a player may be required to make a number of decisions, which affect the outcome of the game. For example, a player may vary his or her wager, select a prize, or make game-time decisions, which affect the game play. These choices may be selected using the player-input switches **32**, the main video display screen **34** or using some other device which enables a player to input information into the gaming machine including a key pad, a touch screen, a mouse, a joy stick, a microphone and a track ball.

[**0213**] Using input devices such as but not limited to the player-input switches **32**, the main video display screen **34** or using some other device which enables a player to input information into the gaming machine including a key pad, a touch screen, a mouse, a joy stick, a microphone and a track ball, properties of 3-D objects in the 3-D gaming environment and thus, the corresponding presentation of these 3-D objects rendered to one or more of the display screens on the gaming machine may be altered. For instance, in 3-D gaming environment with a rotating object, such as but not limited to rotating reel, rotating wheel, rotating reel segment, or a rotating sphere, the gaming machine may be capable of receiving input via one of the input devices, that starts an object spinning, stops an object spinning or affects a rotation rate of the object. In another example, the gaming machine may be capable of receiving input via one or more input devices, that initiates translational movement in one or more 3-D objects in the 3-D gaming environment, stop translational movement or affects a rate of translation movement.

[**0214**] In general, the gaming machine may be capable of receiving input information for controlling a plurality motion parameters for 3-D objects in the gaming environment. The motion parameters may vary depending upon degrees of movement freedom modeled for a particular 3-D object. The input information may be used to alter a game outcome presentation, a bonus game outcome presentation or any other type of presentation generated on the gaming machine.

[**0215**] In some embodiments, to change the format of a game outcome presentation on the gaming machine or to utilize different gaming machine functions, the player may use an input device on the gaming machine to control a virtual camera in a virtual gaming environment implemented on the gaming machine. For instance, a player may use the virtual camera to "zoom in" or "expand on demand" a portion of the virtual gaming environment such as one poker hand of a hundred poker hands displayed on display screen **34**. In another example, the game player may alter the game outcome presentation, such as the view or perspective of the game outcome presentation, by controlling the virtual camera. In yet another example, the player may be able to select a type of game for game play on the gaming machine, select a gaming environment in which a game is played, receive casino information or obtain various casino services, such as dinner reservations and entertainment reservations, by navigating through a virtual casino implemented on the gaming machine. The virtual casino may correspond to the actual casino where the gaming machine is located. Thus, the virtual casino may be used to give the player directions to other portions of the casino.

[**0216**] In other embodiments of the present invention, CAD/CAM models of the gaming machine **2** may be used to generate a virtual 3-D model of the gaming machine. The virtual 3-D model may be used to visually demonstrate various operating features of the gaming machine **2**. For instance, when a player-tracking card is inserted incorrectly in the card reader **24**, the virtual 3-D model of the gaming machine may be used to display a visual sequence of the card being removed from the card reader **24**, flipped over and correctly inserted into the card reader **24**. In another example, a visual sequence showing a player inputting an input code on the keypad **22** may be used to prompt and show the player how to enter the information. In another example, when the gaming machine **2** is expecting an input from the player using one of the player input switches **32**, the virtual 3-D model of the gaming machine may be used to display a visual sequence of the correct button on the gaming machine being depressed. In yet another example, the manner in which a bill or ticket is inserted into the bill validator may be shown to the player using a sequence of photographs generated from the 3-D model.

[**0217**] During certain game events, the gaming machine **2** may display visual and auditory effects that can be perceived by the player. These effects add to the excitement of a game, which makes a player more likely to continue playing. Auditory effects include various sounds that are projected by the speakers **10**, **12**, **14**. Visual effects include flashing lights, strobing lights or other patterns displayed from lights on the gaming machine **2** or from lights behind the belly glass **40**. The ability of a player to control a virtual camera in a virtual gaming environment to change the game outcome presentation may also add to the excitement of the game. After the player has completed a game, the player may receive game tokens from the coin tray **38** or the ticket **20** from the printer **18**, which may be used for further games or to redeem a prize.

[**0218**] **FIG. 10** is a flow chart depicting a method for generating a game outcome presentation from a virtual gaming environment. In **600**, after receiving a wager for one or more games played on a gaming machine, an input signal is received on the gaming machine to initiate a game of chance. The input signal may be input by a player using a various input devices available on the gaming machine, such as input buttons and a touch screen. In **602**, one or more game outcomes are determined for the one or more games initiated by the game player. Typically, a game outcome is determined by generating one or more random numbers and comparing the numbers with a paytable stored on the gaming machine.

[**0219**] In **603**, based upon the one or more game outcomes determined in **602**, one or more game displays are rendered in a 3-D virtual gaming environment in the gaming machine. In **604**, at least one virtual camera in the 3-D gaming environment is used to render a sequence of 2-D projection surfaces (e.g. images) derived from three-dimensional coordinates of surfaces in the 3-D gaming environment. As described with reference to **FIG. 2**, the position of the virtual camera may vary with time. In **606**, the sequence of rendered 2-D projection surfaces is displayed to one or more game display screens on the gaming machine as part of a game outcome presentation or a bonus game presentation. In **608**, the game outcome (e.g. an amount awarded for one or more games) is displayed to the display screen. The method described above is not limited to game outcome presentations. Other types of gaming information such as attract