3-D object in the three-dimensional gaming environment stored in the memory device on the gaming machine to fit within the second size of the game window; and 6) displaying on the display device the rendered second two-dimensional image within the game window wherein the game information is used to play a game of chance on the gaming machine.

[0028] In particular embodiments, the method may also include on or more of the following: a) wherein the second size of the game window is smaller than the first size of the game window; generating one or more new game windows in a game window area around the game wherein the game window area is a difference in area between an area of the first size of the game window and an area of the second size of the game window; and displaying game information in the one or more new game windows, b) removing the new one or more new game windows; and returning the game window to the first size and c) rendering a sequence second two-dimensional images derived 3-D objects in the three-dimensional gaming environment stored in the memory device on the gaming machine where each two-dimensional image in the sequence is sized to fit within a sequence of game windows between the first size and the second size.

[0029] Another aspect of the present invention provides a method of activating an input button modeled in a 3-D gaming environment in a gaming machine with a master gaming controller, a display device and a memory device. The method may be generally characterized as including: 1) generating one or more 3-D models of input buttons in a 3-D gaming environment used to play a game of chance on the gaming machine; 2) rendering a two-dimensional image derived from a three-dimensional object in a three-dimensional gaming environment stored in the memory device on the gaming machine wherein the three-dimensional object comprises at least a portion of one or more the input buttons modeled in the 3-D gaming environment; 3) displaying the rendered two-dimensional image to the display device on the gaming machine; 4) receiving an input signal including at least an input location corresponding to a location on the display device displaying the rendered two-dimensional image; 5) generating an input line in the 3-D gaming environment using the input location; and 6) detecting a collision between the input line and at least one of an input button modeled in the 3-D gaming environment.

[0030] The method may also include one or more of the following: a) comparing 3-D coordinates of the input line in the gaming environment to 3-D coordinates of input buttons modeled in the 3-D gaming environment, b) performing an action specified by an input button corresponding to the received input location, c) activating one or more input buttons modeled in the 3-D gaming environment, d) ignoring a detected collision between the input line and an input button, when the input button is not activated. In particular embodiments, the input signal may be generated from a touch screen and the input location on the display device corresponds to a cursor location on the display device.

[0031] Another aspect of the invention pertains to computer program products including a machine-readable medium on which is stored program instructions for implementing any of the methods described above. Any of the methods of this invention may be represented as program instructions and/or data structures, databases, etc. that can be provided on such computer readable media.

[0032] These and other features of the present invention will be presented in more detail in the following detailed description of the invention and the associated figures.

BRIEF DESCRIPTION OF THE DRAWINGS

[0033] **FIG. 1** is a perspective drawing of a 3-D virtual gaming environment implemented on a gaming machine for one embodiment of this invention.

[0034] **FIG. 2** is a is a perspective drawing of virtual slot reels in a 3-D virtual gaming environment implemented on a gaming machine for one embodiment of this invention.

[0035] **FIG. 3** is a is a perspective drawing of two gaming machines in a 3-D virtual gaming environment implemented on a gaming machine for one embodiment of this invention.

[0036] **FIG. 4** is a is a perspective drawing of a virtual casino in a 3-D virtual gaming environment implemented on a gaming machine for one embodiment of this invention.

[0037] **FIG. 5** is a is a perspective drawing of a gaming machine.

[0038] **FIG. 6** is a flow chart depicting a method for generating a game outcome presentation using a 3-D virtual gaming environment.

[0039] **FIG. 7** is a flow chart depicting a method for generating a game of chance using a virtual gaming environment.

[0040] **FIGS. 8 and 9** are perspective drawings of a 3-D interface for a gaming machine.

[0041] **FIG. 10** is a flow chart depicting a method of playing a game on a gaming machine using a 3-D interface.

[0042] **FIG. 11** is a flow chart depicting a method of displaying game information on a gaming machine.

[0043] **FIGS. 12A-12E** are perspective drawings of screen input interfaces modeled in a 3-D gaming environment on a gaming machine.

[0044] **FIG. 13** is a flow chart depicting a method of detecting input button collisions for input buttons modeled in a 3-D gaming environment on a gaming machine.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0045] **FIG. 1** is a perspective drawing of a 3-D virtual gaming environment **100** implemented on a gaming machine for one embodiment of this invention. The 3-D virtual gaming environment may be used by the master gaming controller on the gaming machine to present a game of chance. The game of chance played on the gaming machine may include: 1) a wager selected by a player playing a game on the gaming machine, 2) an initiation of the game of chance on the gaming machine by the player, 3) a determination of an outcome for the game of chance by the gaming machine and 4) a presentation on the gaming machine of the game outcome to the player. In the present invention, the 3-D gaming environment may be used to present a game outcome to the player, describe operating functions of the gaming machine and provide an interface for obtaining gaming information and services. Apparatus and methods implementing these features are described with respect to **FIGS. 1-12**.