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Hunter

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(54) **SYSTEM FOR DIRECT PLACEMENT OF COMMERCIAL ADVERTISING, PUBLIC SERVICE ANNOUNCEMENTS AND OTHER CONTENT ON ELECTRONIC BILLBOARD DISPLAYS**

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(*) Notice: This patent issued on a continued prosecution application filed under 37 CFR 1.53(d), and is subject to the twenty year patent term provisions of 35 U.S.C. 154(a)(2).

Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

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(58) **Field of Search** 709/207, 217, 709/218, 219, 227, 234, 238, 240; 705/26, 27

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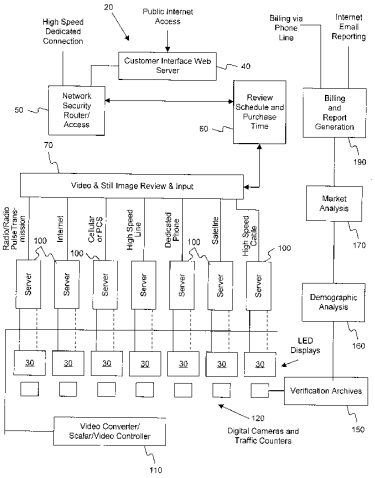
(57) **ABSTRACT**

Commercial advertisers, such as consumer product companies and the advertising agents that represent them, directly access a network of thousands of large, high resolution electronic displays located in high traffic areas and directly send their own advertisements electronically to the network to be displayed at locations and times selected by the advertisers.

74 Claims, 2 Drawing Sheets



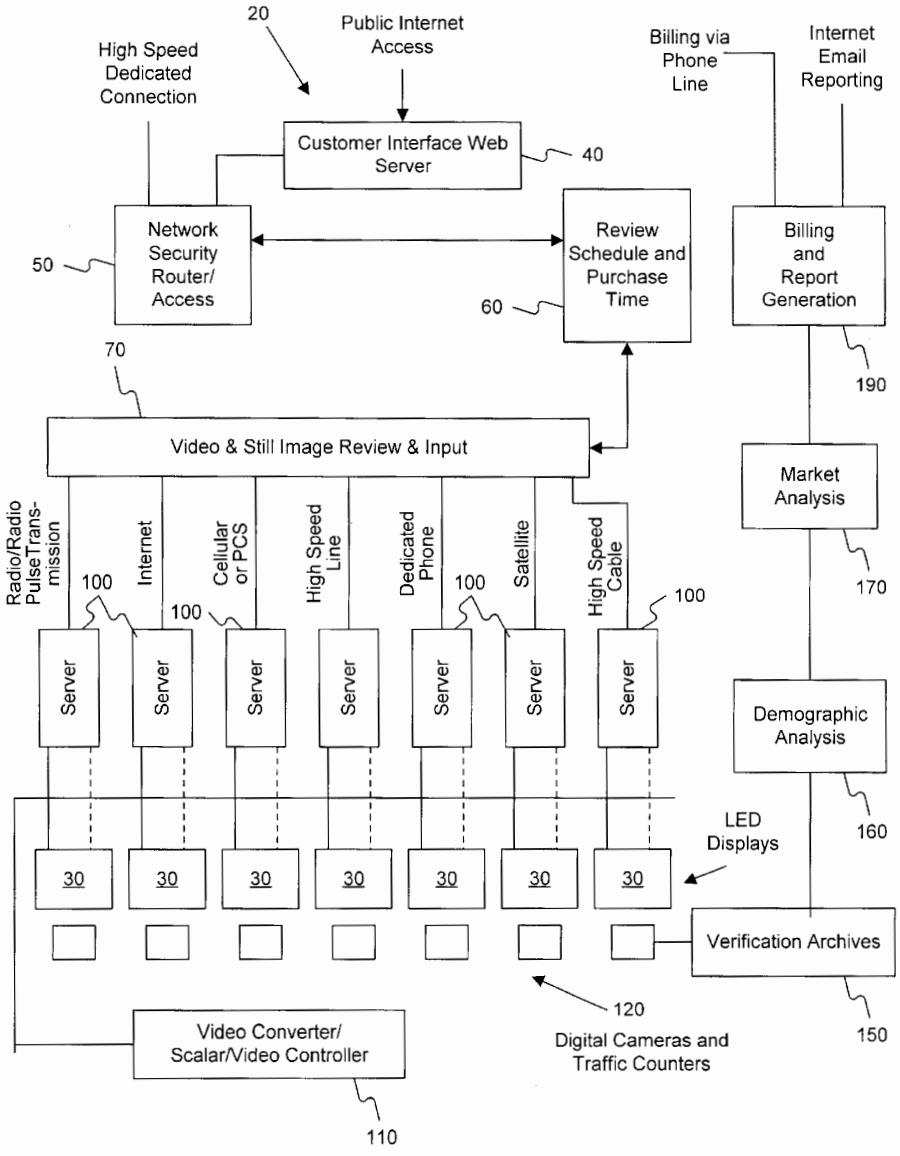


Fig. 1

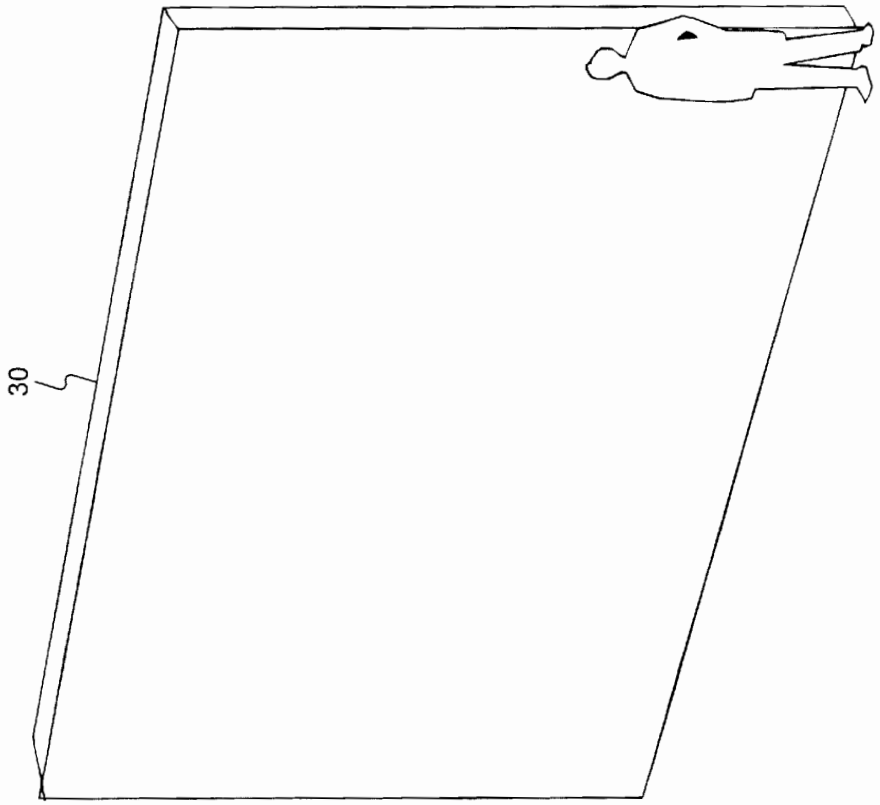
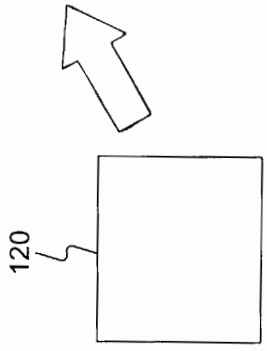


Fig. 2



SYSTEM FOR DIRECT PLACEMENT OF COMMERCIAL ADVERTISING, PUBLIC SERVICE ANNOUNCEMENTS AND OTHER CONTENT ON ELECTRONIC BILLBOARD DISPLAYS

FIELD OF THE INVENTION

The invention relates to systems permitting advertisers to target geographical regions and demographic groups with ever changing, current advertising content without incurring the high fixed cost of traditional single-message billboards. More particularly, the invention relates to a system and method permitting commercial advertisers, such as consumer product companies and the advertising agents that represent them, to directly access a network of thousands of large, high resolution electronic displays located in high traffic areas and to directly send their own advertisements electronically to the network to be displayed at locations and times selected by the advertiser.

BACKGROUND OF THE INVENTION

Consumer product advertising takes many forms, such as television commercials, newspaper and magazine advertisements, mailings, point-of-sale displays, outdoor billboards, etc. Using current advertising media, advertisers engage in a constant struggle to efficiently use their budgets to most effectively reach their geographic and demographic targets.

Focusing on the outdoor advertising component of advertising by consumer product companies, it is well known that outdoor billboards have traditionally taken the form of single-message displays formed of printed sheets or painted surfaces containing the advertising content adhered to a flat backing. This time-honored outdoor advertising technique has remained essentially unchanged throughout the twentieth century. The high cost of printing, transporting and mounting a message on a conventional billboard has dictated that the same message remain in place for a considerable period of time. Thus, a conventional billboard cannot be readily changed to reflect current events within the geographic area of the billboard. Additionally, the content on a conventional billboard tends to become essentially "invisible" as a part of the landscape after its content has been in place for a relatively short period of time, especially to commuters and others who regularly pass the billboard. Beyond the above problems with cost, single-message content, lack of content changeover capability, and the like, conventional outdoor billboards have come under increasing criticism because in their large numbers, and often tattered condition, they clutter highways with a distasteful form of visual "pollution". A reduction in the number of billboards and improvement of the appearance of those that remain, if accomplished while increasing the overall advertising impact afforded by outdoor advertising, would please virtually everyone.

The use of electronic billboards has been suggested, for example, in U.S. Pat. No. 5,612,741. However, there is no electronic billboard network in operation whereby commercial advertisers may directly place ads onto selected billboards at selected times through direct access to a master network. Such a network, properly designed and operated, promises to overcome the numerous disadvantages currently associated with the outdoor advertising industry, while also meeting the above-enumerated needs of consumer products advertisers.

SUMMARY OF THE INVENTION

According to the present invention, commercial advertisers, such as consumer product companies and the advertising agents that represent them, directly access a network of multiple large, high resolution electronic displays located in high traffic areas and directly send their own advertisements electronically to the network to be displayed at locations and times selected by the advertisers. In preferred embodiments, the system of the invention includes a central information processing center that permits customers to review a schedule of times and electronic display locations that are available for placement of advertisements, and also permits customers to purchase available times at selected electronic display locations for placement of their advertising content. The customer then transmits his video or still image advertising content to the processing center where the content is reviewed for appropriateness and then transmitted to the customer-selected electronic display(s). The electronic displays preferably are large (e.g., 23×33½ ft.) flat LED displays that are driven by their own video or image servers. Verification that the advertisements run as ordered is facilitated by an information storage module or, more preferably, by a digital camera or series of digital cameras. A traffic counter may be used to determine the traffic that passed by the display while the advertisement was running. Bills and reports containing market and demographic analysis are generated and sent to the customer.

BRIEF DESCRIPTION OF THE DRAWINGS

Some of the features of the invention having been stated, other features will appear as the description proceeds, when taken in connection with the accompanying drawings, in which

FIG. **1** is a block diagram showing the principal components of an electronic display network constructed in accordance with the present invention.

FIG. **2** is a view of one of the electronic displays of the network of FIG. **1**.

DETAILED DESCRIPTION OF THE INVENTION

While the present invention will be described more fully hereinafter with reference to the accompanying drawings, in which aspects of the preferred manner of practicing the present invention are shown, it is to be understood at the outset of the description which follows that persons of skill in the appropriate arts may modify the invention herein described while still achieving the favorable results of this invention. Accordingly, the description which follows is to be understood as being a broad, teaching disclosure directed to persons of skill in the appropriate arts, and not as limiting upon the present invention.

Referring to the drawings, and particularly to FIG. **1**, there is shown a block diagram of a system **20** for direct placement of commercial advertisements, public service announcements and other content on electronic displays. System **20** includes a network comprising a plurality of electronic displays **30** that are located in high traffic areas in various geographic locations. The displays may be located in areas of high vehicular traffic, and also at indoor and outdoor locations of high pedestrian traffic, as well as in movie theaters, restaurants, sports arenas, casinos or other suitable locations. Thousands of displays, up to 10,000 or more displays worldwide, may be networked according to the present invention. In preferred embodiments, each display is a large (for example, 23 feet by 33½ feet), high resolution, full color display that provides brilliant light emission from a flat panel screen.

A customer of system **20**, for example an in-house or agency representative of a consumer products company,

may access a central information processing station of the system via the Internet through a Customer Interface Web Server **40**. The customer interface web server has a commerce engine and permits the customer to obtain and enter security code and billing code information into a Network Security Router/Access module **50**. Alternatively, high usage customers of the system may utilize a high speed dedicated connection to module **50**. Following access, the customer reviews available advertising time/locations through a Review Schedule and Purchase Time module **60** that permits the customer to see what time is available on any display throughout the world and thereafter schedule and purchase the desired advertising time slot. Next, the customer transmits the advertising content on-line through the Internet, a direct phone line or a high speed connection (for example, ISDN or DSL) for receipt by the system's Video & Still Image Review and Input module **70**. In parallel, the system operator may provide public service announcements and other content to module **70**. All content, whether still image or video, is formatted in NTSC, PAL, SECAM, YUV, YC, VGA or other suitable formats.

The video & still image review and input module **70** permits a system security employee to conduct a content review to assure that all content meets the security and appropriateness standards established by the system, prior to the content being read to the server **100** associated with each display **30** where the content being transmitted to the server **100** will be displayed. Preferably, the servers are located at their respective displays and each has a backup. An example of a suitable server is the IBM RISC 6000 server.

The means for transmitting content information to the display locations may take a number of forms, with it being understood that any form, or combination thereof, may be utilized at various locations within the network. As shown in FIG. **1**, the means include:

a. High speed cable

b. Satellite

c. Dedicated phone

d. High speed line (e.g., ISDN)

e. Cellular or PCS

f. Internet

g. Radio/radio pulse transmission

h. High speed optical fiber.

A video converter/scaler function and a video controller function provided by module **110** may be utilized in connection with those servers **100** and associated displays **30** that require them, according to data transmission practices well known in the art.

Verification that advertisements do, in fact, run at the intended time at the intended displays may be provided by an information storage module (not shown) linked to each display. Another form of verification may be achieved by a Digital Camera and Traffic Count Recorder **120** that continuously records the content appearing at its respective display **30** and digitally transmits video verification information to a Verification Archives module **150**. Recorder **120** also provides traffic count information (for example, 225 vehicles passed the display while an advertisement ran) to verification archives module **150**.

Information from verification archives module **150** is utilized by a demographic analysis module **160** and a market analysis module **170** to generate information for reports to be sent to customers after their advertisements run. To this end, analysis data from modules **160** and **170** is transmitted to a Billing and Report Generation module **190** where reports are assembled showing, for example, the time of the advertisement, the content of the advertisement, the traffic count and residence/median income information about those who saw the advertisement. A representative, simplified report for an advertisement running on a single display is as follows:

Customer: ABC Cola Co.
Ad Content: Ocean Scene with graphics (content code 1111)
Location: Atlanta, Georgia, Interstate 75 N, milepost 125 (site code XXXX)
Time: 7:30 AM, June 30, 2000
Vehicle Count: 225
Viewer Count: 340
Viewer Demographics:
- 50% Resident Cobb County, GA Median household income: $60,000/yr.
- 30% Resident DeKalb County, GA Median household income: $52,000/yr.
- 20% Median household income $55,000/yr.

Advertising Cost: $X

For an advertisement that may have run at multiple displays, for example 100 displays, a representative report may appear as follows:

Customer: ABC Cola Co.
Ad Content: Mountain Scene with graphics (content code 2222)
Locations: 100 sites (site codes YYY....ZZZ)
Time: 8:30 AM, July 10, 2000
Total Vehicle Count: 21,500
Total Viewer Count: 37,200
Viewer Demographics: Median household income, $49,500
Advertising Cost: $Y

Module **190** also produces bills that may be transmitted by phone lines for a debit payment such as a direct bank draft, or other suitable payment mode.

Referring to FIG. **2**, there is shown a pictorial view of one preferred form for the electronic displays **30**. In this embodiment, display **30** takes the form of a 23 feet by 33½ feet seamless flat screen display including multiple flat panel display modules. The panels utilize advanced semiconductor technology to provide high resolution, full color images utilizing light emitting diodes (LED's) with very high optical power (1.5–10 milliwatts or greater) that are aligned in an integrated array with each pixel having a red, green and blue LED. It will be appreciated that multiple LED's of a given color may be used at pixels to produce the desired light output; for example, three 1.5 milliwatt blue LED's may be used to produce a 4.5 milliwatt blue light output. Each red, green and blue emitter is accessed with 24 bit resolution, providing 16.7 million colors for every pixel. An overall display of 23 feet by 33½ feet, so constructed, has a high spatial resolution defined by approximately 172,000 pixels at an optical power that is easily viewable in bright sunlight. Suitable display modules for displays **30** are manufactured by Lighthouse Technologies of Hong Kong, China, under Model No. LV50 that utilize, for blue and green,

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