Automatic Conversion of 2D Image into 3D Image

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Abstract: **2D-to-3D conversion adds the binocular disparity depth cue to digital images perceived by the brain, thus, if done properly, greatly improving the immersive effect while viewing convert image in comparison to 2D image. However, in order to be successful, the conversion should be done with sufficient accuracy and correctness: the quality of the original 2D images should not deteriorate, and the introduced disparity cue should not contradict to other cues used by the brain for depth perception. If done properly and thoroughly, the conversion produces image of similar quality to "native" which is shot in stereo image and accurately adjusted and aligned in post-production.**

Keywords: **2D image, 3D image, Binocular disparity depth cue, Immersive effect, Perspective filtering, Stereographic image, Stereoscopic camera.**

I.   INTRODUCTION

3D technology is considered as the next revolution of technology. '3D' (three dimensional) here means 'stereographic', which provides viewers with feeling of immersion. The promotion of 3D depends not only on technological advances in 3D displays, but also on availability of large amount of 3D content. However, it's both costly and time-consuming to make 3D content of high quality directly with stereoscopic cameras, so the shortage of 3D content becomes one of severe bottlenecks for 3D industry. Converting 2D images or videos to 3D is one way to alleviate the problem in the early stage of 3D development, because it not only can create 3D content with lower cost and less time, but also makes full use of large amount of existing 2D materials.

II.   PROPOSED SYSTEM

A. Purpose:

We are proposing a way to develop such a system which will give the 3D image from single 2D input image.

B. Scope:

- In the scope of this text, the main characteristic of a 3D image is that it captures the image, offering to the user the possibility to change the point of view during the exhibition, beyond supplying the three-dimensional model of visualized objects.

- Need 2 two images.

- One of the image must have filtering with red and green, blue colour i.e. image1.

- And other image should have filtering with green; blue and red i.e. image 2.

- Merging of two images will get 3D image.

C. Proposed System Design:

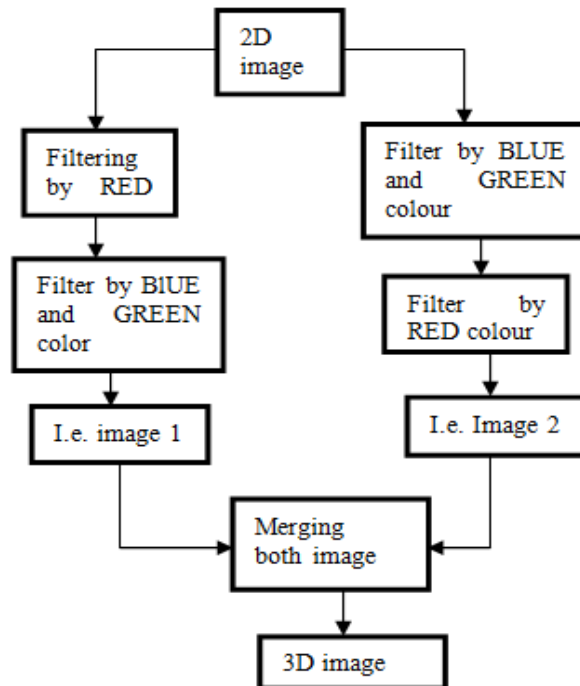The following fig.1 shows the design flow of the proposed system.

Fig.1. Flow of algorithm

D. System Modules:

• Input 2D image: In this, we upload a 2D image from the device that is to be converted into 3D image.

• Color mask filtering: In this, as shown in system design, we filter the uploaded image by red and blue-green color and then print onto panel after resizing it.

• Perspective mask filtering: In this, perspective mask filtering is done on red filtered by blue-green filtered image and blue-green filtered image by red filtered image. Hence we get image1 and image2 from this.

• Merging images: Here merging of image1 and image2 is done to get 3D output image.

• Show 3D image: Here 3D output is shown.

III. SYSTEM PERSPECTIVE

• To provide facility of 3D image

• To construct a 3D image merging the two image as shown in fig.2. in the following way:

Fig.2. 3D image from 2D image

A. *Product Function:*

Modules in the system will be as:

- **User:** User will upload 2D image which he/she wants in the 3D form.

- **Web application:**

- **Color mask filtering:** Filtering red color component.

- Printing the filter image onto panel after resizing.

- Filtering blue and green color component.

- Perspective filtering: Applying perspective transform onto red filtered image.

- Printing transformed image onto panel after resizing.

- Applying perspective transform onto blue-green filtered image. Printing the transformed image onto panel after resizing.

- Merging the two images.

- Showing 3D image on page after resizing.

- Database: Store the image 1 and image 2 with original image and save the database for merging of two image**.**

B. *User Characteristics:*

o Uploading 2D image on the web application

o After uploading, the application of algorithm is done internally and we get 3D image on web page as an output.

IV.   CONCLUSION

The proposed system is a web application for converting 2D image into 3D image. User has to upload a 2D image and 3D image is shown on page as an output. As it is a web application, many users can operate the page through web. Conversion of 2D image to 3D in general is a complex process. Here we get an approximate 3D image output using a simple algorithm.

 It is an incident of great pleasure of submitting this paper on "Automatic Conversion of 2D image into 3D Image". We welcome this opportunity to express our deep sense of gratitude and whole hearted thanks to our guide Prof.K.S.Warke for giving her valuable guidance, inspiration and affectionate encouragement to embark this system. Her constructive useful timely suggestions and encouragement in every stem immensely helped us to carry out of our system.

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