

tions that are transparent when no video images are displayed thereon. For example, an electroluminescent display may utilize non-organic phosphors that are both transparent and emissive (such as a tOLED), and addressed through transparent row and column drivers. Pixilated element panels on LCD panels are also available in significantly transparent or translucent designs that permit a person to see through the pixilated panels when not locally displaying an image.

[0099] If used, corresponding portions of touchscreen **16** and light valve **18e** along the lines of sight for portions **15** are also translucent or transparent, or alternatively have the capacity to be translucent or transparent in response to control signals from a processor included in the gaming machine. When portions (or all) of the screens for touchscreen **16**, video display devices **18a** and **18b**, and light valve **18e** are transparent or translucent, a player can simultaneously see images displayed on the display screen **18a** (and/or **18b**)—as well as the images displayed on the interior video display devices **18c**—by looking through the transparent portions **15** of proximate video display devices.

[0100] In another embodiment, the layered displays in a gaming machine include a design or commercially available unit from Pure Depth of Redwood City, Calif. The Pure Depth technology incorporates two or more LCD displays into a physical unit, where each LCD display is separately addressable to provide separate or coordinated images between the LCDs. Many Pure Depth display systems include a high-brightened backlight, a rear image panel, such as an active matrix color LCD, a diffuser, a refractor, and a front image plane; these devices are arranged to form a stack. The LCDs in these units are stacked at set distances.

[0101] Additional planar elements may be interposed between the proximate and distal video display devices. These elements may consist of various films and/or filters that alter the optical characteristics of light, after passing through the distal transmissive video display device, and before it reaches a rear surface of the proximate transmissive video display device. The digital nature of a display panel decomposes an analog image into a series of discrete colored picture elements, known as “pixels”, which normally combine seamlessly and are interpreted by the eye as equivalent of their analog original format. However, when more than one digital image is disposed along a common line of sight, undesired visual artifacts may result from the alignment of the pixels in the digital images—since one panel is essentially viewed through the other. A change in either of the images or in the viewing position may create an interference pattern which may appear as a moving or strobing effect on the images and, in many cases, may degrade them. One such effect, known as moiré, is very similar to the interference effects produced by multiple transmissive digital video display devices.

[0102] To reduce visual effects attributable to multiple transmissive digital video display devices, interstitial elements may be placed between the devices to diminish the digital nature of the image output by a distal display. By partially obscuring the individual pixels and blending them into a more analog-like visual image, the potential for undesired visual interference patterns may be reduced to an imperceptible level. Further, other optical properties, including but not limited to the polarization and color balance of the light passing between the transmissive digital video display devices, may be controlled using a film or panel disposed within the gap between video display devices.

[0103] The layered video display devices **18** may be used in a variety of manners to output games on a gaming machine. In some cases, video data and images displayed on the video display devices **18a** and **18c** are positioned such that the images do not overlap (that is, the images are not superimposed). In other instances, the images overlap. It should also be appreciated that the images displayed on the display screen can fade-in fade out, pulsate, move between screens, and perform other inter-screen graphics to create additional affects, if desired.

[0104] In a specific embodiment, video display devices **18** display co-acting or overlapping images to a person. For example, front video display device **18a** (or **18b**) may display paylines in transparent portions **15** that illuminate winning combinations of reels **125** disposed on video display devices **18c**.

[0105] In another specific embodiment, layered video display devices **18** provide 3D effects. A gaming machine may use a combination of virtual 3D graphics on any one of the video display devices—in addition to 3D graphics obtained using the different depths of the layered video display devices. Virtual 3D graphics on a single screen typically involve shading, highlighting and perspective techniques that selectively position graphics in an image to create the perception of depth. These virtual 3D image techniques cause the human eye to perceive depth in an image even though there is no real depth (the images are physically displayed on a single display screen, which is relatively thin). Also, the predetermined distance, D (between display screens for the layered video display devices) facilitates the creation of 3D effects having a real depth between the layered video display devices. 3D presentation of graphic components may then use a combination of: a) virtual 3D graphics techniques on one or more of the multiple screens; b) the depths between the layered video display devices; and c) combinations thereof. The multiple video display devices may each display their own graphics and images, or cooperate to provide coordinated visual output. Objects and graphics in a game may then appear on any one or multiple of the video display devices, where reels and other graphics on the proximate screen(s) block the view objects on the distal screen(s), depending on the position of the viewer relative to the screens. This provides actual perspective between the graphics objects, which represents a real-life component of 3D visualization (and not just perspective virtually created on a single screen).

[0106] In another specific embodiment, the multiple video display devices output video for different games or purposes. For example, the interior video display device may output a reel game, while the intermediate video display device outputs a bonus game or pay table associated with the interior display, while the exterior and foremost video display device provides a progressive game or is reserved for player interaction and video output with the touchscreen. Other combinations may be used.

[0107] Reel games output by the video display devices may include any video game that portrays one or more reels. Typically, the gaming machines simulates ‘spinning’ of the video reels using motion graphics for the symbols on the reel strips and motion graphics for the mechanical components.

[0108] Controlling transparency of the outer one or two video display devices also provides game presentation versatility on a single gaming machine. In one embodiment, an outer or intermediate video display device acts as a light valve that controls whether the interior video display device is