



166166

1

06 NOV 2002

WIRELESS MESSAGING DEVICE FOR MONITORING SUBSCRIBED OPTIONS AND METHOD THEREOF

5

Field of the Invention

This invention relates to portable electronic devices such as wireless messaging devices. In particular, this invention relates to, but is not necessarily limited to, a wireless messaging device for monitoring
10 subscribed options and method thereof.

Background of the Invention

15 Portable electronic devices such as wireless messaging devices for receiving radio frequency (rf) signals are known. These rf signals are processed within such devices to provide information to a user via a display. With the advent of wireless information services, the scope of information provided now includes stock quotations and weather reports.

20 Typically, different stock quotations or weather reports of different locations are provided as options selectable by a user of a wireless messaging device. Upon determining one or more desired options, the user can thereafter receive update information on the desired or subscribed options.

25 Providing update information requires continuous monitoring of a subscribed option by a wireless messaging device. A problem with such continuous monitoring is that power is also consumed continuously. This is a problem because, as is known in the art, limited energy content batteries typically provide power to portable electronic devices. To
30 alleviate unnecessary use of power, some portable electronic devices disable power to their displays when a predetermined time period lapses. This is generally referred to as a screen timeout period.

Although a screen timeout period helps to conserve power, there are occasions when a user may want to continuously view a subscribed
35 option. This is especially so in situations such as when the stock market



G00002

5

10

20

35 Alternatively, said user input can comprise one or more buttons.

Preferably, said wireless messaging device can further comprise a memory for storing at least one predetermined time period, said memory being coupled to said processor to process said hold request.

5

Suitably, said wireless messaging device can further comprise a clock for referencing to said predetermined time period.

Alternatively, said processor can comprise a memory for storing at least one predetermined time period for processing said hold request.

10

Preferably, said processor can further comprise a clock for referencing to said predetermined time period.

15

According to another aspect of the invention, there is provided a method for monitoring subscribed options comprising the steps of:

receiving radio frequency signals including update information associated with said subscribed options;

20

displaying said update information of one of said subscribed options;

actuating a user input; and

25

in response to said step of actuating, providing a hold request to maintain said step of displaying said one of said subscribed options including said update information until a subsequent step of actuating said user input is detected to end said hold request.

30

Preferably, said step of actuating can comprise the step of actuating one or more software keys.

Alternatively, said step of actuating can comprise the step of actuating one or more buttons.

35

Suitably, said method can further comprise the step of determining whether to end said hold request based on at least one predetermined time period, said predetermined time period being stored in a memory.

5

Preferably, said step of determining can comprise the step of comparing said predetermined time period with a clock.

10

Brief Description of the Drawings

In order to describe the invention and to put it into practical effect, reference will now be made to embodiments as illustrated with reference to the accompanying drawings in which:

15

FIG. 1 is a block diagram of a wireless messaging device in accordance with a preferred embodiment of the invention; and

FIG. 2 is a flow diagram of a method for monitoring a subscribed option with the wireless messaging device of FIG. 1.

20

Detailed Description of the Invention

In accordance with a preferred embodiment of the invention, FIG. 1 is a block diagram of a wireless messaging device 10. Device 10 can be, for example, a selective call receiver or a personal digital assistant or organiser. Device 10 comprises a receiver 12, a decoder 14, a processor 16, a display 18 and a user input 20. Processor 16 comprises a clock 22 and a memory 24. Display 18 is a touch screen display. User input 20 comprises one or more software keys disposed on the touch screen display. Alternatively, user input 20 can be one or more buttons coupled to processor 16.

30

Receiver 12 receives radiofrequency (rf) signals via an antenna 26. Decoder 14 then decodes these rf signals to provide baseband signals to

35

processor 16. Thereafter, processor 16 processes these baseband signals to provide information or messages to a user of device 10. The information provided includes update information associated with subscribed options such as stock quotations or weather reports. Such
5 update information is displayed on display 18 for viewing by the user.

Conventional wireless messaging devices typically have a screen timeout feature that disables their displays so as to conserve power usage. However, for device 10 of the invention, a user can actuate user input 20 to disable such a screen timeout feature. When disabled,
10 processor 16 controls display 18 to continuously display a subscribed option that is currently being viewed by the user. In accordance with this invention, a continuous display of the subscribed option is termed a display hold mode.

The display hold mode is initiated when a hold request is received by
15 processor 16 upon a first actuation of user input 20. In this display hold mode, update information for the subscribed option can still be received to refresh its display on display 18. Furthermore, other user-initiated functions are also disabled. Hence, the user can monitor the subscribed option in an uninterrupted manner during the display hold mode.

20 To end the display hold mode of the subscribed option, a subsequent actuation of user input 20 needs to be provided. Upon receiving the subsequent actuation, processor 16 defaults to processing information in the same manner prior to invoking of the display hold mode.

25 Memory 24 stores one or more predetermined time periods for processor 16 to process received rf signals. These predetermined time periods are reference to clock 22. For subscribed options that are stock quotations from a stock market, these predetermined time periods include operating hours of the stock market. In addition, one of these
30 predetermined time periods is a screen timeout period. In other types of subscribed options, predetermined time periods to allow processor 16 to control displaying of such subscribed options may not be needed. For example, weather reports can be needed throughout a day so that there is no requirement to control display 18 with predetermined time periods.

When operating in the display hold mode, the screen time out period is ignored. On the other hand, when not operating in the display hold mode, display 18 is automatically turn off when the screen timeout period lapses. Thus, the screen timeout period serves to conserve power consumption of device 10. However, during the display hold mode, the stock market may have closed and hence, processor 16 couples to memory 24 to check whether to maintain the display hold mode relative to the stock market operating hours.

Advantageously, the display hold mode of the invention enables a user to monitor subscribed options that are important despite the screen timeout period of device 10. Further, having the predetermined time periods stored in memory 24 allows processor 16 to exit from the display hold mode in situations when the user may have forgotten to provide the subsequent actuation of user input 20. Hence, the display hold mode is not implemented at the expense of power consumption.

FIG. 2 is a flow diagram of a method 30 for monitoring a subscribed option with device 10. Starting at step 31, processor 16 is receiving update information for the subscribed option for display on display 18 at step 32. Thereafter, processor 16 determines at decision step 33 whether a display hold button of user input 20 is actuated. Actuation of the display hold button initiates a hold request to processor 16. Method 30 proceeds to step 34 with a "Yes" following decision step 33. At step 34, processor 16 disables the screen timeout feature and other user-initiated functions. Consequently, the subscribed option is continuously displayed in the display hold mode at step 35.

At decision step 36, processor 16 checks memory 24 to see if update information is suspended. For example, if the stock market operating hours are stored as a predetermined time period, then processor 16 will determine whether to end the hold request and, correspondingly, the display hold mode when the stock market closes. Comparing the stock market operating hours with time referenced to clock 22 does this. If there are no predetermined time period affecting the display hold mode at decision step 36, method 30 proceeds to decision step 37.

Processor 16 checks whether the display hold button has been actuated again at decision step 37. A subsequent actuation of the display hold button results in a signal to processor 16 to end the hold request and, correspondingly, the display hold mode. Thus, a "Yes" following
5 decision step 37 causes processor 16 to enable the screen timeout and other user-initiated functions at step 38. A "No" following decision step 37 returns method 30 to step 35.

Proceeding to step 39, processor 16 waits for expiration of a screen timeout period or to process information depending on any button or
10 software key actuation. A "No" from decision step 33 also brings method 30 to step 39.

At decision step 40, if the screen timeout period expires, then display 18 will be turned off at step 41. Otherwise, method 30 proceeds to decision step 42 at which processor 16 checks whether any button or
15 software key actuation is detected. Checking at decision step 42 also includes detecting an actuation of the display hold button. Method 30 proceeds to perform the operation associated with the button or software key actuation at step 43 following a "Yes" from decision step 42. If there is no button or software key actuation, method 30 returns to decision step
20 40.

The invention applies method 30 advantageously to enable device 10 to monitor subscribed options and display update information continuously when user input 20 is actuated. In such a mode, screen
25 timeout and other user-initiated functions are disabled. However, to prevent device 10 being locked permanently in this mode, processor 16 checks whether the update information is suspended based on predetermined time periods stored in memory 24. In addition, a subsequent actuation of user input 20 enables the screen timeout and
30 the other user-initiated functions. Hence, method 30 effectively overcomes or at least alleviates the problems associated with wireless messaging devices for monitoring subscribed options.

We claim:

Claims

1. A wireless messaging device comprising:

5

a receiver for receiving radio frequency signals including
update information associated with subscribed options;

a display for displaying said update information;

10

a user input; and

a processor, coupled to said receiver, said display and said
user input,

15

wherein, in response to an actuation of said user input, a
hold request is provided to said processor to control said display
to continuously display one of said subscribed options including
said update information thereby refreshing information on said
display until a subsequent actuation of said user input is
20 detected to end said hold request.

20

2. The wireless messaging device as claimed in Claim 1, wherein
said display is a touch screen display.

25

3. The wireless messaging device as claimed in Claim 2, wherein
said user input comprises one or more software keys disposed on said
touch screen display.

30

4. The wireless messaging device as claimed in Claim 1, wherein
said user input comprises one or more buttons.

35

5. The wireless messaging device as claimed in Claim 1 and
further comprising a memory for storing at least one predetermined time
period, said memory being coupled to said processor to process said
hold request.

6. The wireless messaging device as claimed in Claim 5 and further comprising a clock for referencing to said predetermined time period.

5

7. The wireless messaging device as claimed in Claim 1 wherein said processor comprises a memory for storing at least one predetermined time period for processing said hold request.

10

8. The wireless messaging device as claimed in Claim 7 wherein said processor further comprises a clock for referencing to said predetermined time period.

15

9. A method for monitoring subscribed options comprising the steps of:

receiving radio frequency signals including update information associated with said subscribed options;

20

displaying on a display said update information of one of said subscribed options;

actuating a user input; and

25

in response to said step of actuating, providing a hold request to maintain said step of displaying said one of said subscribed options including said update information, wherein said update information is refreshed on said display until a subsequent step of actuating said user input is detected to end said hold request.

30

10. The method as claimed in Claim 9 wherein said step of actuating comprises the step of actuating one or more software keys.

35

11. The method as claimed in Claim 9 wherein said step of actuating comprises the step of actuating one or more buttons.

12. The method as claimed in Claim 9 wherein said method further comprises the step of determining whether to end said hold request based on at least one predetermined time period, said predetermined
5 time period being stored in a memory.

13. The method as claimed in Claim 12 wherein said step of determining comprises the step of comparing said predetermined time period with a clock.
10