

Videos in Photo Books and Other Tangible Products - New for 2015

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Abstract

This paper describes in addition to the paper presented last year how videos can be implemented into printed photo books and greeting cards. We will show that –surprisingly or not– pictures from videos are similarly used such as classical images to tell compelling stories.

Videos can be taken with nearly every camera, digital point and shoot cameras, DSLRs as well as smartphones and more and more with so-called action cameras mounted on sports devices. The implementation of videos while generating QR codes and relevant pictures out of the video stream via a software implementation was contents in last years' paper. This year we present first data about what contents is displayed and how the users represent their videos in printed products, e.g. CEWE PHOTOBOOKS and greeting cards. We report the share of the different video formats used.

Keywords: Photo Books, QR code, story telling, video formats, H264, video in printed product, greeting cards.

1 Introduction

Using QR codes to represent videos in printed products is one possibility to link the classical printed media with online media. Online media means that users scan the QR code with their portable device and view it also on that device. In this paper we present first data about what kind of contents is displayed and how the users represent their videos in printed products, e.g. CEWE PHOTOBOOKS. We report the share of the different video formats used, the number of images extracted out of the video in order to represent the video, the positions in the book and different design strategies compared to regular books.

Videos taken by DSCs and smartphones are taken by chance and are in average blow one minute length. Particularly these videos cannot be combined with the current state-of-the-art story telling: printed photo books. We proposed implementing user-defined pictures (frames) out of the video implemented in the photo book to reach an even more compelling story as well as implementing the whole video via automatically generated QR codes printed in the photo book in [1,2].

QR codes (for Quick Response), a decades-old technology that was first used in the supply chain, are now expanding aggressively into the marketing space. QR codes were first developed in Japan by the Denso-Wave Corporation for use in the automotive industry, and remained a b2b tool, not unlike RFID [3]. Figure 1 shows the user interface and how a selection of frames (user defined or automatically extracted from the video) and the associated QR code are visualized during the design process.

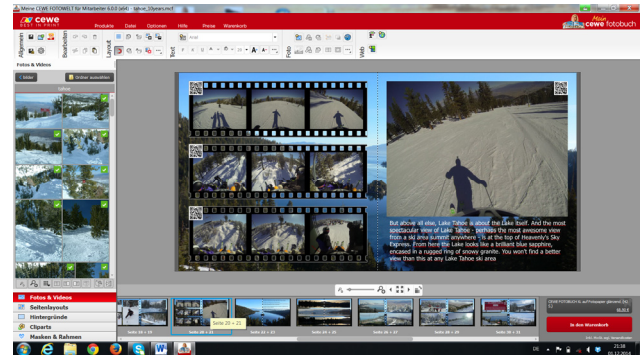


Figure 1: Frames of the video displayed in the editor

The screenshot in figure 1 shows only pictures that are frames of the HD videos taken. On the left page three frames are selected manually from every video, on the right page one frame was selected automatically by the system. On both pages the size and the positions were selected manually. The resolution taken by HD video cameras and action cameras are good enough for placing a frame on a 12x12" page. The newest 4K video technology will drive the usage of frames for implementation in printed products.

2 Length and video formats

We analyzed the length of the videos provided to our platform. We restrict the maximum length to 5 minutes due to upload issues. The file size of a video is most of the times equivalent to the size of all images of the photobook order and therefore doubles the upload time. In the case of greeting cards the file size is the major data and the upload times are therefore no "surprise" for the consumer. Figure 2 illustrates the distribution of the lengths of the analyzed videos. The average length is 1.02 minutes.

That file length encouraged us also to implement the video feature for greeting cards to add to the images placed on the card a second possibility to transfer very personal content, e.g. a spoken birthday greeting to the recipient.

The resolution accepted is restricted to HD (1920 x 1080 pixels, which equals 2.07 megapixels). The resulting file sizes are illustrated as not equally spaced categories in figure 3. Over 6000 videos have been analyzed and give a representative overview. The average video size is just below 100 MB.

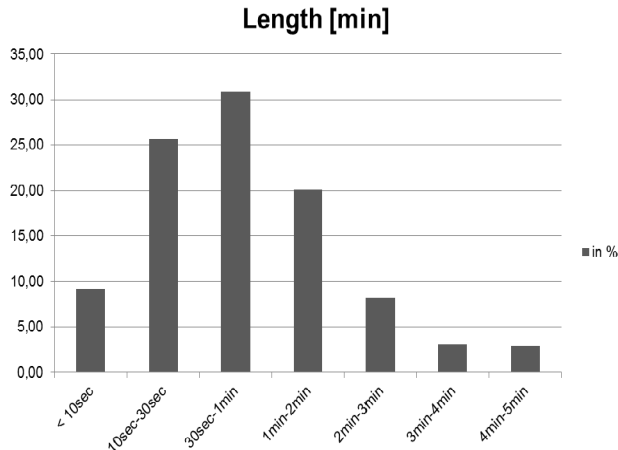


Figure 2: Length of videos implemented in tangible products

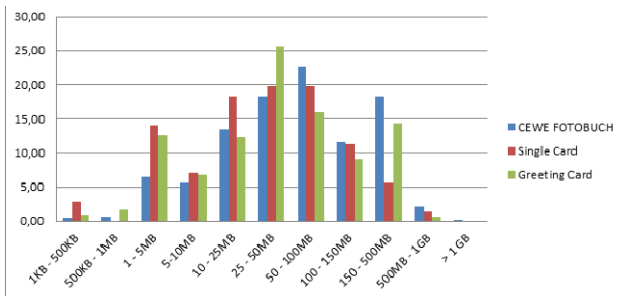


Figure 3: File sizes of videos in photo books, folded and single sided greeting cards

There is no real tendency about differences in file sizes for the three offered products.

Half of the CEWE PHOTOBOOKS with videos contain one or two videos, 95% contain one to ten videos. While analyzing the products for the evaluations presented we found books that contain only frames extracted by videos, no single DSC or smartphone image was included. The maximum number of videos found was 51 [4]!

3 Videos and Frames

As already reported in last years' paper, not every video is linked with frames from a video and a QR code. But 75% of the users implement both in their product, the code and frame(s) from the video. From all implementing a QR code, 47% do not implement any frame from the video, 50% show one frame (that is the default setting) and only 3% are selecting two to six frames out of the video as shown in figure 1.

3.1 Video formats uploaded

There are a lot of different video formats generated by different devices (smartphones, tablets and DSCs) in the market. The original video formats are all transcoded while being broadcasted to the common H.264/AVC codec, which can be displayed on nearly all devices. For further details to that codec and the legal implications please refer to, e.g. [5]. This year we

add to the data of photo books also the share of the video formats used in single cards and greeting cards.

We allow the implementation of most of the common video formats up to a length of 5 minutes. The maximum resolution accepted is HD. The original formats are stored online. Table 1 shows the share of the video formats uploaded by our users.

Table 1: Video formats used in CEWE PHOTOBOOKS and cards

Video Type	photo book	single card	greeting card
video/mp4	20,27	35,21	32,41
application/octet-stream	10,47	2,82	3,94
video/quicktime	43,07	30,99	33,8
video/mp2t	0,01		
video/x-ms-asf	2,51	7,04	7,87
image/png	0,05		
video/3gpp	2,86	2,82	9,95
video/mpeg	4	8,45	7,41
video/x-msvideo	16,76	12,68	4,63

Quicktime is the most favorite format in photo books, mp4 for both types of cards. That could lead to the interpretation, that for story telling in CEWE PHOTOBOOKS videos taken by change are added for story telling, for greeting cards the mp4 format can be taken by intent, e.g. to give a spoken message to the recipient of the card. Looking at the content at the products that is not the case, the content of the videos in all three printed products is similar. The only difference seems to be the engagement of Apple users in designing compelling photo book stories also using videos.

4 Conclusions

Preserving memories combined with storytelling using photo books are substituting more and more classical 4*6 prints and silver halide posters [6]. The proposed implementation of videos in photo books and cards makes the story telling even more complete because during taking a video with a DSC no image to be added to the story telling would be available. Cards seem to motivate the users to take videos with the intent to send a message, in printed books shorts videos are added complete printed story telling with interesting videos.

Implementing scenes from personal videos in printed photo books allows therefore for compelling and complete story telling. This approach offers a symbiosis or convergence of images and videos in one tangible product.

The usage of frames from videos is similar to the usage of classical still images, the only difference we see is the distribution of the videos in the books. The videos integrated by the users tend to be more in the second half of the printed book than being equally distributed over all pages [4].

The most recent QR code feature we've implemented was on greeting cards. We cannot find any differences besides the distribution between quicktime and mp4 in the usage of small videos in the photo book and the greeting cards. There might be two reasons:

- The people take videos without thinking about the further usage and simply take the opportunity to implement when they find the product.
- Storytelling is also the intent when printing greeting cards, more than sending a personal message.

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Author Biography

Reiner Fageth received his diploma in Electronic Engineering from the University of Applied Science in Heilbronn, Germany (1990) and his Ph.D. in 1994 from the University of Northumbria at Newcastle, UK in the field of industrial image processing. Up to 1998 he worked with the Steinbeis Transferzentrum BMS on designing camera inspection systems for process automation mainly in the injection molding and bottling industry. He joined CEWE in 1998 and is since 2007 serving as CTO and Head of R&D.