

METHODS AND APPARATUSES FOR DISPLAYING PROCESS OF GAME AND ELECTRONIC DEVICE AND STORAGE MEDIUM

TECHNICAL FIELD

[0001] The present disclosure relates to the field of game control technologies, and in particular to methods and apparatuses for displaying a process of a game and an electronic device and a storage medium.

BACKGROUND

[0002] At present, games are developing toward intelligentization and automation, for example, states of a game may be automatically switched according to operation of a game manager, and game items (game props, etc.) in a game region and the like. Therefore, one complete game requires correct operation of a game manager and normal operation of a game system. In a case of misoperation of the game manager or abnormal operation of the game system, control error will be brought to the game. In the related art, the game process cannot be restored when a control error occurs. Thus, it is difficult to find out a factor generating the control error, and hence the game control cannot be quickly restored to normal.

SUMMARY

[0003] Methods and apparatuses for displaying a process of a game and an electronic device and a storage medium are provided, so as to solve the defects in the prior art.

[0004] According to a first aspect of embodiments of the present disclosure, a method of displaying a process of a game is provided, the method including:

[0005] receiving, by a client, first service information from a service end, and displaying a picture of a game region corresponding to a first identifier according to the first identifier for identifying a game region type of the game in the first service information, where a communication connection is established between the client and the service end, and the service end is configured to obtain service information obtained by monitoring one or more game items in the game;

[0006] receiving, by the client, second service information from the service end, where the second service information includes position information of a new target game item present in a game item placement region in the game region;

[0007] determining, by the client, a target placement sub-region where the target game item is located in the game item placement region according to the position information;

[0008] obtaining, by the client, a number of the game items placed in the target placement sub-region;

[0009] displaying, by the client, an image of the target game item in a display region corresponding to the target placement sub-region in the picture according to the number of placed game items.

[0010] In an embodiment, displaying the image of the target game item in the display region corresponding to the target placement sub-region in the picture according to the number of placed game items includes:

[0011] determining a locating box of the target game item in the display region corresponding to the target placement sub-region in the picture according to the number of placed game items;

[0012] displaying the image of the target game item in the locating box.

[0013] In an embodiment, determining the locating box of the target game item in the display region corresponding to the target placement sub-region in the picture according to the number of placed game items includes:

[0014] obtaining a first mapping relationship between a display sequence of a game item and a locating box of a preset position in the display region;

[0015] determining a display sequence of the target game item according to the number of the placed game items;

[0016] determining the locating box of the target game item according to the display sequence of the target game item and the first mapping relationship.

[0017] In an embodiment, coordinates of the locating boxes of several preset positions on a coordinate axis of a width direction of the display region are in an ascending order according to the corresponding display sequences of the game items in the first mapping relationship; and/or,

[0018] coordinates of the locating boxes of several preset positions on a coordinate axis of a height direction of the target placement sub-region are in an ascending order according to the corresponding display sequences of the game items in the first mapping relationship.

[0019] In an embodiment, the second service information further includes type information and number information of the target game item.

[0020] Displaying the image of the target game item in the display region corresponding to the target placement sub-region in the picture includes:

[0021] displaying the image of the target game item in the display region corresponding to the target placement sub-region in the picture according to the type information and the number information of the target game item.

[0022] In an embodiment, the target placement sub-region comprises a plurality of target game items, and displaying the image of the target game item in the display region corresponding to the target placement sub-region in the picture according to the type information and the number information of the target game item includes:

[0023] determining an image of each type of target game items according to a pre-stored second mapping relationship between a type of a game item and an image of the game item and the types of the target game items;

[0024] displaying the image of each type of target game items in the display region according to the number information of the target game items.

[0025] In an embodiment, a plurality of target game items are in a stack form, and displaying the image of each type of target game items in the display region according to the number information of the target game items includes:

[0026] generating a virtual stack image corresponding to a plurality of the target game items in the stack form according to the number information and the type information of the plurality of the target game items in the stack form and the image of each type of the target game items;

[0027] displaying the virtual stack image in the display region.

[0028] In an embodiment, in the virtual stack image, there is a spacing of a preset distance between center positions of the target game items stacked adjacently along a direction perpendicular to a stacking direction of a plurality of the target game items.

[0029] In an embodiment, displaying the virtual stack image in the display region includes:

[0030] setting a center point of a target game item located at a lowest layer in a plurality of target game items in the virtual stack image at a center of the locating box.

[0031] In an embodiment, after the image of the target game item is displayed in the display region corresponding to the target placement sub-region in the picture according to the number of placed game items, the method further includes:

[0032] updating the number of game items placed in the target placement sub-region.

[0033] In an embodiment, displaying the image of the target game item in the display region corresponding to the target placement sub-region in the picture includes:

[0034] drawing the image of the target game item in the display region.

[0035] According to a second aspect of embodiments of the present disclosure, a method of displaying a process of a game is provided, the method including:

[0036] sending, by a service end, first service information to a client, such that the client displays a picture of a game region corresponding to a first identifier according to the first identifier for identifying a game region type of the game in the first service information, where a communication connection is established between the client and the service end, and the service end is configured to obtain service information obtained by monitoring one or more game items in the game;

[0037] sending, by the service end, second service information to the client such that: the client determines a target placement sub-region where a new target game item is located in a game item placement region according to position information of the new target game item in the game item placement region in the second service information, obtains a number of the game items placed in the target placement sub-region, and displays an image of the target game item in a display region corresponding to the target placement sub-region in the picture according to the number of placed game items.

[0038] According to a third aspect of embodiments of the present disclosure, an apparatus for displaying a process of a game is provided, the apparatus including:

[0039] a first receiving module, configured to receive first service information from a service end, and display a picture of a game region corresponding to a first identifier according to the first identifier for identifying a game region type of the game in the first service information, where a communication connection is established between the service end and a client to which the apparatus is applied, and the service end is configured to obtain service information obtained by monitoring one or more game items in the game;

[0040] a second receiving module, configured to receive second service information from the service end, wherein the second service information includes position information of a new target game item present in a game item placement region in the game region;

[0041] a determining module, configured to determine a target placement sub-region where the target game item is located in the game item placement region according to the position information;

[0042] an obtaining module, configured to obtain a number of game items placed in the target placement sub-region;

[0043] a displaying module, configured to display an image of the target game item in a display region corresponding to the target placement sub-region in the picture according to the number of placed game items.

[0044] In an embodiment, the displaying module is specifically configured to:

[0045] determine a locating box of the target game item in the display region corresponding to the target placement sub-region in the picture according to the number of placed game items;

[0046] display the image of the target game item in the locating box.

[0047] In an embodiment, when determining the locating box of the target game item in the display region corresponding to the target placement sub-region in the picture according to the number of placed game items, the displaying module is specifically configured to:

[0048] obtain a first mapping relationship between a display sequence of a game item and a locating box of a preset position in the display region;

[0049] determine a display sequence of the target game item according to the number of placed game items;

[0050] determine the locating box of the target game item according to the display sequence of the target game item and the first mapping relationship.

[0051] In an embodiment, coordinates of the locating boxes of several preset positions on a coordinate axis of a width direction of the display region are in an ascending order according to the corresponding display sequences of the game items in the first mapping relationship; and/or,

[0052] coordinates of the locating boxes of several preset positions on a coordinate axis of a height direction of the target placement sub-region are in an ascending order according to the corresponding display sequences of the game items in the first mapping relationship.

[0053] In an embodiment, the second service information further includes type information and number information of the target game item.

[0054] The displaying module is specifically configured to:

[0055] display the image of the target game item in the display region corresponding to the target placement sub-region in the picture according to the type information and the number information of the target game item.

[0056] In an embodiment, the target placement sub-region includes a plurality of target game items. When displaying the image of the target game item in the display region corresponding to the target placement sub-region in the picture according to the type information and the number information of the target game item, the displaying module is specifically configured to:

[0057] determine an image of each type of target game items according to a pre-stored second mapping relationship between a type of a game item and an image of the game item and the types of the target game items;

[0058] display the image of each type of target game items in the display region according to the number information of the target game items.

[0059] In an embodiment, a plurality of target game items are in a stack form. When displaying the image of each type of target game items in the display region according to the number information of the target game items, the displaying module is specifically configured to:

[0060] generate a virtual stack image corresponding to a plurality of the target game items in the stack form according to the number information and the type information of the plurality of the target game items in the stack form and the image of each type of the target game items;

[0061] display the virtual stack image in the display region.

[0062] In an embodiment, in the virtual stack image, there is a spacing of a preset distance between center positions of the target game items stacked adjacently along a direction perpendicular to a stacking direction of a plurality of the target game items.

[0063] In an embodiment, when displaying the virtual stack image in the display region, the displaying module is specifically configured to:

[0064] set a center point of the target game item located at a lowest layer in a plurality of target game items in the virtual stack image at a center of the locating box.

[0065] In an embodiment, the apparatus further includes an updating module which is specifically configured to:

[0066] after the image of the target game item is displayed in the display region corresponding to the target placement sub-region in the picture according to the number of

placed game items, update the number of game items placed in the target placement sub-region.

[0067] In an embodiment, the displaying module is specifically configured to:

[0068] draw the image of the target game item in the display region.

[0069] According to a fourth aspect of embodiments of the present disclosure, an apparatus for displaying a process of a game is provided, the apparatus including:

[0070] a first sending module, configured to send first service information to a client, such that the client displays a picture of a game region corresponding to a first identifier according to the first identifier for identifying a game region type of the game in the first service information, wherein a communication connection is established between the client and a service end to which the apparatus is applied, and the service end is configured to obtain service information obtained by monitoring one or more game items in the game;

[0071] a second sending module, configured to send second service information to the client such that the client determines a target placement sub-region where a new target game item is located in a game item placement region according to position information of the new target game item in the game item placement region in the second service information, obtains a number of the game items placed in the target placement sub-region, and displays an image of the target game item in a display region corresponding to the target placement sub-region in the picture.

[0072] According to a fifth aspect of embodiments of the present disclosure, an electronic device is provided. The device includes a memory, a processor, and computer instructions stored in the memory and run on the processor. The computer instructions are executed by the processor to implement the method according to the first or second aspect.

[0073] According to a sixth aspect of embodiments of the present disclosure, a computer readable storage medium storing computer programs is provided. The computer programs are executed by a processor to implement the method according to the first or second aspect.

[0074] As known from the above embodiments, the client receives the first service information from the service end pre-establishing a communication connection with the client, displays the picture of the game region corresponding to the first identifier according to the first identifier for identifying the game region type of the game in the first service information. Further, the client receives the second service information from the

service end, determines the target placement sub-region where the new target game item is located according to the position information of the new target game item in the game item placement region in the second service information, obtains the number of game items placed in the target placement sub-region, and displays the image of the target game item in the display region corresponding to the target placement sub-region in the picture according to the number of placed game items. That is, the client can restore a position of a target game item in a game process in real time, so that whether a factor generating a control error is present in the operation of the target game item is determined at the time of control error occurring to the game, thus helping to find out the factor generating the control error and quickly restore the game control to normal.

[0075] It is understood that the above general descriptions and subsequent detailed descriptions are merely illustrative and explanatory rather than limiting of the present disclosure.

BRIEF DESCRIPTION OF THE DRAWINGS

[0076] The accompanying drawings, which are incorporated in and constitute a part of the present description, illustrate examples consistent with the present disclosure and serve to explain the principles of the present disclosure together with the description.

[0077] FIG. 1 is a flowchart of a method of displaying a process of a game according to an embodiment of the present disclosure.

[0078] FIG. 2 is a flowchart of a method of displaying a process of a game according to another embodiment of the present disclosure.

[0079] FIG. 3 is a flowchart of a method of displaying a process of a game according to yet another embodiment of the present disclosure.

[0080] FIG. 4 is a schematic diagram of a game scenario according to an embodiment of the present disclosure.

[0081] FIG. 5 is a flowchart of a method of displaying a process of a game according to still another embodiment of the present disclosure.

[0082] FIG. 6 is a structural schematic diagram of an apparatus for displaying a process of a game according to an embodiment of the present disclosure.

[0083] FIG. 7 is a structural schematic diagram of an apparatus for displaying a process of a game according to another embodiment of the present disclosure.

[0084] FIG. 8 is a structural schematic diagram of an electronic device according to an embodiment of the present disclosure.

DETAILED DESCRIPTION OF THE EMBODIMENTS

[0085] Exemplary embodiments will be described in detail herein, with the illustrations thereof represented in the drawings. When the following descriptions involve the drawings, like numerals in different drawings, refer to like or similar elements unless otherwise indicated. The implementations described in the following exemplary embodiments do not represent all implementations consistent with the present application. Rather, they are merely examples of apparatuses and methods consistent with some aspects of the present application as described in detail in appended claims.

[0086] The terms used in the present disclosure are for the purpose of describing particular embodiments only, and are not intended to limit the present disclosure. The singular forms such as “a”, “said”, and “the” used in the present disclosure and the appended claims are also intended to include multiple, unless the context clearly indicates otherwise. It is also to be understood that the term “and/or” as used herein refers to any or all possible combinations that include one or more associated listed items.

[0087] It is to be understood that although different information may be described using the terms such as first, second, third, etc. in the present disclosure, these information should not be limited to these terms. These terms are used only to distinguish the same type of information from each other. For example, without departing from the scope of the present disclosure, the first service information may also be referred to as the second service information, and similarly, the second service information may also be referred to as the first service information. Depending on the context, the word “if” as used herein may be interpreted as “when” or “as” or “determining in response to”.

[0088] At present, games are developing toward intelligentization and automation, for example, events occurring in a game region may be monitored by an intelligent monitoring system, and states of a game may be automatically switched by the intelligent monitoring system according to operation of a game manager, and one or more game items in a game region and the like. Therefore, one complete game requires correct operation of a game manager and normal operation of a game system. In a case of misoperation of the game manager or abnormal operation of the game system, control

error will be brought to the game. In the related art, the game process cannot be restored when a control error occurs. Thus, it is difficult to find out a factor generating the control error, and hence the game control cannot be quickly restored to normal.

[0089] According to a first aspect of at least one embodiment of the present disclosure, a method of displaying a process of a game is provided. As shown in FIG. 1, the flow of the method includes steps S101-S105.

[0090] The method may be executed by a client of a game system, where the client is a front-end application of the game system. Debugging personnel may check a game situation from the client and remove control errors occurring in a game process and the like. In some examples, any terminal device which has installed the front application, such as a mobile phone, a wearable device, or other devices, may also be used as the client. The game system may include a service end and a client between which a communication connection is pre-established. In some examples, the service end may include any electronic device which has communication functions and data analysis functions, such as a computer, a server, and other devices. The service end is disposed corresponding to each game region in which one dedicated service end is disposed. The service end is capable of processing service information and obtaining a game control instruction or a game control result or the like. The game region is a region in the reality, for example, a game tabletop, and game characters and a game manager and the like involved in a game participate in a game process in the region. The service end may connect with an intelligent device in the game region and obtain service information obtained by monitoring game items in the game from the intelligent device. The intelligent device is connected with an image collection device to obtain a video stream collected by the image collection device for a game scenario and hence monitor the game items, and obtain service information based on a monitoring result. A plurality of image collection devices may be disposed around the game region on the game tabletop from several directions. Therefore, the image collection devices may record a video stream of a game process in the game region from several directions and angles. The service end may also be connected with an interaction end in the game region and the interaction end is used for interaction with the game manager. Thus, the service end may obtain operations performed by the game manager for the interaction end, and generate a game control instruction and the like based on these operations. In some examples, the interaction end may be any device which can provide input for any party participating in the game. The interaction device may be a mechanical

device, an electronic device, a device provided with an interaction interface (such as a display screen), or any other device. For example, the interaction end may be one or more operation buttons on the game tabletop and the game manager may operate these operation buttons. The service end may obtain these operations in real time and generate a game control instruction based on these operations.

[0091] At step S101, first service information is received from the service end, and a picture of a game region corresponding to a first identifier is displayed according to the first identifier for identifying a game region type of the game in the first service information.

[0092] The first service information may be generated by the intelligent device based on a video stream of a game process collected by the image collection image. Each image frame in the video stream includes the picture of the game region, and the intelligent device may determine the first identifier of the game region type by identifying the picture. The intelligent device may determine an identifier of a game region type according to one or more image frames. When a key part of the picture of the game region is not blocked, the identifier of the game region type may be determined based on one image frame. When the key part of the picture of the game region is blocked, the identifier of the game region type may be determined based on several image frames. Under this circumstance, the intelligent device may determine the identifier of the game region type independently several times, and compare determination results. When the determination results are consistent, the determination result is determined as a final result of the identifier of the game region type. When the determination results are inconsistent, determination will be carried out again to improve the accuracy of the identifier of the game region type. The identifier of the game region type may be a name of the game region or a serial number of the game region or the like. A trained classification neural network may be disposed in the intelligent device. The classification neural network can classify the picture of the game region, and a classification result can be one of pre-stored identifiers of game region types. After determining the first identifier of the game region type, the intelligent device may generate the first service information carrying the first identifier. It is understood that the first service information may further include other information such as verification information, where the verification information is used by the client to verify legitimacy and validity of the first service information after receiving the first service information.

[0093] The client may communicate with the service end through a websocket channel, that is, the service end may send the first service information to the client through the websocket channel, and the client may obtain the first service information by invoking a restful interface.

[0094] The client may pre-store a mapping relationship between an identifier of a game region type and a picture of the game region, for example, a mapping table and the like. When receiving the first service information, the client may obtain the first identifier of the game region type carried in the first service information, and obtain the above mapping relationship, and then display the picture of the game region corresponding to the first identifier according to the first identifier of the game region type carried in the first service information and the mapping relationship. That is, a corresponding picture is queried for according to the first identifier. After the corresponding picture is determined, the picture of the game region may be drawn on an electronic device to which the client belongs.

[0095] At step S102, second service information is received from the service end, where the second service information includes position information of one or more new target game items present in a game item placement region.

[0096] The second service information may be generated by the intelligent device based on the video stream of the game process collected by the image collection device. The intelligent device may sample image frames of the video stream of the game process in real time or at a given frequency for identification. When one or more new target game items are present in the game item placement region in the game region, the intelligent device may determine a type, a number and a position of the target game items, and generate the second service information based on a determination result. The image collection device may collect the video stream of the game process from at least three angles, i.e. top view, left side view and right side view, so as to determine a number and a position of each type of game items. The target game item refers to a new game item present in the game item placement region. Whether a new game item is present may be determined by continuously detecting or identifying at least one of number, position and state of the game items in the game item placement region in the image frames of the video stream of the game process. When a new game item is present in the game item placement region, the new game item may be determined as a target game item. The second service information may be generated based on the position information of the target game item and sent to the service end, and then sent by the service end to the client.

The position information of the target game item may be an identifier of a placement sub-region in the game item placement region, for example, a serial number of the placement sub-region or the like, and may also be a coordinate in the game item placement region and the like.

[0097] In an embodiment, the target game item may be game coin. Different types of target game items may refer to game coins of different values. Since the game coins of different values may differ in at least one of color, pattern and mark, the intelligent device can determine the value of each game coin.

[0098] It is understood that the second service information may further include other information such as verification information. The verification information may be used by the client to verify the legitimacy and validity of the second service information after the second service information is received.

[0099] The client may communicate with the service end through a websocket channel, that is, the service end may send the second service information to the client through the websocket channel, and the client may obtain the second service information by invoking a restful interface.

[0100] At step S103, a target placement sub-region where the target game item is located is determined according to the position information.

[0101] The position information of the target game item may be an identifier of a placement sub-region in the game item placement region or a coordinate in the game item placement region. When the position information of the target game item is an identifier of a placement sub-region where the target game item is located, the placement sub-region may be directly determined as the target placement sub-region where the target game item is located. When the position information of the target game item is a coordinate, a placement sub-region where the coordinate is located may be determined as the target placement sub-region where the target game item is located according to a coordinate range of each placement sub-region stored in the client.

[0102] In an example, various placement sub-regions for placing game coins may be numbered in sequence, and the serial number is used as the identifier of a corresponding placement sub-region. For example, a plurality of placement sub-regions are arranged into a plurality of rings, and each placement sub-region is identified as n-i where n is a serial number of a ring where a placement sub-region is located, and i is a serial number of the placement sub-region in the ring.

[0103] At step S104, a number of game items placed in the target placement sub-region is obtained.

[0104] When a new game item is present in the target placement sub-region, the client will receive the second service information. Therefore, the client may calculate and store a number of game items placed in the target placement sub-region according to the received second service information. In some examples, the client may obtain the number of placed game items obtained by detecting the number of the game items in the target placement sub-region from the service end.

[0105] At step S105, an image of the target game item is displayed in a display region corresponding to the target placement sub-region in the picture according to the number of placed game items.

[0106] In this embodiment, the display region corresponding to the target placement sub-region may be determined from the picture of the game region corresponding to the first identifier. For example, according to a coordinate system mapping relationship between the picture of the game region and the target placement sub-region, the target placement sub-region is mapped to the above picture to determine a corresponding display region. Next, a number of game items which have been displayed in the corresponding display region is determined based on the number of game items which have been placed in the target placement sub-region, and in some examples, a position of game items which have been displayed in the corresponding display region may also be determined. Next, an image of a new target game item is displayed in the display region in such a way that the new target game item is not blocked by and/or does not block the displayed game items. In some examples, the display position occupied by the displayed game items in the display region is determined according to the number of the displayed game items, and the image of the target game item is displayed in the display position occupied by the displayed game items. Hence, the display manner (for example, the display position) of the game item in the picture is related to a sequence in which it appears in the target placement sub-region. In this manner, the sequence in which the game item appears in the game process can be restored in the picture.

[0107] The target game item may be displayed by drawing the image of the target game item in the display region corresponding to the target placement sub-region in the picture of the game region.

[0108] As known from the above embodiments, the client receives the first service information from the service end pre-establishing a communication connection with the client, displays the picture of the game region corresponding to the first identifier according to the first identifier for identifying the game region type of the game in the first service information. Further, the client receives the second service information from the service end, determines the target placement sub-region where the new target game item is located according to the position information of the new target game item in the game item placement region in the second service information, obtains the number of the game items placed in the target placement sub-region, and displays the image of the target game item in the display region corresponding to the target placement sub-region in the picture according to the number of placed game items. As a result, in the picture, the display manner of the target game item is related to a sequence in which the target game item appears. That is, the client can restore a sequence in which the target game item appears in a game process in real time and performing displaying in a corresponding manner so as to help confirm whether a factor generating a control error is present in the operation of the target game item at the time of the control error occurring to the game, thereby facilitating finding out the factor generating the control error and quickly restoring the game control to normal.

[0109] In some embodiments of the present disclosure, as shown in FIG. 2, displaying the image of the target game item in the display region corresponding to the target placement sub-region in the picture according to the number of the placed game items includes the steps S201-S202.

[0110] At step S201, a locating box of the target game item is determined in the display region corresponding to the target placement sub-region in the picture according to the number of the placed game items.

[0111] In this step, a first mapping relationship between a display sequence of a game item and a locating box of a preset position may be firstly obtained for the display region. The first mapping relationship may be a mapping table, and the locating box may be a rectangular box with four pixel points as vertices in the picture of the game region. The locating boxes corresponding to a plurality of different game coin display sequences may be arranged in sequence in the corresponding display region according to preset arrangement direction and distance. For example, the coordinates of the locating boxes of several preset positions on a coordinate axis of a width direction of the display region may

be in an ascending order according to the corresponding display sequences of the game items in the first mapping relationship. For another example, the coordinates of the locating boxes of several preset positions on a coordinate axis of a height direction of the target placement sub-region may be in an ascending order according to the corresponding display sequences of the game items in the first mapping relationship.

[0112] In an example, a total of two locating boxes are set in a display region, where the coordinate of the center of the first locating box is (10, 10) and the coordinate of the center of the second locating box is (50, 30).

[0113] Next, the display sequence of the target game item may be determined according to the number of the placed game items. Every time the target game item is displayed, one locating box will be occupied. Therefore, the display sequence of the target game item may be the number of the placed game items +1.

[0114] Finally, the locating box of the target game item is determined according to the display sequence of the target game item and the first mapping relationship. Specifically, the locating box corresponding to the display sequence of the target game item is queried for in the first mapping relationship.

[0115] At step S202, the image of the target game item is displayed in the locating box.

[0116] The image of the target game item may be displayed in the locating box according to the type information and the number information of the target game item. For example, when the target game item is game coin, the image of the game coin may be displayed in the locating box according to the value and the number of the game coin.

[0117] In addition, after the image of the target game item is displayed in the locating box, the number of game items placed in the target placement sub-region may be updated, that is, the number of the originally-placed game items is increased by 1. When a new target game item is present again in the target placement sub-region, a locating box can be accurately determined in the display region corresponding to the target placement sub-region.

[0118] In this embodiment, the locating box can be accurately determined according to the number of game items placed in the target placement sub-region and the mapping relationship between each pre-arranged locating box and a display sequence of a game item, thus displaying the target game item in the locating box. In this way, the accuracy of the display position of the target game item is improved and a presence sequence of the

game item can be more visually displayed in the entire process, bringing simplicity and convenience.

[0119] In some embodiments of the present disclosure, the target placement sub-region may include a plurality of target game items, that is, there are a plurality of new target game items present in the target placement sub-region, for example, a plurality of game coins including game coins of several values are present in the target placement sub-region.

[0120] Based on this, displaying the image of the target game item in the display region corresponding to the target placement sub-region in the picture according to the type information and the number information of the target game item in the manner shown in FIG. 3 includes steps S301-S303.

[0121] At step S301, the image of each type of the target game items is determined according to a pre-stored second mapping relationship between a type of a game item and an image of the game item and the types of the target game items.

[0122] The client may pre-store the second mapping relationship between a type of a game item and an image of the game item, and the second mapping relationship may be a mapping table and the like. When the target game item is game coin, the second mapping relationship may be a mapping relationship between a value of a game coin and an image of the game coin. In the second mapping relationship, the value type of the game coin may be determined according to a type of the game, for example, the value of the game coin may be 1, 2, 3, 4, 5, 10, and 20 and the like. Furthermore, when the types of the game items in the game region increase or decrease, the second mapping relationship in the client may be updated, that is, new game item type and new game item image are added into or removed from the original second mapping relationship.

[0123] In an example, in a mapping table as the second mapping relationship, a value 1 of a game coin corresponds to an image A, a value 2 of a game coin corresponds to an image B, a value 3 of a game coin corresponds to an image C and a value 4 of a game coin corresponds to an image D and so on.

[0124] In this step, the type information of the game item, for example, the value information of the game coin, may be obtained from the second service information; then, the image of each type of game items may be queried for in the second mapping relationship according to the above at least one piece of type information.

[0125] At step S302, the image of each type of target game items is displayed in the display region according to the number information of the target game items.

[0126] When a plurality of target game items are in a stack form, for example, a plurality of game coins are in a stack form, a virtual stack image corresponding to the plurality of target game items in the stack form may be firstly generated according to the number information and the type information of the plurality of target game items in the stack form and the image of each type of target game items in this step.

[0127] The virtual stack image may be generated based on the images of the target game items. Specifically, a corresponding three-dimensional model may be generated based on an image of a single target game item, and then a three-dimensional virtual stack is formed by stacking the three-dimensional models of a plurality of target game items in a three-dimensional space according to a stacking sequence and a stacking morphology of the plurality of target game items, and then a virtual stack image is obtained by mapping the three-dimensional virtual stack to an image plane of the single target game item.

[0128] Various types of game coins are stacked together for display to form the same effect as the true target game items, so as to restore a display process of the target game items more realistically and clearly.

[0129] Optionally, in the virtual stack image, the images of all target game items are arranged according to a preset coin value sequence; or, the images of all target game items are arranged according to a coin value sequence carried in the second service information. The preset coin value sequence may be defined as follows: the game items of same type are adjacent to each other; for example, when the target game items are game coins, the stacking sequence may be determined according to the size of the coin values, so that a game coin of a larger value is placed down and a game coin of a smaller value is placed up. The coin value sequence carried in the second service information may be determined by the intelligent device based on a video stream of a game process, that is, the sequence of the target game item is a sequence of the true target game item in the game region. In this way, the game process can be more really restored.

[0130] Optionally, in the virtual stack image, there is a spacing of a preset distance between center positions of the target game items stacked adjacently along a direction perpendicular to a stacking direction of a plurality of target game items. That is, each target game item has an offset of a preset distance relative to its lower adjacent target game item along a preset direction. In this case, information about each target game item

can be displayed effectively such that an observer can determine the type of the target game item based on the displayed information. Furthermore, all of these target game items are staggeredly displayed in such a way that the observer can determine the number of each type of target game items. The offset distance between adjacent game coins may be preset such that various types of target game items have a same offset distance. Further, a corresponding offset distance may be set for each type of target game items.

[0131] Next, the virtual stack image may be displayed in the display region. When the virtual stack image is displayed in the locating box, a center point of a target game item located at the lowest layer in a plurality of target game items in the virtual stack image may be set at a center of the locating box.

[0132] In this embodiment, the image of each target game item is determined based on the type of the target game item, and when a plurality of target game items are in a stack form, the target game items can be restored really by generating the virtual stack image, thus displaying the game process more realistically and clearly. Especially, in a scenario where game coins are used as game items, the game coins are usually stacked, and the above display method can restore the game scenario more really.

[0133] In a card game where game coins are used as game items, a game character participating in a game operates the game coins in a game coin operation state in a game process, and a game manager operates playing cards in a card operation state in the game process. Because the game manager is more professional than the game character, more control errors may occur in the game coin operation state during an actual running process of a game system, and the misoperation of the game character often becomes a factor generating the control error. Thus, restoration of state of game coins in a game process is very important for finding out the factor generating the control errors. The method of displaying a process of a game in the present disclosure is applicable to displaying of game coins. The method can not only determine the display position of the game coins accurately but also identify the value and the number of the game coins. Further, the method can display the game coins by the virtual stack image same as the use practice of the true game coins, thereby solving the display difficulty of the game coins.

[0134] FIG. 4 shows a change of a picture of a game region before and after a new target game item appears, including a picture of the original game region (picture A) and a picture of the game region where a new target game item appears (picture B).

[0135] It can be seen from the above two pictures that the game region includes two placement regions for placing first game items 413, and the game picture includes two display regions 411 and 412 corresponding to two placement regions. As an example, the first game item 413 may be playing card. The game region further includes three placement regions for placing second game items. Thus, the game picture includes display regions 421, 422 and 423 corresponding to three placement regions. The second game item may be the target game item in the embodiment, for example, the second game item may be game coin. Each of the display regions 421, 422 and 423 corresponding to the three placement regions of the target game coins has a plurality of locating boxes 424 arranged in sequence, and each locating box 424 is used to delimit a region for drawing the target game item.

[0136] It can be seen from the picture of the original game region (picture A) that each of the first two locating boxes in the display region 421 has a target game item, the first locating box in the display region 422 has a target game item, and the first locating box in the display region 423 has a target game item.

[0137] When a new target game item (e.g. game coin) appears in the placement region corresponding to the display region 422, the placement region corresponding to the display region 422 in a plurality of placement regions may be determined as a target placement sub-region, and then the number of game items placed in the target placement sub-region is determined as 1. Thus, the display sequence of the target game item is $1+1=2$. Further, the second locating box 424 in the display region 422 may be determined as a locating box for drawing the target game item. Finally, the target game item is drawn in the second locating box 424 in the display region 422 to obtain the picture of the game region where a new target game item appears (picture B).

[0138] Through comparison of the picture A and the picture B in FIG. 4, it can be seen that the method of the above embodiment of the present disclosure can display game items sequentially in the picture of the client based on a presence sequence of the game items, thus restoring a game process of a real scenario on a display interface of the client, and helping test personnel of the client or the game manager to observe a game progress in real time, and position or remove a problem of a game monitoring system.

[0139] In some embodiments of the present disclosure, the method of displaying a process of a game may further include at least one of the following state synchronization manners.

[0140] In a first manner, the client sends a first game control instruction to the service end, such that the service end adjusts a game state according to the first game control instruction.

[0141] In a second manner, the client receives a second game control instruction from the service end, and adjusts a game state according to the second game control instruction, where the second game control instruction is generated by the service end or input by the interaction end.

[0142] In the above two manners, one of the client and the service end may synchronize the game state to the other through the game control instruction. When the service end synchronizes the game state to the client, the service end may switch the game state automatically or by hand (operated by the game manager) and report it to the client at the same time, thereby synchronizing the game state of the client. When a scenario of the game region satisfies a game state switching condition but the service end does not switch the game state, debugging personnel may switch the game state from the client and synchronize it to the service end. By use of the above bidirectional game state synchronization manner, the client may remain in state synchronization with the service end in real time, and can perform state switching based on the instruction of the client in a case of slow switching or fault of the service end.

[0143] One complete game may include several different game stages. The game can be switched to a game state corresponding to a current game stage based on a game progress when the game is in process, so as to perform a detection logic of object and/or event of a monitoring system under a corresponding game state. For example, a table card game is usually divided into an idle state, a game coin operation state, a card operation state, a result processing state and the like. For example, in the game coin operation state, an game object participating in the game may place game coins in a corresponding region, where a value, a number and a placement region and the like of the game coins represent a participation degree of a game object; for another example, in the card operation state, when each of the game objects completes operations for the game coins, a dealer of the game objects participating in the game may deal cards. The service end may automatically switch the game state based on change of game items in the game region according to a video stream, and may also switch the game state based on an operation performed by the game manager for the interaction end.

[0144] In some embodiments of the present disclosure, after receiving the first service information and the second service information, the client may also store the received first service information and the received second service information, such that a video of a game process can be generated based on the stored first service information and the stored second service information. When maintenance personnel at the client side fails to find a factor generating a control error in time at the time of occurrence of the error to the game control, the factor may be found by viewing the video of the game process through a visual page or a browser-provided developer tool, thus quickly restoring the game control to normal. In addition, maintenance personnel may also find the factor generating the control error by viewing records of the first service information and the second service information one by one through the visual page or the browser-provided developer tool.

[0145] According to a second aspect of embodiments of the present disclosure, a method of displaying a process of a game is provided, which is applied to a service end. A communication connection is established between the service end and a client, and the service end is used to obtain service information obtained by monitoring a game item in the game. As shown in FIG. 3, the flow of the method may include steps S501-S502.

[0146] At step S501, first service information is sent to the client, such that the client displays a picture of a game region corresponding to a first identifier according to the first identifier for identifying a game region type of the game in the first service information.

[0147] At step S502, second service information is sent to the client, such that the client determines a target placement sub-region where a new target game item is located according to position information of the new target game item in a game item placement region in the second service information, obtains a number of game items placed in the target placement sub-region, and displays an image of the target game item in a display region corresponding to the target placement sub-region in the picture according to the number of placed game items.

[0148] In some embodiments of the present disclosure, the first service information is generated based on the video stream of the game process; and/or, the second service information is generated based on the video stream of the game process and a third mapping relationship, where the third mapping relationship is a mapping relationship between an image and a type of the target game item, for example, a mapping relationship between a pattern and a value of game coin.

[0149] The details of various steps of the method of the embodiments of the present disclosure are already described in various embodiments of the first aspect and thus will not be repeated herein.

[0150] According to a third aspect of embodiments of the present disclosure, an apparatus for displaying a process of a game is provided. As shown in FIG. 6, a structure of the apparatus is illustrated. The apparatus includes the following modules:

[0151] a first receiving module 601, configured to receive first service information from a service end, and display a picture of a game region corresponding to a first identifier according to the first identifier for identifying a game region type of the game in the first service information, where a communication connection is established between the service end and a client to which the apparatus is applied, and the service end is configured to obtain service information obtained by monitoring one or more game items in the game;

[0152] a second receiving module 602, configured to receive second service information from the service end, where the second service information includes position information of a new target game item present in the game item placement region in the game region;

[0153] a determining module 603, configured to determine a target placement sub-region where the target game item is located in the game item placement region according to the position information;

[0154] an obtaining module 604, configured to obtain a number of game items placed in the target placement sub-region;

[0155] a displaying module 605, configured to an image of the target game item in a display region corresponding to the target placement sub-region in the picture according to the number of placed game items.

[0156] In some embodiments of the present disclosure, the displaying module is specifically configured to:

[0157] determine a locating box of the target game item in the display region corresponding to the target placement sub-region in the picture according to the number of the placed game items;

[0158] display the image of the target game item in the locating box.

[0159] In some embodiments of the present disclosure, when determining the locating box of the target game item in the display region corresponding to the target placement sub-region in the picture according to the number of the placed game items, the displaying module is specifically configured to:

[0160] obtain a first mapping relationship between a display sequence of a game item and a locating box of a preset position in the display region;

[0161] determine a display sequence of the target game item according to the number of placed game items;

[0162] determine the locating box of the target game item according to the display sequence of the target game item and the first mapping relationship.

[0163] In some embodiments of the present disclosure, coordinates of the locating boxes of several preset positions on a coordinate axis of a width direction of the display region are in an ascending order according to the corresponding display sequences of the game items in the first mapping relationship; and/or,

[0164] coordinates of the locating boxes of several preset positions on a coordinate axis of a height direction of the target placement sub-region are in an ascending order according to the corresponding display sequences of the game items in the first mapping relationship.

[0165] In some embodiments of the present disclosure, the second service information further includes type information and number information of the target game item.

[0166] The displaying module is specifically configured to:

[0167] display the image of the target game item in the display region corresponding to the target placement sub-region in the picture according to the type information and the number information of the target game item.

[0168] In some embodiments of the present disclosure, the target placement sub-region includes a plurality of target game items. When displaying the image of the target game item in the display region corresponding to the target placement sub-region in the picture according to the type information and the number information of the target game item, the displaying module is specifically configured to:

[0169] determine an image of each type of target game items according to a pre-stored second mapping relationship between a type of a game item and an image of the game item and the types of the target game items;

[0170] display the image of each type of target game items in the display region according to the number information of the target game items.

[0171] In some embodiments of the present disclosure, a plurality of target game items are in a stack form. When displaying the image of each type of target game items in the

display region according to the number information of the target game items, the displaying module is specifically configured to:

[0172] generate a virtual stack image corresponding to a plurality of the target game items in the stack form according to the number information and the type information of the plurality of the target game items in the stack form and the image of each type of the target game items;

[0173] display the virtual stack image in the display region.

[0174] In some embodiments of the present disclosure, in the virtual stack image, there is a spacing of a preset distance between center positions of the target game items stacked adjacently along a direction perpendicular to a stacking direction of a plurality of the target game items.

[0175] In some embodiments of the present disclosure, when displaying the virtual stack image in the display region, the displaying module is specifically configured to:

[0176] set a center point of the target game item located at a lowest layer in a plurality of target game items in the virtual stack image at a center of the locating box.

[0177] In some embodiments of the present disclosure, the apparatus further includes an updating module which is specifically configured to:

[0178] after the image of the target game item is displayed in the display region corresponding to the target placement sub-region in the picture according to the number of placed game items, update the number of game items placed in the target placement sub-region.

[0179] In some embodiments of the present disclosure, the displaying module is specifically configured to:

[0180] draw the image of the target game item in the display region.

[0181] According to a fourth aspect of embodiments of the present disclosure, an apparatus for displaying a process of a game is provided. As shown in FIG. 7, a structure of the apparatus is illustrated. The apparatus includes the following modules:

[0182] a first sending module 701, configured to send first service information to a client, such that the client displays a picture of a game region corresponding to a first identifier according to the first identifier for identifying a game region type of the game in the first service information, wherein a communication connection is established between the client and a service end to which the apparatus is applied, and the service end is

configured to obtain service information obtained by monitoring one or more game items in the game;

[0183] a second sending module 702, configured to send second service information to the client such that the client determines a target placement sub-region where a new target game item is located in a game item placement region according to position information of the new target game item in the game item placement region in the second service information, obtains a number of the game items placed in the target placement sub-region, and displays an image of the target game item in a display region corresponding to the target placement sub-region in the picture.

[0184] The specific manner in which various modules in the apparatus of the above embodiments perform operations is already described in details in the embodiments relating to the method according to the first or second aspect and thus will not be repeated herein.

[0185] According to a fifth aspect of embodiments of the present disclosure, an electronic device is provided. FIG. 8 shows a structure of the device. The device includes a memory, a processor and computer instructions stored in the memory and run on the processor. The processor is configured to, when executing the computer instructions, implement the method according to the first or second aspect.

[0186] According to a sixth aspect of embodiments of the present disclosure, a computer readable storage medium storing computer programs is provided. The programs are executed by a processor to implement the method according to the first aspect or the second aspect.

[0187] In the present disclosure, the terms such as “first” and “second” are used only for the purpose of descriptions and shall not be understood as indicating or implying relative importance. The term “plurality” means two or more unless otherwise stated clearly.

[0188] Other implementations of the present disclosure will be apparent to those skilled in the art from consideration of the specification and practice of the present disclosure herein. The present disclosure is intended to cover any variations, uses, modification or adaptations of the present disclosure that follow the general principles thereof and include common knowledge or conventional technical means in the related art that are not disclosed in the present disclosure. The specification and

examples are considered as exemplary only, with a true scope and spirit of the present disclosure being indicated by the following claims.

[0189] It is to be understood that the present disclosure is not limited to the precise structure described above and shown in the accompanying drawings, and that various modifications and changes may be made without departing from the scope thereof. The scope of the present disclosure is limited only by the appended claims.

CLAIMS

1. A method of displaying a process of a game, the method comprising:

receiving, by a client, first service information from a service end, and displaying a picture of a game region corresponding to a first identifier according to the first identifier for identifying a game region type of the game in the first service information, wherein a communication connection is established between the client and the service end, and the service end is configured to obtain service information obtained by monitoring one or more game items in the game;

receiving, by the client, second service information from the service end, wherein the second service information comprises position information of a new target game item present in a game item placement region in the game region;

determining, by the client, a target placement sub-region where the target game item is located in the game item placement region according to the position information;

obtaining, by the client, a number of the game items placed in the target placement sub-region;

displaying, by the client, an image of the target game item in a display region corresponding to the target placement sub-region in the picture according to the number of placed game items.

2. The method of claim 1, wherein displaying the image of the target game item in the display region corresponding to the target placement sub-region in the picture according to the number of the placed game items comprises:

determining a locating box of the target game item in the display region corresponding to the target placement sub-region in the picture according to the number of the placed game items;

displaying the image of the target game item in the locating box.

3. The method of claim 2, wherein determining the locating box of the target game item in the display region corresponding to the target placement sub-region in the picture according to the number of the placed game items comprises:

obtaining a first mapping relationship between a display sequence of a game item and a locating box of a preset position in the display region;

determining a display sequence of the target game item according to the number of the placed game items;

determining the locating box of the target game item according to the display sequence of the target game item and the first mapping relationship.

4. The method of claim 3, wherein coordinates of the locating boxes of several preset positions on a coordinate axis of a width direction of the display region are in an ascending order according to the corresponding display sequences of the game items in the first mapping relationship; and/or,

coordinates of the locating boxes of several preset positions on a coordinate axis of a height direction of the target placement sub-region are in an ascending order according to the corresponding display sequences of the game items in the first mapping relationship.

5. The method of any one of claims 1-4, wherein the second service information further comprises type information and number information of the target game item;

displaying the image of the target game item in the display region corresponding to the target placement sub-region in the picture comprises:

displaying the image of the target game item in the display region corresponding to the target placement sub-region in the picture according to the type information and the number information of the target game item.

6. The method of claim 5, wherein the target placement sub-region comprises a plurality of the target game items, and displaying the image of the target game item in the display region corresponding to the target placement sub-region in the picture according to the type information and the number information of the target game item comprises:

determining an image of each type of the target game items according to a pre-stored second mapping relationship between a type of a game item and an image of the game item, and the types of the target game items;

displaying the image of each type of the target game items in the display region according to the number information of the target game items.

7. The method of claim 6, wherein a plurality of the target game items are in a stack form, and displaying the image of each type of the target game items in the display region according to the number information of the target game items comprises:

generating a virtual stack image corresponding to a plurality of the target game items in the stack form according to the number information and the type information of the plurality of the target game items in the stack form and the image of each type of the target game items;

displaying the virtual stack image in the display region.

8. The method of claim 7, wherein in the virtual stack image, there is a spacing of a preset distance between center positions of the target game items stacked adjacently along a direction perpendicular to a stacking direction of a plurality of the target game items.

9. The method of claim 7 or 8, wherein displaying the virtual stack image in the display region comprises:

setting a center point of the target game item located at a lowest layer in a plurality of the target game items in the virtual stack image at a center of the locating box.

10. The method of any one of claims 1-9, wherein after the image of the target game item is displayed in the display region corresponding to the target placement sub-region in the picture according to the number of the placed game items, the method further comprises:

updating the number of the game items placed in the target placement sub-region.

11. The method of any one of claims 1-10, wherein displaying the image of the target game item in the display region corresponding to the target placement sub-region in the picture comprises:

drawing the image of the target game item in the display region.

12. A method of displaying a process of a game, the method comprising:

sending, by a service end, first service information to a client, such that the client displays a picture of a game region corresponding to a first identifier according to the first identifier for identifying a game region type of the game in the first service information, wherein a communication connection is established between the client and the service end,

and the service end is configured to obtain service information obtained by monitoring one or more game items in the game;

sending, by the service end, second service information to the client such that: the client determines a target placement sub-region where a new target game item is located in a game item placement region according to position information of the new target game item in the game item placement region in the second service information; obtains a number of the game items placed in the target placement sub-region; and displays an image of the target game item in a display region corresponding to the target placement sub-region in the picture according to the number of placed game items.

13. An apparatus for displaying a process of a game, the apparatus comprising:

a first receiving module, configured to receive first service information from a service end, and display a picture of a game region corresponding to a first identifier according to the first identifier for identifying a game region type of the game in the first service information, wherein a communication connection is established between the service end and a client to which the apparatus is applied, and the service end is configured to obtain service information obtained by monitoring one or more game items in the game;

a second receiving module, configured to receive second service information from the service end, wherein the second service information comprises position information of a new target game item present in a game item placement region in the game region;

a determining module, configured to determine a target placement sub-region where the target game item is located in the game item placement region according to the position information;

an obtaining module, configured to obtain a number of the game items placed in the target placement sub-region;

a displaying module, configured to display an image of the target game item in a display region corresponding to the target placement sub-region in the picture according to the number of placed game items.

14. An apparatus for displaying a process of a game, the apparatus comprising:

a first sending module, configured to send first service information to a client, such that the client displays a picture of a game region corresponding to a first identifier according to the first identifier for identifying a game region type of the game in the first

service information, wherein a communication connection is established between the client and a service end to which the apparatus is applied, and the service end is configured to obtain service information obtained by monitoring one or more game items in the game;

a second sending module, configured to send second service information to the client such that the client determines a target placement sub-region where a new target game item is located in a game item placement region according to position information of the new target game item in the game item placement region in the second service information, obtains a number of the game items placed in the target placement sub-region, and displays an image of the target game item in a display region corresponding to the target placement sub-region in the picture.

15. An electronic device, comprising a memory, a processor and computer instructions stored in the memory and run on the processor, wherein the computer instructions are executed by the processor to implement the method as claimed in any one of claims 1-12.

16. A computer readable storage medium, storing computer programs, wherein the programs are executed by a processor to implement the method as claimed in any one of claims 1-12.