

"A Network Based System For Relaying Information"

THIS INVENTION relates to a network based system for relaying information.

Many people who regularly meet with clients, customers or business associates as part of their work would find it extremely helpful to have a secretary with whom appointments could be made and through whom messages could be relayed. Having a secretary would mean that time spent organising meetings could be better spent working, and that even when the person was unreachable by telephone or facsimile messages would always be taken. It is, however, expensive to hire a secretary, and many people find that hiring a secretary is impractical or beyond their means.

It is an object of the present invention to seek to overcome the above mentioned problem and provide a low cost and effective system and method for relaying information to an individual.

Accordingly, the present invention provides a network based system for relaying information comprising: a server supporting a homepage associated with a user, the homepage being configured to receive information over the network from a visitor to the homepage; a transmitter addressable by the network and operable to transmit information received by the server; and a remote device operable to receive information transmitted by the transmitter and provide that information to the user.

Advantageously, the remote device further comprises means operable to transmit information to a receiver associated with the network and operable to relay information received from the remote device to the server.

Preferably, the network is the Internet.

Conveniently, the remote device is an Internet pager.

Advantageously, the receiver has an Internet connection.

Preferably, the remote device is a normal pager.

Conveniently, the receiver is a paging network base station.

Advantageously, the remote device is a cellular telephone.

Preferably, the receiver is a cellular network base station.

Conveniently, further transmitters are provided.

Advantageously, the server includes means to send information to the visitor.

Preferably, the means to send information to the visitor comprise means to send e-mail.

Conveniently, the means to send information to the visitor comprise means to communicate over a public switched telephone network.

Advantageously, the means to send information to the visitor comprise means to send a page to a pager carried by the visitor.

Preferably, the homepage includes a scheduler and the information receivable by the homepage includes the time of an appointment requested by the visitor with the user and the identity of the visitor.

Conveniently, the information presented by the scheduler on the homepage includes appointments already made by the user.

Advantageously, the homepage is a web site.

Another aspect of the present invention provides a method of relaying information, comprising the steps of: supporting on a server a homepage associated with a user, the homepage being configured to receive information over a network from a visitor to the homepage; addressing, via the network, a transmitter which transmits information received by the server; and receiving, at a remote device, information transmitted by the transmitter and providing that information to the user.

Advantageously, the user can configure the server to relay the information received by the server to the remote device at a predetermined time.

Preferably, the server can be configured to send the information received by the server to another remote device associated with the user.

Conveniently, the other remote device associated with the user is an e-mail service.

In order that the present invention may be more readily understood, embodiments thereof will now be described, by way of example, with reference to the accompanying drawings, in which:

Figure 1 is a schematic representation of an information relaying system embodying the present invention; and

Figure 2 is a schematic representation of a further information relaying system embodying the present invention.

This invention relates to a network based system for relaying information between a visitor to a homepage and a user with which the homepage is associated. Using a network such as the Internet, it is possible to set up and maintain, at relatively little expense, a homepage, and with increasing subscription to the Internet a homepage provides a link between the owner of the homepage, herein termed a user, and a vast number of existing and potential clients, herein termed visitors.

Referring to Figure 1, a server 1 supports a homepage, and has a connection to the Internet 2. A PC 3 is also connected to the Internet 2. A further computer 4 is connected to the Internet 2, and this computer 4 is connectable to a transmitter 5. The transmitter 5 is operable to transmit information to a remote device 6 such as a pager, which is carried by the user.

The user's homepage is a web site on the server 1. A visitor having a connection to the Internet such as a PC 3 provided with a modem is able to access the homepage through the Internet 2. The homepage includes a scheduler upon which the user's schedule is displayed. The scheduler will include appointments and obligations of the user, and the visitor is able to select a time when the user is free and make an entry on the homepage requesting an appointment at that time. Alternatively, the visitor can leave a message on the homepage for the user.

The homepage will then communicate with a computer 4 through the Internet 2 to instigate transmission of the appointment or message to the user. The computer 4 addresses the transmitter 5, and the appointment or message is broadcast by the transmitter 5. The remote device 6 carried by the user receives the information from the transmitter 5 and presents this information to the user.

In Figure 2, a paging network 8 and a cellular network 11 are also included. The paging network base station 7 is connected via the paging network 8 to a paging gateway 9, which is in turn connected to a Public Switched Telephone Network (PSTN) 13. The cellular network base station 10 is connected via the cellular network to a cellular gateway 12, which is also connected to the PSTN 13. The PSTN 13 has a connection to a modem 14, which is operable to send information to or receive information from the server 1.

If the remote device 6 is a normal pager, the message or requested appointment is transmitted to the user via the paging network base station. The paging network base station is accessed by the server 1 through the modem 14, the PSTN 13, the paging gateway 9 and the paging network 8. If the remote device 6 is a cellular telephone, then the message or requested appointment is transmitted to the user via the cellular network base station. The cellular network base station is accessed by the server 1 through the modem 14, the PSTN 13, the cellular gateway 12 and the cellular network 11.

In addition, the remote device 6 is operable to transmit information. This information is receivable by various receivers, depending on the nature of the remote device 6. If the remote device 6 is an Internet pager, then the information transmitted by the remote device 6 would be receivable by the transmitter 5 or another transmitter connected to the Internet. Alternatively, the remote device 6 may be a normal pager or a cellular telephone, in which case the information transmitted by the remote device 6 would be receivable by the

paging network base station 7 or the cellular network base station 10 respectively.

The ability of the remote device 6 carried by the user to transmit information allows the user to acknowledge the receipt of a message or appointment, or confirm or refuse a requested appointment. If the remote device 6 is an Internet pager then the information transmitted by the remote device 6 may be received by the transmitter 5, and relayed by the computer 4 back to the server 1 which supports the user's homepage. If the remote device 6 is a normal pager or a cellular telephone then the information transmitted by the remote device 6 may be received by a paging network base station 7 or the cellular network base station 10 respectively. This information is then sent to the public switched telephone network (PSTN) 13, via the paging network 8 and the paging gateway 9 if the information is received by the paging network base station 7, or via the cellular network 11 and the cellular gateway 12 if the information is received by the cellular network base station 10. The PSTN 13 can then relay the information sent by the remote device 6 back to the server 1 on which the homepage resides, via the modem 14.

Optionally, the homepage can send a confirmation of receipt of message or a confirmation or rejection of the requested appointment back to the visitor, via the Internet 2. This message could be relayed back to the visitor by a number of means, including e-mail, paging, and so on.

In addition to the methods by which the user may send a confirmation message back to the server 1 on which the homepage resides, it is envisaged that other methods may be employed. For example, the user could send an email to the server 1 via the Internet 2 from another computer. Alternatively, the user could telephone the server 1 and use the dual tone multi frequency (DTMF) tones available on the telephone equipment to acknowledge the message.

If the user does not wish to be interrupted by messages at any time, for instance at the weekends or on days away from work, he or she may configure the homepage to direct the incoming messages to a device other than the remote device 6. For instance, all incoming messages can be sent to the user's e-mail account, and inspected by the user at a later time. This facility can be used selectively, for instance the homepage could be configured so that only messages from the user's spouse or boss are transmitted directly to the remote device 6, whereas all other messages are stored in the user's e-mail account.

Alternatively, if the remote device 6 is a pager, the user may find that he or she will be in an area where there is no paging network coverage, and in this case the user may configure the homepage to direct all or some incoming messages to a device other than pager, for instance a fax machine of a hotel in which the user is staying.

In light of the above, many people would have use for a system whereby clients could leave messages for them or make appointments with them through a suitable homepage, and the message or appointment was then communicated to them via a portable device, such as a pager. This system would also have the added advantage that the user would not be required to post his or her address, telephone number, pager number and so forth on the Internet to be contactable thereby maintaining a level of privacy.

The protocol between the Internet pager and the transmitter 5 can be any proprietary or well-known protocol such as polling, contention-based etc. However, it must enable the following functions:

- 1) Pager registration.

Each transmitter 5, because of the physical limitation of radio frequency coverage, will have Internet pagers moving in and out of its radio frequency

coverage area. Therefore, when an Internet pager moves into the radio frequency coverage area of a transmitter 5, the Internet pager must register with the transmitter 5. The Internet pager does this by transmitting to the transmitter 5 a unique identification and additional information that enables the transmitter 5 to relate the Internet pager to its server 1 and homepage. This is required to enable the transmitter 5 to communicate to the server 1 that the Internet pager (and hence the user) is currently in the service area of the transmitter 5.

2) Information interchange.

This enables the transmitter 5 to relay information from the server 1 to the pager 6 and the Internet pager to send acknowledgements to the transmitter 5.

3) Pager deregistration.

When the Internet pager moves out of the coverage area of the transmitter 5, it must be deregistered and the server 1 informed accordingly. This will ensure that the server 1 does not send information to the Internet pager via the wrong transmitter 5. Deregistration can either be explicit (the Internet pager informs the transmitter 5) or implicit (the transmitter 5 deregisters the Internet pager after a scheduled time period unless the Internet pager reregisters prior to the expiration of the scheduled time period).

The communication protocol between a transmitter 5 and a server 1 can be any standard Internet Protocol (IP) such as the Transmission Control Protocol (TCP) or User Datagram Protocol (UDP). The transmitter 5 initiates communication with the server 1 when the pager 6 registers with it. During the registration process, the transmitter 5 obtains the Internet Protocol address of the server 1 from the Internet pager 6. This initial communication, augmented by a suitable authentication process that allows the server 1 to confirm the identity of its pager 6, establishes a binding link between the Internet pager 6 (through the transmitter 5) and the server 1 by informing the server 1 that its pager 6 is currently within the coverage area of the transmitter 5. This initial communication also lets the server 1 know the IP address of the transmitter 5.

The binding link remains valid for a predetermined period of time. Thus, if the pager 6 remains within the coverage area of the transmitter 5 longer than this period, the binding link needs to be extended by the transmitter 5. Once the server 1 knows which transmitter 5 the Internet pager 6 is attached to, it will be able to send any information to the pager 6 via the transmitter 5.

Although the Internet is used in both of the examples given above, it is envisaged that the present invention would be extremely useful with an intranet, allowing people freedom to move about within an organisation and remain contactable at all times.

CLAIMS:

1. A network based system for relaying information comprising:
a server supporting a homepage associated with a user, the homepage being configured to receive information over the network from a visitor to the homepage;
a transmitter addressable by the network and operable to transmit information received by the server; and
a remote device operable to receive information transmitted by the transmitter and provide that information to the user.
2. A system for relaying information according to Claim 1, wherein the remote device further comprises means operable to transmit information to a receiver associated with the network and operable to relay information received from the remote device to the server.
3. A system for relaying information according to Claim 1 or 2, wherein the network is the Internet.
4. A system for relaying information according to any of Claims 1 to 3, wherein the remote device is an Internet pager.
5. A system for relaying information according to Claim 4, wherein the receiver has an Internet connection.
6. A system for relaying information according to any of claims 1 to 3, wherein the remote device is a normal pager.
7. A system for relaying information according to Claim 6, wherein the receiver is a paging network base station.

8. A system for relaying information according to any of Claims 1 to 3, wherein the remote device is a cellular telephone.

9. A system for relaying information according to Claim 8, wherein the receiver is a cellular network base station.

10. A system for relaying information according to any preceding claim, wherein further transmitters are provided.

11. A system for relaying information according to any preceding claim, wherein the server includes means to send information to the visitor.

12. A system for relaying information according to Claim 11, wherein the means to send information to the visitor comprise means to send e-mail.

13. A system for relaying information according to Claim 11, wherein the means to send information to the visitor comprise means to communicate over a public switched telephone network.

14. A system for relaying information according to Claim 11, wherein the means to send information to the visitor comprise means to send a page to a pager carried by the visitor.

15. A system for relaying information according to any preceding claim, wherein the homepage includes a scheduler and the information receivable by the homepage includes the time of an appointment requested by the visitor with the user and the identity of the visitor.

16. A system for relaying information according to Claim 15, wherein the information presented by the scheduler on the homepage includes appointments already made by the user.
17. A system for relaying information according to any preceding claim, wherein the homepage is a web site.
18. A method of relaying information, comprising the steps of:
supporting on a server a homepage associated with a user, the homepage being configured to receive information over a network from a visitor to the homepage;
addressing, via the network, a transmitter which transmits information received by the server;
receiving, at a remote device, information transmitted by the transmitter; and
providing information received from the transmitter to the user.
19. A method of relaying information according to Claim 18, wherein the user can configure the server to relay the information received by the server to the remote device at a predetermined time.
20. A method of relaying information according to Claim 19, wherein the server can be configured to send the information received by the server to another remote device associated with the user.
21. A method of relaying information according to Claim 20, wherein the other remote device associated with the user is an e-mail service.