"). In transform-based watermark techniques, this can mean leaving transform coefficient(s) corresponding to the "copy never" bit un-changed. If the watermarking is effected in the temporal sample domain  
5 (or spatial domain, for image data), this can mean leaving certain samples (pixels) unmodified. The recording device can then alter the transform coefficients and/or samples as necessary to assert the previously-unencoded "copy never" bit when the permitted recording is made.

In such a system, compliant recording devices check for the "copy never" bit in the sole watermark, and refuse to make a copy if it is asserted (ignoring the value of any "copy  
10 once" bit).

A third approach to "copy once" is to set both the "copy once" and "copy never" bits, but set the former bit very weakly (e.g. using lower gain and/or high frequency DCT coefficients that do not survive certain processing). The frail "copy once" bit is designed not to survive common corruptions, e.g., resampling, scaling, digital to analog conversion, etc. To  
15 further assure that the "copy once" bit is lost, the recording device can deliberately add a weak noise signal that masks this bit (e.g. by adding a noise signal in the frequency band whose DCT coefficient conveys the "copy once" bit). In contrast, the "never copy" bit is unchanged and reliably detectable.

In such a system, compliant devices check for the "copy once" bit in the sole  
20 watermark, and refuse to make a copy if it is not detected as set.

These three examples are but illustrations of many possible techniques for changing the rights associated with a work. Many other techniques are known. See, e.g., the proposals for watermark-based copy control systems for digital video at the Copy Protection Technical Working Group, <http://www.dvcc.com/dhsg/>, from which certain of the foregoing examples are  
25 drawn. See also Bloom et al, "Copy Protection for DVD Video," IEEE Proceedings, Special Issue on Identification and Protection of Multimedia Information, June, 1999.

#### Scaleability

One feature that is desirable in many detector embodiments is scaleability. This refers  
30 to the ability of a detector to scale its computational demands to match the computational resources available to it. If a detector is running on a high performance Pentium III workstation, it should be "doing more" than if the same detector is running on a slow microcontroller. One way scalability can be achieved is by processing more or less chunks of input data (e.g. temporal excerpts of music, or blocks/macroblocks of pixels in a frame of video

data) to decode watermarks. For example, an input audio stream might be broken into chunks of one second each. A fast processor may complete decoding of each chunk in less than a second, permitting it successively to process each chunk in the data stream. In contrast, a slow processor may require two and a half seconds to decode the watermark from a chunk. While it is processing a first chunk, the second and third pass by un-decoded. The processor next grabs and processes the fourth chunk, permitting the fifth and sixth to pass by un-encoded.

The detector running on the fast processor is clearly more difficult to "fool," and yields a decoded watermark of higher confidence. But both systems decode the watermark, and both operate in "real time."

The skipping of input data in the temporal (e.g. music or video) or spatial (e.g. image or video) domain is but one example of how scalability can be achieved. Many other approaches are known to those skilled in the art. Some of these alternatives rely on spending more or less time in the data analysis phases of watermark decoding, such as cross-correlation operations.

Reference has been made to watermarked UIDs as referring to a database from which larger data strings (e.g. web addresses, musician names, etc.) can be retrieved. In some embodiments, the data record referenced by a UID can, in turn, point to several other database records. By such arrangements, it is often possible to reduce the payload of the watermark, since a single UID reference can lead to several different data records.

#### Production Tools

In the prior art, the watermark embedded in a source material is typically consistent and static through a work – unchanging from beginning to end. But as will be recognized from the foregoing, there are many applications that are better served by changing the watermark data dynamically during the course of the work. According to another aspect of the invention, a production tool is provided that facilitates the selection and embedding of dynamically-changing watermark data. One such embodiment is a software program having a user interface that graphically displays the different watermark fields that are being embedded in a work, and presents a library of data (textually or by icons) that can be inserted into each field, and/or permits the user to type in data to be encoded. Another control on the UI controls the advance and rewind of the media, permitting the user to determine the location at which different watermark data begins and ends. Graphical paradigms known from video- and audio-editing tools can be used to indicate the starting and ending frames/samples for each different watermark payload.

Such a tool can be of the standalone variety, or can be integrated into the desktop audio- and video- production and editing tools offered by vendors such as Avid, Adobe, Jaleo, Pinnacle Systems, SoundForge, Sonic Foundry, Xing Technology, Prosoniq, and Sonic Desktop Software.

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#### Payment-Based Systems

Another aspect of the present invention is the use of anonymous payment tokens that can be used to obtain content on the web. In one embodiment, a token comprises a 128-bit pseudo-random number, to which additional bits identifying an issuing bank (or other issuing institution) are appended. (The additional bits can be the IP address of a web server of the bank, a routing number identifying the bank for electronic wire transfers, or other identifier.) The 128-bit numbers are randomly generated by the bank – commonly as needed – and each represents a fixed increment of money, e.g. ten cents.

A consumer wishing to have a store of currency for such commerce pays the bank, e.g., \$10 in exchange for 100 tokens. These tokens are transferred electronically to disk or other storage in the consumer's computer in response, e.g., to a credit card authorization, or may be provided by diskette or other storage medium over the counter at a bank branch (in which case the consumer thereafter copies the numbers into storage of his or her computer). (Outlets other than banks can of course be employed for distributing such numbers, much in the manner that convenience and many grocery stores commonly issue money orders.)

Imagine that the consumer wishes to view the final quarter of a Trailblazer basketball game that aired on television a week ago. (The consumer may have either missed the game, or may have seen it but wants to see the last quarter again.) The user directs a web browser to a web site maintained for such purpose and performs a search to identify the desired program. (Typically, the web site is maintained by the proprietor that holds the copyright in the material, but this need not be the case. Some material may be available at several web sites, e.g., maintained by ABC Sports, the National Basketball Association, and Sports Illustrated.) The search can use any of various known search engines, e.g., Infoseek, Verity, etc., and can permit searching by title terms, keywords, date of airing, copyright owner, etc. By typing in, e.g., the keyword 'Trailblazers' and the date '4/26/99,' the consumer is presented a listing of videos available for download. One, hopefully, is the requested game. With each listing is an indication of an associated nominal charge (e.g. 80 cents).

On clicking on a hypertext link associated with the desired basketball game, the viewer is presented a further screen with one or more options. The first of the listed options is the

entire game, with commercials. The charge is the nominal charge presented on the earlier screen (i.e. 80 cents). Other options may include the first, second, third, and fourth quarters of the game individually, each of which – save the last, costs 20 cents. The last may be charged at a premium rate, e.g., 30 cents. Clicking on the desired video option yields a further screen  
5 through which payment is effected.

To pay for the requested video, the consumer instructs his or her computer to transfer three of the earlier-purchased tokens over the web to the video provider. Various user interface metaphors can be employed to facilitate this transfer, e.g., permitting the user to type the amount of money to be transferred in a dialog box presented on-screen, or dropping/dragging  
10 icons representing tokens from an on-screen “wallet” to an on-screen “ticket booth” (or over an icon or thumbnail representing the desired content), clicking on an “increment” counter displayed adjacent the listing of the content, etc. Once the consumer has authorized a transfer of sufficient tokens, the consumer’s computer sends to the web site (or to such other web address as HTML encoding in the viewed web page may indicate) the tokens. This  
15 transmission simply takes the form of the three 128+ bit numbers (the ‘+’ indicating the bank identifier) – in whatever packet or other format may be used by the internet link. Once dispatched in this manner, the tokens are deleted from the user’s computer, or simply marked as spent. (Of course, in other embodiments, a record of the expenditure may be stored in the consumer’s computer, e.g., with the token contents and a record of the audio or video purchase  
20 to which they were applied.)

Since the amount of money is nominal, no encryption is provided in this embodiment, although encryption can naturally be provided in other embodiments (e.g., either in sending the tokens from the user to the web site, or earlier, in sending the tokens to the user). As will be seen, provided that the media provider immediately sends the tokens to the bank in real time,  
25 encryption is a nice feature but not mandatory

On receipt of the token data, the web site immediately routes the token data to the identified bank, together with an identifier of the media provider or account to which the funds represented thereby are to be credited. The bank checks whether the 128-bit numbers have been issued by that bank, and whether they have already been spent. If the numbers are valid,  
30 the bank updates its disk-based records to indicate that the three tokens have been spent and that the bank now owes the media supplier 30 cents, which it may either pay immediately (e.g., by crediting to an account identified by the media provider) or as one lump sum at the end of the month. The bank then sends a message to the web site confirming that the tokens were valid

and credited to the requested account. (Optionally, a message can be sent to the purchaser of the tokens (if known), reporting that the tokens have been redeemed.)

In response, the web site begins delivery of the requested video to the consumer. In the illustrated embodiment, the video is watermarked prior to delivery, but otherwise sent in unencrypted fashion, typically in streaming format, but optionally in file format. (Encryption can be used in other embodiments.) The watermarking in the illustrated embodiment is accomplished on-the-fly and can include various data, including the date of downloading, the download site, the destination IP address, the identity of the purchaser (if known), etc.

The large size of the video and the small charge assessed therefor provide disincentives for the consumer making illicit copies. (Especially as to archival material whose value decays with time, there is not much after-market demand that could be served by illicit copies, making third party compilation of such material for re-distribution financially unattractive. First run video, and material that keeps a high value over time, would not be as well suited for such distribution, and could better employ technology disclosed elsewhere herein.)

In some embodiments, the integrity of the received video is checked on receipt. This feature is described below in the section entitled Watermark-Based Receipts.

In the illustrative system, nothing in the tokens indicates the identity of the purchaser. The web site knows the IP address of the site to which video was delivered, but need not otherwise know the identity of the purchaser. The bank would probably maintain a record of who purchased the tokens, but need not. In any event, such tokens could thereafter be exchanged among consumers, resulting in anonymity from the bank, if desired.

As described above, the video excerpts from which the consumer can select include commercials. At some sites, video may be provided from which the commercials have been excised, or which is delivered in a manner that skips past the commercials without transmitting same to the consumer. Such video will naturally command a premium price. In some embodiments, the difference in price is electronically credited as compensation to accounts maintained for (or by) the advertisers, whose advertisements are not being viewed by such consumers. (The identification of advertisers to be credited is desirably permanently encoded in the video, either throughout the video (if the video has had the commercials removed therefrom), or by data in the commercials themselves (which commercials are skipped for transmission to the consumer, but can still be decoded at the video head-end. Such encoding can be by in-band watermarking or otherwise.)

While the foregoing discussion particularly considered video as the desired content, the same principles are equally applicable in connection with audio, still imagery, and other content.

5 The token-based payment method is but one of many that can be employed; the literature relating to on-line payment mechanisms is extensive, and all such systems can generally be here-employed.

Tracking 128-bit tokens can be a logistical problem for the bank. One approach is to have a memory with  $10^{128}$  locations, and at each location store a two-bit value (e.g. 00=never issued; 01=issued but not spent; 10=issued and spent; 11=reserved). More complete data could  
10 alternatively be stored, but such a memory would be impractically large.

One alternative approach is to hash each 128-bit number, when issued, to a much smaller key value (e.g. 20 bits). A memory with  $10^{20}$  locations can be indexed by this key. Each such location can include four data: an issued 128-bit token number that hashes to that value, first and second date fields indicating the date/time on which that token was issued and  
15 redeemed, respectively, and a link specifying the address of a next memory location. That next memory location (outside of the original  $10^{20}$  locations) can include four more data, this time for a second issued-128-bit token number that hashed to the original key value, two date fields, and again with a link to a subsequent storage location, etc.

When a 128-bit random number is generated, the original memory location indexed by  
20 the hash code of that number is checked for an earlier number of the identical value (to avoid issuance of duplicate tokens). Each successive location in the linked chain of memory locations is checked for the same 128-bit number. When the end of the linked chain is reached, the bank knows that the 128-bit random number has not previously been issued, and writes that number in the last-addressed location, together with the date of issuance, and a link to a next  
25 storage location.

When a 128-bit token is received, the same linked-list processing occurs to identify a first location, and to thereafter step through each subsequent location until a match is found between the token number and the number stored in one of the linked memory locations. When  
30 found, that number is marked as redeemed by writing a redemption date/time in the corresponding field. If the search reaches the end of the linked chain without finding a match between the stored numbers and the token number, the token is treated as invalid (i.e. not issued by that bank).

Other manners of tracking the large number of possible token numbers can of course be used; the foregoing is just exemplary. Or the tokens needn't be tracked at all. Such an

arrangement is highly practical if the token has sufficient bits. With the illustrated 128 bits, for example, the chance of two identical tokens being issued is infinitesimally small, so checking for duplicate issuance can be omitted if desired. In such case, the bank can simply maintain an ordered list of the token numbers still outstanding and valid. As new tokens are dispensed,  
5 their token numbers are added to the list. As tokens are redeemed, their numbers are deleted from the list. Known list processing techniques can be employed to speed such search, update, and delete actions.

#### Watermark-Based Receipts

10 Pay-for-content applications commonly assume that if content is transmitted from a server (or head-end, etc.), it is necessarily received. Sometimes this assumption is wrong. Network outages and interruptions and internet traffic load can diminish (e.g., dropped video frames), or even negate (e.g., failed delivery), expected consumer enjoyment of content. In such cases, the consumer is left to haggle with the content provider in order to obtain an  
15 adjustment, or refund, of assessed charges.

Watermarks provide a mechanism for confirming receipt of content. If a watermark is detected continuously during a download or other delivery event, a software program (or hardware device) can issue an electronic receipt attesting that the content was properly delivered. This receipt can be stored, and/or sent to the content distributor to confirm delivery.

20 In one embodiment, a content receiving device (e.g., computer, television or set-top box, audio appliance, etc.) periodically decodes a watermark from the received content to confirm its continued reception. For example, every five seconds a watermark detector can decode the watermark and make a record of the decoded data (or simply record the fact of continued detection of the same watermark). When a changed watermark is detected (i.e., reception of a  
25 different content object begins), the duration of the previously-received content is logged, and a receipt is issued.

In a related embodiment, the last portion (e.g., 5 seconds, frame, etc.) of the content bears a different "end of content" watermark that triggers issuance of a receipt. Such a watermark can indicate the length of the content, to serve as a cross-check against the periodic  
30 watermark polling. (E.g., if periodic sampling at 2 second intervals yields 545 samples corresponding to the same content, and if the "end of content" watermark indicates that the content was 1090 seconds long, then receipt of the entire content can be confirmed.)

In another embodiment, the watermark can change during the course of the content by including, e.g., a datum that increments every frame or other increment of time (e.g., frame



number, time stamp, etc.). A watermark detector can monitor the continued incrementing of this datum throughout the content to confirm that no part was garbled (which would destroy the watermark) or was otherwise missing. Again, at the end of delivery, the receiving system can issue a confirmation that XXX frames/seconds/etc. of the identified content were received.

5           One application of such technology is to bill for content based on receipt, rather than transmission. Moreover, billings can be adjusted based on percentage of content-value received. If delivery is interrupted mid-way through (e.g., by the consumer disabling the content-receiving device), the nominal billing for the content can be halved. Some prolonged content, e.g., televised/web-broadcast university classes, cannot be "consumed" in one session,  
10 and are thus particularly well suited for such pay-as-you-consume billing.

          Another application of such technology is in advertising verification. Presently, ads are tracked by transmission or, less frequently, by detection of an embedded code on receipt (*c.f.*, Nielsen Media Research's patents 5,850,249 and 5,737,025). However, such reception-detectors – once triggered – generally do not further note the length of time that the advertising  
15 was received, so the same data is produced regardless of whether only five or fifty seconds of a commercial is presented. Watermark monitoring as contemplated herein allows the duration of the advertising impression to be precisely tracked.

          In one application of this technology, recipients of advertising are provided incentives for viewing advertising in its entirety. For example, a content-receiving device can include a  
20 watermark detector that issues a receipt for each advertisement that is heard/viewed in its entirety. These receipts can be redeemed, e.g., for content tokens as described elsewhere herein, for monetary value, etc. In some embodiments, receipts are generic and can all be applied to a desired premium, regardless of the advertisements through which they were earned. In other embodiments, the receipts are associated with the particular advertisers (or class of  
25 advertisers). Thus, a TV viewer who accumulates 50 receipts from advertising originating from Procter & Gamble may be able to redeem same for a coupon good for \$2.50 off any Procter & Gamble product, or receipts from Delta Airlines may be redeemed for Delta frequency flier miles (e.g., at a rate of one mile per minute of advertising). Such incentives are particularly useful in new forms of media that give the consumer enhanced opportunities to fast-forward or  
30 otherwise skip advertising.

(Although the foregoing "receipt" concept has been described in conjunction with watermark data (and use of watermark technology is believed to be inherently advantageous in this application), the same principles can likewise be implemented with ancillary data conveyed by other means.)

Master Global Address

As suggested above, it is desirable that each piece of content have a web address (the "Master Global Address" (MGA), or "Master IP Address") associated with it. Such address is typically conveyed with the content, e.g., by an IP address watermarked therein.

5 Consider a consumer who downloads a streaming video having an English language soundtrack. The viewer may not speak English, or may otherwise prefer to listen to the soundtrack in another language. The user can decode the watermark data embedded in the video and initiate a link to the associated web address. There the user is presented with a list of  
10 soundtracks for that content object in other languages. The viewer can click on the desired language and receive same via a second simultaneous transmission (e.g., a second socket channel). The consumer's audio/video appliance can substitute the desired audio track for the default English track.

If the streaming video and the alternative soundtrack are hosted on the same server,  
15 synchronization is straightforward. The process governing transmission of the alternative soundtrack identifies the process that is streaming video to the same IP address. Based on SMPTE, or other time/frame data, the former process syncs to the latter. (If the two data streams don't originate through the same server, time/frame data can be relayed as necessary to the alternative soundtrack server to effect synchronization.)

20 Another application of the Master Global Address is to serve as a point to which monitoring stations can report the presence, or passage, of content. Consider, for example, a copyright-aware node through which content signals pass, e.g., a computer node on a network, a satellite transponder, etc. Whenever the node detects passage of a media object (e.g., by reference to a file extension, such as MP3, JPG, AVI, etc.), it sends a "ping" over the internet to  
25 the address encoded in the object, simply reporting passage of the object. Similar monitoring facilities can be provided in end user computers, e.g., reporting FileOpen, FileSave, Printing, or other use of content bearing MGA data.

This system can be expanded to include "ping" and "pong" phases of operation. When a software application (or a user appliance, such as a video or audio playback device)  
30 encounters a media object (e.g., at time of file open, at time of playback, etc.), it pings the MGA site to report the encounter. The MGA site "pongs" back, responding with instructions appropriate to the encounter. For example, if the object requires payment of a fee before full functionality or access is to be granted, the MGA site can respond to the application with instructions that the object be used (e.g., played back) only in some crippled state preventing

the user's full enjoyment (e.g., impaired resolution, or impaired sound quality, or excerpts only, etc.). The MGA site can also inform the user application of the terms (e.g., payment) by which full functionality can be obtained. The application can graphically or audibly present such information to the user, who can authorize a payment, if desired, so that the content can be  
5 enjoyed in a less- (or un-) crippled state. On receipt of the payment authorization, the MGA site can inform the user application that enhanced access/usage rights have been purchased, and that the application may proceed accordingly.

Yet another application of the MGA is to present the user of a content object a menu of options that is customized to that object.

10 In current graphical operating systems, when a user clicks on an icon (e.g., with the right mouse button), a menu is presented detailing actions that can be undertaken in connection with the icon, or the file represented thereby. Such options are pre-programmed (i.e., static), and are typically determined by the operating system based solely on the file extension.

In accordance with this aspect of the present invention, clicking on an icon representing  
15 a media object initiates an internet link to the MGA site associated with the object. The MGA site responds with data that is used to customize the menu of options presented to the user in connection with that particular object.

Consider an icon representing a JPG image file. Right-clicking on the icon may yield a menu that gives the user various options presented by the operating system (e.g., delete,  
20 compress, rename), and additional options customized in accordance with data from the object's MGA site. These customized options may include, e.g.,

- (a) open in 100x150 pixel format for free;
- (b) open in 480x640 pixel format for ten cents;
- (c) open in 960x1280 pixel format for twenty cents;
- 25 (d) purchase rights to use this image in a newsletter having a circulation of under 1000 for \$1.25;
- (e) display a complete listing of license options.

Clicking on options (b) or (c) initiates a commerce application through which funds are electronically transferred to the MGA site (by the above-described tokens or otherwise). In  
30 response, the MGA site responds (e.g., with TCP/IP or HTML instructions) authorizing an application on the user's computer to open the file in the requested manner. (The default application for JPG applications can then automatically be launched, or the computer may first query the user whether another application should be used instead.)

Clicking on option (d) proceeds as above, and permits full use of the image on the computer. Moreover, the MGA site sends a digital certificate to the user's computer memorializing the usage rights purchased by the consumer.

5 In this particular arrangement, no access control is placed on the content, e.g., by encryption, secure container technology, or the like. The nominal fees, and the ease of licensing, make it simple for the user to "do the right thing" and avoid copyright liability. In other embodiments, of course, known access control techniques can be used to limit use of the object until the requisite payment has been made.

Naturally, records of all such transactions are also logged at the MGA site.

10 Clicking on option (e) opens a browser window on the user's computer to a web site that presents a complete listing of license options available for that image. (The address of this web site is included in customization data relayed to the user device from the MGA site, but not explicitly shown to the user on the menu.) Through such web site, the user can select desired rights, effect payment, and receive the necessary authorization for software applications on the user's computer (or other media appliance) to open and/or process the content.

15 The object on which the user "clicks" needn't be an icon. It can be an image or other graphical representation. (And a "click" isn't necessary; a voice command or other signal may be used to the same effect with an audio clip or selection.)

20 Consider the popular merchandising of books and CDs over the internet. A JPG or other image file depicting the cover of a book, or the artwork of a CD cover, can be treated as a media object, and can include a watermarked MGA pointer. Right-clicking on such an image of a book cover could, through the MGA site, present to the user a menu of options that includes – in addition to those normally presented in conjunction with a JPG file – the following:

- 25 (a) "See the review of this book published in the New York Times on April 19, 1999"  
(b) "See the list of reviews of this book at Amazon.com"  
(c) "Enter your own review of this book, for posting on Amazon.com"  
(d) "See today's sales rank of this book at Amazon.com"  
(e) "Purchase this book from Amazon.com for \$16.95"  
30 (f) "Purchase this book from Barnesandnoble.com for \$19.95 and receive a \$5.00 credit towards your next purchase"  
(g) "Link to the web site that tells about the release of this title as a motion picture (presently scheduled to open on October 10, 1999)"  
(h) "Link to the Yahoo listing of web sites relating to this book"

(i) "Search Lycos for listings relating to this book."

If the user selects one of the purchase options from the menu, a pre-stored e-commerce profile -- containing the user name, credit card number, billing address, ship-to address, etc., possibly in the form of an encrypted object -- could be sent to the MGA site (or to the  
5 bookseller) to effect the purchase, or such selection could initiate display of additional screens or sub-menus through which the user would manually enter or select such information for transmission.

Others of the selections cause a new browser window to open on the user's computer, opening to a URL specified in data relayed from the MGA site but not displayed to the user in  
10 the menu. Appropriate HTML instructions can be generated to effect a particular query or other operation at the specified URL.

In some embodiments, the customized menu presents only a single choice in addition to those normally provided by the operating system, e.g., "Link to home." Clicking on this option opens a browser window to a home page at the MGA for that object. On that page, the  
15 user is presented with all of the foregoing options, and more (possibly including advertising graphics or multi-media). Such objects can serve as powerful marketing agents. Returning to the example discussed above, a JPG image file of a book cover may have, as its MGA, a web page hosted by a particular bookseller, providing purchase options and other information for that book. Marketing of books (or CDs, or cars, or consumer appliances, or virtually anything  
20 else) can be effected by disseminating such vendor-issued JPGs as widely as possible. Some book cover JPGs may be distributed by Amazon.com, others by Barnes&Noble.com, others by Borders.com -- each pointing back to a different MGA through which purchase transactions for that book may be performed.

Returning to the MGA-customized menus, these needn't be limited to menus resulting  
25 from clicking on an icon or image (or signaling during an audio excerpt). Drop-down menus in application programs can likewise be populated with customized options, in accordance with customization data obtained from the MGA site for the object presently being accessed or used. Most graphical operating systems and application programs have well developed toolsets permitting such menu customization. Again, other data relayed from the MGA site is not shown  
30 to the user, but is employed by the computer (e.g., a browser program) to carry out menu options selected by the user.

Again the foregoing techniques are equally applicable for still images, audio, video, and other forms of content, and can readily be adapted for use both with general purpose computers, software applications, and specialized media appliances.

While, for expository convenience, the foregoing discussion contemplated embedding a literal URL address in the object as the MGA, more typically this is not the case. Instead, the MGA more commonly comprises identification data for the object (e.g. a 128-bit random ID), together with the URL for a name server computer that serves many (perhaps millions) of such objects (an example of the latter is the Digimarc MarcCentre server).

To obtain the desired data as detailed above, the user's computer (sometimes termed a client computer) links to the name server computer and provides the ID of the object being processed. The name server computer uses this ID to query a database, and obtains from the database the current IP address to which such queries should be routed. The name server computer can relay the request from the client computer to the correct destination address, or can return the correct destination address to the client computer, which can initiate such a link itself. By such arrangement, the IP address ultimately associated with an object can be easily changed as needed, simply by changing the corresponding record in the name server database, without rendering obsolete legacy objects having out-of-date addresses encoded therein.

In some embodiments, the URL of the name server needn't be included in the watermark. In the absence of a specified URL, the client computer may direct such links to a default name server address instead (stored locally or remotely). If that server doesn't recognize the object ID, it can return an error code, or pass the query on to other name servers. Those servers, in turn, can pass the query along to still other name servers if they don't recognize the object ID. In this fashion, an exponentially-large number of name servers might be quickly polled for information relating to the identified object. Alternatively, rather than encoding the complete IP address of the name server in an object watermark, the first N (e.g., 16) bits of the object ID might be used as a short-hand for one of 65,536 predetermined name server addresses, in accordance with data stored locally (e.g., on RAM or disk in the user's computer) or remotely (e.g., at a default name server IP address).

While the basic concept idea behind embedding MGA data within an object is to point to a repository of data about the object, a pointer the other way may be achieved as well.

As noted, the "ping" application of MGA data permits an MGA site to be informed of sites through which its object passes. More generally, the MGA site can log the originating address of each query it receives. Each such address can be presumed to have (or have had) a copy of the corresponding object. Media owners can thereby track the dissemination of copies of their media objects -- at least insofar as use of such objects entails communicating with the associated MGA site.

Such tracking offers a great number of opportunities, some in the area of commerce. The MGA site corresponding to the cover art of a Garth Brooks CD, for example, can provide a listing of IP addresses of persons interested in that CD. Email or promotional data objects (e.g., audio clips) can be sent to that list of addresses when a subsequent Garth Brooks CD is

5 released.

Such tracking also opens up a new dimension of internet searching. Presently, internet search engines use a brute force approach, visiting millions of pages across the web in order to identify, for example, a dozen instances of a given photograph file. MGAs offer a shortcut to such brute force approaches. With the present technology, a search engine can find a single  
10 instance of a photograph file and, by detection of the MGA data watermarked therein, link to the corresponding MGA site. From the MGA site, the search engine can obtain a listing (if such queries are authorized) of some or all of the other sites known by the MGA site to have copies of that photograph file. (Providing such data to search engines is a commerce opportunity for such MGA sites, which may permit such access to its listing of sites only in  
15 exchange for a fee. Or the MGA site may arrange to collect a tribute payment from the search engine proprietor each time the engine responds to a user query using data collected from the MGA site.)

Many of the addresses logged by the MGA may not be publicly-accessible data stores. The search engine can check each listed address to ensure that the desired object is present and  
20 accessible before adding the address to its database.

#### Covert Tracing

Co-pending application 09/185,380 describes anti-counterfeiting technology that looks for the presence of digital data corresponding to bank note imagery in a computer system, and  
25 makes a covert record of any attempt to process such data (e.g., Scan, FileOpen, FileSave, Print, Edit, etc.). Such records are hidden from the user of the system (using, e.g., various data encryption and obscuring techniques), but authorized law enforcement officials are provided tools by which these records can be recovered. The forensic data thereby obtained may prove useful in prosecuting counterfeiters. (Knowledge that a computer may be covertly storing  
30 evidence of attempted counterfeiting actions may prove as, or more, valuable in deterring counterfeiting than the covert records themselves.)

The same techniques can be employed to deter unauthorized processing of audio, image, video, or content by media pirates. In one embodiment, a computer's operating system (including peripheral device drivers) monitors various data within the system (e.g., data sent to

writeable storage media, or sent via a serial port or network connection, etc.) for data bearing a do-not-copy watermark. The presence of such data being sent, e.g., to a writeable disk or to a remote computer, indicates that the do-not-copy instruction has been circumvented. In such case, the operating system writes one or more covert records memorializing the activity, for possible use in criminal prosecution if the computer is lawfully seized.

The example just-provided is but one of many monitoring and response techniques that may be employed to deter circumvention of copy-protection or other access control systems. Generally speaking, if content data is found where it shouldn't be, or is found used as it shouldn't be used, a corresponding record should be made. (Other intervention actions can be triggered as well; covert tracing is desirably just one of several parallel responses to suspected hacking.)

#### Meta-Data Accessed Using Watermarks

Meta-data, in formats known as XML, SGML, and HTML, is widely used to communicate information about digital objects (e.g., author, keywords, price, rights, caption, etc.). More generally, meta-data can be thought of as any data construct which associates the name of a property (e.g., "author"), with the value of the property (e.g., "Mark Twain"). Such data commonly appears in a tag format, such as the following:

```
<META NAME="author" CONTENT="Mark Twain">
```

Meta-data is commonly exchanged between server and client computers in conjunction with the digital objects to which they relate (e.g., the text of a Mark Twain book).

As detailed herein, an important application of watermarking is likewise to convey information about media -- in this case embedded within the media content itself (e.g., providing unique identification, establishing some basic behaviors such as do not copy, and providing links to extended functionality).

For meta-data to be useful, it must be linked to associated content, whether in the context of a browser, application program, operating system, asset management system, search engine, etc. However, as detailed below, the content and the associated meta-tags needn't always be conveyed together.

Consider an application program or other client process that receives a watermarked media object. The watermark includes an MGA for that object (which, as noted above, may not specify an ultimate IP address). Stored at the MGA site is meta-data corresponding to the object. By linking to the MGA site identified by the object's watermark, the client computer



can obtain the meta-data corresponding to the object. This data can be stored at the client computer and used just as any other meta-data, e.g., to define the local functions that should be available for use with that object (e.g., buy, search, etc.)

5 A particular example is an on-line catalog of stock photography. Each photograph is watermarked with MGA data. To identify the photographer, copyright date, price, telephone number, subject, etc., an application program can link to the MGA site for that photograph, and obtain the corresponding meta-data. This data can then be displayed or used as needed. Data objects of disparate formats thus can readily be handled within a single, simple application program, since the program needn't concern itself with the varying formats for the associated meta-data (assuming the name servers provide this data in standardized format). Substantial flexibility in programming and object formatting is thereby achieved.

10 Returning to the internet search engine example described above, MGAs may become recognized as repositories rich in meta-data for media objects. Specialized search engines may focus their data collection around such sites, and be able to quickly identify the MGA sites corresponding to various boolean combinations of meta-tag parameters.

#### Asset Management/Containers

20 Much has been written on the topic of asset rights management. Sample patent documents include U.S. Patents 5,892,900, 5,715,403, 5,638,443, 5,634,012, 5,629,980 and laid-open European application EP 862,318. Much of the technical work is memorialized in journal articles, which can be identified by searching for relevant company names and trademarks such as IBM's Cryptolope system, Portland Software's ZipLock system, the Rights Exchange service by Softbank Net Solutions, and the DigiBox system from InterTrust Technologies.

25 An exemplary asset management system makes content available (e.g. from a web server, or on a new computer's hard disk) in encrypted form. Associated with the encrypted content is data identifying the content (e.g. a preview) and data specifying various rights associated with the content. If a user wants to make fuller use of the content, the user provides a charge authorization (e.g. a credit card) to the distributor, who then provides a decryption key, allowing access to the content. (Such systems are often realized using object-based technology. In such systems, the content is commonly said to be distributed in a "secure container.")

30 Desirably, the content should be marked (personalized/serializable) so that any illicit use of the content (after decryption) can be tracked. This marking can be performed with watermarking, which assures that the mark travels with the content wherever -- and in whatever

form -- it may go. The watermarking can be effected by the distributor -- prior to dissemination of the encrypted object -- such as by encoding a UID that is associated in a database with that particular container. When access rights are granted to that container, the database record can be updated to reflect the purchaser, the purchase date, the rights granted, etc. An alternative is to include a watermark encoder in the software tool used to access (e.g. decrypt) the content. Such an encoder can embed watermark data in the content as it is released from the secure container, before it is provided to the user. The embedded data can include a UID. This UID can be assigned by the distributor prior to disseminating the container. Alternatively, the UID can be a data string not known or created until access rights have been granted. In addition to the UID, the watermark can include other data not known to the distributor, e.g. information specific to the time(s) and manner(s) of accessing the content.

As noted earlier, access rights systems can be realized with watermarks without containers etc. For example, in a trusting world, copyrighted works can be freely available on the web. If a user wishes to make lawful use of the work, the user can decode its watermark to determine the work's terms and conditions of use. This may entail linking to a web site specified by the embedded watermark (directly, or through an intermediate database), which specifies the desired information. The user can then arrange the necessary payment, and use the item knowing that the necessary rights have been secured.

#### 20 Remote Reconfiguration of Watermark Detectors

In some cases, it is desirable to reconfigure watermark detectors remotely. Such functionality is desirable, for example, if a watermark system is hacked or otherwise compromised.

In accordance with this aspect of the present invention, some aspect of a watermark detector's operation is changed in response to a command. The change can take various forms. In watermark systems employing pseudo-random key data (e.g., spread spectrum spreading signals), the pseudo-random signal used for detection can be changed. In systems using DFT processing, the mapping between message bits and DFT coefficients can be changed. In still other systems, the decoding can proceed as before, but the significance of one or more bits can be changed (e.g., bits that were normally interpreted as defining Field A can be interpreted as defining Field B, and vice versa). In yet other systems, the decoding can proceed as before, but the response of a device to a given watermark signal can be changed. In still other systems, a set of software instructions can be re-written or re-ordered to effect a change in detector operation.

The command can be conveyed in various ways. In one embodiment, it can be a trigger bit in the watermark payload. Normally the bit has a value of "0." If the bit has a value of "1," the detector system responds by changing its operation. A trigger pattern can also be established, so that detection of a certain combination of bits in the watermark payload serves to trigger the change. Reserved states of certain data fields are examples of patterns that might be employed.

The command can also be conveyed through another channel different than the watermark channel (e.g., an SCA channel of an FM broadcast, or the sub-titling data channel of video broadcasts, or header data within an MPEG data stream, etc., etc.).

The change can proceed in accordance with a pre-programmed rule (e.g., codes progressing successively through a numerically or algorithmically-determined progression), or the change can proceed in accordance with data specified elsewhere in the payload of the watermark bearing the trigger bit (e.g., instead of being interpreted in normal fashion, the non-trigger bits of the detected watermark can define a new pseudo-random key data. Or the change can proceed in accordance with data conveyed in successively-presented watermark payloads, as might be done in video encoding where each frame of video can convey further watermark information. (This latter arrangement is one offering a high-bandwidth re-programming channel through which, e.g., extensive firmware instructions might be transferred to the detector to replace instructions earlier stored.)

By such arrangements, greatly increased detector versatility and functionality can be achieved.

#### Concluding Remarks

Many diverse embodiments are reviewed above – each with a unique set of features. (Still others are disclosed in the assignee's patents incorporated by reference.) To provide a comprehensive disclosure without unduly lengthening the specification, applicants incorporate by reference the patents and patent applications referenced above.

This specification should be construed as explicitly teaching that features illustrated in one such embodiment can generally be used in other embodiments as well. Thus, for example, a date field was not particularly discussed in connection with payload data for video watermarking. Nor were "play once" watermarks so-considered. The inclusion of a calibration signal with (or as part of) the watermark is shown in embodiments of the issued patents, but is not belabored in the above-described embodiments. Likewise with "simple universal codes." The pre-stored commerce profile described in one of the foregoing embodiments is equally

applicable to other embodiments as well. Likewise, the presentation of advertising was discussed in connection with one embodiment but not others, although it, too, is generally applicable. All of these concepts are familiar at Digimarc and are regarded as generally applicable throughout the work expressed in Digimarc's patent disclosures. Practicality prevents an exhaustive recitation of each individual permutation and combination.

Having described and illustrated the principles of our invention with reference to illustrative embodiments, it will be apparent that the detailed arrangements can be modified in arrangement and detail without departing from such principles.

For example, while reference has been made to various uses of wireless, it should be understood that such reference does not just cover FM broadcast, and wireless internet networking and the like, but also includes other wireless mechanisms. Examples include cell phones and direct satellite broadcast.

Likewise, while certain embodiments were illustrated with a watermark payload of 100+ bits, in other systems much smaller (or sometimes larger) payloads are desirable – sometimes as small as 1-8 bits.

While the foregoing examples have each been illustrated with reference to a particular media type (e.g., video, audio, etc.), it will be recognized that the principles of each embodiment find application with the other media types as well.

Certain of the appliances contemplated above require user interfaces more sophisticated than are presently typical on such devices. The simplicity of the underlying audio appliance can be preserved, in many instances, by using a palmtop computer – coupled by infrared or otherwise – as a temporary user interface to the appliance. Some of the processing capability can likewise be off-loaded to an ancillary palmtop. (Palmtop is here meant to refer generally to any pocket-size programmable computing device.)

Unless otherwise stated, it should be understood that the digital music, video, and imagery contemplated herein is not of any particular form or format. Audio, for example, can be of various forms, both streaming and non-streaming, and of various formats (e.g. MP3, MP4, MS Audio, Windows Media Technologies, RealAudio, \*.WAV, MIDI, Csound, Dolby's Advanced Audio Codec (AAC), etc.

Having described and illustrated the principles of the invention with reference to illustrative embodiments, it should be recognized that the invention is not so limited.

For example, while digital watermarking typically does not leave any human-apparent evidence of alteration or data representation, certain of the foregoing applications do not require this. The markings used may be visible, and even conspicuous, without impairing

essential functionality. Thus, bar codes, data glyphs, OCR markings, and other machine-readable indicia may be substituted, depending on the particular application requirements.

5 While the detailed embodiments were generally described with reference to desktop computers, it is recognized that such devices will increasingly be supplanted by other digital appliances, including general purpose personal digital assistants, multifunction cell phones, and specialized devices. Moreover, the power and utility of the above-detailed embodiments and devices can be further enhanced by employing various wireless communications technologies, including the evolving Bluetooth standard.

10 The implementation of the watermark encoding and decoding systems is straightforward to artisans in the field, and thus not belabored here. Conventionally, such technology is implemented by suitable software, stored in long term memory (e.g., disk, ROM, etc.), and transferred to temporary memory (e.g., RAM) for execution on an associated CPU. In other implementations, the functionality can be achieved by dedicated hardware, or by a combination of hardware and software. Reprogrammable logic, including FPGAs, can  
15 advantageously be employed in certain implementations.

It should be recognized that the particular combinations of elements and features in the above-detailed embodiments are exemplary only; the interchanging and substitution of these teachings with other teachings in this and the incorporated-by-reference patents/applications are also contemplated.

20 In view of the wide variety of embodiments to which the principles and features discussed above can be applied, it should be apparent that the detailed embodiments are illustrative only and should not be taken as limiting the scope of the invention. Rather, we claim as our invention all such modifications as may come within the scope and spirit of the following claims and equivalents thereof.

25

**WE CLAIM**

1. A method comprising:  
encoding digital source material to steganographically convey plural-bit auxiliary data;  
5        passing the encoded source material to a destination through at least one intervening  
computer;  
          at said intervening computer, detecting encoded source material transmitted thereby;  
and  
          crediting a payment in response to said detection of the encoded source material, in  
10        accordance with the plural-bit auxiliary data steganographically conveyed by the encoded  
source material.
2.        The method of claim 1 which includes decoding plural-bit auxiliary data only  
15        from source material that has first been tested to indicate the likely presence of such auxiliary  
data therein.
3.        The method of claim 2 which includes testing source material by reference to  
an encoding attribute that is supplemental to said encoded plural-bit auxiliary data.
- 20        4.        The method of claim 3 in which said attribute is the presence of a characteristic  
signature signal conveyed by said source material.
- 25        5.        The method of claim 4 in which the signature signal is a repetitive noise burst  
signal.
- 30        6.        The method of claim 1 in which said transmitting includes distributing through  
a network of interconnected computers.
7.        The method of claim 1  
reporting said detection to a location remote from detection; and  
crediting royalties based on detection.

8. A method comprising:  
presenting audio source material to a consumer, the material being encoded  
steganographically to convey plural-bit auxiliary data;  
decoding the audio source material that is presented to the consumer to decode the  
5 auxiliary data therefrom; and  
using the plural-bit auxiliary data to retrieve information about the source material  
from a remote location.
9. The method of claim 8 that includes:  
10 storing data indicating the audio source material(s) presented to the consumer;  
generating a report based on the stored data, indicating the audio source material(s)  
presented to the consumer.
10. The method of claim 8 which includes detecting the presented audio source  
15 material with a microphone, and decoding the auxiliary data from a microphone output signal.
11. A method comprising:  
receiving an object steganographically encoded with plural-bit auxiliary data; decoding  
the plural-bit auxiliary data from the object;  
20 consulting a registry to determine a proprietor of the object, by reference to said  
decoded plural-bit auxiliary data; and  
making a payment to said proprietor.
12. The method of claim 11 that includes making said payment through the  
25 registry.
13. The method of claim 11 in which the object is a work of authorship, and the  
encoding adds a generally imperceptible level of noise to the object as it is perceived by a  
consumer thereof.  
30
14. The method of claim 11 in which the registry comprises a database accessible  
through the internet.

15. A method of encoding a digital object, comprising:  
encoding the object with a first information signal, said first information signal having relatively small information content, but permitting rapid decoding; and  
encoding the object with a second information signal, said second information signal conveying more information content than the first information signal, requiring relatively more time to decode; wherein the first and second information signals comprise at least one watermark embedded in the digital object.
16. The method of claim 15 in which the first information signal is a signal indicating to decoding equipment that the object is not to be copied, and the second information signal is a signal conveying information relating to ownership of the object.
17. The method of claim 15 in which:  
the digital object is a digital representation of music; and  
the first information signal is a repetitive signal that is conveyed at a low level within said music.
18. The method of claim 15 in which the first and second signals are independent of each other.
19. The method of claim 15 in which the first and second signals are aspects of a combined watermark signal.
20. A method of processing an object that has been steganographically encoded with first and second information signals, the method comprising:  
decoding from the object the first information signal;  
controlling an operation of an apparatus in accordance with the decoded first information signal; and  
decoding from the object the second information signal, wherein the second information signal conveys a master global address.
21. A method of encoding audio with a marker signal indicating a master global address used to link to a web site, wherein the marker signal is characterized by being in-band and repetitive.



22. A method comprising:  
reading payload data from a watermark on a physical object using a device; and  
using the payload data read by the device in connection with a commercial transaction  
5 involving music related to said object.

23. The method of claim 22 in which the object is a poster having artwork thereon.

24. The method of claim 22 in which the object is a storage medium having a  
10 music video recorded thereon.

25. The method of claim 22 in which the device is a handheld, battery powered  
device.

15 26. A method of altering music data to steganographically insert plural bits of  
watermark data therein, characterized by inserting a first group of said bits for benefit of an  
end-user of the music data, inserting a second group of bits different than the first for benefit of  
an artist whose music is encoded by said music data, and inserting a third group of bits different  
than the first two for benefit of a distributor of the music data.

20 27. The method of claim 26 in which the first group of bits represents an internet  
address of a web site that may be accessed by end-users of the music data.

25 28. The method of claim 26 in which the second group of bits includes bits  
representing a unique identifier for the music data, permitting machine identification of the data  
and royalty credit to the artist.

30 29. The method of claim 26 in which the third group of bits represents usage  
restrictions to which audio appliances are responsive, thereby driving distribution of additional  
copies of the music data.

30. A media object clearinghouse system comprising:  
a media object clearinghouse operable to transfer a media object electronically;  
a watermark decoder in communication with a media object receiver to receive a media  
object signal and operable to decode a watermark from the media object signal identifying the  
5 media object; and  
a transmitter in communication with the decoder for receiving a media object identifier  
derived from the watermark and for transmitting the media object identifier and a user identifier  
to the clearinghouse;  
wherein the media object clearinghouse is operable to identify the media object based  
10 on the media object identifier and the user based on the user identifier and electronically  
transfer a copy of the media object to a predetermined location associated with the user.
31. The media object clearinghouse of claim 30 wherein the predetermined location is  
a computer of the user.  
15
32. The system of claim 30 wherein the clearinghouse is operable to determine a fee  
based at least in part on the media object identifier and to credit an account of the user with the  
fee for the copy of the media object.
- 20 33. The system of claim 30 wherein the predetermined location is a website, and the  
copy is accessible to the user at the website via a user-set password.
34. The system of claim 30 wherein the predetermined location is a personal library of  
the user that is consolidated with libraries of other users in a central location.  
25
35. The system of claim 30 wherein the predetermined location is a personal library of  
the user.
36. The system of claim 35 wherein the clearinghouse and the personal library are  
30 connected via an internet connection and the personal library receives the copy from the  
clearinghouse over the internet connection.
37. The system of claim 35 wherein the personal library is operable to receive the copy  
of the media object from the clearinghouse via a wireless broadcast.

38. The system of claim 35 wherein the personal library provides the copy to a playback device by a wireless broadcast.

5           39. The system of claim 30 wherein the watermark includes a key to information about the media object, and the key is used to look up information about the media object.

40. The system of claim 39 wherein the information about the media object is presented to a user through the media object receiver.

10

41. The system of claim 40 wherein the information is stored in a device including the media object receiver, and the information is updated from a remote source.

15           42. The system of claim 30 wherein the media object receiver includes a user interface that enables a user to select a media object for watermark decoding and that presents information to the user about the media object derived from the watermark.

20           43. The system of claim 30 wherein the media object receiver includes a user interface that enables a user to select a media object for watermark decoding and that enables the user to instruct the clearinghouse to send a copy of the selected media object to another user.

25           44. The system of claim 30 wherein the media object receiver includes a user interface that enables a user to select a media object for watermark decoding and that enables the user to query a database for related information about the selected media object using data derived from the watermark.

45. The system of claim 44 wherein the user interface is operable to present the related information to the user.

30           46. The system of claim 30 wherein the media object is a song and the receiver is a radio operable to receive the song via a radio broadcast.

47. The system of claim 30 wherein the media object is a song and the receiver is an audio player that receives the media object via a computer network.

48. A media object clearinghouse method comprising:  
receiving a media object from a broadcast or electronic transfer;  
decoding a watermark from the media object;  
5 deriving a media object identifier from the watermark;  
transmitting the media object identifier and a user identifier to a clearinghouse;  
in the clearinghouse, identifying the media object based on the media object identifier  
and the user based on the user identifier and electronically transferring a copy of the media  
object to a predetermined location associated with the user.
- 10
49. The method of claim 48 including:  
in the clearinghouse, charging a user account associated with the user identifier with a  
fee for the copy.
- 15
50. A method for linking an audio object with additional information or actions related  
to the audio object comprising:  
decoding a watermark from the media object;  
deriving a master global address from the watermark;  
connecting to a remote device and retrieving additional information associated with the  
20 audio object based on the master global address.
51. The method of claim 50 including:  
retrieving information about the audio object from a web server linked to the audio  
object through the master global address.
- 25
52. The method of claim 50 including retrieving menu options about the audio object  
from a remote device based on the master global address.
53. The method of claim 52 wherein the menu options are responsive to user input to  
30 control use, rendering or playback of the audio object.
54. The method of claim 52 wherein the menu options are responsive to user input to  
initiate electronic payment for the audio object.

55. The method of claim 52 wherein the menu options are combined with standard menu options for a file type associated with the audio object.

5 56. The method of claim 50 including retrieving instructions governing use of the audio object.

57. The method of claim 50 including initiating an electronic commercial transaction relating to the audio object.

10 58. The method of claim 50 including:  
using the master global address to query a server, which in turn looks up an address of a second device to which the query is to be routed.

15 59. The method of claim 58 wherein the second device returns information related to the audio object.

60. The method of claim 59 wherein the information returned by the second device includes a web page.

20 61. An electronic money method comprising:  
establishing secret data, and storing same in a repository accessible by a first party, the secret data having a monetary value ascribed thereto;  
sharing the secret data with a second party in exchange for a fee;  
providing the secret data from the second party to a third party in a commercial  
25 transaction;  
forwarding the secret data from the third party to the first party to determine whether the secret data is valid, said determination being made by reference to the repository; and  
if the secret data is determined to be valid, crediting the third party with the monetary  
value.

30 62. The method of claim 61 in which the secret data is a pseudo-random series of binary bits, the first party is a bank, and the repository is a bank computer.

63. In a method of providing media from a repository to a consumer over the internet,  
an improvement comprising:  
    permitting the consumer to specify whether the media is to include commercials or not;  
    charging the consumer a first fee for providing the media with commercials; and  
5      charging the consumer a second fee higher than the first fee for providing the media  
without the commercials.

64. The method of claim 63 in which the media is video that was earlier broadcast and  
is archived for internet distribution.

10

65. A method for internet distribution of video comprising:  
    displaying to a consumer a listing of video titles;  
    receiving a signal indicative of a video title selected by the user;  
    exchanging a fee;  
15      watermarking the video on-the-fly; and  
    transmitting the video to the consumer.

15

66. The method of claim 65 in which the watermarking includes watermarking the  
video with at least one data from the list comprising: an identifier of the date, an identifier of an  
20 internet site from which the selected video is provided, an identifier of the consumer, and an  
identifier of an internet address to which the selected video is transmitted.

20

67. The method of claim 66 which includes watermarking the video with at least two  
data from said list.

25

68. The method of claim 66 which includes watermarking the video with at least three  
data from said list.

69. The method of claim 66 which includes watermarking the video with all four data  
30 from said list.

30

70. A method of tracing unauthorized media objects comprising:  
    monitoring processing of media objects in a device;

decoding watermarks embedded in the media objects to determine unauthorized processing of the media objects in the device; and  
writing a covert record memorializing unauthorized use of a media object.

5           71. A method of linking a media object with meta data associated with the object comprising:

decoding a watermark embedded in the media object; and  
using information in the watermark to fetch meta data associated with media object from a remote site.

10

72. A method for reconfiguring a watermark detector comprising:

decoding a watermark embedded in a signal of a media type, where the watermark includes a command signal used to trigger a change in operation of the watermark detector; based on the command signal, changing operation of the watermark detector, including  
15 changing how the watermark detector decodes or interprets a watermark in a signal of the media type.

15

73. The method of claim 72 wherein the command signal is represented as one or more bits in a payload of the watermark.

20

74. The method of claim 72 wherein changing operation of the watermark detector comprises re-programming the watermark detector.

25

75. The method of claim 74 wherein changing operation of the watermark detector includes transferring instructions from a remote location to the detector to replace instructions stored earlier in the detector.

30

76. The method of claim 72 wherein changing operation of the watermark detector includes changing the watermark detector in accordance with a preprogrammed rule in the watermark detector.

77. The method of claim 76 wherein the preprogrammed rule defines a change in a watermark key.

78. The method of claim 72 wherein changing operation of the watermark detector includes changing a watermark key used to decode a watermark.

5 79. The method of claim 78 wherein the watermark key comprises pseudo-random key data.

80. The method of claim 72 wherein changing the operation of the watermark detector includes changing how the detector interprets one or more bits of a watermark payload.

10 81. The method of claim 72 wherein changing the operation of the watermark detector includes changing a response of a device to a watermark signal.

82. The method of claim 72 wherein the command signal comprises a combination of bits of a watermark payload.

15 83. The method of claim 72 including:  
changing the operation of the watermark detector with data provided in a watermark payload.

20 84. The method of claim 83 wherein the command signal comprises a one or more bit trigger in the watermark payload.

85. The method of claim 83 wherein the data comprises a watermark key in the watermark payload.

25 86. The method of claim 85 wherein the watermark key comprises pseudo-random key data.

30 87. The method of claim 83 wherein successively-presented watermark payloads in the signal provide the data used to change the operation of the watermark detector.

88. A method for reconfiguring a watermark detector comprising:  
receiving a media object and a command associated with the media object signaling that the watermark detector requires an upgrade to decode a watermark from the media object;



in response to the command, updating the watermark detector to create an updated watermark detector; and  
decoding the watermark from the media object with the updated watermark detector.

5           89. The method of claim 88 wherein the command is embedded into the media object in a watermark.

          90. The method of claim 88 wherein the command is conveyed in channel different than a watermark channel in the media object, and the channel conveying the command is  
10           transmitted along with the media object.

          91. The method of claim 90 wherein the command is conveyed in a header of a file including the media object.

15           92. A re-programmable watermark detector comprising:  
          a watermark decoder for detecting a command to upgrade the detector; and  
          detector instructions that are replaceable in response to detecting the command to upgrade the detector.

20           93. The detector of claim 92 wherein new instructions are conveyed to the watermark detector along with a media object.

          94. The detector of claim 93 wherein the new instructions are conveyed in a watermark payload to the watermark decoder for decoding.

25           95. The detector of claim 93 wherein the detector decodes watermarks embedded in media objects of a media type, and the new instructions are conveyed along with at least one media object of the media type in a channel different than a watermark embedded in the at least one media object.

30           96. The detector of claim 95 wherein the new instructions are provided in a media object file that includes a media object of the media type.

          97. The detector of claim 96 wherein the media object comprises an image signal.

98. The detector of claim 96 wherein the media object comprises an audio signal.

99. A method of an encoding an upgrade trigger in a watermark comprising:

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receiving a media object of a given media type;

encoding a watermark into the media object, where the watermark includes a command signal used to trigger a change in operation of a watermark detector, the change being operable to change how the watermark detector decodes or interprets a watermark in a signal of the media type.

10

100. The method of claim 99 including encoding the command in a payload of the watermark.

101. The method of claim 99 including encoding one or more instructions in the

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payload of the watermark.

102. The method of claim 99 including:

transmitting the encoded media object to one or more watermark detectors from a location remote to the one or more watermark detectors.

20

103. A method for encoding a media object comprising:

encoding a watermark into the media object; and

encrypting the media object;

wherein the watermark includes information used to track the media object after

25

being decrypted.

104. A method for encoding a media object comprising:

decrypting the media object from a secure container;

after decrypting the media object, encoding a watermark into the media object.

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105. The method of claim 104 wherein the watermark includes a data string not known or created until access rights have been granted to the secure container.

106. The method of claim 105 wherein the data string includes information specific to a time or manner of accessing the media object.

35

**SUBSTITUTE SHEET (RULE 26)**

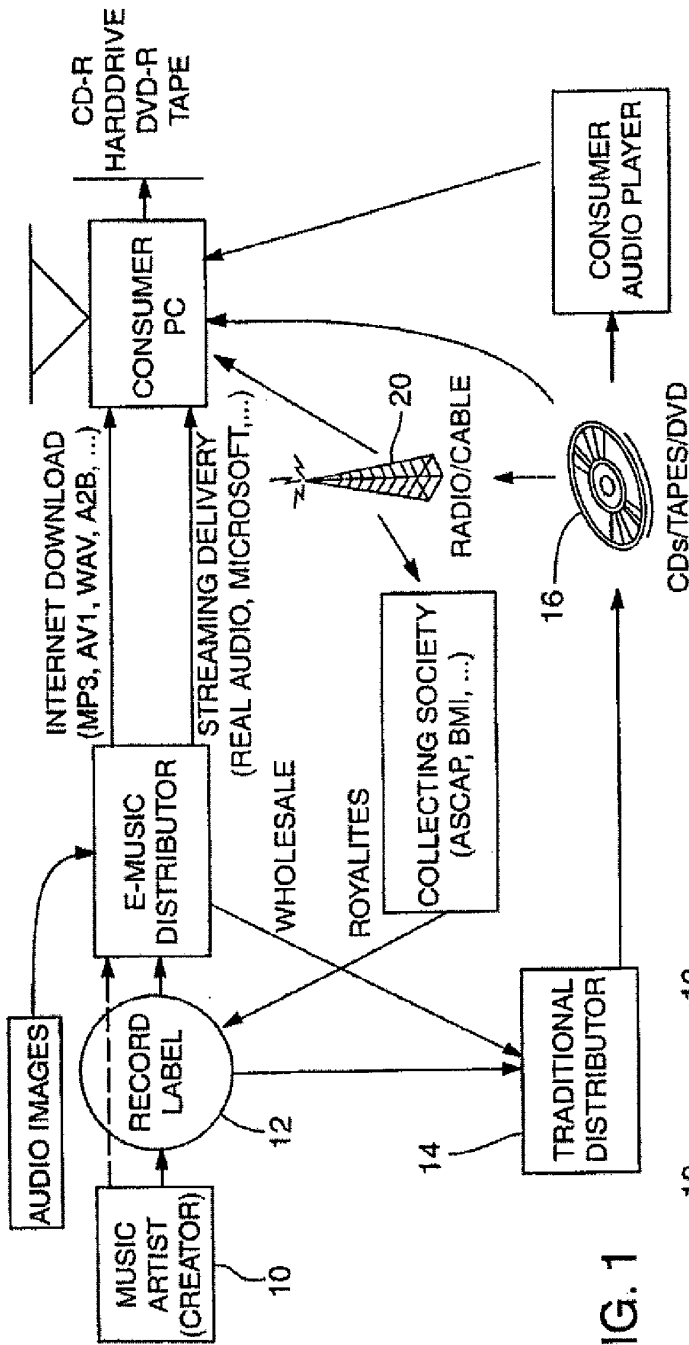


FIG. 1

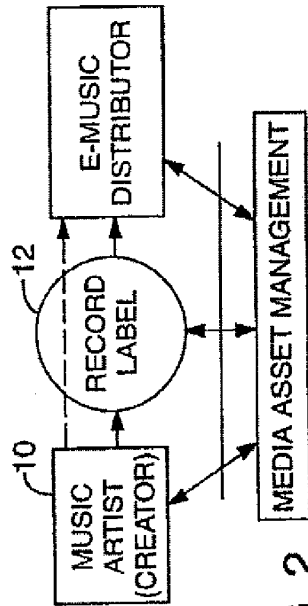


FIG. 2

INTERNATIONAL SEARCH REPORT

International application No.  
PCT/US00/13798

<p><b>A. CLASSIFICATION OF SUBJECT MATTER</b>                  IPC(7) : G06F 17/60                  US CL : 705/52                  According to International Patent Classification (IPC) or to both national classification and IPC</p>																																
<p><b>B. FIELDS SEARCHED</b>                  Minimum documentation searched (classification system followed by classification symbols)                  U.S. : 705/52</p> <p>Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched</p> <p>Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)                  WEST, Dialog, IBM Bulletin, EPO, JPO</p>																																
<p><b>C. DOCUMENTS CONSIDERED TO BE RELEVANT</b></p> <table border="1"> <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>Y</td> <td>US 5,613,004 A (COOPERMAN ET AL) 18 MARCH 1997, title, col 4, lines 10-15, col 7, lines 50-51, 59-60, col 14, lines 18, 39 to col 23</td> <td>1-106</td> </tr> <tr> <td>Y</td> <td>US 5,710,834 A (RHOADS) 20 JANUARY 1998, abstract, col 3, lines 42-67, col 53, lines 42-43, col 65, lines 20-21, Figs. 22-26 and 27-29</td> <td>1-106</td> </tr> <tr> <td>Y</td> <td>US 5,822,432 A (MOSKOWITZ ET AL) 13 OCTOBER 1998, abstract, lines 1-4, 17-23, col 3, line 15-col 4, lines 1-56, col 7, line 44-col 9, lines 1-28, col 9, line 29-col 10, line 30</td> <td>1-106</td> </tr> </tbody> </table> <p><input type="checkbox"/> Further documents are listed in the continuation of Box C.    <input type="checkbox"/> See patent family annex.</p> <table border="0"> <tr> <td>* Special categories of cited documents</td> <td>*T</td> <td>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</td> </tr> <tr> <td>*A document defining the general state of the art which is not considered to be of particular relevance</td> <td>*X</td> <td>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</td> </tr> <tr> <td>*B earlier document published on or after the international filing date</td> <td>*Y</td> <td>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</td> </tr> <tr> <td>*L document which may throw doubts on priority claims or which is cited to establish the publication date of another citation or other special reason (as specified)</td> <td>*Z</td> <td>document member of the same patent family</td> </tr> <tr> <td>*O document referring to an oral disclosure, use, exhibition or other means</td> <td></td> <td></td> </tr> <tr> <td>*P document published prior to the international filing date but later than the priority date claimed</td> <td></td> <td></td> </tr> </table>			Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.	Y	US 5,613,004 A (COOPERMAN ET AL) 18 MARCH 1997, title, col 4, lines 10-15, col 7, lines 50-51, 59-60, col 14, lines 18, 39 to col 23	1-106	Y	US 5,710,834 A (RHOADS) 20 JANUARY 1998, abstract, col 3, lines 42-67, col 53, lines 42-43, col 65, lines 20-21, Figs. 22-26 and 27-29	1-106	Y	US 5,822,432 A (MOSKOWITZ ET AL) 13 OCTOBER 1998, abstract, lines 1-4, 17-23, col 3, line 15-col 4, lines 1-56, col 7, line 44-col 9, lines 1-28, col 9, line 29-col 10, line 30	1-106	* Special categories of cited documents	*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	*A document defining the general state of the art which is not considered to be of particular relevance	*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	*B earlier document published on or after the international filing date	*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	*L document which may throw doubts on priority claims or which is cited to establish the publication date of another citation or other special reason (as specified)	*Z	document member of the same patent family	*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		
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## Electronic Patent Application Fee Transmittal

<b>Application Number:</b>	12015320			
<b>Filing Date:</b>	16-Jan-2008			
<b>Title of Invention:</b>	Method for Managing Media			
<b>First Named Inventor/Applicant Name:</b>	Russell W. White			
<b>Filer:</b>	Mark J. Rozman/Stephanie Petreas			
<b>Attorney Docket Number:</b>	AFF.0004C5US			
Filed as Large Entity				
<b>Utility under 35 USC 111(a) Filing Fees</b>				
<b>Description</b>	<b>Fee Code</b>	<b>Quantity</b>	<b>Amount</b>	<b>Sub-Total in USD(\$)</b>
<b>Basic Filing:</b>				
<b>Pages:</b>				
<b>Claims:</b>				
<b>Miscellaneous-Filing:</b>				
<b>Petition:</b>				
<b>Patent-Appeals-and-Interference:</b>				
<b>Post-Allowance-and-Post-Issuance:</b>				
<b>Extension-of-Time:</b>				

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
<b>Miscellaneous:</b>				
Submission- Information Disclosure Stmt	1806	1	180	180
<b>Total in USD (\$)</b>				<b>180</b>

## Electronic Acknowledgement Receipt

<b>EFS ID:</b>	7120006
<b>Application Number:</b>	12015320
<b>International Application Number:</b>	
<b>Confirmation Number:</b>	2156
<b>Title of Invention:</b>	Method for Managing Media
<b>First Named Inventor/Applicant Name:</b>	Russell W. White
<b>Customer Number:</b>	21906
<b>Filer:</b>	Mark J. Rozman/Stephanie Petreas
<b>Filer Authorized By:</b>	Mark J. Rozman
<b>Attorney Docket Number:</b>	AFF.0004C5US
<b>Receipt Date:</b>	02-MAR-2010
<b>Filing Date:</b>	16-JAN-2008
<b>Time Stamp:</b>	11:57:51
<b>Application Type:</b>	Utility under 35 USC 111(a)

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<b>Warnings:</b>					
<b>Information:</b>					
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Doc code: IDS

Doc description: Information Disclosure Statement (IDS) Filed

PTO/SB/08a (07-09)

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<b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b> ( Not for submission under 37 CFR 1.99)	Application Number		12015320
	Filing Date		2008-01-16
	First Named Inventor	Russell White, et al.	
	Art Unit	2617	
	Examiner Name	Erika A. Gary	
	Attorney Docket Number	AFF.004C5US	

U.S.PATENTS						
Examiner Initial*	Cite No	Patent Number	Kind Code <sup>1</sup>	Issue Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines where Relevant Passages or Relevant Figures Appear
	1	5974333		1999-10-26	Chen	
	2	6418330		2002-07-09	Samsung	
	3	6587127		2003-07-01	Leeke, et al.	
	4	7123936		2006-10-17	Rydbeck, et al.	
	5	6177950		2001-01-23	Robb	
	6	6510325		2003-01-21	Mack, II, et al.	
	7	62788842		2001-08-21	Kim	
	8	7339993		2008-03-04	Brooks	

<b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b> ( Not for submission under 37 CFR 1.99)	Application Number	12015320
	Filing Date	2008-01-16
	First Named Inventor	Russell White, et al.
	Art Unit	2617
	Examiner Name	Erika A. Gary
	Attorney Docket Number	AFF.004C5US

	9	6917923		2005-12-06	Dimenstein	
	10	6157619		2000-12-05	Ozluturk	
	11	6609105		2003-08-19	Van Zoest, et al.	
	12	6353637		2002-03-05	Mansour, et al.	
	13	7444353		2008-10-28	Chen	
	14	5963916		1999-10-05	Kaplan	
	15	5956651		1999-09-21	Willkie	

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Examiner Initial*	Cite No	Publication Number	Kind Code <sup>1</sup>	Publication Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines where Relevant Passages or Relevant Figures Appear
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<b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b> ( Not for submission under 37 CFR 1.99)	Application Number		12015320	
	Filing Date		2008-01-16	
	First Named Inventor	Russell White, et al.		
	Art Unit	2617		
	Examiner Name	Erika A. Gary		
	Attorney Docket Number	AFF.004C5US		

Examiner Initial*	Cite No	Foreign Document Number <sup>3</sup>	Country Code <sup>2</sup>	Kind Code <sup>4</sup>	Publication Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines where Relevant Passages or Relevant Figures Appear	T <sup>5</sup>
	1	WO 00/70523	WO		2000-11-23	Digimarc Corporation		<input type="checkbox"/>

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	1	Nokia 9110 Communicator User Manual, Copyright 1999.	<input type="checkbox"/>
	2	Sony, "Sony Notebook Computer User Guide PCG-717/719," User Guide, 1997.	<input type="checkbox"/>
	3	AirCard, "Sierra Wireless Announces First Cellular Network Interface Card for Notebook PCs," June 21, 1999.	<input type="checkbox"/>
	4	MusicMatch Internet Music System, " MusicMatch Jukebox Reviews," March 4, 2000, May 8, 1999, August 29, 1999, May 8, 1999, February 4, 1997, August 12, 1999, January 24, 2000, January 25, 2000, February 22, 2000, Pages 1-32.	<input type="checkbox"/>
	5	Bluetooth, "Specification of the Bluetooth System, Profiles," December 1, 1999.	<input type="checkbox"/>
	6	Bluetooth, "Specification of the Bluetooth System, Profiles," December 1, 1999.	<input type="checkbox"/>
	7	J. SCHNEIDAWIND, "Big Blue Unveiling," USA Today, November 23, 1992, page 2B.	<input type="checkbox"/>

**INFORMATION DISCLOSURE  
STATEMENT BY APPLICANT**  
( Not for submission under 37 CFR 1.99)

Application Number		12015320
Filing Date		2008-01-16
First Named Inventor	Russell White, et al.	
Art Unit	2617	
Examiner Name	Erika A. Gary	
Attorney Docket Number	AFF.004C5US	

8	Nokia Suomi, "Range of suspension GSM products unveiled: Nokia's innovations offer a new dimension to mobile communication," March 13, 1996, 1 page.	<input type="checkbox"/>
9	Nokia 9000i User's Manual, Copyright 1995-1997.	<input type="checkbox"/>
10	FCC Website, "Broadband PCS," available at <a href="http://wireless.fcc.gov/services/index.htm?job=service_home&amp;id=broadband_pcs">http://wireless.fcc.gov/services/index.htm?job=service_home&amp;id=broadband_pcs</a> (accessed November 9, 2009).	<input type="checkbox"/>
11	RealNetworks, "RealPlayer plus, RealPlayer 7 Plus User Manual," Copyright 2000, March 6, 2000.	<input type="checkbox"/>
12	DAVID POGUE, "SoundJam MP Digital Audio System Manual," 1999.	<input type="checkbox"/>
13	iTunes Wikipedia Page, <a href="http://en.wikipedia.org/wiki/iTunes">http://en.wikipedia.org/wiki/iTunes</a> , accessed July 31, 2009.	<input type="checkbox"/>
14	K. JOST, "The Car as a Mobile-Media Platform," Automotive Engineering International, May 1998, Pages 49-53.	<input type="checkbox"/>
15	S.K. KIRSCHNER, "Wired Wheels," Popular Science, March 1998, Pages 54-55.	<input type="checkbox"/>
16	R. LIND, et al., "The Network Vehicle - A Glimpse into the Future of Mobile Multi-Media," 17th AIAA/IEEE/SAE Digital Avionics Sys. Conference Proceedings, October 31 to November 7, 1998, at I21-1 to I21-8.	<input type="checkbox"/>

If you wish to add additional non-patent literature document citation information please click the Add button

**EXAMINER SIGNATURE**

Examiner Signature		Date Considered	
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\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

<b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b> ( Not for submission under 37 CFR 1.99)	Application Number	12015320
	Filing Date	2008-01-16
	First Named Inventor	Russell White, et al.
	Art Unit	2617
	Examiner Name	Erika A. Gary
	Attorney Docket Number	AFF.004C5US

<sup>1</sup> See Kind Codes of USPTO Patent Documents at [www.USPTO.GOV](http://www.USPTO.GOV) or MPEP 901.04. <sup>2</sup> Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). <sup>3</sup> For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>4</sup> Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. <sup>5</sup> Applicant is to place a check mark here if English language translation is attached.

<b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b> ( Not for submission under 37 CFR 1.99)	Application Number	12015320
	Filing Date	2008-01-16
	First Named Inventor	Russell White, et al.
	Art Unit	2617
	Examiner Name	Erika A. Gary
	Attorney Docket Number	AFF.004C5US

**CERTIFICATION STATEMENT**

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

**OR**

That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

- See attached certification statement.
- Fee set forth in 37 CFR 1.17 (p) has been submitted herewith.
- None

**SIGNATURE**

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/Mark J. Rozman/	Date (YYYY-MM-DD)	2010-03-02
Name/Print	Mark J. Rozman	Registration Number	42117

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1 hour to complete, including gathering, preparing and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. **DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**



## Electronic Acknowledgement Receipt

<b>EFS ID:</b>	7120289
<b>Application Number:</b>	12015320
<b>International Application Number:</b>	
<b>Confirmation Number:</b>	2156
<b>Title of Invention:</b>	Method for Managing Media
<b>First Named Inventor/Applicant Name:</b>	Russell W. White
<b>Customer Number:</b>	21906
<b>Filer:</b>	Mark J. Rozman/Stephanie Petreas
<b>Filer Authorized By:</b>	Mark J. Rozman
<b>Attorney Docket Number:</b>	AFF.0004C5US
<b>Receipt Date:</b>	02-MAR-2010
<b>Filing Date:</b>	16-JAN-2008
<b>Time Stamp:</b>	12:20:20
<b>Application Type:</b>	Utility under 35 USC 111(a)

### Payment information:

Submitted with Payment	no
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If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

**National Stage of an International Application under 35 U.S.C. 371**

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

**New International Application Filed with the USPTO as a Receiving Office**

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Doc code: IDS

Doc description: Information Disclosure Statement (IDS) Filed

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PTO/SB/08a (07-09)

Approved for use through 07/31/2012. OMB 0651-0031

U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

<b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b> ( Not for submission under 37 CFR 1.99)	Application Number		12015320	
	Filing Date		2008-01-16	
	First Named Inventor	Russell White, et al.		
	Art Unit		2617	
	Examiner Name	Erika A. Gary		
	Attorney Docket Number	AFF.004C5US		

U.S.PATENTS						
Examiner Initial*	Cite No	Patent Number	Kind Code <sup>1</sup>	Issue Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines where Relevant Passages or Relevant Figures Appear
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U.S.PATENT APPLICATION PUBLICATIONS						
Examiner Initial*	Cite No	Publication Number	Kind Code <sup>1</sup>	Publication Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines where Relevant Passages or Relevant Figures Appear
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FOREIGN PATENT DOCUMENTS								
Examiner Initial*	Cite No	Foreign Document Number <sup>3</sup>	Country Code <sup>2</sup>	Kind Code <sup>4</sup>	Publication Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines where Relevant Passages or Relevant Figures Appear	T <sup>5</sup>
	1							<input type="checkbox"/>

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Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published.	T <sup>5</sup>

<b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b> ( Not for submission under 37 CFR 1.99)	Application Number		12015320
	Filing Date		2008-01-16
	First Named Inventor	Russell White, et al.	
	Art Unit		2617
	Examiner Name	Erika A. Gary	
	Attorney Docket Number		AFF.004C5US

1	Request for Inter Partes Reexamination of U.S. Patent No. 7,187,947, filed on November 13, 2009, with accompanying Claim Charts.	<input type="checkbox"/>
2	Request for Inter Partes Reexamination of U.S. Patent No. 7,440,772, filed on November 13, 2009, with accompanying Claim Charts.	<input type="checkbox"/>
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4	Request for Inter Partes Reexamination of U.S. Patent No. 7,486,926, filed on November 13, 2009, with accompanying Claim Charts.	<input type="checkbox"/>
5	Request for Inter Partes Reexamination of U.S. Patent No. 7,634,228, filed on February 3, 2010, with accompanying Claim Charts.	<input type="checkbox"/>

If you wish to add additional non-patent literature document citation information please click the Add button

**EXAMINER SIGNATURE**

Examiner Signature		Date Considered	
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\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

<sup>1</sup> See Kind Codes of USPTO Patent Documents at [www.USPTO.GOV](http://www.USPTO.GOV) or MPEP 901.04. <sup>2</sup> Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). <sup>3</sup> For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>4</sup> Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. <sup>5</sup> Applicant is to place a check mark here if English language translation is attached.

<b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b> ( Not for submission under 37 CFR 1.99)	Application Number	12015320
	Filing Date	2008-01-16
	First Named Inventor	Russell White, et al.
	Art Unit	2617
	Examiner Name	Erika A. Gary
	Attorney Docket Number	AFF.004C5US

**CERTIFICATION STATEMENT**

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See attached certification statement.

Fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

None

**SIGNATURE**

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/Mark J. Rozman/	Date (YYYY-MM-DD)	2010-03-02
Name/Print	Mark J. Rozman	Registration Number	42117

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1 hour to complete, including gathering, preparing and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. **DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

## Electronic Patent Application Fee Transmittal

<b>Application Number:</b>	12015320			
<b>Filing Date:</b>	16-Jan-2008			
<b>Title of Invention:</b>	Method for Managing Media			
<b>First Named Inventor/Applicant Name:</b>	Russell W. White			
<b>Filer:</b>	Mark J. Rozman/Stephanie Petreas			
<b>Attorney Docket Number:</b>	AFF.0004C5US			
Filed as Large Entity				
<b>Utility under 35 USC 111(a) Filing Fees</b>				
<b>Description</b>	<b>Fee Code</b>	<b>Quantity</b>	<b>Amount</b>	<b>Sub-Total in USD(\$)</b>
<b>Basic Filing:</b>				
<b>Pages:</b>				
<b>Claims:</b>				
<b>Miscellaneous-Filing:</b>				
<b>Petition:</b>				
<b>Patent-Appeals-and-Interference:</b>				
<b>Post-Allowance-and-Post-Issuance:</b>				
<b>Extension-of-Time:</b>				



Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
<b>Miscellaneous:</b>				
Submission- Information Disclosure Stmt	1806	1	180	180
<b>Total in USD (\$)</b>				<b>180</b>

## Electronic Acknowledgement Receipt

<b>EFS ID:</b>	7120679
<b>Application Number:</b>	12015320
<b>International Application Number:</b>	
<b>Confirmation Number:</b>	2156
<b>Title of Invention:</b>	Method for Managing Media
<b>First Named Inventor/Applicant Name:</b>	Russell W. White
<b>Customer Number:</b>	21906
<b>Filer:</b>	Mark J. Rozman/Stephanie Petreas
<b>Filer Authorized By:</b>	Mark J. Rozman
<b>Attorney Docket Number:</b>	AFF.0004C5US
<b>Receipt Date:</b>	02-MAR-2010
<b>Filing Date:</b>	16-JAN-2008
<b>Time Stamp:</b>	12:56:43
<b>Application Type:</b>	Utility under 35 USC 111(a)

### Payment information:

Submitted with Payment	yes
Payment Type	Deposit Account
Payment was successfully received in RAM	\$180
RAM confirmation Number	11236
Deposit Account	201504
Authorized User	

The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:

Charge any Additional Fees required under 37 C.F.R. Section 1.21 (Miscellaneous fees and charges)

<b>File Listing:</b>					
<b>Document Number</b>	<b>Document Description</b>	<b>File Name</b>	<b>File Size(Bytes)/ Message Digest</b>	<b>Multi Part /.zip</b>	<b>Pages (if appl.)</b>
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<p><b>This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.</b></p> <p><b><u>New Applications Under 35 U.S.C. 111</u></b>  <b>If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.</b></p> <p><b><u>National Stage of an International Application under 35 U.S.C. 371</u></b>  <b>If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.</b></p> <p><b><u>New International Application Filed with the USPTO as a Receiving Office</u></b>  <b>If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.</b></p>					

Doc code: IDS

Doc description: Information Disclosure Statement (IDS) Filed

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

PTO/SB/08a (07-09)

Approved for use through 07/31/2012. OMB 0651-0031

U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

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	Examiner Name	Erika A. Gary		
	Attorney Docket Number	AFF.004C5US		

U.S.PATENTS						
Examiner Initial*	Cite No	Patent Number	Kind Code <sup>1</sup>	Issue Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines where Relevant Passages or Relevant Figures Appear
	1					

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U.S.PATENT APPLICATION PUBLICATIONS						
Examiner Initial*	Cite No	Publication Number	Kind Code <sup>1</sup>	Publication Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines where Relevant Passages or Relevant Figures Appear
	1					

If you wish to add additional U.S. Published Application citation information please click the Add button.

FOREIGN PATENT DOCUMENTS								
Examiner Initial*	Cite No	Foreign Document Number <sup>3</sup>	Country Code <sup>2</sup>	Kind Code <sup>4</sup>	Publication Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines where Relevant Passages or Relevant Figures Appear	T <sup>5</sup>
	1							<input type="checkbox"/>

If you wish to add additional Foreign Patent Document citation information please click the Add button

NON-PATENT LITERATURE DOCUMENTS			
Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published.	T <sup>5</sup>

<b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b> ( Not for submission under 37 CFR 1.99)	Application Number	12015320
	Filing Date	2008-01-16
	First Named Inventor	Russell White, et al.
	Art Unit	2617
	Examiner Name	Erika A. Gary
	Attorney Docket Number	AFF.004C5US

1	Request for Inter Partes Reexamination of U.S. Patent No. 7,187,947, filed on November 13, 2009, with accompanying Claim Charts.	<input type="checkbox"/>
2	Request for Inter Partes Reexamination of U.S. Patent No. 7,440,772, filed on November 13, 2009, with accompanying Claim Charts.	<input type="checkbox"/>
3	Request for Inter Partes Reexamination of U.S. Patent No. 7,324,833, filed on November 13, 2009, with accompanying Claim Charts.	<input type="checkbox"/>
4	Request for Inter Partes Reexamination of U.S. Patent No. 7,486,926, filed on November 13, 2009, with accompanying Claim Charts.	<input type="checkbox"/>
5	Request for Inter Partes Reexamination of U.S. Patent No. 7,634,228, filed on February 3, 2010, with accompanying Claim Charts.	<input type="checkbox"/>

If you wish to add additional non-patent literature document citation information please click the Add button

**EXAMINER SIGNATURE**

Examiner Signature		Date Considered	
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\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

<sup>1</sup> See Kind Codes of USPTO Patent Documents at [www.USPTO.GOV](http://www.USPTO.GOV) or MPEP 901.04. <sup>2</sup> Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). <sup>3</sup> For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>4</sup> Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. <sup>5</sup> Applicant is to place a check mark here if English language translation is attached.

<b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b> ( Not for submission under 37 CFR 1.99)	Application Number	12015320
	Filing Date	2008-01-16
	First Named Inventor	Russell White, et al.
	Art Unit	2617
	Examiner Name	Erika A. Gary
	Attorney Docket Number	AFF.004C5US

**CERTIFICATION STATEMENT**

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

**OR**

That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

See attached certification statement.

Fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

None

**SIGNATURE**

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/Mark J. Rozman/	Date (YYYY-MM-DD)	2010-03-02
Name/Print	Mark J. Rozman	Registration Number	42117

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1 hour to complete, including gathering, preparing and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. **DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**



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<b>EFS ID:</b>	7121069
<b>Application Number:</b>	12015320
<b>International Application Number:</b>	
<b>Confirmation Number:</b>	2156
<b>Title of Invention:</b>	Method for Managing Media
<b>First Named Inventor/Applicant Name:</b>	Russell W. White
<b>Customer Number:</b>	21906
<b>Filer:</b>	Mark J. Rozman/Stephanie Petreas
<b>Filer Authorized By:</b>	Mark J. Rozman
<b>Attorney Docket Number:</b>	AFF.0004C5US
<b>Receipt Date:</b>	02-MAR-2010
<b>Filing Date:</b>	16-JAN-2008
<b>Time Stamp:</b>	13:31:21
<b>Application Type:</b>	Utility under 35 USC 111(a)

### Payment information:

Submitted with Payment	no
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### File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
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### Information:

This is not an USPTO supplied IDS fillable form					
2	NPL Documents	AFF004B5ClaimChart1.pdf	5603647 b2739d6bf289b6885afed007472bb092d66e4bc	no	116
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<b>Information:</b>					
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<b>Information:</b>					
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<b>Information:</b>					
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<b>Information:</b>					
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<b>Information:</b>					
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<b>Information:</b>					
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<b>Warnings:</b>					
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<b>Information:</b>					
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<b>Information:</b>					
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<b>Information:</b>					
<b>Total Files Size (in bytes):</b>				64408008	
<p><b>This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.</b></p> <p><b><u>New Applications Under 35 U.S.C. 111</u></b>  <b>If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.</b></p> <p><b><u>National Stage of an International Application under 35 U.S.C. 371</u></b>  <b>If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.</b></p> <p><b><u>New International Application Filed with the USPTO as a Receiving Office</u></b>  <b>If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.</b></p>					

Doc code: IDS

Doc description: Information Disclosure Statement (IDS) Filed

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

PTO/SB/08a (07-09)

Approved for use through 07/31/2012. OMB 0651-0031

U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

<b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b> ( Not for submission under 37 CFR 1.99)	Application Number		12015320	
	Filing Date		2008-01-16	
	First Named Inventor	Russell White, et al.		
	Art Unit	2617		
	Examiner Name	Erika A. Gary		
	Attorney Docket Number	AFF.004C5US		

U.S.PATENTS						
Examiner Initial*	Cite No	Patent Number	Kind Code <sup>1</sup>	Issue Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines where Relevant Passages or Relevant Figures Appear
	1					

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U.S.PATENT APPLICATION PUBLICATIONS						
Examiner Initial*	Cite No	Publication Number	Kind Code <sup>1</sup>	Publication Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines where Relevant Passages or Relevant Figures Appear
	1					

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FOREIGN PATENT DOCUMENTS								
Examiner Initial*	Cite No	Foreign Document Number <sup>3</sup>	Country Code <sup>2</sup>	Kind Code <sup>4</sup>	Publication Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines where Relevant Passages or Relevant Figures Appear	T <sup>5</sup>
	1							<input type="checkbox"/>

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NON-PATENT LITERATURE DOCUMENTS			
Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published.	T <sup>5</sup>

<b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b> ( Not for submission under 37 CFR 1.99)	Application Number	12015320
	Filing Date	2008-01-16
	First Named Inventor	Russell White, et al.
	Art Unit	2617
	Examiner Name	Erika A. Gary
	Attorney Docket Number	AFF.004C5US

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2	Request for Inter Partes Reexamination of U.S. Patent No. 7,440,772, filed on November 13, 2009, with accompanying Claim Charts.	<input type="checkbox"/>
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4	Request for Inter Partes Reexamination of U.S. Patent No. 7,486,926, filed on November 13, 2009, with accompanying Claim Charts.	<input type="checkbox"/>
5	Request for Inter Partes Reexamination of U.S. Patent No. 7,634,228, filed on February 3, 2010, with accompanying Claim Charts.	<input type="checkbox"/>

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**EXAMINER SIGNATURE**

Examiner Signature		Date Considered	
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<sup>1</sup> See Kind Codes of USPTO Patent Documents at [www.USPTO.GOV](http://www.USPTO.GOV) or MPEP 901.04. <sup>2</sup> Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). <sup>3</sup> For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>4</sup> Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. <sup>5</sup> Applicant is to place a check mark here if English language translation is attached.

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	Filing Date	2008-01-16
	First Named Inventor	Russell White, et al.
	Art Unit	2617
	Examiner Name	Erika A. Gary
	Attorney Docket Number	AFF.004C5US

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See attached certification statement.

Fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

None

**SIGNATURE**

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/Mark J. Rozman/	Date (YYYY-MM-DD)	2010-03-02
Name/Print	Mark J. Rozman	Registration Number	42117

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1 hour to complete, including gathering, preparing and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. **DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

## Electronic Acknowledgement Receipt

<b>EFS ID:</b>	7121276
<b>Application Number:</b>	12015320
<b>International Application Number:</b>	
<b>Confirmation Number:</b>	2156
<b>Title of Invention:</b>	Method for Managing Media
<b>First Named Inventor/Applicant Name:</b>	Russell W. White
<b>Customer Number:</b>	21906
<b>Filer:</b>	Mark J. Rozman/Stephanie Petreas
<b>Filer Authorized By:</b>	Mark J. Rozman
<b>Attorney Docket Number:</b>	AFF.0004C5US
<b>Receipt Date:</b>	02-MAR-2010
<b>Filing Date:</b>	16-JAN-2008
<b>Time Stamp:</b>	13:46:27
<b>Application Type:</b>	Utility under 35 USC 111(a)

### Payment information:

Submitted with Payment	no
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### File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Information Disclosure Statement (IDS) Filed (SB/08)	AFF004C5USNewRequestIDST OFILE.pdf	87728 <small>7738bb171f94aa254033fc769d03378f78f5e482</small>	no	3

### Warnings:

### Information:

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**New Applications Under 35 U.S.C. 111**

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

**National Stage of an International Application under 35 U.S.C. 371**

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

**New International Application Filed with the USPTO as a Receiving Office**

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

<b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b> ( Not for submission under 37 CFR 1.99)	Application Number		12015320	
	Filing Date		2008-01-16	
	First Named Inventor	Russell W. White, et al.		
	Art Unit	2617		
	Examiner Name	Erika A. Gary		
	Attorney Docket Number	AFF.004C5US		

U.S. PATENTS							Remove	
Examiner Initial*	Cite No	Patent Number	Kind Code <sup>1</sup>	Issue Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines where Relevant Passages or Relevant Figures Appear		
	1	5539658		1996-07-23	McCullough, Timothy L.			
	2	6675233		2004-01-26	Du			
If you wish to add additional U.S. Patent citation information please click the Add button.							Add	
U.S. PATENT APPLICATION PUBLICATIONS							Remove	
Examiner Initial*	Cite No	Publication Number	Kind Code <sup>1</sup>	Publication Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines where Relevant Passages or Relevant Figures Appear		
	1	20030126335		2003-07-03	Silvester, Kelan C.			
If you wish to add additional U.S. Published Application citation information please click the Add button.							Add	
FOREIGN PATENT DOCUMENTS							Remove	
Examiner Initial*	Cite No	Foreign Document Number <sup>3</sup>	Country Code <sup>2</sup> j	Kind Code <sup>4</sup>	Publication Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines where Relevant Passages or Relevant Figures Appear	T <sup>5</sup>
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NON-PATENT LITERATURE DOCUMENTS							Remove	

<b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT ( Not for submission under 37 CFR 1.99)</b>	Application Number	12015320
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	First Named Inventor	Russell W. White, et al.
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	Examiner Name	Erika A. Gary
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Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published.	T <sup>5</sup>
	1	"Universal Serial Bus Specification," Revision 1.1, September 23, 1998, pages ii-106.	<input type="checkbox"/>
	2	Reply to Office Action Mailed August 5, 2009 in Reexamination Control No. 90/010,333 of U.S. Patent No. 7,324,833 (along with a Supplemental Reply and Second Supplemental Reply).	<input type="checkbox"/>
	3	Response to "Notice of Failure to Comply with Inter Partes Reexamination Request Filing Requirements (37 CFR 1.915(d)) filed on September 22, 2009. Requestor: Volkswagen Group of America, Inc. with Replacement Request for Inter Partes Reexamination of U.S. Patent No. 7,324,833 and Claim Charts A-JJ.	<input type="checkbox"/>
	4	The United States Patent And Trademark Office, Office Action Mailed November 9, 2007 in related patent application serial no. 10/947,755.	<input type="checkbox"/>

If you wish to add additional non-patent literature document citation information please click the Add button

**EXAMINER SIGNATURE**

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\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

<sup>1</sup> See Kind Codes of USPTO Patent Documents at [www.USPTO.GOV](http://www.USPTO.GOV) or MPEP 901.04. <sup>2</sup> Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). <sup>3</sup> For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>4</sup> Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. <sup>5</sup> Applicant is to place a check mark here if English language translation is attached.

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	Examiner Name	Erika A. Gary
	Attorney Docket Number	AFF.004C5US

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Signature	/Mark J. Rozman/	Date (YYYY-MM-DD)	2009-11-16
Name/Print	Mark J. Rozman	Registration Number	42117

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19 BUNDESREPUBLIK  
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DEUTSCHES  
PATENTAMT

12 Offenlegungsschrift  
10 DE 196 51 308 A 1

21 Aktenzeichen: 196 51 308.1  
22 Anmeldetag: 10. 12. 96  
43 Offenlegungstag: 16. 7. 98

51 Int. Cl.<sup>6</sup>:  
H 04 L 12/42  
H 04 R 5/04  
H 04 S 3/00  
H 04 H 1/00  
B 60 R 16/02  
H 02 J 13/00  
H 04 L 29/00

DE 196 51 308 A 1

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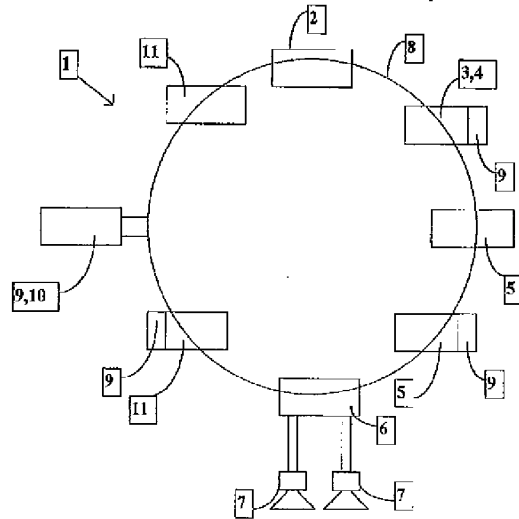
56 Entgegenhaltungen:  
EP 07 25 522 A2  
EP 05 49 005 A1

Die folgenden Angaben sind den vom Anmelder eingereichten Unterlagen entnommen

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54 Audio-Soundsystem für ein Kraftfahrzeug

57 Audio-Soundsystem (1) für ein Kraftfahrzeug mit einer Steuereinheit (2), mit einer Eingabeeinheit (3) zur Bedienung des Systems (1), mit einer Anzeigeeinheit (4), mit einer Einheit (5) zur Generierung der Quelldaten in Form von Audiodaten, mit einer Verstärkereinheit (6) zur Verstärkung der Quelldaten, mit einem oder mehreren Lautsprechern (7) und mit einem Bussystem (8), das die Übertragung der Quelldaten und der Steuerdaten zur Steuerung der Einheiten (2, 3, 4, 5, 6, 7) sicherstellt, bei dem zumindest eine von der Steuereinheit (2) verschiedene Einheit (3, 4, 5, 6, 7) des Systems (1) einen ihr zugeordneten Speicher (9) aufweist, in dem der Funktionsumfang dieser Einheit (3, 4, 5, 6, 7) dargestellt ist, und dieser Funktionsumfang über den Bus (8) an die Steuereinheit (2) übertragbar ist und in dieser der übermittelte Funktionsumfang zumindest teilweise zur Bildung des Funktionsumfangs des gesamten Systems (1) herangezogen werden kann. Dabei sind die Steuereinheit (2), die Eingabeeinheit (3) und die Anzeigeeinheit (4) dergestalt miteinander verbunden, daß mittels der Anzeigeeinheit (4) die für die Bedienung des gesamten Systems (1) erforderlichen Bedienmanus entsprechend dem Funktionsumfang des gesamten Systems (1) darstellbar sind und die Bedienung des Systems (1) mit Hilfe der Eingabeeinheit (3) anhand der Darstellungen in der Anzeigeeinheit (4) erfolgen kann.



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## Beschreibung

Die Erfindung betrifft ein Audio-Soundsystem für ein Kraftfahrzeug mit einer Steuereinheit, mit einer Eingabeeinheit zur Bedienung des Systems, mit einer Anzeigeeinheit, mit einer Einheit zur Generierung der Quelldaten in Form von Audiodaten, mit einer Verstärkereinheit zur Verstärkung der Quelldaten, mit einem oder mehreren dieser zugeordneten Lautsprechern und mit einem Bussystem, das die Übertragung der Quelldaten und der Steuerdaten zur Steuerung der Einheiten zwischen den einzelnen Einheiten sicherstellt.

Ein derartiges Audio-Soundsystem ist allgemein in der BP-A-0 725 522 beschrieben. Weiterhin ist ein derartiges System in der Druckschrift "OCC 8001" CONAN "Optical Transceiver", C&C Electronics Ltd., 1996 beschrieben. Die dargestellten Audio-Soundsysteme zeigen eine Steuereinheit, welche auch Head Unit genannt wird, die die Steuerung des gesamten Systems bewirkt und die die Ausgabe von Information über die Anzeigeeinheit, die Bedienung des Systems über die Eingabeeinheit durch den Benutzer sowie die Umsetzung in entsprechende Steuerbefehle für die einzelnen Einheiten des Audio-Soundsystems ermöglicht. Dabei zeigen die bekannten Audio-Soundsysteme für Kraftfahrzeuge einen starren Systemaufbau, der es nur erlaubt, bestimmte Einheiten in das System zu integrieren, welche durch die Steuereinheit/Head Unit vorgesehen sind. Damit erweisen sich die bekannten Audio-Soundsysteme für Kraftfahrzeuge als wenig flexibel, wenig benutzerfreundlich und sehr teuer im Falle einer Adaption des Systems an die neuen Gegebenheiten. Eine Anpassung an neue, andersartige, zusätzliche Komponenten wird bei den bekannten Audio-Soundsystemen dadurch gewährleistet, daß neben der neuen Einheit zusätzlich eine neue Steuereinheit/Head Unit in das System integriert werden muß, was die bereits beschriebenen Nachteile mit sich bringt.

Aufgabe der Erfindung ist es, das Audio-Soundsystem für ein Kraftfahrzeug so auszubilden, daß Änderungen am System möglichst einfacher, kostengünstiger und sicherer durchgeführt werden können.

Diese Aufgabe wird bei dem bekannten Audio-Soundsystem dadurch erreicht, daß die Steuereinheit in die Lage versetzt ist, daß sie von einer oder mehreren oder allen anderen Einheiten des Systems deren möglichen Funktionsumfang, welcher in einem dieser zugeordneten Speicher abgelegt ist, über das Bussystem zugeführt bekommt und aus der Summe der einzelnen Funktionsumfänge der Funktionsumfang des Gesamtsystems gebildet wird. Dieser Funktionsumfang des gesamten Systems bildet stets eine Teilmenge aller Funktionsumfänge der einzelnen Einheiten des Audio-Soundsystems. Das dargestellte Audio-Soundsystem zeigt erfindungsgemäß eine Struktur, welche an dezentralen Stellen den Funktionsumfang der einzelnen Einheiten hinterlegt hat und wo an zentraler Stelle vorzugsweise in der Steuereinheit ein aus den verschiedenen einzelnen Funktionsumfängen der einzelnen Einheiten gebildeter Funktionsumfang des gesamten Systems zur Steuerung des gesamten Systems hinterlegt ist.

Anders als im Stand der Technik wird bei einer Änderung, beispielsweise beim Hinzufügen einer neuen, ursprünglich nicht vorgesehenen Einheit des Audio-Soundsystems, nicht mehr die Steuereinheit, respektive die Head Unit, ausgetauscht, sondern in ihrer Art beibehalten und sichergestellt, daß der hinzugekommene Funktionsumfang der zusätzlichen Einheit zur Bildung des Funktionsumfangs des gesamten Systems mit herangezogen wird, wodurch den Änderungen des gesamten Systems Rechnung getragen wird und der Benutzer den Änderungen entsprechend neue, geänderte Bedienmöglichkeiten und entsprechende Funktionalitäten

des Systems zur Verfügung gestellt bekommt. Es wird damit, soweit erforderlich, dem neuen Funktionsumfang des gesamten Systems entsprechend eine neue Bedienungsführung zur Bedienung des gesamten Systems zur Verfügung gestellt, was ggf. mit geänderten Darstellungen in der Anzeigeeinheit bzw. mit geänderten Zuordnungen von Befehlen zu den Eingabetasten der Eingabeeinheit verbunden ist.

Durch diese Ausbildung des Audio-Soundsystems gelingt es, den Funktionsumfang des Audio-Soundsystems neuen Anforderungen sicher, einfach und kostengünstig anzupassen. Aufwendige Zusatzgeräte und Neugeräte sind in diesem Falle nicht erforderlich.

Ein besonders vorteilhaftes, flexibles Audio-Soundsystem ist dann gegeben, wenn eine Vielzahl von Einheiten über ihnen zugeordnete Speicher verfügt, in denen die für sie spezifischen Funktionsumfänge abgelegt sind und aus diesen der Gesamtfunktionsumfang des Systems gebildet wird, in dem alle Funktionalitäten verwendet werden oder nur bestimmte Teile der Funktionalitäten der einzelnen Einheiten in die Funktionalität des Gesamtsystems übertragen werden sollen. Diese teilweise Übertragung kann automatisch durch die Steuereinheit oder durch den Benutzer oder durch eine zusätzliche, zeitweise in das Soundsystem über die Busleitung angeschlossene, integrierte Einheit erfolgen.

Damit wird die Vielfältigkeit des Systems auf besonders vorteilhafte Weise nach den jeweiligen Bedürfnissen des Benutzers entsprechend den jeweils zur Verfügung stehenden Einheiten zur Erzeugung von Audiodaten oder den Einheiten zur Verstärkung dieser Daten oder den Lautsprechern flexibel und frei konfigurieren, was auch der Fall sein kann, wenn keine neuen Einheiten in das System aufgenommen werden, sondern nur die verwendeten Teilmengen der Einzelfunktionsumfänge neuen Anforderungen durch Erweiterung oder Einschränkung angepaßt werden.

Nach einer bevorzugten Ausführungsform der Erfindung ist der einer Einheit zugeordnete Speicher als Teil dieser Einheit ausgebildet. Dadurch ist gewährleistet, daß der Speicherinhalt mit dem möglichen Funktionsumfang der Einheit nicht über das Bussystem an die Einheit übertragen werden muß, um anschließend den Funktionsumfang von der Einheit wiederum über die Busleitung an die Steuereinheit zu übermitteln. Im Fall eines optischen Bussystems, welches besonders große Vorteile in Richtung EMV-Stabilität und Gewichtersparnis aufweist, kann auf die zwingend erforderlichen, kostenintensiven elektrisch-optischen Wandler zwischen den Speichern und den Einheiten verzichtet werden, was das System weniger anfällig gegen Störungen macht und dadurch die Sicherheit der Bedienung und damit die Bedienfreundlichkeit des Systems erhöht. Darüberhinaus erweist sich diese Ausbildung als besonders kostengünstig.

Nach einer vorteilhaften Weiterbildung der Erfindung ist der Speicher als Teil einer Rechneinheit ausgebildet, welche über das Bussystem mit der dem Speicher zugeordneten Einheit verbunden ist, und welche als eigenständige, räumlich von den anderen Einheiten separierte Rechneinheit ausgebildet ist, und welche bei Bedarf über das Bussystem den Funktionsumfang der dem Speicher zugeordneten Einheit direkt oder indirekt der Steuereinheit zur Bildung des Funktionsumfangs des gesamten Systems zuführen kann. Dabei erweist sich die Verwendung einer Rechneinheit als besonders vorteilhaft, da sie sehr flexible Speicherstrukturen aufweist, in welche über andere Schnittstellen der Rechneinheit auf einfache Weise andere, geänderte Funktionsumfänge einschreibbar sind. Auch ist ermöglicht, eine gegebenenfalls zentrale Rechneinheit mit entsprechendem Speicher in dem System vorzusehen, welche die zentrale Verwaltung der einzelnen Funktionsumfänge der einzelnen Ein-

heiten gewährleistet und bei Bedarf diese direkt oder indirekt an die Steuereinheit zur Bildung des neuen, geänderten Funktionsumfangs des gesamten Audio-Soundsystems über das Bussystem überträgt. Vorzugsweise ist die Reclinereinheit lösbar mit dem System verbunden. Durch Verwendung einer geliehenen spezifischen Rechereinheit in der Art einer vorübergehenden Integration in das System über eine vorbereitete Schnittstelle im Bussystem kann dem System ein neuer, geänderter Gesamtfunktionsumfang zugrunde gelegt werden. Dadurch ist ein sehr flexibles und für den Benutzer kostengünstiges System gegeben. Beispielsweise kann durch ein derartiges System sehr einfach eine neue Funktionalität, beispielsweise ein neuer Typ von 3-D-Sound als neue Funktionalität des Systems einschließlich der dieser Funktionalität zugeordneten Bedienungsführung eingegeben werden und damit den individuellen Bedürfnissen des Benutzers auf sehr einfache, kostengünstige und flexible Weise angepaßt werden. Damit gelingt es, die Notwendigkeit des Ersetzens kompletter Einheiten oder des gesamten Audio-Soundsystems in vielen Fällen durch eine reine Neuprogrammierung des Systems zu ersetzen, was sich neben den genannten Vorteilen auch im Hinblick auf die Verschwendung von Ressourcen und die Vermeidung von Abfall vorteilhaft bemerkbar macht.

Eine besonders einfache und angenehme Art der Bedienung des Audio-Soundsystems wird dadurch erreicht, daß die Steuereinheit, die Eingabeeinheit und die Anzeigeeinheit dergestalt miteinander verbunden sind, daß entsprechend dem Funktionsumfang des gesamten Systems auf der Anzeigeeinheit spezifische Bedienmenüs dargestellt werden, die die Bedienung des Systems mit Hilfe der Eingabeeinheit anhand der Darstellungen in der Anzeigeeinheit zielstrebig und einfach ermöglichen. Die Bedienmenüs können spezifisch sein für die einzelnen Funktionalitäten der einzelnen Einheiten, sie können aber auch spezifisch sein für die Art und Weise des Vorgangs zur Bildung eines neuen, geänderten Funktionsumfangs des gesamten Systems. Dabei ist es möglich die Anzeigeeinheit mit einer zusätzlichen Sprachausgabe zu versehen, welche die Bedienfreundlichkeit und Bediensicherheit des Gesamtsystems deutlich erhöht. Ebenso kann mit vergleichbaren Vorteilen die Eingabeeinheit auch als sprachgesteuerte Eingabeeinheit ausgebildet sein.

Als bevorzugte Ausbildung des Audio-Soundsystems hat sich herausgestellt, die Eingabeeinheit und die Anzeigeeinheit zu einer einzigen Einheit zusammenzufassen und diese bevorzugt so auszubilden, daß die Anzeigeeinheit in einzelne Segmente unterteilt ist, denen einzelne Tasten der Eingabeeinheit räumlich zugeordnet sind und welche jeweils die der zugeordneten Taste zugewiesene Bedienfunktionen darstellen und die entsprechenden Tasten und die Segmente durch die Steuereinheit anhand des Funktionsumfangs des gesamten Systems so ansteuern, daß die den Tasten zugewiesenen und in dem zugeordneten Segment dargestellten Funktionen durch Befätigen der Tasten ausgelöst werden können. Durch diese Ausbildungen gelingt es, das Audio-Soundsystem sehr einfach mit möglichst wenigen Schnittstellen und Einheiten aufzubauen, was die Verwaltung des gesamten Systems, respektive die Steuerung der einzelnen Einheiten, wie auch die Versorgung des Systems mit der erforderlichen Energie vereinfacht und dadurch das System weniger anfällig gegen Störungen macht. Dadurch ist ein erhöhtes Maß an Bediensicherheit und ein erhöhtes Maß an Vereinfachung der Bedienung des Systems gegeben. Nach der beschriebenen Ausführungsform ist es möglich, eine zentrale Einheit als Man-Machine-Interface, bestehend aus Eingabe- und Anzeigeeinheit im Fahrzeug, vorzugsweise im Dashboard unterzubringen, und all die anderen Einheiten,

wie Tuner, CD-Player, Videoplayer oder ähnliches im Kraftfahrzeug an der ihrer Funktion oder den Möglichkeiten des Fahrzeuges angepaßten und optimierten Position unterzubringen und über das Bussystem so miteinander zu verbinden, daß die erforderlichen Steuer- und Quelldaten zielgerichtet übertragen werden. Damit ist es beispielsweise möglich, den Rundfunkuner oder TV-Tuner am an sich idealen Ort im Bereich der Antenne anzuordnen und nur noch die von diesen abgegebenen Quelldaten an den entsprechenden Verstärker und die Ausgabeeinheit weiterzuleiten. Die Steuerung erfolgt in diesem Fall über die zentrale Einheit, das Man-Machine-Interface, welches dem Benutzer die Möglichkeit der Bedienung aller Systemkomponenten mit deren jeweiligen Funktionsumfängen gewährt. Bei Änderungen der Funktionsumfänge des Systems durch Änderung der Funktionsumfänge einzelner Komponenten oder durch Hinzufügen oder Entfernen einzelner Komponenten läßt sich das erfindungsgemäße, beschriebene System besonders einfach und sicher neu konfigurieren.

Als bevorzugte Ausbildung der Erfindung hat sich gezeigt, daß neben den Audiodaten andere Multimediadaten, insbesondere Videodaten, übertragen werden können und daß entsprechende Einheiten zur Generierung dieser Multimediadaten und entsprechende Einheiten zur Darstellung dieser Multimediadaten vorgesehen sind. Als Beispiele für Einheiten zur Generierung von Multimediadaten sind insbesondere DVD-Player, CD-ROM-Lesegeräte oder Navigationsgeräte zu nennen und als Einheiten zur Darstellung dieser Multimediadaten zeigen sich beispielsweise LCD-Displays. Gerade durch die Vielfalt und die sehr dynamische Entwicklung des Multimediabereiches, mit seinen spezifischen Multimediadaten, den spezifischen Informationsumfängen der jeweiligen Geräte einschließlich der Art und Weise der Bedienbarkeit dieser Geräte, zeigt sich der besondere Vorteil des erfindungsgemäßen Systems, da es auf alle möglichen Änderungen von neuen Geräten im Bereich Multimedia und deren spezifische Entwicklungen jederzeit flexibel reagieren kann und das Soundsystem den Erfordernissen einfach und flexibel anpassen kann. Diese Flexibilität erweist sich umso mehr, je größer die Zahl der Einheiten zur Generierung von Audio- und/oder Multimediadaten sind, da bei derartigen Systemen-Änderungen durch Ersetzen der Geräte durch den Benutzer und damit Ändern des Funktionsumfangs sehr viel häufiger gegeben sind als bei Systemen mit nur einer einzigen Einheit zur Generierung von Audio- und/oder Multimediadaten. Bei derartigen Systemen kann der Benutzer gegebenenfalls nach seinen Vorstellungen den Funktionsumfang des gesamten Systems festlegen und ihm die entsprechenden Steuerbefehle und Bedienbefehle für die Zukunft für die Bedienung des Systems zugrunde legen.

Bei Systemen mit mehreren Verstärkereinheiten zur Verstärkung der Audio-Quelldaten zeigen sich die besonderen Vorteile des erfindungsgemäßen Systems in besonderer Weise, da gerade diese Verstärkereinheiten, insbesondere wenn sie jede für sich spezifisch zugeordnete Einheiten zur Wandlung der verstärkten Quelldaten in Schallwellen aufweisen, eine Vielzahl von unterschiedlichen Funktionalitäten aufweisen. Dies umso mehr, da jeder Verstärkereinheit für jeden ihr zugeordneten Lautsprecher spezifische, dem Ort und den sonstigen Eigenschaften des Lautsprechers angepaßte und spezifisch verstärkte Quelldaten zur Verfügung gestellt werden können, was sich durch unterschiedliche Laufzeitverzögerungen, Vorverzerrungen und ähnliches ausdrücken können. Wird aus irgendwelchen Gründen irgendeine Komponente, insbesondere eine Einheit zur Wandlung der verstärkten Quelldaten, geändert, so lassen sich die einzelnen Funktionsumfänge der Verstärkereinheit so an-



passen, daß das gesamte Audio-Soundsystem mit der neuen, geänderten Einheit zur Wandlung der verstärkten Quelldaten in Schallwellen für den Benutzer ein möglichst ideales Klangeempfinden erzeugt. Damit ist durch das erfindungsgemäße System auch ermöglicht, daß eine Änderung des Funktionsumfangs dahingehend möglich ist, daß für bestimmte Positionen im Fahrzeug, welche durch den Benutzer gewählt werden können, jeweils ein nahezu idealer Klangraum unter Ausnutzung der verschiedenen Verstärkerparameter, wie Fader, Balance, Verzögerungswerte, Verzerrung und ähnlichen eingestellt werden kann. Jeder neue Parametersatz stellt einen geänderten Funktionsumfang dar, der bei dem erfindungsgemäßen System auf besonders einfache und flexible Weise Verwendung finden kann. Diese Vorteile ergeben sich umso mehr, wenn jeder Einheit zur Wandlung der verstärkten Quelldaten in Schallwellen eine eigene Verstärkereinheit zugeordnet wird, d. h. sogenannte Aktivlautsprecher Verwendung finden. Damit kann je nach Art der Verwendung der aktiven Lautsprecher diesen ein jeweils spezifischer Funktionsumfang als deren Funktionsumfang zugeordnet sein, welcher dann erfindungsgemäß zur Bildung des Funktionsumfangs des gesamten Systems teilweise oder vollständig herangezogen wird.

Vorzugsweise ist das Audio-Soundsystem mit einem Zeitgeber versehen, der nach Ablauf einer vorgegebenen Zeitspanne die Generierung des Funktionsumfangs des gesamten Systems aus den Funktionsumfängen der einzelnen Einheiten sicherstellt. Durch dieses System ist eine automatisierte Generierung des Funktionsumfangs des gesamten Systems in regelmäßigen Zeitabständen gegeben, was ein sehr sicheres und einfaches Handhaben des Systems und der Möglichkeiten des Systems erlaubt. Wird die vorgegebene Zeitspanne einstellbar ausgebildet, so läßt sich auf vorteilhafte Weise den einzelnen Bedürfnissen des Benutzers Rechnung tragen. Wird der Benutzer das System öfters durch Hinzufügen oder Austauschen einzelner Komponenten oder Entfernen einzelner Komponenten oder einfach den veränderten einzelnen Wunschvorstellungen des jeweiligen Benutzers anpassen wollen, so wird er eine verkürzte, vorgegebene Zeitspanne einstellen, während ein Benutzer, der keine Änderungen oder praktisch keine Änderungen vorgesehen hat, dem System eine lange Zeitspanne bis zur Neukonfiguration des Systems einstellen wird. Durch diese einstellbare, vorgegebene Zeitspanne wird die Benutzerfreundlichkeit des Systems in besonderer Weise gewährleistet, da sich das System automatisch ohne Aktivitäten des Benutzers den Funktionsumfang des gesamten Systems festlegt, indem es auf die Funktionsumfänge der einzelnen Einheiten, Komponenten des Systems zurückgreift und aus diesen den Gesamtfunktionsumfang bildet. Darüberhinaus erweist sich ein derartiges System als besonders sicher, da der Ablauf der Festlegung des neuen Funktionsumfangs stets in festen Bahnen verläuft, ohne dabei die Flexibilität des Systems, d. h. Berücksichtigung von Änderungen in der verschiedensten Art und Weise einzuschränken.

Vorzugsweise wird das System so ausgebildet, daß das Einschalten des gesamten Audiosystems oder auch jeder einzelnen Einheit erkannt wird und durch dieses Einschalten die Bildung des Funktionsumfangs des gesamten Systems aus den Funktionsumfängen der einzelnen Einheiten ausgelöst wird. Dabei ist zu beachten, daß ein Hinzufügen einer Einheit dem Einschalten dieser Einheit gleichkommt. Durch diese spezifische Art der Auslösung der Bildung des Gesamtfunktionsumfangs ist auf einfache Art und Weise sichergestellt, daß bei reduziertem Verwaltungsaufwand stets ein den einzelnen Komponenten angepaßter Gesamtfunktionsumfang gegeben ist, der sich automatisch den geänderten Bedingungen, insbesondere beim Hinzufügen weiterer

Komponenten, d. h. dem Ersetzen einzelner Komponenten durch Entfernen und anschließendes Hinzufügen, angepaßt ist. Dadurch ist ein sehr flexibles System gewährleistet, das aufgrund der reduzierten Verwaltung sicher in seiner Funktion ist. Dieses System zeichnet sich insbesondere dadurch aus, daß es nur für sehr begrenzte Zeit, insbesondere beim Einschalten, nicht im vollen Umfang funktionsfähig ist, da in dieser Zeit der gesamte Funktionsumfang erst gebildet werden muß und dadurch die Bedienung des Systems für diese Zeit nicht oder nur beschränkt möglich ist.

Als besonders geeignetes Gesamtsystem zeigt sich ein System, welches mittels der Bedieneinheit zur Bildung des gesamten Funktionsumfangs des gesamten Systems veranlaßt werden kann. Hat der Benutzer das Bedürfnis, das Soundsystem in seinem Funktionsumfang zu verändern oder den geänderten Eigenschaften anzupassen, so kann er die Bildung des Funktionsumfangs des gesamten Systems durch Betätigung eines oder mehrerer Bedienelemente der Bedieneinheit auslösen. Damit wird sichergestellt, daß alleine dann wenn es notwendig ist, die Bildung des Funktionsumfangs ausgelöst wird und dadurch das System für kurze Zeit in der Funktionsweise behindert wird. Dadurch ist die Funktionalität des gesamten Systems über nahezu die vollständige Zeit sichergestellt. Eine sichere und flexible Anpassung an die Erfordernisse und Wünsche des Benutzers ist bei dem System weiterhin in vorzüglicher Weise sichergestellt.

Darüberhinaus hat sich als bevorzugte Ausbildung des Audio-Soundsystems gezeigt, daß es in der Lage ist, durch den Benutzer veranlaßt die Ausgabe der Funktionsumfänge des gesamten Systems sowie der einzelnen und/oder aller Einheiten über die Anzeigeeinheit zu ermöglichen. Darüberhinaus hat es sich als vorteilhaft erwiesen, durch entsprechende Bedienungsführung mittels der Bedieneinheit und der Anzeigeeinheit sicherzustellen, daß einzelne Teilfunktionsumfänge oder auch ganze Funktionsumfänge einzelner Komponenten für die Benutzung zur Bildung des Funktionsumfangs des gesamten Systems selektiert werden. Nach Abschluß der Selektion der einzelnen ausgewählten Funktionsumfänge der einzelnen Einheiten wird dann der gesamte Funktionsumfang des Systems gebildet, wodurch der Bedien- und Anzeigeeinheit dem neuen gesamten Funktionsumfang entsprechende Menues und Funktionalitäten zugewiesen werden, wie auch die Steuereinheit und die einzelnen Einheiten nur noch die für den beschränkten, neugebildeten gesamten Funktionsumfang des Systems relevanten Steuerbefehle damit für die Funktionalitäten des neuen gesamten Funktionsumfangs des Systems relevanten Funktionalitäten sichergestellt sind. Damit läßt sich das System sehr einfach nach den Wünschen des Benutzers anpassen und auf das für den gewünschten Funktionsumfang notwendige Maß an Steuer- und Verwaltungstätigkeit reduziert. Es ist also nicht mehr notwendig, eine Vielzahl von Funktionalitäten des Systems zu unterstützen, die der Benutzer nicht wünscht. Damit läßt sich die Bediensicherheit und Funktionsunsicherheit des Systems deutlich erhöhen, ohne daß die Flexibilität des Systems beschränkt wird.

Neben der Anwendung des Audio-Soundsystems in einem Kraftfahrzeug erweist sich die Verwendung dieses Systems in einem Wohnwagen oder einem Haus oder einer Wohnung als vorteilhaft, da auch in diesen vergleichbare Problemstellungen, insbesondere beim Hinzufügen weiterer Komponenten in ein über ein Bussystem verbundene Einheiten aufweisendes System, auftreten. Damit zeigen sich auch die vergleichbaren Vorteile, insbesondere dann wenn einzelne Komponenten ergänzt werden, beispielsweise wenn ein weiterer Raum der Wohnung mit Einheiten zur Wandlung von Audio-Quelldaten in Schallwellen und gegebenenfalls Verstärkern versehen werden soll. Bei einer der-

artigen Änderung sollte das System möglichst einfach, sicher, schnell und flexibel an die neuen Bedürfnisse angepaßt werden. Insoweit erweist sich die Verwendung des Audio-Soundsystems für ein Kraftfahrzeug in den anderen Umgebungen als besonders vorteilhaft.

Die Erfindung wird nachfolgend anhand eines Ausführungsbeispiels gemäß Fig. 1 erläutert; in dieser zeigt:

Fig. 1 ein Audio-Soundsystem für ein Kraftfahrzeug, dessen Einheiten über ein Bussystem mit ringförmiger Topologie.

Das in Fig. 1 beispielhaft dargestellt Audio-Soundsystem 1 für ein Kraftfahrzeug zeigt eine Steuereinheit 2, eine in einem Gerät zusammengefaßte Eingabeeinheit 3, eine Ausgabeeinheit 4, welche zusätzlich einen Speicher 9 aufweist, die zusammengefaßte Einheit wird auch Man-Machine-Interface MMI genannt, ein CD-Wechsler 5, ein FM-Tuner 5 mit zugeordnetem Speicher 9, eine Verstärkereinheit 6 mit daran angeschlossenen zwei Lautsprechern 7, eine Navigationseinheit 11 mit zugeordnetem Speicher 9, eine Rechereinheit 10 mit integriertem Speicher 9 sowie einen TV-Tuner 11. Diese einzelnen Komponenten des Audio-Soundsystems 1 sind über ein Bussystem 8 ringförmig miteinander verbunden.

Über das Bussystem 8 werden sowohl Steuer-, Audio- als auch Multimediadaten übertragen. Durch die Steuereinheit 2 des Audio-Soundsystems 12 werden die einzelnen Komponenten 3, 4, 5, 6, 11, 10 entsprechend ihren Funktionalitäten angesteuert bzw. mit den notwendigen Daten für deren Funktionieren im System versorgt.

Beispielsweise wird das MMI 3,4,9 so angesteuert, daß die Anzeige 4 in einzelne Segmente unterteilt wird, welche einzelnen Tasten der Eingabeeinheit räumlich und funktionell zugeordnet sind, und daß in den Segmenten eine Darstellung der Bedienfunktion der diesem Segment zugeordneten Taste typisch in Form von Menuearstellung gezeigt werden. Durch die Betätigung einer der Tasten wird die in dem zugeordneten Segment der Anzeigeeinheit 4 dargestellte Funktion ausgelöst. Diese Funktionen können vielfältigster Natur sein, wie zum Beispiel Lautstärke erhöhen, Lautstärke absenken, Loudness ein oder aus, Surround ein oder aus, System aus, Schlafmodus ein, Baß verstärken oder absenken, Balance nach links oder rechts verschieben, Umschalten auf TV-Tuner, Eingabemodus Navigation starten, Equalizing-Programmieren starten oder vieles mehr. Durch diese Darstellung kann der Benutzer das gesamte System 1 über die eine zentrale Eingabe- 3 und Anzeigeeinheit 4 bedienen. Die Darstellung und die Bedienung erforderlichen Daten sind in dem Speicher 9 des MMI abgelegt. Darüberhinaus sind aber nicht nur die derzeit aktuellen Daten, d. h. aktueller Bedienungs- und Darstellungsumfang, abgespeichert sondern auch alle möglichen Daten, welche für das MMI in seiner allgemeinsten Darstellung- und Bedienmöglichkeit relevant sind. Diese allgemeinen Daten zeigen somit die grundsätzlichen Möglichkeiten und damit der Funktionsumfang des MMI. Dieser ist nicht unbedingt identisch zu dem aktuell aktiven Funktionsumfang.

Entsprechendes gilt für die anderen Einheiten zur Generierung von Quelldaten wie den FM-Tuner mit dem zugeordneten, integrierten Speicher 9 und die Navigationseinheit 11 mit deren integriertem Speicher 9, der vorzugsweise als CD-ROM ausgebildet ist und daher einen umfassenden Funktionsumfang darstellen kann. Dieser Funktionsumfang umfaßt neben den Daten zum möglichen Funktionsumfang der Navigationseinheit 11 auch die Daten zum Funktionsumfang des TV-Tuners. Durch die Möglichkeit des Austausches der CD-ROM als Speicherbasis läßt sich der mögliche Funktionsumfang sehr einfach in Form einer Art Software-Update ändern.

Darüberhinaus zeigt das dargestellte Audio-Soundsystem eine Rechereinheit 10 mit integriertem Speicher 9. Diese Rechereinheit 10 ist über eine nicht näher dargestellte lösbare Schnittstelle mit dem Bussystem 8 verbunden und kann über diese Daten mit den anderen Einheit des Systems 1 austauschen. Im Speicher 9 der Rechereinheit 10 sind beispielsweise die möglichen Funktionsumfänge des CD-Wechslers 5 und des Verstärkers 6 und ggf. der Lautsprecher 7 abgelegt. Der Rechereinheit 10 kann über eine vorhandene weiter standardisierte Schnittstelle wie RS 232 geänderte oder neue Funktionsumfänge für einzelne Einheiten des Systems eingespielt und bei Bedarf in deren Speicher 9 abgelegt werden. Da die Rechereinheit 10 lösbar mit dem Bussystem verbunden ist, ist mit Hilfe dieser stets auch eine einfache Überprüfung des Systems in der Art eines regelmäßigen Services mit integrierter Anpassung der möglichen Funktionsumfänge auf sehr einfache Weise möglich. In diesem Fall werden diese möglichen Funktionsumfänge entweder komplett oder in eingeschränktem Umfang einzelnen Speichern 9 des Systems 1 zugeordnet und dort abgespeichert.

Anhand der aus den einzelnen Funktionsumfänge der einzelnen Komponenten, auch Einheiten des Systems genannt, gebildete Funktionsumfang des gesamten Systems 1 werden der zu einer zentralen MMI zusammengefaßten Eingabe- 3 und Anzeigeeinheit 4 festgelegte Bedienmenues und Befehlsfolgen zu den Bedienelementen zugeordnet, anhand derer der Benutzer die Bedienung des Systems vornehmen kann. Weiterhin wird der Steuerbefehlsatz zwischen den einzelnen Komponenten entsprechend dem Funktionsumfang gewählt, wodurch ein reduzierter Verwaltungs- und Organisationsaufwand für den Betrieb des Systems notwendig ist. Dadurch wird auch die Betriebssicherheit erhöht, da weniger Wechselwirkungen zwischen einzelnen Systemzuständen und entsprechenden Funktionalitäten zu berücksichtigen sind.

Wird nun eine der Einheiten 3, 4, 5, 6, 7, 11 aus dem System 1 entfernt, durch eine andere Einheit ersetzt oder eine weitere Einheit hinzugefügt, so wird diese Veränderung des Systems durch die Steuereinheit 2 festgestellt. Danach wird automatisch ein Verfahrensablauf zur Festlegung des Funktionsumfangs des Audio-Soundsystems 1 ausgelöst. In diesem werden der Reihe nach über das Bussystem 8 alle Funktionsumfänge der einzelnen Einheiten des Systems zentral erfaßt und aus den erfaßten Einzelfunktionsumfängen der Funktionsumfang des gesamten Systems 1 gebildet. Dies kann durch vollständige Übernahme der einzelnen Funktionsumfänge einzelner Einheiten erfolgen oder durch teilweise Übernahme erfolgen. Welche Funktionalitäten einer Einheit in den Funktionsumfang des gesamten Systems übernommen wird, kann sich aus den Wechselwirkungen der einzelnen Einheiten ergeben oder kann durch individuelle Auswahl durch den Benutzer des Systems 1 ergeben.

Ein Beispiel für eine begrenzende Kombination von Einheiten wäre eine Balance- oder Paderfunktion, wenn das gesamte System nur einen einzigen Lautsprecher 7 aufweist. In diesem Fall würde die Steuereinheit 2 erkennen, daß die Pader- oder Balancefunktionalität der Verstärkereinheit 6 in der derzeitigen Systemkonfiguration mit einem einzigen Lautsprecher 7 nicht zulässig sind und daher nicht in den Funktionsumfang des gesamten Systems 1 übernommen werden können. Limitierende Faktoren können auch in den Eigenschaften einzelner Einheiten begründet sein.

Darüber hinaus kann der Benutzer des Systems durch Betätigung einer bestimmten Taste oder Tastenkombination der Eingabeeinheit 3 ohne Eingriff in die einzelnen Einheiten des Systems – Austausch, Entfernen oder Hinzufügen von Einheiten – eine Änderung des Funktionsumfangs aus-

lösen. Dabei kann der Benutzer dann einen ihm genehmen Funktionsumfang festlegen. Dies erfolgt dann durch entsprechende Selektion der einzelnen Funktionalitäten der einzelnen Einheiten des System mit Hilfe der Bedieneinheit 3 und der Anzeigeeinheit 4. Dabei werden die möglichen Funktionalitäten in der Anzeigeeinheit 4 dargestellt und durch spezifische Betätigung der Tasten der Bedieneinheit 3 für die Übernahme in den Funktionsumfang des gesamten Systems 1 selektiert. Dies wird für alle Einheiten, deren Funktionsumfang frei selektierbar ist, durchgeführt. Auch ist es möglich, daß nur die Änderungen zu dem bestehenden Funktionsumfang des gesamten Systems eingegeben werden, das heißt es werden nach Wunsch des Benutzers einzelne Funktionalitäten aus dem Funktionsumfang gelöscht oder neue Funktionalitäten dem bestehenden Funktionsumfang hinzugefügt. Auf der Basis des neu festgelegten Funktionsumfangs des Systems werden die diesem entsprechenden Bedienmenues in der Anzeigeeinheit 4 dargestellt und den Tasten der Bedieneinheit 3 die diesem entsprechenden Befehlsbereiche zugeordnet sowie die diesem Funktionsumfang entsprechenden Steuerbefehle zwischen den einzelnen Einheiten insbesondere zwischen der Steuereinheit 2 und der spezifischen Einheit ausgetauscht.

Durch diese Möglichkeit ist sichergestellt, daß jeder Benutzer nach seinen eigenen Bedürfnissen einen Funktionsumfang des gesamten Systems darstellen kann, ohne daß er jeweils auf andere neue Komponenten zurückgreifen muß. Damit kann ein und dasselbe Audio-Soundsystem durch die individuelle Möglichkeit, den Funktionsumfang festzulegen, völlig unterschiedliche Gesichter und Verhaltensweisen zeigen. Der eine Benutzer zeigt sich als völliger Purist in der Art der Bedienung, weshalb es ihm völlig genügt die Lautstärke zu regeln, sowie die Wahl der Signalquelle vornehmen zu können. Dieser wäre durch jede weitere Funktionalität gestört und wird sich durch diesen puristischen Funktionsumfang am ehesten angesprochen fühlen. Der andere Benutzer möchte alle möglichen Eingriffsmöglichkeiten und Funktionalitäten jeder einzelnen Einheit des Systems zur Verfügung stehen haben und wird daher alle möglichen Funktionalitäten in den Funktionsumfang des gesamten Systems übernehmen. Mit einem solchen System wäre der zuvor genannte Benutzer völlig überfordert während dieser Benutzer dadurch sehr angesprochen ist. Zumal dieses System ihm jederzeit die Möglichkeit gibt einzelne Komponenten durch andere Komponenten mit größerem Funktionsumfang auszutauschen oder weitere Komponenten hinzuzufügen und dadurch den Funktionsumfang ohne komplizierten Eingriff in das System einfach und sicher den jeweiligen Gegebenheiten anzupassen. Beispielsweise ist es möglich, die bisher einfache einfarbige, kleinflächige Anzeigeeinheit durch ein vielfarbiges Display zu ersetzen, was damit völlig andere komfortablere Bedienmenues ermöglicht und dadurch die Benutzung erleichtert. Diese Anpassung des Funktionsumfangs erfolgt stets aus der Kommunikation der einzelnen Einheiten untereinander über das Bussystem 8. Durch das gezeigte Audio-Soundsystem ist ein sehr flexibles, kostengünstig und sicher zu veränderndes System gegeben, das sich den individuellen Bedürfnissen in einfacher Weise anpassen läßt.

#### Bezugszeichenliste

- 1 Audio-Soundsystem
- 2 Steuereinheit
- 3 Eingabeeinheit zur Bedienung des Systems (1)
- 4 Anzeigeeinheit
- 5 Einheit zur Generierung der Quelldaten in Form von Audiodaten

- 6 Verstärkereinheit zur Verstärkung der Quelldaten,
- 7 Lautsprecher
- 8 Bussystem
- 9 Speicher
- 10 Rechneereinheit
- 11 Einheit zur Generierung von Multimedia-Daten.

#### Patentansprüche

1. Audio-Soundsystem (1) für ein Kraftfahrzeug mit einer Steuereinheit (2), mit einer Eingabeeinheit (3) zur Bedienung des Systems (1), mit einer Anzeigeeinheit (4), mit einer Einheit (5) zur Generierung der Quelldaten in Form von Audiodaten, mit einer Verstärkereinheit (6) zur Verstärkung der Quelldaten, mit einem oder mehreren Lautsprechern (7) und mit einem Bussystem (8), das die Übertragung der Quelldaten und der Steuerdaten zur Steuerung der Einheiten (2, 3, 4, 5, 6, 7) zwischen den einzelnen Einheiten (2, 3, 4, 5, 6, 7) sicherstellt, **dadurch gekennzeichnet**, daß zumindest eine von der Steuereinheit (2) verschiedene Einheit (3, 4, 5, 6, 7) des Systems (1) einen ihr zugeordneten Speicher (9) aufweist, in dem der Funktionsumfang dieser Einheit (3, 4, 5, 6, 7) dargestellt ist, und dieser Funktionsumfang über den Bus (8) an die Steuereinheit (2) übertragbar ist und in dieser der übermittelte Funktionsumfang zumindest teilweise zur Bildung des Funktionsumfangs des gesamten Systems (1) herangezogen werden kann.
2. Audio-Soundsystem für ein Kraftfahrzeug nach Anspruch 1, dadurch gekennzeichnet, daß der einer Einheit (3, 4, 5, 6, 7) zugeordnete Speicher (9) Teil dieser Einheit (3, 4, 5, 6, 7) ist.
3. Audio-Soundsystem für ein Kraftfahrzeug nach Anspruch 1, dadurch gekennzeichnet, daß der der Einheit (3, 4, 5, 6, 7) zugeordnete Speicher (9) Teil einer über das Bussystem (8) mit der Einheit (3, 4, 5, 6, 7) verbunden, räumlich von den anderen Einheiten (2, 3, 4, 5, 6, 7) separierten Rechneereinheit (10) ist.
4. Audio-Soundsystem für ein Kraftfahrzeug nach Anspruch 3, dadurch gekennzeichnet, daß der der Einheit (3, 4, 5, 6, 7) zugeordnete Speicher (9) in der Rechneereinheit (10) mit geänderten Funktionsumfängen beschreibbar ausgebildet ist.
5. Audio-Soundsystem für ein Kraftfahrzeug nach einem der Ansprüche 3 bis 4, dadurch gekennzeichnet, daß die Rechneereinheit (10) über eine vorbereitete Schnittstelle in dem Bussystem (8) mit dem System (1) lösbar verbunden ist.
6. Audio-Soundsystem für ein Kraftfahrzeug nach einem der vorstehenden Ansprüche, dadurch gekennzeichnet, daß die Steuereinheit (2), die Eingabeeinheit (3) und die Anzeigeeinheit (4) dergestalt miteinander verbunden sind, daß mittels der Anzeigeeinheit (4) die für die Bedienung des gesamten Systems (1) erforderlichen Bedienmenues entsprechend dem Funktionsumfang des gesamten Systems (1) darstellbar sind und die Bedienung des Systems (1) mit Hilfe der Eingabeeinheit (3) anhand der Darstellungen in der Anzeigeeinheit (4) erfolgen kann.
7. Audio-Soundsystem für ein Kraftfahrzeug nach Anspruch 6, dadurch gekennzeichnet, daß die Eingabeeinheit (3) und die Anzeigeeinheit (4) zu einer einzigen Einheit (3,4) zusammengefaßt sind.
8. Audio-Soundsystem für ein Kraftfahrzeug nach Anspruch 7, dadurch gekennzeichnet, daß die Anzeigeeinheit (4) in einzelne Segmente unterteilt ist, welche einzelnen Tasten der Eingabeeinheit (3) räumlich zuge-

ordnet sind und welche die jeweils der zugeordneten Taste zugewiesene Bedienfunktion darstellen, und daß die Zuweisung der Bedienfunktion der Tasten sowie die Darstellung der Bedienfunktion in den einzelnen Segmenten durch die Steuereinheit (2) anhand des Funktionsumfangs des gesamten Systems (1) gewählt ist.

9. Audio-Soundsystem für ein Kraftfahrzeug nach einem der vorstehenden Ansprüche, dadurch gekennzeichnet, daß neben den Audiodaten andere Multimedia-Daten, insbesondere Videodaten, übertragen werden können, und daß entsprechende Einheiten (11) zur Generierung dieser Multimedia-Daten, insbesondere DVD-Player, sowie entsprechende Einheiten zur Darstellung dieser Multimedia-Daten, insbesondere Displays vorgesehen sind.

10. Audio-Soundsystem für ein Kraftfahrzeug nach einem der vorstehenden Ansprüche insbesondere Anspruch 9, dadurch gekennzeichnet, daß in dem System (1) mehrere Einheiten (5, 11) zur Generierung von Audio- und/oder Multimedia-Daten vorgesehen sind.

11. Audio-Soundsystem für ein Kraftfahrzeug nach einem der vorstehenden Ansprüche, dadurch gekennzeichnet, daß das System (1) mehrere Verstärkereinheiten (6) zur Verstärkung der Audio-Quelldaten vorgesehen sind, welche jeweils einem oder mehreren Lautsprechern (7) räumlich zugeordnet und mit diesen so verbunden sind, daß ausschließlich diese mit den spezifisch verstärkten Audiodaten angesteuert werden.

12. Audio-Soundsystem für ein Kraftfahrzeug nach einem der vorstehenden Ansprüche, dadurch gekennzeichnet, daß das System (1) einen Zeitgeber aufweist, durch den nach Ablauf einer vorgegeben Zeitspanne die Bildung des Funktionsumfangs des gesamten Systems (1) aus den Funktionsumfängen der einzelnen Einheiten (2, 3, 4, 5, 6, 7, 11) auslösbar ausgebildet ist.

13. Audio-Soundsystem für ein Kraftfahrzeug nach Anspruch 12, dadurch gekennzeichnet, daß die vorgegebene Zeitspanne für die Bildung des Funktionsumfangs des gesamten Systems (1) einstellbar ausgebildet ist.

14. Audio-Soundsystem für ein Kraftfahrzeug nach einem der vorstehenden Ansprüche 1 bis 11, dadurch gekennzeichnet, daß das System (1) so ausgebildet ist, daß bei Einschalten des gesamten Audio-Soundsystems (1) oder einer einzelnen Einheit (2, 3, 4, 5, 6, 7, 11) davon die Bildung des Funktionsumfangs des gesamten Systems (1) aus den Funktionsumfängen der einzelnen Einheiten (2, 3, 4, 5, 6, 7, 11) auslösbar ist.

15. Audio-Soundsystem für ein Kraftfahrzeug nach einem der vorstehenden Ansprüche, dadurch gekennzeichnet, daß mittels der Bedieneinheit (3) die Ausgabe des Status der Funktionsumfänge des gesamten Systems (1) und/oder einzelner und/oder aller Einheiten (2, 3, 4, 5, 6, 7, 11) über die Anzeigeeinheit (4) auslösbar ist.

16. Audio-Soundsystem für ein Kraftfahrzeug nach einem der vorstehenden Ansprüche, dadurch gekennzeichnet, daß mittels der Bedieneinheit (3) die Bildung des Funktionsumfangs des gesamten Systems (1) aus den Funktionsumfängen der einzelnen Einheiten (2, 3, 4, 5, 6, 7, 11) auslösbar ist.

17. Verwendung des Audio-Soundsystems (1) für ein Kraftfahrzeug nach einem der vorstehenden Ansprüche in einem Wohnwagen, in einem Haus oder in einer Wohnung.

18. Verfahren Festlegung des Funktionsumfangs eines Audio-Soundsystems (1) nach einem der vorstehenden Ansprüche 1 bis 16, dadurch gekennzeichnet, daß bei

einer Änderung des Systems (1) insbesondere durch Hinzufügen einer weiteren Einheit (5, 11) zur Generierung von Quelldaten und bei der damit verbundenen Änderung des Funktionsumfangs des Systems (1), die Steuereinheit (2) von den einzelnen Einheiten (2, 3, 4, 5, 6, 7, 11) ihren einheitenspezifischen Funktionsumfang aus den diesen Einheiten (2, 3, 4, 5, 6, 7, 11) zugeordneten Speichern (9) zur Verfügung gestellt bekommt, und diese einheitenspezifischen Funktionsumfänge gesamt oder teilweise zu einem neuen gesamten Funktionsumfang des gesamten Systems (1) zusammengefügt, und daß im folgenden die Steuereinheit (2) entsprechend diesem gesamten Funktionsumfang die einzelnen Einheiten ansteuert und die generierten Quelldaten dementsprechend den einzelnen entsprechenden Einheiten (2, 3, 4, 5, 6, 7, 11) im System zugewiesen werden.

19. Verfahren Festlegung des Funktionsumfangs eines Audio-Soundsystems nach Anspruch 18, dadurch gekennzeichnet, daß die Steuereinheit (2) entsprechend dem gesamten Funktionsumfang die Eingabe- (3) und die Anzeigeeinheit (4) derart mit Daten versorgt, daß der Benutzer des Soundsystems (1) die einzelnen Parameter der Funktionen des Systems (1) wie beispielsweise Lautstärke, Baß, Treble, Fader, Balance, Equalizer, usw. individuell einstellen kann.

20. Verfahren Festlegung des Funktionsumfangs eines Audio-Soundsystems nach Anspruch 18 und/oder 19, dadurch gekennzeichnet, daß die Steuereinheit (2) entsprechend diesem gesamten Funktionsumfang die Eingabe- (3) und die Anzeigeeinheit (4) derart mit Daten versorgt, daß der Benutzer des Soundsystems (1) die einzelnen Funktionen der einzelnen Einheiten (2, 3, 4, 5, 6, 7, 11) zur Generierung von Quelldaten des Systems wie beispielsweise Play, Tracksprung, Repeat, Fast Forward, Rewind, Frequenzwechsel, Frequenzbandwechsel, Stummschaltung, Verkehrsnachrichten aktivieren/deaktivieren, Sendersuchlauf starten, RDS-Funktionen aktivieren/deaktivieren usw. über entsprechende Bedienmenues aufrufen kann.

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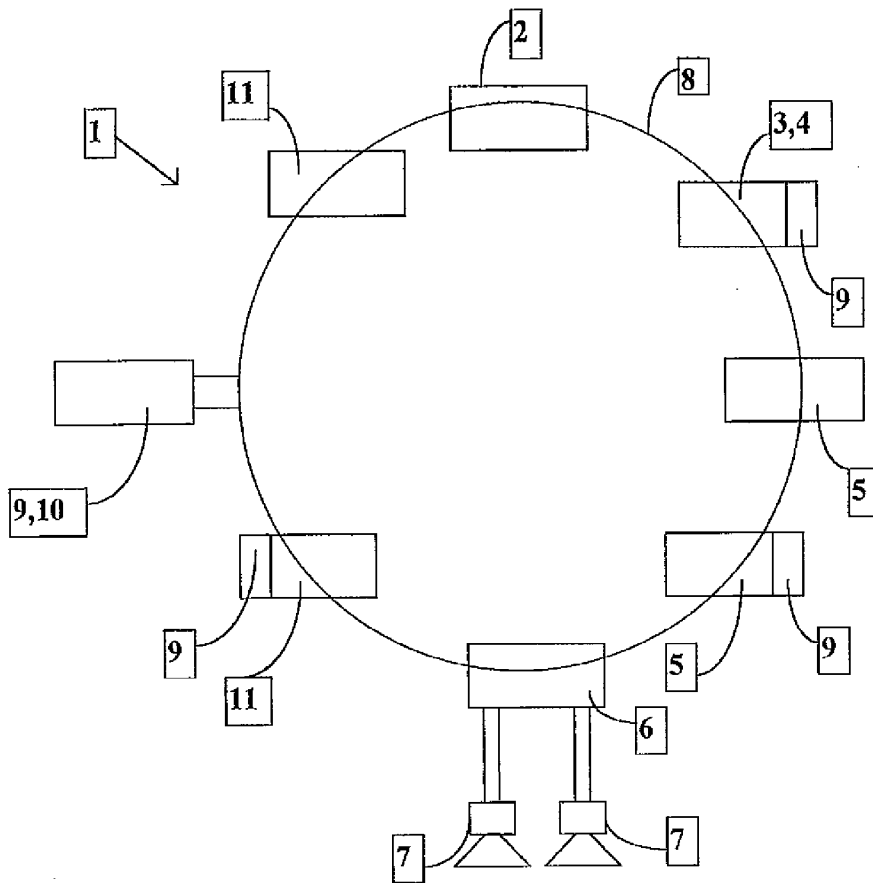
Hierzu 1 Seite(n) Zeichnungen

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### Audio-Soundsystem für ein Kraftfahrzeug

Zeichnungen

Figur 1



D E C L A R A T I O N

I, Hans-Jakob Wilhelm, declare that I am well qualified as a translator of German to English and that I have carefully prepared the attached English language translation from the original document:

Audio-Soundsystem für ein Kraftfahrzeug (DE 196 51 308 A1)

[Audio sound system for a motor vehicle]


written in German; and that the attached translation is an accurate English version of such original to the best of my knowledge and belief.

I certify under penalty of perjury that the foregoing is true and correct.

Date 9/9/2009

Signature

Name

  
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## AUDIO SOUND SYSTEM FOR A MOTOR VEHICLE

An audio sound system (1) for a motor vehicle having a control unit (2), having an input unit (3) for operating the system (1), having a display unit (4), having a unit (5) for generating the source data in the form of audio data, having an amplifier unit (6) for amplifying the source data, having one or multiple loudspeakers (7) and having a bus system (8), which ensures the transmission of the source data and the control data for controlling the units (2, 3, 4, 5, 6, 7) between the individual units (2, 3, 4, 5, 6, 7), in which at least one unit (3, 4, 5, 6, 7) of the system (1) that is distinct from the control unit (2) has an associated memory (9), in which the functional scope of this unit (3, 4, 5, 6, 7) is represented, and this functional scope is transmittable via the bus (8) to the control unit (2) and in the latter the transmitted functional scope is able to be used at least partially for forming the functional scope of the overall system (1). For this purpose, the control unit (2), the input unit (3) and the display unit (4) are connected to one another in such a way that the operating menus required for operating the overall system (1) are representable in accordance with the functional scope of the overall system (1) via the display unit (4) and the system (1) may be operated with the aid of the input unit (3) on the basis of the representations on the display unit (4).

## Description

The invention relates to an audio sound system for a motor vehicle having a control unit, having an input unit for operating the system, having a display unit, having a unit for  
5 generating the source data in the form of audio data, having an amplifier unit for amplifying the source data, having one or multiple loudspeakers associated with the amplifier unit and having a bus system, which ensures the transmission of the source data and the control data for controlling the units  
10 between the individual units.

Such an audio sound system is generally described in EP-A-0 725 522. Furthermore, such a system is described in the printed publication "OCC 8001" CONAN "Optical Transceiver", C&C Electronics Ltd., 1996. The described audio sound systems  
15 disclose a control unit, also called head unit, which effects the control of the overall system and which allows for the output of information via the display unit, the operation of the system by the user via the input unit and the conversion into corresponding control commands for the individual units  
20 of the audio sound system. The known audio sound systems for motor vehicles feature a rigid system structure, which only allows for certain units to be integrated into the system, which are provided for by the control unit/head unit. The known audio sound systems for motor vehicles thus prove to  
25 have little flexibility, not to be very user-friendly and to be very expensive in the event of an adaptation of the system to the new conditions. An adaptation to new, different, additional components is ensured in the known audio sounds systems by the fact that in addition to the new unit a new  
30 control unit/head unit must also be integrated into the system, which entails the disadvantages already described.

The objective of the invention is to develop the audio sound



system for a motor vehicle in such a way that the system may be modified preferably in a simpler, more cost-effective and more reliable manner.

In the known [sic] audio sound system, this objective is achieved in that the control unit is enabled to receive from one or multiple or all other units of the system their possible functional scope, which is stored in a memory associated with the latter, via the bus system, and that the functional scope of the overall system is formed from the sum of the individual functional scopes. This functional scope of the overall system always forms a subset of all functional scopes of the individual units of the audio sound system. According to the invention, the described audio sound system reveals a structure, which has stored the functional scope of the individual units in decentralized locations and where in a centralized location, preferably in the control unit, a functional scope of the overall system for controlling the overall system is stored, which is formed from the different individual functional scopes of the individual units.

In contrast to the related art, in the event of a modification, for example when adding a new unit of the audio sound system for which there was originally no provision, the control unit, or rather the head unit, is no longer exchanged, but is rather maintained in its kind and it is ensured that the added functional scope of the additional unit is included in the formation of the functional scope of the overall system, whereby the modifications of the overall system are taken into account and the user is provided with new, modified operating options and corresponding functionalities of the system in accordance with the modifications. Thus, to the extent required, in accordance with the new functional scope of the overall system, a new operational guidance for operating the overall system is provided, which possibly

involves modified representations in the display unit or modified assignments of commands to the input keys of the input unit.

This development of the audio sound system makes it possible to adapt the functional scope of the audio sound system to new requirements in a reliable, simple and cost-effective manner. Costly ancillary devices and new devices are not required in this case.

A particularly advantageous, flexible audio sound system is provided if a plurality of units has memories associated with them, in which functional scopes specific for these units are stored, and if from these the overall functional scope of the system is formed, in which all functionalities are used or only certain parts of the functionalities of the individual units are to be transferred into the functionality of the overall system. This partial transfer may occur automatically through the control unit or through the user or through an additional unit that is temporarily integrated into the sound system and connected via the bus line.

In a particularly advantageous manner, the versatility of the system may thus be flexibly and freely configured according to the respective requirements of the user in accordance with the respectively available units for producing audio data or the units for amplifying these data, which may also be the case if no new units are included in the system, but rather only the utilized subsets of the individual functional scopes are adapted to new requirements by expansion or restriction.

According to a preferred specific embodiment of the invention, the memory associated with a unit is developed as a part of this unit. This ensures that the memory content containing the possible functional scope of the unit does not have to be transmitted via the bus system to the unit in order

subsequently to transmit the functional scope from the unit again via the bus line to the control unit. In the case of an optical bus system, which has particularly great advantages in terms of EMC stability and saving weight, one may dispense with the necessarily required, cost-intensive electrical-optical converters between the memories and the units, which makes the system less susceptible to failures and thus increases the reliability of operation and thus the user-friendliness of the system. Moreover, this development proves to be particularly cost-effective.

According to an advantageous development of the invention, the memory is developed as part of a computer unit, which is connected via the bus system to the unit associated with the memory, and which is developed as an independent computer unit spatially separated from the other units, and which, when required, is able to supply via the bus system the functional scope of the unit associated with the memory directly or indirectly to the control unit for forming the functional scope of the overall system. For this purpose, the use of a computer unit proves to be particularly advantageous since it has very flexible memory structures, into which other modified functional scopes may be written in a simple manner via other interfaces of the computer unit. It is also possible to provide in the system a possibly central computer unit having a corresponding memory, which ensures the central management of the individual functional scopes of the individual units and, when required, transmits these directly or indirectly to the control unit for forming the new modified functional scope of the overall audio sound system via the bus system. The computer unit is preferably connected to the system in a detachable manner. By using a borrowed specific computer unit by way of a temporary integration into the system via a prepared interface in the bus system, the system may be

provided with a new modified overall functional scope. This makes for a very flexible system that is cost-effective for the user. For example, via such a system, a new functionality, for example a new type of 3D sound may be very simply entered as a new functionality of the system, including the operational guidance associated with this functionality, and thus adapted to the individual requirements of the user in a very simple, cost-effective and flexible manner. This makes it possible in many cases to substitute the necessity of replacing complete units or the entire audio sound system with a pure reprogramming of the system, which in addition to the mentioned advantages also has advantageous consequences with respect to the waste of resources and the avoidance of waste material.

A particularly simple and comfortable way of operating the audio sound system is achieved by connecting the control unit, the input unit and the display unit to one another in such a way that, in accordance with the functional scope of the overall system, specific operating menus are represented on the display unit, which allow for the system to be operated in a purposeful and simple manner with the aid of the input unit on the basis of the representations on the display unit. The operating menus may be specific for the individual functionalities of the individual units, but they may also be specific for the type of process for forming a new modified functional scope of the overall system. In this connection, it is possible to provide the display unit with an additional voice output, which markedly increases the user-friendliness and operational reliability of the overall system. Likewise, with comparable advantages, the input unit may also be developed as a voice-controlled input unit.

It has turned out to be a preferred development of the audio sound system to combine the input unit and the display unit

into a single unit and to develop the latter preferably in such a way that the display unit is subdivided into individual segments, which are spatially associated with individual keys of the input unit and which respectively represent the operating function assigned to the associated key and control the corresponding keys and the segments via the control unit on the basis of the functional scope of the overall system in such a way that the functions assigned to the keys and represented on the associated segment may be triggered by operating the keys. These developments make it possible to construct the audio sound system in a very simple manner having as few interfaces and units as possible, which simplifies the management of the overall system, or the control of the individual units, as well as the supply of the system with the required power and thus makes the system less susceptible to failures. This provides for a higher degree of operational reliability and greater simplification of the operation of the system. According to the described specific embodiment, it is possible to accommodate a central unit as a man-machine interface, made up of input unit and display unit, in the vehicle, preferably in the dashboard, and to accommodate all the other units such as tuner, CD player, video player or the like in the motor vehicle in the location adapted and optimized with respect to their function or the possibilities of the vehicle and to connect these to one another via the bus system in such a way that the required control data and source data are transmitted in a targeted manner. This makes it possible for example to situate the radio tuner or TV tuner at the per se ideal location in the area of the antenna and only transmit the source data output by these tuners to the corresponding amplifier and the output unit. The control operation occurs in this case via the central unit, the man-machine interface, which affords the user the possibility of operating all system components having

their respective functional scopes. When changing the functional scopes of the system by changing the functional scopes of individual components or by adding or removing individual components, the described system of the invention  
5 may be reconfigured in a particularly simple and reliable manner.

It has proved to be a preferred development of the present invention that, in addition to the audio data, other multimedia data, in particular video data, may be transmitted  
10 and that corresponding units for generating these multimedia data and corresponding units for representing these multimedia data are provided. Particularly DVD players, CD ROM readers or navigation devices should be mentioned as examples of units for generating multimedia data, while LCD displays are  
15 examples of units for representing these multimedia data. It is especially this variety and the very dynamic development of the multimedia field, with its specific multimedia data, the specific informational scopes of the respective devices including the manner of operating these devices, which reveals  
20 the particular advantage of the system according to the invention because this system is able to react at any time flexibly to all possible changes of new devices in the multimedia field and their specific developments and to adapt the sound system simply and flexibly to the requirements. This  
25 flexibility proves itself all the more, the higher the number of units for generating audio and/or multimedia data since in such systems modifications by replacement of the devices on the part of the user and thus the modification of the functional scope occurs much more frequently than in systems  
30 having only one single unit for generating audio and/or multimedia data. In such systems, the user is able to define the functional scope of the overall system according to his ideas and assign to it the corresponding control commands and

operating commands for the future for operating the system.

In systems having multiple amplifier units for amplifying the audio source data, the particular advantages of the system according to the invention are revealed in a special way since precisely these amplifier units, particularly if each for itself has specifically associated units for converting the amplified source data into sound waves, have a plurality of different functionalities. This is all the more so since for each associated loudspeaker each amplifier unit may be provided with specific source data adapted to the location and the other characteristics of the loudspeaker and specifically amplified, which may express itself in different propagation time delays, predistortions and the like. If for any reason some component, particularly a unit for converting the amplified source data, is modified, then the individual functional scopes of the amplifier unit may be adapted in such a way that the overall audio sound system having the new modified unit for converting the amplified source data into sound waves produces for the user the most ideal sound experience possible. The system according to the invention thus also makes it possible to change the functional scope in such a way that for specific locations in the vehicle, which the user is able to choose, a nearly ideal sound space may be set respectively by using the various amplifier parameters such as fader, balance, delay values, predistortion and the like. Each new set of parameters represents a modified functional scope, which may be used in a particularly simple and flexible manner in the system according to the invention. These advantages are obtained all the more if each unit for converting the amplified source data into sound waves has an amplifier of its own assigned to it, i.e. if so-called active loudspeakers are used. Thus, depending on the type of use of the active loudspeakers, these may be assigned a respectively

specific functional scope as their functional scope, which in accordance with the invention is then used, partially or in its entirety, in the formation of the functional scope of the overall system.

5 Preferably, the audio sound system is equipped with a timer, which following the expiration of a specified time span ensures the generation of the functional scope of the overall system from the functional scopes of the individual units. This system provides for an automated generation of the functional scope of the overall system at regular intervals, 10 which allows for a very reliable and simple handling of the system and of the possibilities of the system. If the specified time span is developed to be adjustable, then the individual requirements of the user may be taken into account 15 in an advantageous manner. If the user will want to adapt the system frequently by adding or exchanging individual components or removing individual components or simply adapt it to the changed individual wishes of the respective user, then he will set a shortened specified time span, while a user 20 who plans no changes or practically no changes will set for the system a long time span until the reconfiguration of the system. This adjustable, specified time span ensures the user-friendliness of the system in a particular manner because the system defines the functional scope of the overall system 25 automatically without actions on the part of the user in that it makes use of the functional scopes of the individual units, the components of the system and from these forms the overall functional scope. Moreover, such a system proves to be particularly reliable since the process of defining the new 30 functional scope always proceeds along a fixed course without thereby limiting the flexibility of the system, i.e. taking into account changes of the most various kinds.

The system is preferably developed in such a way that the



activation of the overall audio system or also of each individual unit is detected and that this activation triggers the formation of the functional scope of the overall system from the functional scopes of the individual units. Here it must be noted that the addition of a unit is equivalent to the activation of this unit. This specific manner of triggering the formation of the overall functional scope ensures in a simple manner that at reduced management cost an overall functional scope adapted to the individual components is always provided, which automatically adapts to the changed conditions, particularly when adding further components, i.e. replacing individual components by removal and subsequent addition. This ensures a very flexible system which is reliable in its function due to the reduced management. This system is particularly characterized by the fact that it is not fully operational only for a very limited time, particularly upon activation, since at this time the overall functional scope must first be formed and as a result the operation of the system is not possible for this time or possible only in a limited way.

A particularly suitable overall system is a system which may be prompted to form the overall functional scope of the overall system with the aid of the operating unit. If the user has the need to modify the sound system in its functional scope or adapt it to the changed characteristics, he is able to trigger the formation of the functional scope of the overall system by activating one or several operating elements of the operating unit. This ensures that the formation of the functional scope is triggered, and the system thereby briefly hindered in its operation, only when necessary. This ensures the functionality of the overall system over nearly the entire time. The system continues to ensure in an excellent manner a reliable and flexible adaptation to the requirements and

wishes of the user.

Furthermore, a preferred development of the audio sound system has proved to be the ability to allow for the functional scopes of the overall system and of the individual and/or all units to be output via the display unit when prompted by the user. Furthermore, it has proved advantageous to ensure by appropriate operational guidance using the operating unit and the display unit that individual partial functional scopes or even entire functional scopes of individual components are selected for use in forming the functional scope of the overall system. After concluding the selection of the individual selected functional scopes of the individual units, the overall functional scope of the system is then formed, as a result of which menus and functionalities corresponding to the new overall functional scope are assigned to the operating unit and display unit, as also now only the control commands relevant for the limited, newly formed overall functional scope of the system and thus the functionalities relevant for the functionalities of the new overall functional scope of the system are ensured for the control unit and the individual units. The system may thus be adapted very simply to the wishes of the user and reduced to the extent of control activity and management activity necessary for the desired functional scope. Thus it is no longer necessary to support a multitude of functionalities of the system which the user does not desire. This makes it possible to increase the operational reliability and functional reliability of the system markedly without limiting the flexibility of the system.

Besides using the audio sound system in a motor vehicle, the use of this system in an automobile camper or a house or an apartment is advantageous since in these there also occur comparable problems, in particular when adding additional components in a system having units connected via a bus

system. The comparable advantages are thus revealed as well,  
especially when individual components are added, for example  
when another room of the apartment is to be equipped with  
units for converting audio source data into sound waves and is  
5 possibly to be equipped with amplifiers. In a modification of  
this kind, the system should be adapted to the new  
requirements as simply, reliably, quickly and flexibly as  
possible. In this respect, the use of the audio sound system  
for a motor vehicle proves to be particularly advantageous in  
10 the other environments.

The invention is explained below on the basis of an exemplary  
embodiment as shown in Figure 1. The figure shows:

Figure 1 an audio sound system for a motor vehicle,  
whose units **[are connected]** via a bus system  
15 having a ring-shaped topology.

The audio sound system 1 for a motor vehicle shown in Figure 1  
by way of example shows a control unit 2, an input unit 3, an  
output unit 4 combined in one device which additionally has a  
memory 9, the combined unit also being called a man-machine  
20 interface MMI, a CD changer 5, an FM tuner 5 having an  
associated memory 9, an amplifier unit 6 having two connected  
loudspeakers 7, a navigation unit 11 having an associated  
memory 9, a computer unit 10 having an integrated memory 9,  
and a TV tuner 11. These individual components of audio sound  
25 system 1 are connected to one another in a ring-shaped manner  
via a bus system 8.

Control data, audio data as well as multimedia data are  
transmitted via bus system 8. The individual components 3, 4,  
5, 6, 11, 10 are controlled in accordance with their  
30 functionalities or supplied with the data necessary for their  
functioning in the system by control unit 2 of audio sound  
system 12.

The MMI 3, 4, 9 is controlled in such a way for example that display 4 is subdivided into individual segments, which are spatially and functionally associated with individual keys of the input unit, and that the segments present the operating  
5 function of the key associated with this segment typically in the form of a menu representation. Operating one of the keys triggers the function represented on the associated segment of display unit 4. These functions may be of the most varied kinds such as for example, increase volume, lower volume,  
10 loudness on or off, surround on or off, system off, sleep mode on, increase or decrease bass, shift balance to the left or to the right, switch to TV tuner, start input mode for navigation, start equalizer programming and much more. This representation allows the user to operate the entire system 1  
15 via the one central input unit 3 and display unit 4. The data required [for] the representation and the operation are stored in memory 9 of the MMI. Not only the currently relevant data, i.e. the current scope of operation and representation, are stored, but also all kinds of other data that are relevant for  
20 the MMI in its most general possibility of representation and operation. These general data thus reveal the basic possibilities and thus the functional scope of the MMI. The latter is not necessarily identical with the currently active functional scope.

25 The same holds for the other units for generating source data such as the FM tuner with the associated integrated memory 9, and navigation unit 11 with its integrated memory 9, which preferably takes the form of a CD-ROM and is thus able to represent a comprehensive functional scope. In addition to the  
30 data regarding the possible functional scope of navigation unit 11, this functional scope also includes the data regarding the functional scope of the TV tuner. Because of the possibility of exchanging the CD-ROM as a memory base, the

possible functional scope may be very simply modified in the form of a kind of software update.

In addition, the represented audio sound system shows a computer unit 10 having an integrated memory 9. This computer unit 10 is connected to bus system 8 via a detachable interface (not shown) and is able to exchange data with the other unit of system 1 via this interface. Memory 9 of computer unit 10 stores for example the possible functional scopes of CD changer 5 and of amplifier 6 and, is applicable, of loudspeakers 7. Via an existing further standardized interface such as RS 232, modified or new functional scopes for individual units of the system may be imported into computing unit 10 and, when needed, stored in its memory 9. Since computing unit 10 is detachably connected to the bus system, it is always possible to use it to perform a simple check of the system in the manner of a regular service including an integrated adaptation of the possible functional scopes in a very simple manner. In this case, these possible functional scopes are assigned to individual memories 9 of system 1 and stored there, either in their entirety or to a limited extent.

On the basis of the functional scope of the overall system 1 formed from the individual functional scopes of the individual components, also called units of the system, the input unit 3 and display unit 4 combined into a central MMI is assigned defined operating menus and command sequences regarding the operating elements, on the basis of which the user is able to operate the system. Furthermore, the set of control commands between the individual components is selected in accordance with the functional scope, which reduces the administrative and organizational cost for operating the system. The operational reliability is thereby increased as well since fewer reciprocal effects between individual system states and

corresponding functionalities have to be taken into account.

If now one of the units 3, 4, 5, 6, 7, 11 is removed from system 1, is replaced by another unit or another unit is added, then this modification of the system is registered by control unit 2. Thereupon, a method sequence for determining the functional scope of audio sound system 1 is triggered automatically. In this process, all of the functional scopes of the individual units of the system are centrally registered in sequence via bus system 8 and the functional scope of overall system 1 is formed from the detected individual functional scopes. This may be done by completely taking over the individual functional scopes of individual units or by taking them over partially. Which functionalities of a unit are taken over into the functional scope of the overall system may be determined from interactions of the individual units or by individual selection on the part of the user of system 1.

One example of a limiting combination of units would be a balance or fader function if the overall system only has one single loudspeaker 7. In this case, control unit 2 would detect that the fader or balance functionality of amplifier unit 6 is not admissible in the current system configuration having a single loudspeaker 7 and may thus not be taken over into the functional scope of overall system 1. Limiting factors may also be based on the properties of individual units.

Furthermore, the user of the system may also trigger a modification of the functional scope by operating a certain key or key combination of input unit 3 without intervening in the individual units of the system - exchange, removal or addition of units. In the process, the user may define a functional scope agreeable to him. This then occurs by accordingly selecting the individual functionalities of the

individual units of the system with the aid of operating unit 3 and display unit 4. In the process, the possible functionalities are displayed in display unit 4 and selected by specific operation of the keys of operating unit 3 to be taken over into the functional scope of overall system 1. This is done for all units whose functional scope is freely selectable. It is also possible to enter only the changes to the existing functional scope of the overall system, that is, according to the wishes of the user, individual functionalities are deleted from the functional scope or new functionalities are added to the existing functional scope. On the basis of the newly defined functional scope of the system, the corresponding operating menus are represented in display unit 4 and the command scopes corresponding to this functional scope are assigned to the keys of operating unit 3 and the control commands corresponding to this functional scope are exchanged between the individual units, in particular between control unit 2 and the specific unit.

This possibility ensures that each user is able to produce a functional scope of the overall system in accordance with his own requirements, without respectively having to fall back on other new components. Because of the individual option of defining the functional scope, one and the same audio sound system may display completely different faces and modes of behavior. One user reveals himself as a complete purist in terms of the type of operation, which is why it is entirely sufficient for him to be able to control the volume and to select the signal source. This user would be bothered by any additional functionality and will find this purist functional scope most appealing. The other user would like to have all possible intervention options and functionalities of each individual unit of the system at his disposal and will therefore take over all possible functionalities into the

functional scope of the overall system. The previously  
mentioned user would be completely overwhelmed by such a  
system, while this user finds it very appealing. Especially  
because this system gives him the option at any time to  
5 exchange individual components with other components having a  
greater functional scope or to add additional components and  
thereby to adapt the functional scope to the respective  
conditions in a simple and reliable manner without a  
complicated intervention into the system. It is possible, for  
10 example, to replace the hitherto simple, monochromatic, small-  
area display unit with a polychromatic display, which  
therefore allows for completely different and more comfortable  
operating menus and thereby facilitates use. This adaptation  
of the functional scope always results from the reciprocal  
15 communication of the individual units via bus system B. The  
disclosed audio sound system provides a very flexible, cost-  
effective and reliably modifiable system, which is easily  
adapted to individual requirements.



List of reference numerals

- 1 audio sound system
- 2 control unit
- 3 input unit for operating the system (1)
- 4 display unit
- 5 unit for generating the source data in the form of audio data
- 6 amplifier unit for amplifying the source data,
- 7 loudspeaker
- 8 bus system
- 9 memory
- 10 computer unit
- 11 unit for generating multimedia data.

What Is Claimed Is:

1. An audio sound system (1) for a motor vehicle having a control unit (2), having an input unit (3) for operating the system (1), having a display unit (4), having a unit (5) for generating the source data in the form of audio data, having an amplifier unit (6) for amplifying the source data, having one or multiple loudspeakers (7) and having a bus system (8), which ensures the transmission of the source data and the control data for controlling the units (2, 3, 4, 5, 6, 7) between the individual units (2, 3, 4, 5, 6, 7),  
wherein  
at least one unit (3, 4, 5, 6, 7) of the system (1) distinct from the control unit (2) has an associated memory (9), in which the functional scope of this unit (3, 4, 5, 6, 7) is represented, and this functional scope is transmittable via the bus (8) to the control unit (2) and in the latter the transmitted functional scope may be used at least partially for forming the functional scope of the overall system (1).
2. The audio sound system for a motor vehicle as recited in Claim 1,  
wherein  
the memory (9) associated with a unit (3, 4, 5, 6, 7) is a part of this unit (3, 4, 5, 6, 7).
3. The audio sound system for a motor vehicle as recited in Claim 1,  
wherein  
the memory (9) associated with the unit (3, 4, 5, 6, 7) is part of a computer unit (10) that is connected to the unit (3, 4, 5, 6, 7) via the bus system (8) and that is spatially separated from the other units (2, 3, 4, 5, 6,

- 7).
4. The audio sound system for a motor vehicle as recited in Claim 3,  
wherein  
the memory (9) associated with the unit (3, 4, 5, 6, 7) is developed in the computer unit (10) so as to be capable of having modified functional scopes written into it.
  5. The audio sound system for a motor vehicle as recited in one of Claims 3 through 4,  
wherein  
the computer unit (10) is detachably connected to the system (1) via a prepared interface in the bus system (8).
  6. The audio sound system for a motor vehicle as recited in one of the preceding claims,  
wherein  
the control unit (2), the input unit (3) and the display unit (4) are connected to one another in such a way that the operating menus required for operating the overall system (1) are representable in accordance with the functional scope of the overall system (1) via the display unit (4) and the system (1) may be operated with the aid of the input unit (3) on the basis of the representations on the display unit (4).
  7. The audio sound system for a motor vehicle as recited in Claim 6,  
wherein  
the input unit (3) and the display unit (4) are combined in a single unit (3, 4).
  8. The audio sound system for a motor vehicle as recited in

Claim 7,

wherein

the display unit (4) is subdivided into individual segments, which are spatially associated with individual keys of the input unit (3) and which represent the operating function assigned respectively to the associated key, and the assignment of the operating function of the keys and the representation of the operating function on the individual segments is selected by the control unit (2) on the basis of the functional scope of the overall system (1).

9. The audio sound system for a motor vehicle as recited in one of the preceding claims,

wherein

in addition to the audio data, other multimedia data, in particular video data, may be transmitted, and corresponding units (11) for generating these multimedia data, in particular DVD players, and corresponding units for representing these multimedia data, in particular displays, are provided.

10. The audio sound system for a motor vehicle as recited in one of the preceding claims, in particular Claim 9,

wherein

multiple units (5, 11) are provided in the system for generating audio and/or multimedia data.

11. The audio sound system for a motor vehicle as recited in one of the preceding claims,

wherein

the system (1) multiple amplifier units (6) are provided [sic] for amplifying the audio source data, which are spatially associated respectively with one or multiple loudspeakers (7) and are connected to these in such a way

that these are exclusively controlled by the specifically amplified audio data.

12. The audio sound system for a motor vehicle as recited in one of the preceding claims, wherein the system (1) has a timer, by which, following the expiration of a specified time span, the formation of the functional scope of the overall system (1) from the functional scopes of the individual units (2, 3, 4, 5, 6, 7, 11) is developed to be triggerable.
13. The audio sound system for a motor vehicle as recited in Claim 12, wherein the specified time span for forming the functional scope of the overall system (1) [~~is~~] developed to be adjustable.
14. The audio sound system for a motor vehicle as recited in one of the preceding Claims 1 through 11, wherein the system (1) is developed in such a way that when switching on the overall audio sound system (1) or one individual unit (2, 3, 4, 5, 6, 7, 11), the formation of the functional scope of the overall system (1) from the functional scopes of the individual units (2, 3, 4, 5, 6, 7, 11) is thereby triggerable.
15. The audio sound system for a motor vehicle as recited in one of the preceding claims, wherein the output of the status of the functional scopes of the overall system (1) and/or of individual and/or all units (2, 3, 4, 5, 6, 7, 11) via the display unit (4) is triggerable via the operating unit (3).

16. The audio sound system for a motor vehicle as recited in one of the preceding claims, wherein the formation of the functional scope of the overall system (1) from the functional scopes of the individual units (2, 3, 4, 5, 6, 7, 11) is triggerable via the operating unit (3).
17. A use of the audio sound system (1) for a motor vehicle as recited in one of the preceding claims in an automobile camper, a house or in an apartment.
18. A method [for] defining the functional scope of an audio sound system (1) as recited in one of the preceding Claims 1 through 16, wherein in the event of a modification of the system (1), in particular by adding another unit (5, 11) for generating source data, and in the associated modification of the functional scope of the system (1), the control unit (2) is provided by the individual units (2, 3, 4, 5, 6, 7, 11) with their unit-specific functional scope from the memories (9) associated with these units (2, 3, 4, 5, 6, 7, 11) and combines these unit-specific functional scopes in their entirety or partially into a new overall functional scope of the overall system (1), and subsequently the control unit (2) controls the individual units in accordance with this overall functional scope and the generated source data are accordingly assigned to the individual corresponding units (2, 3, 4, 5, 6, 7, 11) in the system.
19. The method [for] defining the functional scope of an audio sound system as recited in Claim 18, wherein

the control unit (2), in accordance with the overall functional scope, supplies the input (3) and the display unit (4) with data in such a way that the user of the sound system (1) is able individually to adjust the individual parameters of the functions of the system (1) such as for example the volume, bass, treble, fader, balance, equalizer, etc.

20. The method **[for]** defining the functional scope of an audio sound system as recited in Claim 18 and/or 19, wherein
- the control unit (2), in accordance with this overall functional scope, supplies the input unit (3) and the display unit (4) with data in such a way that the user of the sound system (1) is able to call up via corresponding operating menus the individual functions of the individual units (2, 3, 4, 5, 6, 7, 11) for generating source data of the system such as for example activating/deactivating play, track jump, repeat, fast forward, rewind, frequency change, frequency band change, mute, traffic report, starting station scan, activating/deactivating RDS functions etc.

## Electronic Patent Application Fee Transmittal

<b>Application Number:</b>	12015320			
<b>Filing Date:</b>	16-Jan-2008			
<b>Title of Invention:</b>	Method for Managing Media			
<b>First Named Inventor/Applicant Name:</b>	Russell W. White			
<b>Filer:</b>	Mark J. Rozman/Stephanie Petreas			
<b>Attorney Docket Number:</b>	AFF.0004C5US			
Filed as Large Entity				
<b>Utility under 35 USC 111(a) Filing Fees</b>				
<b>Description</b>	<b>Fee Code</b>	<b>Quantity</b>	<b>Amount</b>	<b>Sub-Total in USD(\$)</b>
<b>Basic Filing:</b>				
<b>Pages:</b>				
<b>Claims:</b>				
<b>Miscellaneous-Filing:</b>				
<b>Petition:</b>				
<b>Patent-Appeals-and-Interference:</b>				
<b>Post-Allowance-and-Post-Issuance:</b>				
<b>Extension-of-Time:</b>				



Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
<b>Miscellaneous:</b>				
Submission- Information Disclosure Stmt	1806	1	180	180
<b>Total in USD (\$)</b>				<b>180</b>

## Electronic Acknowledgement Receipt

<b>EFS ID:</b>	6462742
<b>Application Number:</b>	12015320
<b>International Application Number:</b>	
<b>Confirmation Number:</b>	2156
<b>Title of Invention:</b>	Method for Managing Media
<b>First Named Inventor/Applicant Name:</b>	Russell W. White
<b>Customer Number:</b>	21906
<b>Filer:</b>	Mark J. Rozman/Stephanie Petreas
<b>Filer Authorized By:</b>	Mark J. Rozman
<b>Attorney Docket Number:</b>	AFF.0004C5US
<b>Receipt Date:</b>	16-NOV-2009
<b>Filing Date:</b>	16-JAN-2008
<b>Time Stamp:</b>	17:18:11
<b>Application Type:</b>	Utility under 35 USC 111(a)

### Payment information:

Submitted with Payment	yes
Payment Type	Deposit Account
Payment was successfully received in RAM	\$180
RAM confirmation Number	3783
Deposit Account	201504
Authorized User	

The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:

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Charge any Additional Fees required under 37 C.F.R. Section 1.21 (Miscellaneous fees and charges)

<b>File Listing:</b>					
<b>Document Number</b>	<b>Document Description</b>	<b>File Name</b>	<b>File Size(Bytes)/ Message Digest</b>	<b>Multi Part /.zip</b>	<b>Pages (if appl.)</b>
1	Information Disclosure Statement (IDS) Filed (SB/08)	AFF004C5USSupplDSsuppreex amart.pdf	608998 05eaf13c1d085ade54e39e66de466c6a8b1 b1a61	no	4
<b>Warnings:</b>					
<b>Information:</b>					
2	Foreign Reference	AFF004ForeignDocumentDE19 651308.pdf	1189949 6bd581be5b56f273237b3635a61536fa999 738e4	no	34
<b>Warnings:</b>					
<b>Information:</b>					
3	NPL Documents	AFF004NPLDocumentUniversal SerialBus.pdf	1529295 075f9b3d0839ec52f566502e4163c237c200 7782	no	60
<b>Warnings:</b>					
<b>Information:</b>					
4	NPL Documents	AFF004NPLDocRepliesFiledinR eexamB1.pdf	397471 293c6f41050e5c4044f91b424ce8364fe6ba 6536	no	19
<b>Warnings:</b>					
<b>Information:</b>					
5	NPL Documents	AFF004NPLDocResponsetoNoti ceofFailurePART1.pdf	3604442 3ae93bdf4d3dfc2b46e8f684616c20167f3d c0e5	no	97
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<b>Information:</b>					
6	NPL Documents	AFF004NPLDocResponsetoNoti ceofFailurePART2.pdf	5889473 fd0c0e5b60d03cae375bb6cc4584fffd80d ecd	no	101
<b>Warnings:</b>					
<b>Information:</b>					
7	NPL Documents	AFF004NPLDocResponsetoNoti ceofFailurePART3.pdf	5216000 de403556ad35138edb3cb303b9c2638f9a 5af7d	no	88
<b>Warnings:</b>					
<b>Information:</b>					
8	NPL Documents	AFF004NPLDocResponsetoNoti ceofFailurePART4.pdf	5469861 76550967c3eeb252733654a77200144d4d b66f9e	no	84
<b>Warnings:</b>					
<b>Information:</b>					

9	NPL Documents	AFF004NPLDocResponsetoNoticeofFailurePART5.pdf	4244006 52c56cd2d2685ea2e5f66abd5a2c154f79dd49b2	no	63
<b>Warnings:</b>					
<b>Information:</b>					
10	NPL Documents	AFF004NPLDocResponsetoNoticeofFailurePART6.pdf	4940997 6550d4341fdabb12efd3babf897812e4c52e6d47	no	69
<b>Warnings:</b>					
<b>Information:</b>					
11	NPL Documents	AFF004NPLDocOfficeActiondated11-9-07inSerialNo10947744.pdf	198387 c652f780054ae62ba3ae971323eff7e602714c9d	no	8
<b>Warnings:</b>					
<b>Information:</b>					
12	Fee Worksheet (PTO-875)	fee-info.pdf	30162 cdcea799e1af7e26f7baaf976ed97331c71e3c	no	2
<b>Warnings:</b>					
<b>Information:</b>					
<b>Total Files Size (in bytes):</b>			33319041		
<p><b>This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.</b></p> <p><b><u>New Applications Under 35 U.S.C. 111</u></b>  <b>If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.</b></p> <p><b><u>National Stage of an International Application under 35 U.S.C. 371</u></b>  <b>If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.</b></p> <p><b><u>New International Application Filed with the USPTO as a Receiving Office</u></b>  <b>If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.</b></p>					



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Table with 5 columns: APPLICATION NO., FILING DATE, FIRST NAMED INVENTOR, ATTORNEY DOCKET NO., CONFIRMATION NO. Includes fields for EXAMINER (GARY, ERIKA A), ART UNIT (2617), PAPER NUMBER, MAIL DATE (11/12/2009), and DELIVERY MODE (PAPER).

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 12/015,320	<b>Applicant(s)</b> WHITE ET AL.	
	<b>Examiner</b> Erika A. Gary	<b>Art Unit</b> 2617	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1)  Responsive to communication(s) filed on 24 August 2009.
- 2a)  This action is **FINAL**.                      2b)  This action is non-final.
- 3)  Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4)  Claim(s) 39-45 and 48-60 is/are pending in the application.
  - 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5)  Claim(s) \_\_\_\_\_ is/are allowed.
- 6)  Claim(s) 39-45 and 48-60 is/are rejected.
- 7)  Claim(s) \_\_\_\_\_ is/are objected to.
- 8)  Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9)  The specification is objected to by the Examiner.
- 10)  The drawing(s) filed on \_\_\_\_\_ is/are: a)  accepted or b)  objected to by the Examiner.
  - Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
  - Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11)  The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12)  Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a)  All    b)  Some \*    c)  None of:
    - 1.  Certified copies of the priority documents have been received.
    - 2.  Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    - 3.  Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1)  Notice of References Cited (PTO-892)
- 2)  Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3)  Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date 2/17/09, 3/13/09, 3/26/09, 4/28/09, 5/27/09, 6/4/09, 6/5/09, 6/8/09, 6/12/09, 9/3/09, 9/11/09.
- 4)  Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5)  Notice of Informal Patent Application
- 6)  Other: \_\_\_\_\_.

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 39, 40, 42-45, 48-51, and 53-60 are rejected under 35 U.S.C. 103(a) as being unpatentable over Knockart et al., US Patent Number 6,622,083 (hereinafter Knockart) in view of Kim, US Patent Number 6,681,120 (hereinafter Kim).

Regarding claims 39, 50, and 58, Knockart discloses an audio system comprising: a portable device having a physical interface configured to releasably engage a contacting portion of an interconnection system to form at least a portion of a communication path between the portable device and a separate electronic device, wherein the physical interface has a generally rectangular shape and is configured to couple a first conductive element of the interconnection system with a component of the portable device that outputs data; and a wireless communication module operable to receive an incoming telephone call; and an audio output engine configured to output information representing a played audio file to the separate electronic device via the physical interface [fig. 5; col. 1: lines 39-50; col. 3: lines 37-38; col. 4: lines 32-67; col. 6: lines 29-38; col. 7: lines 65-67; col. 7: lines 65-67].

What Knockart does not specifically disclose is coupling a second conductive element of the interconnection system with a recharging circuit of the portable device

and altering an outputting of the played audio file in connection with a receipt of the incoming telephone call. However, Kim teaches these limitations [col. 1: lines 47-53; col. 3: lines 41-65].

Knockeart and Kim are combinable because they are from the same field of endeavor, which is, outputting data from a portable device to a separate electronic device. At the time of the invention, it would have been obvious to one of ordinary skill in the art to modify Knockeart to include Kim. The motivation for this modification, as suggested by Kim, would have been to interrupt the audio output in order to ensure that the user does not miss a telephone call [col. 3: lines 49-53].

Regarding claims 40, 51, and 59, Knockeart teaches an engine configured to communicate data from the portable device to the separate electronic device to allow the separate electronic device to present an icon on a display of the separate electronic device such that the icon: (a) is a soft button that is linked to a particular audio file saved at the portable device; (b) is selectable by a user via the separate electronic device; and (c) is configured to respond to a user selection by causing the separate electronic device to request the portable device to begin playing the particular audio file [col. 2: lines 46-47; col. 4: lines 52-67; col. 6: lines 22-28; col. 12: lines 3-15].

Regarding claims 42 and 53, Knockeart discloses the interconnection system further comprises an FM modulator [col. 1: line 22].

Regarding claim 43, Knockeart discloses the separate electronic device includes a wireless receiver [col. 2: lines 28-30].



Regarding claims 44, 48, and 55, Knockart discloses a housing component of the wireless device that at least partially defines an enclosure, wherein the wireless communication module and the audio output engine are secured within the enclosure; a front surface of the wireless device that comprises a display, wherein the display represents more than half of a total width of the front surface and more than half of a total length of the front surface; and an interface programming engine located within the enclosure and configured to allow a user to alter a displayed selectable icon [fig. 4; col. 2: lines 46-47; col. 4: lines 52-67; col. 6: lines 22-28; col. 12: lines 3-15, 38-41].

Regarding claims 45, 56, and 60, Kim discloses the portable device is configured to accept an over the air download of an application that allows the portable device to request an audio stream representing a local broadcast signal for a channel located remote from a then current location of the portable device and a different over the air download of a media, further wherein the media is selected from a group consisting of an audio file, a video file, a piece of software, a book, and a message [col. 5: lines 1-5].

Regarding claims 49 and 54, Knockart discloses the portable device comprising a front surface having a length and a width, wherein the length is longer than the width [fig. 4]. However, Knockart does not teach that the physical interface is located on a lengthwise side of the portable device. However, the Examiner takes Official Notice that locating the physical interface to the lengthwise side of the portable device is well known in the art. The motivation for this modification would have been a matter of design choice that lacks criticality to the overall function of the invention.

Regarding claim 57, Knockeart discloses the wireless device comprises a generally rectangular housing having a display that substantially predominates a face of the housing [fig. 4].

3. Claims 41 and 52 are rejected under 35 U.S.C. 103(a) as being unpatentable over Knockeart and Kim in view of Sorscher, US Patent Number 4,807,292 (hereinafter Sorscher).

Regarding claims 41 and 52, Knockeart and Kim do not specifically disclose wherein the interconnection system is operable to couple the portable device to a power supply of an automobile. However, Sorscher teaches this limitation [col. 1: lines 23-26; col. 2: lines 10-30].

Knockeart, Kim, and Sorscher are combinable because they are from the same field of endeavor, which is, outputting data from a portable device to a separate electronic device. At the time of the invention, it would have been obvious to one of ordinary skill in the art to modify the combination of Knockeart and Kim to include Sorscher. The motivation for this combination would have been conserve battery power of the portable device.

### ***Conclusion***

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Pudsey, EP 0333330, discloses an information distribution system.

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Erika A. Gary whose telephone number is 571-272-7841. The examiner can normally be reached on Monday-Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dwayne Bost can be reached on 571-272-7023. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/EAG/  
November 7, 2009

/Erika A. Gary/  
Primary Examiner, Art Unit 2617

<b>Notice of References Cited</b>	Application/Control No. 12/015,320	Applicant(s)/Patent Under Reexamination WHITE ET AL.	
	Examiner Erika A. Gary	Art Unit 2617	Page 1 of 1

**U.S. PATENT DOCUMENTS**

*	Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
*	A US-6,681,120 B1	01-2004	Kim, Ki Il	455/556.1
*	B US-4,807,292	02-1989	Sorscher, Bernard	381/86
*	C US-6,622,083	09-2003	Knockeart et al.	701/202
	D US-			
	E US-			
	F US-			
	G US-			
	H US-			
	I US-			
	J US-			
	K US-			
	L US-			
	M US-			

**FOREIGN PATENT DOCUMENTS**

*	Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	Classification
	N EP 333330 A1	09-1989	European Patent	PUDSEY, DAVID GRAHAM	G08G 01/09
	O				
	P				
	Q				
	R				
	S				
	T				

**NON-PATENT DOCUMENTS**

*	Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
U	
V	
W	
X	

\*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)  
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

19



Europäisches Patentamt  
European Patent Office  
Office européen des brevets

11 Publication number:

**0 333 330**  
**A1**

12

### EUROPEAN PATENT APPLICATION

21 Application number: 89301584.2

51 Int. Cl.4: G08G 1/09 , H04Q 7/04

22 Date of filing: 17.02.89

30 Priority: 18.02.88 GB 8803785

43 Date of publication of application:  
20.09.89 Bulletin 89/38

64 Designated Contracting States:  
AT BE CH DE ES FR GR IT LI LU NL SE

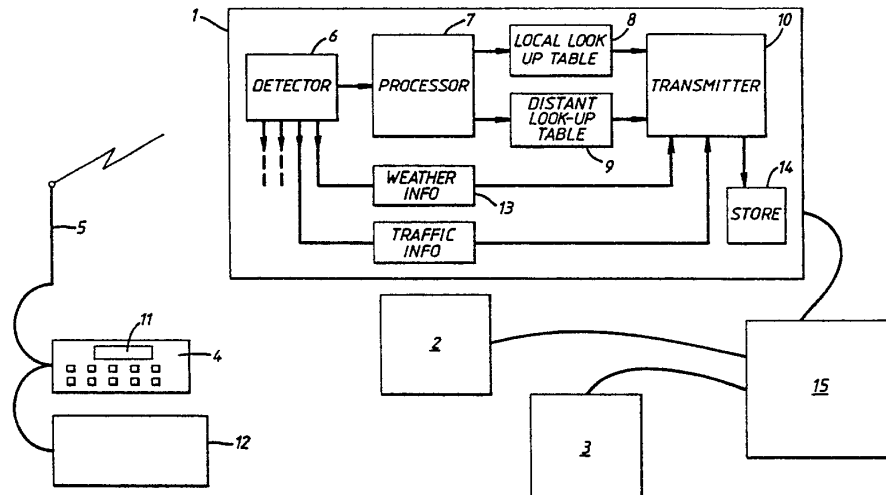
71 Applicant: GEC-Marconi Limited  
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The General Electric Company plc Patent  
Department GEC Marconi Research Centre  
West Hanningfield Road  
Great Baddow, Chelmsford Essex CM2  
8HN(GB)

#### 54 Information distribution system.

57 In a system in accordance with the invention, a cordless telephone base station 1 or telepoint, is modified to enable navigational information and other data to be stored in stores 8, 9 and 13. The information may be accessed via a cordless telephone handset 4 and displayed at 11 or 12.



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EP 0 333 330 A1

## INFORMATION DISTRIBUTION SYSTEM

This invention relates to an information distribution system and more particularly, but not exclusively, to a system which is suitable for use in road vehicle navigation.

A number of road vehicle navigation systems have been proposed but difficulties have been experienced in establishing them. The proposed systems fall into two classes. In the first class, the navigation equipment is carried by the vehicle and is autonomous, and in the second class, communication is required between co-operating fixed installations and on-board equipment.

An autonomous navigation system is one in which apparatus carried by a vehicle functions without reference to external equipment. In one such system, the apparatus includes a digitised road map of the country which is used in conjunction with compass and odometer information to give navigational directions. Even a simple autonomous system is complex and hence relatively expensive, and thus only a small market exists for systems of this type.

In the second class of navigation system, equipment carried by the vehicle co-operates with a network of transponders distributed over a region. Although the apparatus carried by the vehicle itself may be cheaper than that associated with an autonomous system, complicated and expensive computer controlled equipment is necessary to enable the system to be implemented. Also, until an extensive infrastructure exists covering at least part of the country, this type of system is not viable.

The present invention seeks to provide an information distribution system which is relatively easy and inexpensive to implement.

According to the invention there is provided an information distribution system comprising: a cordless telephone base station which includes storage means arranged to store navigational information additional to that required to operate its telephone service; and means capable of accessing the stored information.

Although the invention is particularly applicable to the distribution of information relating to navigation, it should be understood that in its broadest aspect the invention is applicable to the distribution of all classes of information.

A great advantage of a system in accordance with the invention is that, when the second generation of cordless telephones (known as CT2) become available, there will be a rapid expansion in what are termed "telepoints". A telepoint consists of one or more base stations fitted in a public place for use by members of the public carrying a portable cordless telephone handset. Telepoints need

not necessarily form part of a CT2 network; they may also conform to other operating specifications. It is envisaged that an extensive network of cordless telephone base stations will be set up. These may include stored information such as weather reports, local traffic information and any other data which people may wish to access.

Where the information relates to navigation, the base stations can be incorporated into a navigation system, thus avoiding the need to set up a dedicated nationwide distribution of transponders for use in a navigation system alone. The navigational information stored at the base station may be merely a road junction number for example, but more usefully it would include detailed information regarding a junction where the base station is located and the most favourable road to take for a given destination. There may be more than one base station at a junction or its approaches, particularly where the road layout is complicated. Where the information is not related to navigational uses, it may still be advantageous to locate the base station near a road junction for easy access by vehicle occupants of stored information.

It is preferred that the means for accessing the stored information is a cordless telephone handset. As the CT2 network becomes well established, many vehicles will carry a CT2 handset for use as a telephone. This is highly advantageous in establishing, in particular, a navigation system in accordance with the invention as many people already owning handsets for telephone use would be willing to subscribe to a navigation system which would not require the purchase of additional equipment.

It is preferred that the means for accessing the stored additional information is connectable to an aerial carried by a road vehicle, thus increasing the range over which the information may be accessed and enabling amplification of any audible information received from the base station. It is also preferred that the means for accessing the information is connectable to a display device which is arranged to visually display the accessed information, for example on a vehicle dash-board, although the means for accessing may itself incorporate a display. In a particularly advantageous embodiment of the invention, means are included which are capable of audibly conveying accessed information to an operator. This may be achieved by including a voice synthesiser at the telephone base station. The person requiring information from the base station would simply interrogate the base station using the means for accessing the stored information and the required information would be transmitted to him both in visual and audible form.

It is preferred that the stored information at the base station is more detailed for local surroundings than for more distant locations. This permits a relatively small storage capacity to be used whilst ensuring that adequate data is available to an enquirer. This feature is particularly advantageous where the information is navigational information, giving details of preferred routes to a desired destination, for example.

It is preferred that means are included for updating the stored information. This may then be used to take into account any road-works or other problems or changes which might arise. Advantageously, the stored information is up-dated by a remote communication terminal.

Preferably, means are included for transmitting to the base station information regarding a desired destination. This may then be used by the base station to provide information concerning a correct route for a vehicle to follow. However, the base station which holds navigational data might merely transmit information relating to all roads at a junction rather than transmitting only the information specific to a particular destination.

Advantageously, the information to be accessed is represented by a numerical code, as this permits a conventional telephone handset to be used. Possibly, the code may be the post code of a destination, but advantageously, the numerical code is representative of a map reference where the information is related to a destination. If it is wished to provide for an alpha input, the handset may be fitted with an additional digital input/output terminal to be used with an external key-pad. The code may be input into the accessing means and stored for easy retrieval when it is wished to interrogate a base station.

It is preferred that means are included at the base station for automatically logging each accession of the stored information. This enables provision to be made for charging for use of the service.

It is preferred that a plurality of base stations are distributed as a network over a region. It may be advantageous that where the stored information is up-dated at one base station, it is automatically up-dated at another.

One way in which the invention may be performed is now described by way of example, with reference to the accompanying drawing, in which the sole Figure schematically illustrates an information distribution system in accordance with the invention.

With reference to the Figure, a system in accordance with the invention which can be used for road vehicle navigation and to distribute information relating to other matters comprises a plurality of cordless telephone base stations 1, 2 and 3, only some of which are shown, which are distributed

throughout the country. Each base station 1, 2 and 3 is a telepoint which has been modified to incorporate a store containing navigational and other additional information to that which it requires for its operation as part of the telephone service, a micro-processor and a voice-synthesizer. There may be more than one base station associated with a junction, this being especially useful where the road layout is complex.

When a driver approaches a junction which is indicated, for example by a symbol on a road sign, to have a modified telepoint, he may access the stored information to determine which road to take if he requires navigational assistance or other additional information held at the telepoint. In this embodiment of the invention, the means for accessing the stored information is a cordless telephone handset 4, but it could be a dedicated unit.

For navigational use, at the beginning of his journey, the driver keys in a code on the handset 4 representing his desired destination, the code being numerical and based on map references. When he reaches a junction having a base station 1, he presses a button which causes the stored destination code and a handset identification code to be transmitted, communication being established between the handset 4 and the base station 1 via the vehicle's radio aerial 5. The transmission also includes an indication that destination information is required. This is detected at 6 and applied to the storage and processing circuits concerned with navigation data. A processor 7 determines whether the destination required is a local one, using the first two digits of the destination code. If it is, the code is applied to a look-up table 8 which lists destination codes against appropriate local navigational information, the whole code being used to retrieve the stored data. If the destination is distant, only the first two digits of the code are required to retrieve the requested information from a second look-up table 9. The accessed information is passed to a transmitter 10 which includes a voice synthesiser. The transmission is received by the handset 4 in the vehicle and is presented audibly and visually via a display 11 provided on the handset 4. In this equipment, the handset 4 is also connected to a larger display 12 on the dash-board of the vehicle for the convenience of the driver. The driver then uses the retrieved information to select the correct turning.

The base station 1 also stores other types of information. If a person wishes to access weather report information, he keys in the appropriate code on the handset 4. The detector 6 at the base station 1, on receipt of this code, directs the information request to another storage means 13, and again, the retrieved data is transmitted at 10.

The base station 1 records the identification

code associated with the handset 4 at a store 14 when data is accessed. This may be recorded on a tape which is collected and used to calculate charges for use of the system, or may be transmitted to a remote communication terminal 15.

Road works and accidents for example, may alter the best choice of routes to a given destination. The remote communication terminal 15 included in the system may be such that it is able to access the look-up tables 8, 9 and 13 to enter revised and up-dated information. In a more sophisticated version of the system, information sent to one base station 1 which would also affect the directions given by a second base station 2 is automatically also transmitted to the second base station 2. In one version of the system, each base station is able to transmit information to the remote communication terminal 15. For example, some indication of the number of vehicles travelling along a particular route may be given to enable any appropriate changes in directional information to be made.

#### Claims

1. An information distribution system comprising: a cordless telephone base station (1,2,3) which includes storage means (8,9,13) arranged to store information additional to that required to operate its telephone service; and means (4) capable of accessing the stored additional information.

2. A system as claimed in claim 1 wherein the means capable of accessing the stored additional information is a cordless telephone handset (4).

3. A system as claimed in claim 1 or 2 wherein the stored additional information (8,9) is navigational information.

4. A system, as claimed in claim 3 wherein the navigational information concerns road vehicle navigation.

5. A system as claimed in any preceding claim wherein the base station is located in the vicinity of a road junction.

6. A system as claimed in claim 5 and including a plurality of base stations in the vicinity of a road junction.

7. A system as claimed in any preceding claim wherein the means (4) capable of accessing the stored information is connectable to an aerial (5) carried by a road vehicle.

8. A system as claimed in any preceding claim wherein the means (4) capable of accessing the information includes a display device (11) arranged to visually display accessed information.

9. A system as claimed in any preceding claim wherein the means (4) capable of accessing the information is connectable to a display device (12) arranged to visually display accessed information.

10. A system as claimed in any preceding claim and including means (10) capable of audibly conveying accessed information to an operator.

11. A system as claimed in any preceding claim wherein the base station includes a voice synthesizer (10) arranged to articulate accessed information.

12. A system as claimed in any preceding claim wherein the stored additional information is more detailed for local information (8) than for that relating to more distant locations (9).

13. A system as claimed in any preceding claim and including means (15) for up-dating the stored additional information.

14. A system as claimed in claim 13 wherein the stored information is up-dated by means of a remote communication terminal (15).

15. A system as claimed in any preceding claim and including means (4) for transmitting to the base station information regarding a desired destination.

16. A system as claimed in any preceding claim wherein the information to be accessed is represented by a numerical code.

17. A system as claimed in any preceding claim wherein the means (4) capable of accessing includes storage means for storing data regarding information to be accessed.

18. A system as claimed in any preceding claim and including means (14) for automatically logging each accession of the stored information.

19. A system as claimed in any preceding claim and including means for transmitting to the base station an identification code associated with the means capable of accessing.

20. A system as claimed in any preceding claim wherein the base station includes means for transmitting information to a remote communication terminal (15).

21. A system as claimed in claim 20 wherein information transmitted to the remote communication terminal (15) includes identification codes associated with means for accessing stored information.

22. A system as claimed in claim 20 or 21 wherein information transmitted to the remote communication terminal (15) includes data relating to traffic travelling to a particular destination.

23. A system as claimed in any preceding claim and including a plurality (1,2,3) of base stations distributed as a network over a region.



24. A system as claimed in claim 23 wherein up-dated information to one of the base stations is automatically up-dated in another.

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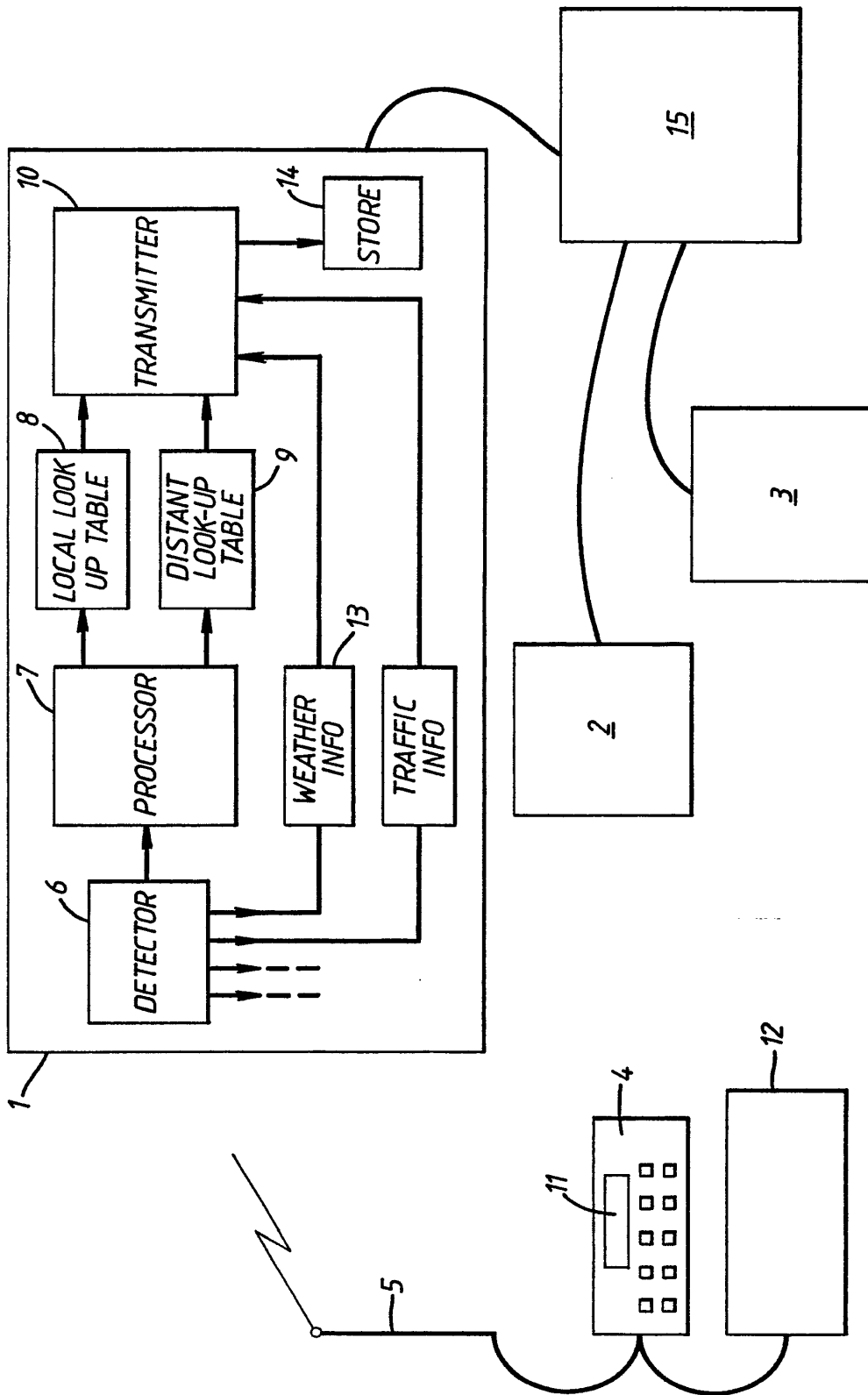
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DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl.4)
X	EP-A-0 199 266 (SIEMENS) * Whole document *	1-7,13-15,20,22,23	G 08 G 1/09 H 04 Q 7/04
Y	---	8-10,18,19,21	
Y	GB-A-2 163 282 (KWAKU BOATENG) * Abstract; page 2, lines 42-65 *	8,9,10	
Y	EP-A-0 110 099 (BOSCH) * Abstract; claims 1,13-16 *	18,19,21	
X	PATENT ABSTRACTS OF JAPAN, vol. 10, no. 213 (E-422)[2269], 25th July 1986; & JP-A-61 52 040 (NEC CORP.) 14-03-1986 * Whole document *	1,2,8	
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			TECHNICAL FIELDS SEARCHED (Int. Cl.4)
			G 01 C G 08 G H 04 Q H 04 B
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 23-05-1989	Examiner KOLBE W.H.
CATEGORY OF CITED DOCUMENTS			
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EPO FORM 1503 03.82 (P0401)

**PUB-NO:** EP000333330A1  
**DOCUMENT-IDENTIFIER:** EP 333330 A1  
**TITLE:** Information distribution system.  
**PUBN-DATE:** September 20, 1989

**INVENTOR-INFORMATION:**

<b>NAME</b>	<b>COUNTRY</b>
PUDSEY, DAVID GRAHAM	N/A

**ASSIGNEE-INFORMATION:**

<b>NAME</b>	<b>COUNTRY</b>
MARCONI GEC LTD	GB

**APPL-NO:** EP89301584  
**APPL-DATE:** February 17, 1989

**PRIORITY-DATA:** GB08803785A (February 18, 1988)

**INT-CL (IPC):** G08G001/09 , H04Q007/04

**EUR-CL (EPC):** G01C021/26 , G08G001/0968 ,  
H04M001/725

**US-CL-CURRENT:** 455/FOR.205 , 455/FOR.246

**ABSTRACT:**

CHG DATE=19990617 STATUS=O> In a system in

accordance with the invention, a cordless telephone base station 1 or telepoint, is modified to enable navigational information and other data to be stored in stores 8, 9 and 13. The information may be accessed via a cordless telephone handset 4 and displayed at 11 or 12.

Receipt date: 06/05/2009

Doc code: IDS

Doc description: Information Disclosure Statement (IDS) Filed

PTO/SB/08a (04-09)

Approved for use through 05/31/2009. OMB 0651-0031

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<b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b> ( Not for submission under 37 CFR 1.99)	Application Number		12015320	
	Filing Date		2008-01-16	
	First Named Inventor	Russell W. White, et al.		
	Art Unit	2617		
	Examiner Name	Erika A. Gary		
	Attorney Docket Number	AFF.004C5US		

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	1	WO 00/79372 A1	WO		2000-12-28	Colvin, David S.		<input type="checkbox"/>

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Examiner Signature	/Erika Gary/ (11/07/2009)	Date Considered	11/07/2009
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Receipt date: 06/08/2009

Doc code: IDS

Doc description: Information Disclosure Statement (IDS) Filed

PTO/SB/08a (04-09)

Approved for use through 05/31/2009. OMB 0651-0031

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	1	2000-66974	JP		2000-03-03			<input type="checkbox"/>
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4	H11-242686	JP		1999-09-07	Sony Corporation	<input type="checkbox"/>
5	DE 44 31 070 B4	DE		2004-07-22	DaimlerChrysler AG	<input type="checkbox"/>
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8	0 771 686 A2	EP		1997-07-05	Toyota Jidosha Kabushiki Kaisha Toyota-shi, Aichi-	<input type="checkbox"/>
9	H4-261576	JP		1992-09-17	Mitsubishi Electric Corporation	<input type="checkbox"/>
10	2-301330	JP		1990-12-13		<input type="checkbox"/>
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13	JP6289118	JP		1994-10-18	Sega Enterprises KK	<input type="checkbox"/>
14	JP6294659	JP		1994-10-21	Dainippon Printing Co. LTD.	<input type="checkbox"/>

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Examiner Name	Erika A. Gary	
Attorney Docket Number	AFF.004C5US	

15	07-129895	JP		1995-05-19	Honda Motor Co Ltd	<input type="checkbox"/>
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17	7-262493	JP		1995-10-13	CSK Corporation	<input type="checkbox"/>
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19	JP7270171	JP		1995-10-20	Sumitomo Electronic Industries	<input type="checkbox"/>
20	JP7036382	JP		1995-02-07	Mitsubishi Electric Corp.	<input type="checkbox"/>
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33	H11-317061	JP		1999-11-16	Victor Company of Japan, LTD.	<input checked="" type="checkbox"/>
34	2901445	JP		1999-03-19	Kenwood Corporation	<input checked="" type="checkbox"/>
35	WO 99/35009	WO		1999-07-15	Microsoft Corporation	<input type="checkbox"/>
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Examiner Name	Erika A. Gary	
Attorney Docket Number	AFF.004C5US	

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42	1999-0073234	KR		1999-10-05	Young-Man Lee	<input type="checkbox"/>
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47	WO 98/21672	WO		1998-05-22	Inergy Online, Inc.	<input type="checkbox"/>

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48	WO 98/47252	WO		1998-10-22	Stern, Geoffrey	<input type="checkbox"/>
49	WO 00/54187	WO		2000-09-14	Rock.Com, Inc.	<input type="checkbox"/>
50	WO 00/60450	WO		2000-10-12	Khyber Technologies Corporation	<input type="checkbox"/>

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Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published.	T <sup>5</sup>
	1	MARK MOELLER, Computing Unplugged Magazine, "Product Preview, A Survey of Auto PC 2.0 for software developers," 1999-2009, Zatz Publishing, pages 1-7.	<input type="checkbox"/>
	2	MARK MOELLER, Computing Unplugged Magazine, "AutoPC Update, Auto PC/Windows CE for Automotive news bites," 1999-2009, Zatz Publishing, pages 1-4.	<input type="checkbox"/>
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33	JUN REKIMOTO, et al., "Augmented Surfaces: A Spatially Continuous Work Space for Hybrid Computing Environments," May 15-20, 1999, pages 378-385.	<input type="checkbox"/>
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35	SCOTT ROBERTSON, et al., "Dual Device User Interface Design: PDAs and Interactive Television," April 13-18, 1996, pages 79-86.	<input type="checkbox"/>
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41	NORBERT A. STREITZ, et al., "Roomware for Cooperative Buildings: Integrated Design of Architectural Spaces and Information Spaces," pages 1-20	<input type="checkbox"/>
42	Direct Cable Connection screen shot, "B1U6U4," 10 pages total.	<input type="checkbox"/>
43	Direct Cable Connection screen shot, 10 pages total.	<input type="checkbox"/>
44	IBM, "WordPad z50 Cradle Option - User's Guide," 1990, pages 1-18.	<input type="checkbox"/>
45	IBM MOBILE SYSTEMS, "WorkPad z50 Mobile Companion (2608-1Ax), Hardware Maintenance Manual," March 1999, pages 1-77.	<input type="checkbox"/>
46	KEVIN JOST, Automotive Engineering International, "The car as a mobile-media platform," May 1998, pages 49-53.	<input type="checkbox"/>
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48	INFOGATION CORPORATION, "InfoGation Corp. Introduces Software Applications for Next-Generation Smart Car Systems," January 8, 1998, pages 1-2.	<input type="checkbox"/>
49	BUSINESS WIRE, "ORA Electronics Announces USB-Compatible TelCar Mark VII Begins Shipping First Quarter of 1999," January 6, 1999, pages 1-2.	<input type="checkbox"/>
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7	0 675 341 A1	EP		1995-04-10	Honda Giken-Kogyo	<input type="checkbox"/>
8	0 771 686 A2	EP		1997-07-05	Toyota Jidosha Kabushiki Kaisha Toyota-shi, Aichi-	<input type="checkbox"/>
9	H4-261576	JP		1992-09-17	Mitsubishi Electric Corporation	<input type="checkbox"/>
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32	RICHARD C. DAVIS, et al., "NotePals: Lightweight Note Sharing by the Group, for the Group," May 15-20, 1999, pages 338-345.	<input type="checkbox"/>
33	JUN REKIMOTO, et al., "Augmented Surfaces: A Spatially Continuous Work Space for Hybrid Computing Environments," May 15-20, 1999, pages 378-385.	<input type="checkbox"/>
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37	KRISHNA BHARAT, et al., Migratory Applications, "Mobile Object Systems Towards the Programmable Internet," Springer Berlin/Heidelberg, Volume 1222/11997, 1997, pages 1-134.	<input type="checkbox"/>
38	DIAMOND MULTIMEDIA SYSTEMS, INC., "Rio PMP300, User's Guide," 1998, pages 1-27.	<input type="checkbox"/>
39	SONY, "Portable MiniDisc Recorder, Operating Instructions, MZ-R55," 1998, pages 1-42.	<input type="checkbox"/>

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40	NORBERT A. STREITZ, et al., "i-Land: An Interactive Landscape for Creativity and Innovation," Proceedings of the ACM Conference on Human Factors in Computing Systems, May 15-20, 1999, pages 120-127.	<input type="checkbox"/>
41	NORBERT A. STREITZ, et al., "Roomware for Cooperative Buildings: Integrated Design of Architectural Spaces and Information Spaces," pages 1-20	<input type="checkbox"/>
42	Direct Cable Connection screen shot, "B1U6U4," 10 pages total.	<input type="checkbox"/>
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44	IBM, "WordPad z50 Cradle Option - User's Guide," 1990, pages 1-18.	<input type="checkbox"/>
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1	HEWLETT PACKARD, "HP Jornada 430/430se Palm-Size PC, User's Guide," Edition 1, 1999, pages 1-151.	<input type="checkbox"/>
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5	MPMan, "User's Guide, The Portable MP 3player using the flash memory and SmartMedia card," 1997, pages 1-35.	<input type="checkbox"/>
6	Cover Sheet, www.mpman.com, 1 page.	<input type="checkbox"/>
7	Smart Media Card Slot Diagram, 1 page.	<input type="checkbox"/>
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9	MPMan, "User's Guide, The portable MP3 player using the flash memory with variety features including the voice recording, phone/memo browsing, etc.," 1997, pages 1-47.	<input type="checkbox"/>
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11	ANAND LAL SHIMPI, Empeg, Ltd., "MP3 meets Car Audio: Empeg Mark II in-dash Car MP3 Player," September 18, 2000, pages 1-17.	<input type="checkbox"/>

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14	HUGO FIENNES, RIO CAR DOT ORG GEEK GUIDE, "MP3 Mobile," February 21, pages 1-4.	<input type="checkbox"/>
15	RIO CAR DOT ORG, "Frequently Asked Questions," pages 1-16.	<input type="checkbox"/>
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17	STEPHEN J. BUCKLEY, et al., "The Car as a Peripheral, Adapting a Portable Computer to a Vehicle Intranet," SAE Technical Paper Series, 98C030, October 19-21, 1998, pages 1-14.	<input type="checkbox"/>
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32	PR NEWSWIRE, "Alpine Announces Fall Release of Interface Adapter That Enables iPod Control and Playback from In-Vehicle Sound Systems," July 7, 2004, pages 1-2..	<input type="checkbox"/>
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37	CRAIN COMMUNIATIONS, INC., "Products," Agilent Technologies Press Release, February 21, 2000, pages 1-6.	<input type="checkbox"/>
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6	0 569 343 A1	EP		1993-10-11	Pioneer Electronic Corporation	<input type="checkbox"/>
7	0 675 341 A1	EP		1995-04-10	Honda Giken-Kogyo	<input type="checkbox"/>
8	0 771 686 A2	EP		1997-07-05	Toyota Jidosha Kabushiki Kaisha Toyota-shi, Aichi-	<input type="checkbox"/>
9	H4-261576	JP		1992-09-17	Mitsubishi Electric Corporation	<input type="checkbox"/>
10	2-301330	JP		1990-12-13		<input type="checkbox"/>
11	5-294250	JP		1993-11-09		<input type="checkbox"/>
12	6-187597	JP		1994-07-08		<input type="checkbox"/>
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21	8-110231	JP		1996-04-30		<input type="checkbox"/>
22	9-61514	JP		1997-03-07		<input type="checkbox"/>
23	10-103966	JP		1998-04-24		<input type="checkbox"/>
24	10-143349	JP		1998-05-29	Compaq Computer Corporation	<input type="checkbox"/>
25	JP1018712	JP		1989-01-23	Mazda Motor	<input type="checkbox"/>



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28	JP63136828	JP		1988-06-09	Pioneer Electronic Corp.	<input type="checkbox"/>
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30	WO 96/04724	WO		1996-02-15	Emerson, Harry	<input type="checkbox"/>
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32	WO 97/13657	WO		1997-04-17	United Technologies Automotive, Inc.	<input type="checkbox"/>
33	H11-317061	JP		1999-11-16	Victor Company of Japan, LTD.	<input checked="" type="checkbox"/>
34	2901445	JP		1999-03-19	Kenwood Corporation	<input checked="" type="checkbox"/>
35	WO 99/35009	WO		1999-07-15	Microsoft Corporation	<input type="checkbox"/>
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18	JEFFREY A. DAVIS, "Use of Personal Computers in Satellite Command and Control Systems," Raytheon Systems Company, October 24, 1999, pages 283-291.	<input type="checkbox"/>
19	NIKI DAVIS, "Remote Teaching Via ISDN2 And Desktop Conferencing," Exeter University School of Education, pages 1-3.	<input type="checkbox"/>
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26	HEWLETT PACKARD, User's Guide, HP Jornada 420, Palm-Size PC, pages 1-75	<input type="checkbox"/>
27	MICROSOFT, "Introducing Microsoft Windows 95 - Certificate of Authenticity," 1995, pages 1-117.	<input type="checkbox"/>
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33	JUN REKIMOTO, et al., "Augmented Surfaces: A Spatially Continuous Work Space for Hybrid Computing Environments," May 15-20, 1999, pages 378-385.	<input type="checkbox"/>
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45	IBM MOBILE SYSTEMS, "WorkPad z50 Mobile Companion (2608-1Ax), Hardware Maintenance Manual," March 1999, pages 1-77.	<input type="checkbox"/>
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48	INFOGATION CORPORATION, "InfoGation Corp. Introduces Software Applications for Next-Generation Smart Car Systems," January 8, 1998, pages 1-2.	<input type="checkbox"/>
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4	H11-242686	JP		1999-09-07	Sony Corporation	<input type="checkbox"/>
5	DE 44 31 070 B4	DE		2004-07-22	DaimlerChrysler AG	<input type="checkbox"/>
6	0 569 343 A1	EP		1993-10-11	Pioneer Electronic Corporation	<input type="checkbox"/>
7	0 675 341 A1	EP		1995-04-10	Honda Giken-Kogyo	<input type="checkbox"/>
8	0 771 686 A2	EP		1997-07-05	Toyota Jidosha Kabushiki Kaisha Toyota-shi, Aichi-	<input type="checkbox"/>
9	H4-261576	JP		1992-09-17	Mitsubishi Electric Corporation	<input type="checkbox"/>
10	2-301330	JP		1990-12-13		<input type="checkbox"/>
11	5-294250	JP		1993-11-09		<input type="checkbox"/>
12	6-187597	JP		1994-07-08		<input type="checkbox"/>
13	JP6289118	JP		1994-10-18	Sega Enterprises KK	<input type="checkbox"/>
14	JP6294659	JP		1994-10-21	Dainippon Printing Co. LTD.	<input type="checkbox"/>

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15	07-129895	JP		1995-05-19	Honda Motor Co Ltd	<input type="checkbox"/>
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17	7-262493	JP		1995-10-13	CSK Corporation	<input type="checkbox"/>
18	7-262493	JP		1995-10-13		<input type="checkbox"/>
19	JP7270171	JP		1995-10-20	Sumitomo Electronic Industries	<input type="checkbox"/>
20	JP7036382	JP		1995-02-07	Mitsubishi Electric Corp.	<input type="checkbox"/>
21	8-110231	JP		1996-04-30		<input type="checkbox"/>
22	9-61514	JP		1997-03-07		<input type="checkbox"/>
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24	10-143349	JP		1998-05-29	Compaq Computer Corporation	<input type="checkbox"/>
25	JP1018712	JP		1989-01-23	Mazda Motor	<input type="checkbox"/>

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26	JP5077679	JP		1993-03-30	Nissan Motor	<input type="checkbox"/>
27	JP59085599	JP		1984-05-17	Nissan Motor	<input type="checkbox"/>
28	JP63136828	JP		1988-06-09	Pioneer Electronic Corp.	<input type="checkbox"/>
29	63-136828	JP		1988-06-09		<input type="checkbox"/>
30	WO 96/04724	WO		1996-02-15	Emerson, Harry	<input type="checkbox"/>
31	WO 96/07110	WO		1996-03-07	British Telecommunications Public Limited Company	<input type="checkbox"/>
32	WO 97/13657	WO		1997-04-17	United Technologies Automotive, Inc.	<input type="checkbox"/>
33	H11-317061	JP		1999-11-16	Victor Company of Japan, LTD.	<input checked="" type="checkbox"/>
34	2901445	JP		1999-03-19	Kenwood Corporation	<input checked="" type="checkbox"/>
35	WO 99/35009	WO		1999-07-15	Microsoft Corporation	<input type="checkbox"/>
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37	11219580 A	JP		1999-10-08	Sony Corp	<input type="checkbox"/>
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39	11-068685	JP		1999-09-03	Sony Corp	<input type="checkbox"/>
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41	1999-0042565	JP		1999-06-15		<input type="checkbox"/>
42	1999-0073234	KR		1999-10-05	Young-Man Lee	<input type="checkbox"/>
43	1999-0048723	KR		1999-07-05		<input type="checkbox"/>
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45	2000-0001465	KR		2000-01-25	Samsung Motors	<input type="checkbox"/>
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48	WO 98/47252	WO		1998-10-22	Stern, Geoffrey	<input type="checkbox"/>
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Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published.	T <sup>5</sup>
	1	MARK MOELLER, Computing Unplugged Magazine, "Product Preview, A Survey of Auto PC 2.0 for software developers," 1999-2009, Zatz Publishing, pages 1-7.	<input type="checkbox"/>
	2	MARK MOELLER, Computing Unplugged Magazine, "AutoPC Update, Auto PC/Windows CE for Automotive news bites," 1999-2009, Zatz Publishing, pages 1-4.	<input type="checkbox"/>
	3	Claim Chart for KR19990033393, Claim 17 of U.S. Patent No. 7,324,833, pages 1-3.	<input type="checkbox"/>
	4	RIO500, Getting Started Guide for Windows 98 and Macintosh OS 8.6, pages 1-2.	<input type="checkbox"/>
	5	NORBERT A. STREITZ, et al., "DOLPHIN: Integrated Meeting Support Across Local And Remote Desktop Environments And LiveBoards," Integrated Publication and Information Systems Institute, 1994, pages 345-358.	<input type="checkbox"/>
	6	LEO DEGEN, et al., "Working with Audio: Integrating Personal Tape Recorders and Desktop Computers," May 3-7, 1992, pages 413-418.	<input type="checkbox"/>

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8	STEVE WHITTAKER, et al., "TeleNotes: Managing Lightweight Interactions in the Desktop," Lotus Development Corporation, June 1997, pages 137-168.	<input type="checkbox"/>
9	R.M. CROWDER, et al., "Integration of Manufacturing Information Using Open Hypermedia," Computer in Industry, 1999, pages 31-42.	<input type="checkbox"/>
10	TOMAS BOSTROM, et al., "Mobile Audio Distribution," Royal Institute of Technology, 1999, pages 166-172.	<input type="checkbox"/>
11	ALEX POON, et al., Xerox Disclosure Journal, Vol. 19, No. 2, "Gestural User Interface Technique for Controlling the Playback of Sequential Media," March/April 1994, pages 187-190.	<input type="checkbox"/>
12	DEB KUMAR ROY, "NewsComm: A Hand-Held Device For Interactive Access to Structured Audio," Massachusetts Institute of Technology, June 1995, pages 1-12.	<input type="checkbox"/>
13	VICTORIA BELLOTTI, et al., "Walking Away from the Desktop Computer: Distributed Collaboration and Mobility in a Product Design Team," 1996, pages 209-218.	<input type="checkbox"/>
14	UPUL OBEYSEKARE, et al., "The Visual Interactive Desktop Laboratory," January-March 1997, pages 63-71.	<input type="checkbox"/>
15	ASIM SMAILAGIC, et al., "MoCCA: A Mobile Communication and Computing Architecture," Institute for Complex Engineered Systems, pages 1-8.	<input type="checkbox"/>
16	SUI-MENG POON, et al., "Integration of Value-Added Audio Playback Capacity Into Computer Network," Nanyang Technological University, 1995, pages 632-636.	<input type="checkbox"/>
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First Named Inventor	Russell W. White, et al.
Art Unit	2617
Examiner Name	Erika A. Gary
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23	VON HERBERT PAULER, Funkschau, "Kopierschutz für MP3-Audio," 1999, 9 pages total.	<input type="checkbox"/>
24	English Summary, "A device for remotely controlling a car device for playing mp3 files is disclosed....", 1 page.	<input type="checkbox"/>
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26	BARRY COLLINS, The Sunday Times, "High-class high-tech - Buyer's guide," 2001, 2 pages total.	<input type="checkbox"/>
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29	AMY GILROY, Mobile Electronics, "OEM Integrators Embrace iPod's Success," 1 page.	<input type="checkbox"/>
30	JVC, "Portable Minidisc Recorder, XM-R700SL, Instructions," pages 1-24.	<input type="checkbox"/>
31	Rio Car, "Car Toy Sole Retailer For Rio Car," May 28, 2001, 1 page.	<input type="checkbox"/>
32	AMY GILROY, Twice, "Panasonic Ships First SD MP3," December 4, 2000, 1 page.	<input type="checkbox"/>
33	Twice, "PhatNoise Readies MP3," November 5, 2001, 1 page.	<input type="checkbox"/>

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35	Twice, "Study Sees Retail Opportunities For Mobile Multimedia," Volume 14, Issue 15, June 28, 1999, pages 1-2.	<input type="checkbox"/>
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37	Japanese Webpage, www.kca.go.kr - Brochure Free - Microsoft Internet Explorer, 1 page.	<input type="checkbox"/>
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39	STEPHEN KEMPAINEN, EDN Access For Design, By Design "In-car computing gets personal," August 17, 1998, pages 1-7.	<input type="checkbox"/>
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42	MPMan, "The portable MP3 player using the Flash Memory and Memory card - MP-F20," in Japanese, pages 1-34.	<input type="checkbox"/>
43	Japanese Website, MM MPMANIA.com, http://mpmania, x-y.net/bbs/view.php?id=products&page=1&sn1=&divpage, 1 page.	<input type="checkbox"/>
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	1	6349352		2002-02-19	Lea	
	2	6697944		2004-02-24	Jones, et al.	
	3	6760916		2004-07-06	Holtz, et al.	
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	5	5327558		1994-07-05	Burke, et al.	
	6	5715474		1998-02-03	Burke, et al.	
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	1	WO 00/38340	WO		2000-06-29	Kim, Joehan		<input type="checkbox"/>
	2	WO 98/19480	WO		1998-07-05	Ericsson, Inc.		<input type="checkbox"/>
	3	WO 99/43136	WO		1999-08-26	Ericsson, Inc.		<input type="checkbox"/>
	4	8-79814	JP		1996-03-22			<input type="checkbox"/>
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9	11-73192	JP		1999-03-16			<input type="checkbox"/>
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11	WO 99/12152	WO		1999-11-03	Sony Corporation		<input type="checkbox"/>
12	EP 0 920 016 A2	EP		1999-02-06	Sony Corporation		<input type="checkbox"/>
13	11-219580	JP		1999-08-10			<input type="checkbox"/>
14	EP 0 918 408 A2	EP		1999-05-26	Sony Corporation		<input type="checkbox"/>
15	11-143791	JP		1999-05-28			<input type="checkbox"/>
16	2007-207257	JP		2007-08-16			<input type="checkbox"/>
17	DE 20 2004 013 65	DE		2004-12-23	Boll, Nobert		<input type="checkbox"/>
18	WO 99/35009	WO		1999-07-15	Microsoft Corporation		<input type="checkbox"/>
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20	KR20000036680	KR		2000-07-05	Kee Kang Choon		<input type="checkbox"/>
21	10-1997-0016743	KR		1997-04-30			<input type="checkbox"/>
22	20-1997-0012254	KR		1997-05-28			<input type="checkbox"/>
23	WO 99/23856	WO		1999-05-14	Mershon, Stuart		<input type="checkbox"/>
24	WO 99/28897	WO		1999-06-10	Voquette Networks, LTD.		<input type="checkbox"/>
25	1999-0055970	KR		1999-07-15			<input type="checkbox"/>
26	100242563 B1	KR		1999-10-11	Kim, Joon Sung		<input type="checkbox"/>
27	EP 0 982 732 A1	EP		2000-01-03	Saehan Information Systems, Inc.		<input type="checkbox"/>
28	10-0356742	KR		2002-10-18	Hyundai Autonet, Co. Ltd.		<input type="checkbox"/>
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35	11-317061	JP		1999-11-16			<input type="checkbox"/>
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37	0 661 676 A1	EP		1994-12-21	AT&T Global Information Solutions International		<input type="checkbox"/>
38	0 982 732 A1	EP		2000-01-03	Saehan Information Systems, Inc.		<input type="checkbox"/>
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44	WO 94/18763	WO		1994-08-18	Gutle, Hubert		<input type="checkbox"/>
45	WO 98/21672	WO		1998-05-22	Inergy Online, Inc.		<input type="checkbox"/>
46	WO 98/33102	WO		1998-07-30	Guimaraes Teixeira		<input type="checkbox"/>
47	WO 99/18518	WO		1999-04-15	Polash, Peter		<input type="checkbox"/>
48	WO 00/07849	WO		2000-02-17	Microsoft Corporation		<input type="checkbox"/>
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3	Sony webpages in Japanese, "Portable Mini Disc Player MD Recorder," July 21, 1996, pages 1-5.	<input type="checkbox"/>
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	1	WO 00/38340	WO		2000-06-29	Kim, Joehan		<input type="checkbox"/>
	2	WO 98/19480	WO		1998-07-05	Ericsson, Inc.		<input type="checkbox"/>
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	1	6349352		2002-02-19	Lea	
	2	6697944		2004-02-24	Jones, et al.	
	3	6760916		2004-07-06	Holtz, et al.	
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1	DANIEL KUMIN, Stereo Review, "Jukebox Heaven," January 1999, pages 64-71.	<input type="checkbox"/>
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13	DANA J. PARKER, Standard Deviations, "CD-TEXTra! Read all about it!", October 1996, pages 1-2.	<input type="checkbox"/>
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32	AMY GILROY, Twice, "Panasonic Ships First SD MP3," December 4, 2000, 1 page.	<input type="checkbox"/>
33	Twice, "PhatNoise Readies MP3," November 5, 2001, 1 page.	<input type="checkbox"/>

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34	KEVIN SAVETZ, The Washington Post, "Putting Your MP3 Collection in Drive (Final Edition)," August 10, 2001, pages 1-3.	<input type="checkbox"/>
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45	MARK MOELLER, Computing Unplugged Magazine, "Software Review, New software products for the Auto PC," 1999-2009, Zatz Publishing, pages 1-4	<input type="checkbox"/>
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	1	6349352		2002-02-19	Lea	
	2	6697944		2004-02-24	Jones, et al.	
	3	6760916		2004-07-06	Holtz, et al.	
	4	6225984		2001-05-01	Crawford	
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	1	WO 00/38340	WO		2000-06-29	Kim, Joehan		<input type="checkbox"/>
	2	WO 98/19480	WO		1998-07-05	Ericsson, Inc.		<input type="checkbox"/>
	3	WO 99/43136	WO		1999-08-26	Ericsson, Inc.		<input type="checkbox"/>
	4	8-79814	JP		1996-03-22			<input type="checkbox"/>
	5	9-74580	JP		1997-03-18			<input type="checkbox"/>
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	8	WO 99/06910	WO		1999-02-11	Ludtke, Harold A.		<input type="checkbox"/>

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12	EP 0 920 016 A2	EP		1999-02-06	Sony Corporation		<input type="checkbox"/>
13	11-219580	JP		1999-08-10			<input type="checkbox"/>
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24	WO 99/28897	WO		1999-06-10	Voquette Networks, LTD.		<input type="checkbox"/>
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38	0 982 732 A1	EP		2000-01-03	Saehan Information Systems, Inc.		<input type="checkbox"/>
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46	WO 98/33102	WO		1998-07-30	Guimaraes Teixeira		<input type="checkbox"/>
47	WO 99/18518	WO		1999-04-15	Polash, Peter		<input type="checkbox"/>
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