CLAIMS

1. A liveness detection method, comprising:

controlling a display screen to display a color according to a color display sequence, the color display sequence being predetermined and including at least two different colors;

capturing an image of a target object in a color display process of the display screen;

acquiring a color change sequence of a face of the target object in the image over time; and

determining whether the target object is live based on a matching relationship between the color display sequence and the color change sequence, wherein when a portion of the color display sequence and a corresponding portion of the color change sequence are determined to include a same color sequence and a number of colors in the same color sequence compared to a number of colors in the color change sequence exceeds a preset percentage, it is determined that the color display sequence matches the color change sequence,

wherein controlling the display screen to display the color according to the color display sequence comprises:

acquiring the color display sequence;

acquiring a brightness corresponding to each color in the color display sequence; and

controlling the display screen to sequentially display a single color, at a brightness corresponding to the color, in the color display sequence and in an order of colors indicated by the color display sequence, a distance between two adjacent colors in the color display sequence in a three-dimensional color space being greater than a preset

threshold.

2. The method according to claim 1, wherein determining whether the target object is live based on a matching relationship between the color display sequence and the color change sequence comprises:

if the color display sequence matches the color change sequence, determining that the target object is live; and

if the color display sequence does not match the color change sequence, determining that the target object is not live.

3. The method according to claim 2, wherein if the color display sequence matches the color change sequence, determining that the target object is live comprises:

if the color display sequence matches the color change sequence, determining whether the face of the target object in the image conforms to a three-dimensional color reflection characteristic; and

if it is determined that the face of the target object in the image conforms to the three-dimensional color reflection characteristic, determining that the target object is live.

4. The method according to claim 1, wherein before controlling the display screen to sequentially display a single color, the method further comprises:

determining whether a distance between the target object and the display screen is less than a second preset threshold; and

controlling the display screen to sequentially display a single color further

comprises: when the distance between the target object and the display screen is less than the second preset threshold, controlling the display screen to sequentially display a single color according to the color display sequence, such that light emitted by the display screen irradiates the face of the target object.

5. The method according to claim 1, wherein acquiring a brightness corresponding to each color in the color display sequence comprises:

determining a brightness of an i-th color in the color display sequence, wherein i is a positive integer; and

determining a brightness of an (i+1)th color in the color display sequence based on the brightness of the i-th color, such that a difference between the brightness of the i-th color and the brightness of the (i+1)th color is greater than a second preset threshold.

6. The method according to claim 1, wherein the color display sequence comprises colors of black and white.

7. The method according to claim 1, wherein acquiring a color change sequence of a face of the target object in the image over time comprises:

analyzing a face image of the target object in the image to acquire a color superimposed on the face; and

sorting acquired colors in a chronological order to obtain the color change sequence of the face of the target object in the image over time.

8. The method according to claim 1, wherein acquiring the color display sequence

comprises one of:

receiving the color display sequence from a server; or

randomly generating the color display sequence.

9. An electronic device, comprising:

a processor; and

a memory storing instructions executable by the processor,

wherein the processor is configured to:

control a display screen to display a color according to a color display sequence, the color display sequence being predetermined and including at least two different colors;

capture an image of a target object in a color display process of the display screen;

acquire a color change sequence of a face of the target object in the image over time; and

determine whether the target object is live based on a matching relationship between the color display sequence and the color change sequence, wherein when a portion of the color display sequence and a corresponding portion of the color change sequence are determined to include a same color sequence and a number of colors in the same color sequence compared to a number of colors in the color change sequence exceeds a preset percentage, it is determined that the color display sequence matches the color change sequence,

wherein in controlling the display screen to display the color according to the color display sequence, the processor is further configured to:

acquire the color display sequence;

acquire a brightness corresponding to each color in the color display sequence; and

control the display screen to sequentially display a single color, at a brightness corresponding to the color, in the color display sequence and in an order of colors indicated by the color display sequence, a distance between two adjacent colors in the color display sequence in a three-dimensional color space being greater than a preset threshold.

10. The electronic device according to claim 9, wherein the processor is further configured to:

if the color display sequence matches the color change sequence, determine that the target object is live; and

if the color display sequence does not match the color change sequence, determine that the target object is not live.

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

if the color display sequence matches the color change sequence, determine whether the face of the target object in the image conforms to a three-dimensional color reflection characteristic; and

if it is determined that the face of the target object in the image conforms to the three-dimensional color reflection characteristic, determine that the target object is live.

12. The electronic device according to claim 9, wherein the processor is further configured to:

determine whether a distance between the target object and the display screen is less than a second preset threshold; and

when the distance between the target object and the display screen is less than the second preset threshold, control the display screen to sequentially display a single color according to the color display sequence, such that light emitted by the display screen irradiates the face of the target object.

13. The electronic device according to claim 9, wherein the processor is further configured to:

determine a brightness of an i-th color in the color display sequence, wherein i is a positive integer; and

determine a brightness of an (i+1)th color in the color display sequence based on the brightness of the i-th color, such that a difference between the brightness of the i-th color and the brightness of the (i+1)th color is greater than a second preset threshold.

14. A non-transitory computer-readable storage medium storing instructions that, when executed by a processor of a device, cause the device to perform:

controlling a display screen to display a color according to a color display sequence, the color display sequence being predetermined and including at least two different colors;

capturing an image of a target object in a color display process of the display screen;

acquiring a color change sequence of a face of the target object in the image over time; and

determining whether the target object is live based on a matching relationship

between the color display sequence and the color change sequence, wherein when a portion of the color display sequence and a corresponding portion of the color change sequence are determined to include a same color sequence and a number of colors in the same color sequence compared to a number of colors in the color change sequence exceeds a preset percentage, it is determined that the color display sequence matches the color change sequence,

wherein controlling the display screen to display the color according to the color display sequence comprises:

acquiring the color display sequence;

acquiring a brightness corresponding to each color in the color display sequence; and

controlling the display screen to sequentially display a single color, at a brightness corresponding to the color, in the color display sequence and in an order of colors indicated by the color display sequence, a distance between two adjacent colors in the color display sequence in a three-dimensional color space being greater than a preset threshold.