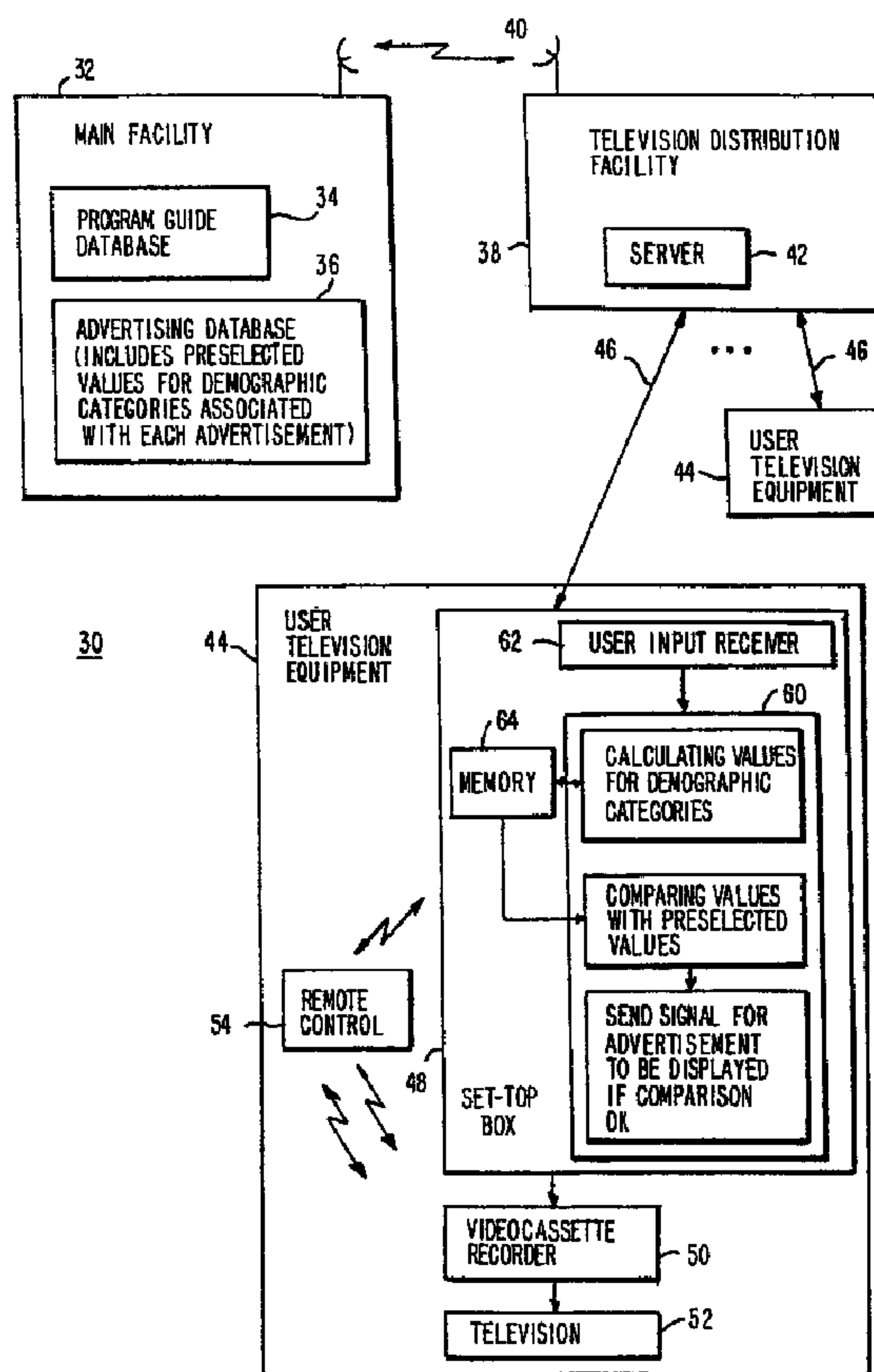




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(54) Titre : GUIDE INTERACTIF DE PROGRAMMES DE TELEVISION PERMETTANT DE DETERMINER DES VALEURS D'ENTREE UTILISATEUR POUR DES CATEGORIES DEMOGRAPHIQUES
 (54) Title: INTERACTIVE TELEVISION PROGRAM GUIDE SYSTEM FOR DETERMINING USER VALUES FOR DEMOGRAPHIC CATEGORIES



(57) Abrégé/Abstract:

An interactive television program guide system for determining user input values for demographic categories is provided. The system includes user television equipment (44) having a receiver for receiving program guide information for the interactive



(57) **Abrégé(suite)/Abstract(continued):**

television program guide, a user input receiver (62) for receiving user input from user interface, such as a remote control (54), a microprocessor which utilizes the user input received to determine user values for demographic categories, and memory for storing the user values determined. In one illustrative use of the system for targeting advertisements to a user of the interactive television program guide, the receiver also receives advertisements, where the advertisements have preselected values for specified demographic categories. The user television equipment, preferably using microprocessor, compares the preselected values for the specified demographic categories associated with the advertisements with values of corresponding demographic categories stored in memory to determine which advertisements should be displayed. Those advertisements determined to be displayable based upon the comparison are then displayed.

ABSTRACT

An interactive television program guide system for determining user input values for demographic categories is provided. The system includes user television equipment (44) having a receiver for receiving program guide information for the interactive television program guide, a user input receiver (62) for receiving user input from user interface, such as a remote control (54), a microprocessor which utilizes the user input received to determine user values for demographic categories, and memory for storing the user values determined. In one illustrative use of the system for targeting advertisements to a user of the interactive television program guide, the receiver also receives advertisements, where the advertisements have preselected values for specified demographic categories. The user television equipment, preferably using microprocessor, compares the preselected values for the specified demographic categories associated with the advertisements with values of corresponding demographic categories stored in memory to determine which advertisements should be displayed. Those advertisements determined to be displayable based upon the comparison are then displayed.

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INTERACTIVE TELEVISION PROGRAM GUIDE SYSTEM FOR DETERMINING
USER VALUES FOR DEMOGRAPHIC CATEGORIES

This application is a divisional of Canadian
5 Application Serial No. 2,331,302 filed on May 13, 1999.

Background of the Invention

This invention relates to interactive television
program guides, and more particularly, to an interactive
television program guide system for determining user values
10 for demographic categories such that the determined values
can be utilized for specified uses, such as for targeting
advertisements.

Cable, satellite, and broadcast television systems
provide viewers with a large number of television channels.
15 (A substantive discussion on the various issues relating to
increasing the programming capacity of television program
delivery systems is provided in Hendricks et al. I.S. Patent
5,559,549.) Viewers have traditionally consulted printed
television program schedules to determine the programs being
20 broadcast at a particular time. More recently, interactive
electronic television program guides have been developed
that allow television program information to be displayed on
a viewer's television.

Interactive program guides are typically
25 implemented on set-top boxes. Such program guides

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allow users to view television program listings in different display formats. For example, a user may instruct the program guide to display a grid of program listings organized in a channel-ordered or a time-ordered list. Users may also search and sort program listings by theme (e.g., movies, sports, etc.) or by title (i.e., alphabetically). A user may obtain additional information for a program by placing a highlight region on a desired program listing and pressing an "info" button. The user may purchase a pay program from the program guide by placing the highlight region on a program listing and pressing an "OK" button. Some systems allow the user to select a program for recording by placing the highlight region on a program listing and pressing a "record" button.

The user's interactions with the program guide are indicative of the user's interests. For example, if the user purchases a pay-per-view movie, making that purchase shows that the user is interested in movies of that type. Searching for program listings in the category "sports" indicates that the user is interested in sports. Although the user's interactions with the program guide indicate the user's interests, previously known program guide systems did not monitor or use this information.

In commonly-assigned co-pending PCT Publication No. WO 99/45702, there is described a program guide system for determining a user's interests by monitoring the user's interactions with the program guide. WO 99/45702 also describes utilizing the user's

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interests to present advertisements or to take actions in the program guide.

It would be desirable to be able to provide a systematic approach for categorizing user information into demographic categories that could then be used for specified purposes, such as for targeting advertisements or taking certain actions in the program guide. As used throughout in the present application, "demographic categories" means categories of user information, such as income, age, hobbies, etc., which serve as a basis for identification and selection. Advantages that would be offered by such a systematic approach include greater effectiveness and less cost in achieving a specified purpose. For example, to target advertisements, the use of demographic categories means more effective targeting of advertisements and consequently lower costs. Advertisers could select demographic categories to ensure that the advertisements target only those users who would most likely be interested in the products or services they offer.

It is therefore an object of some embodiments of the present invention to provide a program guide system which categorizes information obtained from a user's interaction with the program guide into demographic categories. Another object of the invention is to determine user values for the demographic categories. Still another object of the invention is to provide an interactive television program guide system which determines user values for the demographic categories such that advertisers can select specific demographic categories of significance to ensure that the products

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or services they offer will be targeted to those users who will most likely be interested in purchasing the products or services.

Summary of the Invention

5 This and other objects are accomplished in accordance with some embodiments of the present invention by an interactive television program guide system for determining user input values for demographic categories. The system includes user
10 television equipment having a receiver for receiving program guide information for the interactive television program guide, a user input receiver for receiving user input from user interface, such as a remote control, a microprocessor which utilizes the
15 user input received to determine user values for demographic categories, and memory for storing the user values determined.

 In one illustrative use of the system for targeting advertisements to a user of the interactive
20 television program guide, the receiver also receives advertisements, where the advertisements have preselected values for specified demographic categories. The user television equipment, preferably using microprocessor, compares the preselected values
25 for the specified demographic categories associated with the advertisements with values of corresponding demographic categories stored in memory to determine which advertisements should be displayed. Those advertisements determined to be displayable based upon
30 the comparison are then displayed.

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According to another aspect of the present invention, there is provided a system for targeting actions to a user of an interactive television program guide, the system comprising: user television equipment on which the interactive television program guide is implemented, wherein the user television equipment is configured to: associate a plurality of demographic categories with a plurality of program guide actions, associate preselected values with the demographic categories that are associated with each program guide action, receive a user input that activates a function of a plurality of functions of the interactive television program guide, calculate user values for the plurality of demographic categories based at least in part on the type of function activated by the user input, wherein substantially each function of the plurality of functions has a corresponding weight value that affects the calculation of the user values to different degrees, store the user values, and compare the preselected values for the demographic categories associated with the actions with the stored user values of corresponding demographic categories to determine which actions should be taken in the interactive television program guide.

According to still another aspect of the present invention, there is provided a method for targeting actions to a user of an interactive television program guide implemented on user television equipment, the method comprising: associating a plurality of demographic categories with a plurality of program guide actions; associating preselected values with the demographic categories that are associated with each program guide action; receiving user input that activates a function of a plurality of functions of the interactive television program guide; determining user values for the plurality of

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demographic categories based at least in part on the type of function activated by the user input, wherein substantially each function of the plurality of functions has a corresponding weight value that affects the determination of the user values to different degrees; storing the user values; and comparing the preselected values for
5 the demographic categories associated with the actions with the stored user values of corresponding demographic categories in selecting the actions to be displayed in the interactive television program guide.

There is also provided a method for targeting advertisements to a user of an interactive system, the method comprising: receiving a user input associated
10 with a program; determining a type of function of the interactive system that the user input requested for the program; determining at least one demographic value associated with the program; calculating, using a processor, a current user demographic value associated with the user based on the determined type of function and the at least one demographic value associated with the program; comparing the
15 current user demographic value to a demographic criteria associated with an advertisement; and selecting the advertisement if the current user demographic value meets the demographic criteria associated with the advertisement.

Another aspect of the invention provides an interactive system for targeting advertisements to a user of the interactive system, the interactive system
20 comprising: a user input receiver configured to receive a user input associated with a program; and a processor, wherein the processor is configured to: determine a type of function of the interactive system that the user input requested for the program; determine at least one demographic value associated with the program; calculate a current user demographic value associated with the user based on the determined
25 type of function and the at least one demographic value associated with the program; compare the current user demographic value to a demographic criteria associated with an advertisement; and select the advertisement if the current user demographic value meets the demographic criteria associated with the advertisement.

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Further features of the invention, its nature and various advantages will be more apparent from the accompanying drawings and the following detailed description of the preferred embodiments.

5 Brief Description of the Drawings

FIG. 1 is a diagram of an illustrative system for targeting advertisements to a user of an interactive television program guide in accordance with the present invention.

10 FIG. 2 is a list of ten exemplary demographic categories and their values, as well as preselected values for two advertisements received by the user television equipment of FIG. 1 in accordance with the present invention.

15 FIG. 3 is a table showing four exemplary user inputs and their predetermined weight values to be utilized by the user television equipment of FIG. 1 to determine values for demographic categories in accordance with the present invention.

20 FIG. 4 is a table showing exemplary demographic categories and preselected value and weight factor for each of the channels to be utilized by the user television equipment of FIG. 1 to determine values for demographic categories in accordance with the
25 present invention.

FIG. 5 is a flowchart showing steps involved in displaying advertisements based on demographic information in accordance with the present invention.

Detailed Description of the Preferred Embodiments

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An illustrative program guide system 30 for use in targeting advertisements to specified users in accordance with the present invention is shown in FIG. 1. Although the specified purpose for which user demographic information is to be utilized is illustratively shown to be for targeting advertisements, it will be apparent to one skilled in the art that user demographic information may also be used for other specified purposes.

10 A main facility 32 includes a program guide database 34 for storing program guide information, such as television program guide listings data, pay-per-view ordering information, television program promotional information, etc. The main facility 32 also includes
15 an advertising database 36 for storing advertising information. Information from databases 34 and 36 may be transmitted to a television distribution facility 38 via communications link 40. There are typically numerous television distribution facilities 38 to which
20 information from main facility 32 is transmitted in parallel, although only one such television distribution facility 38 is shown in FIG. 1 to avoid over-complicating the drawings. Link 40 may be a satellite link, a telephone network link, a cable or
25 fiber optic link, a microwave link, a combination of such links, or any other suitable communications path. If it is desired to transmit video signals (e.g., for advertising and promotional videos) over link 40 in addition to data signals, a relatively high bandwidth
30 link such as a satellite link is generally preferable to a relatively low bandwidth link such as a telephone line.

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The television distribution facility 38 is a facility for distributing television signals to users, such as a cable system headend, a broadcast distribution facility, or a satellite television
5 distribution facility.

The program guide information transmitted by the main facility 32 to the television distribution facility 38 includes television program listings data, such as program times, channels, titles, descriptions,
10 etc. Transmitted program information also includes pay program data, such as pricing information for individual programs and subscription channels, time windows for ordering programs and channels, telephone numbers for placing orders that cannot be impulse
15 ordered, etc. The advertising information transmitted by the main facility 32 to the television distribution facility 38 includes text, graphics, video and/or other (e.g. audio) advertisements for various products and services. As will be described in greater detail
20 later, the advertising information may also include preselected values for demographic categories associated with each advertisement.

If desired, some of the program guide and advertising information may be provided using data
25 sources at facilities other than then main facility 32. For example, data related to pay program order processing (e.g., billing data and the like) may be generated by an order processing and billing system that is separate from the main facility 32 and separate
30 from the television distribution facility 38. Similarly, advertising information may be generated by an advertising facility that is separate from the main

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facility 32 and the television distribution facility 38.

Regardless of its source, advertising information may be maintained on a server 42 within the television distribution facility 38, if desired. Server 42 may be capable of handling text, graphics, and video.

Television distribution facility 38 distributes program guide and advertising information to user television equipment 44 via communications paths 46. User television equipment may include a set-top box or may be an advanced television receiver or personal computer television (PC/TV), if desired. Each communications path 46 may be a satellite link, a telephone network link, a cable or fiber optic link, a microwave link, a combination of such links, or any other suitable communications path. Program guide data may be distributed over an out-of-band channel on path 46, an in-band digital channel, or any other suitable technique. Advertising information may be distributed using any of a number of suitable techniques. For example, text and graphics advertisements may be distributed over an out-of-band channel using an out-of-band modulator. Video advertisements may also be distributed in this manner, although large quantities of video information may be more efficiently distributed using one or more digital channels on path 46. Such digital channels may also be used for distributing text and graphics.

Each user has a receiver unit, which is typically a set-top box 48, but which may be other suitable television equipment into which set-top box

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functionality as will be described herein has been integrated. Program guide data is distributed to the set-top boxes 48 periodically. The television distribution facility 38 may also poll the set-top
5 boxes 48 periodically for certain information (e.g., pay program account information or information regarding programs that have been purchased and viewed using locally-generated authorization techniques).

Each set-top box 48 is typically connected to
10 an optional videocassette recorder 50 so that selected television programs may be recorded. The videocassette recorder 50 is connected to a television 52. To record a program, the set-top box 48 tunes to a particular channel and sends control signals to the videocassette
15 recorder 50 (e.g., using an infrared transmitter) that directs the videocassette recorder 50 to start and stop recording at appropriate times.

An interactive television program guide is implemented on user television equipment 44 (e.g., on
20 set-top box 48). During use of the interactive television program guide implemented on the set-top box 48, television program listings may be displayed on the television 52. Each set-top box 48, videocassette recorder 50, and television 52 may be controlled by one
25 or more remote controls 54 or any other suitable user input interface, such as a wireless keyboard, mouse, trackball, dedicated set of buttons, etc.

The set-top box 48 includes a microprocessor 60, a user input receiver 62, and memory 64. Other
30 components of the set-top box which are needed for implementing a program guide are not specifically described herein since they are not part of the present

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invention. The user input receiver 62 receives user input from remote control 54 or other user input interfaces. For example, if user input is to be transmitted by an infrared remote control signal, then
5 the user input receiver would be an infrared signal receiver. As will be described in greater detail later, the microprocessor 60 utilizes the user input signals received by the user input receiver 62 to calculate values for different demographic categories.

10 The microprocessor 60 also compares the values of the relevant demographic categories for the user stored in memory 64 with the preselected values associated with each advertisement received by the set-top box 48 to determine whether the advertisement is to
15 be displayed on the television 52. Memory 64, which is preferably non-volatile memory, stores values of the demographic categories for the user. Memory 64 may also store information necessary to calculate the values of the demographic categories for the user. For
20 example, memory 64 may store information such as the likelihood that a viewer watching the ESPN channel is a fan of sports. Such information may also be stored in another memory electrically coupled to the microprocessor 60.

25 FIG. 2 is a sample list of the demographic categories and the values of the demographic categories for the user stored in memory 64. FIG. 2 also shows the preselected values for two advertisements received by the set-top box 48. Under the demographic
30 categories heading, there are shown ten exemplary predefined demographic categories. These categories are: (1) sports fan, (2) science fiction fan, (3)

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parent, (4) dog-lover, (5) cat-lover, (6) annual income over \$20,000, (7) annual income over \$30,000, (8) annual income over \$50,000, (9) female age range of 20-35, and (10) male age range of 18-40.

5 The value for each of the demographic categories is from 0 to 1. Zero indicates that the user does not fit the demographic category (or the probability that the user fits the category is zero). One indicates that the user fully fits the demographic
10 category (or the probability that the user fits the category is one). Any value between 0 and 1 indicates that the user partially fits the demographic category, with a higher number indicating a correspondingly better fit. The selection of this range is not
15 significant and any other range (e.g., 1-10) or representation of the demographic information (e.g., codes, tags, characters or the like) may be used to carry out the objects of the present invention. The determination of the values for the demographic
20 categories will be described later.

For the exemplary user of FIG. 2, the values for the demographic categories indicates that the user is a male in the age group of 18-40, his annual income is over \$20,000 but not over \$30,000, he is an
25 unmitigated sports fan, and he is a greater cat-lover (0.7 value) than a dog-lover (0.5 value).

Advertisement #1, which for purposes of illustration only will be assumed to be for a sports utility vehicle, has preselected values of at least 0.5
30 for the sports fan demographic category and 1 for the annual income over \$30,000 demographic category. Note that FIG. 2 is not necessarily indicative of what a

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real advertiser of sports utility vehicles would select in terms of values or even demographic categories, but is suitable for purposes of illustration. The 0.5 preselected value for the sports fan category means
5 that the advertiser desires to target advertisement #1 to someone who is at least moderately interested in sports. In addition, the advertiser desires to target someone who is at least making \$30,000 a year. Since the user in the example of FIG. 2 does not fit the
10 income category, advertisement #1 would not be displayed on the user's television 52.

Advertisement #2, which for purposes of illustration only will be assumed to be for beer, has preselected values of at least 0.7 for the sports fan
15 demographic category and 1 for the male in the age group of 18-40 demographic category. The 0.7 preselected value for the sports fan category means that the advertiser desires to target advertisement #2 to someone who has at least fairly significant interest
20 in sports. In addition, the advertiser desires to target someone who is a male in the age group of 18-40. Since the user in FIG. 2 fits both categories as demonstrated by the values, advertisement #2 would be displayed on the user's television 52.

25 The value for each demographic category is reflective of the characteristics of the user. There are many different ways to calculate or determine values for such demographic categories. Any suitable technique for generating information representing the
30 demographic characteristics of the user may be used if desired. For example, demographic information on users may be gathered using surveys (on-line, telephone,

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door-to-door, mail, program-guide-based, etc.) or other type of market research. The following describes one suitable technique for calculating or determining the values for the demographic categories based on user
5 inputs in the program guide.

User inputs received by the user input receiver 62 have predetermined weight values (WV) associated with them. In FIG. 3, there are shown four such exemplary user inputs with corresponding weight
10 values (the selection of value range 0-1 for the weight values is not significant in and of itself): recording a program with weight value of 1.0; setting a reminder with weight value of 0.5; tuning to a program and watching for at least five minutes with weight value of
15 0.5; and retrieving information about a program with weight value of 0.25. The weight values are indicative of the effect the corresponding user inputs have on the values of the demographic categories. The greater the weight value of a user input, the greater the values of
20 the demographic categories associated with such user input. Therefore, according to the example of FIG. 3, a user who records a program will have greater values for the pertinent demographic categories than she will retrieving information about the same program. This is
25 because the act of recording a program generally indicates a greater level of interest in the program than just retrieving information for the program.

Each channel and program having a bearing on at least one of the demographic categories may have a
30 preselected value (PV) for each demographic category associated with it. This preselected value is indicative of the channel or program's indication of

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how well a user fits the demographic category. For example as shown in FIG. 4, the ESPN channel may have a preselected value of 0.95 (from value range of 0-1) associated with the sports fan demographic category since there is a very strong likelihood that a viewer of ESPN is a sports fan. However, the ESPN channel may have a preselected value of 0.5 associated with the cat-lover demographic category since there likely is not a strong connection between the two. The preselected values may be determined from research, survey, poll, or any other reliable means. Again, it should be noted that the selection of value range 0-1 for the preselected values is not significant in and of itself.

There is preferably a default value assigned for each demographic category. For example, the sports fan demographic category may have a default value of 0.5. The default value may represent the value for a "typical" user and is utilized in calculating the value of the demographic category for the user as will be discussed below.

Each demographic category may have a period (P), which is the minimum number of user inputs necessary before the demographic category value is deemed to be meaningful and reflective of the user. For example, the sports fan demographic category may have a period of five.

Each channel or program having a preselected value for an associated demographic category may have a predetermined weight factor (WF). For example, the ESPN channel may have a weight factor of 2 for the sports fan demographic category as shown in FIG. 4.

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The weight factor represents the significance of the channel or program relative to the period for the demographic category.

For each user input involving a relevant
5 channel or program, the value for a demographic category is as follows:

$$V_d(i) = \frac{(WV * WF * PV) + ((P - (WV * WF)) * V_d(i-1))}{P}$$

$V_d(i-1)$ is the previous value for the demographic
10 category and i represents the number of user inputs. Where $i=1$ (i.e., the first user input involving a relevant channel or program associated with the demographic category), the $V_d(i-1)$ used above is the default value for the demographic category. It should
15 be noted that any other equation or function which properly reflects the user's interests based on user inputs into the system can be used to determine values for demographic categories in accordance with the present invention.

20 As an example, the determination of value for the sports fan demographic category given three user inputs is described. Let's assume that the three user inputs are as follows: (1) retrieve information about a sporting event on ESPN; (2) tune in and watch ESPN for
25 at least five minutes; and (3) record a sporting event from ESPN. Using the values set forth in the examples provided above and in FIG. 3,

$$V_{\text{sports fan}}(1) = \frac{(0.25 * 2 * 0.95) + ((5 - 0.25 * 2) * 0.5)}{5}$$

$$30 \quad = (0.475 + 2.25) / 5 = 0.545$$

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$$V_{\text{sports fan}}(2) = \frac{(0.5 * 2 * 0.95) + ((5 - 0.5 * 2) * 0.545)}{5}$$

$$= (0.95 + 2.18) / 5 = 0.626$$

$$V_{\text{sports fan}}(3) = \frac{(1 * 2 * 0.95) + ((5 - 1 * 2) * 0.626)}{5}$$

$$= (1.9 + 1.878) / 5 = 0.7556$$

After the three user inputs involving ESPN, the value of the sports fan demographic category is 0.7556, indicating that the user is very much a sports fan. However, because there have only been three user inputs received and the predefined period for the sports fan demographic category is five, the calculated value may not be significant enough for purposes of targeting advertisements (note that the calculated value may still be used if desired). If the calculated value is not to be used for this reason, then the default value may be used instead.

It is preferable to target advertisements to users based on current user information. Therefore, the present invention provides a decay function to "refresh" the values of the demographic categories for the user on a periodic basis, such as every seven days, or based on a specified number of user inputs.

As an example, let's assume that the value for the sports fan demographic category stored in memory 64 is 0.8 and the decay function refreshes the value for the sports fan demographic category every seven days during which no input action has been received. If it has been seven days since the last user input affecting the sports fan demographic

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category has been received, the decay function will refresh the value for the sports fan category to a predetermined value, such as the default value for the demographic category. The decay function may also use
5 the formula given above for $v_d(i)$, with different values/parameters. Note that it is preferable to have the microprocessor 60 perform the decay function.

In FIG. 2, there is illustrated what may be called the threshold approach of targeting
10 advertisements to users. That is, if the preselected value(s) of a demographic category for an advertisement is met by the value of the demographic category for the user, then the advertisement is displayed to the user by the program guide.

15 Another approach of targeting advertisements to users may be called the best fit or closest approach. In this approach, the "closeness" of the preselected values of the demographic categories for an advertisement is determined from the values of the
20 demographic categories for the user. This closeness may be determined by, for example, calculating the absolute difference between the preselected value and the user value for each demographic category, and then adding all of the absolute differences. Root-mean-
25 square may also be used. The best fit approach is particularly useful where it is desired to select the advertisement(s) to be displayed from among many advertisements transmitted to the user's set-top box.

It should be noted that the values of the
30 demographic categories may be based on user information from an external source. For example, if the user's annual income is determined from publicly available

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information or from a form filled out by the user, then this information can be transmitted to the set-top box and stored in memory.

In the illustrative program guide system 30 of FIG. 1, the set-top box 48 calculates values for the demographic categories, stores the calculated values and other information necessary to calculate the values, and compares the values of the relevant demographic categories for the user with the
10 preselected values associated with each advertisement to determine whether the advertisement is to be displayed. The program guide system of the present invention can be modified in a manner apparent to those skilled in the art reading the description herein such
15 that any of these operations performed of the set-top box can be performed instead at the television distribution facility 38 or the main facility 32 or at any other location (not shown in FIG. 1).

Steps involved in displaying advertisements
20 based on demographic information are shown in FIG. 5. At step 66, demographic category information for the user is determined using a suitable technique such as a survey, or by monitoring the user's actions with the program guide and calculating the demographic category
25 information based upon the user's actions and preselected information stored in memory. At step 68, the demographic category information that is representative of the user's demographic profile is stored in the user's television equipment 44. At step
30 70, advertisements with associated demographic category information (representative of the audiences to which the advertisers desire to target the advertisements)

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are distributed to the user television equipment (e.g., by transmission from main facility 32 and distribution via television distribution facility 38). At step 72, the program guide determines which advertisements are to be displayed for the user by comparing the demographic category information associated with the advertisements with the user's demographic category information.

The foregoing is merely illustrative of the principles of this invention and various modifications can be made by those skilled in the art without departing from the scope and spirit of the invention.

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CLAIMS:

1. A system for targeting actions to a user of an interactive television program guide, the system comprising:

5 user television equipment on which the interactive television program guide is implemented, wherein the user television equipment is configured to:

associate a plurality of demographic categories with a plurality of program guide actions,

10 associate preselected values with the demographic categories that are associated with each program guide action,

receive a user input that activates a function of a plurality of functions of the interactive television program guide,

15 calculate user values for the plurality of demographic categories based at least in part on the type of function activated by the user input, wherein substantially each function of the plurality of functions has a corresponding weight value that affects the calculation of
20 the user values to different degrees,

store the user values, and

25 compare the preselected values for the demographic categories associated with the actions with the stored user values of corresponding demographic categories to determine which actions should be taken in the interactive television program guide.

2. The system of claim 1, wherein the user television equipment comprises a memory on which the user values are stored.

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3. The system of claim 1, wherein the user television equipment comprises a remote control with which the user transmits the user input for the interactive television program guide to the user television equipment.

5 4. The system of claim 1, wherein the user television equipment comprises a microprocessor for determining the user values from the user input and for comparing the preselected values with the user values.

10 5. The system of claim 1, wherein the user television equipment is further configured to use preselected demographic category data associated with each television channel and program having a bearing on at least one of the plurality of demographic categories in determining the user values.

15 6. The system of claim 1, wherein the user television equipment is further configured to use default values associated with the demographic categories when determining user values.

20 7. The system of claim 1, wherein at least one demographic category is associated with a minimum number of user inputs necessary before the user value determined by the user television equipment for that demographic category is deemed to be meaningful and reflective of the user for the respective demographic category.

25 8. The system of claim 1, wherein the user television equipment is further configured to periodically refresh the user values for the demographic categories to a predetermined refresh value.

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9. A method for targeting actions to a user of an interactive television program guide implemented on user television equipment, the method comprising:

associating a plurality of demographic categories
5 with a plurality of program guide actions;

associating preselected values with the demographic categories that are associated with each program guide action;

receiving user input that activates a function of
10 a plurality of functions of the interactive television program guide;

determining user values for the plurality of demographic categories based at least in part on the type of function activated by the user input, wherein substantially
15 each function of the plurality of functions has a corresponding weight value that affects the determination of the user values to different degrees;

storing the user values; and

comparing the preselected values for the
20 demographic categories associated with the actions with the stored user values of corresponding demographic categories in selecting the actions to be displayed in the interactive television program guide.

10. The method of claim 9, wherein the storing of the
25 user values comprises storing the user values on a memory in the user television equipment.

11. The method of claim 9, further comprising using a remote control to transmit the user input for the

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interactive television program guide to the user television equipment.

12. The method of claim 9, wherein the determining of the user values comprises using a microprocessor on the user television equipment for determining the user values using the user input and for comparing the preselected values with the user values.

13. The method of claim 9, wherein the determining of the user values comprises using preselected demographic category data associated with each television channel and program having a bearing on at least one of the plurality of demographic categories.

14. The method of claim 9, wherein the determining of the user values comprises using default values associated with the demographic categories.

15. The method of claim 9, wherein at least one demographic category is associated with a minimum number of user inputs necessary before the user value is deemed to be meaningful and reflective of the user for the respective demographic category.

16. The method of claim 9, further comprising periodically refreshing the user values for the demographic categories to a predetermined refresh value.

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17. A method for targeting advertisements to a user of an interactive system, the method comprising:

receiving a user input associated with a program;

5 determining a type of function of the interactive system that the user input requested for the program;

determining at least one demographic value associated with the program;

10 calculating, using a processor, a current user demographic value associated with the user based on the determined type of function and the at least one demographic value associated with the program;

comparing the current user demographic value to a demographic criteria associated with an advertisement; and

selecting the advertisement if the current user demographic value meets the demographic criteria associated with the advertisement.

15 18. The method of claim 17, wherein the type of function is associated with a weight value, and the current user demographic value is modified by the weight value.

19. The method of claim 17, wherein the current user demographic value is further based on a previous user demographic value.

20 20. The method of claim 19, wherein the previous demographic value is a default value.

21. The method of claim 17, wherein the user input requests activation of the determined type of function of the interactive system for the program.

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22. The method of claim 17, wherein the current user demographic value is calculated if a required number of user inputs requesting the type of function of the interactive system is received.

23. The method of claim 17, wherein the current user demographic value is set to a default user demographic value if a required number of user inputs requesting the type of function of the interactive system is not received.

24. The method of claim 17, wherein the current user demographic value is adjusted toward a predetermined user demographic value after a predetermined amount of time wherein the current user demographic value is not updated.

25. The method of claim 24, wherein the adjustment is based on a decay function.

26. The method of claim 17, wherein the current user demographic value is associated with at least one demographic category.

27. The method of claim 17, further comprising storing the current user demographic value.

28. An interactive system for targeting advertisements to a user of the interactive system, the interactive system comprising:

a user input receiver configured to receive a user input associated with a program; and

a processor, wherein the processor is configured to:

determine a type of function of the interactive system that the user input requested for the program;

determine at least one demographic value associated with the program;

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calculate a current user demographic value associated with the user based on the determined type of function and the at least one demographic value associated with the program;

5 compare the current user demographic value to a demographic criteria associated with an advertisement; and

select the advertisement if the current user demographic value meets the demographic criteria associated with the advertisement.

29. The system of claim 28, wherein the type of function is associated with a weight value, and the current user demographic value is modified by the weight
10 value.

30. The system of claim 28, wherein the current user demographic value is further based on a previous user demographic value.

31. The system of claim 30, wherein the previous demographic value is a default value.

15 32. The system of claim 28, wherein the user input requests activation of the determined type of function of the interactive system for the program.

33. The system of claim 28, wherein the current user demographic value is calculated if a required number of user inputs requesting the type of function of the interactive system is received.

20 34. The system of claim 28, wherein the current user demographic value is set to a default user demographic value if a required number of user inputs requesting the type of function of the interactive system is not received.

35. The system of claim 28, wherein the current user demographic value is adjusted toward a predetermined user demographic value after a predetermined
25 amount of time wherein the current user demographic value is not updated.

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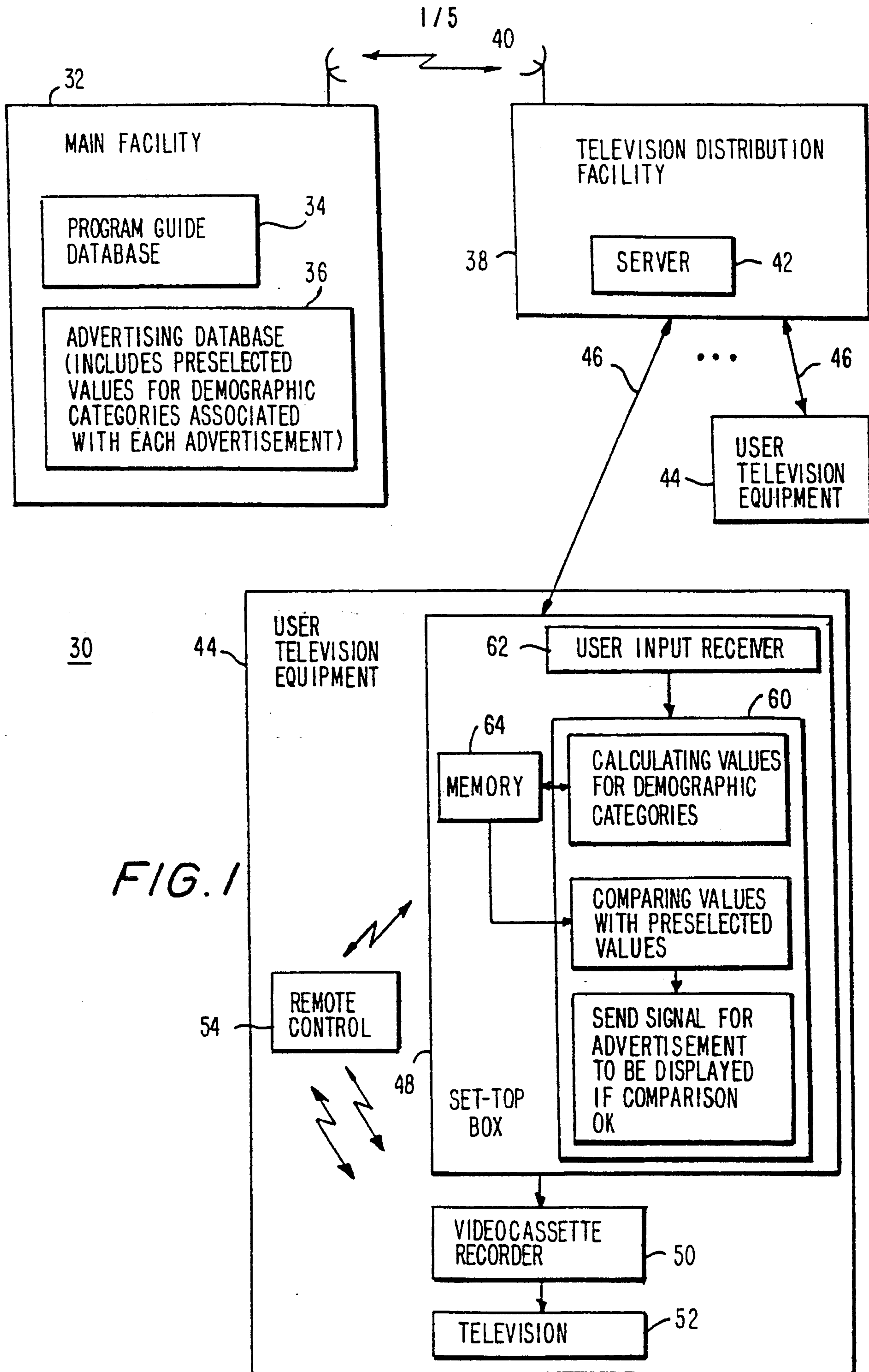
27

36. The system of claim 35, wherein the adjustment is based on a decay function.

37. The system of claim 28, wherein the current user demographic value is associated with at least one demographic category.

5 38. The system of claim 28, wherein the interactive system further comprises a memory, wherein the memory is configured to store the current user demographic value.

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DEMOGRAPHIC CATEGORIES	VALUE	PRESELECTED VALUE ADVERTISEMENT 1	PRESELECTED VALUE ADVERTISEMENT 2
① SPORTS FAN	1	0.5	0.7
② SCIENCE FICTION FAN	0.7		
③ PARENT	0		
④ DOG-LOVER	0.5		
⑤ CAT-LOVER	0.7		
⑥ ANNUAL INCOME OVER \$20,000	1		
⑦ ANNUAL INCOME OVER \$30,000	0	1	
⑧ ANNUAL INCOME OVER \$50,000	0		
⑨ FEMALE AGE 20-30	0		
⑩ MALE AGE 18-40	1		1

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FIG. 2

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USER INPUT	WEIGHT VALUE
① RECORD PROGRAM	1.0
② SET REMINDER	0.5
③ TUNE/WATCH MINIMUM 5 MINUTES	0.5
④ RETRIEVE INFORMATION	0.25

FIG. 3

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CHANNEL	SPORTS FAN		SCIENCE FICTION FAN		...
	PRESELECTED VALUE (PV)	WEIGHT FACTOR (WF)	PRESELECTED VALUE (PV)	WEIGHT FACTOR (WF)	
ESPN	0.95	2	0.6	1.5	
CHANNEL XYZ	0.5	1	0.8	1.8	
⋮					

FIG. 4

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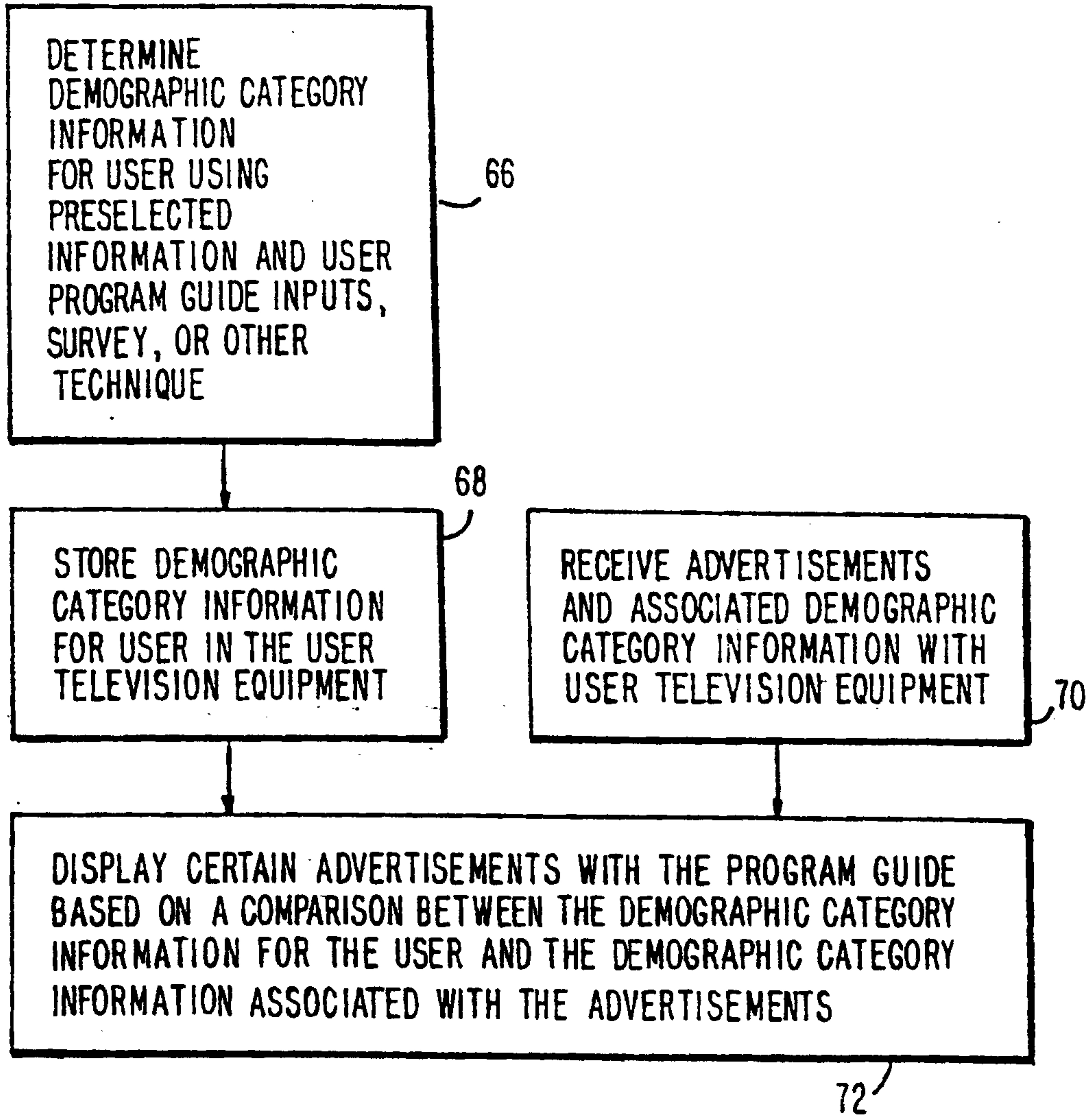


FIG. 5

