

[0020] It is acknowledged that the term 'comprise' may, under varying jurisdictions, be attributed with either an exclusive or an inclusive meaning. For the purpose of this specification, and unless otherwise noted, the term 'comprise' shall have an inclusive meaning—i.e. that it will be taken to mean an inclusion of not only the listed components it directly references, but also other non-specified components or elements. This rationale will also be used when the term 'comprised' or 'comprising' is used in relation to one or more steps in a method or process.

[0021] It is an object of the present invention to go at least some way towards addressing the foregoing problems or to at least provide the public with a useful choice.

[0022] Further aspects and advantages of the present invention will become apparent from the ensuing description which is given by way of example only.

DISCLOSURE OF INVENTION

[0023] The processes and tools described here are intended to describe the implementation of a visual imaging system capable of offering an enhanced video viewing experience when used with a multi-layer display arrangement. It accomplishes this by employing hardware and software techniques to adjust the parameters of the components of a portion or portions of the image on one display such as the gamma response, contrast ratio, colour temperature, and brightness—frame by frame—by varying the complementary parameters of the selected portion or portions of the frame being displayed on the other (under- or over-lying) image plane. A software utility can be designed so as to capture a frame of video information and calculate the values of the aforementioned parameters and adjust them accordingly through the use of special algorithms which then pass that value or values to a software lookup table (LUT) adjustable by the viewer wishing to create an enhanced or modified visual experience of the content being viewed. The values will be accepted by custom hardware and software driven devices which will then translate the commands into the subpixel chromaticity and brightness settings on one display that are required to modify the image being displayed on the other display. The controller device, with suitable switching adjustments, will be able to control the desired areas of either component of a multi-layer display stack.

[0024] Accordingly in a first aspect of the invention may broadly said to consist in an image appearance controller for controlling brightness, colour, hue, colour temperature, gamma response or contrast of at least one image for display on a multi layer display device comprising:

[0025] i) a receiving means for receiving said at least one image(s) to be displayed;

[0026] ii) a detecting means for detecting the brightness, colour, hue, colour temperature, gamma response or contrast of said image(s) to be displayed,

[0027] iii) a determining means for determining the transmissivity of each layer of the multi layer display device in the localised area of said image(s) to achieve the brightness, colour, hue, colour temperature, gamma response and/or contrast detected or received,

[0028] iv) a communicating for communicating the determined transmissivity of each layer of the multi

layer display device in the localised area of said (images) to a display device or storage device.

[0029] A further aspect of the current invention may broadly said to consist in an image appearance control system for controlling brightness, colour, hue, colour temperature, gamma response or contrast of at least one image for display on a multi layer display device carrying out the steps of:

[0030] i) receiving said at least one image(s) to be displayed;

[0031] ii) detecting the brightness, colour, hue, colour temperature, gamma response or contrast of said image(s) to be displayed,

[0032] iii) determining the transmissivity of each layer of the multi layer display device in the localised area of said image(s) to achieve the brightness, colour, hue, colour temperature, gamma response and/or contrast detected or received,

[0033] iv) communicating the determined transmissivity of each layer of the multi layer display device in the localised area of said (images) to a display device or storage device.

[0034] As such the current invention is a method to or apparatus designed to control and enhance the brightness, colour, hue, colour temperature, gamma response or contrast of at least one image to be displayed on a multi layer display device by controlling the transmissivity of the layers of said multi layered device in the localised area of said image(s).

[0035] The term 'transmissivity' as used herein should be interpreted as meaning the degree of transmission of light through a transmissive layer or item. In particular the transmissivity should be interpreted as the transmission in terms of colour or chromaticity and brightness of light passing through that layer or item.

[0036] The term 'image' as used herein should be interpreted as meaning any type of image for example (without limitation) any content, display element, image, scene, ranging from static to video images or any part thereof.

[0037] Preferably the receiving means or the step or receiving the image(s) is adapted to receive full scenes and video images.

[0038] Preferably the receiving means or the step of receiving the image(s) is able to receive the brightness and colour of each pixel of the image(s).

[0039] Preferably the detecting means or the step of detecting brightness, colour, hue, colour temperature, gamma response and/or contrast step detects the overall brightness, colour, hue, colour temperature, gamma response and/or contrast of the image(s) to be display and preferably it is implemented for example by means of software or hardware which is controlled by a user who interacts with it to define the level of contrast, brightness and/or colour of said image(s) desired. Alternatively the brightness, colour, hue, colour temperature, gamma response and/or contrast may be determined by a software application.

[0040] Preferably the determining means or the step of determining calculates the transmissivity of each pixel of the