3-D-display

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Abstract - **In this paper are given a brief description of the work and the basic advantages and disadvantages of 3-D-displays .**

Key words - **3-D-display, the anaglyph stereo, principle of spectral separation, principle of temporary separation, principle of spatial separation.**

I. INTRODUCTION

The development of information technologies has led to the fact that fundamentally changed the technology of many industrial processes and scientific research. People always want something new and improved. Perhaps that is why we often hear about the 3-D-monitors.

II. SUMMARY

3D the display we will name any device, capable to inferred the image perceived by the person as volume.

The beginning of the history of computer stereovizualizatsii can take 80-years of the last century. The main technological problem of obtaining stereo is to create conditions under which each observer's eye sees only one component of the stereo. The left eye sees the left image, the right eye sees the right image. There are three basic principle of separation of left and right images:

- principle of spectral separation;
- principle of temporary separation;
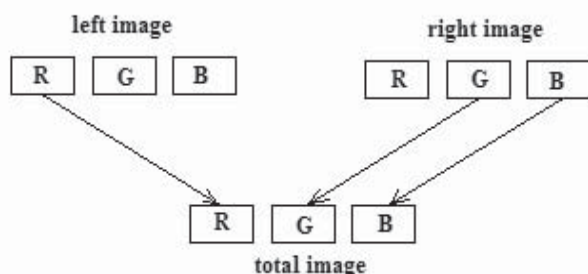- principle of spatial separation.

Fig. 1. Scheme anaglyph method of stereo playback on a computer [1]

The most accessible is the anaglyph stereo, which is based on the principle of spectral separation and uses the properties of filters. Pass filters the rays of one color and delay the rays of other colors. Each pixel of the computer image is composed of three color components: «R», «G» and «B». On the screen simultaneously displays two images forming the stereo pair. At the same time in each pixel of the total image «R» (red) component corresponds to the red in the left image, and the «G» (green) and «B» (blue) components - in the right (Fig.1).

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The drawback is that to obtain high quality images to an exact match of colors and points of the color spectrum of the monitor, otherwise there is "doubling" the contours of objects, which makes their perception. Adaptation of an observer to the specific conditions of perception takes place fast enough. However, after a long stay in anaglyph glasses for an observer at some time decreased color sensitivity and a feeling of discomfort from the usual perception of the world.

With time division on the display screen successively displays left and right stereo images. For observation using a stereoscopic LCD shutter glasses. They have consistently open and close right and left eyepieces. The computer displays the image on the monitor turns to the right and left eyes. Accordingly, work and closures on the glasses. Since the images are alternated with high frequency, it seems, view both eyes simultaneously. On the plus time multiplexing can be attributed relatively high quality of the resulting three-dimensional image - when using this method does not appear absolutely no geometric or color distortion. The disadvantages of such systems include halving the frame rate and decrease the brightness.

The third principle is called spatial (volumetric) or laser display. In fact, it consists of two key elements - a rotating screen and projection system. The principle of operation of such 3-D-displays is as follows: three-dimensional image of the displayed object is divided into flat two-dimensional images, called "slices". These "slices" are treated processor, and in a certain sequence projected on a rotating frequency 600 rpm screen, resulting in a fully three-dimensional image.

III. CONCLUSION

3-D-displays - is the real future. 3-D-displays make it possible to get new impressions. I think that the 3-D image, and will soon replace television and computer monitors. And the shortcomings of this technology will be negligible and unnoticeable. And the audience will look at the world differently!

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