GAMING DEVICE HAVING A PHYSICAL STIMULI GENERATOR

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ABSTRACT

The present invention relates to a method and apparatus for generating physical stimuli associated with a gaming device. The invention includes a generator and a blower to distribute the physical stimuli outside the gaming device. The gaming device may generate physical stimuli based on different occurrences including but not limited to game themes, player inputs, game triggering events, sensing devices or by remote operation.
FIG. 2

PROCESSOR

- BLOWER
- FOG GENERATOR
- COIN/BILL ACCEPTOR
- INPUT DEVICES
- DISPLAY DEVICES
- SOUND CARD
- SPEAKERS
- VIDEO CONTROLLER
- TOUCH SCREEN CONTROLLER
- TOUCH SCREEN

RAM

ROM
GAMING DEVICE HAVING A PHYSICAL STIMULI GENERATOR

CROSS REFERENCE TO RELATED APPLICATION


DESCRIPTION

[0002] The present invention relates in general to a gaming device, and more particularly to a gaming device that generates physical stimuli preferably in conjunction with a game mode, game state or game event or change therein.

BACKGROUND OF THE INVENTION

[0003] Known gaming machines use various lighting effects and sound effects to attract, stimulate and entertain players. Gaming machines, for instance, include flashing lights, moving or spinning mechanical devices such as reels, wheels and lights, and sounds such as music and voices for such purposes. Gaming machines also include primary games and secondary or bonus games, progressive jackpots and large awards to attract, stimulate and entertain players. To increase player enjoyment and excitement, it is desirable to provide new and different player stimuli in conjunction with gaming devices.

SUMMARY OF THE INVENTION

[0004] The present invention provides a gaming device which stimulates and entertains players by changing the players' environment with physical stimuli or effects. The physical stimuli or effects are preferably provided by the gaming device of the present invention in conjunction with a game mode, game state or game event or change therein (such as an attract mode, a primary game or game event, a secondary game or game event or a pay out of an award to a player) to increase player enjoyment, entertainment and excitement.

[0005] One embodiment of the gaming device of the present invention includes a physical stimuli generating housing, unit or apparatus mounted on the top of the cabinet of the gaming device for emulating or emitting certain physical stimuli toward or in the area of the player. The stimuli generating apparatus or unit may also be mounted on the side of, underneath, behind, or in the cabinet of the gaming device.

[0006] In one preferred embodiment, the physical stimuli is fog. The physical stimuli may alternatively, for instance be smoke, steam, snow, foam, haze and the like in accordance with the present invention. Thus, in one embodiment of the present invention, the physical stimuli is directed toward the player in a gaseous form, mixture or state. In another embodiment of the present invention, the physical stimuli is the natural color of the physical stimuli which is preferably clearly visible to the player. In another embodiment, the physical stimuli is colored. The stimuli housing includes one or more devices adapted to create or simulate the physical stimuli and direct or cause the physical stimuli to be directed toward and drift around the gaming device.

[0007] The present invention is generally discussed herein with respect to the physical stimuli being fog for simplicity. Such discussion is not intended to limit the scope of the present invention. Accordingly, in one embodiment of the present invention, the housing includes a fog generator and a blower. The fog generator and the blower are in fluid communication with a plurality of portals in the stimuli unit. The blower preferably includes a plurality of fan blades and a drive mechanism which directs a pulsed or steady stream of fog (i.e., fog stream) to the portals. The portals direct the fog at desired angles into portions of the playing area or environment surrounding the gaming device. In one embodiment, the fog is directed around the player and temporarily changes the player's environment such as in conjunction with a game mode, game state or game event or change therein (such as a primary game or game event, or a secondary or bonus game or game event, or a player award). The fog may also be generated and released by the gaming machine at any suitable predetermined or randomly determined time.

[0008] It is therefore an advantage of the present invention to provide a gaming device that changes a player's environment with physical stimuli. Other objects, features and advantages of the invention will be apparent from the following detailed disclosure, taken in conjunction with the accompanying sheets of drawings, wherein like numerals refer to like parts, elements, components, steps and processes.

BRIEF DESCRIPTION OF THE DRAWINGS

[0009] FIG. 1 is a schematic front elevation view of one embodiment of the present invention.

[0010] FIG. 2 is a schematic block diagram of the electronic configuration of one embodiment of the gaming device of the present invention.

DETAILED DESCRIPTION OF THE INVENTION

[0011] Referring now to the drawings, a gaming device 10 of one embodiment of the present invention, such as a slot machine having the controls, displays and features of a conventional gaming machine is generally illustrated. Gaming device 10 includes a cabinet 12 constructed to enable a player to operate gaming device 10 while standing or sitting. However, it should be appreciated that gaming device 10 can be constructed as a sub-style table-top game (not shown) which a player can operate preferably while sitting. Gaming device 10 can incorporate any primary game such as slot, poker, blackjack or keno in addition to any of the bonus triggering events associated with these games, which triggers a secondary or bonus game or round. The symbols and indicia used on and in gaming device 10 may be in mechanical, electronic, electrical or video form.

[0012] As generally illustrated in FIG. 1, gaming device 10 includes a coin slot 14 and bill acceptor 16 where the player inserts money, coins or tokens. The player can place coins in the coin slot 14 or paper money in the bill acceptor 16. Other devices (not shown) could be used for accepting payment such as readers or validators for credit cards or debit cards. When a player inserts money in gaming device 10, a number of credits corresponding to the amount deposited is shown in a credit display 18. After depositing the
appropriate amount of money, a player can begin the game by pulling arm 20, pushing a play button or activating any other mechanism (including a touch screen 48 in communication with a touch screen controller 50 as generally illustrated in FIG. 2) which starts the game.

[0013] As illustrated in FIG. 1, gaming device 10 may include a bet display 24 and a bet one button 22. The player places a bet by pushing the bet one button 22. The player can increase the bet by one credit each time the player pushes the bet one button 22. When the player pushes the bet one button 22, the number of credits shown in the credit display 18 decreases by one, and the number of credits shown in the bet display 24 increases by one. The gaming device can also include other play and wager indicators or buttons such as a conventional max bet and repeat bet buttons (not shown).

[0014] Gaming device 10 may include a display window which contains, in the slot machine embodiment, a plurality of reels 28 such as three to five reels in mechanical or video form. Each reel 28 displays a plurality of indicia such as bells, hearts, fruits, numbers, letters, bars or other images or symbols which preferably correspond to a theme associated with the gaming device 10. If the reels 28 are in video form, the gaming device 10 preferably displays the video reels 28 at display 30.

[0015] As illustrated in FIG. 2, the general electronic configuration of gaming device 10 of one embodiment of the present invention includes a processor 32 and a physical stimuli generator such as a fog generator 34 which includes or controls a blower 36. Alternatively, the blower 36 may be a separate device from the fog generator. Further, alternatively, the physical stimuli generator may be provided without the need for a blower. The processor 32 accesses a memory device 38 for storing program code or other data. The gaming device may also include a video controller 39, a central display device 31 (not shown in FIG. 1), a display 30, a sound card 40 for facilitating the generation of sounds, a plurality of speakers 42, and one or more input devices 44. The processor 32 is preferably a microprocessor or microcontroller-based platform which is capable of displaying images, symbols and other indicia such as images of people, characters, places, things, and cards, and for controlling the physical stimuli generator 34 and associated blower 36 as described below. A sub-processor may also be employed to control the generation and release of the physical stimuli. The memory device 38 can include random access memory (RAM) 46 for storing event data or other data generated or used during a particular game. The memory device 38 can also include read only memory (ROM) 47 for storing program code which controls the gaming device 10 so that it plays a particular game in accordance with applicable game rules and pay tables.

[0016] It should be appreciated that although a processor 32 and memory device 38 are preferable implementations of the present invention, the present invention can also be implemented using one or more application-specific integrated circuits (ASIC’s) or other hard-wired devices, or using mechanical devices (collectively and/or alternatively referred to herein as a “processor”). Furthermore, although the processor device 32 and memory device 38 preferably reside in each gaming device cabinet, it is possible to provide some or all of their functions at a central location such as a network server for communication to a playing station such as over a local area network (LAN), wide area network (WAN), Internet connection, microwave link, and the like. The processor 32 and memory device 38 are generally referred to herein as the “computer” or “controller.”

[0017] With reference to FIGS. 1 and 2, to operate the gaming device 10 in one embodiment the player must insert the appropriate amount of money or tokens at coin slot 14 or bill acceptor 16 and then pull the arm 20 or push the bet one button 22 and the red spin button; or push the bet max button (not shown). The reels 28 will then begin to spin. Eventually, the reels 28 will come to a stop. As long as the player has credits remaining, the player can spin the reels 28 again. Depending upon where the reels 28 stop, the player may or may not win additional credits.

[0018] In addition to winning credits in this manner, the gaming device 10 may also provide players the opportunity to win credits in a secondary game or bonus round. This type of gaming device 10 will include a program which will automatically begin a bonus round when the player has achieved a qualifying condition in the primary game. This qualifying condition can be a particular arrangement of indicia on a display device. In one embodiment, the qualifying condition is a predetermined combination of indicia appearing on a plurality of reels 28. The gaming device 10 uses in one embodiment the video-based display 31 to enable the player to play the bonus round.

[0019] As indicated above, the present invention is described herein in respect to a gaming device that simulates fog as the physical stimuli. In one embodiment, the gaming device 10 includes a top unit 52 suitably connected to and mounted on top of the cabinet 12 of the gaming device 10. The top unit 52 may be designed to attract player’s attention to the game or may alternatively be designed to hide the existence of the physical stimuli generator and outlets (so the player is surprised when the physical stimuli is generated). The physical stimuli generator increases the players enjoyment and entertainment while playing by adding external physical stimuli that supplements the primary or secondary games provided by the gaming device.

[0020] As generally illustrated in FIG. 1, in one embodiment, the top unit 52 generally includes a housing 54 and at least one and preferably a plurality of portals 56 to direct the physical stimuli toward the player or in the vicinity of the player. In the illustrated embodiment, each portal 56 provides an opening in the housing 54. The portals may be located in any suitable position in the housing. It is also contemplated that the portals may be located at any suitable position in the gaming device cabinet 12 or the drop box 57 below the lower portion of the cabinet 12. The portals 56 direct the fog or other physical stimuli outside the gaming device to stimulate a player’s senses while playing the game.

[0021] The housing 52 may be removable or permanently connected to the cabinet of the gaming device. It should also be appreciated that the housing may be mounted to the cabinet of the gaming device to facilitate movement of the housing relative to the cabinet in conjunction with the release of the physical stimuli. Such mechanism may for instance include processor controlled actuators, actuators, solenoids, thrust bearings and non-processor controlled devices such as spring dampers.

[0022] In one embodiment of the gaming device, the portals 56 are connected to fog communicators such as tubes
58 that direct or communicate the fog to the various portals on the housing 54 and gaming device cabinet 12. The tubes 58 are connected between the portals 56 and the fog generator 34. Any suitable securing mechanism may be employed to connect the communication tubes to the portals and the physical stimulator generator. The fog generator 34 produces the fog that is directed outside the gaming machine. Any suitable fog or other physical stimuli generator device may be employed in the housing 54. One commercially available fog generation machine is manufactured by Antari Lighting and Effects, Ltd. Antari also manufacturers equipment for making other physical stimuli. Preferably, the housing has an access door (not shown) to enable a operator to service the physical stimuli generator, such as for refilling the generator with concentrate for producing the physical stimuli. The concentrate or other supply is also commercially available from Antari. It should be appreciated as indicated above, that the concentrate may be provided with different water-soluble color dies which produce different color physical stimuli.

[0023] In one embodiment, the present invention includes a suitable blower incorporated in or adjacent to the fog or physical stimuli generator or along the fog or physical stimuli communicators or communication tubes to promote the distribution of fog or physical stimuli to the portals and to the area surrounding the gaming machine. The fog or physical stimuli generator can be adapted to create a steady and continuous fog or physical stimuli stream or pulsed fog or physical stimuli stream from the housing and gaming device. It should be appreciated that other types of fog or physical stimuli streams may be created as desired by the manufacturer.

[0024] It should be appreciated that the portal can extend outside the housing. In such case, the portals would preferably include designs which are relevant to the physical stimuli. For instance, the fog may extend from a portal in the design of a cigar. It should also be appreciated that the housing 54 can have any suitable shape for use with the gaming device 10 and the game. The housing 54 may be formed from one or more pieces of colored or dyed plastic or any other suitable material.

[0025] It is contemplated that the present invention works in conjunction with a game mode, game state or game event or change therein such as a primary or base game or game event, a secondary or bonus game or game event, an attract mode or payout mode of the gaming device 10. For instance, the physical stimuli may be generated when the game initiates a bonus game or round based on a triggering event in the primary game. It should be appreciated that the present invention could be activated in a primary or secondary game in conjunction with an event or occurrence during the game, such as an award to the player, or where the player enters a particular input such as making a particular wager. The physical stimuli may also be generated, for instance, when a wild card or symbol or other designated symbols occurs.

[0026] In one preferred embodiment, the gaming device 10 generates fog when triggered by the processor, based on a triggering event generated by the primary or secondary game. Preferably, the fog is distributed about the player to create the sensation of a foggy day or evening. It is also contemplated that the fog may be directed at a player to attract the player to the gaming device or to create a more noticeable special effect. It is also contemplated that smoke, steam, snow, foam, haze or other similar special effects may be generated in the same manner by the gaming device. It should be appreciated that the other physical stimuli will simulate other conditions for the player.

[0027] In one alternative embodiment, the gaming device includes a sensing device (not shown) adapted to detect a passersby. In this embodiment, when a potential player passes in front of the gaming device 10, the detecting device senses the potential player and sends an electrical signal to the processor which in turn sends an electrical signal to the fog or physical stimuli generator 34 to provide a stream of fog to attract the potential player’s attention. In another embodiment, the gaming device could simulate fog at preset time intervals, at randomly determined time intervals or at various time periods using a timing mechanism to attract players. In yet another embodiment, an operator controls the distribution of fog or physical stimuli from a remote location with a remote control device. Using this embodiment, the operator could direct different amounts of fog or other physical stimuli from the machine in an interactive manner to entertain players. In one embodiment, the processor is located within the gaming device. However, it should be appreciated that the processor may be located outside of the gaming device such as in a central control location or control room.

[0028] While the present invention has been described in connection with what is presently considered to be the most practical and preferred embodiments, it is to be understood that the invention is not limited to the disclosed embodiments, but on the contrary is intended to cover various modifications and equivalent arrangements included within the spirit and scope of the claims. It is thus to be understood that modifications and variations in the present invention may be made without departing from the novel aspects of this invention as defined in the claims, and that this application is to be limited only by the scope of the claims.

The invention is hereby claimed as follows:

1. A gaming device comprising:
   a housing defining at least one portal;
   a physical stimuli generator in said housing;
   at least one fluid communicator in said housing connected between said physical stimuli generator and said portal; and
   a processor which controls said physical stimuli generator and causes the physical stimuli generator to create physical stimuli and direct the physical stimuli through the fluid communicator to the portal and to an exterior area of the housing.

2. The gaming device of claim 1, which includes a cabinet and wherein said housing is removably attached to said cabinet.

3. The gaming device of claim 1, wherein the processor is in the cabinet and connected to the physical stimuli generator in the housing.

4. The gaming device of claim 1, wherein the housing defines a plurality of portals and which includes a plurality of fluid communicators connected between the physical stimuli generator and portals.

5. The gaming device of claim 1, wherein the physical stimuli generator is adapted to create a pulsed physical stimuli stream.
6. The gaming device of claim 1, wherein the physical stimuli generator is adapted to create a continuous physical stimuli stream.

7. The gaming device of claim 1, which includes a blower in said housing connected to said physical stimuli generator and the fluid communicator.

8. The gaming device of claim 1, wherein the physical stimuli generator includes a blower.

9. The gaming device of claim 1, wherein said processor and physical stimuli generator are at least partially controlled from a location remote from the housing.

10. The gaming device of claim 1, wherein said processor includes a timer for causing the physical stimuli generator to generate physical stimuli on a regular basis.

11. The gaming device of claim 1, which includes at least one sensing device in communication with the processor, wherein the processor selectively causes the physical stimuli generator to generate physical stimuli when a passerby is detected by said sensing device.

12. The gaming device of claim 1, wherein the physical stimuli is selected from the group consisting of: fog, smoke, steam, snow, foam, and haze.

13. The gaming device of claim 1, wherein said processor causes the physical stimuli generator to create physical stimuli in response to a player input.

14. The gaming device of claim 1, wherein said processor causes the physical stimuli generator to create physical stimuli upon the occurrence of a game event.

15. The gaming device of claim 1, wherein said processor causes the physical stimuli generator to create physical stimuli in conjunction with a game mode, game state or game event or change therein.

16. The gaming device of claim 1, wherein the processor causes the physical stimuli generator to generate the physical stimuli upon the occurrence of an event selected from the group consisting of: an initiation of a primary game; an event in a primary game; an initiation of a secondary game; an event in a secondary game; an initiation of a game mode; an event during a game mode; an initiation of a game state; an event during a game state; and an award provided to a player.

17. A gaming device comprising:

a housing defining a plurality of portals;

a physical stimuli generator in said housing adapted to generate physical stimuli selected from the group consisting of: fog, smoke, steam, snow, foam, and haze;

a plurality of fluid communicators in said housing connected between said physical stimuli generator and said portals; and

a processor which controls said physical stimuli generator and causes the physical stimuli generator to create the physical stimuli and direct the physical stimuli through the fluid communicator to the portal and to an exterior area of the housing in conjunction with a game mode, game state or game event or change therein.

18. The gaming device of claim 17, which includes a cabinet and wherein said housing is removably attached to said cabinet.

19. The gaming device of claim 17, wherein the processor is in the cabinet and connected to the physical stimuli generator in the housing.

20. The gaming device of claim 17, wherein the physical stimuli generator is adapted to create a pulsed physical stimuli stream.

21. The gaming device of claim 17, wherein the physical stimuli generator is adapted to create a continuous physical stimuli stream.

22. The gaming device of claim 17, which includes a blower in said housing connected to said physical stimuli generator and the fluid communicator.

23. The gaming device of claim 17, wherein the physical stimuli generator includes a blower.

24. The gaming device of claim 17, wherein said processor and physical stimuli generator are at least partially controlled from a location remote from the housing.

25. The gaming device of claim 17, wherein said processor includes a timer for causing the physical stimuli generator to generate physical stimuli on a regular basis.

26. The gaming device of claim 17, which includes at least one sensing device in communication with the processor, wherein the processor selectively causes the physical stimuli generator to generate physical stimuli when a passerby is detected by said sensing device.

27. The gaming device of claim 17, wherein said processor causes the physical stimuli generator to create physical stimuli in response to a player input.