

**SYSTEM AND METHOD FOR TAGGING, SEARCHING FOR, AND
PRESENTING ITEMS CONTAINED WITHIN VIDEO MEDIA ASSETS**

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SPECIFICATION

10 TECHNICAL FIELD

This invention generally relates to a computerized system and method for tagging, searching for and presenting content contained in video media files, and more particularly, to a tagging method in which products or items of interest appearing in a video are identified, and a search/display method in which the products or items are found in a search for display to and purchase by the user.

BACKGROUND OF INVENTION

20 Many systems have been proposed for tagging video media files so that they can be searched and retrieved from a video media database. For example, U.S. Patent 5,600,775 issued on February 4, 1997 to King, et al., discloses a method and apparatus for annotating full motion video and other indexed data structures. U.S. Patent 6,956,593 issued on October 18, 2005 to Gupta, et al., discloses a user interface for creating, viewing and temporally positioning annotations for media content. U.S. Patent 6,546,405 issued on April 8, 2003 to Gupta, et al., discloses methods for annotating time-based multimedia content. U.S. Patent 6,487,564 issued on November 26, 2002 to Asai, et al., discloses a multimedia-playing apparatus utilizing synchronization of scenario-defined processing time points with playing of finite-time monomedia item. U.S. Patent 6,311,189 issued on October 30, 2001 to deVries, et al., discloses a technique for matching a query to a portion of media. U.S. Patent 6,332,144

issued on December 18, 2001 to deVries, et al., discloses techniques for annotating media including video.

While the prior proposals provide various ways to tag or annotate frames
5 or segments of video with keywords or various types of content descriptors, none of them provides a method for tagging video files to enable identification of products or other items of interest appearing in the video frame or segment being tagged, and then enable the products or items to be readily searched for and displayed in advertising to and/or purchase by the user.

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SUMMARY OF INVENTION

In accordance with a first aspect of the present invention, a method for
15 tagging a time-dependent visual media asset such as a movie, video, or other visual media file for search and retrieval comprises:

(a) playing back the visual media asset in a time-dependent domain in which a series of time codes identifies corresponding time positions of respective image frames of the visual media asset;

20 (b) identifying a frame or set of frames of the visual media asset to be tagged with a corresponding time code for at least a starting time position thereof;

(c) capturing an image-still of the identified frame or one of the set of frames for visual depiction of content contained in the frame or set of frames to be tagged;

25 (d) storing the captured image-still at an address location of a storage repository, and returning an address code for the storage address location;

(e) annotating the content depicted in the captured image-still with one or more keywords representing one or more items or characteristics of items therein; and

(f) storing a tag for the frame or frames as digital tag information for the visual media asset, wherein said tag includes the time code for at least the starting time position thereof, an address code for the storage address location of the captured image-still of the frame or set of frames, and one or more keywords representing one or more items or characteristics of items of content in the captured image-still.

In accordance with another aspect of the present invention, a method for computerized searching for items of interest in time-dependent visual media assets, such as a movie, video, or other visual media file, which are tagged with digital tag information comprises:

(a) storing tags with digital tag information for each respective frame or set of frames of the visual media assets tagged as being of interest for searching, wherein each tag includes the time code for at least a starting time position thereof, an address code for a storage address location of a captured image-still of the frame or set of frames, and one or more keywords representing one or more items or characteristics of items of content in the captured image-still;

(b) entering a search request to search the stored digital tag information for the tagged visual media assets using one or more keywords for items of interest in the visual media assets to be searched;

(c) displaying a search result listing entries for those tags found containing keyword(s) for items in the visual media assets corresponding to keyword(s) of the search request, and providing means for viewing the captured image-stills for the respective tags listed as entries of the displayed search result.

A further aspect of the invention is a method for conducting an advertising service on a network connected to one of more users with respect to product items of

interest contained in time-dependent visual media assets, such as a movie, video, or other visual media file, which are tagged with digital tag information comprising:

- (a) storing tags with digital tag information in an associated data repository for each respective frame or set of frames of the visual media assets tagged as
5 containing product items of interest for searching, wherein each tag includes the time code for at least a starting time position thereof, an address code for a storage address location of a captured image-still of the frame or set of frames, and one or more keywords representing one or more product items or characteristics of product items of content in the captured image-still;
- 10 (b) enabling product advertisers and/or vendors to link advertisements and other information for product items of interest contained in the tagged visual media assets;
- (c) receiving a search request to search the stored digital tag information for the tagged visual media assets using one or more keywords for product items of
15 interest in the visual media assets to be searched; and
- (d) displaying a search result listing entries for those tags found containing keyword(s) for product items in the visual media assets corresponding to keyword(s) of the search request, including displaying thumbnail photos generated from the captured image-stills and links to advertisements other information for product items of interest
20 contained in the tagged visual media assets listed in the search results.

When tagging a video media asset in playback, a video frame or segment containing one or more items of interest is identified, and a time code for the starting frame is retained. The tagged video frame or segment of the video media asset can
25 thereafter be readily found and played back from the time code of the starting frame. Also, an image-still of a representative frame of the video is captured and stored at a storage address location of an associated database, and the storage address location code is retained with the digital tag information. Further, one or more keywords representing the item(s) of interest or their characteristic(s) are added to the tag, so that

the tag entry for the item(s) can be found by simple keyword searching. In this manner, the digital tag information can be kept to a small size for quick and easy searching, and furthermore can be maintained as an all-text file, which avoids the problem of having to maintain the digital tag information in mixed file types and also speeds the transmission
5 of the digital tag information to a user device, particularly a mobile user device having a small memory capacity and a thin browser client.

When a search request is entered with keywords for items of interest in the visual media assets, the search result lists entries from the tags containing those
10 keywords and can also display the captured image-stills (or thumbnail photos thereof) as a visual depiction of the search results. In a preferred embodiment, the search method is configured as a web service provided from a server on a network connected to one or more users, and having a data repository for storage of the digital tag
15 information for tagged visual media assets. The web service can include an advertising service for advertisers and vendors of product items of interest in the content of the visual media assets. The advertising service enables the advertisers and vendors to display their advertisements and other information in conjunction with search results returned in response to search requests from users on the network. The advertisers
20 and vendors can bid for the rights to display their advertisements and other information in conjunction with search results returned in response to search requests from users on the network.

The web service can include ancillary services such as a meta tag service for enabling third party entities to produce digital tag information for the visual media
25 assets for storage in the server's data repository. It can also include an image generator service for generating a captured image-still for the digital tag information of a frame or set of frames of a visual media asset in response to a tag request of a user. It can also provide a search service for playback of clips from media assets to viewers on a video viewing website or on a networked playback device.

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