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(54) **SMS AUTOMATIC REPLY AND AUTOMATIC HANDLING**

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(57) **ABSTRACT**

A system and method for enabling improved management of SMS messages, and in particular automatic replies, forwarding, filtering, saving and deleting of SMS messages on a wireless handset or alternative SMS enabled device. An SMS Center is used for managing SMS messages, an Auto-Reply Message Server (ARMS) stores Auto-Reply Messages and allows a message receiver to set up, change, or delete Auto-Reply Messages, and an SMS Automatic Handling Server (SAHS) handles message instructions for a message receiver. The ARMS and SAHS may be separate components, a unified component, and may be operational such that only one of them may be included in the system.

FIGURE 1

FIGURE 2

```
                    ┌──────────────────┐
                    │      Begin        │
                    └──────────────────┘
                             │
                             ▼
   ┌─────────────────────────────────────────────────────────┐
   │  The MR may set up (1005) the details of one or more ARM │
   │  on the ARMS. The ARMS stores these messages, and the MR │
   │  may manage these messages.                              │
   └─────────────────────────────────────────────────────────┘
                             │
                             ▼
   ┌─────────────────────────────────────────────────────────┐
   │  The MR may set up AHI (1010) on the SAHS Server (16),   │
   │  such as forwarding addresses, filtering commands and    │
   │  automatic deletion requests.                            │
   └─────────────────────────────────────────────────────────┘
                             │
                             ▼
                    ┌──────────────────┐
                    │       End         │
                    └──────────────────┘

                    ┌──────────────────┐
                    │      Begin        │
                    └──────────────────┘
                             │
                             ▼
   ┌─────────────────────────────────────────────────────────┐
   │       The MS (10) sends an SMS message to the MR (12)     │
   │                        (1020)                            │
   └─────────────────────────────────────────────────────────┘
                             │
                             ▼
   ┌─────────────────────────────────────────────────────────┐
   │  The SMSC (14) intercepts the message and queries (1025) │
   │  the ARMS for ARM, and processes the messages            │
   │  accordingly.                                            │
   └─────────────────────────────────────────────────────────┘
                             │
                             ▼
   ┌─────────────────────────────────────────────────────────┐
   │  The SMSC (14) intercepts the message and queries the    │
   │  SAHS for AHI, and processes the requests accordingly    │
   │  (1030)                                                  │
   └─────────────────────────────────────────────────────────┘
                             │
                             ▼
   ┌─────────────────────────────────────────────────────────┐
   │  The SMSC sends (1035) the ARM to the MS and executes    │
   │  other available AHI (1040)                              │
   └─────────────────────────────────────────────────────────┘
                             │
                             ▼
                    ┌──────────────────┐
                    │       End         │
                    └──────────────────┘
```
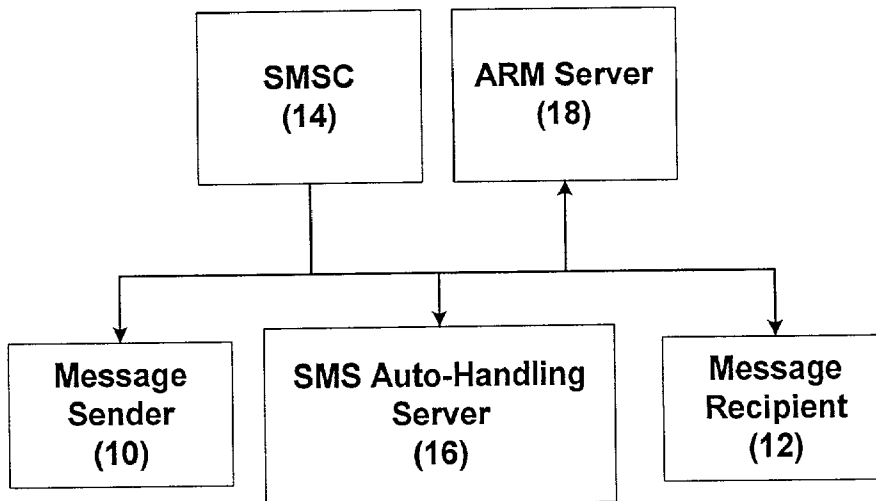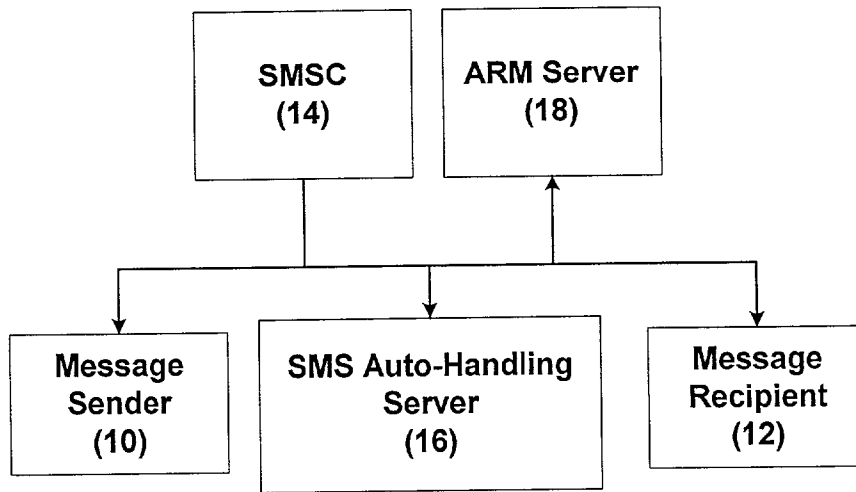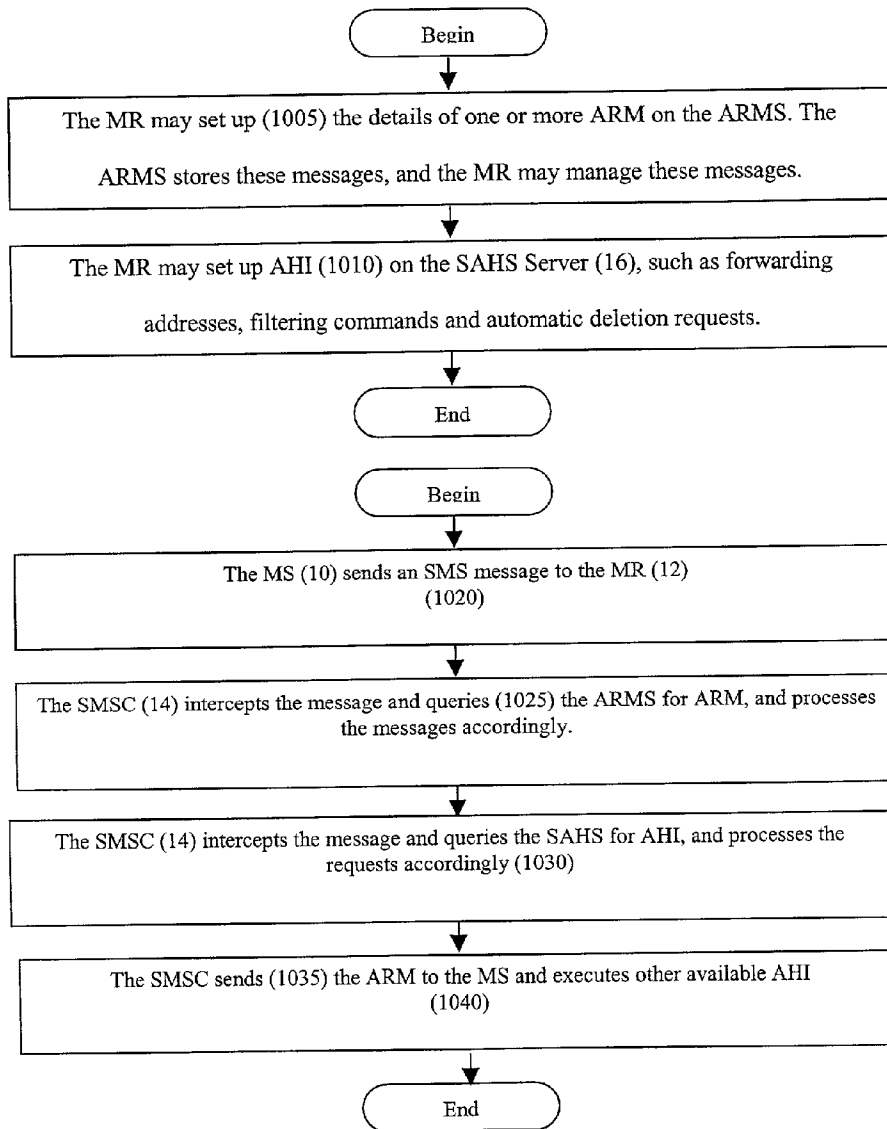
SMS AUTOMATIC REPLY AND AUTOMATIC HANDLING

BACKGROUND OF THE INVENTION

[0001]   1. Field of the Invention

[0002]   The present invention relates to a system for allowing a recipient of Short Message Service (hereinafter "SMS") messages to set up one or more automatic replies. These replies may automatically be sent back to any party who sends the recipient an SMS message. The invention also provides a framework for a variety of other automatic handling processes of SMS, such as forwarding and automatic deletion.

[0003]   2. Description of the Related Art

[0004]   The following terms are defined for background purposes.

AHI	Automatic Handling Instruction
ARM	Automatic Reply Message
ARMS	Automatic Reply Message Server
MR	Message Recipient, who may be an individual, enterprise, service, or any other entity, and is a user and/or subscriber of the system.
MS	Message Sender, who may be an individual, enterprise, service, group, or any other entity.
SAHS	SMS Automatic Handling Server
SMS	Short Message Service
SMSC	SMS Center

[0005]   SMS (Short Message Service) is a service for sending small text messages of approximately 150 characters globally to other SMS enabled devices. It is supported by GSM and other mobile communications systems. SMS is similar to paging, however, delivery of SMS messages do not require the mobile phone to be active and within range, messages are held in SMS Centers until the phone is active and within range. In this way SMS offers guaranteed delivery of messages. SMS messages are transmitted within the same cell or to anyone with roaming service capability. They can also be sent to digital phones from a Web site equipped with PC Link or from one digital phone to another. Typical uses of SMS include interpersonal communication and notifying services to mobile phone owners. These notification services include message notifications related to arrival of voicemail, email and fax messages, and reminder services; email interworking (this refers to allowing SMS message to be converted and sent as e-mail and vice-versa); paging interworking; and information services such as weather reports, traffic reports, stock quotes, exchange rates etc.

[0006]   Short Message Service (SMS) is rapidly becoming the messaging medium of choice for larger and larger segments of the public. It enables the sending of short text messages to wireless phones, and in this way it enables mobile phone users the benefits of limited functions from the worlds of paging, email and instant messaging.

[0007]   The popularization of SMS has also introduced a new chapter in information overflow. An SMS user that may receive messages at any time and from any device certainly requires a competent management tool to manage these messages. Existing SMS services provide a means for forwarding messages to users, assuming that the message recipient is available to receive the message. No means is provided for the message sender to ascertain whether the recipient is actually available. A message sent to a non-available device, according to these existing SMS services, may be stored by the SMS Center until the receiver is available, at which time the message may be sent. This guarantees delivery, however, the delay that this may cause may make the message irrelevant; and the delay is time-limited before the system must drop it. There are also limits on the number of messages that can be stored in this manner.

[0008]   U.S. Pat. No. 5,973,613, which is incorporated herein by reference, describes a pager device receiving paging messages. The user reads a paging message, selects one of a set of stored, predetermine reply messages, and transmits the selected reply message from the pager. The reply signal is received by one of a set of local cellular receivers, which sends the received signal to a computer for interpretation. The computer initiates an action based on interpretation of the received reply signal. This patent, however, refers to non-automatic replies.

[0009]   U.S. Pat. No. 6,185,603, which is incorporated herein by reference, describes a messaging system that uses the standard email subject line to control where a message gets delivered, when a message gets delivered and the appearance of a message when it gets delivered. This enables a company to use its standard intranet email system as a pseudo real-time messaging transport with a range of delivery options. Several codes control the features of the alerting message, and a predefined escape sequence for use by the sender is recognizable by a dedicated server. This escape sequence enables these codes. By placing the escape sequence in a predetermined location in each message, the sender indicates to the system that codes for controlling the features of the alerting message follow the escape sequence. Using these codes, the user can then specify when, how often and in what manner the alert message is displayed to the recipient in a window on the recipient's workstation. In addition, the sender can attain certain aspects of message routing and delivery using these codes. In addition, routing of the message within the network can be controlled by the sender in the same manner by specifying a particular routing within the subject line of the message following the escape sequence. This includes routing the message to a facsimile, a pager or a telephone, or voice mail system. This is in addition to the normal email address used in the message. This patent, however, does not offer automatic replies of incoming messages.

[0010]   U.S. Pat. No. 6,122,485, which is incorporated herein by reference, describes a system and method for confirming the receipt of a message by a mess aging unit or pager. The system allows a caller to request page confirmation from the service provider. The system uses a caller identifier, entered by the caller at an input source, and a sequential index to store and locate data relating to the page confirmation request in a data structure. A page confirmation message is sent to the pager and the pager immediately sends a confirmation reply message back to service provider. At this point the service provider indicates in the data structure that the page was successful. At any time, the caller can then access the service provider to determine if his message was received by the pager. This patent, however, deals with receipt confirmation, and not automatically replying with true message content.

[0011] Another related technology, from Novelsoft (http://www.novelsoft.ch/sms-center/e/techndet.html), enables easy implementation and operation of ones own SMS information services with very little effort. Accordingly, a customer is able to access his/her information service by sending a simple keyword via SMS to their server. A typical SMS information request occurs as follows: "your customer sends an SMS message with a specific keyword to our global SMS access number +41 79 4002030." However, this technology does not allow management of messages on individual access numbers or private phone numbers.

[0012] Current Ericsson Technology

[0013] (http://www.ericsson.com/review/2000 04/files/2000047.pdf) offers SMS management possibilities. However this technology is a heavy, industrial grade system for information services such as SMS-based. It serves to highlight the value of easy, small-grades solutions for the small business/private subscriber. However it does not provide a simple and reasonable solution to SMS message management. In brief, Ericsson's solution allows one to buy a platform and provide SMS information services. This solution does not enable end users to configure their own services, on the service provider's platform (without buying their own platform), but using their own phone number (as opposed to say Novelsoft).

[0014] ICQ (www.icq.com) (Instant Messaging) has message management features that can be pre-configured to filter, reply etc. The ICQ software enables a user to instruct his or her desktop application to automatically reply to incoming messages, with customized response messages, such as, "taking a break for half an hour", "in a meeting" etc. In this way, ICQ has similar functionality to conventional e-mail applications (such as Outlook and Exchange). These functions are currently available for messages sent to smart end terminals, such as e-mail servers and ICQ terminals, which can implement auto-replies. This is opposed to SMS, that is designed for messages sent via a transparent medium to a stupid end terminal.

[0015] There is thus a widely recognized need for, and it would be highly advantageous to have, a system that can enable an improved management of SMS messages, and in particular to enabling automatic replies, forwarding and filtering of SMS messages.

SUMMARY OF THE INVENTION

[0016] According to the present invention there is provided a system and method for enabling improved end user customized management of SMS messages. This system and method thereby extend the functionality and power of the SMS Center (hereinafter "SMSC) to incorporate email-type automatic replies, forwarding, filtering, saving and deleting of SMS messages on wireless handsets and other communication devices. This feature may be very useful for the following (and other) cases:

[0017] Automatic reply when the message receiver is unavailable (e.g., on vacation)

[0018] Auto reply when changing phone numbers

[0019] Other automatic-handling features include: Automatic SMS forwarding, and pre-configured automatic deletion of undelivered messages. Undelivered messages refer to

messages that are kept in the hand-set, such as draft messages that have not yet been sent, or expired (time-limited) messages that are no longer relevant to send.

[0020] The present invention comprises the following components:

[0021] i. A Message Sender (MS), who initiates the sending of a SMS message;

[0022] ii. A Message Recipient (MR) who receives the message.

[0023] iii. SMS Automatic Handling Server (SAHS), for handling the message management for the message receiver. The MR sets up one or more Automatic Handling Instructions (AHI) on the SAHS.

[0024] iv. An Auto-Reply Message Server (ARMS) that allows a user to set up automated responses for incoming SMS messages. The ARMS has a database that stores ARM messages, and a server for serving Auto-Reply Messages to the SMS Center. The MR sets up one or more Auto-Reply Messages (ARM) on the ARMS.

[0025] v. A SMS Center (SMSC) for managing the sending and replying processes. The SAHS and/or the ARMS may be part of the SMS Center.

[0026] The present invention includes a method of automatically replying to SMS messages, as well as a method for automatically managing SMS messages.

[0027] A further preferred embodiment of the present invention is a system for setting up a plurality of automated replies by users, such that a message receiver can configure the system to respond to specific types of incoming messages, in his/her chosen ways.

[0028] Another preferred embodiment of the present invention is a system for setting up at least one alternative handling instruction, for enabling a user to automatically configure the system to respond to incoming messages by filtering, saving, filing, deleting etc. such messages.

BRIEF DESCRIPTION OF THE DRAWINGS

[0029] The invention is herein described, by way of example only, with reference to the accompanying drawings, wherein:

[0030] FIG. 1 is a block diagram showing an embodiment of the invention.

[0031] FIG. 2 is a flowchart for describing an embodiment of the invention.

DESCRIPTION OF THE PREFERRED EMBODIMENT

[0032] The present invention relates to a system and method for better enabling users to manage SMS messages, by automating SMS message manipulation from the receiver side.

[0033] Specifically, the present invention can be used to automatically manage SMS messages from multiple sources. This includes a mechanism for easily replying, forwarding, deleting, filtering and saving these messages.

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