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 chip recognition system for recognizing a plurality of gaming chips when a plurality of stacks of gaming chips embedded RFID tags are placed in a first betting area of a gaming table having a plurality of betting areas, the chip recognition system comprising: a camera configured to capture the plurality of stacks placed in the first betting area to generate images, wherein the camera is configured to have an oblique viewing angle so as to capture the plurality of betting areas on the gaming table in a depth direction as viewed from the camera, thereby, and to capture the top and sides of a stack of the gaming chips bet on any one of the plurality of the betting

areas, an image recognition device configured to perform image recognition for the gaming chips placed in the first betting area by analyzing the images using artificial intelligence or deep learning techniques, a chip recognition device comprising, an image recognition device configured to recognize the position, type, and number of gaming chips composing the plurality of stacks placed in the first betting area by analyzing one of the images using artificial intelligence technology or deep learning technology, or an ID reader configured to recognize the type and number of gaming chips composing the plurality of stacks by reading IDs of the RFID tags of the gaming chips placed in the first betting area, a player identification device configured to identify players playing at the gaming table by face authentication or by reading a member card, and a controller configured to identify a player who placed the gaming chip on the gaming table based on an identification result of the player identification device, wherein the image recognition device is further configured to recognize the number of the plurality of stacks placed on the first betting area by analyzing the image using artificial intelligence technology or deep learning technology.

[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,

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 determined by image analysis, so that the total amount of chips being overlapped or being in a blind spot together with the positions can be recognized. In addition, fraud at the time of exchanging cash and chips can be detected.

BRIEF DESCRIPTION OF DRAWINGS

[0023]

FIG. 1 is a diagram illustrating an overview of a fraud detection system in a casino having a plurality of gaming tables according to a first embodiment of the invention;

FIG. 2A is a perspective diagram of chips illustrating an example of different overlapped states of chips recognized in the first embodiment of the invention;