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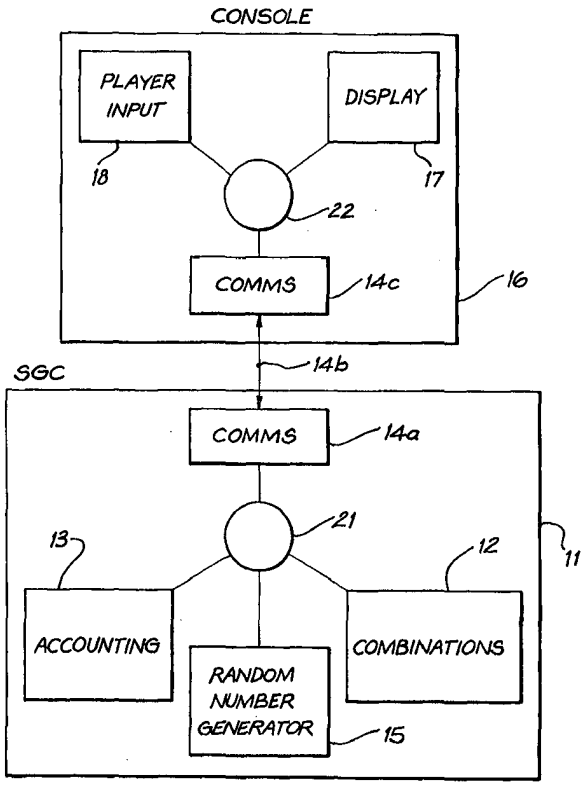
(54) Title: PERSONAL GAMING SYSTEM

(57) Abstract

A gaming console and a gaming console controller are provided where the controller includes a secure credit storage, a secure processing device, a secure program storage and secure communications, such that the control device may perform all of the essential secure functions of a gaming console. The control means may be removable from the console and personal to the user or may be permanently fixed into the console.



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Personal gaming system

Introduction

The present invention relates generally to the field of gaming machines and in particular, the invention provides a device for controlling gaming machines which simplifies the security arrangements in both conventional and portable gaming machines.

Background of the invention

A traditional gaming machine is a self contained unit containing a player interface and microprocessor control logic and software games. Several types are popular, including the traditional upright slot machine, slant top, and bar top slot machines.

Features typical of these machines are:

- These machines are physically large and heavy.
- They are fixed in place and cannot easily be moved. Some units must be fixed in place to prevent serious personal injury if they fell on a person, due to their weight. Security of the money inside is also maintained by their being fixed in place.
- The security provided by the machines is primarily physical, such as locks and doors, backed by electronic sensors, and auditing recorded meter values (records of cash in/out etc). In addition, the machines are usually used in full view of the operators, preventing any serious attempt by the public at stealing from them.
- Security is required to prevent tampering with the machine by either casino staff or customers. Physical security involves physical locks and electronic sensors, both on the main chassis and internal logic cage. Auditing of metered values, including cash in and cash out, can provide further checking of the integrity of operation. The logic cage is an internal high security cage containing the highly sensitive CPU, game storage memory, security control logic, and any other components that may affect the game outcome.
- Machines must be available to government inspectors, who can check that the machines have not been illegally modified to cheat the public.

Due to these features and gaming laws, gaming machines are restricted to carefully prescribed venues, including casinos and certain clubs.

Security considerations mandate the use of a logic cage enclosing the sensitive components. Due to practical considerations (an enclosure is

required to physically hold all the assemblies) it also usually holds most of the rest of the logic in the machine. For example the music generation circuit may not be considered as sensitive but is typically within the logic cage.

Currently, gaming toys such as those made by Radica:™, allow "pretend" gambling, where no money can be won or lost. Imaginary money is gambled, and typically, when the credit level reaches zero, more credits are automatically added.

Many governments require gaming machines to be monitored to control illegal gaming and ensure taxes are collected. However this is difficult in many underdeveloped areas in the world as poor communications limit the areas and reliability of on-line (telephone) monitoring.

The player interacts with the gaming machine via a number of means:

- Graphics are displayed to the player, typically on a video display or stepper reels.
- Sound effects are output from an audio speaker.
- The player controls the game through various means, including but not limited to, a handle, buttons, and touch screen.

Throughout this specification, the following definitions will apply:

- A **casino** is used to refer not only to a traditional casino, but a more general financial institution that backs the games played with money. A real physical casino in the traditional sense may not exist, and such an institution more closely resembles a bank. For the purpose of this patent a traditional casino, pub, hotel, aircraft, or ship, etc, can also be considered as a casino.
- **Game data** refers to that data on a console that is required to provide a user interface to the player, including graphics, sound, and code (but not combinations).
- The **combinations** of a game describe the mathematical structure of the game and define all possible games, including the winning patterns and the payouts associated with each. From the combinations the game statistics are determined, including the theoretical return to the player.
- A **game outcome** is the result of a game including the amount returned to the player in a winning game and the code defining the image displayed to the user to indicate the game result. In the case of a game console (as

opposed to a control device) game outcome also includes the actual display image displayed at the end of the game.

- **Credits** represent money in the gaming environment. The casino interchanges money and credits for the player, although credits may be exchanged for other types of value (gifts, etc).
- **SAM** refers to Secure Access Means.
- **SPM** refers to Secure Processing Means.
- **SSM** refers to Secure Storage Means.
- **SGC** refers to Secure Gaming Controller, which may include an SPM an SSM and secure communication means.
- A **distributed gaming** system is one in which the players user interface is physically separated from the game outcome logic. Internet gaming is a prime example.

Summary of the invention

According to a first aspect, the present invention provides a game console secure control device implemented as a single secure integrated control circuit arranged to perform game outcome determination of a game played on a game console to which the control device is connected, the integrated control circuit having input/output means to allow communications with the console.

According to a second aspect, the present invention provides a game console secure control device implemented as a secure single integrated control circuit arranged to perform game outcome determination of a game played on a game console to which the control device is connected, the integrated control circuit having data storage means and input/output means , the data storage means, including game outcome storage means whereby the control device is preprogrammed with a set of game outcomes in the game outcome storage means and when a player playing the connected console initiates a game, a game outcome is determined from the set of game outcomes and the input/output means being arranged to allow communication with the console.

Preferably the secure control means is a data processing means having associated program storage means, preferably also the program storage means includes a control program to control the playing of games on a gaming machine into which the control device is connected.

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