CLAIMS

1. A table game management system for use with gaming chips (a) that each includes a plurality of plastic colored portions that are of varying colors and (b) a respective type of each of which is identifiable from its respective appearance, the table game management system comprising:

a camera; and

at least one processor, wherein the at least one processor is configured to:

determine a respective win-loss result (WL) of each of a plurality of games at a game table for a bet area of the game table;

use the camera to detect respective positions, types, and numbers of those of the gaming chips that are respectively placed, by respective ones of at least one game participant, on the bet area for each of the plurality of games;

store the detected respective positions, types, and numbers;

based on the detected respective positions, types, and numbers, determine a total bet amount (B) formed by the gaming chips placed on the bet area of the game table for a predetermined number of games;

based on the determined win-loss result and the detected respective positions, types, and numbers, determine a winning or losing amount of a game organizer for the predetermined number of games;

determine a sales profit ratio (X) of the winning or losing amount of the game organizer to the total bet amount (B) for the predetermined number of games;

compare the sales profit ratio (X) to a theoretical profit ratio or a previous average profit ratio; and

generate an alarm in response to a result of the comparison.

2. The table game management system according to claim 1, wherein the at least one processor is configured to use deep learning to perform the detection of the respective positions, types, and numbers.

3. The table game management system according to claim 1, wherein the at least one processor is configured to determine one or more of the total bet amount (B), the winning or losing amount, and the sales profit ratio respectively for each of the plurality of games.

4. The table game management system according to claim 1, wherein the at least one processor is configured to:

determine the total bet amount (B) respectively for respective ones of a plurality of player positions of the game table; and

output one or both of the total bet amount (B) and the sales profit ratio (X) respectively for each of the

plurality of player positions.

5. The table game management system according to claim 4, wherein the at least one processor is configured to associate each position of the plurality of player positions with a respective one of the at least one game participant.

6. The table game management system according to claim 4, wherein the at least one processor is configured to:

perform the detection of the positions, types, and numbers of gaming chips respectively for each of a plurality of stacks of the gaming chips placed on the game table; and

associate each of the stacks with a respective one of the at least one game participant.

7. The table game management system according to claim 1, wherein the at least one processor is configured to ascertain a relation between a number of games and time taken to play the games, and output the total bet amount (B), the winning or losing amount for the game organizer, or the sales profit ratio (X) for a predetermined number of games, respectively for any one or more of: each respective one of the at least one game participant, each of a plurality of game tables, and each of a plurality of dealers that are respectively in charge of respective ones of the plurality of game tables.

8. The table game management system according to claim 1, wherein the at least one processor is configured to ascertain, and output in association with a number of games and a time taken to play the games:

(a) respective bet positions of the gaming chips placed on the game table by the at least one game participant;

(b) respective numbers of stacks of the gaming chips placed on the game table by the at least one game participant; or

(c) a number of the gaming chips in each of the stacks.

9. The table game management system according to claim 1, wherein the at least one processor is configured to ascertain, and output in association with a number of games and a time taken to play the games, a number of the at least of game participant that is at the game table.

10. The table game management system according to claim 1, wherein the game table is one of a plurality of game tables, and the at least one processor is configured to:

for each of the plurality of game tables, ascertain a respective dealer in charge of the respective game table; and

respectively for each of the dealers, detect and store at least one of following periods:

1) a bet period;

2) a chip collection period;

3) a chip payment period; and

4) a gaming period.

11. The table game management system according to claim 10, wherein the at least one processor is configured to, respectively for each of the games, detect a respective start time and a respective end time of distribution of playing cards in the respective game, and ascertain as a respective gaming period a respective period from the respective start time to the respective end time.

12. The table game management system according to claim 1, wherein the at least one processor is configured to determine and output, respectively for the game table, a respective suggested minimum bet amount in order to increase the total bet amount (B) within a predetermined time or period.

13. The table game management system according to claim 12, wherein the at least one game participant includes a plurality of game participants and the at least one processor is configured to suggest the minimum bet amount to be increased in response to there being at least a first predefined ratio of (a) those of the plurality of game participants who bet respective bet amounts that are each higher, by at least a second predefined ratio, than the

minimum bet amount as previously set to (b) all others of the plurality of game participants.

14. The table game management system according to claim 1, wherein:

the game table is one of a plurality of game tables; and

the at least one processor is further configured to manage the plurality of game tables and to determine and output different respective minimum bet amounts for different ones of the plurality of game tables in order to increase the total bet amount (B) within a predetermined time or period respectively for each of the game tables or for respective subsets of the game tables.

15. The table game management system according to claim 14, wherein, respectively for respective ones of the plurality of game tables, the at least one processor is configured to determine the respective minimum bet amount for the respective game table so as to decrease an average number of game participants at the respective game table that are associated with bet amounts that are higher, by a predetermined amount or ratio, than the respective minimum bet amount of the respective game table.

16. The table game management system according to claim 14, wherein the at least one processor is configured to determine to decrease the minimum bet amount for one or

more of the game tables in response to there being at least a predefined ratio of (a) those of the game tables that each has no more than a predetermined number of game participants to (b) all others of the game tables.

17. The table game management system according to claim 1, wherein:

the game table is one of a plurality of game tables; and

the at least one processor is configured to:

manage the plurality of game tables;

ascertain the total bet amount respectively for each of the game tables, and, with respect to each of the game tables, a bet amount respectively for (a) each of a plurality of player positions of the respective game table or (b) each of the at least one game participant at the respective game table; and

for each of the plurality of game tables respectively, determine, based on the ascertained bet amounts, and output a respective suggested minimum bet amount.

18. The table game management system according to claim 1, wherein:

the game table is one of a plurality of game tables; and

the at least one processor is further configured to:

manage the plurality of game tables;

respectively for each of the game tables, ascertain the total bet amount (B) respectively for each of the plurality of games at the respective game table or for each of a plurality of predetermined times or time periods; and

based on the ascertained total bet amounts, determine and output a suggested minimum bet amount of a game table to be newly opened.

19. The table game management system according to claim 1, wherein:

the game table is one of a plurality of game tables; and

the at least one processor is further configured to:

ascertain a bet amount respectively for each of the at least one game participant and respectively for each of a plurality of predetermined times or time periods; and

assign to the game participant, and output, a point or status under a predetermined condition of the ascertained bet amount.

20. The table game management system according to claim 19, wherein, for each of the at least one game participant and each of the plurality of predetermined times or time periods, the at least one processor is configured to:

ascertain purchase information about a purchase by the game participant of the gaming chips at the

predetermined time or in the predetermined period; and

output the purchase information in association with (a) the bet amount determined for the respective game participant in association with the respective time or time period or (b) a winning or losing amount of the respective game participant.

21. The table game management system according to claim 20, wherein the at least one processor is further configured to ascertain the purchase information respectively for each of the types of the gaming chips.

22. The table game management system according to claim 19, wherein the point or status is assigned based on the total bet amount ascertained for the respective game participant within the predetermined time period, the predetermined time period being a period of contiguous or non-contiguous days, a period of contiguous or non-contiguous months, or a constantly accumulating time period.

23. The table game management system according to claim 19, wherein, responsive to an assignment of a large number of points to the respective game participant at a particular point in time or within a predefined time period, the at least one processor is configured to boost the point or status of the respective game participant.

24. The table game management system according to claim 19, wherein an access to a VIP room is provided under a predetermined condition of the point or status.

25. The table game management system according to claim 19, wherein the point or status are convertible in the table game management system into gaming chips under a predetermined condition.

26. The table game management system according to claim 19, wherein the point or status are convertible by the table game management system into a payment of a hotel charge or other facility charge under a predetermined condition.

27. The table game management system according to claim 1, wherein:

the game table is one of a plurality of game tables; and

the at least one processor is configured to:

manage the plurality of game tables; and

respectively for each of the at least one game participant:

ascertain a respective net profit at a predetermined time or in a predetermined time period; and

under a predetermined condition, assign to the respective game participant and output a respective

point or status.

28. The table game management system according to claim 1, wherein:

the game table includes a plurality of game tables; and

the at least one processor is configured to:

manage a plurality of game tables;

for each of the at least one game participant, ascertain number of the plurality of games in which the respective game participant participated at a predefined time or within a predefined time period; and

under a predetermined condition, assign to the respective game participant and output a respective point or status.

29. The table game management system according to claim 1, wherein the game table includes a plurality of game tables, and the at least one processor is configured to store information that includes at least one of the following respectively for respective ones of the at least one game participant and in units of weeks, months, or other predefined time period:

1) a number of visits to a particular play hall;

2) a number of times the respective game participant placed a bet;

3) a winning amount of the respective game

participant; and

4) a losing amount of the respective game participant.

30. The table game management system according to claim 29, wherein the at least one processor is configured to output the information when the game participant enters the particular play hall.

31. The table game management system according to claim 1, wherein:

the game table includes a plurality of game tables; and

the at least one processor is configured to:

manage the plurality of game tables; and

for each of the at least one game participant:

determine a respective bet amount for the respective game participant; and

determine a credit of the respective game participant based on a total accumulation of the bet amount determined for the respective game participant overall or within a predetermined period.

32. The table game management system according to claim 1, wherein the at least one processor is configured to:

store:

(1) the total bet amount (B) respectively for each of the plurality of games and each of a

plurality of bet areas of the game table;

(2) the win-loss result (WL) respectively for each of the plurality of games and each of the plurality of bet areas; and

(3) a gross profit ratio (R %) respectively for each of the plurality of games and each of the plurality of bet areas according to respective rules of the respective game; and

use information about the items (1) to (3) in each of the plurality of games or for a predetermined time or time period and each of the plurality of bet areas to calculate a gross profit (Y) as $\Sigma(B \times WL \times R\ \%)$.

33. The table game management system according to claim 32, wherein the at least one processor is configured to output:

bet positions or a number of stacks of the gaming chips placed on the game table by the at least one game participant; or

a number of the gaming chips in each of the stacks.

34. The table game management system according to claim 32, wherein the gross profit ratio (R %) on the basis of which the gross profit (Y) is calculated includes a plurality of gross profit ratios (R1%, R2%, . . .) that vary according to layout or bet area of the game table.

35. The table game management system according to claim

34, wherein the at least one processor is configured to output a respective portion of the total bet amount for each of the layout or bet areas whose respective gross profit ratios (R1%, R2%, . . .) differ from one another.

36. The table game management system according to claim 34, wherein:

the game table includes a plurality of game tables; and

the at least one processor is configured to:

manage the plurality of game tables; and

compare the gross profit (Y)/the total bet amount (B), the gross profit (Y)/the predetermined time or time period or the gross profit (Y)/the predetermined number of games

for different ones of the game tables.

37. The table game management system according to claim 1, wherein the at least one processor is configured to:

determine a total amount of the gaming chips that are in a chip tray of the game table based on a reading of unique IDs of the gaming chips or an output of the camera or another camera;

determine the winning or losing amount of the game organizer respectively for each of the plurality of games;

detect whether there is an inconsistency by detecting whether a change amount by which the total amount of the gaming chips in the chip tray has changed for a respective

one of the games coincides with the winning or losing amount for the game organizer determined for the respective game; and

output a detection result of the inconsistency detection.

38. The table game management system according to claim 37, wherein the at least one processor is configured to count a number of times of that a result of the inconsistency detection is that the coincidence is present and output the count.

39. The table game management system according to claim 37, wherein the at least one processor is configured to determine a discrepancy amount when a result of the inconsistency detection is that the coincidence is not present and output the discrepancy amount.

40. The table game management system according to claim 39, wherein the at least one processor is configured to ascertain an accumulated amount of the discrepancy amount.

41. The table game management system according to claim 39, wherein:

the at least one processor is configured to calculate a gross profit (Y) as $Y=\Sigma(B\times WL\times R\ \%\pm L)$;

B is the total bet amount respectively for each of the plurality of games and each of a plurality of bet

areas;

WL is the win-loss result respectively for each of the plurality of games and each of the plurality of bet areas;

R % is a gross profit ratio respectively for each of the plurality of bet areas;

L is the discrepancy amount respectively for each of the plurality of games; and

the at least one processor is configured to output the gross profit (Y).

42. The table game management system according to claim 41, wherein the game table is one of a plurality of game tables, and the at least one processor is configured to compare the change amount with the winning or losing amount for the game organizer and determine and output the discrepancy amount (L) respectively for each of the at least one game participant or respectively for each of a plurality of dealers that are each in charge of a respective one of the game tables.

43. The table game management system according to claim 1, wherein the at least one processor is further configured to, respectively for each of the at least one game participant, respectively for each of a plurality of dealers, and respectively for each of a plurality of game tables:

compare results of actual winning percentage and

total amount of gross profit with numbers calculated by probability and statistics or numbers based on previous accumulated data at completion of a predetermined number of games,

determine whether there is a significant difference between the compared results and numbers, and

identify at least one of a game participant, a dealer, and a game table that causes the significant difference.

44. The table game management system according to claim 43, wherein:

the game table is one of a plurality of game tables;

gross profit ratios vary according to various layouts or bet areas of the plurality of game tables;

the at least one processor is configured to store bet chip amounts at bet positions of each game table of the plurality of game tables; and

based on the stored bet chip amounts, identify whether a cause for the significant difference in a series of games is dependent on the gross profit ratios.

45. The table game management system according to claim 34, wherein the at least one processor is configured to output a respective portion of the total bet amount for each of the different gross profit ratios.

46. A table game management system for use with gaming

chips that each includes a unique ID, the table game management system comprising:

a reader configured to read the unique IDs of the gaming chips; and

at least one processor, wherein the at least one processor is configured to:

determine a respective win-loss result (WL) of each of a plurality of games at a game table for a bet area of the game table;

use the unique IDs read by the reader to detect respective positions, types, and numbers of those of the gaming chips that are respectively placed, by respective ones of at least one game participant, on the bet area for each of the plurality of games;

store the detected respective positions, types, and numbers;

based on the detected respective positions, types, and numbers, determine a total bet amount (B) formed by the gaming chips placed on the bet area of the game table for a predetermined number of games;

based on the determined win-loss result and the detected respective positions, types, and numbers, determine a winning or losing amount of a game organizer for the predetermined number of games;

determine a sales profit ratio (X) of the winning or losing amount of the game organizer to the total bet amount (B) for the predetermined number of games;

compare the sales profit ratio (X) to a theoretical profit ratio or a previous average profit ratio; and

generate an alarm in response to a result of the comparison.