after a default content rotation occurs in response to a device rotation. Furthermore, these ineffective methods may result in time-consuming processes for the device.

SUMMARY

[0003a] The invention is defined in the independent claims. Further embodiments of the invention are defined in the dependent claims.

[0004] One embodiment provides a system that facilitates control of the display direction of content on a device. During operation, the system receives, by a client computing device, a first command to lock a state of a display for the device. The system sets a current display state to a locked state. In response to receiving a second command to terminate the first command, the system sets the current display state to a state that is the display state prior to receiving the first command. The system detects a change in a position of the device. In response to determining that the current display state is an unlocked state, the system changes a display direction for content displayed on the device. In response to determining that the current display state is the locked state, the system refrains from changing the display direction for content displayed on the device.

[0005] In some embodiments, the first command comprises an object initiating contact with a touch screen or a physical key on the device.

[0006] In some embodiments, the object initiating contact with the touch screen or the physical key on the device is one or more of: one or more fingers of a user of the device; and any object comprised of a material recognizable by the touch screen or the physical key.

[0007] In some embodiments, the first command comprises the object initiating contact with the touch screen or the physical key by maintaining contact with the touch screen or the physical key, and the second command comprises the object terminating contact with the touch screen or the physical key.

[0008] In some embodiments, the first command comprises the object initiating contact with the touch screen or the physical key by tapping an area on the touch screen or the physical key.

[0009] In some embodiments, in response to receiving the first command, the system starts a timer for a predetermined duration of time. In response to an expiration of the timer, the system receives the second command to terminate the first command.

[0010] In some embodiments, the area on the touch screen comprises a locking indicator or an icon that indicates a locking function.

[0011] In some embodiments, in response to refraining from changing the display direction upon detecting a change in the position of the device, the system receives the second command to terminate the first command.

the portion of the screen that is visible from the content of device 300. Area 332 may be cut off on the bottom. An area 334 indicates a right hand portion of the screen which may be visible only when the device is in the horizontal device position. Device 360 corresponds to Configuration C with a horizontal device position and a vertical display direction. Configuration B is the result of an unlocked display state upon a change in device position from vertical to horizontal, while Configuration C is the result of a locked display state upon a similar change in device position (from vertical to horizontal).

[0037] FIG. 4 illustrates an exemplary user position 400 in relation to a client computing device, in accordance with an embodiment of the present application. User position 400 is a position in which the user is lying down on her side viewing her phone, with the phone in a locked display state and the device as shown in Configuration C of FIG. 3 (e.g., a horizontal device position and a vertical display direction).

Exemplary Methods For Controlling Display Direction

[0038] FIG. 5A presents a flowchart 500 illustrating a method by a client computing device for controlling the display direction of content on the device, where an object maintains contact with the touch screen or a physical key, in accordance with an embodiment of the present application. Flowchart 500 has a similar structure as flowchart 200 of FIG. 2, but is slightly modified to demonstrate the exemplary method for controlling the display direction. During operation, the system receives, by a client computing device, a first command to lock a state of a display for the device, where the first command is an object initiating contact with a touch screen or a physical key on the device by maintaining contact with the touch screen or the physical key (operation 502). For example, the object can be one or more fingers of the user, or a glove with a special coating that can be read by the touch screen, or any object made of a material recognizable by the touch screen or the physical key. The first command can be the user's finger pressing and holding a particular part of the touch screen or the physical key. The system sets the current display state to a locked state (operation 504). The system determines whether it detects a change in the position of the device (decision 506). For example, the system can detect a change from a horizontal to a vertical device position or from a vertical to a horizontal device position. If the system does not detect a change in device position, the operation returns. If the system does detect a change in device position, in response to determining that the current display state is the locked state, the system does not change the display direction for the content (operation 508). In other words, the system refrains from changing the display direction. Note that if the current display state is an unlocked state, the system changes the display direction for the content (as shown by operation 214), e.g., from a vertical to a horizontal display direction, or

What Is Claimed Is:

1. A computing device comprising:

a processor; and

a memory coupled to the processor, the computing device being configured, under control of the processor to execute instructions stored in the memory:

to receive a first command to lock a state of a display for the device, wherein the first command comprises an object initiating a first contact with an area of a touch screen or a physical key on the device by tapping the area of the touch screen or the physical key;

to set a current display state to a locked state;

to start a timer for a predetermined duration of time; and

in response to detecting a change in a position of the device:

in response to determining that the current display state is an unlocked state, to change a display direction for content displayed on the device;

in response to determining that the current display state is the locked state, to refrain from changing the display direction of content displayed on the device; and

in response to receiving a second command to terminate the first command, to set the current display state to a state that is the display state prior to receiving the first command, wherein the second command comprises detecting an expiration of the timer.

2. The computing device of claim 1, wherein the object initiating the first contact with the area of the touch screen or the physical key on the device is one or more of:

one or more fingers of a user of the device; and

any object comprised of a material recognizable by the touch screen or the physical key.

3. The computing device of claim 1, wherein the first command further comprises the object initiating the first contact with the area of the touch screen or the physical key by maintaining the first contact with the area of the touch screen or the physical key.

4. The computing device of claim 1, wherein the predetermined duration of time is set by one or more of:

the computing device; and

a user of the computing device.

5. The computing device of claim 1, wherein the area on the touch screen comprises a locking indicator or an icon that indicates a locking function.

6. The computing device of claim 3, wherein the second command further comprises terminating the first contact with the area of the touch screen or the physical key.

7. The computing device of claim 1, wherein the device has a length not equal to a width, and wherein a vertical position of the device corresponds to a shorter side placed parallel to the ground and a horizontal position of the device corresponds to a longer side placed parallel to the ground.

8. The computing device of claim 7, further configured to detect the change in the position of the device from the horizontal position to the vertical position or from the vertical position to the horizontal position.

9. The computing device of claim 1, wherein the device has a length not equal to a width, wherein a vertical display direction for the content corresponds to content displayed from a top to a bottom of the device along a longer side with a shorter side placed

parallel to the ground, and wherein a horizontal display direction for the content corresponds to content displayed from the top to the bottom of the device along the shorter side with the longer side placed parallel to the ground.

10. The computing device of claim 9, further configured to change the display direction for content displayed on the device from the horizontal display direction to the vertical display direction or from the vertical display direction to the horizontal display direction.

11. A computer-implemented method for controlling display direction of content on a computing device, the method being performed at the device and comprising:

receiving a first command to lock a state of a display for the device, wherein the first command comprises an object initiating a first contact with an area of a touch screen or a physical key on the device by tapping the area of the touch screen or the physical key;

setting a current display state to a locked state;

starting a timer for a predetermined duration of time; and

in response to detecting a change in a position of the device:

in response to determining that the current display state is an unlocked state, changing a display direction for content displayed on the device;

in response to determining that the current display state is the locked state, refraining from changing the display direction for content displayed on the device; and

in response to receiving a second command to terminate the first command, setting the current display state to a state that is the display state prior to receiving the first command, wherein the second command comprises detecting an expiration of the timer.

12. The method of claim 11, wherein the object initiating the first contact with the area of the touch screen or the physical key on the device is one or more of:

one or more fingers of a user of the device; and

any object comprised of a material recognizable by the touch screen or the physical key.

13. The method of claim 11, wherein the first command further comprises the object initiating the first contact with the area of the touch screen or the physical key by maintaining the first contact with the area of the touch screen or the physical key.

14. The method of claim 11, wherein the predetermined duration of time is set by one or more of:

the computing device; and

a user of the computing device.

15. The method of claim 11, wherein the area on the touch screen comprises a locking indicator or an icon that indicates a locking function.

16. The method of claim 13, wherein the second command further comprises terminating the first contact with the area of the touch screen or the physical key.

17. The method of claim 11, wherein the device has a length not equal to a width, and wherein a vertical position of the device corresponds to a shorter side placed parallel to the ground and a horizontal position of the device corresponds to a longer side placed parallel to the ground.

18. The method of claim 17, wherein detecting a change in the position of the device further comprises:

detecting a change from the horizontal position to the vertical position or from the vertical position to the horizontal position.

19. The method of claim 11, wherein the device has a length not equal to a width, wherein a vertical display direction for the content corresponds to content displayed from a top to a bottom of the device along a longer side with a shorter side placed parallel to the ground, and wherein a horizontal display direction for the content corresponds to content displayed from the top to the bottom of the device along the shorter side with the longer side placed parallel to the ground.

20. The method of claim 19, wherein changing a display direction for content displayed on the device further comprises:

changing the display direction from the horizontal display direction to the vertical display direction or from the vertical display direction to the horizontal display direction.

21. A computer program comprising instructions which, when the program is executed by a computing device, cause the computing device to carry out the method of any one of claims 11 to 20.

22. A computer-readable storage medium comprising instructions which, when executed by a computing device, cause the computing device to carry out the method of any one of claims 11 to 20.