associated with the image to be displayed on the display device. For example a user, content developer or publisher may define the level of transmission of light associated with a particular image.

[0085] Preferably the at least one transmissivity control device is adapted to control the transmission of light specific to the shape of the image or images being displayed.

[0086] Preferably the at least one transmissivity control device and the at least one display device display are adapted to be driven in conjunction so that the transmissivity control device controls the transmission of light associated with the image(s) on the display device.

[0087] Adding the extra dimension of control imparted by a second display vertically stacked behind the panel displaying the video content allows this brightness adjustment to occur in a localized area or areas rather than being applied to the entire scene in a given frame. Appropriate and selective blockage of the backlight luminance level can be accomplished by applying variously darker neutral grey levels (at 50% transmission, for instance) to the pixels of the second display directly behind the portions of the scene one might wish to be de-emphasized or occluded. Conversely, the pixels behind areas of the image one wishes to be made brighter can be driven at grey levels corresponding to full or 100% transmission so as to allow all the backlight power to illuminate those areas.

[0088] The control of colour or "chromaticity" for example allows the image to be saturated (or less saturated as the case may be) with colour.

[0089] In addition to brightness levels, recorded levels for image attributes such as hue, saturation, and colour temperature may also be present.

[0090] Regardless of the type of display device utilised as described here-in, the display is capable of controlling the brightness, colour, hue, colour temperature, gamma response or contrast of an image or images by way of the transmissivity control device selectively controlling the brightness, colour, hue, colour temperature and/or contrast of said image(s) to be displayed in the localised area.

[0091] The visual digital media applications that could be enhanced with this method include DV, HDTV, eCinema, DVD, QuickTime, AVI, RealVideo, etc; vector animation such as Flash; presentation software such as PowerPoint, slide-show software etc; tagged static image file formats such as JPEG or GIF images in web pages, PhotoCD, TIFF, PhotoShop, etc. Enhancements to the viewing experience described herein will be particularly valuable to the entertainment and publishing industries.

[0092] Methods are possible to one skilled in the art whereby the brightness of the display can be synchronized to the static or video image content being displayed on a flat panel device. Software can be written to examine the grey scale content of a frame or a series of frames to compute, for instance, an arithmetic mean of the changing (dynamic) brightness level. Depending on present values from a given group of parameters, the software can cause instructions to be transmitted through a suitable application programming interface (API) to a backlight driver to dynamically adjust the brightness level of the display by controlling the voltage levels of lamp or lamps illuminating the display.

[0093] Accordingly, in a further aspect of the invention may broadly said to consist in an enhanced method of controlling transmissivity of light in the localised area of image(s) where the at least one transmissivity control device and the transmissivity of the at least one display device being controlled in conjunction to maintain the same or a similar level of luminance of said image(s) as would be experienced by the viewer when no transmissivity control device is present or was present but was not acting to block or filter light.

[0094] In the first case where the backlight luminance is partially blocked, the gamma response curve of the pixels of the corresponding area on the display showing the video content may now be altered so as to increase their transmissivity. This increase, while not altering the net brightness level reaching the observer, will allow for an increased level of actinic stimulus of his visual cortex. Hence, by synchronously lowering the backlight brightness level through the use of a transmissivity control device and decreasing the gamma value of an image so that the same resultant luminance level is maintained, a more vibrant colour impact can be achieved than before possible with non-dynamic playback.

[0095] Preferably the current invention is adapted such that the net luminance level is maintained or approximately maintained such that the viewer's viewing experience is enhanced through improved contrast by limiting the transmission of light to the display device through the use of the transmissivity control device while at the same time increasing the transmissivity of the display device.

[0096] The present invention may provide many potential advantages over the prior art.

BRIEF DESCRIPTION OF DRAWINGS

[0097] Further aspects of the present invention will become apparent from the following description which is given by way of example only and with reference to the accompanying drawings in which:

[0098] **FIG. 1** illustrates a diagram of the display device and transmissivity control device used in conjunction to display a scene with improved colour and contrast characteristics; and

[0099] **FIG. 2** illustrates a flowchart diagram of information flows and steps executed by software to display images with improved colour and contrast characteristics.

[0100] **FIG. 3** illustrates a sample image control software panel associated with a preferred embodiment.

BEST MODES FOR CARRYING OUT THE INVENTION

[0101] **FIG. 1** illustrates a diagram of the display device and transmissivity control device used in conjunction to display a scene with improved colour and contrast characteristics.

[0102] In the instance shown, a transparent LCD layer or panel acting as a display device (**1**) and a further transparent LCD layer or panel acting as an transmissivity control device (**2**) are arranged and displaced in a line with respect to one another, however, in use, the display device and transmissivity control device are aligned directly in front of