

CLAIMS

1. A method for displaying windows in a split-screen manner, applied to an intelligent terminal, wherein the intelligent terminal is connected to a large-screen display, the large-screen display is an external display, the large-screen display displays a plurality of windows, and the method comprises:

(a) receiving in real time, by the intelligent terminal, touch-point position information sent by the large-screen display, wherein the touch-point position information is acquired by the large-screen display when ~~a~~ a user's operation which simultaneously drags at least two windows is detected, and a touch point exists in a preset dragging region of each of the at least two windows; and

(b) determining, by the intelligent terminal, that the touch-point position information meets a preset position condition,

(i) wherein the touch-point position information comprises information indicative of at least two touch points corresponding to the at least two windows, respectively;

(ii) wherein if the at least two windows are three windows, each of the three windows corresponds to one touch point, and the determining that the touch-point position information meets the preset position condition further comprises determining, by the intelligent terminal in real time, whether the three touch points are aligned in a straight line based on the touch-point position information and whether a distance associated with the three touch points satisfies at least one first preset threshold based on the touch-point position information; and

(iii) wherein if the at least two windows are two windows, each of the two windows corresponds to one touch point, and the determining that the touch-point position information meets the preset position condition further comprises determining, by the intelligent terminal in real time, whether a distance between the two touch points satisfies a second preset threshold based on the touch-point position information; and

(c) receiving touch-point disappearing information sent by the large-screen display; and

(d) in response to a determination that the touch-point position information meets the preset position condition, controlling, by the intelligent terminal, the at least two windows to be displayed in a split-screen manner; ~~in a case that the intelligent terminal determines that the touch point position information meets a preset position condition, and receives touch point disappearing information sent by the large screen display.~~

2. The method for displaying windows in a split-screen manner according to claim 1, wherein ~~the~~ controlling, by the intelligent terminal, the at least two windows to be displayed in the split-screen manner, in a case that the intelligent terminal determines that the touch-point position information meets the preset position condition, and receives the touch-point disappearing information sent by the large-screen display screen manner further comprises:

determining, by the intelligent terminal in real time, whether the touch-point position information meets the preset position condition;

controlling, by the intelligent terminal, to display a preview effect of the at least two windows displayed in the split-screen manner, in a case that the intelligent terminal determines that the touch-point position information meets the preset position condition; and

controlling, by the intelligent terminal, the at least two windows to be displayed in the split-screen manner, in a case that the intelligent terminal receives the touch-point disappearing information sent by the large-screen display.

3. The method for displaying windows in a split-screen manner according to claim 1, ~~wherein the at least two windows are three windows, each of the three windows corresponds~~ further comprising:

(a) ~~in response to one touch point, and determining a determination that the touch-point position information meets the preset position condition comprises:~~ determining, by the intelligent terminal in real time, whether the three touch points are aligned in ~~a~~ the straight line based on the touch-point position information, and determining, in a case that the three touch points are determined to be aligned in the straight line, whether, determining that a largest distance among the three touch points is smaller than a third preset ~~first~~ threshold based on the touch-point position information, ~~wherein;~~ and

(b) in response to a ~~eased~~ determination that the largest distance among the three touch points is smaller than the preset first threshold, it is determined that the touch-point position information meets the preset position condition; and determining, by the intelligent terminal in a case that the three touch points are determined to be not aligned in a straight line, ~~whether~~ determining that a radius of a circumcircle of the three touch points is smaller than a fourth preset ~~second~~ threshold based on the touch-point position information, ~~wherein in a case that the radius of the circumcircle of the three touch points is smaller than the preset second threshold, it is determined that the touch-point position information meets the preset position condition.~~

4. The method for displaying windows in a split-screen manner according to claim 1, ~~wherein the at least two windows are two windows, each of the two windows corresponds to one touch point, and~~ further comprising:

~~determining that the touch-point position information meets the preset position condition comprises: determining, by the intelligent terminal in real time, whether a distance between the two touch points is smaller than~~ the second ~~preset third threshold based on the touch-point position information, wherein in a case that the distance between the two touch points is smaller than the preset third threshold, it is determined that the touch-point position information meets the preset position condition.~~

5. The method for displaying windows in a split-screen manner according to claim 2, wherein the controlling, by the intelligent terminal, to display the preview effect of the at least two windows displayed in the split-screen manner, in a case that the intelligent terminal determines that the touch-point position information meets the preset position condition comprises:

controlling, by the intelligent terminal, to display in a manner of a blurred full-screen window, the preview effect of the at least two windows displayed in the split-screen manner, in a case that the intelligent terminal determines that the touch-point position information meets the preset position condition.

6. The method for displaying windows in a split-screen manner according to ~~any one of claims 1 to 5~~ claim 1, wherein after controlling the at least two windows to be displayed in the split-screen manner, the method further comprises:

receiving, by the intelligent terminal, position adjusting information of a split-screen display boundary from the large-screen display, wherein the position adjusting information of the split-screen display boundary is acquired by the large-screen display after detecting an operation which adjusts the split-screen display boundary; and

adjusting, by the intelligent terminal, a size of the at least two windows displayed in the split-screen manner based on the position adjusting information of the split-screen display boundary.

7. The method for displaying windows in a split-screen manner according to claim 1, wherein the controlling, by the intelligent terminal, the at least two windows to be displayed in the split-screen manner, ~~in a case that the intelligent terminal determines that the touch-point~~

~~position information meets the preset position condition, and receives the touch-point disappearing information sent by the large-screen display, comprises: further comprises:~~

determining, by the intelligent terminal, a display position of the at least two windows based on newest touch-point position information, in a case that the intelligent terminal determines that the touch-point position information meets the preset position condition and receives touch-point disappearing information sent by the large-screen display, and controlling, by the intelligent terminal based on the display position, the at least two windows to be displayed in the split-screen manner.

8. The method for displaying windows in a split-screen manner according to claim 7, wherein before determining the display position of the at least two windows based on the newest touch-point ~~position~~ information, the method further comprises:

determining, by the intelligent terminal, position movement information of a touch point of each of the at least two windows, wherein the position movement information comprises a start point and an end point of position movement of the touch point; and

determining, by the intelligent terminal, the end point indicated by the position movement information as a newest touch-point position corresponding to the touch point of the window,

wherein the determining the display position of the at least two windows based on the newest touch-point position information comprises: determining, by the intelligent terminal, the display position of the at least two windows based on the newest touch-point position determined based on the position movement information corresponding to each of the at least two windows.

9. The method for displaying windows in a split-screen manner according to claim 1, wherein the controlling, by the intelligent terminal, the at least two windows to be displayed in a split-screen manner, ~~in a case that the intelligent terminal determines that the touch-point position information meets a preset position condition, and receives touch-point disappearing information sent by the large-screen display, comprises: further comprises:~~

determining, by the intelligent terminal, a split-screen ratio of the at least two windows displayed in the split-screen manner based on newest touch-point position information, in a case that the intelligent terminal determines that the touch-point position information meets the preset position condition, and receives the touch-point disappearing information sent by the large-screen display.

10. The method for displaying windows in a split-screen manner according to claim 9, wherein the at least two touch points are two touch points, and

the determining the split-screen ratio of the at least two windows displayed in the split-screen manner based on the newest touch-point position information comprises: determining a display ratio of a window corresponding to each of the two touch points based on a distance between a screen margin and a newest touch-point position corresponding to the touch point.

11. The method for displaying windows in a split-screen manner according to claim 9, wherein a window split-screen display boundary of the at least two windows displayed in the split-screen manner passes through a center of a circumcircle of the touch points or passes through one of the touch points.

12. An apparatus for displaying windows in a split-screen manner, applied to an intelligent terminal, wherein the intelligent terminal is connected to a large-screen display, the large-screen display is an external display, the large-screen display displays a plurality of windows, and the apparatus comprises: a receiving unit, configured at least one processor and at least one memory communicatively coupled to the at least one processor and storing instructions that upon execution by the at least one processor cause the apparatus to:

(a) receive in real time, touch-point position information sent by the large-screen display, wherein the touch-point position information is acquired by the large-screen display when a user's operation which simultaneously drags at least two windows is detected, and a touch point exists in a preset dragging region of each of the at least two windows; and a split screen displaying unit, configured to control the at least two windows to be displayed in a split-screen manner, in a case that the touch-point position information is determined to meet a preset position condition, and touch-point disappearing information sent by the large-screen display is received.

(b) determine, by the intelligent terminal, that the touch-point position information meets a preset position condition,

(i) wherein the touch-point position information comprises information indicative of at least two touch points corresponding to the at least two windows, respectively;

(ii) wherein if the at least two windows are three windows, each of the three windows corresponds to one touch point, and the determining that the touch-point position information meets the preset position condition further comprises determining, by the intelligent terminal in real time, whether the three touch points are aligned in a straight

line based on the touch-point position information and whether a distance associated with the three touch points satisfies at least one first preset threshold based on the touch-point position information; and

(iii) wherein if the at least two windows are two windows, each of the two windows corresponds to one touch point, and the determining that the touch-point position information meets the preset position condition further comprises determining, by the intelligent terminal in real time, whether a distance between the two touch points satisfies a second preset threshold based on the touch-point position information; and

(c) receive touch-point disappearing information sent by the large-screen display; and

(d) control the at least two windows to be displayed in a split-screen manner in response to a determination that the touch-point position information meets the preset position condition.

13. The apparatus for displaying windows in a split-screen manner according to claim 12, ~~the at least one memory further storing instructions that upon execution by the at least one processor cause the apparatus to: determine, in real time, whether the touch point position information meets the preset position condition wherein the split screen displaying unit comprises:~~

a determining unit, configured to determine, in real time, whether the touch-point position information meets the preset position condition;

a displaying unit, configured to control to display a preview effect of the at least two windows displayed in the split-screen manner, in a case that the touch-point position information is determined to meet the preset position condition; ~~and a first split screen displaying subunit, configured to control the at least two windows to be displayed in the split-screen manner, in a case that the touch-point disappearing information sent by the large-screen display is received.~~

14. The apparatus for displaying windows in a split-screen manner according to claim 12, ~~wherein the at least two windows are three windows, each of the three windows corresponds to one touch point, and the split screen displaying unit is~~ memory further configured to: determine, in real time, whether the storing instructions that upon execution by the at least one processor cause the apparatus to:

in response to a determination that the three touch points are aligned in a straight line based on the touch point position information, and determine, in a case that the three touch points are determined to be aligned in the straight line, whether, determine that a largest

distance among the three touch points is smaller than a third preset ~~first~~ threshold based on the touch-point position information, ~~wherein; and~~
~~_____ in response to a case that the largest distance among the three touch points is smaller than the preset first threshold, it is determined that the touch-point position information meets the preset position condition; and determine, in a case~~determination that the three touch points are ~~determined to be not aligned in the straight line, whether~~determine that a radius of a circumcircle of the three touch points is smaller than a fourth preset ~~second~~ threshold based on the touch-point position information, ~~wherein in a case that the radius of the circumcircle of the three touch points is smaller than the preset second threshold, it is determined that the touch-point position information meets the preset position condition.~~

15. The apparatus for displaying windows in a split-screen manner according to claim 12, ~~wherein the at least two windows are two windows, each of the two windows corresponds to one touch point, and the split screen displaying unit is~~the at least one memory further configured storing instructions that upon execution by the at least one processor cause the apparatus to:

determine, in real time, ~~whether a distance between the two touch points is smaller than a preset third threshold based on the touch-point position information, wherein in a case that the distance between the two touch points is smaller than the~~ second preset ~~third~~ threshold, it is ~~determined that~~based on the touch-point position information ~~meets the preset position condition.~~

16. The apparatus for displaying windows in a split-screen manner according to claim 13, ~~wherein the displaying unit comprises: a displaying subunit, configured to~~the at least one memory further storing instructions that upon execution by the at least one processor cause the apparatus to:

control to display in a manner of a blurred full-screen window, the preview effect of the at least two windows displayed in the split-screen manner, in a case that the touch-point position information is determined to meet the preset position condition.

17. The apparatus for displaying windows in a split-screen manner according to ~~any one of claims 12 to 16, further comprising: a receiving subunit, configured to~~claim 12, the at least one memory further storing instructions that upon execution by the at least one processor cause the apparatus to:

receive position adjusting information of a split-screen display boundary from the large-screen display, wherein the position adjusting information of the split-screen display boundary is acquired by the large-screen display after detecting an operation which adjusts the split-screen display boundary; and

~~an adjusting unit, configured to~~ adjust a size of the at least two windows displayed in the split-screen manner based on the position adjusting information of the split-screen display boundary.

18. The apparatus for displaying windows in a split-screen manner according to claim 12, ~~wherein the split screen displaying unit comprises: a second split screen displaying subunit, configured to~~ the at least one memory further storing instructions that upon execution by the at least one processor cause the apparatus to:

determine a display position of the at least two windows based on newest touch-point position information, in a case that the touch-point position information is determined to meet the preset position condition and touch-point disappearing information sent by the large-screen display is received, and

control, based on the display position, the at least two windows to be displayed in the split-screen manner.

19. The apparatus for displaying windows in a split-screen manner according to claim 18, wherein before the display position of the at least two windows is determined based on the newest touch-point position information, ~~the split screen displaying unit is further configured to:~~ at least one memory further storing instructions that upon execution by the at least one processor cause the apparatus to:

determine position movement information of a touch point of each of the at least two windows, wherein the position movement information comprises a start point and an end point of position movement of the touch point;

determine the end point indicated by the position movement information as a newest touch-point position corresponding to the touch point of the windows; and

determine the display position of the at least two windows based on the newest touch-point position determined based on the position movement information corresponding to each of the at least two windows.

20. The apparatus for displaying windows in a split-screen manner according to claim 12, wherein the split screen displaying unit is further configured to:

determine a split-screen ratio of the at least two windows displayed in the split-screen manner based on newest touch-point position information of the touch point, in a case that the touch-point position information is determined to meet the preset position condition, and the touch-point disappearing information sent by the large-screen display is received.

21. The apparatus for displaying windows in a split-screen manner according to claim 20, wherein the at least two touch points are two touch points, and the split screen displaying unit is further configured to:

determine a display ratio of a window corresponding to each of the two touch points based on a distance between a screen margin and a newest touch-point position corresponding to the touch point.

22. The apparatus for displaying windows in a split-screen manner according to claim 20, wherein a window split-screen display boundary of the at least two windows displayed in the split-screen manner passes through a center of a circumcircle of the touch points or passes through one of the touch points.

23. A device for displaying windows in a split-screen manner, comprising a memory and a processor, wherein:

the memory is configured to store program codes, and transmit the program codes to the processor, and

the processor is configured to perform, according to instructions of the program codes, the method for displaying windows in a split-screen manner according to any one of claims 1 to 11.

24. A computer-readable medium on which a computer program is stored, wherein the computer program, when being executed by a processor, performs the method for displaying windows in a split-screen manner according to any one of claims 1 to 11.