glass" such as by, for example, deposition of transparent conducing polymer electrodes on top of a piezoelectric polymer thin film (PVDF or copolymer of vinylidenecyanide and vinyl acetate (PVCN-VAc)). A transparent loudspeaker may also include that currently provided by Sharp and Semiconductor Energy Laboratory of Japan in which the LCD display substrate is a continuous-grain silicon provided with piezoelectric acoustic drivers and audio circuitry integrated therewith. The gaming machine display may utilize piezoelectric audio transducers based on flat-speaker technology of New Transducers (NXT) of England, which employs distributed-mode actuators (DMA) having piezoelectric drive elements disposed on the LCD substrate to vibrate the glass surface and produce sound. The LCD display is also provided with a shift register latch, D/A converter, analog input preamplifier, volume control, and power amplifier.

[0112] In at least one aspect, the gaming machine display may incorporate not one integrated speaker, but a plurality of smaller speakers (e.g., **4**, **8**, **24**, **36**, **49**, **64**) to provide not only improved localization of a sound, but to permit the sound to move around the display. In combination with the tactile stimulus noted above, the sound emitted from the display-based speaker(s) could move synchronously with the tactile stimulus. The display-integrated speaker may further be selectively employed to only cover certain frequencies within the audible range, such as to eliminate conventional high frequency speaker elements (i.e., tweeters), while retaining conventional low frequency speaker elements (e.g., sub-woofer). Elimination of any of the current gaming machine surface mounted speakers in this manner will free up marked volumetric space within the gaming machine, simplify manufacturing complexity and cost, and reduce maintenance costs.

[0113] Moreover, the display-integrated speaker need not be integrated into the gaming machine primary display, but may be provided in one or more secondary displays or in glass panels provided on the display bearing game-related artwork (painted glass) or advertisements (e.g., to offset licensing fees), or the like. Further, the display-integrated speaker need not be paired with a tactile display. In one aspect of the present concepts, a gaming machine could be provided with a dual display, one display (e.g., a top display) having tactile or sensory feedback, the other display (e.g., a bottom display) having one or more integrated speakers.

[0114] The haptic device embodiments discussed in connection with FIGS. **7***a*-**8***b* can be combined with the embodiments described in connection with FIGS. **5***a*-**6***b* to provide tactile cues and feedback via the display **114** and via the casing **112**. These embodiments may be accompanied by corresponding sounds transmitted by the speakers **117** and corresponding images displayed on the displays **114**, **116** to provide a tri-sensory experience (sight, sound, touch) for the player.

[0115] 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.

1. A handheld gaming machine, comprising:
an input device for receiving a wager to initiate a wagering game;
a video display for displaying the wagering game on the handheld gaming machine; at least one actuator; and
a controller coupled to the video display and to the actuator, the controller programmed to cause the wagering game to be displayed on the video display and to cause the actuator to produce a vibration that indicates the occurrence of a wagering-game event.

2. The handheld gaming machine of claim **1**, wherein the wagering-game event includes a change in game rules.

3. The handheld gaming machine of claim **2**, wherein the change in game rules comprises a change in the odds of winning an award during the wagering game.

4. The handheld gaming machine of claim **2**, wherein the change in game rules comprises a change in the type of award that can be awarded during the wagering game.

5. The handheld gaming machine of claim **1**, wherein the vibration is consistent with a theme of the wagering game.

6. The handheld gaming machine of claim **5**, wherein the theme is part of a slot wagering game and the vibration is a series of vibrations that simulate the tactile sensation of multiple reels decelerating and coming to a stop.

7. The handheld gaming machine of claim **5**, wherein the theme is part of a roulette wagering game and the vibration is a series of vibrations that simulate the 5 tactile sensation of a spinning roulette wheel.

8. The handheld gaming machine of claim **5**, wherein the theme is part of a card wagering game and the vibration simulates the tactile sensation of a card being placed upon a surface.

9. The handheld gaming machine of claim **2**, wherein the vibration **0** indicating a change in game rules is produced independent of changes between normal game play and bonus round game play of the wagering game.

10. The handheld gaming machine of claim **2**, wherein the change in game rules comprises eligibility for bonus play.

11. The handheld gaming machine of claim **2**, wherein the change in game rules comprises eligibility to accumulate one or more game elements associated with the wagering game.

12. The handheld gaming machine of claim **1**, wherein the at least one actuator includes a haptic touch screen.

13. The handheld gaming machine of claim **1**, wherein the at least one actuator includes an electromagnetic coil coupled to a movable mass.

14. The handheld gaming machine of claim **1**, wherein the controller is further programmed to generate sounds through one or more speakers on the handheld gaming machine, the sounds and the vibration being synchronized to indicate the wagering-game event.

15. The handheld gaming machine of claim **1**, wherein the vibration is generated according to a vibrating profile which includes a vibration pattern, amplitude, and duration.

16. The handheld gaming machine of claim **15**, wherein the vibrating profile further includes information representing an axis of rotation of the at least one actuator in three-dimensional space.

17. The handheld gaming machine of claim **15**, wherein the vibration pattern includes multiple frequency components.

18. The handheld gaming machine of claim **17**, wherein at least some of the multiple frequency components are out-of-phase relative to one another.

19. The handheld gaming machine of claim **1**, wherein the wagering-game event includes the receipt of the wager by the input device.

20. The handheld gaming machine of claim **1**, wherein the at least one actuator includes two actuators.

21. The handheld gaming machine of claim **20**, wherein the two actuators are rotatable about an axis in three-dimensional space.