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Long Distance Video Data Transmission Interface for Image Stitching System

Sang-Bong Byun[1], Young-Ki Kim[2], Young-Hyung Kim[3], and Yong-Hwan Lee[4,*]

[1,2]Total Solution, Bongsan-ri, Sandong-myeon, Gumi, Gyeongsangbukdo, Korea [3,4]Kumoh National Institute of Technology, Yangho-dong, Gumi, Gyeongsangbukdo, Korea
[1]sb5816@kumoh.ac.kr, [2]leon@i-totalsolution.com, [3]kic126@kumoh.ac.kr, [4]yhlee@kumoh.ac.kr(*Corresponding author)

Abstract. The copper wire that is widely used for transmitting almost all kind of electrical signals is not suitable for long-distance transmission of high-definition video. Therefore, optical interface to correctly transmit high-definition video data through optical fiber is needed instead. Image stitching system makes a panoramic image out of multiple images. In order to transmit high-definition video generated from the image stitching system, the long-distance transmission interface should be possible. In this paper, we study long distance video data transmission for image stitching system

Keywords: Image stitching, Optical, Fiber-Optic cable, panorama

1 Introduction

To obtain a high resolution panoramic image, it is possible to use the image stitching techniques. The image stitching combines multiple photographic images with overlapping fields of view to produce a segmented panorama or high-resolution image. Fiber optics communication links provide a high level of immunity from electrical noise.

2 Image Stitching System

Image stitching[1][2] is the process of combining multiple photographic images with overlapping fields of view to produce a segmented panorama or high-resolution image. Commonly performed through the use of computer software and dedicated processor, most approaches to image stitching require nearly exact overlaps between images and identical exposures to produce seamless results. Some digital cameras can stitch their photos internally. An example of image stitching system is shown in Figure 1

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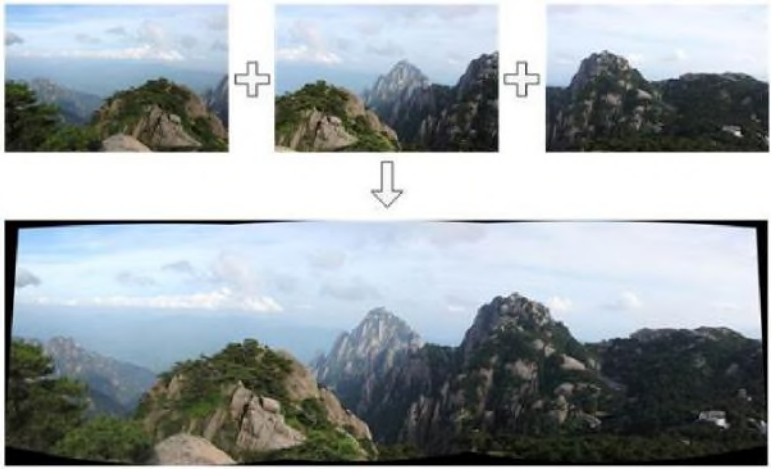

Fig. 1. Example of image stitching system

3 Optical Interface

Fiber optics communication links provide a high level of immunity from electrical noise. Fiber optic circuits also provide a high level of security and are resistant to the effects of moisture. HDMI Fiber-Optic Interface board for long-distance multimedia data transmission is shown in Figure 2.

Fig. 2. HDMI - Fiber-Optic Interface board

4 Optical Interface for Image Stitching System

By utilizing the image stitching techniques, it is possible to obtain a panoramic image of high resolution. Then, we can use the optical interface to transmit high-resolution

images in long-distance. Therefore, it is possible to create a panoramic image by stitching images and transmit the stitched images by the long-distance transmission via the optical interface. With the use of a high resolution panoramic image, analysis using computer vision or monitoring various activities is possible. An example of image stitching system is shown in Figure 3.

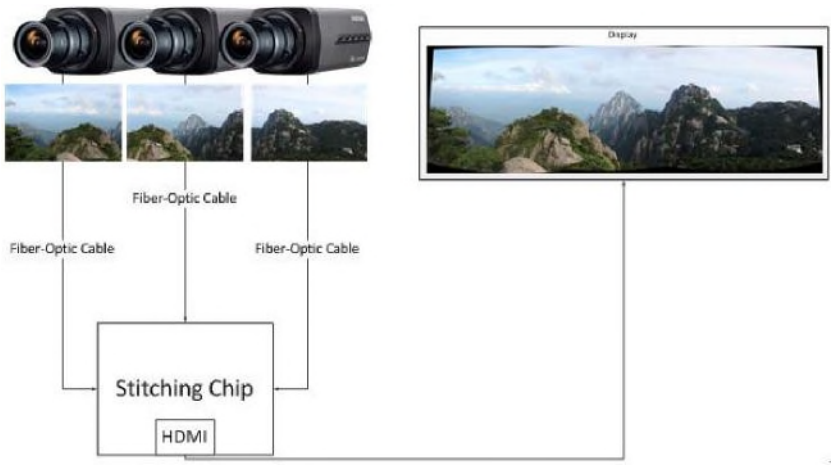

Fig. 3. Example of image stitching system

5 Conclusion

It is possible to use the image stitching techniques, to obtain a high resolution panoramic image. Using a high resolution panoramic image, various applications are possible. Because transferring multiple high-resolution images is difficult, we use the optical interface which can transmit data without loss of high-resolution images.

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