System and Method for Managing, Converting and Displaying Consumer-Generated Content for Interactive Television Use

Summary Description:

A system and process to allow for the management, conversion, presentation and reporting of consumer-generated content such as classified listings and bulletin-board announcements for interactive television use on digital cable television systems.

General Characteristics of the system include:
- Web-based content management system that allows consumers to create and manage their interactive television content, as well as pay for the distribution of their content within the digital cable television system.
- An automated screening system that scans consumer-generated content for objectionable material and alerts system administration personnel of possible objectionable material.
- An automated feed system that delivers the consumer-generated content into the content conversion system.
- An automated conversion system that converts the consumer-generated content into formats compatible with the interactive television system.
- The interactive television system that delivers the properly formatted consumer-generated content to the digital set-top box for display on television.
- An automated reporting system that collects the viewing data regarding consumer-generated content from the interactive television system. The reporting data is made available in summary form to the authors of content through the web-based content management system.

Description:

The principal object of this invention is to provide a system for allowing persons to create and manage content for display on an interactive television system on a digital cable television system. A specific object is to allow content authors to create and manage their content using a web-based content management system, allowing the process of content creation to be performed using Internet browsers operating on personal computers instead of proprietary content management systems associated with specific interactive television systems.

In accordance with this objective, a system for allowing the web-based creation and management of consumer-generated interactive television content comprises: (a) web-based content management system for the creation and management of consumer-generated content; (b) content screening system for the automatic search for objectionable text and images; (c) content feed system for the automatic transfer of consumer-generated content from the web-based content management system to the content conversion system; (d) content conversion system for the transformation of the consumer-generated content into formats compatible with the specific interactive

television system; (e) interactive television system for the transmission of the consumer-generated content to the digital set-top boxes using the digital cable television system and the display and interaction of this same content on the digital set-top box; and (f) usage reporting system for collecting, summarizing and reporting the usage data regarding the viewing of consumer-generated content from the interactive television system.

The web-based Content Management system provides the web-based services required for the creation and management of consumer-generated content. Significant systems within the web-based Content Management system consist of: (a) Account Management for the management of user accounts on the web-based content management system; (b) Classified Content Management for the creation and management of consumer-generated content related to the promotion of goods and services and organized as individual list items within categories; (c) Bulletin Board Content Management for the creation and management of consumer-generated content related to announcements and other items of general interest and organized by groups, organizations or topics; and (d) Transaction Processing for the processing of fees for use of the system.

The Account Management system controls the access by persons to the web-based Content Management system. The Account Management system identifies persons accessing the system for the first time and allows these persons to register and create an account by providing an account name, password, credit card information and other information required for the payment of fees. The Account Management system controls the access by registered users to their accounts and manages the privileges and security associated to all accounts. Persons may create accounts for the creation and management of Classified Content. Accounts capable of accessing the Bulletin Board Content Management system may be assigned by a system administrator in the Account Management system. Any account capable of accessing the Bulletin Board Management system is able to create and manage bulletin board content for specific, assigned bulletin boards.

The Classified Content Management system provides the users of the web-based Content Management system with content creation and content management tools for the creation and maintenance of consumer-generated content related to the promotion of goods and services. Classified content is displayed on the interactive television system as list items organized within categories; selection of a list item results in the display of an interactive television screen containing or providing access to the descriptive data, text, images, video and audio regarding the item. Authors of classified content will pay fees determined by the operator of the system for the distribution of the classified content to the interactive television system for display on the digital cable television system. Significant features of the Classified Content Management system consist of: (a) the ability to enter descriptive data and text regarding the item; (b) upload digital images of the item to the content management system; (c) upload digital video of the item to the content management system; (d) upload digital audio regarding the item to the content management system; (e) automated size and resolution processing of digital images uploaded to the system; (f) automated digital format conversion of digital video uploaded to the system; (g) automated digital format conversion of digital audio uploaded to the

system; (h) ability for users to select an interactive television screen design (template) from a catalog of available templates; (i) ability to view on a web browser the interactive television template containing the consumer-provided content; (j) ability to save classified content in persistent memory or storage for subsequent modification; (k) ability to mark classified content as completed and ready for submission to the interactive television system; (l) ability to specify the date and time when a classified content item is to become accessible by users of the interactive television system and the data and time when a classified content item is to be removed from display on the interactive television system; (m) ability to notify the user through email or other communication system that a specific content item is scheduled to be removed from the interactive television system; (n) ability to modify and resubmit previously created classified content for display on the interactive television system; (o) ability to access viewing data generated by the Reporting system regarding access and use of specific consumer-generated content by users of the interactive television system; and, (p) ability to calculate fees for classified content and submit payment of the fees in conjunction with the Transaction Processing system. As noted in (i) above, the Classified Content Management system allows the user to view the content they have composed using the templates. The templates are designed specifically for use on interactive television systems and the user is able to view on the web-interface their content as composed for presentation on television. As noted in (j) above, the Classified Content Management system allows the persistent storage of classified content; although the user is composing interactive television pages using a template system, the content is persistently stored as individual elements to simplify changes by the user and to allow the conversion of the content to different formats as required by different interactive television systems.

The Bulletin Board Content Management system provides the users of the web-based Content Management system with content creation and content management tools for the creation and maintenance of consumer-generated content related to announcements and other informational items of general interest. Bulletin Board content is displayed on the interactive television system as dedicated interactive television screens (bulletin boards), where approved groups, organizations or topics are each assigned a bulletin board for the display of their information. Bulletin Board content is displayed as list items organized within a bulletin board; selection of a list item results in the display of an interactive television screen containing or providing access to the descriptive data, text, images, video and audio regarding the item. An alternative implementation of a bulletin board will display the content as scrolling text, where the user scrolls through the text, or the text scrolls automatically. Bulletin Boards accounts will pay fees determined by the operator of the system for the distribution of the bulletin board content on the interactive television system for display on the digital cable television system. Significant features of the Bulletin Board Content Management system consist of: (a) the ability to enter descriptive data and text regarding the item; (b) upload digital images to the content management; (c) upload digital video to the content management system; (d) upload digital audio to the content management system; (e) automated size and resolution processing of digital images uploaded to the system; (f) automated digital format conversion of digital video uploaded to the system; (g) automated digital format conversion of digital audio uploaded to the system; (h) ability for users to select an

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interactive television screen design (template) from a catalog of available templates; (i) ability to view on a web browser the interactive television template containing the consumer-provided bulletin board content; (j) ability to save bulletin board content in persistent memory or storage for subsequent modification; (k) ability to mark bulletin board content as completed and ready for submission to the interactive television system; (l) ability to specify the date and time when specific bulletin board content is to become accessible by users of the interactive television system and the data and time when specific bulletin board content is to be removed from display on the interactive television system; (m) ability to notify the user through email or other communication system that specific bulletin board content is scheduled to be removed from the interactive television system; (n) ability to modify and resubmit previously created bulletin board content for display on the interactive television system; (o) ability to access viewing data generated by the Reporting system regarding access and use of specific bulletin board content by users of the interactive television system; and (p) ability to calculate fees for bulletin board content and submit payment of the fees in conjunction with the Transaction Processing system.

The Transaction Processing system allows users of the Classified Content Management system and Bulletin Board Content Management system to determine and pay for any fees resulting from their use of these systems. The Transaction Processing system will allow users to pay for fees using credit cards or other supported payment methods. Significant features of the Transaction Processing system consist of: (a) ability to maintain business rules for use by the Transaction system to determine fees based on user type and content type; (b) ability to maintain business rules for one or more payment methods for use by the Transaction Processing system in handling the settlement of fees; (c) ability to maintain business rules for user account and payment settlement conditions such as delinquency and lack-of-credit for use by the Transaction Processing system in determining user account privileges and content status; and, (d) ability to process payment of fees in real-time for payment methods that support real-time settlement.

The Content Screening system performs automated screening of text, image, video and audio content in order to identify objectionable or illegal content. Significant features of the Content Screening system consist of: (a) ability to maintain a library of objectionable or illegal words and phrases for use in the screening of text; (b) ability to perform automated analysis of user content text using the text library as an input and alert system administration personnel to the use of objectionable or illegal content and the use of unknown and suspect words or phrases; (c) ability to maintain a library of objectionable or illegal image elements for use in the screening of images; (d) ability to perform automated image recognition analysis against user content images using the library of image elements as an input and alert system administration personnel to the use of objectionable or illegal content; (e) ability to maintain a library of objectionable or illegal image elements for use in the screening of video; (f) ability to perform automated image recognition analysis against user content video using the library of image elements as an input and alert system administration personnel to the use of objectionable or illegal content; (g) ability to maintain a library of objectionable or illegal audio elements for use in the screening of audio; (h) ability to perform automated audio analysis against user

content audio using the library of audio elements as an input and alert system administration personnel to the use of objectionable or illegal content; and (i) ability to save screened content in persistent memory or storage for subsequent processing. Content Screening may be performed within the Content Management system during the user process of submitting and creating consumer-generated content or may be performed as a process subsequent to the creation of content by the user.

The Content Feed system provides for the transfer of user content from the Content Screening system to the Content Conversion system. Significant features of the Content Feed system consist of: (a) ability to select user content for submission to the Content Conversion system through the testing of appropriate parameters including the date and time information contained in the user content; (b) ability to appropriately package the elements of the user content to permit the efficient transfer of these content elements to the Content Conversion system through an Application Program Interface or other interface; (c) ability to create, maintain and execute a schedule for when the Content Feed system will execute on an automatic basis for the automatic transfer of consumer-generated content to the Content Conversion system; and, (d) ability to execute the functions of the Content Feed system on a manual basis in the presence or absence of a schedule. The Content Feed system may be able to package and distribute content to single or multiple Content Conversion systems.

The Content Conversion system provides for the conversion of consumer-generated content from the content elements managed and stored by the Content Management system into formats compatible for distribution and display on the Interactive Television system. In particular, the Content Conversion system receives consumer-generated content elements that were viewable on a web-based system and converts those elements into formats compatible with display on television through an Interactive Television system. Significant features of the Content Conversion system consist of: (a) ability to receive and disassemble content packages delivered by the Content Feed system through an Application Program Interface or other interface; (b) ability to process the elements of consumer-generated content into data, text, graphic, video and audio elements that are compatible with the Interactive Television system and maintain the content presentation created by the user on the web-based Content Management system; (c) ability to save reformatted content in persistent memory or storage for subsequent distribution and use by the Interactive Television system; and, (d) ability to inform the Interactive Television system that consumer-generated content is available for distribution and use by the Interactive Television system. The Content Conversion system may be a component system of the Interactive Television system or it may be implemented as a wholly separate system that connects to the Interactive Television system through an Application Program Interface or other interface. When implemented as a system that is separate from the Interactive Television system, it is possible to support multiple, different Interactive Television systems by either (a) incorporating multiple formatting requirements into a single instance of the Content Conversion system or (b) creating multiple Content Conversion systems, each supporting the formatting requirements for a specific Interactive Television system. Either implementation allows for a single instance of consumer-generated content that is created and maintained using the web-based

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