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Invalidity Search

US9247299B1

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IF IT EXISTS, WE WILL FIND IT.

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# Search Findings

The objective of the project was to conduct a search on patent and non-patent literature available online and to identify prior-art references for *US9247299B1* (hereafter referred as ‘subject patent’). The cut-off date for identifying prior-art considered for this search is May 19, 2007. References that seem to disclose one or more elements of independent and dependent claims of the subject patent are listed and analyzed in this report.

## Bibliography of Patent Results

### Tier-1 Results

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| # | Publication Number | Title | Priority Date | Filing Date | Publication Date | Inventor(s) | Assignee(s) |
|  | [US20040117831A1](https://patents.google.com/patent/US20040117831A1/en) | Interactive television program guide system and method with niche hubs | June 28, 1999 | June 6, 2003 | June 17, 2004 | Michael Ellis, Edward Knudson | Adeia Guides Inc |
|  | [US20070157248A1](https://patents.google.com/patent/US20070157248A1/en)*\** | Systems and methods for providing channel groups in an interactive media guidance application | December 29, 2005 | December 29, 2005 | July 5, 2007 | Michael Ellis | Adeia Guides Inc |
|  | [US8578416B1](https://patents.google.com/patent/US8578416B1/en)*\** | Systems and methods for providing blackout recording and summary information | April 27, 2007 | April 27, 2007 | November 5, 2013 | Jon P. Radloff, Michael D. Ellis | Adeia Guides Inc |
|  | [US20080086747A1](https://patents.google.com/patent/US20080086747A1/en)*\** | Systems and methods for acquiring, categorizing and delivering media in interactive media guidance applications | October 6, 2006 | December 18, 2006 | April 10, 2008 | Kirsten Rasanen, Jay S. Bryant | Adeia Guides Inc |
|  | [WO2006104968A2](https://patents.google.com/patent/WO2006104968A2/en) | Interactive mosaic channel video stream with barker channel and guide | March 28, 2005 | March 27, 2006 | October 5, 2006 | Richard F. Purpura, David E. Shanks, Leon J. Stanger | N/A |
|  | [US20040045026A1](https://patents.google.com/patent/US20040045026A1/en) | In digital or interactive television | August 29, 2002 | August 29, 2002 | March 4, 2004 | Ariel Baril, Ehud Miron | Matav Cable systems Media Ltd, Zoe Interactive Ltd |
|  | [JP2004032216A](https://patents.google.com/patent/JP2004032216A/en) | Information processing apparatus, information processing method, and program | June 24, 2002 | June 24, 2002 | January 29, 2004 | Makoto Saeki, 佐伯　　誠 | Ejworkscom Kk |
| *\* This reference is filed before but published after the cut-off date* | | | | | | | |

## Bibliography of Non-Patentsd Results

### Tier-3 Result

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| # | Title | Publication Date | Source | Author(s) |
|  | Video Surveillance in Hollywood Movies | 2004 | <https://ojs.library.queensu.ca/index.php/surveillance-and-society/article/download/3389/3352/5700> | Dietmar Kammerer |
|  | EchoStar launches OpenTV multi-channel home page | August 30, 2005 | <https://informitv.com/2005/08/30/echostar-launches-opentv-multi-channel-home-page/> | N/A |

## Claim Matrix

***Note:*** This section provides an overlap of the closest references against all the claims of the subject patent.

Codes have the following interpretation:

|  |  |
| --- | --- |
|  | **Supported:**  The complete claim element has been described in the reference in a manner similar to the subject patent. In other words, the specific claim element has been fully and explicitly disclosed in the reference. |
|  | **Inferentially supported:**  The claim element may be described in functionally equivalent way or it may be interpreted/inferred in a way similar to that in the subject patent. There is no explicit disclosure of the claim element in the reference but it can be inferred from the relevant disclosure in the reference. |
| P | **Partially Supported:**  Only a part of the claim element is available in the relevant text. The complete claim element is not explicitly disclosed in the reference. It can be expressed in an identical/implied/functionally equivalent way. The underlined clauses are missing. |
| - | **Not Supported:**  Information regarding the claim element is not available in the reference. |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| # | Claim Element | [US20040117831A1 (Ellis et al.)](#_US11382083B2_(Guo_et) | [US8578416B1 (Radloff et al.)](#_US8578416B1_(Radloff_et) | [WO2006104968A2 (Purpura et al.)](#_WO2006104968A2_(Purpura_et) | [US20040045026A1 (Baril et al.)](#_US20040045026A1_(Baril_et) | [JP2004032216A (Saeki et al.)](#_JP2004032216A_(Saeki_et) |
|  | A television system, comprising:  an input interface for receiving video data from a plurality of video streams; |   [Para 0086] & [Para 0103]  *It mentions a television program guide system with niche hubs, featuring in a television equipment with a set-top box receiving channel information through communication channels.* |   [Col 6, Line 25] & [Col 8, Line 54]  *The reference discloses systems for video mosaic and television environments.* |   [Page 7, Line 9 ] & [Page 7, Line 13]  *It mentions an interactive television channel displayed on a monitor receives plurality of video feeds through cable or broadcast frequencies* |   [Para 0001]  *It discusses an interactive television system to receive a package of video channels from a broadcasting unit delivered to a selector via a satellite to the subscribers.* |   [Para 0001] & [Para 0016]  *The reference describes an information processing device capable of displaying a plurality of images on a display unit. Although it mentions a method of displaying the screens, it is displayed on a display unit similar to a television system.* |
|  | a frame controller causing the video data to be displayed in a plurality of pictures on a display coupled to the television system, |   [Para 0094] & [Para 0098]  *It features a set-top box coupled to a television equipment to store the received multiple television channels in the device memory* |   [Col 09, Line 05]  *The reference discloses a video mosaic client 31 working with control circuitry 32 to manage objects and screen elements in a video mosaic display on display device 34.* |   [Page 7, Line 13]  *It mentions the monitor manipulates the electronics (frame controller) to capture and present the video information from input through a cable or broadcast.* |   [Para 0013] & [Para 0068]  *The selector make a package of the channels according to the broadcaster and the package display unit (frame controller) arranges the selected channels of the package into the mosaic of the miniaturized views.* |   [Para 0016] & [Para 0021]  *The reference discloses a control unit 11 (acting as a frame controller) that executes processes for displaying distributed video on the display unit 14. The input unit 13 inputs video data to the control unit 11. All these units are interconnected by a bus 17, thus coupling the control unit (frame controller) to the input interface and display.* |
|  | each picture occupying an area of the display separate from an area occupied by any other picture, the frame controller further: |   [Figure 34] & [Para 0181]  *It clearly shows the difference in size of the video windows 105, 413 and advertisement 104A.* |   [Col 6, Line 25]  *The reference clearly describes video cells or windows in a video mosaic page where each event may be presented in its own video cell or window.* |   [Page 7, Line 13]  *It mentions multiple video feeds are displayed simultaneously in a matrix view that would be present to a viewer on separate viewer channels.* |   [Para 0013] & [Para 0068]  *It mentions the arrangement of the selected channels in the package into the mosaic of the miniaturized views.* |   [Para 0023] & [Figure 04]  *The reference describes displaying images simultaneously on the plurality of display screens and explicitly mentions six display screens being displayed on the display unit.* |
|  | receives a first user selection to display a video group related to an attribute, |   [Figure 34], [Para 0118] & [Para 0181]  *It mentions that the genre of the video shown in 105, 413 and the genre of the advertisement would be related to the content shown on the screen. Further discusses a program guide may provide a listing of television games that may be a part of a sports list.* |   [Col 11, Line 1]  *The reference describes a user selecting genres (e.g., Sports, News, and Movies) via a Mosaic Blackout Options screen which represents a user selecting an attribute.* |   [Page 3, Line 1 ]& [Page 8, Line 13]  *It mentions a viewer can select various portions of the video via a remote controller to select the desired video from an interactive mosaic channel where interactive channels can be a group of related channels for viewing on the monitor.* |   [Para 0013] & [Para 0067]  *It mentions the receiving of channels by a package display unit that are formed as a channel sub-directory or package of youth channels or of sport channels, or of film channels or of news channels.* |   *[Para 0019] & [Para 0026]*  *The reference describes storing attribute data related to the classification of videos (e.g., sports) and that a user can click a second clickable map to read this attribute information. Subsequently, related images can be displayed based on this attribute data.* |
|  | the video group comprising at least a first video stream and a second video stream of the plurality of video streams; |   [Para 0094]  *It mentions that each path includes several television channels one or more may be used to support several digital channels.* |   [Col 11, Line 1]  & [Col 13, Line 24]  Since these genres inherently imply a collection of related video content (e.g., multiple sports streams for Sports). |   [Page 3, Line 1],[Page 8 ,Line 13] & [Page 15 ,Line 13]  *It mentions remote controller to select the interactive channel that can be a group of related channels for viewing on the monitor.* |   [Para 0013] & [Para 0067]  *It mentions a channel sub-directory or a package of youth channels or of sport channels, or of film channels or of news channels.* |   [Para 0019]  *The reference clearly defines attribute information (e.g., sports) that links to multiple URLs, each accessing a different video file (e.g., soccer, baseball, and marathon). These multiple related videos sharing a common attribute explicitly form a video group.* |
|  | receives the first and the second video streams of the video group from the input interface; |   [Para 0098]  *It discusses that a receiver, typically a set-top box that is used to receive and store the video streams of the video group in a memory.* |   [Col 09, Line 05] &  [Col 11, Line 1]  *The reference describes the control circuitry 32, with its tuners and communication circuitry, as capable of receiving analog or digital media programming (video streams) from various sources.* |   [Page 7, Line 13]  *It mentions the additional viewer channels that comprise the multiple video feeds received from an input such as a cable or broadcast frequencies.* |   [Para 0067] & [Para 0070]  *It mentions the receiving of the video streams delivered via cable or a satellite to subscribers to a selector that create a channel sub-directory or a package that gets delivered to a package display unit.* |   [Para 0028]  *The control unit (frame controller) accesses video storage files identified by URLs that are part of the attribute data (i.e., defining the video group).This access, typically through the communication control unit and input unit, involves sequentially reading video data (streams) from the video distribution source.* |
|  | displays the first and the second video streams in a first picture and a second picture of the plurality of pictures; |   [Para 0182]  *It mentions that the screen display plurality of video streams on the screen 400 such as 105, 413 and the video advertisement region 104.* |   [Col 6, Line 25]  *The reference describes and illustrates the video mosaic client displaying multiple video cells or pictures simultaneously.* |   [Page 7, Line 13 ] & [Page 8, Line 24]  *It discusses the displaying of the various video feeds in a matrix view or the viewer can choose one of the matrixed viewer channels directly from the interactive mosaic channel* |   [Para 0070] & [Para 0078]  *It discusses the series of broadcast channels included in an overall browsing channel which displays the miniaturized views of individual channels.* |   [Para 0030] & [Para 0035]  *The reference clearly describes displaying video streams on individual display screens (pictures) through the respective display driver units. Specifically, states that a related video (a video stream from the group) is displayed on a `kth display screen` (a picture)* |
|  | receives a second user selection to change the display in a given picture of the plurality of pictures to a given video stream of the video group, |   [Para 0182]  *It clearly discusses that how the user may view the video of the next story by selecting the Next Story option in the screen belonging to the same video group.* |   [Col 4, Line 5]  *The reference explicitly describes receiving a user selection via an options overlay to replace the blacked out object with replacement content or search for similar content for a blacked out video cell (a given picture ).* |   [Page 21, Line 06]  *It discusses the user can add or delete a viewer channel from the presentation of interactive mosaic on the monitor.* |   [Para 0087]  *It mentions that user selects a particular channel and others channels preferably closed from the lower edge of the frame or may move sideways to admit new channels.*  *This mention of admitting new channels upon selection of a particular channel and closing it can be broadly inferred as the user selection to change the display of the give picture.* |   [Para 0026] & [Para 0033]  *The reference describes that a user can click a third clickable map on a `kth display screen` (a given picture). This user selection triggers an instruction to display a new related image on that specific display screen, thereby changing the display in that picture.* |
|  | wherein the given video stream is not currently displayed on the display; and  displays the given video stream in the given picture. |   [Para 0086]  *It mentions that the Next Story option displayed another video (not currently displayed on the screen) from the list of top stories relating to sports, and hence displays it on the screen 413 region.* |   [Col 4, Line 5]  *This replacement content or similar content would be a given video stream not currently displayed.* |   [Page 21, Line 06]  *It discusses that video cells can be added or deleted when the user wants to change from one viewer channel to another such that access to such viewer channel is selectively allowed.* |   [Para 0087]  *The new video stream which is admitted on selection of a further set of channels which aren t displayed on the screen.* |   [Para 0009], [Para 0026] & [Para 0033]  *The reference describes stopping the display of a video other than the related video if it’s currently on the target display screen before showing the new related video. This means the newly selected video is not present on the specific picture it’s being displayed on.* |
|  | The television system of claim 1, wherein the first and the second pictures are of different sizes. |   [Figure 34]  *It shows that the difference in sizes of the picture regions 413, 105 and 104.* | -  Can be Supported by  [US20040117831A1 (Ellis et al.)](#_US11382083B2_(Guo_et) | -  Can be Supported by  [US20040117831A1 (Ellis et al.)](#_US11382083B2_(Guo_et) | -  Can be Supported by  [US20040117831A1 (Ellis et al.)](#_US11382083B2_(Guo_et) | -  Can be Supported by  [US20040117831A1 (Ellis et al.)](#_US11382083B2_(Guo_et) |
|  | The television system of claim 1, wherein the frame controller further receives the first user selection or the second user selection from a mobile computing device over a wireless data network. |   [Para 0103]  *The user may use the input device, such as a remote control or a mouse to make the selections over a wireless network.* | -  Can be Supported by  [US20040117831A1 (Ellis et al.)](#_US11382083B2_(Guo_et) |   [Page 7, Line 13]  *The reference mentions the remote control to select the channels.* | -  Can be Supported by  [US20040117831A1 (Ellis et al.)](#_US11382083B2_(Guo_et) | -  Can be Supported by  [US20040117831A1 (Ellis et al.)](#_US11382083B2_(Guo_et) |
|  | The television system of claim 1, wherein the attribute comprises one or more of the following: sports; news; movies; live events; appropriateness for children; and an age group. |   [Para 0010]  *It mentions that niche hubs may include the listings from programs related to a specific category, such as news groups, local events, etc.* |   [Col 11, Line 1]  *The reference explicitly states that content can be identified by attribute and repeatedly refers to genre video mosaic display with examples including news genre display , sports , kids programming ,* |   [Page 3, Line 1 ]& [Page 8, Line 13]  *The reference explicitly states that interactive channels (video groups) can have a thematic core, genre, or subject.* |   [Para 0013] & [Para 0067]  *The reference explicitly describes packages being defined based on attributes such as youth channels.* |   [Para 19] & [Para 0020]  *The reference describes that attribute information includes the classification to which a delivered video belongs, providing sports as an example.* |
|  | The television system of claim 1, wherein the input interface receives at least some of the video data from the Internet. |   [Para 0091]  *It mentions that the television distribution facility may provide the data to the user equipment from the internet.* |   [Col 8, Line 30]  *The reference mentions that media content can be provided by Internet resources and web services to user equipment 102 (which contains the input interface).* | -  Can be Supported by  [US20040117831A1 (Ellis et al.)](#_US11382083B2_(Guo_et) | -  Can be Supported by  [US20040117831A1 (Ellis et al.)](#_US11382083B2_(Guo_et) |   [Para 0002]  *The reference indicates that video is distributed to user terminals via the Internet in conventional technology and describes a communication control unit that controls communication with video distribution servers.* |
|  | The television system of claim 1, wherein the frame controller further receives a third user selection to change the display to a second video group comprising a second plurality of video streams. |   [Figure 24], [Para 0010] & [Para 0130]  *It mentions that the program guide, which contains the video streams with genres such as sports news, movies, etc using the TV guide 102 button.* |   [Col 13, Line 24]  *The reference describes that a user can be presented with a different genre video mosaic page by selecting the various buttons.* |   [Page 8 , Line 13]  *The reference explicitly states that there can be more than one interactive channel and details several methods for a user to select or switch to a different interactive mosaic channel, such as via a programming guide.* |   [Para 0072]  *The reference describes that several packages (video groups) can be defined and that logic (user interaction) selects which part of the package browsing channel is currently displayed.* | -  Can be Supported by  [US20040117831A1 (Ellis et al.)](#_US11382083B2_(Guo_et) |
|  | The television system of claim 6, wherein the frame controller further displays the second plurality of video streams in the plurality of pictures on the display. |   [Figure 24] & [Para 0010]  *It discusses that a set-top box may display that second group of video streams on the display, i.e different genres such as sports-news , movies etc.* |   [Col 13, Line 24]  *It mentions that if a user selects a different genre video mosaic page (second video group), the reference indicates that such pages contain four large video cells displaying four different news channels or programs in full-motion video* |   [Page 8 , Line 13]  *As mentioned previously, the reference may have more than one interactive mosaic channel and when an interactive mosaic channel (a video group) is selected, the viewer is given choices of viewer channels to view simultaneously as in a matrix view* |   [Para 0068] & [Para 0072]  *The reference explicitly states that the selected part of the package browsing channel is currently displayed and displays a mosaic of minimized versions or view* | -  Can be Supported by  [US20040117831A1 (Ellis et al.)](#_US11382083B2_(Guo_et) |
|  | The television system of claim 1, wherein the frame controller further receives a user instruction to create a second video group comprising a second plurality of video streams. |   [Para 0010]  *It discusses that the hubs provide users with the ability to enter favorites and provide interactive hyperlinks to the related items within the given category of interest in the hub that are saved in the memory of the set-top box.* | -  Can be Supported by  [US20070157248A1 (Ellis et al.)](#_US20070157248A1_(Ellis_et) |   [Page 16 , Line 10]  *The reference explicitly states that there can be user-created and/or controlled interactive mosaic channels and that users may have the ability to create their own interactive mosaic channel 200.* |   [Para 0084]  The reference explicitly states that the user is able to construct his own customised list of channels | -  Can be Supported by  [US20070157248A1 (Ellis et al.)](#_US20070157248A1_(Ellis_et) |
|  | The television system of claim 8, wherein the user instruction comprises a second attribute related to the second video group. |   [Para 0010]  *It discusses that users with the ability to enter favorites within the given category of interest in the hub.* | -  Can be Supported by  [US20070157248A1 (Ellis et al.)](#_US20070157248A1_(Ellis_et) |   [Page 8 , Line 13]  *The reference states that interactive channels have a thematic core, genre, or subject (attributes) and that users can create their own interactive mosaic channels, including a group of channels that is selected by the user* | -  Can be Supported by  [US20070157248A1 (Ellis et al.)](#_US20070157248A1_(Ellis_et) | -  Can be Supported by  [US20070157248A1 (Ellis et al.)](#_US20070157248A1_(Ellis_et) |
|  | The television system of claim 9, further comprising a datastore, wherein the frame controller further stores the second video group and the second attribute in the datastore. |   [Para 0086]  *It mentions a database that allows a system to support the interactive television guide that displays the second video group on the screen 400.* | -  Can be Supported by  [US20040117831A1 (Ellis et al.)](#_US11382083B2_(Guo_et) | -  Can be Supported by  [US20040117831A1 (Ellis et al.)](#_US11382083B2_(Guo_et) | -  Can be Supported by  [US20040117831A1 (Ellis et al.)](#_US11382083B2_(Guo_et) | -  Can be Supported by  [US20040117831A1 (Ellis et al.)](#_US11382083B2_(Guo_et) |
|  | The television system of claim 10, wherein the frame controller further:  receives a third user selection to display the second video group; |   [Para 0010]  *It discusses that the hubs provide users with the ability to enter favorites and provide interactive hyperlinks to the related items within the given category of interest in the hub.* | -  Can be Supported by  [US20040117831A1 (Ellis et al.)](#_US11382083B2_(Guo_et) |   [Page 8 , Line 13]  *The reference supports receiving a user selection to display a video group (an interactive mosaic channel) and displaying its video streams* | -  Can be Supported by  [US20040117831A1 (Ellis et al.)](#_US11382083B2_(Guo_et) | -  Can be Supported by  [US20040117831A1 (Ellis et al.)](#_US11382083B2_(Guo_et) |
|  | obtains the second video group from the datastore; and |   [Figure 24], [Para 0010] & [Para 0130]  *It mentions that a database exists in television equipment that supports the television program guide.* | -  Can be Supported by  [US20040117831A1 (Ellis et al.)](#_US11382083B2_(Guo_et) | -  Can be Supported by  [US20040117831A1 (Ellis et al.)](#_US11382083B2_(Guo_et) | -  Can be Supported by  [US20040117831A1 (Ellis et al.)](#_US11382083B2_(Guo_et) | -  Can be Supported by  [US20040117831A1 (Ellis et al.)](#_US11382083B2_(Guo_et) |
|  | displays the second plurality of video streams of the second video group in the plurality of pictures on the display. |   [Figure 24], [Para 0010] & [Para 0130]  *It mentions that television equipment supports the program guide, which eventually shows the favorites group created by the user.* | -  Can be Supported by  [US20040117831A1 (Ellis et al.)](#_US11382083B2_(Guo_et) | -  Can be Supported by  [US20040117831A1 (Ellis et al.)](#_US11382083B2_(Guo_et) | -  Can be Supported by  [US20040117831A1 (Ellis et al.)](#_US11382083B2_(Guo_et) | -  Can be Supported by  [US20040117831A1 (Ellis et al.)](#_US11382083B2_(Guo_et) |
|  | The television system of claim 1, wherein the frame controller further queries a data network to obtain the video group using the attribute. |   [Para 0009] & [Para 0010]  *It mentions that the set-top box may obtain the niche features from the television distribution facility. Wherein the niche hubs may include the listing of programs related to a specific category.* |   [Col 13, Line 24]  *It mentions that a user selects a genre video mosaic page by selecting various buttons (using an attribute like news or sports ), the video mosaic client responds to a request for a video mosaic page by receiving and processing screen data.* | -  Can be Supported by  [US20040117831A1 (Ellis et al.)](#_US11382083B2_(Guo_et) | -  Can be Supported by  [US20040117831A1 (Ellis et al.)](#_US11382083B2_(Guo_et) |   [Para 0019]  *The reference describes that attribute information, which includes classification and URLs for related videos, is used to transmit a video distribution request to a distribution source to obtain related videos*. |
|  | A method for displaying video data from a plurality of video streams on a display, the method comprising: |   [Para 0132] & [Claim 01]  *It discusses a method of providing an interactive program guide to a user that can display plurality of video streams on the display. Further discusses the screen may provide user with various methods of accessing a list of movies available.* |   [Col 6, Line 25] & [Col 8, Line 54]  *The reference discloses method for video mosaic and television environments.* |   [Page 7, Line 9 ] & [Page 7, Line 13]  *It mentions a method for displaying an interactive television channel on a monitor which receives plurality of video feeds through cable or broadcast frequencies.* |   [Para 0001]  *It discusses a method to receive a package of video channels from a broadcasting unit delivered to a selector via a satellite to the subscribers.* |   [Para 0001] & [Para 0016]  *The reference describes method of displaying a plurality of images using an information processing device 10 capable of displaying a plurality of images on a display unit.* |
|  | receiving, by a frame controller of a television system, video data from the plurality of video streams; and |   [Para 0086] & [Para 0103]  *It mentions a television program guide system with niche hubs, featuring in a television equipment with a set-top box receiving channel information through communication channels.* |   [Col 09, Line 05]  *The reference discloses a video mosaic client 31 working with control circuitry 32 to manage objects and screen elements in a video mosaic display on display device 34.* |   [Page 7, Line 13]  *It mentions the monitor manipulates the electronics (frame controller) to capture and present the video information from input through a cable or broadcast.* |   [Para 0013] & [Para 0068]  *The selector make a package of the channels according to the broadcaster and the package display unit (frame controller) arranges the selected channels of the package into the mosaic of the miniaturized views* |   [Para 0016] & [Para 0021]  *The reference discloses a control unit 11 (acting as a frame controller) that executes processes for displaying distributed video on the display unit 14. The input unit 13 inputs video data to the control unit 11.* |
|  | displaying, by the frame controller, the video data in a plurality of pictures on the display coupled to the television system, |   [Para 0094] & [Para 0098]  *It features a set-top box coupled to a television equipment to store the received multiple television channels in the device memory* |   [Col 09, Line 05]  *The reference discloses a video mosaic client 31 working with control circuitry 32 to manage objects and screen elements in a video mosaic display on display device 34.* |   [Page 7, Line 13]  *It mentions multiple video feeds are displayed simultaneously in a matrix view that would be present to a viewer on separate viewer channels.* |   [Para 0013] & [Para 0068]  *The package display unit (frame controller) arranges the selected channels of the package into the mosaic of the miniaturized views.* |   [Para 0023] & [Figure 04]  *The reference describes displaying images simultaneously on the plurality of display screens* |
|  | each picture occupying an area of the display separate from an area occupied by any other picture, the displaying comprising: |   [Figure 34] & [Para 0181]  *It clearly shows the difference in size of the video windows 105, 413 and advertisement 104A.* |   [Col 6, Line 25]  *The reference clearly describes video cells or windows in a video mosaic page where each event may be presented in its own video cell or window*. |   [Page 3, Line 1 ]& [Page 8, Line 13]  *It mentions a viewer can select various portions of the video via a remote controller to select the desired video from an interactive mosaic channel where interactive channels can be a group of related channels for viewing on the monitor.* |   [Para 0013] & [Para 0068]  *It mentions the arrangement of the selected channels in the package into the mosaic of the miniaturized views.* |   [Para 0023] & [Figure 04]  *The reference describes displaying images simultaneously on the plurality of display screens and explicitly mentions six display screens being displayed on the display unit.* |
|  | receiving a first user selection to display a video group related to an attribute, |   [Figure 34], [Para 0118] & [Para 0181]  *It mentions that the genre of the video shown in 105, 413 and the genre of the advertisement would be related to the content shown on the screen. Further discusses a program guide may provide a listing of television games that may be a part of a sports list.* |   [Col 11, Line 1]  *The reference describes a user selecting genres (e.g., Sports, News, and Movies) via a Mosaic Blackout Options.* |   [Page 3, Line 1],[Page 8 ,Line 13] & [Page 15 ,Line 13]  *It mentions remote controller to select the interactive channel that can be a group of related channels for viewing on the monitor.* |   [Para 0013] & [Para 0067]  *It mentions the receiving of channels by a package display unit that are formed as a channel sub-directory or package of youth channels or of sport channels, or of film channels or of news channels.* |   *[Para 0019] & [Para 0026]*  *The reference describes storing attribute data related to the classification of videos (e.g., sports) and that a user can click a second clickable map to read this attribute information.* |
|  | the video group comprising at least a first video stream and a second video stream of the plurality of video streams; |   [Para 0094]  *It mentions that each path includes several television channels one or more may be used to support several digital channels.* |   [Col 11, Line 1]  & [Col 13, Line 24]  *Since these genres inherently imply a collection of related video content (e.g., multiple sports streams for Sports).* |   [Page 7, Line 13]  *It mentions the additional viewer channels that comprise the multiple video feeds received from an input such as a cable or broadcast frequencies.* |   [Para 0013] & [Para 0067]  *It mentions a channel sub-directory or a package of youth channels or of sport channels, or of film channels or of news channels.* |   [Para 0019]  *The reference clearly defines attribute information (e.g., sports) that links to multiple URLs, each accessing a different video file (e.g., soccer, baseball, and marathon).* |
|  | receiving the first and the second video streams of the video group; |   [Para 0098]  *It discusses that a receiver, typically a set-top box that is used to receive and store the video streams of the video group in a memory.* |   [Col 09, Line 05] &  [Col 11, Line 1]  *The reference describes the control circuitry 32, with its tuners and communication circuitry, as capable of receiving analog or digital media programming (video streams) from various sources.* |   [Page 7, Line 13]  *It mentions the additional viewer channels that comprise the multiple video feeds received from an input such as a cable or broadcast frequencies.* |   [Para 0067] & [Para 0070]  *It mentions the receiving of the video streams delivered via cable or a satellite to subscribers to a selector that create a channel sub-directory or a package that gets delivered to a package display unit.* |   [Para 0028]  *The control unit (frame controller) accesses video storage files identified by URLs that are part of the attribute data (i.e., defining the video group).* |
|  | displaying the first and the second video streams in a first picture and a second picture of the plurality of pictures; |   [Para 0182]  *It mentions that the screen display plurality of video streams on the screen 400 such as 105, 413 and the video advertisement region 104.* |   [Col 6, Line 25]  *The reference describes and illustrates the video mosaic client displaying multiple video cells or pictures simultaneously.* |   [Page 7, Line 13 ] & [Page 8, Line 24]  *It discusses the displaying of the various video feeds in a matrix view or the viewer can choose one of the matrix viewer channels directly from the interactive mosaic channel* |   [Para 0070] & [Para 0078]  *It discusses the series of broadcast channels included in an overall browsing channel which displays the miniaturized views of individual channels.* |   [Para 0030] & [Para 0035]  *The reference clearly describes displaying video streams on individual display screens (pictures) through the respective display driver units.* |
|  | receiving a second user selection to change the display in a given picture of the plurality of pictures to a given video stream of the video group, |   [Para 0182]  *It clearly discusses that how the user may view the video of the next story by selecting the Next Story option in the screen belonging to the same video group.* |   [Col 4, Line 5]  *The reference explicitly describes receiving a user selection via an options overlay to replace the blacked out object with replacement content or search for similar content for a blacked out video.* |   [Page 21, Line 06]  *It discusses the user can add or delete a viewer channel from the presentation of interactive mosaic on the monitor.* |   [Para 0087]  *It mentions that user selects a particular channel and others channels preferably closed from the lower edge of the frame or may move sideways to admit new channels.*  *This mention of admitting new channels upon selection of a particular channel and closing it can be broadly inferred as the user selection to change the display of the give picture.* |   [Para 0026] & [Para 0033]  *The reference describes that a user can click a third clickable map on a kth display screen. This user selection triggers an instruction to display a new related image on that specific display screen, thereby changing the display in that picture.* |
|  | wherein the given video stream is not currently displayed on the display; and  Displaying the given video stream in the given picture. |   [Para 0086]  *It mentions that the Next Story option displayed another video (not currently displayed on the screen) from the list of top stories relating to sports, and hence displays it on the screen 413 region.* |   [Col 4, Line 5]  *This replacement content or similar content would be a given video stream not currently displayed.* |   [Page 21, Line 06]  *It discusses that video cells can be added or deleted when the user wants to change from one viewer channel to another such that access to such viewer channel is selectively allowed.* |   [Para 0087]  *The new video stream which is admitted on selection of a further set of channels which aren t displayed on the screen.* |   [Para 0009], [Para 0026] & [Para 0033]  *The reference describes stopping the display of a video other than the related video if it*’*s currently on the target display screen before showing the new related video. This means the newly selected video is not present on the specific picture it s being displayed on.* |
|  | The method of claim 13, wherein the first and the second pictures are of different sizes. |   [Figure 34]  *It shows that the difference in sizes of the picture regions 413, 105 and 104.* | -  Can be Supported by  [US20040117831A1 (Ellis et al.)](#_US11382083B2_(Guo_et) | -  Can be Supported by  [US20040117831A1 (Ellis et al.)](#_US11382083B2_(Guo_et) | -  Can be Supported by  [US20040117831A1 (Ellis et al.)](#_US11382083B2_(Guo_et) | -  Can be Supported by  [US20040117831A1 (Ellis et al.)](#_US11382083B2_(Guo_et) |
|  | The method of claim 13, wherein the displaying further comprises: receiving the first user selection or the second user selection from a mobile computing device over a wireless data network. |   [Para 0103]  *The user may use the input device, such as a remote control or a mouse to make the selections over a wireless network.* | -  Can be Supported by  [US20040117831A1 (Ellis et al.)](#_US11382083B2_(Guo_et) |   [Page 7, Line 13]  *The reference mentions the remote control to select the channels.* | -  Can be Supported by  [US20040117831A1 (Ellis et al.)](#_US11382083B2_(Guo_et) | -  Can be Supported by  [US20040117831A1 (Ellis et al.)](#_US11382083B2_(Guo_et) |
|  | The method of claim 13, wherein the attribute comprises one or more of the following: sports; news; movies; live events; appropriateness for children; and an age group. |   [Para 0010]  *It mentions that niche hubs may include the listings from programs related to a specific category, such as news groups, local events, etc.* |   [Col 11, Line 1]  *The reference explicitly states that content can be identified by attribute and repeatedly refers to genre video mosaic display with examples including news genre display, sports, kids programming.* |   [Page 3, Line 1 ]& [Page 8, Line 13]  *The reference explicitly states that interactive channels (video groups) can have a thematic core, genre etc.* |   [Para 0013] & [Para 0067]  *The reference explicitly describes packages being defined based on attributes such as youth channels.* |   [Para 19] & [Para 0020]  *The reference describes that attribute information includes the classification to which a delivered video belongs, providing sports as an example.* |
|  | The method of claim 13, wherein at least some of the video data is received from Internet. |   [Para 0091]  *It mentions that the television distribution facility may provide the data to the user equipment from the internet.* |   [Col 8, Line 30]  *The reference mentions that media content can be provided by Internet resources and web services to user equipment (which contains the input interface).* | -  Can be Supported by  [US20040117831A1 (Ellis et al.)](#_US11382083B2_(Guo_et) | -  Can be Supported by  [US20040117831A1 (Ellis et al.)](#_US11382083B2_(Guo_et) |   [Para 0002]  *The reference indicates that video is distributed to user terminals via the Internet in conventional technology and describes a communication control unit that controls communication with video distribution servers.* |
|  | The method of claim 13, further comprising: receiving a third user selection to change the display to a second video group comprising a second plurality of video streams. |   [Figure 24], [Para 0010] & [Para 0130]  *It mentions that the program guide, which contains the video streams with genres such as sports news, movies, etc using the TV guide 102 button.* |   [Col 13, Line 24]  *The reference describes that a user can be presented with a different genre video mosaic page by selecting the various buttons.* |   [Page 8 , Line 13]  *The reference explicitly states that there can be more than one interactive channel and details several methods for a user to select or switch to a different interactive mosaic channel, such as via a programming guide.* |   [Para 0072]  *The reference describes that several packages (video groups) can be defined and selection part of the package browsing channel is currently displayed.* | -  Can be Supported by  [US20040117831A1 (Ellis et al.)](#_US11382083B2_(Guo_et) |
|  | The method of claim 18, further comprising: displaying the second plurality of video streams in the plurality of pictures on the display. |   [Figure 24] & [Para 0010]  *It discusses that a set-top box may display that second group of video streams on the display, i.e different genres such as sports-news , movies etc.* |   [Col 13, Line 24]  *It mentions that if a user selects a different genre video mosaic page (second video group), the reference indicates that such pages contain four large video cells displaying four different news channels or programs in full-motion video* |   [Page 8 , Line 13]  *As mentioned previously, the reference may have more than one interactive mosaic channel and when an interactive mosaic channel (a video group) is selected, the viewer is given choices of viewer channels to view simultaneously as in a matrix view* |   [Para 0068] & [Para 0072]  *The reference explicitly states that the selected part of the package browsing channel is currently displayed and displays a mosaic of minimized versions or view* | -  Can be Supported by  [US20040117831A1 (Ellis et al.)](#_US11382083B2_(Guo_et) |
|  | The method of claim 13, further comprising: receiving a user instruction to create a second video group comprising a second plurality of video streams. |   [Para 0010]  *It discusses that the hubs provide users with the ability to enter favorites and provide interactive hyperlinks to the related items within the given category of interest in the hub that are saved in the memory of the set-top box.* | -  Can be Supported by  [US20040117831A1 (Ellis et al.)](#_US11382083B2_(Guo_et) |   [Page 16 , Line 10]  *The reference explicitly states that there can be user-created and/or controlled interactive mosaic channels and that users may have the ability to create their own interactive mosaic channel.* |   [Para 0084]  The reference explicitly states that the user is able to construct his own customized list of channels | -  Can be Supported by  [US20040117831A1 (Ellis et al.)](#_US11382083B2_(Guo_et) |
|  | The method of claim 20, wherein the user instruction comprises a second attribute related to the second video group. |   [Para 0010]  *It discusses that users with the ability to enter favorites within the given category of interest in the hub.* | -  Can be Supported by  [US20040117831A1 (Ellis et al.)](#_US11382083B2_(Guo_et) |   [Page 8 , Line 13]  *The reference states that interactive channels have a thematic core, genre, or subject (attributes) and that users can create their own interactive mosaic channels, including a group of channels that is selected by the user* | -  Can be Supported by  [US20040117831A1 (Ellis et al.)](#_US11382083B2_(Guo_et) | -  Can be Supported by  [US20040117831A1 (Ellis et al.)](#_US11382083B2_(Guo_et) |
|  | The method of claim 21, further comprising: storing the second video group and the second attribute in a datastore. |   [Para 0086]  *It mentions a database that allows a system to support the interactive television guide that displays the second video group on the screen 400.* | -  Can be Supported by  [US20040117831A1 (Ellis et al.)](#_US11382083B2_(Guo_et) | -  Can be Supported by  [US20040117831A1 (Ellis et al.)](#_US11382083B2_(Guo_et) | -  Can be Supported by  [US20040117831A1 (Ellis et al.)](#_US11382083B2_(Guo_et) | -  Can be Supported by  [US20040117831A1 (Ellis et al.)](#_US11382083B2_(Guo_et) |
|  | The method of claim 22, further comprising:  receiving a third user selection to display the second video group; |   [Para 0010]  *It discusses that the hubs provide users with the ability to enter favorites and provide interactive hyperlinks to the related items within the given category of interest in the hub.* | -  Can be Supported by  [US20040117831A1 (Ellis et al.)](#_US11382083B2_(Guo_et) |   [Page 8 , Line 13]  *The reference supports receiving a user selection to display a video group (an interactive mosaic channel) and displaying its video streams* | -  Can be Supported by  [US20040117831A1 (Ellis et al.)](#_US11382083B2_(Guo_et) | -  Can be Supported by  [US20040117831A1 (Ellis et al.)](#_US11382083B2_(Guo_et) |
|  | obtaining the second video group from the datastore; and |   [Figure 24], [Para 0010] & [Para 0130]  *It mentions that a database exists in television equipment that supports the television program guide.* | -  Can be Supported by  [US20040117831A1 (Ellis et al.)](#_US11382083B2_(Guo_et) | -  Can be Supported by  [US20040117831A1 (Ellis et al.)](#_US11382083B2_(Guo_et) | -  Can be Supported by  [US20040117831A1 (Ellis et al.)](#_US11382083B2_(Guo_et) | -  Can be Supported by  [US20040117831A1 (Ellis et al.)](#_US11382083B2_(Guo_et) |
|  | displaying the second plurality of video streams of the second video group in the plurality of pictures on the display. |   [Figure 24], [Para 0010] & [Para 0130]  *It mentions that television equipment supports the program guide, which eventually shows the favorites group created by the user.* | -  Can be Supported by  [US20040117831A1 (Ellis et al.)](#_US11382083B2_(Guo_et) | -  Can be Supported by  [US20040117831A1 (Ellis et al.)](#_US11382083B2_(Guo_et) | -  Can be Supported by  [US20040117831A1 (Ellis et al.)](#_US11382083B2_(Guo_et) | -  Can be Supported by  [US20040117831A1 (Ellis et al.)](#_US11382083B2_(Guo_et) |
| 24. | The method of claim 13, further comprising: querying a data network to obtain the video group using the attribute. |   [Para 0009] & [Para 0010]  *It mentions that the set-top box may obtain the niche features from the television distribution facility. Wherein the niche hubs may include the listing of programs related to a specific category.* |   [Col 13, Line 24]  *It mentions that a user selects a genre video mosaic page by selecting various buttons the video mosaic client responds to a request for a video mosaic page by receiving and processing screen data.* | -  Can be Supported by  [US20040117831A1 (Ellis et al.)](#_US11382083B2_(Guo_et) | -  Can be Supported by  [US20040117831A1 (Ellis et al.)](#_US11382083B2_(Guo_et) |   [Para 0019]  *The reference describes that attribute information, which includes classification and URLs for related videos, is used to transmit a video distribution request to a distribution source to obtain related videos*. |

## Executive Summary

**Overview of the Patent**

**Problem**

***US’299*** addresses the limitation of Picture in Picture (PIP) mode that allowed two pictures to be shown on a television set at the same time, with a smaller picture displayed on top of, or overlaying, a larger picture. Since the smaller picture overlays the larger picture, the larger picture was not entirely visible. This was often extremely inconvenient, as the overlaid picture may cover a portion of the larger picture of interest to the viewer.

In addition, many cable television and satellite television networks carry numerous channels. Also, advancement in internet video and television potentially makes available thousands of channels. And navigating through so many available channels becomes a daunting task. Thus, particularly in a multiple picture environment, there was a need to organize television channels into a plurality of television channel groups.

**Elements of independent claim**:

* Television system
* Input interface
* Frame controller
* User selection to display a video group related to an attribute
* Displaying a video not displayed on the screen currently.

**Summary of the Domain**

The introduction of High Definition Television (HDTV) with a large screen allows a consumer to view multiple pictures more comfortably. For example, a consumer may watch the Super Bowl on a large picture on the display screen, while simultaneously viewing an NBA game between the Kings and the LA Lakers on a smaller picture, a local college basketball game between Stanford and Berkeley on a third picture.

There were several ways to view multiple pictures simultaneously on a television set. Picture in picture (PIP) allows two pictures to be shown on a television set at the same time, with a smaller picture displayed on top of, or overlaying, a larger picture. Since the smaller picture overlays the larger picture, the larger picture is not entirely visible. This is often extremely inconvenient, as the overlaid picture may cover a portion of the larger picture of interest to the viewer. For example, the overlaid portion might cover the end zone of a game.

The assignee of subject patents – *Innobrilliance LLC*’s *aim was to create a system that would allow user to view multiple video streams on a same display without overlapping with each other*. In doing so, would provide an uninterrupted experience to the user, where they can watch multiple channels of same genre on the screen simultaneously.

Where ***Chi Fai Ho*** & ***Shin Simon Chiu,*** demonstrated a television system comprising an input interface and a frame controller where, the input interface is utilized for receiving video data from a plurality of video streams, and a frame controller controlled the video data to be displayed in a plurality of pictures on a display coupled to the television system, where each picture occupies an area of the display separate from an area occupied by any other picture. It provides an organized view in the MultiView system. Further, the new categorizing system of channels helps to navigate through channels more easily. The grouping of the channels provided a better way to watch TV according to the desired genre of the user.

**Solutions to Target the Patent**

While exploring the patents and non-patents corresponding multiple channel displays of 2000s era, we came across

***Ellis*** discloses a television system featuring a program guide that enables the display of video streams from either the same or different genres on the screen. The interface also contains advertisement regions that present video content related to what is currently being viewed. Furthermore, users can curate a personalized list of favorite channels for simultaneous playback on the screen.

Further, ***Ellis 2*** discloses a system allows for the creation of channel groups by either the service provider. The application provides an interface where a user can highlight a channel group and view a reduced-scale live video from one of its channels. Furthermore, the system can display a mosaic of simultaneous live video feeds from the channels within a selected group, from which the user can select one to tune to directly.

***Purpura*** also discloses an interactive video channel display on the video monitor that contains various individual video feeds from an interactive channel with a thematic core, genre, or subject being presented on the display. Further, these video channels can be added or deleted on the viewer actions to admit new channels in the display cells.

***Rasanen*** also seems to touch upon a system for delivering media streams to a screen, featuring a user interface that allows users to select content from a large library based on their interests. The system further explains that the media listings can be arranged either by predefined genres or by user-created lists, which can be navigated using selectable arrows.

**Radloff**describes a method for showing a mosaic of pictures from a specific genre, which are sent from a distribution center. If any of the pictures in the mosaic are blacked out, a user can choose to have replacement media from a similar genre fill in those blacked-out spaces.

***Baril*** discloses a display control mechanism for receiving multiple picture channels through an input cable and presenting each of these channels on a mosaic of minimized video screens. Wherein, a selector selects several channels as a channel sub-directory or package of related channels to be displayed on the screen by a package display unit which adds package of channels to the display for MultiView functionality. *Although, it does not explicitly mentions the change of a video screen upon a second user selection, it does mention that the channels may either close or may move sideways to admit the new channels on the display which is broadly inferred as the change the display in a given picture*

***Saeki*** describes a display apparatus that generates multiple screens to show one or more video streams. The system allows a user to select one of the video screens and then add or change the video in another cell by choosing content from the same video group as the selected screen.

**System Art**

Let me summarize the system prior-art found so far.

|  |  |  |  |
| --- | --- | --- | --- |
| # | System Prior Art | Date of Availability | Comments |
| 1. | EchoStar launches *OpenTV* multi-channel home page | August 30, 2005  Source: <https://informitv.com/2005/08/30/echostar-launches-opentv-multi-channel-home-page/> | *Dish Home* is a service broadcast provider for the television system. A user can access the Dish Home on his/her television using the subscription model. The information disclosed in shared sources seems to support the required feature of first user selection for displaying six channels of video streams on a display screen.  *Although, it does not disclose the second user selection of changing the video stream that is not currently shown on the screen, other features such as frame controller and user selection device may also not be identified in the reference due to limited disclosure.* |

**Any different interpretation we explored?**

About halfway into the search, we noticed that this very feature of “*displaying the plurarity of video streams on a display with same attribute and the user can replace one of the video with the one not shown on screen;*” was proving to generally present in surveillance system but to confirm the launch date of those systems was a bit tricky. As such, we decided to target this features, if we’ve be able to identify the CCTV systems in the some videos or movies that would show the display of the images and also the change of the images on the user intervention.

It was along the lines of this approach that we were able to identify ***Kammerer*** and eventually the film ***Time Code*** (2000) demonstrating the multiple video screens in a display layout.

# Tier-1 Results

## US20040117831A1 *(Ellis et al.)*

**Source**: <https://patents.google.com/patent/US20040117831A1/en>

**Summary**: *Ellis* discloses a television system featuring a program guide that enables the display of video streams from either the same or different genres on the screen. The interface also contains advertisement regions that present video content related to what is currently being viewed. Furthermore, users can curate a personalized list of favorite channels for simultaneous playback on the screen.

|  |  |
| --- | --- |
| Publication Date | June 17, 2004 |
| Filing Date | June 06, 2003 |
| Abstract | A system for providing interactive television program guide features and other features and information related to a specific user interest or programming category in niche hubs is provided. All of the television programming features provided by user television equipment that relate to a specific user interest or programming category may be accessed from the niche hub. For example, a movie lovers niche hub may provide programming features such as television program listings for movies, video-on-demand listings for movies, pay-per-view listings for movies, web site links related to movies, movie-related merchandise, movie news groups, movie chat groups, movie e-mail clubs, movie contests, movie trivia questions, movie actor interviews, movie reviews, movie channel package ordering, etc. The programming features of the niche hubs may be transmitted from a server, database, or other storage facility via a television distribution facility. User television equipment may be connected via two-way communications paths to transmit messages to each other. |
| Relevant Text | [Para 0009]  These and other objects of the invention are accomplished in accordance with the principles of the present invention by providing an interactive television program guide system that has niche hubs. **Each of the niche hubs is an area of the program guide in which features, programming, and information related to a particular programming category or user interest may be found**. **Personalized niche hubs contain programming-related features and information that are selected by the user**. **User television equipment, such as a set-top box, may obtain data for the niche hub features from a television distribution facility, a program guide database, a web server, a real-time data source, a message processing facility, etc.**  [Para 0010]  **The niche hubs may include, for example, listings of programs related to a specific category**. **The hubs may provide users with the ability to sort data.** Detailed information on programs may be provided. **Hubs may provide users with advance notification of unscheduled programs and information on packages of programs and channels.** The hubs may provide users with the ability to search for programs and other information, the ability to set reminders**, targeted advertising, television messaging features, television chat features, news groups, web site listings, schedules of local events**, the ability to record programs and access recorded programs, user help features, **the ability to enter favorites,** suggested programming, **live data, news, magazine type features, links to applications other than program guide applications**, links to setup features, parental control features, and the ability to display in-band data. Each niche hub may include its own unique graphic style, icons, backgrounds, etc. **Broadcast or on-demand video or audio may be incorporated into hubs, if desired**. **The program guide may provide a main menu screen for each hub that provides interactive hyperlinks to related items or features of the program guide within the given category of interest of the hub.**  [Figure 24]  H:\Downloads\Wilson US'299\US20040117831A1-20040617-D00027.png  [Para 0086]  **An illustrative interactive television program guide system** with niche hubs 10 in accordance with the present invention is shown in FIG. 1A. Main facility 12 may contain a program guide database 14 for storing program guide information such as television program guide listings data, pay-per-view ordering information, etc. **Database 14 allows system 10 to support an interactive television program guide.**  [Para 0087]  **Information from database 14 may be transmitted to television distribution facility** 16 or to some other distribution facility that does not broadcast the television programming signals (e.g., over paging frequencies) via communications link 18. Link 18 may be a satellite link, a telephone network link, a fiber-optic link, a cable link, a microwave link, a combination of such links, or any other suitable communications path.  [Para 0089]  **The program guide information transmitted by main facility 12 to television distribution facility 16 includes television program listings data such as program times, channels, titles, descriptions, etc.** **The information transmitted from main facility 12 may also include information related to features provided by niche hubs (e.g., television program contests, surveys, trivia, targeted advertising, messaging features, chat features, new groups, video-on-demand programs, etc.).** Some of the information from main facility 12 may be tagged with appropriate niche hub(s) so that the information may be grouped into niche hub(s). Certain programs and other information may have tags for more than one hub.  [Para 0090]  If desired, some of the program guide data and other information stored in database 14 may be provided using data sources at facilities other than main facility 12. For example, data relating to niche hub features may be provided by a remote server, or other equipment that is separate from main facility 12 and television distribution facility 16.  [Para 0091]  **Real- time data sources 11 such as real-time sports data source 15, real-time stock market data source 17, real-time news data source 19, and real-time music source 27 are used to gather information such as sports scores, stock quotes, news, music and the like from, e.g., various sporting and news sources or radio stations.** Real-time information from real-time data sources 30 may be provided to each of the television distribution facilities 16 by providing this information to main facility 12 via communications path 23 and redistributing the information to television distribution facilities 16 via paths 18. **If desired, real-time information from real-time data sources 11 may be provided to one or more real-time data collection facilities 13 via communications path 21A,** where the data may be processed for retransmission to television distribution facilities 16 via communications path 21C. If desired, data from real-time data collection facility 13 may be provided to television distribution facility 16 via communications path 21B, main facility 12, and communications path 18. **Communications paths 21A, 21B, 21C, and 23 may be any suitable communications paths such as satellite links, coaxial cable, fiber optics, free-space transmissions, telephone links**, or a combination of such links or other suitable links. **Television distribution facility 16 may also provide data to user television equipment 20 from communications network 31 (e.g., the Internet) as shown in FIG. 1A.**  [Para 0093]  **User television equipment may be based, for example, on a set-top box or other such device**. For clarity, many aspects of the invention are described in connection with this illustrative arrangement, although any other suitable hardware arrangement for the user television equipment 20 may be used if desired.  [Para 0094]  **Multiple television and audio channels (analog, digital, or both analog and digital) may be provided to user television equipment devices 20** (including, e.g., set-top boxes 26) **via communications paths 24. If each path 24 includes a number of traditional analog television channels, one or more of these channels may be used to support a number of digital channels**. The bandwidth of each analog channel that is used to support digital channels may support ten or more of such digital channels. Two-way digital channels may support two-way communications in the form of real-time (e.g., chat) and delayed (e.g., e-mail) messages between set-top boxes 26 and a server (e.g., server 22 at television distribution facility 16). The return path for messages usually requires additional bandwidth**. If two-way communications between set-top boxes 26 and television distribution facility 16 involve only text or audio signals, the bandwidth required to support such two-way communications may be substantially less than the bandwidth required to support two-way communications involving video.**  [Para 0098]  **Each user has a receiver, which is typically a set-top box such as set- top box 26**, but which may also be other suitable television equipment into which circuitry similar to set-top box circuitry has been integrated. **For example, user television equipment 20 may be based on an advanced television receiver such as a high-definition television (HDTV) receiver or other such television-based platform**. A set-top box may include a Data Over Cable Service Interface Specification (DOCSIS) modem for use in two-way communication to and from a server or television distribution facility**. Set-top box 26 may also comprise a WebTV Internet Receiver**. For clarity, the present invention will be described primarily in the context of user television equipment 20 that is based on set-top boxes 26**. As shown in FIG. 1A, each set-top box 26 may have memory 25. Memory 25 may be used, for example, for maintaining a database of program listings data.**  [Para 0103]  During the use of the television program guide application with niche hub features, the television program guide application may display interactive display screens on television 30. Each set-top box 26, video recorder 28, and **television 30 may be controlled by one or more user input devices 29.** Features of this invention are primarily **discussed in the context of a remote control, however user input device 29 may be a remote control, mouse, trackball, microphone, digital video camera, dedicated set of buttons, touch screen, etc.**  [Para 0107]  Users at one or more of user television equipment devices 46 may exchange messages or other data with one or more of user television equipment devices 42. **Television distribution facilities 32 and 34 may be connected to each other via communications network 38**. Messages that are sent between user television equipment 42 and user television equipment 46 may be stored on servers 33, 35, or 36. If desired, any number of television distribution facilities may be connected together via communications network 38 or other such communications networks to allow user television equipment from these television distribution facilities to exchange messages or other data with each other.  [Para 0118]  Other items shown on **main menu screen 100 and other screens in the niche hub program guide include: brand identifier of the guide provider in window 102** (such as the TV Guide logo shown); current time; title of the current screen; Video window 105, typically showing the currently tuned channel, but which may show other videos, such as video clips on demand; and **three advertisements 104A-C, which may include text, graphics, video, or any other media**. **Advertisements may be distributed generally, or may be targeted based on information about the user, the screen displayed, or other criteria.**  [Para 0123]  FIG. 5 shows how **the advertisements may be targeted based on the screen, theme, and hub**. For example, **since this is the Movies screen, the advertisement 134A is for a PPV movie**. Selecting ad 134A causes the guide to display the Program Information screen for that PPV movie, such as shown in FIG. 7. **The advertisement 134B is for a Television movie, with selection of that ad causing the display of a program information screen for that movie.** Region 134C shows a trivia question related to movies. Selecting region 134C may display a screen similar to the Program Information screen, with the answer to the question, and other related information and options.  [Para 0130]    [Para 0181]  **If desired, the program guide may provide a listing of current and future television games that correspond to the sport selected in list 401**. The user can select a game in this list to view a Program Information screen for that game. The Program Information screen may provide scores for current games.  [Para 0182]  **Screen 400 in FIG. 32 also displays list 402 of top news stories relating to sports.** **The user may select a story in list 402 to read the story**. **The program guide may then display the selected news story such as shown in screen 410 of FIG. 34.** **The text or video of the story selected by the user is displayed in region 413**. **The user may view the text or video of the next story in list 402 by selecting Next Story option 412 in screen 410. If desired, news video may be displayed in window 105, instead of region 413**. If desired, screen 410 may be formatted as an information screen with options (on-screen or remote control based) that such as play, fast forward, rewind, pause, and stop that allow the user to control the news story segment (e.g., video or scrolling text) as it is played on screen 410. Screen 410 may also provide a mail option to send this story to a friend. The user may return to screen 400 by selecting Last option 411  [Figure 34]  H:\Downloads\Wilson US'299\US20040117831A1-20040617-D00037.png |

## US20070157248A1*\** *(Ellis 2 et al.)*

**Source**: <https://patents.google.com/patent/US20070157248A1/en>

**Summary**: *Ellis 2* discloses a system allows for the creation of channel groups by either the service provider. The application provides an interface where a user can highlight a channel group and view a reduced-scale live video from one of its channels. Furthermore, the system can display a mosaic of simultaneous live video feeds from the channels within a selected group, from which the user can select one to tune to directly.

*\*****Note****: This reference is filed before the cutoff.*

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| Abstract | The present invention relates an interactive media guidance application that provides channel groups. Channel groups may include media channels, such as television channels, radio stations, Internet web sites, etc. Channel groups may be organized around a common characteristic, by utilizing user profile information, and by human editorial selection (e.g., by a service provider or by a user). The guidance application provides information on the channel groups, including media listings, reminders, pending and completed recordings, purchased programs, and previously accessed programs for the channel group. The guidance application enables the user to focus a guidance application function on the channel group. In response to a user initiation to execute the function on the channel group, the function may be executed on all the media channels belonging to the channel group. Information on the channel group and access to functions that are executable on the channel group may be concentrated in a channel group portal screen of the guidance application. |
| Relevant Text | [Para 0007]  **A definition of a channel group may include a plurality of media channels.** The channel group definition (also referred to as the channel group roster) may also include individual media listings. **The media channels belonging to a channel group (also referred to as group channels) and any individual media listings belonging to the channel group may share at least one common characteristic around which the channel group is organized.** A channel group may be organized around any distinguishable characteristic of a media channel or of a media listing. For example, channel groups may be organized around programming content, tier of service (e.g., cable, premium), media type (e.g., video, audio, interactive), etc. Channel group rosters may be populated using human editorial judgment independent of any objective criteria. **Channel groups may be organized by the user or by the system (e.g., by the service provider or the guidance application).** The system may utilize user profile information (e.g., on which media channels and programming are accessed by the user) to determine the channel groups to be provided to the user and their group rosters. **The guidance application may enable the user to create a channel group by selecting the media channels and media listings for the channel group roster and may also enable the user to edit channel group rosters initially set by the system.**  **The guidance application may provide the user with information on the channel group, such as information on the common characteristic for the channel group,** and video clips promoting the channel group and its programming. The guidance application may also provide the user with the channel group roster, media listings for the group channels (e.g., broadcast television programs, on-demand programs, pay-per-view programs), a list of viewing reminders, pending and finished recordings, and purchased programming from the group channels, and a viewing history of programming previously accessed by the user through the group channels. **The guidance application may also provide the user with a reduced scale video of live group channel broadcasts and other media programming sourced from the group channels (e.g., recorded programming, on-demand programming).**  **The guidance application may also enable the user to focus the functions of the guidance application on one or more selected channel groups**. The guidance application may enable the user to initiate a guidance application function (e.g., set as favorite, lock, purchase) on one or more selected channel groups. In response, the guidance application may execute the function on the media channels of the selected channel groups (e.g., set all the group channels as favorite channels, lock all the group channels, and purchase all the group channels). The guidance application may execute the function on the media listings included in the selected channel groups (e.g., lock the media listings, purchase the media listings).  [Para 0038]  With current systems, media programming may be provided through a myriad of media channels. **Some media channels are organized around a central content theme, such as news, sports, movies, music, etc.** **Some media channels specialize in a particular medium, such as digital music channels that concentrate primarily on audio programming. Some media channels share a common media programmer**. For example, the media programmer HBO may provide programming for a number of media channels such as HBO, HBO Signature, HBO Family, etc. Some media channels **are local affiliates of a national network of media channels (e.g., NBC, ABC, CBS, FOX)** that provide a mix of national network programming and local programming. Some media channels are national cable channels (e.g., DISCOVERY, TNT, FX) that uniformly provide the same media programming across the nation. Some media channels are only locally available in certain geographic locations (e.g., local public access channels).  [Para 0042]  The present invention relates to an interactive media guidance application that provides **channel groups for media channels (e.g., broadcast television channels, audio channels, on-demand media channels, interactive game channels, Internet web sites). The media channels belonging to a channel group (i.e., the group channels) may share at least one common characteristic around which the channel group is organized.** For example, **media channels dedicated to a common type of content may be grouped together**. Channel groups may be organized around other channel characteristics such as tier of service (e.g., the status of a media channel as a free broadcast channel, a basic cable channel, or a premium channel), type of service (e.g., whether a media channel is a subscription channel, on-demand channel, or pay-per-view channel), programmer identity **(e.g., whether the media channel is provided by a common programmer such as HBO or DISCOVERY),** channel authorization (e.g., whether the user is authorized to receive the media channel), parental control setting (e.g., whether the user has selected the channel for parental control), channel origination (e.g., whether a media channel originates from a cable network, a broadcast network, is unaffiliated, or is local only), **favorite channel status (e.g., whether the user has set the channel as a favorite channel), type of media (e.g., whether the channel is a television channel, an audio channel, or an interactive application channel), etc.**  It should be understood that the above examples of common channel characteristics are only illustrative and are not exhaustive. **The system (e.g., the service provider) may use any characteristic of a media channel to organize a channel group.** It should also be understood that individual media listings may also be included in a channel group roster. For example, the service provider may organize a channel group around a common characteristic (e.g., sports content) shared by both media channels and individual media listings. It should also be understood that the system may populate a channel group roster without strict adherence to any objective criteria (e.g., shared characteristic) and may exercise editorial control over the channel group roster. The system (e.g., the service provider) may utilize user profile information to organize channel groups and populate their rosters. For example, the service provider may use profile information on the media channels most accessed by a user to create a channel group filled with only those channels. **The guidance application may enable the user to create a channel group by selecting the media channels (and individual media listings) for the channel group roster and may also enable the user to edit channel group rosters initially set by the system.**  [Para 0047]  **A first approach represents a typical television-centric system in which users may access television (and, in some systems, music) programming.** This includes programming sources 102 and distribution facility 104. **Media such as television programming and digital audio may be provided from programming sources 102 to media distribution facilities, such as distribution facility 104, using communications path 106. Communications path 106 may be a satellite path, a fiber-optic path, a cable path, any other suitable wired or wireless communications path, or a combination of such paths.**  Programming sources 102 may be any suitable sources of television and audio programming, such as television broadcasters (e.g., NBC, ABC, and HBO) or other television or audio programming production studios. Programming sources 102 may provide television programming in a variety of formats in high definition and standard definition, such as, for example, 1080p, 1080i, 720p, 480p, 480i, and any other suitable format.  [Para 0053]  **In some embodiments for this approach, communications network 126 is the Internet.** Server 130 may provide, for example, a web site that is accessible to the user s equipment and an on-line guidance application for the user. In such approaches, the user s equipment may be, for example, a personal computer or a hand-held device such as a PDA or web-enabled cellular telephone that incorporates a web browser. In other embodiments, server 130 uses the Internet as a transmission medium but does not use a web browser or web sites. In such approaches, the user s equipment may run a client application that enables the user to access media. In other approaches, communications network 126 is a private communications network, such as a cellular phone network, that does not include the Internet. In yet other approaches, communications network 126 includes a private communications network and the Internet. For example, a cellular telephone or other mobile-device service provider may provide Internet access to its subscribers via a private communications network, and may provide media such as video clips or television programming to its subscribers via the Internet and its own network.  [Para 0059]  **There may be multiple data sources (such as data source 120) in system 100, although only one data source is shown in FIG. 1 to avoid overcomplicating the drawing.** For example, **a separate data source may be associated with each of a plurality of media channels or channel groups and may provide data that is specific to the media channel or channel group (e.g., media programming listings for the channel or channel group, advertisements for programming of the channel or channel group, logo data for displaying the media channel or channel group s logo in program guide display screens, etc.).** Data source 120 and any other system components of FIG. 1 may be provided using equipment at one or more locations. Systems components are drawn as single boxes in FIG. 1 to avoid overcomplicating the drawings.  [Para 0073]  **Set-top box 204** may be any suitable analog or digital set-top box (e.g., a cable set-top box). S**et-top box 204 may contain an analog tuner for tuning to a desired analog television channel** (e.g., a channel comprising television programming, interactive television data, or both). Set-top box 204 may also contain digital decoding circuitry for receiving digital television channels (e.g., channels comprising television or music programming, interactive television data, etc.). **Set-top box 204 may also contain a high-definition television tuner for receiving and processing high-definition television channels.** Analog, digital, and high-definition channels may be handled together if desired. Multiple tuners may be provided (e.g., to handle simultaneous watch and record functions or picture-in-picture (PIP) functions). Box 204 may be an integrated receiver decoder (IRD) that handles satellite television. If desired, box 204 may have circuitry for handling cable, over-the-air broadcast, and satellite content.    [Para 0108]  **Returning to FIG. 7, screen 700 may include a reduced-scale video display window 720 (e.g., picture-in-picture or picture-in-guide window) and an information display area 730. A cursor 701 may be displayed in screen 700 and may be used by the user in conjunction with user input device 400 to highlight interactive elements of the display screen.** **For example, cursor 701 may be used by the user to highlight one of the interactive channel group elements 710**. **In one embodiment, when cursor 701 is located on a particular channel group element 710, window 720 may display video related to the highlighted channel group. For example, window 720 may display one or more video clips promoting the highlighted channel group itself, the individual media channels within the channel group, or the media programming available through the group channels (e.g., featured programming). In one approach, the user may be required to make an indication that the user wishes to view video related to the highlighted channel group before window 720 begins displaying the video. For example, when cursor 701 is located on a channel group element 710, the user may be required to press INFO key 418 on the user input device to start viewing the one or more video clips.**  **In another embodiment, the user may also be able to view live media programming from the group channels through window 720.** For example, when the user places cursor 701 on a channel group element (and optionally, presses the INFO key), **window 720 may provide live video of a first media channel belonging to the highlighted channel group**. Audio of the media channel displayed in window 720 may or may not be provided, in some instances, depending on whether the media channel is a television channel or an audio-centric channel, such as a music channel. Window 720 may provide an identification of the first media channel in its video display. For example, when the live video displayed in window 720 is of the media channel ESPN, an overlay 721 may be used in window 720 to identify the media channel. **In one approach, when the user presses the INFO key on the user input device while cursor 701 remains on the same channel group element, window 720 may change to display live programming from a second media channel belonging to the highlighted channel group.** In this way, the user may cycle through all the channels of a highlighted channel group by repeatedly pressing the INFO key while cursor 701 is on the channel group element. Alternatively, the guidance application may automatically cycle the programming feed in window 720 through the media channels of the channel group. When one of the media channels in a channel group is not a broadcast channel that provides a continuous programming feed (e.g., audio or video feed), **window 720 may display a promotional video clip related to that media channel when the user or the guidance application cycles to that channel.** For example, an on-demand media channel may be represented in window 720 with a video clip promoting a program available through the on-demand channel, or with a video preview of one of the programs. Alternatively, the guidance application may simply skip media channels without a traditional broadcast type feed as it cycles through the group channels in window 720.    [Para 0112]  **It should be understood that window 720 may be utilized in any of the above described approaches or in any combination of such approaches. One In one embodiment, live video feeds from the group channels may be presented to the user in a video mosaic format. For example, as illustrated by FIG. 12A, reduced scale video windows 1255 may be used to simultaneously display the live video feed from each of the group channels. Display screen 1250 may, for example, be accessed from channel group portal screen 1000. In one suitable approach, the user may move cursor 1001 onto video display window 1020 and indicate a desire to view the mosaic screen 1250 by pressing the select key on the user input device. A or more additional video display windows may also be provided on screen 700 and may provide additional promotional opportunities related to channel groups, media channels, media programming, or unrelated products and services.**  [Para 0134]  **In one embodiment, live video feeds from the group channels may be presented to the user in a video mosaic format. For example, as illustrated by FIG. 12A, reduced scale video windows 1255 may be used to simultaneously display the live video feed from each of the group channels. Display screen 1250 may, for example, be accessed from channel group portal screen 1000. In one suitable approach, the user may move cursor 1001 onto video display window 1020 and indicate a desire to view the mosaic screen 1250 by pressing the select key on the user input device.** As shown in FIG. 12A, cursor 1251 may be provided on screen 1250, the cursor being movable between the windows 1255 to highlight a given window. In the event that all the group channel video feeds do not fit onto a single display screen, the guidance application may provide additional screens to accommodate the additional video windows or may enable the user to scroll to additional video windows using cursor 1251**. In one embodiment, the guidance application may enable tuning operation from screen 1250. For example, the user may move cursor 1251 onto a window 1255 and press the select key on the user input device**. **Upon such user input, the guidance application may tune the user to the group channel represented by selected window 1255. In one embodiment, individual media listings, such as on-demand listings, may also be represented by a video window 1255.** |

## US8578416B1*\* (Radloff et al.)*

**Source**: <https://patents.google.com/patent/US8578416B1/en>

**Summary**: *Radloff* describes a method for showing a mosaic of pictures from a specific genre, which are sent from a distribution center. If any of the pictures in the mosaic are blacked out, a user can choose to have replacement media from a similar genre fill in those blacked-out spaces.

*\*****Note****: This references is filed before the cutoff.*

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| Publication Date | November 05, 2013 |
| Filing Date | April 27, 2007 |
| Abstract | Systems and methods for providing blackout support in video mosaic and television environments are disclosed. In response to receiving a request for a video mosaic page, screen data or application data, which may include blackout information, is received. The blacked out content may be automatically recorded to the user equipment or a network server for later playback after the blackout has expired. In addition, an overlay of options associated with the blacked out asset may be presented. The overlay may include options to substitute the blacked out asset with replacement content, search for similar content, retrieve more information about the blackout, or present summary information, such as a sports ticker, in place of the blacked out cell |
| Relevant Text | [Col 1, Line 9]  **Generally speaking, a programming blackout occurs when a video distribution facility does not make programming available for viewing to a subset of all possible viewers at the time it was scheduled to be distributed**. For example, a broadcaster may be prohibited from broadcasting a sporting event if the broadcaster s signal reaches any area within a certain radius of the sports venue where the event is being played. **The distribution facility may deliver replacement media (or no media at all) on the blacked out channel during the blackout period.**  [Col 2, Line 5]  For example, **a user may request a remotely-generated sports genre video mosaic that displays a collection of six live sporting events. Each event may be presented in its own video cell or window in a video mosaic page. Two of the six sporting events may correspond to national television feeds that are blacked out on the user equipment due to one or more venue protection blackouts (e.g., the user is located within some geographic distance from the sporting event venue and the event is not sold out) and another sporting event may be blacked out due to an affiliate protection blackout (e.g., the event is also being broadcast on a local network channel).** Current blackout systems are not capable of blacking out individual elements within a remotely-generated video mosaic; therefore, events may be presented in violation of the blackout. This is highly undesirable, as service operators are typically under contract not to broadcast blacked out content, yet the user still desires to have some content presented in place of the blacked out content and to be able to view the remainder of the video mosaic.  [Col 2, Line 33]  U.S. patent application Ser. No. 11/510,363, filed Aug. 24, 2006, which is hereby incorporated by reference herein in its entirety, describes one approach for blacking out individual cells of a video mosaic page**. Although this system may replace one or more blacked out cells with replacement media content similar to the blacked out content, it would be desirable to also allow a user to subsequently access blacked out content should the blackout condition be lifted.**  [Col 2, Line 53]  **In response to receiving a request for a video mosaic page, the video mosaic client may receive and process blackout information in screen data associated with the video mosaic page, if screen data is available for the mosaic page. The screen data may be sent in-band along with one or more video streams or out-of-band. After the screen data is parsed, the video mosaic client may analyze the received blackout information and determine if any objects in the video mosaic page are, or should be, blacked out.**  [Col 4, Line 5]  **In response to the user selection of a blacked out video cell, a user may be presented with an overlay or menu of blackout options. These options may include replacing the blacked out object with replacement content, searching for content similar to the blacked out content that is accessible by the user equipment, or obtaining more information about the blacked out content, for example, through the summary information described above.** Another option that may be presented to the user in the overlay or menu of blackout options is to record the blacked out content to a local recording device, such as a digital video recorder, or a remote location, such as an on-demand server, and allow playback of the blacked out content after the blackout conditions have expired.  [Col 6, Line 25]  **The systems and methods described herein are directed toward providing enhanced blackout functionality in video mosaic screens**. Although the described embodiments may refer to Video-Rich Navigation (VRN) screens, displays, and/or pages, the present invention may be used with any remotely-generated or locally-generated video mosaic screens. **In addition, although the windows or cells of the mosaic pages are described herein as being populated with analog or digital video from broadcast television channels, the windows or cells of the mosaic pages may be populated with any suitable video assets or media content. These video assets may include live broadcast programs, video on-demand (VOD) assets, pay-per-view (PPV) assets, recorded assets (e.g., from a digital video recorder, or DVR), locally stored assets, advertising, websites, previews, Webcasts, interactive games and applications, or any other suitable content. The cells may contain full-motion video, audio, still images, text, icons, logos, or any combination of these (or any other suitable) elements.**  [Col 8, Line 30]  Distribution equipment 26 may distribute the VRN screens and VRN screen data in any suitable analog or digital format and over any suitable communications path to user equipment 30 (e.g., broadcast, cable, or the Internet.). **The communication paths 19, 49, and 28 may include, for example, a satellite path, a fiber-optic path, a cable path, an Internet path, or any other suitable wired or wireless path. For example, VRN screens may be provided as MPEG-2 feeds.** Distribution equipment 26 may provide the VRN screens (and the VRN screen data) as tunable analog or digital channels, or as VOD streams (both of which are referred to herein as VRN channels). The VRN channels provide the users of user equipment 30 with a set of interactive features that make up a VRN application.  [Col 8, Line 54]  User equipment 30 may include any equipment suitable for providing an interactive media experience and for implementing the VRN applications provided by distribution facility 21. **User equipment 30 may include television equipment such as a television, set-top box, recording device, video player, user input device (e.g., remote control, keyboard, mouse, touch pad, touch screen, or voice recognition interface), or any other device suitable for providing an interactive multimedia experience.** For example, user equipment 30 may include a DCT 2000, 2500, 5100, 6208 or 6412 set-top box provided by Motorola, Inc. In some embodiments, user equipment 30 may include computer equipment, such as a personal computer with a television card (PCTV). In some embodiments, user equipment 30 may include a gaming system, a portable electronic device, such as a portable DVD player, a portable gaming device, a cellular telephone, a PDA, a music player (e.g., MP3 player), or any other suitable portable or fixed device.    [Col 09, Line 05]  **In the example of FIG. 1A, user equipment 30 includes at least control circuitry 32, display device 34,** recording device 36, user input device 38, **and video mosaic client 31, which may be implemented as separate devices or as a single device.** Video mosaic client 31 may also be implemented on user equipment 30 to receive, execute, and support VRN applications.  **Control circuitry 32 is adapted to receive user input from input device 38 and execute the instructions of video mosaic client 31 and any other interactive applications running on user equipment 30.** **Control circuitry 32 may include one or more tuners (e.g., analog or digital tuners), decoders (e.g., MPEG decoders), processors (e.g., Motorola 68000 family processors),** memory (i.e., RAM and hard disks), communications circuitry (e.g., cable modem circuitry), input/output circuitry (e.g., graphics circuitry), connections to the various devices of user equipment 30, and any other suitable component for providing analog or digital media programming and interactive media features. In one embodiment**, control circuitry 32 may be included as part of one of the devices of user equipment 30 such as, for example, part of recording device 36, display device 34, or any other suitable device (e.g., a set-top box, television, video player, etc.).**  [Col 9, Line 29]  **Display device 34 may include any suitable device such as, for example, a television monitor, an LCD screen, a computer monitor, or a display incorporated in user equipment 30 (e.g., a cellular telephone display or music player display).** Display device 34 may also be configured to provide for the output of audio and/or other sensory output (e.g., a holographic projector or virtual reality simulator).  [Col 10, Line 47]  In lieu of, or in addition to, providing the summary or alternate content in the screen data, in some embodiments, a link to the information may be provided in the screen data to save bandwidth. For example, the URL or network address for one or more supplemental data feeds (e.g., RSS feeds) may be included in the screen data and associated with a mosaic cell. **After mosaic client 31 determines that a cell is to be blacked out, mosaic client 31 may process the screen data and access the supplemental feed or feeds referenced by the screen data. Mosaic client 31 may then mask the blacked out cells and display the feeds in the position of the masked cells.**  [Col 11, Line 1]  In some embodiments, blacked out cells (even those replaced with alternate or summary content) are not selectable by the user. For example, video mosaic client 31 may prevent user selection of blacked out cells by moving the selection cursor to the next cell that is not blacked out. **In other embodiments, users may select blacked out cells. Upon selecting a blacked out cell, video mosaic client 31 may display various blackout options to the user. These options may allow a user to substitute replacement media in a blacked out cell or window, search for accessible media similar to the blacked out media, purchase tickets, obtain more information, record the blacked out content for later playback, or any other suitable action. FIG. 8, described below, shows illustrative blackout options in accordance with one embodiment of the invention.**  [Col 11, Line 56]  **Content source 130 may be any suitable content source such as, for example, a cable system headend, satellite television distribution facility, television broadcast facility, on-demand server (e.g., video-on-demand ( VOD ) server), Internet or network media/web server, or any other suitable facility or system for originating or distributing passive or interactive media content to user equipment 102. Media content that may be provided by content source 130 to user equipment 102 includes broadcast programs, broadcast series, VOD** programs, music, news, interactive applications (e.g., interactive games), Internet resources and web services (e.g., **websites, newsgroups, and chat rooms)**, and any other media content capable of being displayed by, presented to, recorded, or interacted with, using user equipment 102.  [Col 13, Line 24]  **FIG. 2 shows illustrative genre video mosaic display 200 in accordance with one embodiment of the invention. Display 200 contains four large video cells displaying four different news channels or programs in full-motion video. The user may be presented with a different genre video mosaic page by selecting the various buttons on the left side of display screen 200. For example, news genre display 200 may be presented upon selecting button 202. Similar video mosaic pages may be displayed for other genres, including sports and kids programming. As shown in the example of FIG. 2, cell 204 is currently selected. The audio associated with cell 204 is currently being played, as indicated by icon 206. The audio for the remaining, unselected cell windows may be muted until the user selects the individual cells.**    [Col 13, Line 58]  **FIG. 4 shows illustrative generic video mosaic display screen 400 in accordance with the invention. In the example of FIG. 4, screen 400 contains eight numbered cells, or windows. Each of these eight cells may be populated with a different asset or channel. For example, cell 402 may include full-motion video from channel 225 Cinemax while cell 403 may contain promotional advertising for new VOD movie releases. Each of the cells in display 400 may be individually selected using input device 38** (FIG. 1A). For example, the user may highlight a cell in **display 400 using the arrow or cursor keys on a remote control**. In the example of FIG. 4, cell 403 is currently highlighted, as shown by the darkened border around the cell. One or more cells may be simultaneously selected, if desired. For example, upon pressing an OK key on input device 38 (FIG. 1A), the selected status of a cell may toggle on and off. The user may then select one or more additional cells in the same manner.    [Col 17, Line 27]  **FIG. 8 shows illustrative mosaic display 800 in accordance with one embodiment of the invention. Upon selecting a blacked out cell, such as cell 704 (FIG. 7) options overlay 802 may be presented to the user. The overlay may identify the blacked out content in title area 801. Title area 801 may include the title, channel, and/or broadcast time of the blacked out content, or any other suitable information. Below title area 801 several options may be presented to the user. These options may include view replacement media option 804, search for similar media option 806, purchase tickets option 808, record the blacked out content 810, and show summary information option 812.**    [Col 17, Line 54]  **If the user wishes to locate other media content similar to the content in the blacked out cell, the user may select search for similar media option 806. Upon selecting search for similar media option 806 the video mosaic client may access interactive application data, such as interactive media guidance application content listings, and search the data for media similar to the media listed in title area 801.** Similar content may be found, for example, by initiating a title search of keywords included in the title listed in title area 801. The video mosaic application may also use other media information, such as actor, director, and genre information (also derived from media guidance application data), in order to construct a search string. In some embodiments, this search string may be presented to the user. The user may then refine the search string by adding or removing search criteria, as desired. To determine the similarity between media, a distance may be calculated between other media content and the blacked out content.  [Col 20, Line 25]  **As shown in the example of FIG. 11, some illustrative mosaic blackout options may include performing a specified action for the one or more selected sports teams listed in team row 1102. A user may select one or more of the user s favorite teams in team selection 1104, or the user may choose one of the predetermined collections of teams (e.g., all local teams ). To add a new team, the user may select new team option 1108. The user may then specify a designated action to associate with the teams selected in team selection 1104.** For example, a sports ticker may be displayed in the place of the blacked out cell if the blacked out cell is presenting a blacked out sporting event with one of the selected teams, as shown in FIG. 9. This way, the user may still be presented with some summary information about the game even though the game is blacked out on the user s equipment. **Other actions may include show highlights, present audio only, show commentary, show replacement media, automatically record, any other suitable action that is not in violation of the blackout, or any combination thereof.**  **In addition to selecting one or more teams, the user may also select one or more genres to associate with an action. In the example of FIG. 11, the user has selected the sports, news, and feature movie genres in genre area 1110. To add another genre, the user may select new genre option 1112.** Regardless of whether a team, genre, or other category is selected, video mosaic client 31 (FIG. 1A) may receive incoming application or program schedule data and compare the incoming data to the user s selections in display screen 1100. |

## US20080086747A1*\* (Rasanen et al.)*

**Source**: <https://patents.google.com/patent/US20080086747A1/en>

**Summary**:  *Rasanen* describes a system for delivering media streams to a screen, featuring a user interface that allows users to select content from a large library based on their interests. The system further explains that the media listings can be arranged either by predefined genres or by user-created lists, which can be navigated using selectable arrows*.*

*\*****Note****: This references is filed before the cutoff.*

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| Abstract | Systems and methods are discussed for providing guidance for Internet-delivered media. In some embodiments, information on available media on the Internet is gathered. The information is associated with existing media guidance data. The associations enable a media guidance application to identify relevant online media and to display listings in a user-friendly way. A user interface for an online media guidance application is also provided. The user interface allows a user to narrow down the large amount of Internet-delivered media in a systematic way according to criteria that interests a user. |
| Relevant Text | [Para 0009]  In accordance with one principle of the invention, **an online media guidance application provides selectable criteria elements (e.g., action/adventure, comedy, ABC, Comedy Central, etc.) in a user interface**. **By receiving one or more selections of the selectable criteria elements, a set of available online videos may be systematically narrowed down to a reasonably-sized set of videos that interest the user. The selectable criteria elements may be organized into categories (e.g., genre, channels, shows). The categories may also be displayed in the user interface, and the corresponding selectable criteria elements may be presented in a window near or below the corresponding category**. To keep the user interface from being cluttered, the criteria elements of one category may be visible at a given time. **When a user selects a different category, the currently presented window of criteria elements may be closed, and a new window of selectable criteria elements corresponding to the selected category is presented.**  [Para 0032]  Various forms of interactive media guidance applications may provide guidance for media content on the Internet (e.g., streaming media, downloadable media, Webcasts, etc.). One typical type of media guidance application that provides guidance for online media is an interactive television program guide. Interactive television program guides (sometimes referred to as electronic program guides) are well-known guidance applications that, among other things, allow users to navigate among and locate many types of media content. **Other than online media, such content may include conventional television programming (provided via traditional broadcast, cable, satellite, or other means), as well as pay-per-view programs, on-demand programs (as in video-on-demand (VOD) systems), and other types of media or video content.** Guidance applications also allow users to navigate among and locate content related to the video content including, for example, video clips, articles, advertisements, chat sessions, games, etc.  With the advent of the Internet, mobile computing, and high-speed wireless networks, users are accessing media on personal computers (PCs) and other devices on which they traditionally did not, such as hand-held computers, personal digital assistants (PDAs), mobile telephones, or other mobile devices. On these devices users are able to navigate among and locate the same media available through a television. Consequently, media guidance is necessary on these devices, as well. **The guidance provided may be for media content available only through a television, for media content available only through one or more of these devices, or for media content available both through a television and one or more of these devices.** The media guidance applications may be provided as on-line applications (i.e., provided on a web-site), or as stand-alone applications or clients on hand-held computers, PDAs, mobile telephones, or other mobile devices. The various devices and platforms that may implement media guidance applications are described in more detail below.      [Para 0034]  **One of the functions of the media guidance application is to provide media listings and media information to users.** **FIGS. 1-2 show illustrative display screens that may be used to provide media guidance, and in particular media listings. The display screens shown in FIGS. 1-2 may be implemented on any suitable device or platform.** While the displays of FIGS. 1-2 and are illustrated as full screen displays, they may also be fully or partially overlaid over media content being displayed. **A user may indicate a desire to access media information by selecting a selectable option provided in a display screen** (e.g., a menu option, a listings option, an icon, a hyperlink, etc.) or pressing a dedicated button (e.g., a GUIDE button) **on a remote control or other user input interface or device. In response to the user s indication**, **the media guidance application may provide a display screen with media information organized in one of several ways, such as by time and channel in a grid, by time, by channel, by media type, by category (e.g., movies, sports, news, children, or other categories of programming), or other predefined, user-defined, or other organization criteria.**  [Para 0036]  In addition to providing access to linear programming provided according to a schedule, the media guidance application also provides access to non-linear programming which is not provided according to a schedule. **Non-linear programming may include content from different media sources including Internet content (e.g., streaming media, downloadable media, etc.) from various online sources, on-demand media content (e.g., VOD), locally stored media content (e.g., video content stored on a digital video recorder (DVR), digital video disc (DVD), video cassette, compact disc (CD), etc.), or other time-insensitive media content.** On-demand content may include both movies and original media content provided by a particular media provider (e.g., HBO On Demand providing The Sopranos and Curb Your Enthusiasm ). HBO ON DEMAND, THE SOPRANOS, and CURB YOUR ENTHUSIASM are trademarks owned by the Home Box Office, Inc. Internet content may include web events, such as a chat session or Webcast, or content available on-demand as streaming media or downloadable media through an Internet web site or other Internet access (e.g. FTP).  [Para 0038]  **Display 100 may also include video region 122, advertisement 124, and options region 126. Video region 122 may allow the user to view and/or preview programs that are currently available, will be available, or were available to the user. The content of video region 122 may correspond to, or be independent from, one of the listings displayed in grid 102. Grid displays including a video region are sometimes referred to as picture-in-guide (PIG) displays.** PIG displays and their functionalities are described in greater detail in Satterfield et al. U.S. Pat. No. 6,564,378, issued May 13, 2003 and Yuen et al. U.S. Pat. No. 6,239,794, issued May 29, 2001, which are hereby incorporated by reference herein in their entireties. PIG displays may be included in other media guidance application display screens of the present invention.    [Para 0042]  **Another display arrangement for providing guidance is shown in FIG. 2. Display 200 provides guidance for Internet-delivered videos, and may be provided as a display in an online media guidance application, or as a display in a client-server or stand-alone (e.g., set-top box based) guidance application.** In some examples herein, Internet-delivered television programs are provided, although the disclosed embodiments may provide guidance for movies, user-generated content, or any other types of media content. In some embodiments, display 200 is displayed a result of user selection of listing 118 in display 100 (FIG. 1). **For clarity and organization, display 200 may be split into three columns. Center column 204 contains media listings arranged in mosaic 208. Left column 202 allows a user to define criteria (e.g. a particular genre, show, etc.) for the videos provided in mosaic 208. Right column 206 provides recommendations to the user. Each of these columns will be discussed in more detail below in connection with FIGS. 2-7, 8A-8C, and 9A-9B.**  **Left column 202 allows a user to select videos based on criteria of interest. Left column 202 provides a list of selectable categories 210. The categories may include genre, channels, shows, hotlists, type (e.g., television episode, movies, etc.), or any other such category. One of the categories may be in a selected state.** The category may be selected based on user indication or may default to being selected. In the selected state, there may be a window 214 of selectable criteria elements 212 corresponding to the selected category. **The window may be situated under the name of the category to indicate which category is selected. With a user input device, a user may select a criteria element 212 in window 214 (e.g., by moving highlighted region 216 to a desired criteria element and pressing a key or by directly clicking the desired criteria element).** Once selected, in addition to being displayed within window 214, the selected criteria element may appear at 218. That is, it may appear below its corresponding category 210 and above window 214. This indicates to the user that the criteria element has been successfully selected. When multiple criteria elements are selected within the same category, each criteria element may be listed below the category in some order (e.g., in the order the criteria elements were selected, in alphabetical order, etc.). A selected criteria element may be listed below its corresponding category even when the category is not selected, as indicated by selected criteria element 222. Selectable buttons 220 may be provided next to each selected criteria element 218 and 222. Selecting button 220 may deselect the corresponding selected criteria element.  [Para 0045]  **Center column 204 may display a set of videos in mosaic 208, where the set of videos is determined based on receiving user input of** search bar 224 and/or **left column 202.** Unlike the listings from FIG. 1, the listings in display 200 are not limited to simple text (e.g., the program title) and icons to describe media. **Rather, in display 200 the listings may provide graphical images including cover art, still images from the media content, video clip previews, live video from the media content, or other types of media that indicate to a user the media content being described by the listing.** Each of the graphical listings may also be accompanied by text to provide further information about the media content associated with the listing. To avoid over-complicating the figure, a more detailed view of a listing 228 in mosaic 208 is shown in FIG. 3.  [Para 0047]  **Returning to FIG. 2, the number of total identified videos after applying selected or entered criteria is shown in region 230. Region 230 is shown to be in left column 202 but may be displayed anywhere on user interface 200. If more videos are identified than those currently visible in mosaic 208, selectable arrows 234 and 236 may be used to view more available videos.** **Selectable arrow 234 allows a user to view a new subset of identified videos, and selectable arrow 236 returns the user to the previously viewed subset of identified videos.** **The user may change the order in which the videos are presented by selecting one of sort links 238. The identified videos may be sorted according to the date that the video became available (e.g. most recent first or oldest first), the popularity of the video** (e.g. based on the total number of times the video has been selected by other users), in a random order, or using any other mechanism for sorting a set of videos.  [Para 0049]  **Mosaic 208 is a two by two grid of listings 228. However, any other arrangement may be used, such as a three by three or two by three grid. Furthermore, although each listing 228 is shown to be the same size, they may also be different sizes.** Listings may be of different sizes or graphically accentuated to indicate degrees of interest to the user, the relevance of each identified video following a search, or to emphasize certain content, as desired by the media provider or based on user preferences. Various systems and methods for graphically accentuating media listings are discussed in, for example, Yates, U.S. patent application Ser. No. 11/324,202, filed Dec. 29, 2005, which is hereby incorporated by reference herein in its entirety.  **Each listing 228 may be a selectable frame. In one embodiment of the invention, upon a user selection of a selectable frame, the user is directed to the website where the corresponding video may be downloaded or streamed.** **The website may be displayed in an overlay or in a new screen.** In another embodiment of the invention, upon user selection of listing 228, additional information about the video, such as the description of the program, may be presented to the user in an overlay or in right column 206. Based on the additional information, the user may choose to be directed to the website where the video is provided, may add the video to a My Favorite Videos list, or may add the video to view queue 244.    [Para 0076]  **Users may access media content and the media guidance application (and its display screens described above) from one or more of their user equipment devices. FIG. 10 shows a generalized embodiment of illustrative user equipment device 1000.** More specific implementations of user equipment devices are discussed below in connection with FIG. 11. **User equipment device 1000 may receive media content and data via input/output (hereinafter I/O ) path 1002. I/O path 1002 may provide media content (e.g., broadcast programming, on-demand programming, Internet content, and other video or audio) and data to control circuitry 1004, which includes processing circuitry 1006 and storage 1008.** **Control circuitry 1004 may be used to send and receive commands, requests, and other suitable data using I/O path 1002. I/O path 1002 may connect control circuitry 1004 (and specifically processing circuitry 1006) to one or more communications paths (described below). I/O functions may be provided by one or more of these communications paths, but are shown as a single path in FIG. 10 to avoid overcomplicating the drawing**.  **Control circuitry 1004 may be based on any suitable processing circuitry 1006 such as processing circuitry based on one or more microprocessors, microcontrollers, digital signal processors, programmable logic devices, etc.** In some embodiments, control circuitry 1004 executes instructions for a media guidance application stored in memory (i.e., storage 1008). In client-server based embodiments, control circuitry 1004 may include communications circuitry suitable for communicating with a guidance application server or other networks or servers. Communications circuitry may include a cable modem, an integrated services digital network (ISDN) modem, a digital subscriber line (DSL) modem, a telephone modem, or a wireless modem for communications with other equipment. Such communications involve the Internet for at least obtaining online media content and additionally may involve any other suitable communications networks or paths (which is described in more detail in connection with FIG. 11). In addition, communications circuitry may include circuitry that enables peer-to-peer communication of user equipment devices, or communication of user equipment devices in locations remote from each other (described in more detail below).  [Para 0079]  **Control circuitry 1004 may include video generating circuitry and tuning circuitry, such as one or more analog tuners, one or more MPEG-2 decoders or other digital decoding circuitry, high-definition tuners, or any other suitable tuning or video circuits or combinations of such circuits. Encoding circuitry (e.g., for converting over-the-air, analog, or digital signals to MPEG signals for storage) may also be provided. Control circuitry 1004 may also include scaler circuitry for upconverting and downconverting media into the preferred output format of the user equipment 1000**. Circuitry 1004 may also include digital-to-analog converter circuitry and analog-to-digital converter circuitry for converting between digital and analog signals. The tuning and encoding circuitry may be used by the user equipment to receive and to display, to play, or to record media content. The tuning and encoding circuitry may also be used to receive guidance data. The circuitry described herein, including for example, the tuning, video generating, encoding, decoding, scaler, and analog/digital circuitry, may be implemented using software running on one or more general purpose or specialized processors. Multiple tuners may be provided to handle simultaneous tuning functions (e.g., watch and record functions, picture-in-picture (PIP) functions, multiple-tuner recording, etc.). If storage 1008 is provided as a separate device from user equipment 1000, the tuning and encoding circuitry (including multiple tuners) may be associated with storage 1008.  **A user may control the control circuitry 1004 using user input interface 1010. User input interface 1010 may be any suitable user interface, such as a remote control, mouse, trackball, keypad, keyboard, touch screen, touch pad, stylus input, joystick, voice recognition interface, or other user input interfaces. Display 1012 may be provided as a stand-alone device or integrated with other elements of user equipment device 1000. Display 1012 may be one or more of a monitor, a television, a liquid crystal display (LCD) for a mobile device, or any other suitable equipment for displaying visual images.** In some embodiments, display 1012 may be HDTV-capable. Speakers 1014 may be provided as integrated with other elements of user equipment device 1000 or may be stand-alone units. The audio component of videos and other media content displayed on display 1012 may be played through speakers 1014. In some embodiments, the audio may be distributed to a receiver (not shown), which processes and outputs the audio via speakers 1014. |

## WO2006104968A2 *(Purpura et al.)*

**Source**: <https://patents.google.com/patent/WO2006104968A2/en>

**Summary**: *Purpura* discloses an interactive video channel display on the video monitor that contains various individual video feeds from an interactive channel with a thematic core, genre, or subject being presented on the display. Further, these video channels can be added or deleted on the viewer actions to admit new channels in the display cells.

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| Abstract | The present invention discloses an interactive mosaic video channel displayed on a video monitor, with a plurality of individual video feeds being presented at a given time, comprising a plurality of video cells presenting at least video information, each video cell associated with one of the plurality of individual video feeds, a text box, a background video, and a cursor, which can be moved between the plurality of video cells, for selecting at least one characteristic associated with a selected video cell, such that the user can then directly select a video program associated with the selected video cell. The video channel can optionally include a barker cell that presents additional video and audio information that can also be selected by the cursor, the plurality of video cells being grouped by genre, a dynamic ticker, and the at least one characteristic associated with a selected video cell is the audio associated with that video cell. |
| Relevant Text | [Page 3 , Line 1]  To minimize the limitations in the prior art, and to minimize other limitations that will become apparent upon reading and understanding the present specification, the present invention discloses an interactive mosaic channel video stream with a barker channel and guide. **The present invention combines several viewer channels and an independent channel into a matrix channel that is not available as a separate viewer channel, into a single video stream, and combines that with an interactive capability along with a program guide for the video feeds that are used to make up the matrix channel. The matrix can be changed from a given number of matrix cells to a larger or smaller number of matrix cells during transmission.** Further, the mosaic channel can include a streamer on screen to provide other information that may or may not be related to one or more of the cells of the matrix, as well as possibly being related to the barker channel. There can also be a close-captioning portion based on the selected portion of the screen, whether it is the barker channel or a selected cell of the matrix.  A video channel in accordance with the present invention comprises a plurality of video cells presenting at least video information**, each video cell associated with one of the plurality of individual video feeds,** a text box, a background video, and a cursor, which can be moved between the plurality of video cells, for selecting at least one characteristic associated with a selected video cell, such that the user can then directly select a video program associated with the selected video cell.  Such a video channel further optionally includes a barker cell that presents additional video and audio information that is also selectable by the cursor, **the plurality of video cells being grouped by genre**, a dynamic ticker, and the at least one characteristic associated with a selected video cell being the audio associated with that video cell.  **Another embodiment of an interactive video channel displayed on a monitor in accordance with the present invention comprises a plurality of video cells presenting at least video information, each video cell associated with one of the plurality of individual video feeds,** and a cursor, which can be moved between the plurality of video cells, for selecting at least one characteristic associated with a selected video cell.  [Page 7 Line 9]  **The present invention is an interactive television channel that allows a viewer to view a video stream and select specific audio and/or video from the video stream based on a viewer s individual desires.** **The video stream is typically delivered to a user s monitor 114 via system 100, but could be done using cable or other terrestrial techniques.**  [Page 7 Line 13]  **When a viewer watches a specific program on a monitor 114, they are watching a viewer channel that comprises video and audio information that is routed to a specific channel to the monitor 114.** **For example, when a viewer wants to watch the local FOX affiliate station, they know that station is associated with a specific channel number on their monitor 114 or IRD 112, e.g., channel 11. When they program or otherwise indicate to the monitor 114 or IRD 112 to tune to channel 11, the monitor 114 or IRD 112 manipulates the electronics to capture and present the video information associated with that command from the satellite downlink 120, or from another source such as a coaxial cable input (cable TV) or terrestrial broadcast frequencies to present that information on monitor 114.** The viewer channel information is typically the information that is presented when a viewer selects a given channel on the monitor 114 or IRD 112.  **The present invention provides additional viewer channels that comprise multiple video feeds that would normally be presented to a viewer on separate viewer channels**, as well as optionally presenting a unique video feed (called the barker channel ) that is not available on any other viewer channel as a stand-alone channel presentation. **The present invention also allows a viewer to select various portions of the video and audio presentation based on commands sent by the viewer, typically via the remote control, to select the desired video and audio that is presented.** This presentation is typically referred to as an interactive channel, an interactive matrix channel, or an interactive mosaic channel herein.  **Within the interactive mosaic channel, the viewer is given several choices of other viewer channels to view, either simultaneously as in a matrix view, or the viewer can choose one of the matrixed viewer channels directly from the interactive mosaic channel.**  [Page 8 , Line 13]  **There can be more than one interactive channel as described above, and, as such each of the interactive channels can have a thematic core, genre, or subject. For example, the interactive channels can comprise a group of related channels, such as a group of viewer channels that provide news programming, a second group of viewer channels that provide sports programming, a group of channels that provide children s programming, a group of channels that provide home shopping programming, or a group of channels that is selected by the user. Other groupings can be presented, such as all of the local network affiliate channels, specialty groups such as a group of channels that provide foreign-language specific programming, pay-per-view preview channels, adult programming, etc.** The present invention is not limited based on the grouping of channels matrixed together to comprise the interactive mosaic channel.  [Page 8 , Line 24]  **The interactive mosaic channel can be reached in a similar fashion to the other viewer channels available for viewing on monitor 114; the interactive mosaic channel can be selected from the programming guide, the interactive mosaic channel number can be entered directly on the remote control, or the interactive mosaic channel would be found when the user is channel surfing or using the next higher or lower channel button on the remote control or directly on the monitor 114 or IRD 112.**  [Page 9 , Line 7]  **FIG. 2 illustrates** **a typical six-cell matrix with a generic video feed in accordance with the present invention.**  **Interactive mosaic channel 200 is shown as being displayed on monitor 114. Within interactive mosaic channel 200, there are a number of video cells 202** and a text box 204, also referred to as an On Screen Display (OSD) 204. Optionally, the interactive mosaic channel 200 further comprises a separate video cell 206, also called a barker cell 206, a background video 208, and a dynamic ticker 210.  **The number of video cells 202 can change based on the number of video cells 202 desired. As the number of video cells 202 increases, of course, there must be a reduction in the size of the video cells 202 to ensure that the video cells are differentiated on the monitor 114. As the number of video cells 202 decreases, the size of the video cells 202 can increase, since there is more space available on monitor 114 to display video cells 202.**  Interactive Mosaic Channel Display Diagram    [Page 10, Line 9]  Video Cells  **Video cells 202 each contain a separate viewer channel of programming.** So for example, **in an interactive mosaic channel that is focused on news programming, cell 1 could contain the video programming associated with the viewer channel of FOX News Channel**, cell 2 could contain the video programming associated with the viewer channel of CNN, cell 3 could contain the video programming associated with the viewer channel of Headline News, **cell 4 could contain the video programming associated with the viewer channel of MSNBC,** cell 5 could contain the video programming associated with the viewer channel of The Weather Channel, and **cell 6 could contain the video programming associated with the viewer channel of C-SPAN.** The placement and video programming content for each video cell 202 can depend on a wide variety of factors, such as Nielsen ratings for a given channel, whether a given channel is available on a specific viewer s programming package, viewer channel number (lowest to highest or highest to lowest) or can be decided or changed based on programming that is present on one or more of the viewer channels available for the interactive mosaic channel. For example, and not by way of limitation, an important vote on the floor of the Senate may be taking place, and a decision can be made to change the placement of C-SPAN from video cell 202 cell 6 to video cell 202 cell 1 for a period of time. Changes in presentation for the interactive mosaic channel 200 are discussed below.  [Page 16 , Line 10]  given viewer channel within an interactive mosaic channel 200, the presentation of a barker cell 206, text box 204 and text box 204 information, and the overall video and audio portions of interactive mosaic channel 200 is controlled by the service provider. **However, it is also envisioned that there can be user-created and/or controlled interactive mosaic channels 200 for further enhancing the viewer s television experience.**    [Page 15 , Line 13]  **FIG. 4 illustrates a typical five-cell matrix with a generic video feed in accordance with the present invention.**  **As shown in FIG. 4**, **a different number of video cells 202, in this case, five video cells 202, can be presented within a given interactive mosaic channel 200. An interactive mosaic channel can present as few as two video cells 202, or as many video cells 202 that can be meaningfully presented within the confines of monitor 114.** For monitors 114 that are in a 4:3 ratio (standard television monitors 114), typically, the number of video cells 202 that can be meaningfully presented is eight, with a barker cell 206 and a text box 204. However, if the text box 204 information is presented within the dynamic ticker 210, and the barker cell 206 is eliminated, then additional video cells 202 can be presented on a 4:3 ratio monitor 114. If the monitor 114 is a 16:9 (wide-screen) monitor 114, then it is possible to display additional video cells 202. Further, the video cells 202 can be presented in other formats than a row/column format as shown herein without departing from the scope of the present invention.    [Page 21, Line 06]  **Changes in Interactive Mosaic Channel Display**  **Some of the interactive mosaic channels 200 may, because of the genre selected for that interactive mosaic channel 200 or for other reasons, may need to have the video cells 202 changed from one viewer channel to another, or to have video cells 202 added or deleted from the presentation of the interactive mosaic channel 200 on monitor 114. As such, there must be a capability to change the presentation of any given interactive mosaic channel 200. The changes may be of a time-sensitive nature, such as changes in news or sporting events, or a seasonal change, such as additional viewer channels carrying an event such as the NCAA Basketball Tournament, and thus, would be seasonally included in an interactive mosaic channel 200 presentation, or of a programming nature, where a viewer adds or deletes a viewer channel to their programming package and thus access to such a viewer channel is selectively allowed or denied.** If such a viewer channel is being used to create a given interactive mosaic channel 200, then the interactive mosaic channel 200 must have the capability of adding that video feed for presentation on the monitor.  **For example, in a sports genre interactive mosaic channel 200, it is typically known when a sporting event will start and which viewer channel the event will be carried on. So, interactive mosaic channel 200 can schedule the change to the video feed for that viewer channel as being shown on a video cell 202, or change away from a viewer channel that is no longer carrying a sporting event, based on a schedule or other set time-frame events.** |

## US20040045026A1 *(Baril et al.)*

**Source**: <https://patents.google.com/patent/US20040045026A1/en>

**Summary**: *Baril* discloses a display control mechanism for receiving multiple picture channels through an input cable and presenting each of these channels on a mosaic of minimized video screens. Wherein, a selector selects several channels as a channel sub-directory or package of related channels to be displayed on the screen by a package display unit which adds package of channels to the display for MultiView functionality.

*Although, it does not explicitly mentions the change of a video screen upon a second user selection, it does mention that the channels may either close or may move sideways to admit the new channels on the display which is broadly inferred as the change the display in a given picture.*

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| Publication Date | March 04, 2004 |
| Filing Date | August 29, 2002 |
| Abstract | Apparatus for use in association with channelwise broadcasting of a series of video channels, comprising: a selector for selecting at least one subgroup of said channels as a package, a package display device for arranging displays of each package as at least part of a package channel comprising a mosaic of minimized video screens, ones of said minimized video screens corresponding to ones of said selected channels. The user can select one of the channels to be in focus, so that the sound heard using the browsing channel is that of the channel in focus. The browsing channel may also include interactive content, independently of the channels in the mosaic. |
| Relevant Text | [Para 0001]  The present invention relates to **improvements in digital or interactive television** and multicasting in general and mote particularly but not exclusively to packaged and **integrated presentation of multicast services.**  [Para 0013]  **a package display device for arranging displays of each package as at least part of a package channel comprising a mosaic of minimized video screens,** **ones of said minimized video screens corresponding to ones of said selected channels,** **wherein each of said minimized video screens is user selectable**, and wherein said **package channel is operable to emit sound corresponding to a selected one of said channels in said package.**  [Para 0067]  Reference is now made to FIG. 1, which is a simplified block diagram showing apparatus for use in association with channelwise broadcasting of a series of video channels. **A broadcasting unit 10 broadcasts a series of video channels, ch1 . . . ch n, which are typically delivered via cable or via satellite to subscribers**. Some of the channels are interactive, thus requiring a return channel from the subscriber to the broadcaster. Such **a return channel can be provided via the broadcast medium in the case of cable**, and in the case of satellite, various possibilities exist including the use of telephone or Internet.  [Figure 01]  H:\Downloads\Wilson US'299\US20040045026A1-20040304-D00000.png  [Para 0068]  The apparatus of the preferred embodiment comprises **a selector 12** which **selects several channels as a channel sub-directory or package**. In a first preferred embodiment **the channels for the package are chosen in advance and the package content remains static**. **A package may be defined, of youth channels or of sport channels, or of film channels or of news channels or any other arrangement the broadcaster believes** will be of interest to viewers, and **package display unit 14** arranges **the selected channels of the package into a mosaic of miniaturized views, as will bc explained in greater detail below**. **The mosaic is preferably broadcast or arranged for broadcast as a further channel, hereinbelow referred to as a package browsing channel**. FIG. 2 is a simplified schematic of a screen display 20 of such a package browsing channel**. The package browsing channel preferably displays a mosaic of minimized versions or views 22-26 of the selected channels in the package**. FIG. 2 **shows three channels in the mosaic by way of example only and any number may be selected as long as the minimized channels are large enough to convey information to the viewer**. A preferred embodiment in fact displays four simultaneous charnels. The browsing channel is preferably interactive so that the user can select channels directly from the screen, and each minimized channel 22-26 may have a **selection region 28-32 associated therewith to light up in the event of selection of the channel, or to indicate interaction choices with the channel and the like.**  [Para 0069]  **If the package includes more channels than can be fitted on the screen, then either the screen nay automatically cycle between channels or user interaction may be used to move to new parts of the screen,** as will be described in greater detail below  [Para 0070]  Typically, the series of **broadcast channels ch1 . . . ch n includes an overall browsing channel which displays miniaturized views of individual channels in a mosaic**. The overall browsing channel typically does not show all of the channels in a single screen but rather divides them into several screens which it cycles between  [Para 0071]  In a preferred embodiment, **the display arranging unit 14 simply takes miniaturized views from the overall browsing channel for use in the package browsing channel.**  [Para 0072]  In a preferred embodiment of the present invention several packages are defined. However it is not necessary to define a separate browsing channel for each. **Rather a single browsing channel may be defined to display each of the miniaturized views of all of the packages, and logic, either at the user end or at the sending end, selects which part of the package browsing channel is currently displayed.**  [Para 0078]  The use of packages as described above is advantageous in solving the problems described in the background. Thus the viewer interested in say a news channel but not being sure which news channel he wants, or not remembering the channel number of the specific news channel he wants, **simply selects the news browsing channel, in order to see all available news channels, and he is able to select from the browsing channel the one he want.** He is no longer required to remember specific channel numbers for the various news channels.\  [Para 0084]  However**, it is also contemplated that the user is able to construct his own customized list of channels.**  [Para 0086]  Reference is now made to FIG. 3, **which is a simplified schematic diagram showing a preferred construction of a miniaturized video channel display for placement in the package-browsing screen. The display comprises a channel view region 40 surrounded by a frame region 42.** An upper part 44 of channel view region 40 is an interaction indicator, and indicates whether the channel is in focus or not. It may also contain buttons indicating possible interactions. Preferably it also displays the name of the channel.  H:\Downloads\Wilson US'299\US20040045026A1-20040304-D00002.png  [Para 0087]  **Upon selection of a particular channel,** **the other channels preferably close as indicated** in FIG. 4, where the lower edge 46 of frame 42 moves upwards to engulf the entire view**. The selected channel may then take over the entire screen. Upon selection of a further set of channels, the channels may either close as described above or they may move sideways to admit the new channels in a preferred embodiment,** both of the above occur. The channels first close by raising of the lower frame edge and then the channels move sideways to admit the new channel or channels. |

## JP2004032216A *(Saeki et al.)*

**Source**: <https://patents.google.com/patent/JP2004032216A/en>

**Summary**: *Saeki* describes a display apparatus that generates multiple screens to show one or more video streams. The system allows a user to select one of the video screens and then add or change the video in another cell by choosing content from the same video group as the selected screen.

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| Publication Date | January 29, 2004 |
| Filing Date | June 24, 2002 |
| Abstract | A plurality of videos are displayed on one display device. An information processing apparatus (10) generates a plurality of display screens for displaying an image, and then specifies at least one or more display screens for displaying an image from the plurality of generated display screens. Thereafter, the information processing apparatus 10 transmits a distribution request of a video to be displayed on each of at least one or more designated display screens to a distribution source of the video, and displays the video indicated by the transmitted distribution request on the designated display screen. . |
| Relevant Text | [Para 0001]  The present invention relates to an information processing device, an information processing method, and **a program for displaying images related to each other.**  [Para 0002]  In recent years, **the Internet has become widespread and broadband, and not only characters and still images are distributed to user terminals, but also moving images, that is, videos, are also distributed to user terminals**. By the way, in order to stream-play a video or audio on the Web via the Internet, video playback software for playing the video must be installed on the user terminal. Real Player, Media Player, Quick Time, etc. are widely used as video playback software.  [Para 0016]  FIG. 1 is a block diagram showing a configuration of an information processing device according to an embodiment of the present invention. As shown in FIG. 1, **the information processing device 10 includes a control unit 11, a storage unit 12, an input unit 13, a display unit 14, a communication control unit 15**, and a first display driver unit 16 to 6th display. It is composed of a driver unit 16, and each unit is connected to each other by a bus 17.  [Para 0019]  As shown in FIG. 2B, **the attribute data storage file 122 stores the attribute data generated based on the attribute information embedded in the delivered video.** The attribute data includes data items consisting of the order read from the video and the content of the attribute information. The content of the attribute information includes **1) the classification to which the delivered video belongs** (for example, the classification belonging to sports), and 2) the video related to the delivered video (hereinafter referred to as related video), if any. **The URL (Uniform Resouce Locator) required to access the video storage file that stores the related video is provided.**  [Para 0020]  For example, when **a video frame is delivered as shown in Fig. 3, the field is sports and the URL is http://www.soccer.co.jp in the frame indicated by reference numeral A.** Attribute information with information such as Sports in the field and http://www.baseball.co.jp in the URL is embedded in the frame indicated by the code B, and **the code C Attribute information with information such as sports in the field and http://www.marathon.co.jp in the URL is embedded in the frame shown in.**  [Figure 03]  H:\Downloads\Wilson US'299\2004032216-5 (1).png  [Para 0021]  **The input unit 13 includes a keyboard and a mouse provided with cursor keys, number input keys, and the like, and outputs a key press signal pressed by the keyboard and a mouse operation signal to the control unit 11**. Further, the input unit 13 inputs the distributed video data to the control unit 11.  [Para 0022]  **The display unit 14 is composed of a CRT (Cathode Ray Tube), a liquid crystal display panel,** and the like**, and displays an image according to the display data output from the control unit 11**. **The communication control unit 15 controls communication with the video distribution server that distributes the video.**  [Para 0023]  **The first display driver unit 16** is **a driver that displays an image on the first display screen of the six display screens (described later) formed on the display unit 14,** and an image (image data) displayed on the first display screen**. It is equipped with RAM** etc. **that temporarily stores the data.** Similarly, **the second display driver unit 16 includes a driver for displaying an image on the second display screen, a RAM for temporarily storing the image displayed on the second display screen,** and the like. Similarly, the third display driver unit 16 includes a driver for displaying an image on the third display screen, a RAM for temporarily storing the image displayed on the third display screen, and the like. Similarly, the fourth display driver unit 16 includes a driver for displaying an image on the fourth display screen, a RAM for temporarily storing the image displayed on the fourth display screen, and the like. Similarly, the fifth display driver unit 16 includes a driver for displaying an image on the fifth display screen, a RAM for temporarily storing the image displayed on the fifth display screen, and the like. Similarly, the sixth display driver unit 16 includes a driver for displaying an image on the sixth display screen, a RAM for temporarily storing the image displayed on the sixth display screen, and the like.  H:\Downloads\Wilson US'299\2004032216-3 (1).png  [Para 0026]  As shown in FIG. 7, **each of the first display screen to the sixth display screen includes a first clickable map, a second clickable map, a third clickable map, and a fourth clickable map. The first clickable map is linked with a URL for accessing a video file or the like that stores the video displayed on the display screen. When the second clickable map is clicked, the instruction to read the attribute information from the attribute data storage file 122 is output to the control unit 11**. **When the third clickable map is clicked, the second clickable map is displayed on another display screen.** **When is clicked, an instruction to display the image indicated by the attribute data read from the attribute data storage file 122 (hereinafter referred to as a related image) on this display screen is output to the control unit 11**. **When the fourth clickable map is clicked, an instruction to stop the display of the image displayed on the display screen is output to the control unit 11.**  [Para 0028]  **The control unit 11 displays the first display screen to the sixth display screen,** etc. **on the display unit 14**, and then has the first display screen (i = 1, 2, ..., 6) on the i-th display screen (i = 1, 2, ..., 6) by the user s operation. **When the clickable map is clicked (step S3), the i-display driver section 16 is started, and the video storage file that stores the video specified in the URL linked to this first clickable map is accessed.** , The video data is sequentially read from this video recording file, etc. (step S4).  H:\Downloads\Wilson US'299\2004032216-8 (1).png  [Para 0029]  **When the attribute information is embedded in the read video data, the control unit 11 reads the attribute information from the video data, generates**, for example, the attribute data shown in FIG. 2, and **stores the generated attribute data as the attribute of the storage unit 12. In addition to storing the data in the data storage file 122, the video data is stored in the RAM provided in the i-th display driver unit 16 (step S5).**  [Para 0030]  The i-th display driver unit 16 started by the control unit 11 sequentially reads the video data stored in the RAM by the driver provided in the driver unit 11, and displays the video according to the read video data on the i-display screen. (Step S6**). For example, when the video storage file specified from the URL linked to the first clickable map stores video data related to sports, the video displayed on the i-display screen is the video related to sports.**  [Para 0035]  **The driver included in the kth display driver unit 16 reads the video data from the RAM and displays the related video on the kth display screen** (step S15)  [Para 0036]  After that, **the control unit 11 newly sets the value obtained by adding 1 to the variable m held in the work area as the variable m** (step S15), shifts the process to step S8, and performs the above-mentioned process by the user. Continue until you have the relevant information that you need.  [Para 0037]  **In step S2, the operation when the “display all” button in the display unit 14 on which the first display screen to the sixth display screen is displayed is clicked will be described.**  [Para 0040]  After that, the control unit 11 similarly displays an image on each display screen in order from the second display screen to the sixth display screen.  [Para 0044]  Further, according to **the information processing device 10**, a distribution request for the related video to be displayed on the display screen for displaying the specified related video is transmitted to the video distribution source, and the related video for which the distribution request is displayed is displayed on the display screen. **Therefore, a plurality of related images can be displayed on one display device.** |

# Tier-3 Results

## Video Surveillance in Hollywood Movies (*Kammerer*)

**Source**: <https://ojs.library.queensu.ca/index.php/surveillance-and-society/article/download/3389/3352/5700>

**Summary**: This reference examines the representations of CCTV in contemporary popular culture, namely Hollywood film from the perspective of culture and film studies. It begins with the observation that an increasing number of Hollywood films are not only incorporating (fake) CCTV images into their narratives.

**Note**: The movie “**Time Code**” was released in **2000.**

*However, it don’t explicitly mention all the features of the independent claim, but YouTube montage seems key features required, such as “displaying the videos with a common attribute and displaying another video not currently on displayed on the screen”.*

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| Publication Date | 2004 |
| Relevant Text | Time Code  Without recourse to a big budget, but with unremitting diligence and a great care for the details, British filmmaker Mike Figgis has made a film that probably tells us more about video surveillance than most other films. I am referring of course to Time Code (2000). In this film, the aesthetics of the continuous camera shot is taken to the extreme. The film is actually shot without a single filmic cut in time. And yet – **and this is exactly why Time Code is so interesting under the perspective of CCTV – it is not without montage. Just like a monitor wall in the control room, it substitutes temporal for spatial montage.**  On 19th November, 1999, **four cameras have been synchronized and started simultaneously at 3 p.m**. Each camera then followed for the course of exactly 97 minutes the actions, meanderings, encounters, conversations of several different persons, without stopping once**. The film is presented as split-screen, i.e. all four films run parallel with each other and synchronous side by side**. **The cross formed where the four frames intersect reminds the viewer that the characters are constantly under the crosshairs of surveillance**  **YouTube Video Source 1:** <https://www.youtube.com/watch?v=YXr8W9i-Bz8> **[Video Screenshot]**    **YouTube Video Source 2:** <https://www.youtube.com/watch?v=KQidFlpYlDw> **[Video Screenshot]** |

## EchoStar launches OpenTV multi-channel home page (*EchoStar*)

**Source**: <https://informitv.com/2005/08/30/echostar-launches-opentv-multi-channel-home-page/>

**Summary**: Dish Home is a service broadcast provider for the television system. A user can access the Dish Home on his/her television using the subscription model. The information disclosed in shared sources seems to support the required feature of first user selection for displaying six channels of video streams on a display screen.

*Although, it does not disclose the second user selection of changing the video stream that is not currently shown on the screen.*

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| Publication Date | August 30, 2005 |
| Relevant Text | EchoStar has launched **an interactive television application** that allows Dish Network satellite **viewers in the United States to watch six channels at once.**  The new home page for **interactive services now provides a mosaic featuring windows showing CNN, MSNBC, The Weather Channel, E! Entertainment, Bloomberg and Court TV.**  **Available on channel 100 to viewers with compatible set-top boxes**, the service can be accessed directly by pressing the interactive TV button on the remote. As well as providing a portal to access a range of interactive services, **each featured channel can be selected to allow full-screen viewing.**  **Image Source**: <https://informitv.com/wordpress/wp-content/uploads/2005/08/DishHome.jpg>  Echostar Dish Network interactive home page mosaic developed by OpenTV  **The new format of DISH Home is a great way for viewers to watch their favourite TV channel and up-to-the-minute news, all from one place**, said Susan Arnold, vice president of programming for Dish Network.  Developed by OpenTV**, the multiscreen mosaic** approach was first by EchoStar used for the Olympics and the presidential elections last year. |

# List of Shared Patent Results

**Please note** that through this list, we have provided all INPADOC family members of our results. The shared result is a representative of its complete family.

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| --- | --- | --- |
| # | Publication Number | INPADOC Family Members |
|  | US20040117831A1 | US20040117831A1 | AR29372A1 | AR26133A1 | ATE247360T1 | AU768383B2 | AU200058983A | AU200058923A | BR200012053A | CA2820780C | CA2378304C | CA2820780A1 | CA2378304A1 | CA2377941A1 | CN1180626C | CN1371571A | CN1365573A | DE60004530T2 | DE60004530D1 | EP1377059A1 | EP1197086B1 | EP1197086A1 | EP1197075A1 | ES2204647T3 | HK1045427A1 | JP04743738B2 | JP2003503911A | JP2003503907A | MX2002000484A | TW484313B | US20150312640A1 | US9173003B2 | US9071879B2 | US20140047476A1 | US20140040942A1 | US8589978B2 | US8505049B2 | US20100192179A1 | US20100115559A1 | US20090019485A1 | WO2001001690A1 | WO2001001677A1 |
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|  | [US20100122294A1](https://www.derwentinnovation.com/tip-innovation/externalLink.do?data=eEO7KvKuA%2BZmPC8utuUqQr7lxA0syEOxG1yqA8aIDa%2FHR0Yfnr7aHsH4I3OaAA37ytEXegSSxUP88PZ%2FJk5CQ0F4IIj6EeeZd%2Fly4xNtak9D2Ijuz2cF9Rr1PHQZYuFqg%2FYNe5%2BU%2F6zBxsQ4e9T6wcUaS6C2iUdS1Quy3oxeQInFAX0jXNFh7mzwKSn8aGG4tQoJvaQ8R8DtNo6hGGtO%2BAuzeVO5HWt2fOUa73%2F5EHpdoyxP093Q%2F1Sv89kgFKzOVxV1IlGYuxiYCOtmByGIKw%3D%3D&code=d1562561842b48353a809c3ff5f53b71) | US20100122294A1 | CA2674809C | CA2674809A1 | EP2105012B2 | EP2105012B1 | EP2105012A1 | ES2423220T5 | ES2423220T3 | JP05703317B2 | JP2014096851A | JP05250560B2 | JP2013066245A | JP2010515345A | US20130145398A1 | US8402488B2 | US20080163059A1 | WO2008082461A1 |
|  | [US20020013941A1](https://www.derwentinnovation.com/tip-innovation/externalLink.do?data=eEO7KvKuA%2BZmPC8utuUqQr7lxA0syEOxG1yqA8aIDa%2FHR0Yfnr7aHsH4I3OaAA37ytEXegSSxUP88PZ%2FJk5CQ0F4IIj6EeeZd%2Fly4xNtak9D2Ijuz2cF9Rr1PHQZYuFqg%2FYNe5%2BU%2F6zBxsQ4e9T6wcUaS6C2iUdS1Quy3oxeQInFAX0jXNFh7mzwKSn8aGG4tQoJvaQ8R8DtNo6hGGtO%2BDn8im%2Fh%2Bv4IMz82hWgql6XuRhHZ9AIDpZScQcjEr7uXrkP0wz2QDu6IN9pyxytQew%3D%3D&code=72ab9f8b6f22f8c29fe7fc1719bb25a5) | US20020013941A1 | US20020109732A1 |
|  | [US20030229900A1](https://www.derwentinnovation.com/tip-innovation/externalLink.do?data=eEO7KvKuA%2BZmPC8utuUqQr7lxA0syEOxG1yqA8aIDa%2FHR0Yfnr7aHsH4I3OaAA37ytEXegSSxUP88PZ%2FJk5CQ0F4IIj6EeeZd%2Fly4xNtak9D2Ijuz2cF9Rr1PHQZYuFqg%2FYNe5%2BU%2F6zBxsQ4e9T6wcUaS6C2iUdS1Quy3oxeQInFAX0jXNFh7mzwKSn8aGG4tQoJvaQ8R8DtNo6hGGtO%2BEjVaLgPhNHRqAPjj1SbZtfZzTSsTGhoMbG9CIz28CKaqJlzkJDlAtJZgRVkJvobBw%3D%3D&code=a21e9173ccb8f412a1b2de28676aa25f) | US20030229900A1 | AU2003239385A8 | AU2003239385A1 | US9143839B2 | US20150143395A1 | US20150135214A1 | US20150135206A1 | US8914840B2 | US8898722B2 | US8893212B2 | US8875215B2 | US8850507B2 | US8813125B2 | US20140130105A1 | US20140123187A1 | US20140123186A1 | US20140123184A1 | US20140123168A1 | US8689273B2 | US8661495B2 | US8646020B2 | US8640183B2 | US8631456B2 | US8527640B2 | US20130074129A1 | US20130073738A1 | US20130067526A1 | US20130061273A1 | US20130061264A1 | US20130055315A1 | US20130054820A1 | US8161172B2 | US20110219419A1 | US7987491B2 | US7899915B2 | US20090320073A1 | US20090319672A1 | US20040031058A1 | WO2003096669A3 | WO2003096669A2 |
|  | [US20070011702A1](https://www.derwentinnovation.com/tip-innovation/externalLink.do?data=eEO7KvKuA%2BZmPC8utuUqQr7lxA0syEOxG1yqA8aIDa%2FHR0Yfnr7aHsH4I3OaAA37ytEXegSSxUP88PZ%2FJk5CQ0F4IIj6EeeZd%2Fly4xNtak9D2Ijuz2cF9Rr1PHQZYuFqg%2FYNe5%2BU%2F6zBxsQ4e9T6wcUaS6C2iUdS1Quy3oxeQInFAX0jXNFh7mzwKSn8aGG4tQoJvaQ8R8DtNo6hGGtO%2BITGQAH%2BEhURXumStdoWB0P4LFBQ4FWe4d85CyLrv4IQfWLzl2YMuv0EIztuHlrgSQ%3D%3D&code=1aeb2096527eb2ed21f35a549c4fd49b) | US20070011702A1 | EP1851960A2 | TW200704183A | US20210235161A1 | US10904624B2 | US20180098017A1 | US20120072952A1 | US20120011544A1 | US20110314501A1 | US20110307925A1 | US20110296467A1 | US20110265120A1 | US20110225612A1 | US20110209179A1 | US20110209173A1 | US20110202960A1 | WO2006081577A3 | WO2006081577A2 |

# Overview of the Search

## Scope of the Search

The search was conducted on the following jurisdictions in the English language text available from the databases:

* US Patent Publications
* European Patents
* \*German Patents
* \*French Patents
* \*Korean Patents and Utility Models
* \*Canadian Patents
* \*Japanese Patents
* Australian Patents
* WIPO PCT Publications
* \*Patents of Other European Countries (Austria, Belgium, Denmark, Finland, Ireland, Moldova, Monaco, Netherlands, Norway, Russia, Spain, Sweden, and Switzerland)
* \*Patents of Other Asian Countries (China, India, Israel and Taiwan)
* \*Patents of Other North and South American Countries (Brazil, Chile, Colombia, Mexico)
* \*Patents of Other African Countries (Morocco)

The search was conducted on the following jurisdictions for abstract only:

* INPADOC

*\*Note - Machine translation for some of the patents has been considered for these jurisdictions as per the availability from the databases used.*

## Prior Art Search Details

### Methodology of the Search

The following approach was adopted to conduct the prior art search and analysis:

|  |  |
| --- | --- |
| **Step 1: Understanding the Technology**  A basic understanding of the subject patent was developed along with the claimed elements. Further, the domain of the subject patent was studied in detail to identify the relevant keywords based on the claim elements of the subject patent. The identified keywords and their synonyms were then used to search patent literature. | **Step 3: Detailed Analysis of Search Results**  Subsequent to the search for the prior-art, the search results were filtered in order to eliminate all the non-related references, if any. A first level of filtration was a title and abstract level analysis. The patents remaining after title and abstract based elimination were analyzed in detail (reading of claims, detailed description, and images). The objective of this analysis was to screen out the patents that do not relate to the claim elements of the subject patent. |
| **Step 2: Applying Various Search Strategies**  Various search strategies (Keyword based, Class based, Assignee and Inventor based, Citation Analysis, etc.) were used to conduct extensive search for the patent literature. The approach for the search was from broad to narrow. Further, the search strings were revised based on the content of the results. | **Step 4: Results**  The bibliographic details of the references (after reduction to one patent per family) related to the invention were documented in the report. Please note that the references that have one or more features overlapping with the claim elements of the subject patent are also included in the report. They may be combined with other references to form a relevant prior art. Further, some of the references cited in the report may have other features/elements that may not be present in the subject patent. These references have been cited for the information of the client to provide related references that are present in the domain. |

## Search history

### Concept Table

|  |  |  |
| --- | --- | --- |
| Features | Concepts/Interpretation | IPC/CPC |
| Content Delivery | Retrieval of content from sources such as broadcast or internet | [H04N21/4622](https://patents.google.com/?q=H04N21%2f4622&peid=63ee5c1edffa8%3A318%3Acca03567) |
| Simultaneous Viewing | Displaying simultaneously another television channel in a region of the screen | [H04N5/45](https://patents.google.com/?q=H04N5%2f45&peid=63ee5c422b610%3A379%3A3ffcfa17) |
| Input interface | Input arrangement for transferring data to be processed | G06F3/00 |
| Multiple Screen Display | Simultaneous viewing of plurality of images e.g. using mosaic display | H04N1/00442 |
| Frame controller | Generation of visual interfaces / Graphical Features such as layouts, highlights for displaying supplemental content in a region of the screen | H04N21/4316 |

### Key Assignees

|  |  |
| --- | --- |
| # | Name |
|  | SONY CORPORATION |
|  | TOSHIBA CORPORATION |
|  | MATSUSHITA ELECTRIC INDUSTRIAL CO., LTD. |
|  | SHARP CORP |
|  | MATSUSHITA ELECTRIC IND CO LTD |
|  | LG ELECTRONICS INC. |
|  | SONY CORPORATION |
|  | FUNAI ELECTRIC CO., LTD. |
|  | HITACHI, LTD. |
|  | FUNAI ELECTRIC CO LTD |
|  | HITACHI LTD |
|  | SAMSUNG ELECTRONICS CO., LTD. |

### Key Inventors

|  |  |
| --- | --- |
| # | Name |
|  | MICHAEL ELLIS, |
|  | EDWARD KNUDSON |
|  | JON P. RADLOFF |
|  | KIRSTEN RASANEN |
|  | RICHARD F. PURPURA |
|  | ARIEL BARIL |
|  | MAKOTO SAEKI |
|  | DAVID E. SHANKS, |

### Orbit Search Strings

|  |  |  |  |
| --- | --- | --- | --- |
| **#** | **Logic** | **Key-String** | **Hits** |
|  | **Full Text:** Multiple channel **AND** Genre or Attribute  **Inventor** | (((GENRE+ OR ATTRIBUT+ OR GROUP+ OR RELATE+)/TI/AB/TX AND ((PLURAL+ OR MULTIPLE OR SEVERAL OR CONCURRENT OR SIMULTAN+ OR PARALLEL OR MOSAIC) 2D ( CHANNEL+))/TI/AB/TX) AND (("ELLIS MICHAEL D")/INNA) AND (EPRD < 2007-05-19)) | 4 |
|  | **Full Text:** Multiple Pictures **AND** Television System **AND** Frame Controller **OR** Screen switcher | ((((MULTI 2D (VIEW+ OR MULTI)) 2D (PICTURE+ OR "PICTURE IN PICTURE"))/TI/AB AND ("TV" OR TELEVISION)/TI/AB AND ((CONTROL+ OR SWITCH+ OR SELECT+) 2D (FRAME+ OR WINDOW+ OR SCREEN+ OR DISPLAY+))/TI/AB)) AND (EPRD < 2007-05-19) | 48 |
|  | **Classes:** Content Delivery **AND** Simultaneous Viewing  **Full Text**: Interactive Television or Display | ((((INTERACTIVE OR USER-CONTROLLED OR VIEWER-SELECTABLE) P (TELEVISION OR TV OR DISPLAY))/TI/AB/TX AND ((H04N-021/4622)/IPC/CPC AND (H04N-005/45)/IPC/CPC)) AND (("LG ELECTRONICS")/PAN OR ("SONY")/PAN) AND (EPRD < 2007-05-19)) | 12 |
|  | **Class:** Input Interface  **Full Text :** Genre of Multiple Picture Display **AND** Concurrent Video | ((((GENRE+ OR ATTRIBUT+ OR GROUP+ OR RELATE+)/TI/AB/TX AND ((MULTI ADJ2 SCREEN+) OR (MULTI ADJ2 DISPLAY+) OR (PICTURE ADJ2 FRAME) OR (CONCURRENT VIDEO))/TI/AB/TX) AND (G06F-003/00)/IPC/CPC) AND (EPRD < 2007-05-19)) | 16 |
|  | **Full Text:** Interactive display **AND** Group of related video. | ((((INTERACTIVE OR USER-CONTROLLED OR VIEWER-SELECTABLE) 2D (TELEVISION OR TV OR DISPLAY))/TI/AB/TX AND (GENRE+ OR ATTRIBUT+ OR GROUP+ OR RELATE+)/TI/AB/TX AND ((CONTROL+ OR MANAGE+ OR SWITCH+ OR CHANG+ OR SELECT+ OR CONFIGUR+ OR DIRECT+) 2D (FRAME+ OR WINDOW+ OR SCREEN+ OR PICTURE+ OR DISPLAY+))/TI/AB/TX AND ((VIDEO 2D GROUP+) OR (MULTI 2D STREAM+) OR (PLURAL+ VIDEO) OR "MULTIPLE PICTURES")/TI/AB/TX) AND (EPRD < 2007-05-19)) | 624 |
|  | **Full Text:** Plurality of Videos **AND** Genre **AND** Screen. | ((((PLURAL+ OR MULTIPLE OR SEVERAL OR CONCURRENT OR SIMULTAN+ OR PARALLEL OR MOSAIC) 2D (MULTI D CHANNEL+))/TI/AB/TX AND (GENRE+ OR ATTRIBUT+ OR GROUP+ OR RELATE+)/TI/AB/TX AND ((CONTROL+ OR MANAGE+ OR SWITCH+ OR CHANG+ OR SELECT+ OR CONFIGUR+ OR DIRECT+) 2D (FRAME+ OR WINDOW+ OR SCREEN+ OR PICTURE+ OR DISPLAY+))/TI/AB/TX AND ((VIDEO 2D GROUP+) OR (MULTI 2D STREAM+) OR (PLURAL+ VIDEO) OR "MULTIPLE PICTURES")/TI/AB/TX) AND (EPRD < 2007-05-19)) | 84 |
|  | **Full Text:** Video Stream with similar attribute **OR** theme **AND** Television system with multiple windows. | ((((VIDEO OR STREAM+) 2D GROUP+) P (ATTRIBUTE+ OR CATEGORY+ OR THEME+)) AND ((MULTI+ 3D STREAM+) OR (PLURAL+ 3D STREAM+) OR (MULTI+ 3D CHANNEL+)) AND ((TELEVISION OR TV OR DISPLAY\_SYSTEM) S ((MULTI+ 2D DISPLAY+) OR (MULTI+ 2D WINDOW+))))/TI/AB/CLMS/TX AND (EPRD < 2007-05-19) | 7 |
|  | **Full Text:** Television System **AND** input from cable/internet/satellite **AND** remote controller **AND**  Plurality of channels with genre/ attribute | ((((PLURAL+ OR MULTIPLE OR SEVERAL OR CONCURRENT OR SIMULTAN+ OR PARALLEL OR MOSAIC) 2D (MULTI D CHANNEL+))/TI/AB/TX AND (GENRE+ OR ATTRIBUT+ OR GROUP+ OR RELATE+)/TI/AB/TX AND ((CONTROL+ OR MANAGE+ OR SWITCH+ OR CHANG+ OR SELECT+ OR CONFIGUR+ OR DIRECT+) 2D (FRAME+ OR WINDOW+ OR SCREEN+ OR PICTURE+ OR DISPLAY+))/TI/AB/TX AND ("TV" OR TELEVISION OR DISPLAY)/TI/AB/TX AND (INPUT OR CABLE OR WIRELESS OR INTERNET OR SATELLITE)/TI/AB/TX AND (REMOTE OR DEVICE OR EQUIPMENT OR CONTROLLER)/TI/AB/TX) AND (EPRD < 2007-05-19)) | 926 |
|  | **Class:** Frame controller  **Full Text:** concurrent video streams **AND** interactive/user controlled/viewer selectable **AND** television | (((((PLURAL+ OR MULTIPLE OR SEVERAL OR CONCURRENT OR SIMULTAN+ OR PARALLEL OR MOSAIC) P (MULTI D CHANNEL+))/TI/AB/TX AND ((INTERACTIVE OR USER-CONTROLLED OR VIEWER-SELECTABLE) 2D (TELEVISION OR TV OR DISPLAY))/TI/AB/TX) AND (H04N-021/4316)/IPC/CPC) AND (EPRD < 2007-05-19)) | 28 |
|  | **Assignees AND**  **Full Text:** concurrent multiple channels **AND** user controlledtelevision system | ((((PLURAL+ OR MULTIPLE OR SEVERAL OR CONCURRENT OR SIMULTAN+ OR PARALLEL OR MOSAIC) P (MULTI D CHANNEL+))/TI/AB/TX AND ((INTERACTIVE OR USER-CONTROLLED OR VIEWER-SELECTABLE) 2D (TELEVISION OR TV OR DISPLAY))/TI/AB/TX) AND (("LG ELECTRONICS")/PAN OR ("SONY")/PAN) AND (EPRD < 2007-05-19)) | 11 |

### Ambercite AI

|  |  |
| --- | --- |
| # | Publication Number (Top 50 citations analyzed for each) |
|  | [US9247299B1](https://patents.google.com/patent/US9247299B1/en) |
|  | [US20040117831A1](https://patents.google.com/patent/US20040117831A1/en) |

### Google Patents

|  |  |
| --- | --- |
| # | Search String |
|  | ("display") ("channel") (genre) before:priority:20070519 |
|  | ("television system" OR "TV system") ("plurality of video streams" OR multistream OR "multiple channels") ("plurality of pictures" OR mosaic OR "split screen" OR "multi view") before:priority:20070519 |
|  | ("frame controller" OR "display controller" OR compositor) (mosaic OR "tile view" OR grid OR "multi-picture") ("user selection" OR select) before:priority:20070519 |
|  | ("video group" OR "group of channels" OR "channel group") (attribute OR "content attribute" OR genre OR category) ("user selection") before:priority:20070519 |
|  | ("input interface" OR tuner OR demux OR decoder) ("receiving video data" OR "receive multiple streams") (display OR "render") before:priority:20070519 |
|  | ("change the display" OR switch OR swap) (picture OR pane OR tile OR quadrant) ("given video stream" OR "selected stream" OR "selected channel") before:priority:20070519 |
|  | ("displaying first and second video streams" OR "dual view" OR "picture-in-picture" OR PIP OR POP OR "quad view") ("first picture" OR "second picture" OR tile) before:priority:20070519 |
|  | (EPG OR "electronic program guide" OR "thumbnail preview") ("multi-channel" OR mosaic OR "channel mosaic") ("user selection" OR navigate) before:priority:20070519 |
|  | ("not currently displayed" OR off-screen OR "hidden channel") (select OR switch OR replace) (picture OR tile OR window) before:priority:20070519 |
|  | ("attribute-based" OR "metadata-based" OR "tag-based") ("video group" OR "channel group") (genre OR sports OR news OR kids) ("display") before:priority:20070519 |
|  | (STB OR "set-top box" OR DVR) ("multi-view" OR mosaic OR "channel preview grid") ("user selects" OR "user selection") before:priority:20070519 |
|  | ("television system" OR "TV system") ("plurality of video streams" OR multistream OR "multiple channels") ("plurality of pictures" OR mosaic OR "split screen" OR "multi view") before:priority:20070519 |

### Google/Google Scholar

|  |  |
| --- | --- |
| # | Search String |
|  | television system input interface multiple video streams “frame” controller display “multiple” pictures user selection |
|  | multi view “television” system video group attribute selection display multiple streams different areas |
|  | TV system displaying plurality of pictures frame controller switching between video streams user selection |
|  | multi-screen display system television multiple video windows user selects video stream to display |
|  | television picture in picture extended multiple video streams frame controller user interface |
|  | video group selection attribute based television system display first and second video streams |
|  | interactive TV system user selects given video stream to replace in given picture multiple streams |
|  | television system multi-channel display frame controller controlling multiple areas display switching streams |
|  | CCTV scene in Hollywood movies |
|  | CCTV systems before : (19052007) |
|  | Cricket matches with multiple viewing angles in a single screen |
|  | News channel live streams before : (19052007) |
|  | Mosaic displays with pictures of same genre before: (2007) |

### AI tools explored

|  |  |
| --- | --- |
| # | Name of Source |
|  | [Ambercite](https://www.amberscope.com/ambercite-ai.html) |
|  | [Novelty](https://novelty.relecura.com) |
|  | [PQAI](https://search.projectpq.ai/) |
|  | NEO – Keyword Suggestion tool |
|  | IP [Rally](https://login.iprally.com/u/login?) |
|  | Innovation Q+ |

### Other Sources Explored

|  |  |
| --- | --- |
| # | Name of Source |
|  | [Metabyte](https://www.metabyte.com/?section=hall-of-fame) |
|  | [TV Technology](https://www.tvtechnology.com/) |
|  | [SpringerLink](https://link.springer.com/) |
|  | Internet Archive |
|  | [Semantic Scholar](https://www.semanticscholar.org/) |
|  | [Science Direct](https://www.sciencedirect.com/) |

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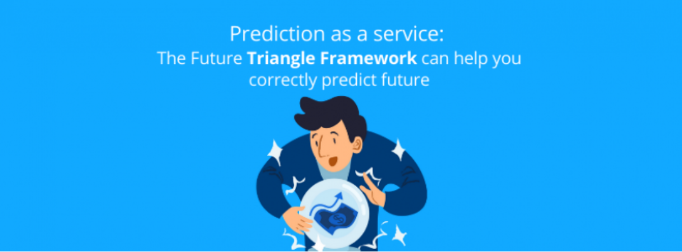
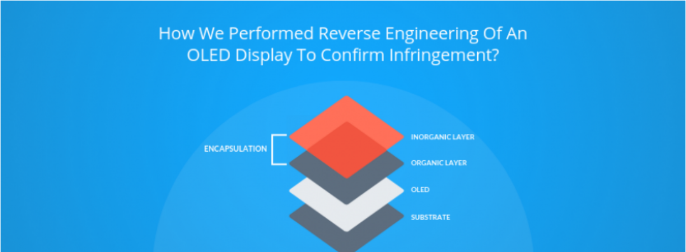
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How We Performed Reverse engineering of an OLED Display to Confirm Infringement?

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