CLAIMS

1. A method for detecting tokens on a game table, comprising:

in a case where a game played on a game table enters a payout stage, acquiring at least one frame of game image of the game;

determining a target region where a token is changed in a plurality of regions for token placement on the game table based on the at least one frame of game image, the target region being a region representing that a game result is win and/or a region representing that a game result is loss;

determining an operating object associated with the changed token in the target region; and

in a case where the operating object associated with the changed token is a gamer of the game, outputting target alarm information for the operating object,

wherein determining the operating object associated with the changed token in the target region comprises:

acquiring an association identifier of the changed token, and determining the operating object associated with the changed token based on the association identifier of the changed token, wherein the association identifier is obtained in a token placement stage by obtaining a recognized token in each region of the plurality of regions based on a recognition algorithm and a hand of the each region, and associating the hand, a face and the recognized token based on an association algorithm.

2. The method of claim 1, wherein determining the target region where the token is changed in the plurality of regions for token placement on the game table based on the acquired at least one frame of game image of the game comprises:

acquiring a token detection result of each frame of game image in the at least one

frame of game image through a message queue, the token detection result of the each frame of game image being transmitted to the message queue after the each frame of game image is detected and recognized and detection and recognition results are classified and screened; and

determining the target region where the token is changed based on the token detection result of the each frame of game image.

3. The method of claim 2, wherein determining the target region where the token is changed based on the token detection result of the each frame of game image comprises:

acquiring original token information of each region of the plurality of regions from a cache of the game, the original token information being information of the token in the each region, which is determined in response to recognizing a token payout action of a game controller in a case where the game is in a prop operating stage, and stored in the cache; and

determining the target region where the token is changed based on the token detection result of the each frame of game image and the original token information of the each region.

4. The method of claim 3, wherein determining the target region where the token is changed based on the token detection result of the each frame of game image and the original token information of the each region comprises:

determining present token information of the each region in a present frame of game image based on the token detection result of the each frame of game image;

sequentially comparing the present token information of the each region in the present frame of image with the original token information of the corresponding region to obtain a comparison result; and

determining a region of which the comparison result represents that the present token information is inconsistent with the original token information as the target region.

5. The method of claim 3 or 4, wherein, in a case where the target region is a region representing that a game result is loss, determining the operating object associated with the changed token in the target region comprises:

in a case of detecting that there is no token in the region representing that a game result is loss in the payout stage and an original token amount and/or value of the region representing that a game result is loss are/is not 0, querying a gamer identifier associated with the token in the region representing that a game result is loss in a token placement stage; and

in a case of detecting a hand of a gamer corresponding to the gamer identifier in the at least one frame of game image, determining that an operating object associated with a token removed from the region representing that a game result is loss is the gamer.

6. The method of any one of claims 3 to 5, wherein determining the operating object associated with the changed token in the target region comprises:

determining the changed token in the target region based on present token information and the original token information of the target region;

acquiring an association identifier of the changed token from the cache of the game; and

determining the operating object associated with the changed token based on the association identifier of the changed token.

7. The method of any one of claims 1 to 6, wherein the target region is a region representing that a game result is win in the game,

wherein the method further comprises:

in response to detecting that a token appears in the region representing that a game result is win for a first time, determining a new token appearing in the region representing that a game result is win;

determining an operating object for the new token based on the at least one frame of game image; and

associating the new token with an identifier of the operating object for the new token to obtain an association identifier of the token.

8. The method of any one of claims 3 to 7, further comprising:

determining a target image frame where the original token information of the target region is changed; and

in a case where present token information of the target region in N continuous frames of image of which collection time is after the target image frame in the at least one frame of game image is consistent with the corresponding original token information, outputting alarm withdrawal information.

9. An apparatus for detecting tokens on a game table, comprising a first determination module, a second determination module and a first alarm module, wherein

the first determination module is configured to, in a case where a game played on a game table enters a payout stage, determine a target region where a token is changed in a plurality of regions for token placement on the game table based on acquired at least one frame of game image of the game, the target region being a region representing that a game result is win and/or a region representing that a game result is loss;

the second determination module is configured to determine an operating object associated with the changed token in the target region; and

the first alarm module is configured to, in a case where the operating object associated with the changed token is a gamer of the game, output target alarm information for the operating object,

wherein the second determination module is specifically configured to:

acquire an association identifier of the changed token, and determine the operating object associated with the changed token based on the association identifier of the changed token, wherein the association identifier is obtained in a token placement stage by obtaining a recognized token in each region of the plurality of regions based on a recognition algorithm and a hand of the each region, and associating the hand, a face and the recognized token based on an association algorithm.

10. An electronic device, comprising a memory and a processor, wherein the memory stores a computer program capable of running in the processor, and when executing the program, the processor is configured to:

in a case where a game played on a game table enters a payout stage, acquire at least one frame of game image of the game;

determine a target region where a token is changed in a plurality of regions for token placement on the game table based on the at least one frame of game image, the target region being a region representing that a game result is win and/or a region representing that a game result is loss;

determine an operating object associated with the changed token in the target region; and

in a case where the operating object associated with the changed token is a gamer of the game, output target alarm information for the operating object,

wherein the processor is configured to:

acquire an association identifier of the changed token, and determine the operating object associated with the changed token based on the association identifier of the changed token, wherein the association identifier is obtained in a token placement stage by obtaining a recognized token in each region of the plurality of regions based on a recognition algorithm and a hand of the each region, and associating the hand, a face and the recognized token based on an association algorithm.

11. The electronic device of claim 10, wherein the processor is configured to:

acquire a token detection result of each frame of game image in the at least one frame of game image through a message queue, the token detection result of the each frame of game image being transmitted to the message queue after the each frame of game image is detected and recognized and detection and recognition results are classified and screened; and

determine the target region where the token is changed based on the token detection result of the each frame of game image.

12. The electronic device of claim 11, wherein the processor is configured to:

acquire original token information of each region of the plurality of regions from a cache of the game, the original token information being information of the token in the each region, which is determined in response to recognizing a token payout action of a game controller in a case where the game is in a prop operating stage, and stored in the cache; and

determine the target region where the token is changed based on the token detection result of the each frame of game image and the original token information of the each region.

13. The electronic device of claim 12, wherein the processor is configured to:

determine present token information of the each region in a present frame of game image based on the token detection result of the each frame of game image;

sequentially compare the present token information of the each region in the present frame of image with the original token information of the corresponding region to obtain a comparison result; and

determine a region of which the comparison result represents that the present token information is inconsistent with the original token information as the target region.

14. The electronic device of claim 12 or 13, wherein the processor is configured to:

in a case of detecting that there is no token in the region representing that a game result is loss in the payout stage and an original token amount and/or value of the region representing that a game result is loss are/is not 0, query a gamer identifier associated with the token in the region representing that a game result is loss in a token placement stage; and

in a case of detecting a hand of a gamer corresponding to the gamer identifier in the at least one frame of game image, determine that an operating object associated with a token removed from the region representing that a game result is loss is the gamer.

15. The electronic device of any one of claims 12 to 14, wherein the processor is configured to:

determine the changed token in the target region based on present token information and the original token information of the target region;

acquire an association identifier of the changed token from the cache of the game; and

determine the operating object associated with the changed token based on the association identifier of the changed token.

16. The electronic device of any one of claims 10 to 15, wherein the target region is a region representing that a game result is win in the game, and

wherein the processor is configured to:

in response to detecting that a token appears in the region representing that a game result is win for a first time, determine a new token appearing in the region representing that a game result is win;

determine an operating object for the new token based on the at least one frame of game image; and

associate the new token with an identifier of the operating object for the new token to obtain an association identifier of the token.

17. The electronic device of any one of claims 12 to 16, wherein the processor is configured to:

determine a target image frame where the original token information of the target region is changed; and

in a case where present token information of the target region in N continuous frames of image of which collection time is after the target image frame in the at least one frame of game image is consistent with the corresponding original token information, output alarm withdrawal information.

18. A computer-readable storage medium, in which a computer program is stored, the computer program, when executed by a processor, implement steps in the method of any one of claims 1 to 8.

19. A computer program, stored in a memory; wherein the computer program, when executed by a processor, implements steps in the method of any one of claims 1 to 8.