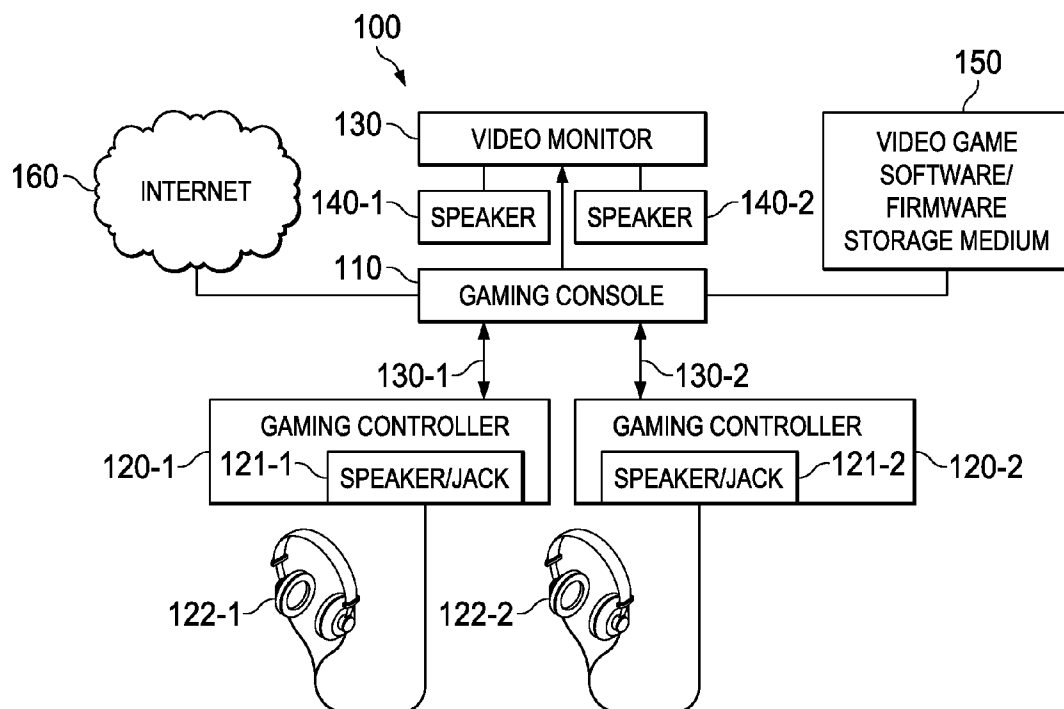




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(19) **United States**(12) **Patent Application Publication**
Freund et al.(10) **Pub. No.: US 2013/0150162 A1**(43) **Pub. Date: Jun. 13, 2013**(54) **VIDEO GAME AND METHOD HAVING
ENHANCED AUDIO EFFECTS**(52) **U.S. CL.**
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(US)(57) **ABSTRACT**(73) Assignee: **LSI Corporation**, Milpitas, CA (US)(21) Appl. No.: **13/324,019**(22) Filed: **Dec. 13, 2011****Publication Classification**(51) **Int. Cl.**
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A computer-readable medium, a method of conducting a video game and a gaming system. In one embodiment, the medium contains programming instructions that cause a computer processor to: (1) conduct a video game that generates events having corresponding exclusively audible prompts and (2) convey the exclusively audible prompts to specific audio channels for sound-capable gaming controllers of a gaming system.



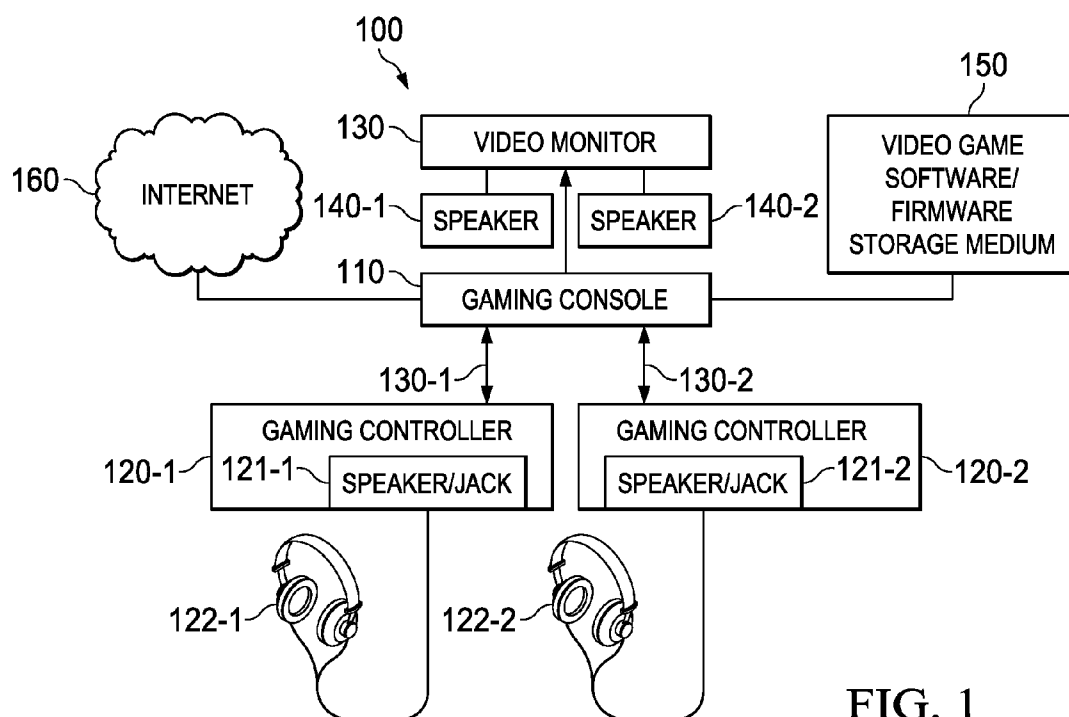


FIG. 1

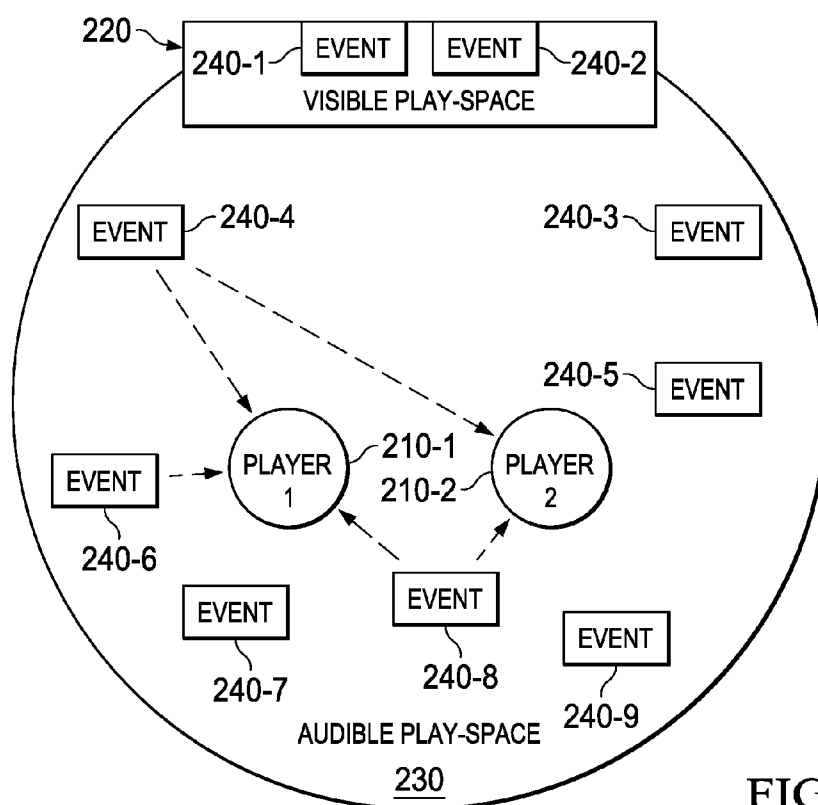


FIG. 2

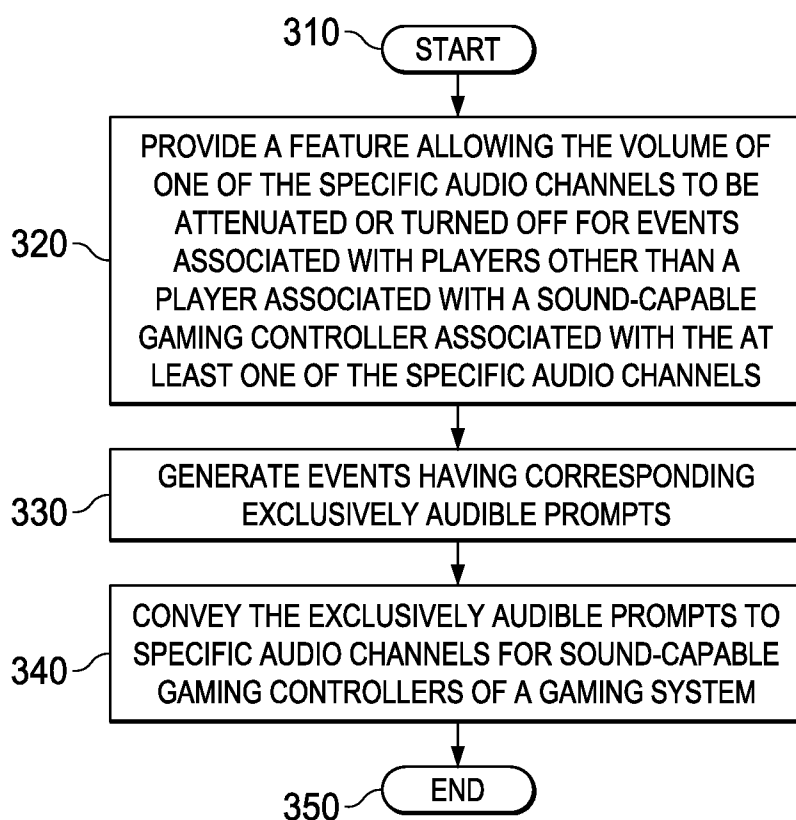


FIG. 3

VIDEO GAME AND METHOD HAVING ENHANCED AUDIO EFFECTS

TECHNICAL FIELD

[0001] This application is directed, in general, to computer games and, more specifically, to a video game having enhanced audio effects and method of conducting a video game having enhanced audio effects.

BACKGROUND

[0002] According to “Demographic Information About Videogaming,” <http://dpi.wi.gov/pld/pdf/gamingdemographics.pdf>, video gaming appeals to a much wider audience than just teens and has applications that go far beyond entertainment. Scanlon (“Getting Serious About Gaming,” Business Week Online, Aug. 14, 2007) addressed the issue of video gaming growth. Scanlon says video gaming is a growth industry and that 2007 predictions called for the video gaming market to continue to expand at a rate of 9.1% at least until 2012. There is a shift in thinking about games as a product to understanding them as a service. Video games are the third fastest-growing segment of the entertainment and media market, following television distribution at 9.3% and Internet advertising at 13.4%. It is anticipated that new growth will come from the casual and nontraditional game market. Online video games are the fastest-growing segment in the U.S., and yet they can be unattractive to a significant portion of its population.

[0003] The typical video game involves an onslaught of sights and sounds designed to heighten the senses and convey information. However, many video game novices find themselves overwhelmed by the sheer number and frequency of stimuli. Older players are particularly daunted by the volume of information presented and the number of symbols and prompts they must sense and interpret and to which they might want to respond in real time. Thus, the sights and sounds often serve to confuse and frustrate at least as much as they inform. Gaming experience appears to be the only answer to this vexing issue. However, a casual player may never be able to justify the investment of time required to conquer the hyper-informative gaming environment.

SUMMARY

[0004] One aspect provides a computer-readable medium. In one embodiment, the medium contains programming instructions that cause a computer processor to: (1) conduct a video game that generates events having corresponding exclusively audible prompts and (2) convey the exclusively audible prompts to specific audio channels for sound-capable gaming controllers of a gaming system.

[0005] Another aspect provides a method of conducting a video game. In one embodiment, the method includes: (1) generating events having corresponding exclusively audible prompts and (2) conveying the exclusively audible prompts to specific audio channels for sound-capable gaming controllers of a gaming system.

[0006] Yet another aspect provides a gaming system. In one embodiment, the system includes: (1) a gaming console having player-specific audio channels and (2) at least one sound-capable gaming controller couplable to the gaming console, the gaming console configured to execute programming instructions that cause the gaming console to: (2a) conduct a video game that generates events having corresponding

exclusively audible prompts and (2b) convey the exclusively audible prompts to specific audio channels for the sound-capable gaming controllers.

BRIEF DESCRIPTION

[0007] Reference is now made to the following descriptions taken in conjunction with the accompanying drawings, in which:

[0008] FIG. 1 is a block diagram of one embodiment of a video gaming system configured to conduct a video game having enhanced audio effects;

[0009] FIG. 2 is a diagram schematically describing a video gaming environment in which events take place during the course of conducting a video game; and

[0010] FIG. 3 is a flow diagram of one embodiment of a method of conducting a video game having enhanced audio effects.

DETAILED DESCRIPTION

[0011] A few terms will now be defined for purposes of this disclosure. A video game provides at least two sensory components: visible and audible. (Some video games provide a tactile component, but such is not important to an understanding of this disclosure.)

[0012] The visible component is almost universally rendered on a video monitor, such as a computer monitor or a television set. The video monitor forms what will be called a “visible play-space.” The audible component is rendered on one or more speakers. The speakers form what will be called an “audible play-space.”

[0013] During the course of conducting a video game, “events” of many types occur. For example, objects (including avatars representing the players) may approach one another, accelerate, move, disappear, explode, win, lose or die. One skilled in video game design, or an avid video gamer, is well familiar with the sheer number and variety of things that objects in video games can do. Video games render visible prompts (i.e., graphics representing the events) on the video monitor when they occur in the visible play-space. Video games typically also render audible prompts (i.e., music or sound effects representing the events) via the speakers when the events occur in the visible play-space. However, as will be described below, the audible play-space is typically far larger than the visible play-space. Therefore, video games are also capable of generating events that occur outside of the visible play-space and rendering audible prompts for those events that have no corresponding visible prompts. In other words, players may well have to contend with audible prompts that they cannot clarify with their eyes.

[0014] It is realized herein that players unaccustomed to the phalanx of events that transpires during the course of a video game are particularly confused by audible prompts that lack corresponding visible prompts, defined herein as “exclusively audible prompts.” It is further realized that such players, who tend to be video game novices or older than the typical video-game target audience, would benefit from a reduction in the number of exclusively audible prompts or a way to differentiate exclusively audible prompts that are relevant to their play from those that are irrelevant to their play.

[0015] It is accordingly realized that a video game can be enhanced by the addition of a feature that allows the volume of certain exclusively audible prompts to be attenuated (have a reduced relative volume), and perhaps their volume turned

completely off. It is further realized that such a feature can be made to be player-selectable such that each player may enable or disable the feature. It is still further realized that gaming systems having player-specific audio channels (e.g., in which a particular audio channel is associated with a particular gaming controller) and sound-capable gaming controllers (i.e., have a speaker or a jack for an external speaker, earphone or headphones) are capable of conducting video games that have such a feature.

[0016] Accordingly, described herein are various embodiments of a video game configured to provide a player-specific audio channel to a speaker associated with a particular player and further configured selectively at least to attenuate exclusively audible prompts on the player-specific audio channel. Also described herein are various embodiments of a method of conducting a video game in which a player-specific audio channel is provided to a particular player and exclusively audible prompts are at least attenuated on the player-specific audio channel. Certain of the video game and method embodiments allow the attenuation of the volume of the exclusively audible prompts to be a player-selectable feature. One may think of this feature as a “novice’s audio mode” or an “over-40 audio mode” that would allow players to adjust their audio experience. As the player’s ability to associate and distinguish the audible prompts improves, audible prompts associated with other players could be re-introduced and the volume of those prompts adjusted accordingly.

[0017] Certain of the video game and method embodiments employ speakers integral with gaming consoles to convey the audio prompts to the players. Other of the video game and method embodiments employ a jack integral with gaming consoles to convey the audio prompts to an earphone or headphones worn by the players. Those skilled in the pertinent art understand that headphones particularly tend to isolate a particular player from extraneous audible prompts.

[0018] FIG. 1 is a block diagram of one embodiment of a video gaming system 100 having enhanced audio effects. The video gaming system 100 includes a gaming console 110 and at least one gaming controller. The gaming console 110 includes a computer processor (not shown).

[0019] In the illustrated embodiment, the gaming console 110 is part of a dedicated video gaming system, such as commercially available from the Sony Corporation of Tokyo, Japan, Nintendo Company, Ltd. of Kyoto, Japan or Microsoft Corporation of Redmond, Wash., USA. The embodiment of FIG. 1, however, includes two gaming controllers 120-1, 120-2. Links 130-1, 130-2 couple the gaming controllers 120-1, 120-2 to the gaming console 110. In the illustrated embodiment, the links 130-1, 130-2 are wired. In an alternative embodiment, the links 130-1, 130-2 are wireless.

[0020] In an alternative embodiment, the gaming console 110 is embodied in a general purpose computer, such as a desktop personal computer (PC), laptop PC, tablet PC, personal digital assistant (PDA) or smartphone.

[0021] In the illustrated embodiment, the gaming console 110 is also coupled to a video monitor 130 configured to provide visible prompts. The gaming console 110 is further coupled either directly, or through the video monitor 130, to at least one speaker. The embodiment of FIG. 1 shows two speakers 140-1, 140-2, ostensibly to support left and right audio channels that are not associated with particular gaming controllers (including the gaming controllers 120-1, 120-2). Other embodiments support fewer or greater numbers of audio channels.

[0022] In the illustrated embodiment, each of the gaming controllers 120-1, 120-2 has one or both of an integral speaker or jack 121-1, 121-2. FIG. 2 shows a pair of headphones 122-1, 122-2 coupled and corresponding to each of the gaming controllers 120-1, 120-2.

[0023] In the illustrated embodiment, the gaming console 110 is configured to provide a data processing and storage environment for video game software or firmware. A block 150 represents a storage medium configured to store the video game software or firmware. In various embodiments, the storage medium includes one or more read-only memory (ROM) or programmable ROM (“flash”) “chips,” often located in a protective cartridge, or on one or more magnetic, optical or magneto-optical discs. In a related embodiment, some or all of the video game software may be stored on a storage medium coupled to and received from or hosted on the Internet 160. Alternatively, the video game may employ the Internet 160 to enable communication among multiple gaming consoles (not shown), forming a gaming network within which one or more video games may be played, typically among geographically distributed players.

[0024] FIG. 2 is a diagram schematically describing a video gaming environment in which events take place during the course of a video game. FIG. 2 is presented primarily for the purpose of conveying the concept of visible and audible play-spaces and events that occur in those play-spaces during the conducting of a video game. FIG. 2 shows two players playing a video game: Player 1 210-1 and Player 2 201-2. Players 1 and 2 210-1, 210-1 happen to be sitting approximately side-by-side and roughly equidistant from a visible play-space 220. While this is a typical player arrangement, it is by no means limiting.

[0025] As stated above, video games typically employ a video monitor to render visible prompts (i.e., graphics representing video game events) when video game events occur in the visible play-space 220. Accordingly, the visible play-space of FIG. 2 is intended to correspond with the video monitor 130 of FIG. 1.

[0026] As also stated above, video games render audible prompts (i.e., music or sound effects representing events) via the speakers. FIG. 2 represents this audible play-space 230 as surrounding Players 1 and 2 210-1, 210-2 and including the visible play-space 220. As FIG. 2 shows, the audible play-space 230 is typically far larger than the visible play-space 220 and, unlike the visible play-space 230, can surround Players 1 and 2 210-1, 210-2. Therefore, video games are afforded the opportunity to generate many events that may be reflected only in audible prompts, and not in visible prompts.

[0027] Accordingly, FIG. 2 shows a plurality of events 240-1, 240-2, 240-3, 240-4, 240-5, 240-6, 240-7, 240-8, 240-9 that may be generated during the course of conducting a video game. Some of the events, namely the events 240-1, 240-2, take place in both the visible play-space 220 and the audible play-space 230. The video game accordingly causes corresponding visible and audible prompts to be rendered respectively in the visible play-space 220 and the audible play-space 230. However, many of the events, namely the events 240-3, 240-4, 240-5, 240-6, 240-7, 240-8, 240-9, take place exclusively in the audible play-space 230. Being therefore outside of the visible play-space 220, the video game causes only audible prompts to be rendered in the audible play-space 230. Following are but two examples involving the rendering of exclusively audible prompts that occur in the context of currently commercially available video games.

[0028] The first example involves Mario Kart®, commercially available from Nintendo Company, Ltd., of Kyoto, Japan, and designed for the 3DS gaming system, also commercially available from Nintendo. Mario Kart® is a multi-player racing video game. When racing, a total of 12 cars participate. The video game itself controls ten of the cars. The remaining two cars are player-controlled, and the video monitor is split into two sections, one for each of the two cars and players. Each player has a third-person view of his own race car (e.g., the view is from the back of the player's car). Different levels of skill can be assigned to the video-game-controlled cars. During the race, items appear on the track that the player can run over (e.g., boxes that provide the driver with some temporary attribute or object, such as a speed increase or a red turtle shell).

[0029] Taking the shell as an example, the player can project the shell forward or backward, whereupon it homes in on the nearest car and temporarily disables any car it hits. When the shell is moving, an audible prompt constituting the sound of its approaching is conventionally broadcast to both players via speakers that are not associated with the players (e.g., the speakers **140-1**, **140-2** of FIG. 1). In conventional versions of Mario Kart®, all players hear the sound of shells approaching any car at the same volume. With a feature as described herein, modified versions of Mario Kart® could allow a player to opt to hear only the sound of a shell approaching his car. Alternatively, modified versions of Mario Kart® could allow a player to opt to have sounds of shells approaching other cars selectively attenuated.

[0030] The second example involves Gears of War®, commercially available from Microsoft Game Studios of Redmond, Wash., USA, and designed for the X-Box 360® gaming system, commercially available from Microsoft Corporation of Redmond, Wash., USA. Gears of War® is a first-person, shooting game. Enemy “grubs” burrow underground and pop up to the surface around the players. In conventional versions of Gears of War®, all players hear the sound of grubs approaching any player at the same volume. With a feature as described herein, modified versions of Gears of War® could allow a player could opt to hear only the sound of grubs approaching him. Alternatively, modified versions of Gears of War® could allow a player to opt to have sounds of grubs approaching other players selectively attenuated.

[0031] Returning to FIG. 2, arrowheaded broken lines leading from the events **240-4**, **240-8** illustrate one embodiment of selective attenuation. For purposes of this illustration, it will be assumed that both Players 1 and 2 **210-1**, **210-2** opt to have sounds selectively attenuated. Player 1 **210-1** is closer to the event **240-4**. Therefore the audible prompts corresponding to the event **240-4** will be attenuated less for Player 1 **210-1** than for Player 2 **210-2**. In a more specific embodiment, the attenuation is a function of the reciprocal of the square of a virtual distance separating Player 1 **210-1** from the event **240-4** in the audible play-space **230**, thus imitating the natural attenuation of sound in the real world.

[0032] The same selective attenuation works with respect to the event **240-8**, except that the difference in volume level that each of Players 1 and 2 **210-1**, **210-2** experiences may be greater if the attenuation is a function of the reciprocal of the square of the virtual distances separating Players 1 and **210-1**, **210-2** from the event **240-8** in the audible play-space **230**.

[0033] The arrowheaded broken lines leading from the event **240-8**, together with arrowheaded broken lines leading from the event **240-6** illustrate how an embodiment in which

audible prompts pertaining to other players are completely turned off. In such embodiment, Player 2 **210-2** would not hear the audible prompt corresponding to the event **240-6**, and Player 1 **210-1** would not hear the audible prompt corresponding to the event **240-8**.

[0034] FIG. 3 is a flow diagram of one embodiment of a method of conducting a video game having enhanced audio effects. The method begins in a start step **310**. In a step **320**, a feature is provided allowing a volume of one of specific audio channels to be attenuated or turned off for events associated with players other than a player associated with a sound-capable gaming controller associated with at least one of the specific audio channels. In other words, for example, Player 1 can attenuate or turn off the volume of his specific audio channel for events associated with Player 2 or any other players. In a step **330**, events are generated that have corresponding exclusively audible prompts. In a step **340**, the exclusively audible prompts are conveyed to specific audio channels for sound-capable gaming controllers of a gaming system in accordance with the outcome of the step **320**. The method ends in a step **350**.

[0035] Those skilled in the art to which this application relates will appreciate that other and further additions, deletions, substitutions and modifications may be made to the described embodiments.

What is claimed is:

1. A computer-readable medium containing programming instructions that cause a computer processor to:

conduct a video game that generates events having corresponding exclusively audible prompts; and
convey said exclusively audible prompts to specific audio channels for sound-capable gaming controllers of a gaming system.

2. The medium as recited in claim 1 wherein said programming instructions further cause said computer processor to provide a feature allowing a volume of one of said specific audio channels to be attenuated for events associated with players other than a player associated with a sound-capable gaming controller associated with said at least one of said specific audio channels.

3. The medium as recited in claim 1 wherein said programming instructions further cause said computer processor to provide a feature allowing a volume of one of said specific audio channels to be turned off for events associated with players other than a player associated with a sound-capable gaming controller associated with said at least one of said specific audio channels.

4. The medium as recited in claim 1 wherein said programming instructions further cause said computer processor to provide a feature allowing a volume of one of said specific audio channels to be attenuated or turned off for events associated with players other than a player associated with a sound-capable gaming controller associated with said at least one of said specific audio channels.

5. The medium as recited in claim 1 wherein said computer-readable medium is selected from the group consisting of:

a cartridge,
one or more magnetic discs,
one or more optical discs, and
one or more magneto-optical discs.

6. The medium as recited in claim 1 wherein said sound-capable gaming controllers have a speaker.

7. The medium as recited in claim 1 wherein said sound-capable gaming controllers have a headphone jack.

8. A method of conducting a video game, comprising:
generating events having corresponding exclusively audible prompts; and
conveying said exclusively audible prompts to specific audio channels for sound-capable gaming controllers of a gaming system.

9. The method as recited in claim 8 further comprising providing a feature allowing a volume of one of said specific audio channels to be attenuated for events associated with players other than a player associated with a sound-capable gaming controller associated with said at least one of said specific audio channels.

10. The method as recited in claim 8 further comprising providing a feature allowing a volume of one of said specific audio channels to be turned off for events associated with players other than a player associated with a sound-capable gaming controller associated with said at least one of said specific audio channels.

11. The method as recited in claim 8 further comprising providing a feature allowing a volume of one of said specific audio channels to be attenuated or turned off for events associated with players other than a player associated with a sound-capable gaming controller associated with said at least one of said specific audio channels.

12. The method as recited in claim 8 further comprising receiving computer instructions for said generating and said conveying from the Internet.

13. The method as recited in claim 8 wherein said sound-capable gaming controllers have a speaker.

14. The method as recited in claim 8 wherein said sound-capable gaming controllers have a headphone jack.

15. A gaming system, comprising:
a gaming console having player-specific audio channels;
at least one sound-capable gaming controller couplable to said gaming console, said gaming console configured to execute programming instructions that cause said gaming console to:
conduct a video game that generates events having corresponding exclusively audible prompts, and
convey said exclusively audible prompts to specific audio channels for said sound-capable gaming controllers.

16. The system as recited in claim 15 wherein said programming instructions further cause said computer processor to provide a feature allowing a volume of one of said specific audio channels to be attenuated for events associated with players other than a player associated with a sound-capable gaming controller associated with said at least one of said specific audio channels.

17. The system as recited in claim 15 wherein said programming instructions further cause said computer processor to provide a feature allowing a volume of one of said specific audio channels to be turned off for events associated with players other than a player associated with a sound-capable gaming controller associated with said at least one of said specific audio channels.

18. The system as recited in claim 15 wherein said programming instructions further cause said computer processor to provide a feature allowing a volume of one of said specific audio channels to be attenuated or turned off for events associated with players other than a player associated with a sound-capable gaming controller associated with said at least one of said specific audio channels.

19. The system as recited in claim 15 wherein said sound-capable gaming controllers have a speaker.

20. The system as recited in claim 15 wherein said sound-capable gaming controllers have a headphone jack.

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