

The visual search

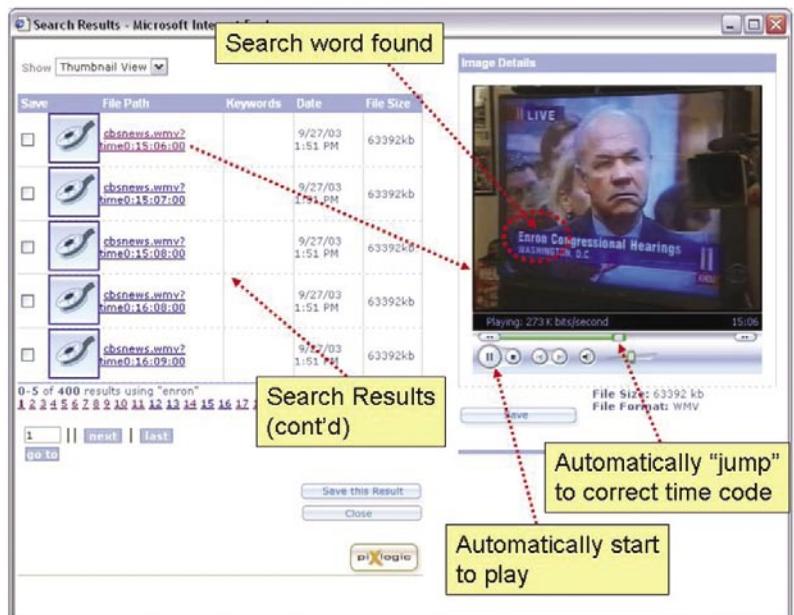
Terabytes of storage in any modern CCTV system would not help much in finding a past event unless the time it happened is known, or, unless there is some kind of smart search available on the system. Most of CCTV DVR manufacturers that implement smart search function would usually do this by drawing a rectangle in the video image area which would then be used to search for objects or activity within that rectangle. This is helpful, but it seems there are smarter ways.

A company called piXlogic has gone one step further - their piXserve product can "see" the content and automatically catalogue everything of interest, it can store a description of this content in an XML format so that it can be searched later. The video formats it recognises are one of the 70 standard formats, including JPEG, TIFF, AVI, MPEG-1, MPEG-2, and others.

piXserve™ is a client/server application that automatically creates a searchable index of the visual contents of media files. piXserve "sees" the contents of digital images and videos, and stores a description of this content in an XML database. Through a web browser interface users can search and retrieve images and video segments that contain visual objects that are the same or similar to those in their query pictures. Through the piXserve UI users can also select specific items in their query image in order to search just for those.

piXserve can also read text that may appear in the field of view of the image. Users can type a text string and retrieve images/video sequences where such text appears in the image (for example, text on the screen of a news broadcast, or text on a street sign). piXserve can see and recognize text in complex colour images and videos with an unmatched level of accuracy in the industry.

piXserve can also facilitate the process of cataloging digital assets. For example, it can suggest keywords that could pertain to a picture based on the degree of similarity between the contents of that image and those previously indexed by piXserve and for which catalog information is already available. piXserve will help you reduce significantly the cost and time you spend searching and cataloging photos and videos.



As an example of what it can be done, the two screenshots on the next page illustrate this.

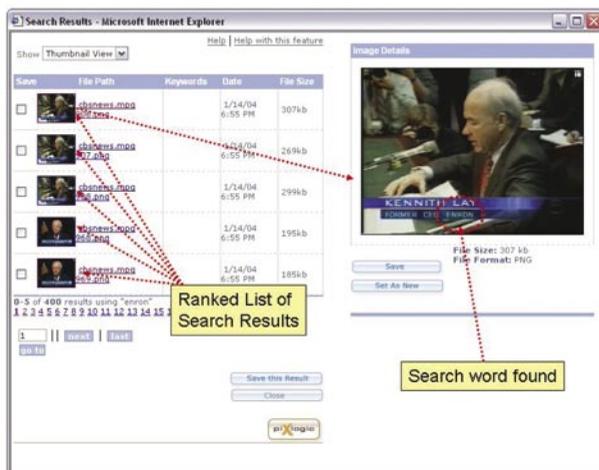
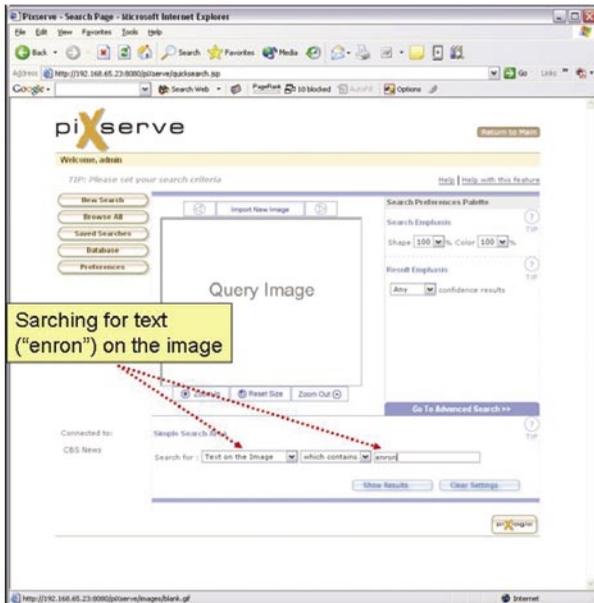
For results that were found in video files, piXserve displays thumbnails that point to the location (timecode) in the file where the result occurs. The results contain a mixture of still photos and video segments: When the user clicks on one of the thumbnails, the video starts to play on the right hand side of the results page, starting from the point where the desired result appears.

With piXserve it is very easy to compile and save a list of the video "snippets" that contain what the user is interested in.

intelligence



The Visual Search Company



The following are key features of piXserve:

• Automatic Indexing

Point piXserve to a repository of images and video and automatically index their contents. No manual intervention or data entry required. piXserve “sees” what is in the image and automatically creates records that describe the shape, the position, the size, the colour, etc. of the discernable objects in the image. Whatever is in the image is automatically indexed.

• Powerful Search

Through a web browser interface, users login to piXserve, connect to available databases and formulate search queries to retrieve images and specific segments of video files:

1. Use an arbitrary image from user’s desktop to search for images/video segments that contain the same or similar items

2. Use the mouse to point to an area of the query image to indicate which specific item(s) should be searched for.

3. Browse the contents of existing databases, and use any of those images to formulate a visual search query.

4. Type a text string to search pictures/videos where that string appears in the field of view

5. Perform not only simple but also complex searches (Example: type a text string to retrieve broadcast news segments where that word is visible on the screen, and then use a picture to search those results and retrieve segments where both the text string and the desired visual object(s) are in the same frame.

6. Search by file name (any text substring that appears in the full path of the image/video file).

7. Search by keyword or other external metadata, if available.

8. Suggest keywords to describe the contents of a picture

• Comprehensive Search Environment

Users can prune and save search results for future reference. Search results can be annotated and, as they are stored in XML format, can be easily imported in typical office productivity applications.

• Scalable Architecture

piXserve is a multi-threaded, scalable application that uses the Apache-Tomcat Application Server to provide a robust, well understood, and well tested environment that is suitable for the most demanding implementations.

piXlogic offers SDK kits for third party products, which might be used by the CCTV DVR industry. [•]

For more info visit: www.piXlogic.com.