the chip.

[0005]

In a card game monitoring system disclosed in WO 2015/107902 A, fraud monitoring is performed by determining through image analysis of movement of chips whether or not the chips placed on a gaming table are collected or redeemed in accordance with a win or lose result.

SUMMARY

[0006]

The present disclosure seeks to provide a new system for detecting fraud in a game in a casino or an error or fraud at the time of wagering chips or doing settlement.

[0006a]

According to an aspect of the present invention, there is provided a management system in a casino, the management system comprising: a gaming table that has a chip tray and betting areas; a first chip recognizing device, wherein the first chip recognizing device is configured to recognize positions, types, and numbers of gaming chips wagered on the betting areas; a game result determination device, wherein the game result determination device is configured to determine a game result of a game at the gaming table and output the game result; a card shoe from which playing cards can be distributed to the game table one by one; and a second chip recognizing device, wherein the second chip recognizing device is configured to recognize an amount of gaming chips in the chip tray in response

to a pushing of a button provided the card shoe.

[0006b]

According to another aspect of the present invention, there is provided a management system in a casino, the management system comprising: a gaming table that has a chip tray and betting areas; a chip recognizing device, wherein the chip recognizing device is configured to recognize an amount of gaming chips in the chip tray at a predefined timing; a game result determination device, wherein the game result determination device is configured to determine a game result of a game at the gaming table and output the game result; a card shoe from which playing cards can be distributed to the game table one by one; a storage device, wherein the storage device is configured to store the amount of the gaming chips recognized by the chip recognizing device; and a control device configured to compare at least two instances of amounts of the gaming chips recognized by the chip recognizing device at different times of the predetermined timing.

[0006c]

According to another aspect of the present invention, there is provided a management system in a casino, the casino having a plurality of gaming tables, each of the gaming tables having (a) a respective chip tray, (b) respective betting areas, and (c) a respective card shoe from which playing cards can be distributed to the game table one by one, the management system comprising: a first chip recognizing device, wherein the first chip recognizing device is configured to recognize positions,

types, and numbers of gaming chips wagered on the betting areas of at least one of the gaming tables; and a second chip recognizing device, wherein the second chip recognizing device is configured to recognize an amount of gaming chips held in the chip tray of the at least one of the gaming tables in response to a pushing of a button provided on the card shoe of the at least one of the gaming tables.

[0006d]

According to another aspect of the present invention, there is provided a management system in a casino, the casino having a plurality of gaming tables, each of the gaming table having (a) a respective chip tray, (b) respective betting areas on which players can wager gaming chips, and (c) a respective card shoe from which playing cards can be distributed to the game table one by one, the management system comprising: a chip recognizing device, wherein the chip recognizing device is configured to recognize, at a predefined timing, an amount of gaming chips held in the chip tray of at least one of the gaming tables; a storage device, wherein the storage device is configured to store the amount of the gaming chips recognized by the chip recognizing device; and a control device configured to compare at least two instances of amounts of the gaming chips recognized by the chip recognizing device at different times of the predetermined timing.

[0007]

There is also disclosed a fraud detection system in a casino having a plurality of gaming tables, including:

a game recording apparatus which records a progress of a game played in the gaming table as an image; an image analyzing apparatus which performs image analysis on the image of the recorded progress of the game; a win/lose result determining apparatus which determines a win or lose result of each game in the gaming table; and a control device which detects fraud practiced in the gaming table by using a result of the image analysis by the image analyzing apparatus and the win or lose result determined by the win/lose result determining apparatus, wherein the control device recognizes a position, type, and number of the chips wagered by each player through

CLAIMS

1. A management system in a casino, the management system comprising:

a gaming table that has a chip tray and betting areas;

a first chip recognizing device, wherein the first chip recognizing device is configured to recognize positions, types, and numbers of gaming chips wagered on the betting areas;

a game result determination device, wherein the game result determination device is configured to determine a game result of a game at the gaming table and output the game result;

a card shoe from which playing cards can be distributed to the game table one by one; and

a second chip recognizing device, wherein the second chip recognizing device is configured to recognize an amount of gaming chips in the chip tray in response to a pushing of a button provided on the card shoe.

2. The management system according to claim 1, wherein the second chip recognizing device:

includes a Radio Frequency Identification (RFID) reader configured to read chip denomination information stored on RFID tags of the gaming chips in the chip tray; and

is configured to recognize a total amount of the gaming chips in the chip tray based on the read chip denomination information.

3. The management system according to claim 1, wherein the first chip recognizing device:

includes a Radio Frequency Identification (RFID) reader configured to read chip denomination information stored on RFID tags of the gaming chips on the betting areas of the game table; and

is configured to recognize one or more amounts of the gaming chips on the betting areas of the game table based on the read chip denomination information.

4. The management system according to claim 1, wherein the first chip recognizing device includes:

a camera arranged to capture an image of the gaming chips wagered on the betting areas of the gaming table; and

a processor that is configured to analyze the image, by using a neural network based image recognition technology, to perform the recognition of the positions, types, and numbers of the gaming chips wagered on the betting areas.

5. The management system according to claim 1, further comprising a control device, wherein the control device is configured to:

calculate a changed amount of gaming chips that are in the game as a target amount by either:

(a) adding (1) an increased amount of the gaming chips that are in the game, which is calculated based on the determined game result and the respective positions, types, and numbers of the respectively wagered gaming chips of the respective betting areas, to (2) a total amount of the gaming chips that are in the chip tray before a settlement; and/or

(b) subtracting (1) a decreased amount of the gaming chips that are in the game, which is calculated based on the determined game result and the respective positions, types, and numbers of the respectively wagered gaming chips of the respective betting areas, from (2) the total amount of the gaming chips that are in the chip tray before the settlement; and

compare the target amount to a recognized actual total amount of gaming chips in the chip tray to determine whether there is a difference between the target amount and the actual total amount.

6. The management system according to claim 1, wherein the game result determination device is provided in the card shoe.

7. A management system in a casino, the management system comprising:

a gaming table that has a chip tray and betting areas;

a chip recognizing device, wherein the chip recognizing device is configured to recognize an amount of gaming chips in the chip tray at a predefined timing;

a game result determination device, wherein the game result determination device is configured to determine a game result of a game at the gaming table and output the game result; a card shoe from which playing cards can be distributed to the game table one by one;

a storage device, wherein the storage device is configured to store the amount of the gaming chips recognized by the chip recognizing device; and

a control device configured to compare at least two instances of amounts of the gaming chips recognized by the chip recognizing device at different times of the predetermined timing.

8. The management system according to claim 7, wherein the control device is configured to compare at least two total amounts of the gaming chips recognized at different times of the predefined timing.

9. The management system according to claim 8, wherein the control device is configured to calculate a changed amount of the gaming chips by comparing the at least two total amounts of the gaming chips recognized at the different times of the predefined timing.

10. A management system in a casino, the casino having a plurality of gaming tables, each of the gaming tables having (a) a respective chip tray, (b) respective betting areas, and (c) a respective card shoe from which playing cards can be distributed to the game table one by one, the management system comprising:

a first chip recognizing device, wherein the first chip recognizing device is configured to recognize positions, types, and numbers of gaming chips wagered on the betting areas of at least one of the gaming tables; and

a second chip recognizing device, wherein the second chip recognizing device is configured to recognize an amount of gaming chips held in the chip tray of the at least one of the gaming tables in response to a pushing of a button provided on the card shoe of the at least one of the gaming tables.

11. A management system in a casino, the casino having a plurality of gaming tables, each of the gaming table having (a) a respective chip tray, (b) respective betting areas on which players can wager gaming chips, and (c) a respective card shoe from which playing cards can be distributed to the game table one by one, the management system comprising:

a chip recognizing device, wherein the chip recognizing device is configured to recognize, at a predefined timing, an amount of gaming chips held in the chip tray of at least one of the gaming tables;

a storage device, wherein the storage device is configured to store the amount of the gaming chips recognized by the chip recognizing device; and

a control device configured to compare at least two instances of amounts of the gaming chips recognized by the chip recognizing device at different times of the predetermined timing.

12. The management system according to claim 11, wherein the at least two instances of information of the gaming chips include at least two total amounts of the gaming chips recognized at different times of the predefined timing.