distributed by a shoe in baccarat), to judge whether an amount which should be collected is collected or an amount which should be paid out is paid out to detect an illicitness or a mistake in the collection or the payout.

[0005]

Furthermore, it is possible to trace the gaming chip by storing a chip ID in the RFID tag and associating the chip ID with information of its owner (casino, player ID) in the database. In the tracing, the owner associated with the chip ID in the database is updated at each time at which the owner of the gaming chip is changed.

[0006]

It is also possible to detect the above illicitness or mistake by imaging the gaming chip with a camera and recognizing a type (value) of gaming chip in the bet area or the chip tray with image recognition using a neural network or the like. It is also possible to realize traceability by marking the chip ID on the side surface of the gaming chip and recognizing the chip ID with image recognition.

[0007]

Furthermore, nowadays, it is possible, by performing pose tracking and facial recognition of the player who operates the gaming chip to play the game at the game table, to associate the player, the gaming chip, and a betting activity with each other.

There is Japanese Patent Application Publication No. 2017-064386 as a prior art document.

SUMMARY OF THE PRESENT INVENTION

[0008]

Embodiments of the present invention seek to provide a management system configured to help to electronically grasp a transaction of a gaming chip within a casino, in particular at a game table.

[0009]

An aspect of the present

invention provides a management system at a game table for performing a game using a gaming chip including a built-in RFID tag, wherein the game table includes a chip tray configured to accommodate the gaming chip of a dealer, a bet area on which the gaming chip to be bet in the game is to be placed, and a collection area and a payout area different from the bet area and the chip tray, the management system comprises: a collection reading means configured to read at the collection area the RFID tag of the gaming chip collected to the chip tray; and a payout reading means configured to read at the payout area the RFID tag of the gaming chip to be paid out from the chip tray.

[0010]

In the above management system, the collection area and the payout area may be arranged between the bet area and the chip tray, the collection reading means may be configured to read the RFID tag of the gaming chip before collected from the bet area and placed in the chip tray, and the payout reading means may be configured to read the RFID tag of the gaming chip before taken out from the chip tray and paid out to the bet area.

[0011]

The above management system may further comprise a collection judging means configured to judge whether or not the gaming chip which should be collected from the bet area is collected from the bet area and read by the collection reading means.

[0012]

In the above management system, the RFID tag may be configured to store information for identifying an amount of gaming chip, the management system may further comprise: a bet judging means provided in the game table and configured to judge a bet target and a bet amount of the gaming chip bet in the game; and a game result judging means configured to judge a game result, and the collection judging means may be configured to judge whether an amount of gaming chip read by the collection reading means matches with a collection amount determined based on the bet target and the

CLAIMS:

1. A management system at a game table for performing a game using a gaming chip including a built-in RFID tag,

wherein the game table includes a chip tray configured to accommodate the gaming chip of a dealer, a bet area on which the gaming chip to be bet in the game is to be placed, and a collection area and a payout area different from the bet area and the chip tray,

the management system comprises:

a collection reading means configured to read at the collection area the RFID tag of the gaming chip collected to the chip tray; and

a payout reading means configured to read at the payout area the RFID tag of the gaming chip to be paid out from the chip tray.

2. The management system according to claim 1,

wherein the collection area and the payout area are arranged between the bet area and the chip tray,

the collection reading means is configured to read the RFID tag of the gaming chip before collected from the bet area and placed in the chip tray, and

the payout reading means is configured to read the RFID tag of the gaming chip before taken out from the chip tray and paid out to the bet area.

3. The management system according to claim 1, further comprising a collection judging means configured to judge whether or not the gaming chip which should be collected from the bet area is collected from the bet area and read by the collection reading means.

4. The management system according to claim 3,

wherein the RFID tag is configured to store information for identifying an amount of gaming chip,

the management system further comprises:

a bet judging means provided in the game table and configured to judge a bet target and a bet amount of the gaming chip bet in the game; and

a game result judging means configured to judge a game result, and

the collection judging means is configured to judge whether an amount of gaming chip read by the collection reading means matches with a collection amount determined based on the bet target and the bet amount judged by the bet judging means, and the game result judged by the game result judging means.

5. The management system according to claim 4,

wherein the collection reading means is configured to read at the collection area the RFID tag of the gaming chip to be collected for each bet lost in the game, and

the collection judging means is configured to judge whether or not an amount of gaming chip read by the collection reading means for each bet lost in the game matches with the bet amount of a player.

6. The management system according to claim 4, wherein the collection judging means is configured to judge whether or not a total amount of gaming chips read by the collection reading means for a plurality of bet lost in the game matches with a total bet amount of a plurality of players.

7. The management system according to claim 1,

wherein the RFID tag is configured to store information for identifying an amount of gaming chip, and

the management system further comprises a payout judging means configured to judge whether or not an amount of gaming chip which should be paid out is read by the payout reading means.

8. The management system according to claim 7, further comprising:

a bet judging means provided in the game table and configured to judge a bet target and a bet amount of the gaming chip bet in the game; and

a game result judging means configured to judge a game result, and

wherein the payout judging means is configured to judge whether or not an amount of gaming chip read by the payout reading means matches with a payout amount determined based on the bet target and the bet amount judged by the bet judging means, and the game result judged by the game result judging means.

9. The management system according to claim 1, further comprising an exchange judging means configured to judge that exchanging is performed based on that the RFID tags of the gaming chips are read by the collection reading means and the payout reading means.

10. The management system according to claim 9, wherein the exchange judging means is configured to judge that the exchanging is performed when judging that there are gaming chips in the collection area and the payout area at the same time based on timings at which the RFID tags of the gaming chips are read by the collection reading means and the payout reading means.

11. The management system according to claim 9 or 10,

wherein the RFID tag is configured to store information for identifying an amount of gaming chip, and

the exchange judging means is configured to judge whether or not a total amount of gaming chips read by the collection reading means matches with a total amount of gaming chips read by the payout reading means when judging that the exchanging is performed.

12. The management system according to claim 9 or 10,

wherein the exchange judging means is configured to judge whether or not the gaming chips read by the collection reading means and the payout reading means, respectively, are the gaming chip

offered by a player and the gaming chip paid out from the chip tray when judging the exchanging is performed.

13. The management system according to claim 11, further comprising an alert device configured to, when judging that the total amount of gaming chips read by the collection reading means does not match with the total amount of gaming chips read by the payout reading means, output an alert indicating it.

14. The management system according to claim 12, further comprising an alert device configured to, when the gaming chips read by the collection reading means and the payout reading means, respectively, are not the gaming chip offered by the player and the gaming chip paid out from the chip tray, output an alert indicating it.

15. The management system according to claim 1,

wherein the collection reading means comprises a collection antenna arranged in the collection area and a collection reading device configured to control the collection antenna and decode a signal received by the collection antenna, and

the payout reading means comprises a payout antenna arranged in the payout area and a payout reading device configured to control the payout antenna and decode a signal received by the payout antenna.

16. The management system according to claim 15, wherein the collection reading device and the payout reading device are configured to perform reading, respectively, at independent times.

17. The management system according to claim 15, wherein the collection reading device and the payout reading device are the same device.

18. The management system according to claim 17, wherein the same device is configured to use alternately the collection antenna and

the payout antenna to perform alternately readings of the collection area and the payout area.

19. The management system according to claim 15, further comprising a jamming antenna configured to restrict the collection antenna from reading the RFID tag of the gaming chip at the payout area and/or a jamming antenna configured to restrict the payout antenna from reading the RFID tag of the gaming chip at the collection area.

20. The management system according to claim 1, wherein the collection area and the payout area are arranged at a distance apart from each other such that the collection reading means does not read the RFID tag of the gaming chip at the payout area and/or the payout reading means does not read the RFID tag of the gaming chip at the collection area.

21. The management system according to claim 1, further comprising a display device configured to display reading result of the collection reading means and/or the payout reading means.

22. The management system according to claim 21, wherein the display device is built in the game table.