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Automatic Channel Switch System To Escape Commercial Breaks

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Abstract: *A narrative approach for automatic annotation and content-based video rescue by making use of the features extracted during the process of detecting commercial boundaries in a recorded Television (TV) program. In this approach, commercial boundaries are mainly spotted using video frames and the detected boundaries are validated and enhanced using splash screen of a program in the video domain. Detected spatter screen of a program at the viable boundaries is used for automatic annotation of recorded video which helps in fast content-based video retrieval. The performance and validity of our approach are demonstrated using the videos recorded from different Indian Television broadcasts.*

Key Words: Automatic Switching, Commercial Breaks, Frame Extraction, Block-based background subtraction image, Break Detection.

1.INTRODUCTION

One of the most effective, pervasive, and popular means of promoting products or services, TV commercials have become an inescapable part of modern life, significantly influencing our work habits and other aspects of life. In essence, a commercial can be interpreted as a special TV program which attempts to communicate up-to-date product information to a tremendous number of the consumer. The new motion detection method we proposed uses a technique like BSM. That is, it uses the subtraction between the current frame image and the background image. The background image used at this time is not a background image prepared in advance, it creates the background screen in real-time when video shooting.

The main purpose of this module is to convert video into images so that they can be compared with ads. After starting the channel Ad detection engine starts followed by frame retrieval, color conversion, frame comparison. After detection of the commercial break the channel automatically switches to next channel. This application is used to switch the channel when a commercial break occurs on the channel. It also helps to Provides relief from the commercial breaks. The purpose of eliminating commercials from their recordings. This group is viewers who want to watch their recorded television shows without the annoyance of commercials.

2.RELATED WORK

[1] Recognition-based systems are vulnerable to problems in an identical segment from a broadcast to the same one in the database because of the variations caused by irregularities in the broadcast. Color levels of the same commercial can vary from station to station. Also, commercials are sometimes edited to shorten their length, which makes them somewhat more difficult to match. Thus, any recognition based system must be flexible enough in its search algorithm to allow for such variations. There is some evidence that, because of broadcasting variations, the color histogram techniques that are prevalent in video database indexing may not be ideally suited for recognizing commercials. The recognition based algorithm. uses a database matching scheme that can match sequences within video segments. This capability makes it probable to distinguish edited commercials. This algorithm explores the database in two steps. The algorithm uses an index of color coherence vectors (CCV).These vectors are like color histograms but give some spatial information by indicating how many pixels are contained in monochromatic regions in the image.

[2] In this paper, the research is on CBD and CBS by the means of collaborative exploitation of visual-audio-textual characteristics embedded in commercials. Rather than utilizing exclusively visual-audio characteristics. Additionally, Tri-Ada Boost, an interactive ensemble learning manner, is proposed to form a consolidated semantic fusion across visual, audio, and textual characteristics. In order to fragment a detected commercial block into multiple individual commercials, additional informative descriptors including textual characteristics are introduced to boost the robustness in the detection of frame marked with product information (FMPI).Together with the characteristics of audio spectral variation pointer and quiet location, FMPI can provide a kind of balancing representation architecture to model the similarity of intra-commercial and the dissimilarity of winter commercial.

[3]The proposed method is commercial detection algorithm based on the combination of visual and audio features. The sensation of this algorithm relies on shot detection as well as logo and supply ticker detection, and it also involves video decoding, image, and short time audio feature extraction, online learning, and classification. The novelty of this project is that by using a bottom-to-front scheme, we are able to separate all commercial and noncommercial clips even if

there is no distinct separation indicator between two adjacent blocks, and thus improve the detection effectiveness.

3.PROPOSED SYSTEM

The main purpose of this module is to convert video into images so that they can be compared with ads. After starting the channel Ad detection engine starts followed by frame retrieval, color conversion, frame comparison. After detection of the commercial break the channel automatically switches to next channel. Channels broadcasted are stored as videos and these videos are converted to frames to check start and end of the commercial break. The main purpose of this module is to convert video into images so that they can be compared with ads. Start and end frames of commercial Ads are stored in the database. Each Frame of the video is compared to start and end frame of the commercial ad. If it matches the start of the ad then it is marked as break start and the channel is switched to next. Channel is switched to next one if the current channel has a commercial break if the second channel also has a break it is switched to next one and so forth till it reaches selected 4 channels. The video is tagged for a commercial break and normal serials. Ads Images are compared to channel video frames and differences are calculated to know start and end of the video.

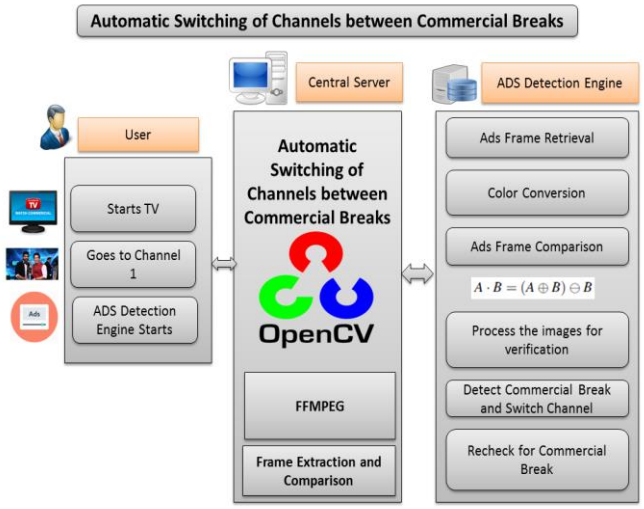


Fig.1 Architecture diagram Automatic Switching of Channels between Commercial Breaks.

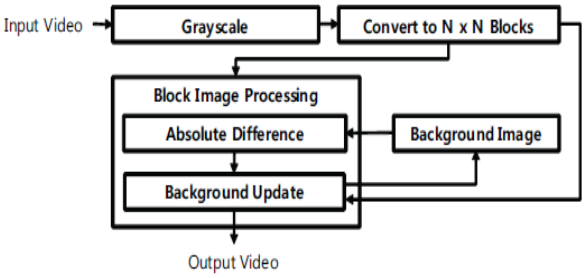
4. PROPOSED METHOD

Algorithm Used:

1. Block based background subtraction image:

The innovative motion detection method we proposed uses a method like BSM. That is, it uses the subtraction between the current frame image and the background image. The background image used at this time is not a background image prepared in advance. However, it creates the background screen in real-time when video shooting. The motion detection method proposed in this study can divide into three steps:

- Blocking the input image and preprocessing the image by block zoning.
- Obtaining the difference image between the background image and block zoning.
- Updating the background image.



In Figure, the initial input image is a TV input method proposed in the NTSC standard. This is the YIQ method. It is converted to grayscale using following formula. Herein, F represents the frame image, and r, g, b indicates Red, Green, Blue value, respectively, to the pixel corresponding to the position of x and y.

$$G(x,y) = 0.299 \times F_r(x,y) + 0.587 \times F_g(x,y) + 0.114 \times F_b(x,y)$$

The images obtained after converting to grayscale are segmented into the square block with the entire number of pixels, N. afterward, the complete difference image of the block is separated in the obverse using formula.

$$D_n(x,y) = \begin{cases} 1, & |W_n(x,y) - B_n(x,y)| > t_T \\ 0, & otherwise \end{cases}$$

$(x, y=0,1,2,\ldots\ldots,N\text{-}1 \qquad N$: window block size)

In above formula, n represents the number of blocks, W the block corresponding to the current image, B the block corresponding to the background image, and D the value of the absolute difference between W and B.

5.APPLICATION

1] commercial tracker :They are design to automatically audit the broadcast of commercials so advertisers can verify fulfillment of their air play contract.

2] Commercial Killers; they try to remove commercials from the recordings so that viewers do not have to watch them on play back.

3] Media: YouTube like applications.

6.ADVANTAGES AND DISADVANTAGES

Advantages-

1]Provide relief from the commercial breaks.

2]The whole system can be implemented in very low cost.

Disadvantages-

1]System needs processing power.

2]It is problematic for advertiser because after break occurs this system automatically change the channel.

7.FUTURE SCOPE

1]We are implementing this system for TV programs only but in future the system will be implement for online programs.

2]We are controlling channel switching through remote but in future the channel switching will be controlling by virtually.

8.EXPECTED RESULT

To examine the relevant experimentation, we have recorded videos from different TV stations. Videos are captured at 25 frames per second with 288*352 resolution and the audio was extracted from these videos and stored in uncompressed wav format at 44,100 kHz with 16 bits per sample for further processing. Commercial details for the recorded data are provided in Table 1. Videos with same class label indicate that they are different episodes of same TV program which is helpful during retrieval process and .Commercial Break Detection .

Video	Video length (min:s)	Commercial break duration (min:s)	Class label
1	17:30	i.12:25–17:12	1
2	21:00	i. 08:10–11:45 ii. 20:10–21:00	1
3	07:09	i. 00:40–4:12	1
4	23:19 23:19	i. 04:52–52 ii. 17:20–22:28	2
5	21:17	i. 03:0–06:45 ii. 16:15–20:582	2
6	18:54	i. 06:42–13:38	3
7	18:26	i. 02:08–05:25 ii. 11:30–15:20	4
8		i. 03:00–06:35 ii. 14:20–17:30	5

9. CONCLUSIONS

We develop a system, In which we give a solution for commercial block detection. commercial boundaries are primarily detected using video frames and the detected boundaries are validated and enhanced using splash display of a program in the video domain. We use a technique like BSM. That is, it uses the subtraction between the current frame image and the background image. Ads Images are compared to channel video frames and differences are calculated to know start and end of the video.

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