METHOD OF CONTROLLING A DICE GAME AND GAMING MACHINE

This application is based on and claims the benefit of priority from Japanese Patent Application No. 2006-288685, filed on 24 October 2006, the content of which is incorporated herein by reference.

BACKGROUND OF THE INVENTION

Field of the Invention

The present invention relates to a method of controlling a dice game where a player predicts respective numbers of dots to appear on multiple thrown dice, and a gaming machine to accomplish the method of controlling a dice game.

Related Art

In general, various gaming machines including a dice gaming machine where a player places a bet on predicted numbers of dots to appear on multiple thrown dice are provided in game halls and casinos. Various rules and machines to play such dice games have been proposed. For example, a method of playing a dice game in which a player places a bet on a predicted outcome of a dealer's throw of dice and the dealer then throws the dice is disclosed in Patent Document No. 1. If a predetermined combination occurs, the player is entitled to throwing the dice, and has a chance to win a large amount of payout. In addition, SICBO in which a player places a bet on predicted numbers of dots to appear on three thrown dice is an

old and familiar dice game.

SICBO is well known as an ancient Chinese dice game in which a player places a bet on predicted numbers of dots or a combination thereof to appear on three thrown dice. Ways of betting and odds are displayed on a player's table (these may be displayed using an image display unit). An area for placing a bet on a predicted number of dots to appear on a single die, an area for placing a bet on a same predicted number of dots to appear on two dice, an area for placing a bet on a same predicted number of dots to appear on three dice, an area for placing a bet on a predicted combination to appear on two dice, an area for placing a bet on a predicted total number of dots to appear on three dice, and the like are provided on the table. Odds cannot be uniformly determined due to regional or national conditions; however, these are typically set within a range from 1:1 to approximately 1:180 according to occurrence probabilities.

Patent Document No. 1: U.S. Patent No. 5,413,351

The dice game proposed in the aforementioned Patent Document No. 1 is performed according to special rules. Therefore, there are disadvantages associated with unfamiliarity, and the game is lacks excitement, accordingly. On the other hand, the generally well-known SICBO can entertain players because of its familiarity; however, the types of betting are limited. Therefore, there is more room for improvement from the viewpoint of increasing interest. More specifically, in a bet area where an occurrence

probability is low and odds are highest (approximately 1:180), a player may place a bet with excitement. However, in this bet area, the player simply predicts dots of the same size that will commonly appear on three dice, namely any one of combinations of the same number such as (1, 1, 1), (2, 2, 2), ... and (6, 6, 6). For this reason, SICBO does not sufficiently allow a player to feel excited when she places a bet.

SUMMARY OF THE INVENTION

To solve the aforementioned problems, the present invention provides a method of controlling a dice game and a gaming machine allowing a further increase in interest of a player.

In an aspect of the present invention, a method of controlling a dice game is provided. The method includes the steps of: (a) allowing a player to place a bet on predicted dots to appear on tops of a plurality of dice of different types in combination with respective types of the dice; and (b) providing an award to the player when the bet placed in the step (a) is entitled to the award.

The method of controlling a dice game described above, in which the plurality of dice of different types is used, allows for the prediction of the respective dots to appear on the tops of the dice. This results in an increase in the number of subjects for betting. In other words, since the respective dots to appear on the tops of the dice are specified, it is

possible to increase the number of subjects for betting accordingly, compared with conventional methods with a plurality of dice of the same type. In this way, the method according to the present invention can allow the player to feel more excited.

In another aspect of the present invention, a method of controlling a dice game is provided, in which the plurality of dice differ in colors.

With the method described above, it is possible to recognize the respective dice by color. This allows the player to easily associate the types of the dice with the dots that appear on the tops of the dice, and immediately recognize game results. It should be noted that the method of differentiating the types of the dice may be modified as needed, for example, by the size of each die, display format of dots, or the like.

In still another aspect of the present invention, a gaming machine for a dice game is provided. The gaming machine includes a game section, a player terminal, and a controller. The player terminal has a display through which a player can places a bet on predicted dots to appear on tops of a plurality of dice of different types that come to rest after tumbling in the game section. The controller is configured with logic to (i) control the game section to cause the plurality of dice to tumble and come to rest, (ii) control the player terminal so as to perform a bet operation, and (iii) control a payout of game media in accordance with an award. The controller receives, from the player terminal, a signal

indicative of placing the bet on the predicted dots in combination with the types of the plurality of dice.

With such a gaming machine, it is possible, for example, to place the player terminal, where the player participate in a game, around the game section lying at the center of a cabinet, in which the plurality of dice tumbles and stops. The player can place a bet at the player terminal on the predicted dots to appear on the tops of the plurality of dice of different types in the game section. In addition, since the player can place a bet on the respective dots to appear on the tops of the dice, it is possible to increase the number of subjects for betting to be larger than that of a conventional gaming machine. In other words, since the respective dots that appear on the tops of the dice are specified, it is possible to increase the number of subjects for betting accordingly, compared with a gaming machine using a plurality of dice of the same type. In this way, the gaming machine according to the present invention allows the player to feel more expected.

In yet another aspect of the present invention, a gaming machine is provided, which further includes a detecting unit that detects dots to appear on the tops of the respective types of dice resting in the game section. The controller executes payout processing for the player terminal in accordance with the dots detected by the detecting unit.

With such a gaming machine, it is possible to immediately detect respective dots to appear on the tops of the dice by way of the detecting unit when the different types of dice

comes to rest after tumbling in the game section. In this way, game results may be promptly informed to the player terminal. It should be noted that the detecting unit may be implemented in various forms. Examples are shown as follows: a system of capturing an image of resting dice with a camera and detecting dots to appear on the tops of dice from the captured data, a system of optically detecting dots, a system of detecting dots by measuring magnetic variation of pre-mounted magnets in the dice, or the like.

In a further aspect of the present invention, a gaming machine is provided, in which the plurality of dice differ in colors.

With such a gaming machine, it is possible to recognize the respective dice by color. This allows the player to easily associate the types of the dice with the dots on the tops of the dice, and immediately recognize game results.

According to the present invention, a method of controlling a dice game and a gaming machine are provided, which allows a player to feel more excited in the game.

BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 is a diagram showing an exemplary display of a bet screen that allows betting by color (second bet screen);

Fig. 2 is a perspective view showing an entire structure of an example of a gaming machine according to the present invention;

Fig. 3 is a plan view showing a configuration of a game

section;

Fig. 4 is a diagram showing a schematic configuration of the game section;

Fig. 5 is a block diagram showing an example of a detecting unit;

Fig. 6 is a diagram showing respective exemplary images of dice obtained by the detecting unit shown in Fig. 5;

Fig. 7 is a diagram showing an exemplary display of a bet screen (first bet screen);

Fig. 8 is a block diagram schematically showing a control system of the gaming machine; and

Fig. 9 is a block diagram schematically showing a control system of a player terminal.

DETAILED DESCRIPTION OF THE INVENTION

A dice game according to the present invention is configured so as to allow betting on predicted dots to appear on different types of dice for each type. More specifically, it is configured, for example, so as to allow betting on respectively predicted dots to appear on tops of three dice in different colors when they are thrown. For example, displaying chips in bet areas 61 to 64 on a bet table (second bet screen) shown in Fig. 1 allows a player to place a bet on the predicted dots to appear on the tops of the dice by color, as described later.

A method of controlling a dice game and a gaming machine according to the present invention are described in detail

below with reference to the attached drawings.

Fig. 2 is a perspective view showing an embodiment of a gaming machine. Fig. 3 is an enlarged diagram of a game section (where multiple types of dice tumble and stop) of the gaming machine shown in Fig. 2. Fig. 4 is a diagram schematically showing a route from retrieval to release of the dice in the game section.

A gaming machine 1 includes: a cabinet 2, which is a main body; a dice game section 3 (hereafter referred to as a game section 3), which is provided substantially at the center of the top surface of the cabinet 2, in which multiple types of dice tumble and stop; and multiple (ten in this embodiment) player terminals 4, which are provided around the game section 3.

Each player terminal 4 should be configured so as to allow a player to bet, and include at least: a game media receiving device 5 into which game media such as coins or medals to be used for playing the game are inserted; a control unit 6, which is configured with multiple control buttons by which a player enters predetermined instructions; and an image display unit 7, which mainly displays images relating to a bet table during the game. The player may participate in a game, which is continuously played in the game section 3, by operating the control unit 6 or the like while viewing the image displayed on the image display unit 7.

In addition, payout slots 8, from which a player's game media are paid out, are provided on the sides of the cabinet 2

on which the player terminals 4 are provided. Moreover, a speaker 9 conveying music, sound effects, or the like is provided on the upper right of the image display unit 7 of each player terminal 4.

The game section 3 is configured so as to allow different types of dice to tumble and stop. In this embodiment, three dice D1, D2, and D3 are used in the game section 3, as with the conventionally well-known SICBO, and each die is colored differently. In other words, in this embodiment, the dice D1, D2, and D3 differing in colors (the die D1 is white, die D2 is red, and die D3 is yellow, for example) are used.

The game section 3 is shaped like a circle on the whole, and is configured with a dice releasing unit 3a from which the dice D1, D2, and D3 are released, a rotary plate 3b on which the dice D1, D2, and D3 sequentially released from the dice releasing unit 3a are tumbled, and a stopping plate 3c where the dice tumbling on the rotary plate 3b are ultimately stopped, for playing a game.

The dice releasing unit 3a, which is provided on a circular outer frame 3F of the game section 3, releases the dice D1 to D3 onto the rotary plate 3b sequentially or simultaneously.

As illustrated in Fig. 4, the rotary plate 3b is formed in a so-called cone shape gently sloping inward down from the circular outer frame 3F, and is supported by multiple driving rollers 3d in contact with the bottom of the rotary plate 3b so as to allow rotation. At a start of a game, rotary plate

driving motors 3A rotationally drive the multiple driving rollers 3d, rotating the rotary plate 3b. It should be noted that since protrusions 3h are formed at predetermined intervals (e.g., formed so as to extend radially at substantially 90 degree intervals) on the surface of the rotary plate 3b, the dice are efficiently tumbled due to bouncing when the rotary plate 3b is rotationally driven.

In addition, the stopping plate 3c is a disk-like bottom of the cone-shaped rotary plate 3b. The stopping plate 3c is where the dice D1 to D3 tumbling on the rotary plate 3b eventually come to rest after falling along the slope of the rotary plate 3b when the rotary plate 3b comes to rest. In other words, the dice D1 to D3 released from the dice releasing unit 3a tumble on the surface of the rotary plate 3b while the rotary plate 3b is rotating, fall along the sloping surface of the rotary plate 3b, and ultimately come to rest on the stopping plate 3c when the rotary plate 3b stops rotation.

As illustrated in Fig. 4, the stopping plate 3c is caused to slide by a stopping plate driving motor 3B. When the stopping plate 3c slides, the dice D1 to D3 fall toward a retrieve/release mechanism 10 while making contact with a contact section 3b' formed at the bottom of the rotary plate 3b.

The retrieve/release mechanism 10 includes: a receiving unit 10a which receives dice falling from the stopping plate 3c; a carrying mechanism 10b which carries the dice within the receiving unit 10a to the dice releasing unit 3a; and a

carrier driving motor 3C which drives the carrying mechanism 10b. The retrieve/release mechanism 10 is not structurally limited as long as it is configured with the following functions: the retrieve/release mechanism 10 retrieves and releases respective dice from the dice releasing unit 3a to the rotary plate 3b after a detecting unit 15 to be described later detects dots on the tops of the dice resting on the stopping plate 3c. In other words, the carrying mechanism 10b may be implemented in various forms. For example, it may be configured so as to carry the dice from the receiving unit 10a to the dice releasing unit 3a using air pressure, or using a carrying mechanism such as a conveyer.

The top of the game section 3 is entirely covered with a cover 12 of hemispheric clear acryl to control the tumbling range of each die. In this embodiment, the detecting unit 15, which detects respective dots on the tops of the resting dice, is provided at the top of the cover 12.

As illustrated in a block diagram of Fig. 5, the detecting unit 15 of this embodiment includes an imaging device (CCD camera) 17, which captures images of dice or subjects, and a dots detection circuit 18, which processes an imaging signal sent from the imaging device 17 and detects the respective dots.

The imaging device 17 is focused on the stopping plate 3c by a focus lens 17a so as to capture an image of the dice on the stopping plate 3c, and is controlled for exposure. The dots detection circuit 18 includes: a subject recognition part

19, which receives imaging signals from the imaging device 17 and recognizes positions of the subjects (dice); a brightness calculation part 20, which calculates brightness of the subject images (dice images) recognized by the subject recognition part 19; a recognition processing part 21, which determines dots on the tops of the dice; a dots data storage part 22, which stores comparison data regarding dots on the dice; a control RAM 23; and a control CPU 24, which controls these units. These units are connected to each other via a bus, and each unit is configured so as to be controlled by the control CPU 24.

More specifically, the distribution in image intensity of the imaging signals of dice formed on the imaging device 17 is measured by the subject recognition part 19. As schematically illustrated in Fig. 6, the measurement of intensity distribution allows determination of positions (surface conditions) of the dice D1 to D3 on the stopping plate 3c. The brightness calculation part 20 measures the brightness so as to determine colors of the three dice D1 to D3 differing in colors. In addition, the recognition processing part 21 specifies dots on the tops of the respective dice D1 to D3 in different colors by performing a comparison with dots combinations (six combinations of dots) previously stored in the dots data storage part 22.

As described above, the information related to the dots determined for respective dice D1 to D3 in different colors is stored in the control RAM 23. The information is then

transmitted to a main control unit 80, which is described later, via an interface 25, when the game media are paid out. In other words, the detecting unit 15 detects respective dots on the tops of the three different types of dice D1 to D3 resting in the game section 3, and transmits the dots information to the main control unit 80 which controls the entire gaming machine.

Next, configurations of the aforementioned control unit 6 and the image display unit 7 are described below.

As illustrated in Fig. 2, the control unit 6 is provided at a side of the image display unit 7 of the player terminal 4, and includes buttons manipulated by a player. More specifically, a bet decision button 30, a payout button 31, and a help button 32 are provided in order, starting from the left as viewed from a position facing the player terminal 4.

The bet decision button 30 is a button provided for a player to press so as to confirm bets by the image display unit 7. If the confirmed bets placed on dots match those that appear on the tops of the dice in the game section 3 during the game, the player wins an award. When the player wins the award, credit corresponding to the number of bet chips is added to the current credit of the player in accordance with the payout table.

The payout button 31 is a button which is usually pressed at the end of the game. When the payout button 31 is pressed, game media corresponding to the current credit that the player has acquired through the game is paid out via the payout slot

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The help button 32 is a button which is pressed by the player when she needs to know a method of operating the game. Immediately after the help button 32 is pressed, a help screen showing various kinds of operation information are displayed on the image display unit 7.

As illustrated in Fig. 7, the image display unit 7 is a so-called touch-panel liquid crystal display, on the front surface of which a touch panel 35 is attached, allowing a player to select icons displayed on a liquid crystal screen 36 by pressing with a finger or the like.

It should be noted that Fig. 7 is a diagram showing an exemplary display screen displayed on the image display unit 7. As illustrated in this drawing, a table-type betting board (first bet screen) 40 for predicting dots to appear on the tops of the dice for a current game is displayed on the image display unit 7. It is possible for a player to place a bet with available credits while viewing the first bet screen 40 displayed on the image display unit 7.

The first bet screen 40 is described in detail next.

A bet area 41 in which dice are displayed is aligned in a grid on the first bet screen 40. A player specifies a particular area in the bet area 41 by pressing (touching) the touch panel 35 with a finger, and places a bet with chips displayed in the specified area.

A display selection button 42 for displaying a second bet screen 60, which is described later, a bet button unit 43, a

payout result display area 45, and a credit count display area 46, are displayed at the bottom of the first bet screen 40 in order from the left side of the screen.

A player selects the display selection button 42 when she wants to place a bet on dots to appear on the tops of the dice by specifying colors while playing the game. In other words, touching the display selection button 42 allows switching from the first bet screen 40 to the second bet screen 60, which is described later, so that the player can place a bet on dots to appear on the tops of the dice in combination of their colors.

The bet button unit 43 is a group of buttons that are used by a player to bet chips on the specified bet area 41. The bet button unit 43 includes a 1 bet button 43A, a 5 bet button 43B, a 10 bet button 43C, and a 100 bet button 43D. It should be noted that in the case of an incorrect operation, the player may start again by touching a re-bet button 43E.

The player first specifies a bet zone in the bet area 41 so as to place a bet using a cursor 47 by directly pressing the screen with a finger or the like. At this time, pressing the 1 bet button 43A allows for betting one chip at a time (number of chips to be bet increases one by one in the order of 1, 2, 3, ... every time the 1 bet button 43A is pressed). Similarly, pressing the 5 bet button 43B allows for betting five chips at a time (number of chips to be bet increases by five in the order of 5, 10, 15, ... every time the 5 bet button 43B is pressed), pressing the 10 bet button 43C allows for betting ten chips at a time (number of chips to be bet

increases by ten in the order of 10, 20, 30, ... every time the 10 bet button 43C is pressed), and pressing the 100 bet button 43D allows for betting one hundred chips at a time (number of chips to be bet increases by a hundred in the order of 100, 200, 300, ... every time the 100 bet button 43D is pressed). The number of chips bet up to the current time is displayed as a chip mark 48 in the bet area 41. The number displayed on the chip mark 48 indicates the number of bet chips.

In addition, the number of bet chips and payout credit count for a player in a previous game are displayed in the payout result display area 45. The number calculated by subtracting the number of bet chips from the credit count is a newly acquired credit count for the player in the previous game.

Moreover, a player's current credit count is displayed in the credit count display area 46. The credit count decreases according to the number of bet chips (1 credit count for 1 chip) when the player bets chips. If the bet chips are entitled to an award, the credit count increases in accordance with the number of paid out chips. It should be noted that the game is over when the player's credit count becomes zero.

A bet timer bar graph 49 is provided at the top of the first bet screen 40. The bet timer bar graph 49 indicates the allowable time left for a player to place a bet. At the beginning of a game, a red bar starts running gradually toward the right, and when it reaches the extreme right position, the

allowable time for placing a bet in the current game concludes. When the player's betting time is up in each player terminal 4, the dice D1 to D3 are thrown out sequentially from the dice releasing unit 3a toward the rotary plate 3b.

The bet area 41 in the first bet screen 40 is described next. The bet area 41 has multiple bet zones in which chips are placed for betting.

As shown in Fig. 7, bet zones 41A and 41B are where a player places a bet on a predicted sum of dots to appear on the tops of the dice D1 to D3. In other words, the player selects the bet zone 41A if the predicted sum falls in a range of 4 to 10, or the bet zone 41B if the predicted sum falls in a range of 11 to 17. Odds are set to 1:1 (two chips are paid out for one bet), and if the sum is 3 or 18 (dots appearing on the tops of the dice are 1, 1, 1 or 6, 6, 6), the player loses the game.

A bet zone 41C is where a player places a bet, predicting that two of the three dice have a same number of dots. In other words, the player wins an award if one of the combinations occurs, such as (1, 1), (2, 2), (3, 3), (4, 4), (5, 5), and (6, 6), and odds are set to 1:10.

A bet zone 41D is where a player places a bet, predicting that all three dice have a same number of dots. In other words, the player wins an award if one of the combinations occurs, such as (1, 1, 1), (2, 2, 2), (3, 3, 3), (4, 4, 4), (5, 5, 5), and (6, 6, 6), and odds are set to 1:30.

A bet zone 41E is where a player places a bet on a

predicted number of dots to appear commonly on all three dice. In other words, the player places a bet on one of the combinations of (1, 1, 1), (2, 2, 2), (3, 3, 3), (4, 4, 4), (5, 5, 5), or (6, 6, 6), and odds are set to 1:180.

A bet zone 41F is where a player places a bet by predicting a total, a summation of dots to appear on the tops of the three dice. Odds are set according to the occurrence probability of the total. For example, if the total is 4 or 17, odds are set to 1:60; if the total is 5 or 16, odds are set to 1:30; if the total is 6 or 15, odds are set to 1:18; if the total is 7 or 14, odds are set to 1:12; if the total is 8 or 13, odds are set to 1:8; if the total is 9 or 12, odds are set to 1:7; and if the total is 10 or 11, odds are set to 1:6.

A bet zone 41G is where a player places a bet on predicted dots to appear on the tops of two dice selected from the three, and odds are set to 1:5.

A bet zone 41H is where a player places a bet on a number of dots to appear on the tops of the dice, and odds are set according to the number of dice matching the predicted number of dots. A description is given of a case where the player places a bet on the predicted number of dots, '1' for example: odds are set to 1:1 if a single '1' appears on one of the three dice; odds are set to 1:2 if two '1's appear on two dice; and odds are set to 1:10 if three '1's appear on three dice.

Next, the second bet screen 60, which a player selects by operating the display selection button 42 in the first bet

screen 40, is described.

Fig. 1 is a diagram showing an example of the second bet screen 60, which is displayed through selection by the player. It should be noted that the same reference numerals are provided for display areas of the second bet screen 60, which functionally similar to those of the first bet screen 40, and a detailed description thereof is not repeated.

The second bet screen 60 is mainly configured with four bet areas 61, 62, 63, and 64. The player selects a bet area by touching the touch panel 35 with a finger, and performs betting with chips displayed in the selected area.

Similar to the first bet screen 40, a display selection button 42 for switching to the first bet screen 40, a bet button unit 43, a payout result display area 45, and a credit count display area 46 are displayed at the bottom of the second bet screen 60 in order from the left side of the screen.

The bet area 61 is where a player places a bet by predicting dots to appear on tops of dice differing in colors. It is an area where the player predicts the dots to appear on the tops of the white die D1, the red die D2, and the yellow die D3.

More specifically, the player determines predicted dots to appear on the top of the white die D1, for example, by directly touching the dots selected from a zone 61A where the six types of dots applicable to the white die D1 are displayed, specifying the dots with a cursor 47, and touching a decision button 61E. The selection result is displayed in a zone 61F at

the right side of the bet area 61 (a display example of predicted dots'2' is given). Similarly, predicted dots to appear on the top of the red die D2 is determined in a zone 61B. The selection result is displayed in the zone 61F (a display example of predicted dot '1' is given). Similarly, predicted dots to appear on the top of the yellow die D3 is determined in a zone 61C. The selection result is displayed in the zone 61F (a display example of predicted dots '6' is given). It should be noted that touching a delete button 61D during selection allows for cancellation of selection or reselection of dots.

The selection results of the dots to appear on the tops of the three dice differing in colors are displayed in the zone 61F at the right side of the bet area 61, and chips to be bet are displayed accordingly. When the player manipulates the bet button unit 43 while touching a corresponding bet zone 61G to specify that particular zone with the cursor 47, a chip mark 48 indicating the number of bet chips is displayed. It should be noted that if the player wants to place a bet on plural outcomes, it is possible for her to repeat the aforementioned steps (placing a bet on three outcomes are illustrated in the display example of the drawing).

Prediction of the respective dots to appear on the tops of the three different dice is meant to select one out of 216 combinations, where the winning probability is 1/216 and odds are set to 1:200.

It should be noted that in the first bet screen 40 where

the aforementioned selection with respect to the colors of the dice is not performed, the only bet area with such winning probability is the bet zone 41E (only the area in which the player places a bet by predicting a same type of dots to appear on each of the three dice). However, since in the second bet screen 60 where the player selects the dots to appear on the tops of the dice with respect to their colors, there are 216 combinations, she may have a chance to participate in more challenging selection with a higher return, which allows her to feel more excited in the game.

In addition, the bet area 62 is where a player places a bet on dots to appear on the tops of the dice in combination with their colors. Namely, the player predicts the dots to appear on the tops of the two dice selected from three.

More specifically, the player determines a predicted number of dots to appear on the top of the white die D1, for example, by directly touching the dots selected from a zone 62A where the six numbers of dots applicable to the white die D1 are displayed, specifying the dots with a cursor 47, and touching a decision button 62E. The selection result is displayed in a zone 62F at the right side of the bet area 62 (a display example of predicted dot '1' is given). Similarly, the player determines a predicted number of dots to appear on the top of the red die D2 in the zone 62B. The selection result is displayed in the zone 62F (a display example of predicted dot '1' is given). It should be noted that since the yellow die D3 is not intended for selection, all the dots 1 to

6 are regarded as valid when selection of the two dice has been completed ('ANY' is displayed). In the above exemplary description, it is assumed that the yellow die D3 is a die not to be intended for selection.

The selection results of the dots to appear on the tops of the two dice with respect to their colors are displayed in the zone 62F at the right side of the bet area 62, and chips to be bet are displayed accordingly. In other words, manipulation of the bet button unit 43 while touching a corresponding bet zone 62G to specify the particular zone using the cursor 47, allows a display of a chip mark 48 indicating the number of bet chips. It should be noted that when the player wants to place a bet on plural outcomes, it is possible for her to repeat the aforementioned steps (placing a bet on three outcomes is displayed in the display example of Fig. 1).

When the dots to appear on the tops of the two dice in combination with their colors are predicted, the winning probability is 6/216 and odds are set to 1:50.

It should be noted that in the first bet screen 40 where the aforementioned selection with respect to the colors of dice is not performed, the bet zones with such winning probability are restricted to: the bet zone 41D (where the player places a bet by predicting that the same number of dots will appear on all three dice); and the bet zone 41F in which the player places a bet by predicting that the total number of dots to appear on the tops of the dice will be 5 or 16.

However, there are 108 combinations in the second bet screen 60, when the dots to appear on the tops of the dice are selected in combination with their colors. Accordingly, it is possible to allow the player to have more chances to participate in challenging selection with a high return.

In addition, the bet area 63 is where a player places a bet by predicting sizes of the dots to appear on the tops of the three dice differing in colors. Selection of respective colors from zones where sizes are displayed (a large zone 63A, a medium area 63B, and a small zone 63C) allows for selection of the sizes of the dots of the three dice.

More specifically, when the player predicts that the largest dots will appear on the white die, for example, she selects white from the large zone 63A, directly touching the area, specifying the area using a cursor 47, and touching a decision button 63E. In the medium zone 63B and the small zone 63C, white is turned off to allow for selection of red and yellow only. When the player subsequently predicts that the second largest dots will appear on the red die, she selects red from the medium zone 63B by directly touching the zone, specifying the area using the cursor 47, and touching the decision button 63E. Yellow is automatically selected in the small zone 63C (the results of selected white in the large zone 63A, red in the medium zone 63B, and yellow in the small zone 63C are shown). Then, manipulation of the bet button unit 43 while touching a bet zone 63G to specify the zone using the cursor 47 upon completion of selection allows a display of the

number of bet chips as the chip mark 48.

When the sizes of dots of the three dice are predicted, the winning probability is 20/216, and odds are set to 1:8. It should be noted that when the same dots appear on the three dice D1 to D3, the player loses the game.

As mentioned above, prediction of the sizes of dots are realized by introduction of distinguishing the three dice from one another by color. In this way, the player has more chances for betting, so that she feels more interested in the game.

In addition, the bet area 64 is an area in which a player places a bet by predicting the sizes of dots to appear on tops of two of the three dice differing in colors. Selection of respective colors from zones where sizes are displayed (a large zone 64A and a small zone 64B) allows for selection of the sizes of two selected dice.

More specifically, when the player predicts that the largest dots will appear on the top of the red die, for example, she selects red from the large zone 64A, directly touching the zone, specifying the zone with a cursor 47, and touching a decision button 64E. In this case, in the small zone 64B, red is turned off to allow for selection of white and yellow only (the results of selecting red in the large zone 64A and yellow in the small zone 64B are shown). Then, manipulation of the bet button 43 while touching a bet zone 64G to specify the zone with the cursor 47 upon completion of selection allows a display of the number of bet chips as the chip mark 48.

When the aforementioned sizes of dots of the two dice are predicted, the winning probability is 15/36, and odds are set to 1:2. It should be noted that when the same dots appear on the two selected dice, the player loses the game.

As mentioned above, distinguishing the three dice by color allows for prediction of the sizes of the two selected dice, increasing betting chances for the player, and increasing interest.

Next, a configuration of a control system of the gaming machine 1 is described while referencing Fig. 8. Fig. 8 is a block diagram schematically showing the control system of the gaming machine.

A main control unit 80 of the gaming machine 1 includes a microcomputer 85, which is configured with CPU 81 for main control, ROM 82, RAM 83, and a bus 84 that transfers data therebetween.

CPU 81 is connected to various devices which drive the game section 3, more specifically, the rotary plate driving motor 3A, the stopping plate driving motor 3B, the carrier driving motor 3C that serves as a main driving unit for the dice retrieve/release mechanism 10, and the like via an I/O interface 90. In addition, the aforementioned detecting unit 15 is connected to the I/O interface 90, and transmission and reception of a signal indicating the end of a game as well as signals indicating respective dots to appear on the tops of the three dice resting on the stopping plate 3c is carried out therebetween. In addition, via a communication interface 95

connected to the I/O interface 90, the main control unit 80 transmits and receives data such as bet information, payout information, and the like to and from each player terminal 4.

ROM 82 in the main control unit 80 is configured with a semiconductor memory or the like, for example. ROM 82 stores a program for implementing basic functions of the gaming machine 1, more specifically, a program for controlling various devices which drive the game section 3, a program for controlling each player terminal 4, and the like, and a payout table referred to when playing the dice game.

RAM 83 is a memory, which temporarily stores various types of data calculated by CPU 81. The data includes, for example, bet information on chips transmitted from each player terminal 4, information on respective dots that appear on the tops of the dice D1 to D3 transmitted from the detecting unit 15, data relating to the process results executed by CPU 81, and the like.

CPU 81 controls components to drive the game section 3, such as the rotary plate driving motor 3A, the stopping plate driving motor 3B, and the carrier driving motor 3C, based on the data and programs stored in ROM 82 and RAM 83. In this way, CPU 81 controls processing associated with the progress of a game, such as throwing of the dice to the rotary plate 3b of the game section 3, carrying of the dice to the dice releasing unit 3a so as to allow for re-throwing of the dice retrieved from the stopping plate 3c, and checking of the dots on the tops of the dice resting on the stopping plate 3c.

In addition to the control of processing described above, CPU 81 executes a game by transmitting and receiving data to and from each player terminal 4 so as to control each player terminal 4. More specifically, CPU 81 receives bet information transmitted from each player terminal 4, and determines whether or not bet chips are entitled to awards based on the dots on the tops of the dice and the received bet information. In this way, CPU 81 calculates a credit amount to be paid in each player terminal 4 by referring to the payout table.

Next, a configuration of a control system of the player terminal 4 connected to CPU 81 in the main control unit 80 is described.

Fig. 9 is a block diagram schematically showing the control system of the player terminal 4 according to this embodiment.

The player terminal 4 includes a main body 100 in which an image display unit 7 and the like are provided, and a game media receiving device 5, which is attached to the main body 100. The main body 100 further includes a player terminal control unit 110 and some peripheral devices.

The player terminal control unit 110 includes CPU 111 for controlling the player terminal 4, ROM 112, and RAM 113.

ROM 112, which is configured with semiconductor memory or the like, for example, stores a program for implementing basic functions of the player terminal 4, other various programs needed to control the player terminal 4, a data table, and the like.

RAM 113 is a memory temporarily storing various types of data calculated by CPU 111, player's current credit count, player's chip bet conditions, and the like.

Moreover, a bet decision button 30, a payout button 31, and a help button 32 provided in the control unit 6 (see Fig. 2) are connected to CPU 111, respectively. CPU 111 controls the execution of various operations in accordance with manipulation signals, which are generated in response to each button pressed by a player. More specifically, CPU 111 executes various processing, receiving input signals transmitted from the control unit 6a in response to player's manipulation, and the data and programs stored in ROM 112 and RAM 113. Subsequently, CPU 111 transmits the results to CPU 81 in the main control unit 80.

In addition, CPU 111 receives instruction signals from CPU 81, controls peripheral devices of the player terminal 4, and executes a dice game in the player terminal 4. Moreover, according to processing contents, CPU 111 executes various processing based on input signals transmitted from the control unit 6 in response to a player's manipulation, and the data and programs stored in ROM 112 and RAM 113. Along with the results acquired by the execution of processing, CPU 111 controls peripheral devices of the player terminal 4, and executes a dice game in the player terminal 4. It should be noted that which one of two types of processing is applied to each processing depends on the processing contents. For example, the former approach is applied to payout processing

of game media for respective dots that appear on the dice, and the latter approach is applied to bet processing by a player.

Furthermore, a hopper 114, which is connected to CPU 111, pays out a predetermined number of game media from the payout slot 8, receiving the instruction signals from CPU 111.

Moreover, the image display unit 7 is connected to CPU 111 via a liquid crystal driving circuit 120. The liquid crystal driving circuit 120 includes a program ROM, image ROM, image control CPU, work RAM, video display processor (VDP), video RAM, and the like. The program ROM stores various selection tables and an image control program for displaying on the image display unit 7. The image ROM stores, for example, dot data for forming images to be displayed on the image display unit 7. In addition, the image control CPU determines an image to be displayed on the image display unit 7 from the dot data previously stored in the image ROM according to the image control program previously stored in the program ROM based on parameters specified by CPU 111. The work RAM is configured as a temporary storage means when executing the image control program by the image control CPU. The VDP forms an image corresponding to the display contents determined by the image control CPU and displays the resulting image on the image display unit 7. It should be noted that the video RAM is configured as a temporary storage means when forming an image by the VDP.

As mentioned above, the touch panel 35 is attached to the front side of the image display unit 7, and the information

related to operation on the touch panel 35 is transmitted to CPU 111. The touch panel 35 detects a player's betting of chips on the first bet screen 40 and the second bet screen 60. More specifically, selection of the bet area 41 in the first bet screen 40 and the bet areas 61 to 64 in the second bet screen 60, manipulation of the bet button unit 43 and the like, are performed by touching the touch panel 35. The information related to the operation described above is transmitted to CPU 111. Based on the information, the current bet information of a player (the bet areas 41 and 61 to 64 in the bet screens 40 and 60, respectively, and the number of bet chips) is stored in RAM 113 as needed. In addition, the bet information is transmitted to CPU 81 in the main control unit 80, and stored in a bet information storage area in RAM 83.

Moreover, a sound output circuit 126 and a speaker 9 are connected to CPU 111. The speaker 9 emits various sound effects for performing various kinds of rendered effects, receiving output signals from the sound output circuit 126. In addition, the game media receiving device 5, into which game media such as coins or medals are inserted, is connected to CPU 111 via a data receiving unit 127. The data receiving unit 127 receives credit signals transmitted from the game media receiving device 5, and CPU 111 increases a player's credit amount stored in RAM 113 based on the transmitted credit signals.

Next, a description is given of operation of the gaming machine 1 configured as described above, and an exemplary game

playing operation of a player in the player terminal 4.

With the gaming machine 1, once a player takes a seat at a player terminal 4, a game is performed in the game section 3 at constant intervals. When the player of the player terminal 4 inserts game media such as coins or medals into the game media receiving device 5, the number of chips (number of remaining chips) available for betting is accordingly displayed on the credit count display area 46 in the first and second bet screens 40 and 60 of the image display unit 7.

A player places a bet within the duration of the bet timer bar graph 49 displayed on the first and second bet screens 40 and 60. Accordingly, betting is accepted by the first bet screen 40 and the second bet screen 60. These screens are switched through pressing (touching) operation of the display selection button 42.

In the first bet screen 40, the player can place a bet according to typical SICBO rules. In other words, regardless of the types (colors) of the dice in the game section 3, the player can place a bet only on dots to appear on the tops of the dice, and she can place a bet in the bet zones 41A to 41G according to the aforementioned operation procedure. As illustrated in Fig. 7, the chip mark 48 is displayed in an area where bets are placed by the player.

In addition, if the player wants to place a bet on predicted dots to appear on tops of dice by type (for each color), she can have a display of the second bet screen 60 shown in Fig. 1 by touching the display selection button 42 in

the first bet screen 40.

In the second bet screen 60, the player can place a bet on the dots to appear on the tops of the dice by type (by color). The player can place a bet in the bet areas 61 to 64 by the aforementioned operation procedure. As illustrated in Fig. 1, the chip mark 48 is displayed in an area where bets are placed by the player.

Bet information from each player terminal 4 is stored in a predetermined work area of RAM 83 in the main control unit 80. When the allowable time for betting has elapsed, CPU 81 of the main control unit 80 transmits a drive signal to the game section 3. This rotationally drives the rotary plate 3b, and throws three different colored dice D1 to D3 onto the rotary plate 3b in the game section 3 (during this time, the three dice are tumbling within the game section 3). After a predetermined time has elapsed, driving of the rotary plate 3b is stopped, and each die ultimately comes to rest on the stopping plate 3c.

At this time, the detecting unit 15 is activated so as to detect the information on respective dots on the tops of the dice. The detected information is transmitted to the main control unit 80, and CPU 81 performs win decision processing for the bet information of each player terminal 4 stored in RAM 83. If the CPU 81 determines that there is a winner, it calculates odds by referring to the predetermined payout table. The win decision processing executed for each player terminal 4 is stored in the predetermined work area of the RAM 83, and

information thereof is transmitted to each player terminal 4.

CPU 111 of each player terminal 4 activates the liquid crystal driving circuit 120, receiving a win decision signal transmitted from the main control unit 80, and updates the payout result display area 45 and the credit count display area 46 displayed on the first and second bet screens 40 and 60, respectively. In addition, CPU 111 of each player terminal 4 activates the liquid crystal driving circuit 120 and the sound output circuit 126 so as to perform rendered effects with images and sounds, if necessary.

Subsequently, CPU 81 of the main control unit 80 drives the retrieve/release mechanism 10 and retrieves the dice on the stopping plate 3c to start a new game.

With the gaming machine 1 and the dice game using the gaming machine, a player can place a bet on predicted dots to appear on different types of dice (three different colored dice), which tumble in the game section 3, at the player terminal 4 via the second bet screen 60. In other words, since the player can place a bet on the predicted dots to appear on the multiple types of dice, it is possible to increase the number of subjects for betting more than that of the conventional dice game using the same type of dice. Furthermore, the player can have a chance to participate in a more challenging selection with a possible larger payout, so that it is possible to allow her to feel more excited.

Particularly, this embodiment, which realizes easy betting and simple rules by introducing a dice game similar to

conventionally familiar SICBO, allows the player to feel comfortable when she participates in the game. In addition, since the player may easily recognize the dice in the game section 3 and immediately recognize game results due to the different colors of the three dice, it is possible to allow the game to be more attractive to the player.

Embodiments of the gaming machine and a method of controlling a dice game of the present invention are described above; however, the present invention is not limited to the aforementioned embodiments, and can be modified in various ways.

For example, in the game section 3, it may be possible to modify the method of tumbling and stopping dice, the method of determining dots that appear on dice, the method of retrieving dice, and the like. For example, dice may alternatively be configured so as to tumble on a vibrating plate, or may always be exposed within a game section without being retrieved. In addition, it may alternatively be possible to electronically simulate an image of tumbling and stopping dice by an image display unit instead of mechanically tumbling dice in the game section.

Furthermore, it may be possible to adopt an identifiable device pre-mounted in each die, a magnetically susceptible device, for example, such that a detecting unit detects dots on the tops of dice. It may alternatively be possible to adopt an optical sensor so as to detect the dots.

Moreover, the number of dice to be used is not limited to

three, and it may be two or four, or more. Furthermore, the type of dice may alternatively be distinguished by size rather than by color. In addition, a method of placing a bet on respective predicted dots to appear on the tops of dice by type may be variously changed in addition to a betting form shown in Fig. 1. For example, appropriate modifications, such as prediction of colors of dice on which the same dots will appear, prediction of dots to appear on a particular die with a color selected by a player, and the like, are possible. Moreover, the odds for each bet zone are merely examples, and may be appropriately modified according to geographical areas, regional regulations, or the like.

Furthermore, the present invention may be applied to a table game where a dealer simply handles dice.

While preferred embodiments of the present invention have been described and illustrated above, it is to be understood that they are exemplary of the invention and are not to be considered to be limiting. Additions, omissions, substitutions, and other modifications can be made thereto without departing from the spirit or scope of the present invention. Accordingly, the invention is not to be considered to be limited by the foregoing description and is only limited by the scope of the appended claims.

What is claimed is:

1. A method of controlling a dice game, comprising the steps of:

(a) allowing a player to place a bet on predicted dots to appear on tops of a plurality of dice of different types in combination with respective types of the dice; and

(b) providing an award to the player when the bet placed in the step (a) is entitled to the award.

2. The method according to claim 1, wherein the plurality of dice differ in colors.

3. A gaming machine for a dice game comprising:

a game section;

a player terminal having a display through which a player can places a bet on predicted dots to appear on tops of a plurality of dice of different types that come to rest after tumbling in the game section; and

a controller configured with logic to (i) control the game section to cause the plurality of dice to tumble and come to rest, (ii) control the player terminal so as to perform a bet operation, and (iii) control a payout of game media in accordance with an award, wherein

the controller receives, from the player terminal, a signal indicative of placing the bet on the predicted dots in combination with the types of the plurality of dice.

4. The gaming machine according to claim 3, further comprising a detecting unit that detects dots to appear on the tops of the respective types of dice resting in the game section, wherein

the controller executes payout processing for the player terminal in accordance with the dots detected by the detecting unit.

5. The gaming machine according to claim 3, wherein the plurality of dice differ in colors.

6. The gaming machine according to claim 4, wherein the plurality of dice differ in colors.