

the number of objects moved (e.g., higher awards for faster times and/or higher awards for greater numbers of objects moved). The gaming machine may be configured to provide a tactile output representing the capture of the selected item and this would continue as the player moves the selected item across the screen and would continue until the player releases the on-screen icon. Release of the on-screen icon “deposits” the item into its new location. An additional sensation can optionally be utilized to simulate the deposit or imminent release of the selected item. As noted above, an on-screen icon is optional. The displayed item itself, and on-screen location thereof, may be configured to provide the tactile sensory feedback. This feedback would thus dynamically reposition itself or “travel” as a player moves the selected item across the display. This feature further integrates the player into the realm of the game space by providing a more direct connection between the player and the manipulated object than is possible through traditional game play interfaces (i.e., icons, buttons, controls, etc.).

[0102] The present concepts are also extendable to permit representations of power level. Power levels also relate to increasing intensity (e.g., the amount or degree of strength of electricity, heat, light, etc.). As it relates to tactile touch screen technology and gaming, players may be permitted to enter, for example, a picking game whereby matches result in sensations such as described above, but the sensations increase in intensity depending upon the size of the award. For example, a match of three 5× multiplier symbols has a greater intensity than a match of three 2× symbols.

[0103] In another aspect of wagering game play which may take advantage of haptic devices **700, 800**, haptic gloves or tools may be used to manipulate objects within the game space. Haptic gloves are conventionally provided with vibrating piezo-electric elements and/or pneumatic channels, pockets, or bladders which may be filled with pressurized air so as to press against the user’s hand with varying degrees of force. In one aspect, the haptic glove may be instrumented or monitored to determine the position of and movement of predetermined points on the glove in space. The positions of these predetermined points would be translated to corresponding positions associated with an icon or image of a hand that would mirror the movement of the user’s hand in 3-D. A player of a wagering game may thus be challenged to move the haptic glove or tool to move the corresponding virtual hand or tool within a 2-D or 3-D game space.

[0104] Wagering games in accord with the present concepts may therefore include game features utilizing haptic devices **700, 800**, such as the virtual glove or tool (e.g., a pointed stick). For example, the user may be instructed to use the virtual glove or tool (i.e., by manipulation of the haptic glove or haptic tool) to pop rising or falling balloons. The popping of the balloons may be simulated, in one aspect, by gentle pressure waves being output by the haptic glove traveling from the point of the glove closest to the source (i.e., the popping balloon) to the point of the glove furthest from the source. In a game feature wherein a player is instructed to diffuse a bomb before a timer runs out, for example, an incorrect action or selection could activate both a piezo-electric element in a palm of the glove as well as all of the air pockets in the palm and fingers of the glove, concurrent with an output from the speakers **117**. In short, plural haptic devices may optionally be used in combination in accord with any particular game content to provide tactile input to the user and thereby enhance the user/machine interface.

[0105] In still another aspect of game play in accord with the present concepts, a plurality of lottery game ticket scratch-off surfaces may be presented on a display. The user may be instructed to “scratch off” the scratch-off surfaces using either a haptic display or another non-display based haptic device, such as a haptic glove, mouse, pen or tool. When the user “scratches” within the confines of the displayed scratch-off surfaces, the user will receive feedback (e.g., vibration) through the selected or provided haptic interface. In one aspect, the feedback could comprise a feeling of substantially continuous roughness/resistance from the portions of the scratch-off surface which remain with no such roughness/resistance from the portions of the scratch-off surface which have been removed.

[0106] In at least some embodiments, a small video reel may be provided beneath a moveable display screen or haptic display **700, 800** wherein a user interfacing with the video reel (e.g., spinning or moving the reel) will result in a haptic output producing a sensation of clicking through different detents on the reel.

[0107] Thus, in at least some aspects of the present concepts, a wagering game for a gaming machine comprises instructions configured, upon processing by a processor, to perform various process steps leading to a haptic output to a user of the gaming machine. Where the haptic output is to be linked to an overall wagering game outcome, the instructions might cause the processor to associate each potential game element outcome with one particular output signal, out of a range of possible output signals, to a haptic device. Once the processor determines a wagering game outcome by comparing a set of game element outcomes to an award schedule, the processor would then output the output signal to the haptic device corresponding to a wagering game outcome to activate the haptic device in response thereto.

[0108] The haptic output may also be linked generally to a game feature, which may or may not be related to any specific wagering game outcome or game element outcome. For example, the game feature may announce entry into or qualification for a bonus round or special event based on a game outcome or game element outcome in the wagering game. In another example, the game feature may be initiated by a controller inviting a player of a gaming machine to join a group game based on a determination of the gaming machines’ eligibility such as, but not limited to, satisfaction of a coin-in rate or quantity requirement. Where the haptic output is linked generally to a game feature, the processor associates a game feature with an output signal to a haptic device and outputs an output signal to the haptic device substantially concurrent with an initiation of the game feature. The haptic device is then activated in response to the output signal.

[0109] Each of these embodiments and obvious variations thereof is contemplated as falling within the spirit and scope of the claimed invention, which is set forth in the following claims. Moreover, the present concepts apply not only to basic wagering games, but also to bonus games and any other type of wagering game or associated game.

[0110] In yet another embodiment, a gaming machine display is provided with display-integrated speakers. This embodiment may be separate from, or may be combined with, the above-mentioned gaming machine embodiments utilizing the haptic display and/or other haptic outputs.

[0111] In one aspect of a gaming machine display-integrated speaker, an liquid crystal display (LCD) for the handheld gaming machine **110** is provided with a “speaker on