

A Gaming Machine And A Network System For Distributed Gaming

5 FIELD OF INVENTION

The present invention relates broadly to a gaming machine adapted to respond to an external game server implementing an external game, to a network system for distributed gaming, to an external game server for connecting to a network of two or more gaming machines, to a card reader module for coupling to a gaming machine, to a method of executing a distributed game in a network of two or more gaming machines, to a computer readable data storage medium having stored thereon computer code means for instructing a computer processor of a gaming machine to execute a method of participating in a distributed game in a network of two or more gaming machines, and to a computer readable data storage medium having stored thereon computer code means for instructing a computer processor of an external game server to execute a method of executing a distributed game in a network of two or more gaming machines.

20

BACKGROUND

In the entertainment gaming industry, an entertainment level of a player is typically linked to the entertainment game being played by the player on a gaming machine. In other words, the entertainment level of the player is typically related to the progress and/or result of the entertainment game.

To enhance the entertainment level of the player, side games or feature games have been implemented in gaming machines. However, the feature games are typically activated based on events of the entertainment game. Thus, if the player is not able to achieve desired events of the entertainment game or if the entertainment game is not progressing satisfactorily, the feature games cannot be activated and therefore, cannot add to the entertainment level of the player.

Furthermore, as the feature games are based on events of the entertainment game, the feature games are typically programmed internal to the gaming machines. A problem can arise such that additional resources and labour are used to re-program
5 or re-configure gaming machines if any changes are made to the entertainment games.

Hence, in view of the above, there exists a need for a gaming machine adapted to respond to an external game server implementing an external game, a network
10 system for distributed gaming, an external game server for connecting to a network of two or more gaming machines, a card reader module for coupling to a gaming machine, a method of executing a distributed game in a network of two or more gaming machines, a computer readable data storage medium having stored thereon computer code means for instructing a computer processor of a gaming machine to
15 execute a method of participating in a distributed game in a network of two or more gaming machines that seek to address at least one of the above problems and a computer readable data storage medium having stored thereon computer code means for instructing a computer processor of an external game server to execute a method of executing a distributed game in a network of two or more gaming machines.

20

SUMMARY

In accordance with a first aspect of the present invention, there is provided a
25 gaming machine adapted to respond to an external game server implementing an external game, the gaming machine comprising, a network interface for establishing a communication link to the external game server; an external game participation (EGP) module configured for receiving a machine usage query from the external game server; for determining a machine usage status of the gaming machine and
30 for transmitting a machine usage response to the external game server.

Results of the external game may be independent of an entertainment game executed by the gaming machine.

The EGP module may determine a machine usage status of the gaming machine based on determining a presence of a game card in a card reader.

5 The EGP module may determine a machine usage status of the gaming machine based on determining whether an entertainment game is ongoing in the gaming machine.

10 The machine usage response may comprise an identification indicia of the gaming machine.

The EGP module may comprise a functional hardware unit.

15 The functional hardware unit may comprise an Application Specific Integrated Circuit (ASIC).

The EGP module may be implemented as a software application installed on the gaming machine.

20 The software application may be downloaded via the network interface.

The EGP module may further comprise a display module for displaying results of the external game on a screen of the gaming machine.

25 The gaming machine may be one selected from a group consisting of an arcade gaming machine, a slot machine and an electronic gaming table.

The gaming machine may be in the form of a handheld communications device.

30 In accordance with a second aspect of the present invention, there is provided a network system for distributed gaming, the system comprising, an external game server connected to a network for implementing an external game; two or more gaming machines connected to the network, each gaming machine comprising, a network interface for establishing a communication link to an external

game server; an external game participation (EGP) module configured for receiving a machine usage query from the external game server; for determining a machine usage status of the gaming machine and for transmitting a machine usage response to the external game server.

5

The external game server may be configured to send respective machine usage queries to the gaming machines of the network; receive respective machine usage responses from the gaming machines of the network; execute a processing for the external game based on the received machine usage responses; and
10 determine one or more winners of the external game based on the processing.

The external game server may be configured to execute the external game based on the two or more gaming machines to select one or more gaming machines; send respective machine usage queries to the selected one or more
15 gaming machines; receive respective machine usage responses from the selected one or more gaming machines; and determining one or more winners of the external game based on the received machine usage responses.

For each gaming machine, results of the external game may be independent
20 of an entertainment game executed by the gaming machine.

For at least one gaming machine, the EGP module may determine a machine usage status of the gaming machine based on determining a presence of a game card in a card reader.

25

For at least one gaming machine, the EGP module may determine a machine usage status of the gaming machine based on determining whether an entertainment game is ongoing in the gaming machine.

30 For each gaming machine, the machine usage response may comprise an identification indicia of the gaming machine.

For at least one gaming machine, the EGP module may comprise a functional hardware unit.

The functional hardware unit may comprise an Application Specific Integrated Circuit (ASIC).

- 5 For at least one gaming machine, the EGP module may be implemented as a software application installed on the gaming machine.

The software application may be downloaded via the network interface.

- 10 For each gaming machine, the EGP module may further comprise a display module for displaying results of the external game on a screen of the gaming machine.

- 15 One or more of the gaming machines may be selected from a group consisting of an arcade gaming machine, a slot machine and an electronic gaming table.

- 20 One or more of the gaming machines may be in the form of a handheld communications device.

- 25 In accordance with a third aspect of the present invention, there is provided an external game server for connecting to a network of two or more gaming machines, the game server comprising, a network interface for sending respective machine usage queries to the gaming machines of the network and for receiving
25 respective machine usage responses from the gaming machines of the network; and a processor for executing an external game based on received machine usage responses.

- 30 The processor may instruct the network interface to send respective machine usage queries to the gaming machines of the network and the network interface to receive respective machine usage responses from the gaming machines of the network; and the processor may determine one or more winners of the external game from amongst one or more gaming machines of the network which provided a positive machine usage response.

The processor may execute the external game and select one or more gaming machines from amongst the two or more gaming machines of the network; and the processor may instruct the network interface to send respective machine usage queries to the selected one or more gaming machines and the network interface to receive respective machine usage responses from the selected one or more gaming machines; and the processor may determine one or more winners of the external game from amongst the selected one or more gaming machines which provided a positive machine usage response.

In accordance with a fourth aspect of the present invention, there is provided a card reader module for coupling to a gaming machine, the card reader module comprising, a first communication element for establishing a communication link to the gaming machine; a second communication element for establishing a communication link to an external game server; an external game participation (EGP) module configured for receiving a machine usage query from the external game server; for determining a machine usage status of the gaming machine and for transmitting a machine usage response to the external game server.

The first communication element and the second communication element may be integrated via a network interface.

In accordance with a fifth aspect of the present invention, there is provided a method of executing a distributed game in a network of two or more gaming machines, the method comprising, establishing a communication link from each gaming machine to an external game server; and at each gaming machine, receiving a machine usage query from the external game server using an external game participation (EGP) module; determining a machine usage status of the gaming machine using the EGP module; and transmitting a machine usage response to the external game server using the EGP module.

Results of the distributed game may be independent of an entertainment game executed by each gaming machine.

The determining a machine usage status may be based on determining a presence of a game card in a card reader.

5 The determining a machine usage status may be based on determining whether an entertainment game is ongoing in the gaming machine.

The machine usage response may comprise an identification indicia of the gaming machine.

10 For at least one gaming machine, the EGP module may comprise a functional hardware unit.

The functional hardware unit may comprise an Application Specific Integrated Circuit (ASIC).

15

For at least one gaming machine, the EGP module may be implemented as a software application installed on the gaming machine.

The software application may be downloaded via the communication link.

20

The method may further comprise displaying results of the external game on a screen of each gaming machine.

25 One or more of the gaming machines may be selected from a group consisting of an arcade gaming machine, a slot machine and an electronic gaming table.

One or more of the gaming machines may be in the form of a handheld communications device.

30

In accordance with a sixth aspect of the present invention, there is provided a computer readable data storage medium having stored thereon computer code means for instructing a computer processor of a gaming machine to execute a method of participating in a distributed game in a network of two or more gaming machines, the

method comprising, establishing a communication link from the gaming machine to an external game server; and receiving a machine usage query from the external game server using an external game participation (EGP) module; determining a machine usage status of the gaming machine using the EGP module; and
5 transmitting a machine usage response to the external game server using the EGP module.

In accordance with a seventh aspect of the present invention, there is provided a computer readable data storage medium having stored thereon computer
10 code means for instructing a computer processor of an external game server to execute a method of executing a distributed game in a network of two or more gaming machines, the method comprising, establishing a communication link to each gaming machine from the external game server; transmitting a machine usage query from the external game server to each gaming machine using an external game
15 participation (EGP) module of the gaming machine, the EGP module being configured to determine a machine usage status of the gaming machine; and receiving machine usage responses transmitted to the external game server using the respective EGP modules.

20

BRIEF DESCRIPTION OF THE DRAWINGS

Embodiments of the invention will be better understood and readily apparent to one of ordinary skill in the art from the following written description, by way of
25 example only, and in conjunction with the drawings, in which:

Figure 1 is a schematic diagram illustrating an external game network in an example embodiment.

30 Figure 2 is a schematic perspective view of a gaming machine in an example embodiment.

Figure 3 shows a schematic drawing of an external game system according to another example embodiment.

Figure 4 is a flowchart illustrating a method of executing a distributed game in a network of two or more gaming machines in an example embodiment.

5 Figure 5 is a schematic drawing of a computer controlled gaming machine for implementing an example embodiment.

Figure 6(a) is a schematic top view diagram illustrating a removable card reader for use in an example embodiment.

10

Figure 6(b) is a schematic front view diagram illustrating the removable card reader.

15 **DETAILED DESCRIPTION**

In an example embodiment, a player can be registered as playing an entertainment game at a gaming machine. An external game, such as a draw game, that is independent of the entertainment game is conducted.

20

For example, a draw game is implemented using an external game server or module or system coupled to each gaming machine. The draw game can be programmed to activate at periodic intervals.

25 In one example embodiment, at the draw game activation period, the external game server determines whether or not there is a player playing at each gaming machine before conducting the draw game. The draw game is based only on gaming machines currently having players playing thereat. Thus, all prizes are awarded at the current draw game activation period.

30

In an alternative example embodiment, at the draw game activation period, the external game server conducts the draw game based on all available gaming machines, ie. without checking whether there are players playing at the gaming machines. One or more gaming machines are selected. The external game server

then communicates with the selected gaming machines to determine whether or not there is a player playing at each selected gaming machine. On one hand, if there is a player playing at a selected gaming machine, prizes from the draw game are awarded to the player. This gaming machine is termed as a winner of the draw game or a winning gaming machine. On the other hand, if there is no player playing at a selected gaming machine, prizes from the draw game can either be "snowballed" to be awarded at the next draw game activation period or the external game server proceeds to draw another gaming machine as a selected gaming machine and checking that this selected gaming machine has a player playing at the gaming machine, such that all prizes are awarded to winning gaming machines at the current draw game activation period.

Some portions of the description which follows are explicitly or implicitly presented in terms of algorithms and functional or symbolic representations of operations on data within a computer memory. These algorithmic descriptions and functional or symbolic representations are the means used by those skilled in the data processing arts to convey most effectively the substance of their work to others skilled in the art. An algorithm is here, and generally, conceived to be a self-consistent sequence of steps leading to a desired result. The steps are those requiring physical manipulations of physical quantities, such as electrical, magnetic or optical signals capable of being stored, transferred, combined, compared, and otherwise manipulated.

Unless specifically stated otherwise, and as apparent from the following, it will be appreciated that throughout the present specification, discussions utilizing terms such as "calculating", "determining", "generating", "initializing", "outputting", or the like, refer to the action and processes of a computer system, or similar electronic device, that manipulates and transforms data represented as physical quantities within the computer system into other data similarly represented as physical quantities within the computer system or other information storage, transmission or display devices.

The present specification also discloses apparatus for performing the operations of the methods. Such apparatus may be specially constructed for the required purposes, or may comprise a general purpose computer or other device selectively activated or reconfigured by a computer program stored in the computer. The algorithms and

displays presented herein are not inherently related to any particular computer or other apparatus. Various general purpose machines may be used with programs in accordance with the teachings herein. Alternatively, the construction of more specialized apparatus to perform the required method steps may be appropriate. The structure of a conventional general purpose computer will appear from the description below.

In addition, the present specification also implicitly discloses a computer program, in that it would be apparent to the person skilled in the art that the individual steps of the method described herein may be put into effect by computer code. The computer program is not intended to be limited to any particular programming language and implementation thereof. It will be appreciated that a variety of programming languages and coding thereof may be used to implement the teachings of the disclosure contained herein. Moreover, the computer program is not intended to be limited to any particular control flow. There are many other variants of the computer program, which can use different control flows without departing from the spirit or scope of the invention.

Furthermore, one or more of the steps of the computer program may be performed in parallel rather than sequentially. Such a computer program may be stored on any computer readable medium. The computer readable medium may include storage devices such as magnetic or optical disks, memory chips, or other storage devices suitable for interfacing with a general purpose computer. The computer readable medium may also include a hard-wired medium such as exemplified in the Internet or Intranet systems, or wireless medium such as exemplified in the GSM mobile telephone system. The computer program when loaded and executed on such a general-purpose computer effectively results in an apparatus that implements the steps of the preferred method.

The invention may also be implemented as hardware modules. More particular, in the hardware sense, a module is a functional hardware unit designed for use with other components or modules. For example, a module may be implemented using discrete electronic components, or it can form a portion of an entire electronic circuit such as an Application Specific Integrated Circuit (ASIC). Numerous other possibilities exist. Those skilled in the art will appreciate that the system can also be implemented as a combination of hardware and software modules.

Figure 1 is a schematic diagram illustrating an external game network 102 in an example embodiment. The network 102 comprises a game server 104. In the example embodiment, the game server 104 functions as an external game server for implementing a draw game. The network 102 links a plurality of player terminals or gaming machines e.g. 106, 108 to the game server 104 such that players operating the respective gaming machines e.g. 106, 108 can be entered into the draw game. The gaming machines e.g. 106, 108 can be in the form of arcade machines.

In the example embodiment, at periodic intervals, the game server 104 generates a draw game activation command. Upon generation of the draw game activation command, the game server 104 transmits a machine usage query to each of the linked gaming machines e.g. 106, 108. At each gaming machine e.g. 106, 108, a check is carried out to determine a machine usage status of the gaming machine e.g. whether a player is currently playing at the gaming machine. In the example embodiment, the check is based on sensing whether a game card is inserted into the player terminal via a game card reader 110 of the gaming machine e.g. 106, 108.

In the example embodiment, if no game card is sensed in the game card reader, the gaming machine feeds back a negative machine usage response to the game server 104. On the other hand, if a game card is sensed in the game card reader, the gaming machine feeds back a positive machine usage response to the game server 104. The machine usage responses are transmitted to the game server 104 coupled with respective identification indicia, e.g. ID numbers, of the gaming machines e.g. 106, 108. In this way, the game server 104 compiles a list of ID numbers with positive machine usage responses and conducts the draw game with the ID numbers on the list.

In the example embodiment, the draw game comprises randomly selecting one or more ID numbers on the list and awarding prizes to the players at the gaming machines e.g. 106, 108 corresponding to the selected ID numbers. Awarding of the prizes can be via a number of methods. For example, in one method, the game

server 104 transmits the selected ID numbers to an operator and the operator presents the prizes to the players at the respective gaming machines e.g. 106, 108. Alternatively, bonus credits may be awarded by the game server 104 to the players at the gaming machines e.g. 106, 108 corresponding to the selected ID numbers.

5

Thus, in the example embodiment, the draw game and the results of the draw game are independent of the entertainment game at each gaming machine e.g. 106, 108 and entry into the draw game is based on registration of the presence of a player playing at the gaming machine. Advantageously, additional
10 entertainment can be provided to the players at the gaming machines via the bonus prizes/credits awarded by the draw game, regardless of the progress or results of the entertainment games being played at the gaming machines e.g. 106, 108.

In another example embodiment, instead of conducting the draw game based
15 on gaming machines currently having players playing at the gaming machines, the draw game is conducted with ID numbers of all available gaming machines, ie. without checking whether there are players playing at the gaming machines.

In the example embodiment, at periodic intervals, the game server 104
20 generates a draw game activation command. Upon generation of the draw game activation command, the game server 104 compiles a list of ID numbers of all available gaming machines and conducts the draw game with the ID numbers on the list. In the example embodiment, the draw game comprises randomly selecting one or more ID numbers on the list as selected gaming machines.

25

After selecting the gaming machines, the game server 104 transmits a machine usage query to each of the linked selected gaming machines e.g. 106, 108. At each selected gaming machine e.g. 106, 108, a check is carried out to determine a machine usage status of the gaming machine e.g. whether a player is currently
30 playing at the gaming machine. In the example embodiment, the check is based on sensing whether a game card is inserted into the player terminal via a game card reader 110 of the gaming machine e.g. 106, 108.

In the example embodiment, if no game card is sensed in the game card reader, the gaming machine feeds back a negative machine usage response to the game server 104. On the other hand, if a game card is sensed in the game card reader, the gaming machine feeds back a positive machine usage response to the game server 104. The machine usage responses are transmitted to the game server 104 coupled with respective ID numbers of the selected gaming machines e.g. 106, 108.

In this way, the game server 104 can award prizes to selected gaming machines having positive machine usage responses, ie. winning gaming machines. In other words, prizes are awarded to players present at winning gaming machines e.g. 106, 108. As for selected gaming machines e.g. 106, 108 transmitting negative machine usage responses, ie. if there is no player playing at a selected gaming machine, prizes from the draw game can be "snowballed" to be awarded at the next draw game activation period. Alternatively, the game server 104 proceeds to draw another gaming machine as a selected gaming machine (and said another gaming machine has a player playing at the gaming machine, ie. having a positive machine usage response), such that all prizes can be awarded to winning gaming machines at the current draw game activation period.

Awarding of the prizes can be via a number of methods. For example, in one method, the game server 104 transmits the ID numbers of winning gaming machines having positive machine usage responses to an operator and the operator presents the prizes to the players at the respective winning gaming machines e.g. 106, 108. Alternatively, bonus credits may be awarded by the game server 104 to the players at the winning gaming machines e.g. 106, 108.

Thus, in the example embodiment, the draw game and the results of the draw game are independent of the entertainment game at each gaming machine e.g. 106, 108 and winning the draw game is based on registration of the presence of a player playing at the gaming machine. Advantageously, additional entertainment can be provided to the players at the gaming machines via the bonus prizes/credits awarded by the draw game, regardless of the progress or results of the entertainment games being played at the gaming machines e.g. 106, 108.

Figure 2 is a schematic perspective view of a gaming machine 200 in an example embodiment. An entertainment game is implemented in the gaming machine 200. The gaming machine 200 comprises a liquid crystal display (LCD) screen 202, a keyset 204 of push buttons, a removable game card reader 206, a winnings button 208, a prize pay-out tray 210 and a top box 212. The gaming machine 200 further comprises a network interface such as a cable link (schematically shown at numeral 214) for establishing a communication link to an external game server (compare 104 (Figure 1)). The gaming machine 200 also comprises a memory (not shown) for storing a unique identification number corresponding to the gaming machine 200.

The removable game card reader 206 can be installed in the gaming machine 200 in a number of different ways, as would be appreciated by a person skilled in the art. One example is to provide a mating connector each in the removable game card reader 206 and the gaming machine 200 for coupling the removable game card reader 206 to the gaming machine 200. The mating connector can be in the form of a serial port or a parallel port or a universal serial bus (USB) port. In the example embodiment, the removable game card reader 206 comprises an external game participation (EGP) module (not shown) to facilitate implementation of the external game.

The LCD screen 202 displays the entertainment game. The LCD screen 202 is incorporated with touch screen technology to allow a player to play the games contained in the gaming machine 200. The keyset 204 of push buttons allows the player to operate or initiate the gaming machine 200. The removable game card reader 206 receives a game card or a stored-value card from the player for buying/transferring credits to play the games in the gaming machine 200. The stored-value card also allows the player to transfer unused credits from a previous gaming session to play the games in the gaming machine 200. Any existing credits are transferable both to and from the gaming machine 200 using the stored-value card. The winnings button 208 allows the player to request for winnings from the gaming machine 200 e.g. when the player stops playing the gaming machine. When the winnings button 208 is activated, the player can select whether to transfer the

accumulated credits to the stored-value card or to redeem prizes. The prizes may be given out at the prize pay-out tray 210. The top box 212 is located on the top of the gaming machine 200 and comprises an artwork panel 216. The artwork panel 216 displays winning combinations for winning the entertainment game. The amount of entertainment game winnings awarded when the player wins each turn of the entertainment game is governed based on an odds table stored or programmed in the gaming machine 200.

In the example embodiment, the EGP module receives a machine usage query from the game server through the link 214, upon generation of a draw game activation command at the game server. The gaming machine 200 uses the removable game card reader 206 to determine whether a stored-value card is inserted in the removable game card reader 206 for determining a machine usage status of the gaming machine 200.

The removable game card reader 206 comprises a sensor for sensing the stored-value card. If the sensor returns a null result, the EGP module transmits a negative machine usage response coupled with the identification number to the game server. On the other hand, if the sensor senses that a stored-value card is inserted in the game card reader 206, the EGP module transmits a positive machine usage response coupled with the identification number to the game server.

In the example embodiment, the gaming machine 200 is entered into the draw game at the game server if a stored-value card is inserted in the game card reader 206, ie. a player is playing at the gaming machine 200. If the identification number of the gaming machine 200 is selected as a winner in the draw game, the game server awards the player at the gaming machine 200 with a prize. Furthermore, the game server can notify the player of winning the draw game via the link 214 to the gaming machine 200. For example, the notification of the win can be displayed on the screen 202 of the gaming machine 200 or on a LCD display screen (not shown) on the removable game card reader 206.

Thus, in the example embodiment, the draw game is independent of the entertainment game at the gaming machine 200. Entry into the draw game is based

on registration of the presence of a player playing at the gaming machine 200. Advantageously, additional entertainment can be provided to the player via the bonus prizes/credits awarded by the draw game, regardless of the progress or result of the entertainment game being played at the gaming machine 200.

5

In another example embodiment, the draw game is conducted including the gaming machine 200 without first checking whether a stored-value card is inserted in the game card reader 206. If the gaming machine 200 is selected as a selected gaming machine in the draw game, the game server sends a machine usage query
10 to the EGP module through the link 214. If the EGP module transmits a positive machine usage response to the game server, the game server awards the player at the selected gaming machine 200 with a prize from the draw game.

In the example embodiment, if the EGP module transmits a negative
15 machine usage response to the game server, ie. if there is no player playing at the gaming machine 200, prizes from the draw game can be "snowballed" to be awarded at a next draw game activation period. Alternatively, the game server proceeds to draw another gaming machine as a selected gaming machine (and said another gaming machine has a player playing at the gaming machine, ie. having a
20 positive machine usage response), such that all prizes can be awarded to winning gaming machines at the current draw game activation period.

In the above example embodiments, the gaming machines are described as being in the form of arcade machines. However, it will be appreciated that the gaming
25 machines can include other electronic devices.

Figure 3 shows a schematic drawing of an external game system 300 according to another example embodiment. The system 300 comprises a plurality of gaming machines 302, 304, 306, each coupled to an external game server or unit
30 308. The gaming machines 302, 304, 306 and the game unit 308 communicate via respective network interfaces provided on the gaming machines and the game unit. The gaming machines 302, 304, 306 may be implemented in a variety of different ways. For example, one or more of the gaming machines 302 are implemented as physical gaming machines such as arcade gaming machines, slot machines,

electronic gaming tables or the like. One or more other gaming machines 304 are implemented as virtual gaming machines on desktop devices. One or more other gaming machines 306 are implemented as virtual gaming machines on portable handheld devices such as mobile phones, Personnel Digital Assistants (PDAs) or the like. The virtual gaming machines 304, 306 may be implemented via the Internet, interactive TV or other service networks. The coupling between the game unit 308 and the respective gaming machines 302, 304, 306 may be implemented in a variety of different ways, including via the Internet, or via other wired or wireless networks.

The game unit 308 comprises a database 310 for storing data for conducting an external game and other information such as information identifying the respective gaming machines 302, 304, 306. Further, the game unit 308 comprises a processor 312 coupled to the database 310 for conducting the external game at periodic or random timings and awarding prizes to players on the respective gaming machines 302, 304, 306, based on the information stored in the database 310.

Each of the gaming machines 302, 304, 306 comprises an external game participation (EGP) module configured for receiving a machine usage query from the game unit 308; for determining a machine usage status of the gaming machine and for transmitting a machine usage response to the database 310 of the game unit 308. For example, for the virtual gaming machines 304, 306, the EGP module may be implemented as a software application installed on the gaming machines. The software application can be downloaded via the respective network interfaces provided on the gaming machines. Accordingly, information on whether the players are playing at the respective gaming machines 302, 304, 306 are transmitted to the game unit 308. Thus, the game unit 308 registers that players are playing at the gaming machines 302, 304, 306 via the respective network interfaces or communication links. Prizes awarded by the external game can be awarded to players on the respective gaming machines 302, 304, 306 based on respective machine usage responses under the control of the processor 312.

The processor 312 awards the prizes based on results of the external game and independent of the entertainment games implemented on the respective gaming machines 302, 304, 306. The external game can be implemented as or based on a

draw e.g. lottery draw executed by the processor 312. It will be appreciated that the external game system 300 thus provides a distributed external gaming environment with a centralized external game database for conducting an external game and awarding prizes to players on the respective gaming machines 302, 304, 306.

5

In the above example embodiments, the gaming machines are described as being linked to a game server or unit. Also, the example embodiments are described as having more than two gaming machines linked in a network or system.

10

Figure 4 is a schematic flowchart 400 for illustrating a method of executing a distributed game in a network of two or more gaming machines in an example embodiment. At step 402, a communication link from each gaming machine to an external game server is established. At step 404, at each gaming machine, a machine usage query is received from the external game server using an external game participation (EGP) module. At step 406, at each gaming machine, a machine usage status of the gaming machine is determined using the EGP module. At step 408, at each gaming machine, a machine usage response is transmitted to the external game server using the EGP module

15

20

The above described example embodiments may be implemented on any form of device or machine that is a computer controlled gaming machine. They may be implemented as software, such as a computer program being executed within the gaming machine, and instructing the gaming machine to conduct the gaming process of the example embodiments.

25

30

The gaming machine may comprise a computer module 502, schematically shown in Figure 5. The computer module 502 in an example implementation includes a processor 504, a Random Access Memory (RAM) 506 and a Read Only Memory (ROM) 508. The computer module 502 also includes a number of Input/Output (I/O) interfaces, for example I/O interface 510 to a display 512.

The components of the computer module 502 typically communicate via an interconnected bus 514 and in a manner known to the person skilled in the relevant art.

The application program is typically supplied to the operator of the gaming machine encoded on a data storage medium such as a CD-ROM or a flash memory module such as a memory card/stick and read utilizing a corresponding data storage medium drive of a data storage device 516. The application program is read and controlled in its execution by the processor 504. Intermediate storage of program data may be accomplished using RAM 506.

Figure 6(a) is a schematic top view diagram illustrating a removable card reader 600 for use in an example embodiment. Figure 6(b) is a schematic front view diagram illustrating the removable card reader 600.

The card reader 600 comprises a card slot 602, a card reading circuit 604, a network interface or connector port 606, a memory/database module 608 and a processing slot 610 having installed thereon an external game participation (EGP) module. The EGP module can be a dedicated processor circuit such as an Application Specific Integrated Circuit (ASIC) or a dedicated chip such as an ASIC chip. The card reading circuit 604 comprises a card reading processor 612 and a card sensor 614. The components of the removable card reader 600 communicate via bus lines e.g. 616, 618. The EGP module can comprise a display module 620 for facilitating displaying results of the external game on a screen (compare LCD screen 202 of Figure 2) of the gaming machine. The card reader 600 further comprises a LCD display 622, speakers 624, 626 and a wireless communication module 628.

The EGP module is configured for receiving a machine usage query from an external game server; for determining a machine usage status of the gaming machine and for transmitting a machine usage response to the external game server.

The card slot 602 is configured to receive game cards or stored-value cards. The card slot 602 can comprise, but is not limited to, a magnetic swipe unit for reading magnetic cards. The card reading circuit 604 enables reading and writing of the game cards or stored value cards. The connector port 606 enables the removable card reader 600 to be connected to an electronic device such as a

gaming machine. The port 606 can be in the form of a serial port or a parallel port or a USB port. The port 606 can comprise a first communication element for establishing a communication link to the gaming machine and a second communication element for establishing a communication link to the external game server. The memory/database module 608 is provided for storing information or data for use by the components of the card reader 600. The card sensor 614 is provided for sensing whether a game card or stored-value card is inserted into the card slot 602. The LCD display 622 is provided for displaying information such as results of an external game conducted by the external game server, winning points of an entertainment game of the gaming machine and available game credits of a player. The speakers 624, 626 are provided for outputting music and/or sound effects corresponding to the entertainment game of the gaming machine. The wireless communication module 628 comprises electronic circuitry that can enable contactless card reading. For example, the wireless communication module 628 can enable Radio Frequency Identification (RFID) communication or near-field communication (NFC) with a game card. In other words, instead of inserting a game card into the card slot 602, a player can hold the game card at the wireless communication module 628 for contactless communication. The card reader 600 is controlled in its execution by the card reading processor 612.

It will be appreciated by a person skilled in the art that numerous variations and/or modifications may be made to the present invention as shown in the specific embodiments without departing from the spirit or scope of the invention as broadly described. The present embodiments are, therefore, to be considered in all respects to be illustrative and not restrictive.

For example, in the example embodiments, activation of the external game is described to occur at periodic intervals. However, the activation can also be carried out at random timings. For random activation, for example, the external game server or unit or processing module may comprise a processor that generates a random number and compares the random number to a list of pre-determined numbers. If the random number appears on the list, the external game activation command is generated.

Further, in the example embodiments, determining whether a player is playing at a gaming machine or a player terminal is based on whether a game card is inserted in a card reader. However, the determining is not limited as such and can include e.g. checking whether the entertainment game at the gaming machine is ongoing or checking whether there are any available credits deposited at the gaming machine for playing the entertainment game. This can be achieved by installing the EGP module e.g. as an ASIC chip internal the gaming machine or by implementing the EGP module e.g. as a software application installed on the gaming machine. Thus, even for a gaming machine without a card reader e.g. using a token slot for credits, it is still possible to determine whether a player is playing at a gaming machine. Therefore, the EGP module can either be external or internal to the gaming machine.

In addition, the gaming machines in the example embodiments are linked to an external game server or unit. It will be appreciated that the link is not limited to a physical cable link and can include a wireless link.

Further, the link in the example embodiments is described to be between a game server or unit and a gaming machine. However, it will be appreciated that the example embodiments are not limited as such and can be modified to include a link directly from the game server or unit to the EGP module for determining whether a player is playing at a gaming machine (ie. without further processing via the gaming machine).

Further, the external game is not limited to a draw game but can include e.g. any game of chance or game of skill that can provide the player with additional entertainment and is independent of the entertainment game played at the gaming machine.

In addition, the prizes awarded by winning the external game are not limited to credits and can include game points, loyalty points etc.

The gaming machines may be implemented as physical or virtual gaming machines, such as via the Internet, interactive TV, Local Area Network (LAN)-based or

other service networks. The virtual gaming machines may be implemented on desk top devices or portable devices. For gaming machines implemented as physical gaming machines, although touch screen keys have been described in the example embodiments, other actuators such as mechanical keys or pull/push handles may also be used to play the games contained in the gaming machine.

Furthermore, although the gaming machine is described generally as implementing an entertainment game, the entertainment game can take different forms and graphical representations of games including, but not limited to, table games, card games, numbers games, sports games, medal games, redemption games, vending games, video games, music games, amusement games etc.. The winning combinations may also be governed by different game rules.

In addition, it has been described in the example embodiments that the winners of the external game are notified of the win via displaying the win locally at the display screens of the respective gaming machines or the display screens of the respective card readers. However, it will be appreciated that the notification of the win is not limited as such and can include other forms of notification, such as the external game server displaying winners of the external game on a centralized display (e.g. a large LCD or plasma display in an entertainment complex).

CLAIMS

1. A gaming machine adapted to respond to an external game server implementing an external game, the gaming machine comprising,

5 a network interface for establishing a communication link to the external game server;

an external game participation (EGP) module configured for receiving a machine usage query from the external game server; for determining a machine usage status of the gaming machine and for transmitting a machine usage response
10 to the external game server.

2. The gaming machine as claimed in claim 1, wherein results of the external game are independent of an entertainment game executed by the gaming machine.

3. The gaming machine as claimed in claims 1 or 2, wherein the EGP module determines a machine usage status of the gaming machine based on determining a presence of a game card in a card reader.

4. The gaming machine as claimed in claims 1 or 2, wherein the EGP module determines a machine usage status of the gaming machine based on determining whether an entertainment game is ongoing in the gaming machine.

5. The gaming machine as claimed in any one of the preceding claims, wherein the machine usage response comprises an identification indicia of the gaming machine.

6. The gaming machine as claimed in any one of the preceding claims, wherein the EGP module comprises a functional hardware unit.

7. The gaming machine as claimed in claim 6, wherein the functional hardware unit comprises an Application Specific Integrated Circuit (ASIC).

8. The gaming machine as claimed in any one of claims 1 to 5, wherein the EGP module is implemented as a software application installed on the gaming machine.

5 9. The gaming machine as claimed in claim 8, wherein the software application is downloaded via the network interface.

10 10. The gaming machine as claimed in any one of the preceding claims, wherein the EGP module further comprises a display module for displaying results of the external game on a screen of the gaming machine.

15 11. The gaming machine as claimed in any one of the preceding claims, wherein the gaming machine is one selected from a group consisting of an arcade gaming machine, a slot machine and an electronic gaming table.

12. The gaming machine as claimed in any one of claims 1 to 10, wherein the gaming machine is in the form of a handheld communications device.

20 13. A network system for distributed gaming, the system comprising, an external game server connected to a network for implementing an external game;

two or more gaming machines connected to the network, each gaming machine comprising,

25 a network interface for establishing a communication link to an external game server;

an external game participation (EGP) module configured for receiving a machine usage query from the external game server; for determining a machine usage status of the gaming machine and for transmitting a machine usage response to the external game server.

30 14. The system as claimed in claim 13, wherein the external game server is configured to

send respective machine usage queries to the gaming machines of the network;

receive respective machine usage responses from the gaming machines of the network;

execute a processing for the external game based on the received machine usage responses; and

5 determine one or more winners of the external game based on the processing.

15. The system as claimed in claim 13, wherein the external game server is configured to

10 execute the external game based on the two or more gaming machines to select one or more gaming machines;

send respective machine usage queries to the selected one or more gaming machines;

15 receive respective machine usage responses from the selected one or more gaming machines; and

determining one or more winners of the external game based on the received machine usage responses.

16. The system as claimed in any one of claims 13 to 15, wherein for
20 each gaming machine, results of the external game are independent of an entertainment game executed by the gaming machine.

17. The system as claimed in any one of claims 13 to 16, wherein for at
least one gaming machine, the EGP module determines a machine usage status of
25 the gaming machine based on determining a presence of a game card in a card reader.

18. The system as claimed in any one of claims 13 to 16, wherein for at
least one gaming machine, the EGP module determines a machine usage status of
30 the gaming machine based on determining whether an entertainment game is ongoing in the gaming machine.

19. The system as claimed in any one of claims 13 to 18, wherein for each gaming machine, the machine usage response comprises an identification indicia of the gaming machine.

5 20. The system as claimed in any one of claims 13 to 19, wherein for at least one gaming machine, the EGP module comprises a functional hardware unit.

21. The system as claimed in claim 20, wherein the functional hardware unit comprises an Application Specific Integrated Circuit (ASIC).

10

22. The system as claimed in any one of claims 13 to 19, wherein for at least one gaming machine, the EGP module is implemented as a software application installed on the gaming machine.

15 23. The system as claimed in claim 22, wherein the software application is downloaded via the network interface.

24. The system as claimed in any one of claims 13 to 23, wherein for each gaming machine, the EGP module further comprises a display module for
20 displaying results of the external game on a screen of the gaming machine.

25. The system as claimed in any one of claims 13 to 24, wherein one or more of the gaming machines is selected from a group consisting of an arcade gaming machine, a slot machine and an electronic gaming table.

25

26. The system as claimed in any one of claims 13 to 24, wherein one or more of the gaming machines is in the form of a handheld communications device.

27. An external game server for connecting to a network of two or more
30 gaming machines, the game server comprising,

a network interface for sending respective machine usage queries to the gaming machines of the network and for receiving respective machine usage responses from the gaming machines of the network; and

a processor for executing an external game based on received machine usage responses.

28. The game server as claimed in claim 27, wherein the processor
5 instructs the network interface to send respective machine usage queries to the gaming machines of the network and the network interface to receive respective machine usage responses from the gaming machines of the network; and the processor determines one or more winners of the external game from amongst one or more gaming machines of the network which provided a positive machine usage
10 response.

29. The game server as claimed in claim 27, wherein the processor executes the external game and selects one or more gaming machines from amongst the two or more gaming machines of the network; and the processor
15 instructs the network interface to send respective machine usage queries to the selected one or more gaming machines and the network interface to receive respective machine usage responses from the selected one or more gaming machines; and the processor determines one or more winners of the external game from amongst the selected one or more gaming machines which provided a positive
20 machine usage response.

30. A card reader module for coupling to a gaming machine, the card reader module comprising,

a first communication element for establishing a communication link to the
25 gaming machine;

a second communication element for establishing a communication link to an external game server;

an external game participation (EGP) module configured for receiving a machine usage query from the external game server; for determining a machine
30 usage status of the gaming machine and for transmitting a machine usage response to the external game server.

31. The card reader module as claimed in claim 30, wherein the first communication element and the second communication element are integrated via a network interface.

5 32. A method of executing a distributed game in a network of two or more gaming machines, the method comprising,

establishing a communication link from each gaming machine to an external game server; and at each gaming machine,

10 receiving a machine usage query from the external game server using an external game participation (EGP) module;

determining a machine usage status of the gaming machine using the EGP module; and

transmitting a machine usage response to the external game server using the EGP module.

15 33. The method as claimed in claim 32, wherein results of the distributed game are independent of an entertainment game executed by each gaming machine.

20 34. The method as claimed in claims 32 or 33, wherein the determining a machine usage status is based on determining a presence of a game card in a card reader.

25 35. The method as claimed in claims 32 or 33, wherein the determining a machine usage status is based on determining whether an entertainment game is ongoing in the gaming machine.

30 36. The method as claimed in any one of claims 32 to 35, wherein the machine usage response comprises an identification indicia of the gaming machine.

37. The method as claimed in any one of claims 32 to 36, wherein for at least one gaming machine, the EGP module comprises a functional hardware unit.

38. The method as claimed in claim 37, wherein the functional hardware unit comprises an Application Specific Integrated Circuit (ASIC).

39. The method as claimed in any one of claims 32 to 36, wherein for at least one gaming machine, the EGP module is implemented as a software application installed on the gaming machine.

40. The method as claimed in claim 39, wherein the software application is downloaded via the communication link.

41. The method as claimed in any one of claims 32 to 40, further comprising displaying results of the external game on a screen of each gaming machine.

42. The method as claimed in any one of claims 32 to 41, wherein one or more of the gaming machines is selected from a group consisting of an arcade gaming machine, a slot machine and an electronic gaming table.

43. The method as claimed in any one of claims 32 to 41, wherein one or more of the gaming machines is in the form of a handheld communications device.

44. A computer readable data storage medium having stored thereon computer code means for instructing a computer processor of a gaming machine to execute a method of participating in a distributed game in a network of two or more gaming machines, the method comprising,

establishing a communication link from the gaming machine to an external game server; and

receiving a machine usage query from the external game server using an external game participation (EGP) module;

determining a machine usage status of the gaming machine using the EGP module; and

transmitting a machine usage response to the external game server using the EGP module.

45. A computer readable data storage medium having stored thereon computer code means for instructing a computer processor of an external game server to execute a method of executing a distributed game in a network of two or more gaming machines, the method comprising,

5 establishing a communication link to each gaming machine from the external game server;

 transmitting machine usage query from the external game server to each gaming machine using an external game participation (EGP) module of the gaming machine, the EGP module being configured to determine a machine usage status of
10 the gaming machine; and

 receiving machine usage responses transmitted to the external game server using the respective EGP modules.