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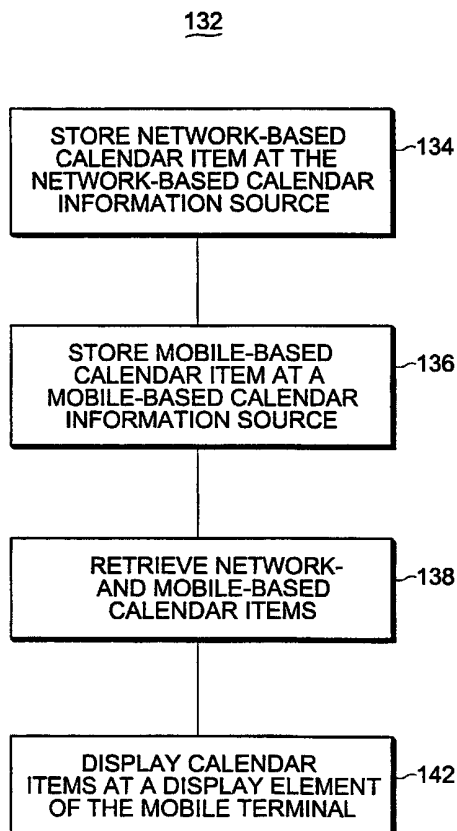
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(54) Title: CALENDAR-DISPLAY APPARATUS, AND ASSOCIATED METHOD, FOR A MOBILE TERMINAL



(57) Abstract: Calendar display apparatus, and an associated method, displays the calendar display at a mobile terminal operable in a radio communication system. The calendar display includes calendar items retrieved from both a local storage element and from a network-based calendar database. The calendar items are displayed simultaneously. And, calendar items stored locally are exportable to the network database. Analogously, calendar items stored at the network database are downloadable to the mobile station to be stored thereat.



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## CALENDAR-DISPLAY APPARATUS, AND ASSOCIATED METHOD, FOR A MOBILE TERMINAL

The present invention relates generally to a manner by which to display  
5 database information at a mobile terminal operable in a radio communication  
system, such as a cellular mobile terminal operable in a cellular  
communication system. More particularly, the present invention relates to  
apparatus, and an associated method, by which to display calendar  
information at a mobile terminal. Calendar items stored, or generated, locally  
10 and calendar items stored, or generated, at a remote source, such as a network  
calendar database, are displayable simultaneously at the mobile terminal.

### BACKGROUND OF THE INVENTION

Advancements in communication technologies have permitted the  
development, installation, and widespread usage of wireless communication  
15 systems through which to communicate telephonically. In a wireless  
communication system, a radio link forms at least a portion of a  
communication path upon which communication signals are transmitted.  
Increased mobility of communication is, as a result, permitted through the  
utilization of a wireless communication system.

20 The network infrastructure of various types of cellular communication  
systems, for instance, have been installed throughout significant geographical  
areas. Large numbers of subscribers to such cellular communication systems  
are able to communicate telephonically when positioned in areas encompassed  
by the network infrastructure of the system pursuant to which subscription is  
25 made. Telephonic communication of both voice and data is generally  
permitted in such cellular communication systems.

A subscriber to a cellular communication system typically utilizes a  
mobile terminal which is formed of a radio transceiver capable of both  
transmitting and receiving radio signals communicated upon radio links with  
30 the network infrastructure of the communication system. The term user shall

be used herein to identify one utilizing the mobile terminal. Some communication systems utilize digital communication techniques in which information is digitized prior to its communication and subsequent to its reception. Processing circuitry is utilized to act upon information, prior to its transmission, and subsequent to its reception.

The circuitry forming a mobile terminal is oftentimes packaged in a housing which permits convenient carriage of the mobile terminal by a user. Various constructions of mobile terminals are of physical dimensions permitting a user thereof to carry the mobile terminal in a shirt pocket, or the like, of the user.

Because the mobile terminal utilizes processing circuitry, the processing circuitry can also be utilized to perform functions in addition to functions required to effectuate conventional communication operations. That is to say, functionality of other devices can be incorporated into the mobile terminal. For instance, information processing and retrieval functions are sometimes incorporated into a mobile terminal.

For instance, some mobile terminals are capable of communicating with a device connected to a packet data network, such as the Internet. That is to say, packets of data are able to be communicated between a mobile terminal and the device upon a communication pack which includes both the radio link and also a wireline path extending through a packet data backbone to the device. The mobile terminal is able, thereby, to be operated in a manner analogous to that of a personal computer, or other processing device, more typically utilized to access web-based devices.

Online calendars are exemplary of information retrievable from a device coupled to the Internet, or other packet data, backbone. Online calendars generally provide one or more of three types of views. One exemplary online calendar provides a personal calendar view listing the personal calendar of a user. Another online calendar provides an event list of a plurality of events, such as events occurring at a particular facility or events occurring on a particular date. And, another online calendar view forms an

interests calendar which contains a subset of an event list filtered by an interest criteria.

Analogous personal calendars are also available for local use at a processing device, such as a personal computer. Such local calendars would  
5 also be available for personal use at a mobile terminal containing appropriate circuitry to access , display, and update a local calendar.

A mobile terminal operable in a GSM (Global System for Mobile communication) communication system which provides for SMS (Short Message Service) messaging is able to receive and send calendar items by  
10 way of a SMS message. Also, calendar items are selectable and a browser application is operable to open automatically a calendar application to handle the calendar item, such as vCalendar or iCalendar. The selection of the calendar application can be based, for instance, on the file type associated therewith, such a .VCS.

15 Online calendars are advantageous for the reason that a user is able to access the calendar using any processing device connectable to the Internet, or other packet-based, backbone. However, the ability to access the backbone, and in turn, the device at which the online calendar is located is, of course, required. Conversely, locally-based calendars are accessible  
20 irrespective of access to the backbone. But, calendar items are limited to items which are locally stored or generated.

Conventionally, there is little interaction between conventional online calendars and locally-based calendars. The advantages inherent of an online calendar, therefore, are limited to users of online calendars. And, the  
25 advantages inherent of a locally-based calendar are available only to users of locally-based calendars.

If a manner could be provided by which to provide for interaction between locally-based calendars and online calendars, an improved calendar application would be provided.

30 It is in light of this background information related to the display of database information that the significant improvements of the present invention have evolved.

## SUMMARY OF THE INVENTION

The present invention, accordingly, advantageously provides apparatus, and an associated method, by which to display calendar information at a mobile terminal operable in a radio communication system. The calendar  
5 information displayable at the mobile terminal permits both calendar items stored, or generated, locally at the mobile terminal and calendar items stored, or generated, at a remote source, such as a network calendar database, to be displayed simultaneously at the mobile terminal.

Through operation of an embodiment of the present invention, calendar  
10 displays generated pursuant to execution of a calendar application include calendar items provided by both a network calendar data base by way of a radio link and also with calendar items stored locally at the mobile terminal. The advantages inherent of both a locally-based calendar application and also of a network-based calendar application are provided by the calendar  
15 application of an embodiment of the present invention.

Up to date information pertaining to events of interest to a user of the mobile terminal are retrievable through operation of the calendar application and displayable at a portable, mobile terminal. Events and information, personal to the user of the mobile terminal, or otherwise not desired to be  
20 stored at a network-based device, conversely, are storable locally at the mobile terminal, thereby providing confidentiality of the personal information. Calendar displays displayable by the mobile terminal through operation of the calendar application of an embodiment of the present invention thereby permits upon a single calendar display calendar items,  
25 stored locally to maintain the confidentiality of such items, together with calendar items retrieved from a remote, network calendar database.

In one aspect of the present invention, calendar displays are displayed in the form of sheets upon a visual display device, such as a Liquid Crystal Display (LCD) screen. One sheet-type is a local sheet in which calendar  
30 items retrieved from a local storage element, or locally-entered, calendar items are positioned on the sheet and displayed at the display element of the

mobile terminal. The local sheet is exportable to a remote server which forms the network calendar data base as well as another appropriate device through which the sheet is selected to be exported.

Another sheet-type is a pushed sheet in which calendar items are downloaded from a remote location, such as a network calendar data base, to be stored at the storage element of the mobile terminal. Calendar items displayed upon the pushed sheet include the calendar items downloaded to the mobile terminal. Because the calendar items, once downloaded to the mobile terminal, are stored thereat, immediate retrieval of the calendar items is thereafter possible irrespective of subsequent connection, or reconnection, of the mobile terminal to a remote network device.

And, another sheet-type is a network sheet in which calendar items are stored at a network calendar database and are retrieved therefrom to be displayed upon the network sheet. Retrieval of the calendar items to form the network sheet require a connection between the mobile terminal and the network database. Because the calendar items are stored at the network data base, such items are updatable, as appropriate. Thereby, the calendar items which form a network sheet are maintainable in an up-to-date level of accuracy. The calendar items forming the network sheet are also storable at the mobile terminal in like manner to the manner by which the calendar items of the pushed sheets are storable at the mobile terminal.

In one implementation, a calendar application is provided for a mobile terminal operable in a GSM (Global System for Mobile communications) cellular communication system. In one implementation, the GSM system provides for SMS (Short Message Service) messaging, and in another implementation, the GSM system further provides for GPRS (General Packet Radio Service). The mobile terminal is operable in an implementation in which the GSM system provides for SMS messaging to send and to receive SMS messages. And, in an implementation in which the GSM system further provides for GPRS, the mobile terminal is further operable to send and to receive packet data pursuant to GPRS. A calendar application is executable, such as through a user request to display selected calendar items upon a

display element of the mobile terminal. Both calendar items stored, or entered locally at the mobile terminal, are displayable upon the display element of the mobile terminal, and calendar items retrieved from a remote network calendar database are displayable upon the display element of the mobile terminal. Calendar items retrieved from the network database and provided locally are displayable together upon a common display sheet, thereby to provide a user of the mobile terminal with both such calendar items.

In these and other aspects, therefore, calendar-display apparatus, and an associated method, is provided for a mobile terminal for displaying calendar information. The mobile terminal is operable in a radio communication system having network infrastructure with which the mobile terminal communicates by way of a radio link. The network infrastructure is coupled to a network-based calendar information source containing at least one network-based calendar item. A mobile-based calendar information source is positioned at the mobile terminal. The mobile-based calendar information source contains at least one mobile-based calendar item. A retriever is positioned at the mobile terminal. The retriever retrieves at least a selected network-based calendar item stored at the network-based calendar information source. The retriever further retrieves at least a selected mobile-based calendar item stored at the mobile-based calendar information source. A display element is coupled to receive indications of the selected network-based calendar item and of the selected mobile-based calendar item. The display element displays together, in human perceptible form, the selected network-based calendar item and the selected mobile-based calendar item.

A more complete appreciation of the present invention and the scope thereof can be obtained from the accompanying drawings, which are briefly summarized below, the following detailed description of the presently-preferred embodiment of the invention, and the appended claims.



## BRIEF DESCRIPTION OF THE DRAWINGS

Figure 1 illustrates a functional block diagram of a communication system in which an embodiment of the present invention is operable.

Figure 2 illustrates a representation of an exemplary screen display generated during operation of an embodiment of the present invention.

Figure 3 illustrates a message sequence diagram listing the sequence of the messages generated during operation of an embodiment of the present invention.

Figure 4 illustrates a method flow diagram listing the method steps of the method of operation of an embodiment of the present invention.

## DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

Figure 1 illustrates a communication system, shown generally at 10, in which an embodiment of the present invention is operable. While the description shall be described with respect to the exemplary system shown in Figure 1, it should be understood that such description is by way of example only. An embodiment of the present invention is analogously operable in other types of communication systems. For instance, while the exemplary system shown in Figure 1 includes a GSM network, operation of an embodiment of the present invention can similarly be described with respect, e.g., to a so-called third generation network, such as that utilizing (W) CDMA (wideband code division multiple access). Accordingly, operation of an embodiment of the present invention can analogously be described with respect to such other types of communication systems.

The communication system 10 provides for wireless communications with a mobile station 12 by way of a radio link, here including downlink and uplink channels 14 and 16, respectively. In the exemplary implementation, the communication system 10 forms a GSM (Global System for Mobile communications) cellular communication system which provides for GPRS (General Packet Radio Service) as well as SMS (Short Message Service)

messaging. The mobile station 12 forms a GSM mobile station operable pursuant to the appropriate GSM standard to communicate by way of the downlink 14 and uplink 16 in conventional manner with a remote communication system.

5           In conventional manner, the mobile station includes receiver circuitry 24 and transmitter circuitry 26 capable of receiving and transmitting, respectively, communication signals by way of an antenna transducer 28. The mobile station 12 is operable to effectuate circuit-switched communications by way of the downlink and uplink 14 and 16. The mobile station is further  
10 operable to communicate SMS messaging pursuant to the protocol set forth in the appropriate GSM standard and also to effectuate GPRS operations, also pursuant to the appropriate GSM standard. SMS messages and GPRS operations are performed upon shared uplink and downlink channels upon which packets of data are communicated with the mobile station.

15           The mobile station further includes a user interface 32, here including a keypad input actuator 34, selectably actuable by a user of the mobile station. The user interface also includes a display device, here a LCD (Liquid Crystal Display) element 36. The input actuator 34 and the LCD element 36 are coupled to a controller 38. The controller 38 is operable, *inter alia*, to  
20 control operations of the receive circuitry 24 and transmit circuitry 26, such as responsive to user actuation of the keypad input actuator 34. The controller is also operable to effectuate the generation of displays, pursuant to operation of an embodiment of the present invention, upon the LCD element 36.

25           The mobile station further includes a storage element 42 operable to store calendar items and sheet templates thereat. The memory 42 is a read/write memory to permit calendar items, retrieved from elsewhere, or generated through actuation of selected actuation keys of the keypad actuator 34 to be stored thereat and to be updated, as appropriate.

30           The controller includes a functional element, here identified as a retriever 44. The retriever is operable during operation of an embodiment of the present invention, to retrieve calendar items stored at the storage element

42 for display upon the LCD element 36. The retriever 44 is also operable to effectuate the retrieval of remotely-stored calendar items, also for display at the LCD element 36, together with the locally-stored calendar elements, to be displayed theretogether upon a common display at the LCD element.

5       The communication system further includes the network infrastructure of the PLMN (public land mobile network), here a GSM network 46. The network 46 is here shown to include a base station system 48 and an SGSN (Serving GPRS Support Node) 54. The elements of the network infrastructure of the GSM network are operable in conventional manner and provide  
10   transceiving switching, and routing function, all as set forth in greater detail in the appropriate GSM specification.

      The SGSN 54, in turn, is coupled, in conventional manner to a GGSN (Gateway GPRS Support Node) 56. And, in turn, the GGSN 56 is coupled to a packet data network, here the Internet backbone 62. A server 64 containing  
15   a network calendar database 66 is coupled, in conventional manner, to the Internet backbone. Access to the contents of the network calendar database is effectuated pursuant to retrieval operations by, e.g., TCP/IP (Transport Control Protocol) requests. A SMS (Short Message Service) center 68 is further shown in the figure. In conventional manner, the SMS center is  
20   coupled to the GSM network 46 and to the Internet backbone 62, here by way of a gateway 70. The SMS center functions as a store and forward center for storing and forwarding SMS messages generated during operation of the communication system.

      During operation of an embodiment of the present invention, the  
25   retriever 44 of the controller 38 of the mobile station is operable to cause retrieval of calendar items stored at the network calendar database 66 so that the retrieved calendar items can be displayed at the LCD element 36. Because the retriever is operable both to retrieve locally-stored calendar items from the storage element 42 and to effectuate retrieval of calendar items  
30   stored at the network calendar database 66, the display displayed upon the LCD element is able to include both network-stored calendar items and locally-stored calendar items upon a common calendar display.

In the exemplary implementation, initiation of operation of a calendar display is effectuated by user actuation of selected keys of the keypad actuator 34. The retriever 34 is operable to detect the actuation of the keypad actuator indicative of the request for the display of the calendar program.

5 Responsive thereto, the retriever retrieves one or more calendar items stored at the storage element 42. The retriever is further operable to cause the transmit circuitry 26 to generate a message which is transmitted upon a channel of the uplink 16, thereafter to be detected by the base station 48 and routed through the elements of the network portion of the communication  
10 system 10 to the server 64. The one or more network-based calendar items contained in the request are routed back to the mobile terminal in reverse manner transmitted upon a channel of the downlink 14, detected by the receive circuitry 24 of the mobile station and thereafter caused by the retriever 44 to be displayed at the LCD element 36. In one implementation,  
15 the retriever causes the transmit circuitry 26 to generate a SMS message which is transmitted upon a channel of the uplink 16, detected by the base station system 48 and routed to the SMS center 68. The SMS center 68, in turn, causes generation of a request which is routed to the server 64. A reply containing the one or more network-calendar elements is returned to the SMS  
20 center 68. And, the SMS center 68 generates a SMS message which is routed through the elements of the network infrastructure of the GSM network and transmitted upon a channel of the downlink 14 to the mobile station 12.

In an implementation in which the GSM system provides for GPRS, a GPRS message is caused to be generated by the transmit circuitry 26. The  
25 GPRS message is routed through the network infrastructure of the GSM network, thereafter to be routed to the server 64. One or more network-based calendar items are retrieved and returned by way of a corresponding GPRS message which, when received at the mobile station, is caused to be displayed upon the LCD element 36 as a calendar display on a common user interface  
30 with calendar items retrieved from the storage element 42.

In one implementation, calendar displays displayed upon the LCD element are displayed in the form of sheets. One sheet-type is a local sheet

including calendar items retrieved from the storage element 42 or entered through actuation of the keypad actuator 34. Such local sheets are exportable to the network calendar database 66 through the transmission of messages, such as SMS messages or GPRS messages containing the calendar information forming the local sheet. Another sheet-type is a pushed sheet which contains calendar items retrieved, in manners as above-described from the network calendar database 66 and then stored at the storage element 42. Once stored at the storage element, the calendar items are retrievable thereafter irrespective of subsequent connection of the mobile terminal by way of a radio link with the server 64. And, another sheet-type is a network sheet. Calendar items displayable upon a network sheet are retrieved from the network calendar database 66, in manners above-described, and updating of the calendar items are made by appropriate transmission of messages used to write over, or otherwise update, existing calendar items stored at the network calendar database.

Figure 2 illustrates an exemplary calendar display, shown generally at 76, generated during operation of an exemplary embodiment of the present invention. The calendar display 76 is displayed upon the LCD element 36 of the mobile station 12. The display 76 here forms a daily calendar listing scheduled events indexed against a time-of-day index identified by a listing of successive hours of the day in a left-most (as shown) column 78.

The calendar display 76 includes a first screen body portion 82 and a second screen body portion 84. The first screen body portion 82 initially lists personal calendar items, i.e., calendar items retrieved from the storage element 42 (shown in Figure 1). The calendar item "meeting with Carl" scheduled at 10:00 is a local calendar item. The calendar items displayed at the second screen body portion 84 are, initially, network-stored calendar items, i.e., calendar items retrieved from the network calendar database 66 (shown in Figure 1). The calendar items "Tampere basketball starts," "Tampere basketball finals," and "Ilves-Tampere, Hakametsa" are such network-based calendar items.

Additional operation of an embodiment of the present invention permits the network-based calendar items displayed upon the calendar display to be copied to the stored at the local storage element of the mobile station. As shown at the calendar entry at 1900 hours, the network-based calendar item displayed at the second screen body portion is copied to the first screen body portion.

A top (as shown) toolbar portion of the calendar display. The toolbar portion includes an identification portion 86, here indicating that the calendar display is "My Calendar," a push information indicator 88 indicating the type of calendar items which are downloaded to the mobile station without specific request therefor, a second pushed-portion 92, here indicating that "Company" calendar items are to be pushed to the mobile station, a third push-portion 94, here indicating that "Sport" information is pushed to the mobile station, and a fourth push-portion 96, here indicating also that "MTV3" information is to be pushed to the mobile station, and an indicator 98 identifying a link list of available calendar views displayable at the calendar display device. The calendar display 76 thereby provides a convenient display to a user of the mobile station of both locally-stored calendar items and network-stored calendar items. Other calendar displays are analogously also able to be displayed at the LCD element 36 (shown in Figure 1).

Figure 3 illustrates a message sequence diagram, shown generally at 102, showing the sequence of signals generated during operation of the communication system shown in Figure 1 pursuant to an embodiment of the present invention. First, and as indicated by the segment 104, a signal is generated responsive to user actuation of a keypad actuator of the user interface 32. The signal indicates initiation of a request for display at the display element of the mobile station of a calendar display. The controller 34 detects the signal. The controller, in turn, causes the transmit circuitry of the mobile station to generate a signal, here a SMS message, represented by the segment 106 which is sent to the base station system 48 of the network infrastructure of the communication system. The base station system routes a signal representative of the request, and here indicated by the segment 108, to

the SMS center 68. And, the SMS center, in turn, generates a signal, here indicated by segment 112, which accesses the network database 66 of the server 64 (shown in Figure 1). Calendar items are retrieved from the network database, and signals representative thereof, here indicated by the segment  
5 114, are routed back through the SMS center and to the base station system 48. The base station system generates a downlink signal, here represented by the segment 116, which is detected by the receive circuitry 24 (shown in Figure 1) of the mobile station, and provided to the controller 44. The controller, in turn, and as indicated by the segment 118, sends signals to the  
10 LCD element of the user interface. A calendar display containing the retrieved calendar item is displayed thereat.

Figure 4 illustrates a method flow diagram, shown generally at 132, of an embodiment of the present invention. The method 132 is operable to cause the display of calendar information at a mobile terminal operable in a radio  
15 communication system.

First, and as indicated by the block 134, at least one network-based calendar item is stored at a network-based calendar information source. Then, and as indicated by the block 136, at least one mobile-based calendar item is stored at a mobile-based calendar information source located at the mobile  
20 terminal.

Thereafter, at least a selected network-based calendar item stored at the network-based calendar information source and at least a selected mobile-based calendar item are retrieved. And, as indicated by the block 142, a selected network-based calendar and a selected mobile-based calendar item  
25 are together displayed at a display element of the mobile terminal.

Thereby, through operation of an embodiment of the present invention, calendar items, stored at both a network calendar database and locally at a mobile terminal, are displayable together at the mobile terminal upon a common calendar display.

30 The previous descriptions are of preferred examples for implementing the invention, and the scope of the invention should not necessarily be limited

by this description. The scope of the present invention is defined by the following claims.



We claim:

1. In a mobile terminal operable in a radio communication system having network infrastructure with which the mobile terminal communicates by way of a radio link, the network infrastructure coupled to a network-based calendar information source containing at least one network-based calendar item, an improvement for the mobile terminal of calendar-display apparatus for displaying at the mobile terminal calendar information, said apparatus comprising:
  - a mobile-based calendar information source positioned at the mobile terminal, said mobile-based calendar information source containing at least one mobile-based calendar item;
  - a retriever positioned at the mobile terminal, said retriever for retrieving at least a selected network-based calendar item stored at the network-based calendar information source and for retrieving at least a selected mobile-based calendar item stored at said mobile-based calendar information source; and
  - a display element coupled to receive indications of the selected network-based calendar item and of the selected mobile-based calendar item, said display element for displaying together, in human perceptible form, the selected network-based calendar item and the selected mobile-based calendar item.
2. The apparatus of claim 1 further comprising a user actuator positioned at the mobile terminal and coupled to said mobile -based information source, said user actuator actuatable selectably by a user to store the at least one mobile-based calendar item at said mobile-based calendar information source.
3. The apparatus of claim 2 further comprising a copier coupled to said retriever, said copier selectably operable to copy the selected network-based calendar item to said mobile-based calendar information source to be

stored thereat and to copy the selected mobile-based calendar item to the network-based calendar information source.

4. The apparatus of claim 1 wherein the mobile terminal comprises transmit circuitry and receive circuitry, and wherein said retriever causes the  
5 transmit circuitry to transmit a retrieve request, the retrieve request for requesting retrieval of the selected network-based calendar item from the network-based calendar information source.

5. The apparatus of claim 4 wherein said retriever further causes the receive circuitry to detect, when received at the receive circuitry,  
10 indications of the selected network-based calendar item, retrieved responsive to the request therefor.

6. The apparatus of claim 5 wherein the communication system comprises a GSM (Global System for Mobile communications) cellular communication system which provides for SMS (Short Message Service)  
15 messaging and wherein the retrieve request caused by said retriever to be transmitted by the transmit circuitry comprises a first SMS message.

7. The apparatus of claim 6 wherein the indications of the selected network-based calendar item which said retriever causes the receive circuitry to detect, comprises a second SMS message.

20 8. The apparatus of claim 5 wherein the communication system comprises a GSM (Global System for Mobile communications) cellular communication system which provides for GPRS (General Packet Radio Service) and wherein the retrieve request caused by said retriever to be transmitted by the transmit circuitry comprises a first GPRS message.

25 9. The apparatus of claim 8 wherein the indications of the selected retriever causes the receive circuitry to detect, comprises a second GPRS message.

10. The apparatus of claim 1 wherein said display element displays the selected network-based calendar item and the selected mobile-based calendar item in visual form.

11. The apparatus of claim 10 wherein said display element displays  
5 the selected network-based calendar item simultaneous with display of the mobile-based calendar item.

12. The apparatus of claim 1 wherein said display element includes a video screen, the video screen for displaying a display sheet thereon, the display sheet including the selected network-based calendar item and the  
10 selected mobile-based calendar item.

13. The apparatus of claim 12 wherein the display sheet comprises a plurality of mobile-based calendar items forming a local sheet, the local sheet exportable to the network-based calendar information source.

14. The apparatus of claim 12 wherein the display sheet comprises a  
15 plurality of network-based calendar items, exported to the mobile terminal and stored thereat and forming a pushed sheet, the pushed sheet exportable to the network-based calendar information source.

15. The apparatus of claim 12 wherein the display sheet comprises a plurality of network-based calendar items forming a network sheet, the  
20 network sheet exportable to be stored at said mobile-based calendar information source.

16. A method for displaying calendar information at a mobile terminal, the mobile terminal operable in a radio communication system having network infrastructure with which the mobile terminal communicates  
25 by way of a radio-link, and the network infrastructure coupled to a network-based calendar information source, said method comprising:

storing at least one network-based calendar item at the network-based calendar information source;

storing at least one mobile-based calendar item at a mobile-based calendar information source located at the mobile terminal;

retrieving at least a selected network-based calendar item stored at the network-based calendar information source and at least a  
5 selected mobile-based calendar item; and

displaying the selected network-based calendar item and the selected mobile-based calendar item together at a display element of the mobile terminal.

17. The method of claim 16 wherein the mobile terminal comprises  
10 a user actuator selectably actuatable by a user and wherein the at least one mobile-based calendar item stored during said operation of storing is stored responsive to selected user actuation of the user actuator.

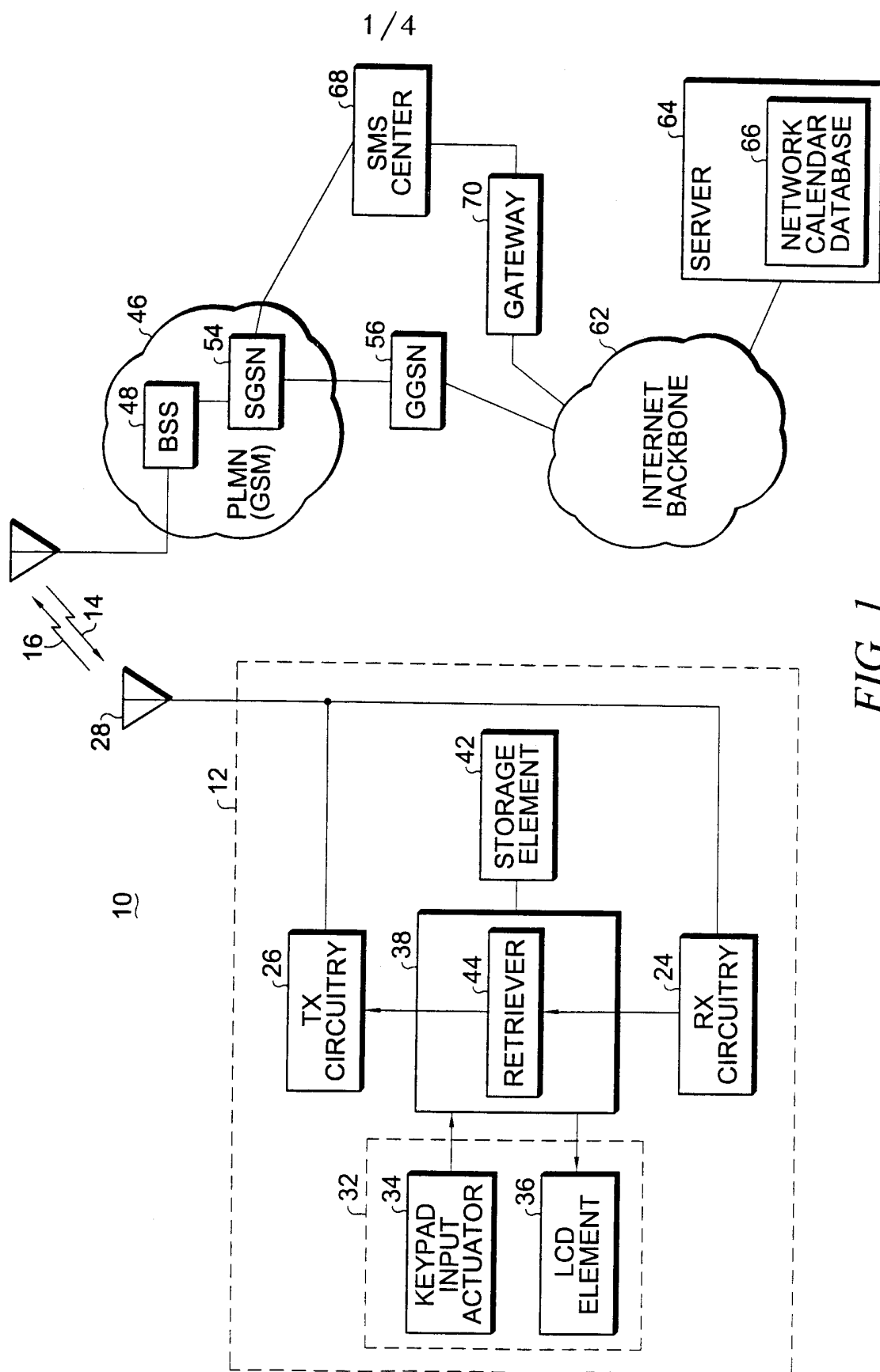
18. The method of claim 16 wherein said operation of retrieving  
comprises sending, from the mobile terminal, a retrieve request requesting  
15 retrieval from the network-based calendar information-source the selected network-based calendar item.

19. The method of claim 18 wherein said operation of retrieving  
said operation of retrieving further comprises detecting indications of the  
selected network-based calendar item at the mobile terminal, provided thereto  
20 responsive to the retrieve request.

20. The method of claim 16 wherein the selected network-based  
calendar item and the selected mobile-based calendar item displayed during  
said operation of displaying are displayed simultaneously.

21. The method of claim 16 comprising the additional operation of  
25 storing the selected network-based calendar item, retrieved during said operation of retrieving, at the mobile-based calendar information source.

22. The method of claim 16 comprising the additional operation of  
storing the selected mobile-based calendar item, retrieved during said  
operation of retrieving, at the network-based calendar information source.



MY CALENDAR		FAVORITE EVENTS		COMPANY	SPORT	MTV3	Z
9:00	MEETING WITH CARL		TAMPERE BASKETBALL STARTS				
10:00							
11:00							
12:00							
13:00							
14:00	ILVES-TAPPARA, HAKAMETSA		TAMPERE BASKETBALL FINALS				
15:00							
16:00							
17:00							
18:00							
19:00	ILVES-TAPPARA, HAKAMETSA		ILVES-TAPPARA, HAKAMETSA				
20:00							

**FIG. 2**

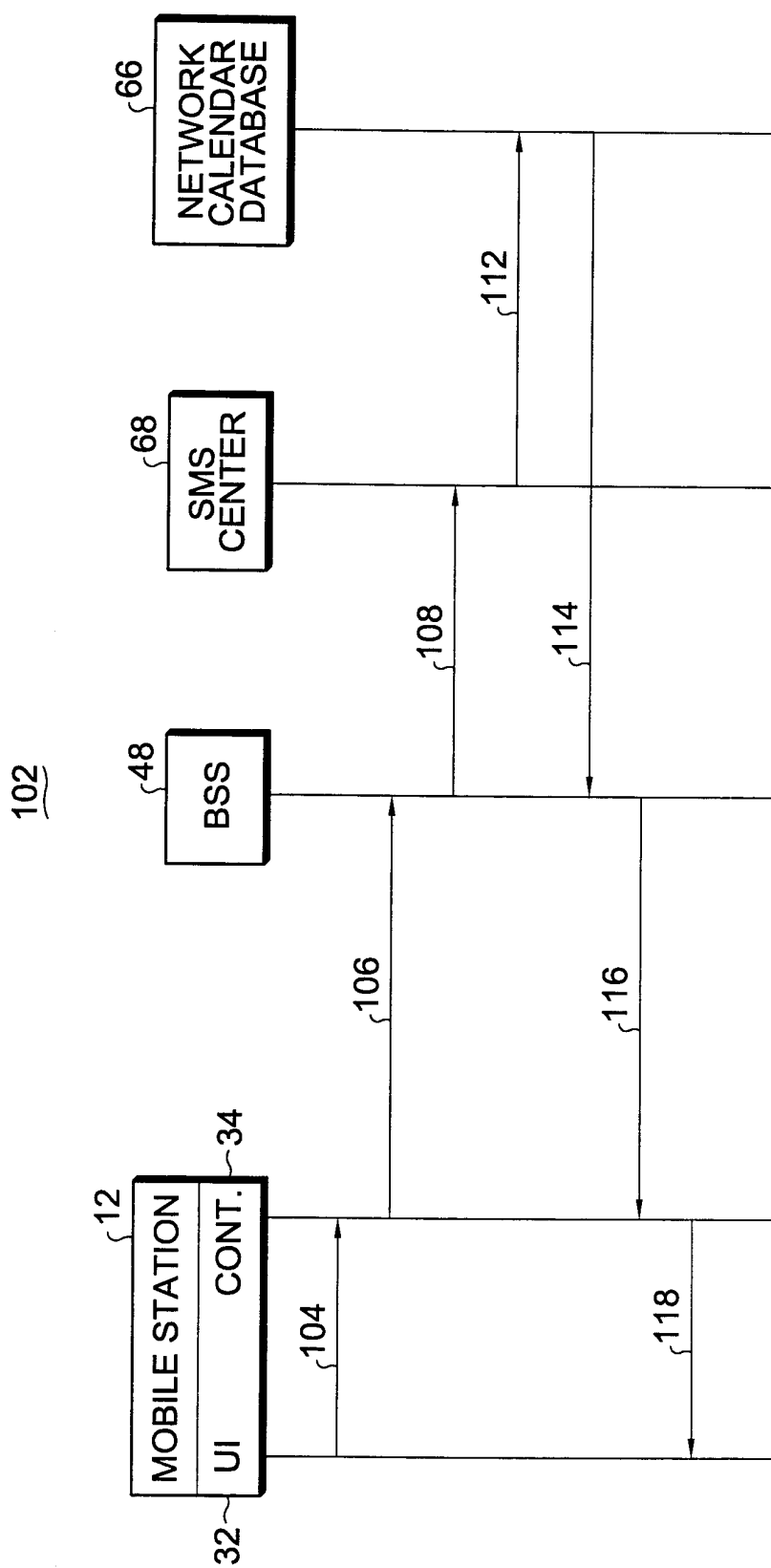
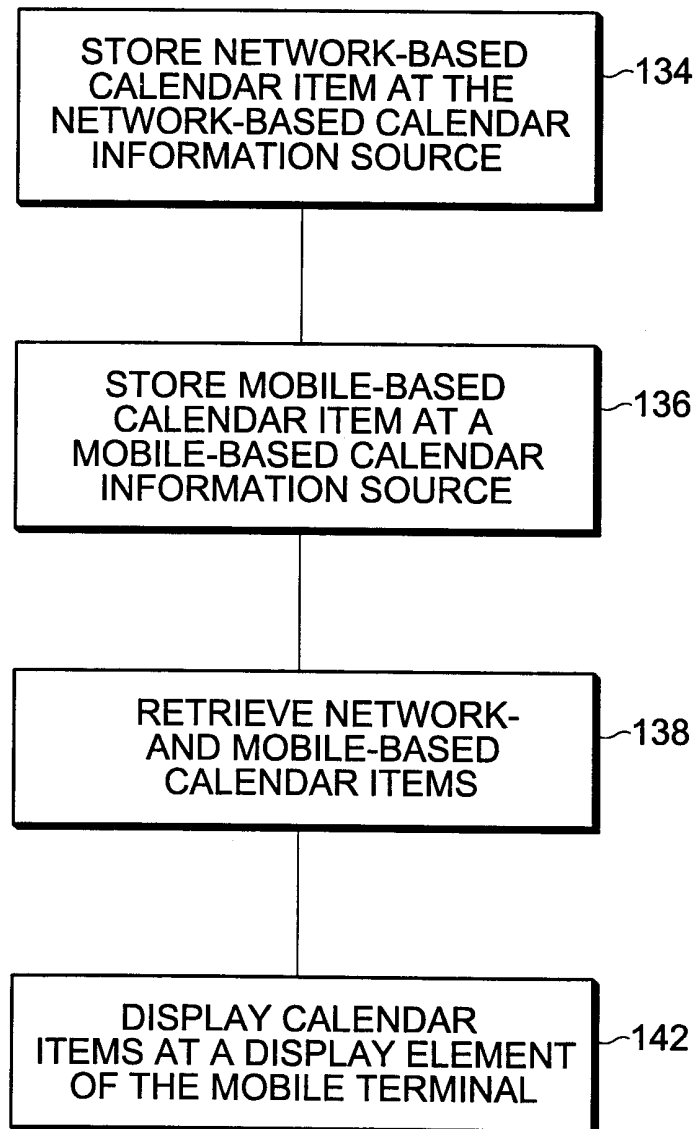


FIG. 3

132*FIG. 4*



# INTERNATIONAL SEARCH REPORT

International Application No

PCT/IB 00/01820

## A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 H04Q7/22 G06F17/60

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 H04Q G06F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 99 21100 A (ERICSSON GE MOBILE INC) 29 April 1999 (1999-04-29)  page 3, line 16 -page 4, line 19 page 6, line 22 - line 25 claims 1,2,3,8 ----	1-4, 10, 12, 16-18, 20, 21
A	EP 0 921 670 A (SIEMENS INF & COMM NETWORKS) 9 June 1999 (1999-06-09) column 2, line 14 - line 43 column 4, line 8 - line 13 claims 1,2 -----	1-22

☐

Further documents are listed in the continuation of box C.

☒

Patent family members are listed in annex.

° Special categories of cited documents :

\*A\* document defining the general state of the art which is not considered to be of particular relevance

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\*L\* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

\*O\* document referring to an oral disclosure, use, exhibition or other means

\*P\* document published prior to the international filing date but later than the priority date claimed

\*T\* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

\*X\* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

\*Y\* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

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Date of the actual completion of the international search

13 March 2001

Date of mailing of the international search report

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# INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 9921100 A	29-04-1999	US 6064975 A	16-05-2000
		AU 1107499 A	10-05-1999
		BR 9814092 A	03-10-2000
		CN 1277692 T	20-12-2000
		EP 1038234 A	27-09-2000
EP 0921670 A	09-06-1999	US 6104788 A	15-08-2000