amount of wagered chips, proposed is a technique of attaching an wireless IC (RFID) tag to each chip to recognize the amount of 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 disclosure, there is provided a management system of table game in casino having a plurality of gaming table, each of the plurality of gaming table has a plurality of player positions, the management system comprising:

at least one 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 control device which recognizes positions, types, and numbers of chips on the gaming table wagered on each of the player positions through the image analyzing apparatus,

wherein the control device further has function that is capable of recognizing positions, types, and amount of the

chips wagered on each of the player positions in each game using artificial intelligence technology or machine learning technology;

wherein the at least one game recording apparatus has an offset viewing angle capturing a plurality of betting areas on which can be recognized the positions, types, and numbers of wagered chips on each of the player positions.

[0006b]

According to another aspect of the present disclosure, there is provided a management system of one or more table games in a casino having a plurality of gaming tables, the management system comprising:

a camera configured to capture an image of a gaming table of the plurality of gaming tables including a plurality of betting areas and chips wagered on the betting areas, each of the betting areas corresponding to a respective player position of a plurality of player positions, wherein the camera is positioned raised from a top surface of the gaming table and oriented so that a direction of an optical axis of the camera is oblique relative to the top surface of the gaming table; and

a control device configured to:

process the image using artificial intelligence technology or a neural network based image recognition technology to determine one or more positions, one or more types, and one or more numbers of the wagered chips; and

calculate respective amounts of the wagered chips of the player positions respectively.

[0006c]

According to another aspect of the present disclosure, there is provided a management system of table game in casino having a plurality of gaming table, comprising:

a camera which captures an image of a gaming table including a plurality of betting areas and chips wagered on each of the betting areas, each of the betting areas respectively corresponding to each of a plurality of player positions; and

a control device which, by using a neural network based image recognition technology, performs image analyzing on the image to determine positions, types, and numbers of the chips,

wherein the control device calculates amount of the wagered chips of each of the betting areas,

wherein the camera has an offset viewing angle capturing a plurality of betting areas on which can be recognized the positions, types, and numbers of wagered chips by each of the player positions.

[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

interval when the dealer collects chips wagered by the losers among the game participants after the end of each game;

4) whether or not the dealer performs payment for a position of chips wagered by the winner among the game participants after the end of each game; and

5) whether or not the winner among the game participants receives wagered chips and paid chips after the end of each game.

[0020]

In the above fraud detection system, the win/lose result determining apparatus may be a card distribution device which distributes the cards in the gaming table or a control device which determines the win or lose result of each game from information of the image analyzing apparatus reading the cards distributed in the gaming table by using a camera.

[0021]

According to the fraud detection system of the present disclosure, it is possible to detect fraud in collection and redemption of chips in accordance with a win or lose result of a game.

[0022]

In addition, according to the system of the present disclosure, although the cards are slanted by "card squeegee" frequently performed by players in a baccarat game or the like, the rank and suit of the cards can be