

THREE-DIMENSIONAL IMAGE DISPLAY FOR A GAMING APPARATUS

BACKGROUND

[0001] This patent is directed to a casino gaming apparatus, which could be either an individual gaming unit or a casino gaming system having a plurality of gaming units, each gaming unit including a display unit that displays three-dimensional images.

[0002] Conventional casino gaming units often included multiple display panels for displaying a variety of images. The gaming unit consisted of three separate displays: the top-box (or "top glass"), the belly (or "bottom") glass, and the main player (or "primary") display. The belly glass was typically a static, two-dimensional, planar image that provided game instructions, game information, casino information, images to attract players to the game, images to provide security, or images otherwise associated with the games that could be played on the gaming unit. The top-box has included a planar, two-dimensional monitor to display active, two-dimensional, planar images or a mechanical device having mechanical moving parts, either of which provided bonus game play or were used to attract players. The main player display has included active, planar images that may vary as part of a player-attract sequence or as part of the game play. Mechanical moving parts were often used to display a variety of images as part of the game play. For example, in a conventional slot machine, the main player display was a "reel glass" having multiple spinning reels with various images on each reel. Some of the active images provided by the top-box or main player display were three-dimensional objects shown as planar, two-dimensional images provided on a two-dimensional, planar display such as a CRT or flat-screen monitor. Conventional gaming units have also used optical beam-splitters or parabolic mirrors to generate virtual three-dimensional images from a composite of layered images from multiple sources.

SUMMARY OF THE INVENTION

[0003] In one aspect, the invention is directed to a gaming apparatus that may include a display unit capable of generating non-planar, three-dimensional video images, a value input device, and a controller operatively coupled to the display unit and the value input device. The display unit may include first and second non-planar, three-dimensional screens each capable of displaying the non-planar, three-dimensional video images. The controller may comprise a processor and a memory, and may be programmed to allow a person to make a wager, to read a predetermined correction code, to convert two-dimensional image data into three-dimensional image data, and cause a first and second non-planar, three-dimensional video image to be generated on the display unit from said three-dimensional image data. The predetermined correction code may include an offset value, a correction value, a color value and a brightness value and may be associated with correcting one or more pixels of the two-dimensional image. The controller may convert the two-dimensional image data into three-dimensional image data by correcting for at least one of the following using said correction code: image distortion, brightness distortion and color aberrations. The first non-planar, three-dimensional video image may represent a game and the second non-planar, three-dimensional video image may represent a

bonus game. The controller may determine an outcome of the game and the bonus game, and determine a value payout associated with the outcome of the game and the bonus game.

[0004] In another aspect, the invention is directed to a gaming apparatus that may include a display unit capable of generating non-planar, three-dimensional video images, a value input device, and a controller operatively coupled to the display unit and the value input device. The display unit may include a non-planar, three-dimensional screen in the shape of a dome capable of displaying the non-planar, three-dimensional video images. The controller may be programmed to convert two-dimensional image data into three-dimensional image data by correcting for at least one of the following distortions: image distortion, brightness distortion and color aberrations. The controller may be programmed to translate one or more pixels of the two-dimensional image data if the distortion comprises image distortion, vary the size of one or more pixels of the two-dimensional image data if the distortion comprises image distortion, adjust the brightness of one or more pixels of the two-dimensional image data if the distortion comprises brightness distortion, adjust the color of one or more pixels of the two-dimensional image data if the distortion comprises color aberrations. The controller may further be programmed to cause a non-planar, three-dimensional video image representing a game to be generated on the display unit from the three-dimensional image data, and determine a value payout associated with an outcome of the game.

[0005] In yet another aspect, the invention is directed to a gaming apparatus that may include a display unit capable of generating non-planar, three-dimensional video images, a value input device, and a controller operatively coupled to the display unit and the value input device. The display unit may include a non-planar, three-dimensional screen capable of displaying the non-planar, three-dimensional video images. The controller may comprise a processor and a memory, and may be programmed to allow a person to make a wager, to convert two-dimensional image data into three-dimensional image data, cause a non-planar, three-dimensional video image to be generated on the display unit from said three-dimensional image data, and to determine an outcome of a game and a value payout associated with the outcome of the game.

[0006] The non-planar, three-dimensional video image may represent one of the following games: video poker, video blackjack, video slots, video keno and video bingo, in which case the non-planar, three-dimensional video image may comprise an image of at least five playing cards if the game comprises video poker; the non-planar, three-dimensional video image may comprise an image of a plurality of simulated slot machine reels if the game comprises video slots; the non-planar, three-dimensional video image may comprise an image of a plurality of playing cards if the game comprises video blackjack; the non-planar, three-dimensional video image may comprise an image of a plurality of keno numbers if the game comprises video keno, and the non-planar, three-dimensional video image may comprise an image of a bingo grid if the game comprises video bingo.

[0007] The display unit may further include a light engine and a projection lens assembly. The display unit may also further include a second display screen. The second display