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(54) **TARGETED MESSAGING SYSTEM AND RELATED METHODS**

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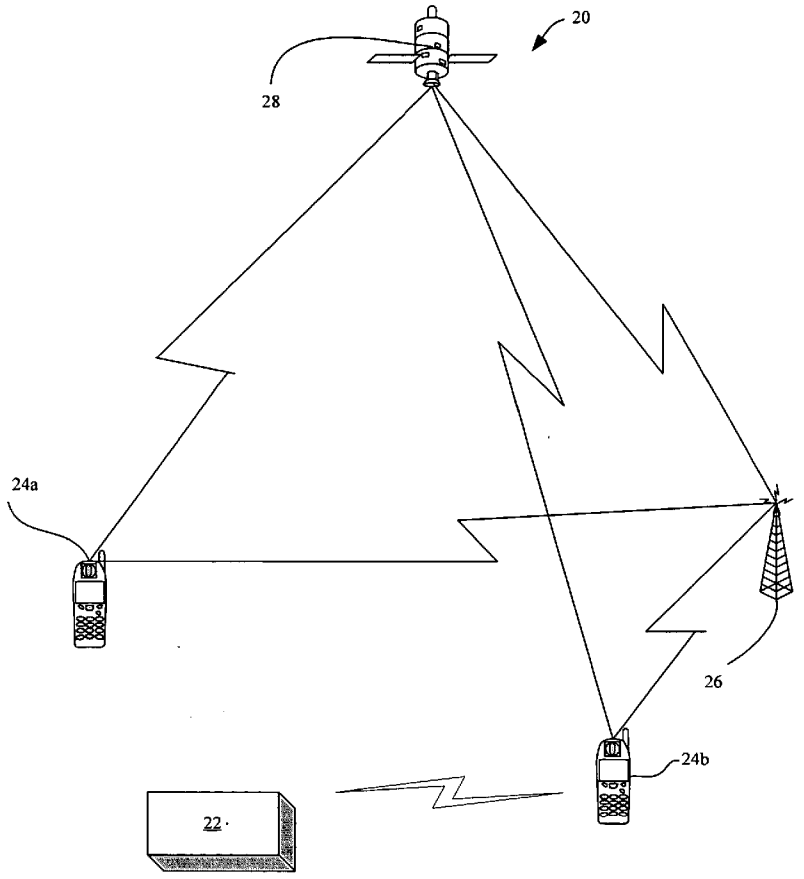
(57) **ABSTRACT**

A system for targeted messaging includes a messaging platform for communicating messages to a target group, a target group selecting module for selecting the target group from a group of potential message recipients based upon a target criterion including the location of each potential message recipient relative to a predefined targeted region. A method of targeted messaging includes defining a targeted region, selecting a target group from a group of potential message recipients based upon the location of each potential message recipient relative to the targeted region, and transmitting a message to the selected target group.



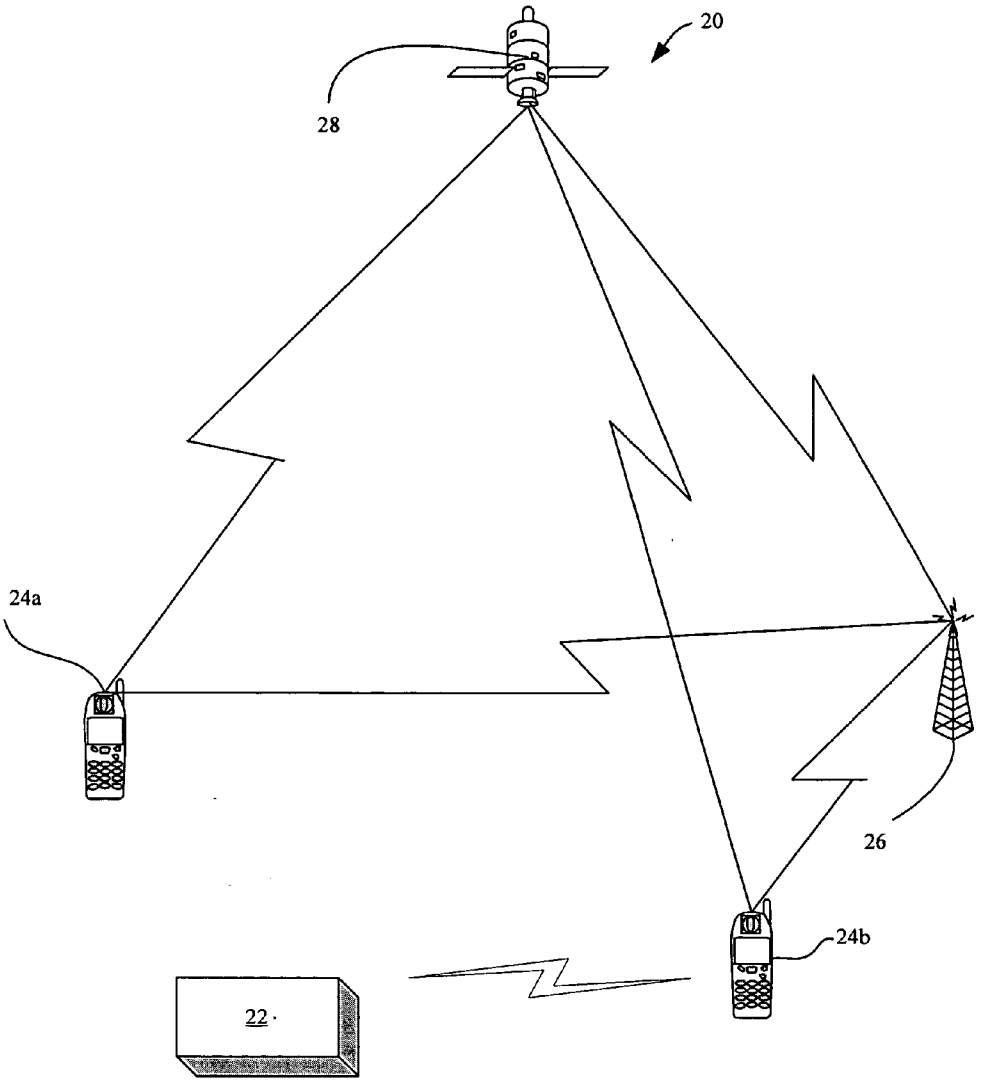


FIG. 1

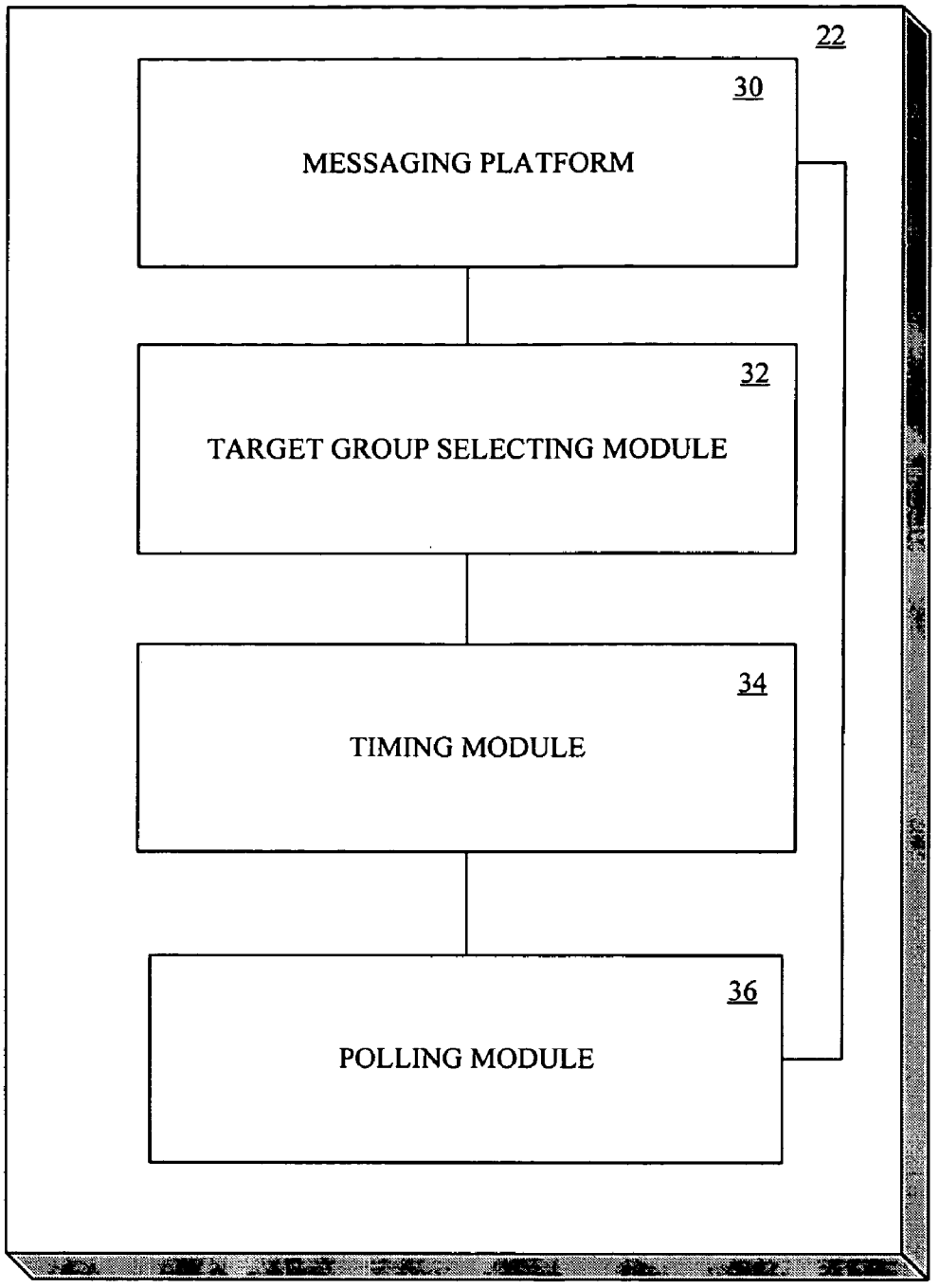

22
30
MESSAGING PLATFORM
32
TARGET GROUP SELECTING MODULE
34
TIMING MODULE
36
POLLING MODULE

FIG. 2

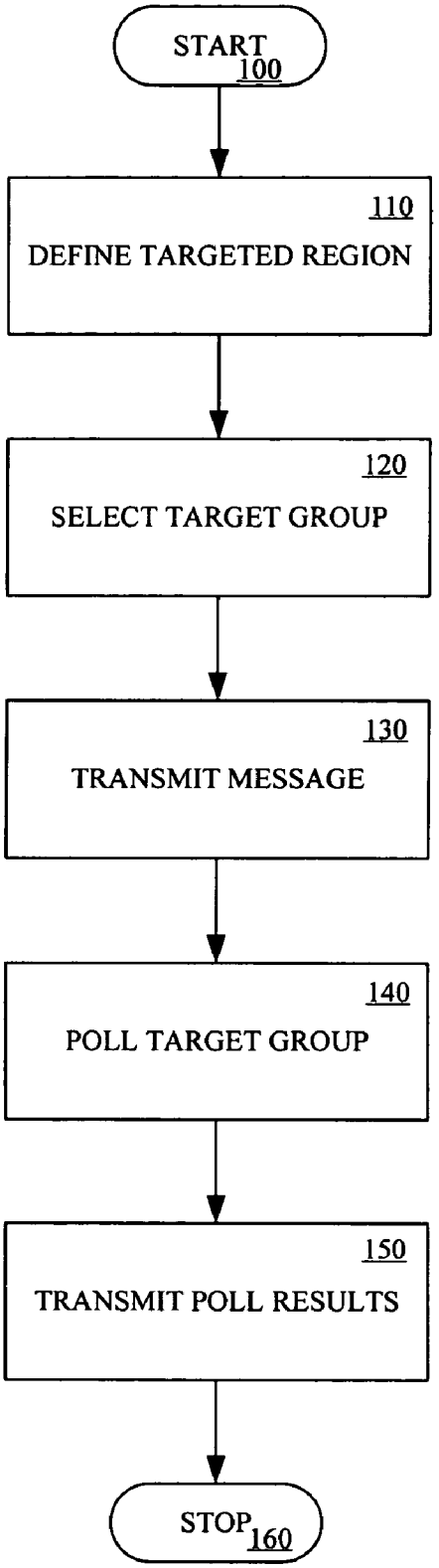

START
100
110
DEFINE TARGETED REGION
120
SELECT TARGET GROUP
130
TRANSMIT MESSAGE
140
POLL TARGET GROUP
150
TRANSMIT POLL RESULTS
STOP
160

FIG. 3

TARGETED MESSAGING SYSTEM AND RELATED METHODS

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] This application claims the benefit of both U.S. Provisional Application No. 60/486,018, filed in the United States Patent and Trademark Office on Jul. 10, 2003, and U.S. Provisional Application No. 60/490,717 filed in the United States Patent and Trademark Office on Jul. 29, 2003, the entirety of both applications is incorporated herein by reference.

BACKGROUND

[0002] 1. Field of the Invention

[0003] The present invention relates to messaging systems, and, more particularly, to electronic messaging systems.

[0004] 2. Description of the Related Art

[0005] Wireless communications networks have grown in recent years both in terms of usage and sophistication. Wireless communications networks allow network users unprecedented flexibility as to where, when, how, and with whom they can communicate. No longer are network users constrained by a fixed-site telephone or computer terminal. Instead, various features and services for network users are combined into ever smaller, more portable devices such as cell phones and wirelessly-connected laptop computers.

[0006] A prevalent feature of many wireless networks is a messaging system. For example, many telecommunications service providers provide their customers with voice messaging services. A typical voice messaging system (VMS) informs a system user if an incoming call has been missed, for example, and allows callers to leave brief messages through the messaging system. Many such systems also support mailbox-to-mailbox messaging, whereby users are able to communicate wirelessly with another via the sending and receiving of brief text messages. Short messaging systems (SMS) are even simpler, providing an individual the opportunity to send and receive messages no matter where the individual may be located.

[0007] Most, if not all, messaging systems, irrespective of their underlying technology platform, are based on the age-old paradigms in which the receiver and the receiver's location are largely co-dependent. These paradigms blur the message recipient's identity and the message recipient's location, thus precluding targeting messages to select individual who are in a particular zone or area. Another parameter largely ignored by the old paradigms is the time element, which also precludes targeting messages to select individual during a specified time interval.

[0008] The result is that conventional messaging systems are not amenable to targeting messages on the basis of who the recipient is, where the recipient is, or how long the recipient is been at a designated location. Indeed, conventional messaging systems typically only allow a user to target the recipient's in-box. Little or no accommodation is made for targeting a group to receive a particular message. Accordingly, such messaging systems also preclude more sophisticated targeting of recipients because of factors such as whether the identified group of recipients constitutes a quorum for an underlying group of recipients or whether potential recipients have been in or have visited a designated area a specified number of times or for specified periods.

SUMMARY OF THE INVENTION

[0009] The present invention provides a system and related method for targeted messaging. The system may include a messaging platform for communicating messages to a target group. The system also may include a target group selecting module for selecting the target group from a group of potential message recipients. The selection may be based upon the location of each potential message recipient relative to a predefined targeted region.

[0010] A method of targeted messaging may be used in a telecommunications system, such as a wireless telecommunications system. The method may include defining a targeted region. The method further may include selecting a target group from a group of potential message recipients, the selection being based upon the location of each potential message recipient relative to the targeted region. The method also may include transmitting a message to the selected target group.

[0011] Another embodiment of the present invention can include a machine readable storage programmed to cause a machine to perform the steps described herein.

BRIEF DESCRIPTION OF THE DRAWINGS

[0012] **FIG. 1** is a schematic diagram of a wireless communications network in which a messaging system according to one embodiment of the invention can be employed;

[0013] **FIG. 2** is a schematic diagram of a messaging system according to one embodiment of the invention; and

[0014] **FIG. 3** contains a flowchart illustrating one embodiment of a method of targeted messaging according to the invention.

DETAILED DESCRIPTION OF PREFERRED EMBODIMENTS

[0015] **FIG. 1** is a schematic diagram of a wireless communications network **20** with which the messaging system **22** according to one embodiment of the invention may be used. The network **20** illustratively includes a pair of wireless cellular telecommunication devices **24***a*, **24***b*. Each of the wireless cellular communication devices **24***a*, **24***b* communicates with the other via forward and reverse link channels to a base station **26**, as will be readily understood by those of ordinary skill in the art. It will be readily appreciated, moreover, that other devices and techniques alternately may be used to link the wireless cellular communication devices **24***a*, **24***b*, and that the network **20** may include more than two such devices.

[0016] It also will be readily appreciated by those of ordinary skill in the art that various other wireless communication devices may be used in conjunction with, or in lieu, of the wireless cellular communication devices **24***a*, **24***b*. Such devices include wirelessly linked laptop computers, palm-held devices, and various other known wireless communication devices. Even though the invention is described herein in the context of a wireless communications network

20, it will be apparent from the ensuing discussion that the messaging system **22** can, moreover, alternately be used in conjunction with a network of wire-linked devices. The system **22** likewise can be used in conjunction with a hybrid communications network comprising both wireless and wire-link devices.

[**0017**] According to one embodiment of the invention, each of the wireless cellular communication devices **24***a*, **24***b* defines a locatable device in the sense that the geographic position of each device is readily ascertainable. The geographic position of each is illustratively determined by a global positioning system (GPS) that includes at least one geostationary satellite **28** that communicates with each of the wireless cellular communication devices **24***a*, **24***b*. Other devices and techniques can alternately be employed for determining the position of each of the wireless cellular communication devices **24***a*, **24***b*, as will be readily understood by those of ordinary skill in the art. For example, the system **22** can include a location sensing module that includes a visual-based, infrared, ultrasonic or other location sensor that facilitates determination of the location of the wireless cellular communication devices **24***a*, **24***b*.

[**0018**] The system **22**, as illustrated, is connected to the wireless cellular communication device **24***b*, for example via a wireless communications link such as a cellular or mobile wireless communications link. Although not shown, the system **22** may also be connected as a discrete component to the other wireless cellular communication device **24***a*. Accordingly, for a network having more than two such devices, multiple copies of the system **22** may be connected to each such device individually. As illustrated, the system **22** can be implemented as an information processing system, such as a server or other computer system, having software configured to perform the various functions described herein.

[**0019**] The system **22** can communicate with client modules executing within each wireless cellular communication device **24***a*, **24***b*, which also are configured to perform the functions described herein. Still, the wireless cellular communication device **24***a*, **24***b* can be equipped with dedicated circuitry including logic gates and other known processing components in lieu of software or in combination with software. In any case, the system **22** can perform particular monitoring and storage functions such as storing locations of the wireless cellular communication device **24***a*, **24***b*, logging the amount of time a device is located with a particular geographic area, whether a city, county, state, or other geopolitical subdivision, and selectively determine which devices messages are to be sent or routed.

[**0020**] **FIG. 2** is a schematic diagram illustrating components of the messaging system **22** according to one embodiment of the invention. The system **22** illustratively includes a messaging platform **30** for communicating messages to select message recipients. The system **22** also includes a target group selecting module **32** for selecting a target group from a group of potential message recipients. The target group selecting module **32** selects the target group based upon a predetermined target criterion. The target criterion, for example, can be the location of each potential message recipient relative to a predefined targeted region.

[**0021**] The targeting of messages to certain recipients that are located in a predefined targeted region advantageously avoids sending messages that may be, at least for some potential recipients, irrelevant. For example, when employed by members of a team, the system **22** avoids sending messages about a scheduled meeting to any team member that is not within the vicinity of the meeting and would not be able to attend the meeting even if the message were received.

[**0022**] Additionally, the system **22** optionally includes a timing module **34**. Thus the target criterion can be based on a timing factor. For example, the timing module **34** can indicate whether a potential message recipient is in a targeted region during a prescribed time interval so that the target group selecting module **32** can select the target group from a group of potential message recipients based upon each potential message recipient's being within the targeted region during a prescribed time interval. For example, the system **22** may be employed by a retailer to communicate a message to potential recipients in the retailer's vicinity during a prescribed time interval indicating that special sales event is scheduled to occur.

[**0023**] The timing module **34** also permits the target group selecting module **32** to select the target group by observing the amount of time that a potential message recipient is within the targeted region. For example, each of the wireless cellular communication devices **24***a*, **24***b* can indicate to the system its position using the GPS satellite **28**. The locations can be recorded by the system **22**. The system **22** can include memory for storing data regarding the times that potential message recipients are in a targeted region.

[**0024**] The target group selecting module **32**, randomly or at regular intervals, can then track and record the locations of each potential recipient at different times. Accordingly, the target group selecting module **32** can designate a potential message recipient to be a member of the target group based upon the number of time intervals that the potential message recipient is in the targeted region. Alternately, the target group selecting module **32** can designate a potential message recipient to be a member of the target group based upon the amount of time per different interval that the potential message recipient is in the targeted region.

[**0025**] This feature permits, for example, the system to be used by members of a club to alert select club members of special events. For example, the target group selecting module **32** can identify club members who frequent the downtown area of a city at least one Saturday night a month between 11 p.m. and 2 a.m. On this basis, the system **22** could send message to these club members about specific social events occurring in the downtown area on any given Saturday evening.

[**0026**] This same timing module **34** also provides for the avoidance of sending messages that may not be relevant before or after certain dates or times. For example, a team leader may wish to send a message to team members who are in a targeted area on a certain date, at a certain time. By selecting the data and time, the team leader can schedule delivery of the message in the future so that it is automatically delivered without the leader's being reminded to send the message. At the designated time, on the designated date, the message is duly sent by the system **22**, but only to those team members then in the targeted area. Accordingly, any team member that arrives in the targeted area after the scheduled meeting need not be bothered with receiving an out of date message.

[0027] As noted above, the location of each wireless cellular communication device **24***a*, **24***b* can be ascertained using the GPS satellite **28** or other locating device. Accordingly, the target group selecting module **32** also illustratively identifies to a user of the system **22** each potential message recipient who is within a selected area or targeted region. Therefore, when used by members of a team, the system **22** allows the team leader to call a team meeting only if and when a certain percentage of the team members are within the vicinity of the proposed meeting. The team leader is also thus able to identify which team members are in a targeted area or located farther away. This feature permits the scheduling of meetings on the basis of location rather than time alone. Another use of such a feature of the system **22** would be a family that wishes to automatically remind any family member who happens to visit a shopping center in a designated target zone that certain items should be purchased before that family member returns home.

[0028] The system **22** also optionally includes a polling module **36** for polling each member of a selected target group. The polling module **36** sends to targeted recipients messages requesting responses to one or more questions. Illustratively, the polling module **36** polls each member of the selected target group who is within the prescribed message space within a prescribed time interval. Used in conjunction with the timing module **34**, the polling module **36** can be made to conclude the polling within a prescribed period.

[0029] Each member of the selected target group responds to the polling via the polling module **36** by transmitting a response. The response is transmitted to at least one other member of the selected target group. The polling module **36** illustratively passes the results of the polling to the messaging platform **30**. The messaging platform **30**, in turn, transmits to members of the selected target group, or other selected recipients, the results of the polling.

[0030] This feature provides several practical advantages. For example, a team leader can gain a team consensus among the team members even when the team members are in different locations. Added with the other attributes of the system **22**, this feature can be used, for example, by the team leader to determine whether a sufficient number of team members are in a targeted area as well as the best time for the team members to meet in a face-to-face setting.

[0031] **FIG. 3** is flowchart illustrating a method of targeted messaging according to one embodiment of the invention. The method illustratively includes in step **110** defining a targeted region. In step **120**, the method further illustratively includes selecting a target group from a group of potential message recipients based upon the location of each potential message recipient relative to the targeted region. The step **120** of selecting a target group includes selecting the target group from a group of potential message recipients based upon each potential message recipient's being within the targeted region. According to another embodiment, the step **120** of selecting a target group includes selecting the target group from a group of potential message recipients based upon each potential message recipient's being within the targeted region during a prescribed time interval.

[0032] The step **120** of selecting a target group, according to yet another embodiment, includes observing at different time intervals an amount of time that each potential message recipient is within the targeted region, and deciding to designate a potential message recipient to be a member of the target group based upon the number of time intervals that the potential message recipient is in the targeted region. According to still another embodiment, the step **120** of selecting a target group includes observing at different time intervals an amount of time that each potential message recipient is within the targeted region, and deciding to designate a potential message recipient to be a member of the target group based upon the amount of time per different interval that the potential message recipient is in the targeted region.

[0033] The different time intervals for observing whether a potential message recipient is within the targeted region can be randomly selected. Conversely, the observations can be made at regular, predetermined intervals. In the latter instance, the targeted group can be selected based on who is, or was, within the targeted region during one or more regularly observed time intervals. For example, the target zone could be a commercial center such as a shopping mall, and the potential message recipients could be customers who visit the commercial center at various times, whether on weekends, weekdays, evenings, or virtually any other time. Thus, the step **120** of selecting a target group according to this embodiment of the invention can advantageously be employed, for example, to answer a question such as "Which individuals frequent this commercial center on Sundays between 7AM and 1PM?"

[0034] The step **120** of selecting the target group can include filtering potential message recipients based on whether their presence in the targeted region over a period of time exceeds a minimum threshold. The target group can be selected, for example, by asking the same question regarding which individuals frequent a commercial center on a Sunday between 7AM and 1PM and additionally determining which of such individuals have been in the targeted region for a predetermined minimum percentage of time during an observed interval. Such filtered selecting in step **120** permits a targeting entity to determine, for example, that a customer was in the targeted region, the commercial center, on a particular Sunday between 8AM and 11AM, thus surpassing a predetermined criterion requiring that a customer must have been present in the targeted region at least 25% of the time during a six-hour interval.

[0035] Similarly, the step **120** of selecting the target group on the basis of a potential message recipient's frequency and/or duration in the targeted region can also include filtering potential message recipients on the basis of their having been in the targeted region a minimum number of times during the regularly observed time intervals. Accordingly, the step **120** of selecting a target group can determine, for example, that customer X was present in a targeted region between 7AM and 1PM on three out of four consecutive Sundays, thus surpassing a threshold requirement that a target group member must have been in the target region for at least 50% of the observed time intervals.

[0036] As these examples illustrate, the step **120** of selecting a target group can be based upon what happened during a particular time interval, or alternately, on what occurred over several independently observed time intervals. Accordingly, it should be emphasized in the context of these examples that the step **120** of selecting a target group can be

carried out retrospectively. Thus, the target group can be selected in step **120** based on each potential message recipient's past pattern of being present or absent from the targeted region during pre-selected, regularly observed time intervals.

[**0037**] The method additionally includes in step **130** transmitting a message to the selected target group. Optionally, the method further includes in step **140** polling each member of the selected target group. The step of polling **140**, according to one embodiment, can include polling each member of the selected target group who is within the targeted region during a prescribed time interval. The method optionally includes each member of the selected target group responding to the polling by transmitting a response. The response can be transmitted, for example, to at least one other member of the selected target group. The step of polling **140** optionally includes concluding the polling within a prescribed period. In step **150**, these results are optionally transmitted to members of the selected target group.

[**0038**] The present invention can be realized in hardware, software, or a combination of hardware and software. The present invention can be realized in a centralized fashion in one computer system or in a distributed fashion where different elements are spread across several interconnected computer systems. Any kind of computer system or other apparatus adapted for carrying out the methods described herein is suited. A typical combination of hardware and software can be a general-purpose computer system with a computer program that, when being loaded and executed, controls the computer system such that it carries out the methods described herein.

[**0039**] The present invention also can be embedded in a computer program product, which comprises all the features enabling the implementation of the methods described herein, and which when loaded in a computer system is able to carry out these methods. Computer program in the present context means any expression, in any language, code or notation, of a set of instructions intended to cause a system having an information processing capability to perform a particular function either directly or after either or both of the following: a) conversion to another language, code or notation; b) reproduction in a different material form.

[**0040**] This invention can be embodied in other forms without departing from the spirit or essential attributes thereof. Accordingly, reference should be made to the following claims, rather than to the foregoing specification, as indicating the scope of the invention.

What is claimed is:

1. A messaging system comprising:

a messaging platform for communicating messages to a target group; and

target group selecting module for selecting the target group from a group of potential message recipients based upon a target criterion.

2. The system of claim 1, wherein the target criterion corresponds to a location of each potential message recipient relative to a predefined targeted region.

3. The system of claim 1, wherein the system selects the target group based upon a potential message recipient satisfying the target criterion at a predetermined time.

4. The system of claim 1, further comprising a plurality of locatable wireless communication devices.

5. The system of claim 4, wherein the system includes a location sensing module.

6. The system of claim 5, wherein the location sensing module comprises a GPS-based location module.

7. The system of claim 2, wherein the target group selecting module selects the target group from the group of potential message recipients based upon each potential message recipient's being within the targeted region during a prescribed time interval.

8. The system of claim 1, wherein the target group selecting module identifies to a system user each potential message recipient who satisfies the target criterion.

9. The system of claim 1, further comprising a polling module for polling each member of the selected target group.

10. The system of claim 9, wherein the polling module polls each member of the selected target group who is within a prescribed message space within a prescribed time interval.

11. The system of claim 9, wherein each member of the selected target group responds to the polling module's polling by transmitting a response.

12. The system of claim 11, wherein the response is transmitted to at least one other member of the selected target group.

13. The system of claim 9, wherein the polling module concludes the polling within a prescribed period of time.

14. The system of claim 11, wherein the polling module passes results of the polling to the messaging platform which transmits to members of the selected target group results of the polling.

15. The system of claim 2, wherein the target group selecting module selects the target group by

observing at different intervals an amount of time that a potential message recipient is within the targeted region; and

designating a potential message recipient to be a member of the target group based upon at least one of

number of time intervals that the potential message recipient is in the targeted region, and,

amount of time per different interval that the potential message recipient is in the targeted region.

16. A method of targeted messaging over a telecommunications system, the method comprising the steps of:

defining a targeted region;

selecting a target group from a group of potential message recipients based upon the location of each potential message recipient relative to the targeted region;

transmitting a message to the selected target group.

17. The method of claim 16, wherein the step of selecting comprises selecting the target group from the group of potential message recipients based upon each potential message recipient's being within the targeted region during a prescribed time interval.

18. The method of claim 16, further comprising the step of polling each member of the selected target group.

19. The method of claim 18, wherein the step of polling comprises polling each member of the selected target group who is within the targeted region during a prescribed time interval.

20. The method of claim 19, wherein each member of the selected target group responds to the polling by transmitting a response.

21. The method of claim 20, wherein the response is transmitted to at least one other member of the selected target group.

22. The method of claim 20, wherein the step of polling is concluded within a prescribed period of time.

23. The method of claim 20, further comprising the step of transmitting to members of the selected target group results of the polling.

24. The method of claim 16, wherein the step of selecting comprises

observing at different intervals an amount of time that each potential message recipient is within the targeted region; and

deciding to designate a potential message recipient to be a member of the target group based upon at least one of

number of time intervals that the potential message recipient is in the targeted region, and,

amount of time per different interval that the potential message recipient is in the targeted region.

25. A computer readable storage medium for use with a telecommunication system, the storage medium comprising computer instructions for:

defining a targeted region;

selecting a target group from a group of potential message recipients based upon a location of each potential message recipient relative to the targeted region; and

transmitting a message to the selected target group.

26. The computer readable storage medium of claim 25, wherein the computer instruction for selecting a target group comprises a computer instruction for selecting the target group from the group of potential message recipients based upon each potential message recipient's being within the targeted region during a prescribed time interval.

27. The computer readable storage medium of claim 25, wherein the computer instruction for selecting a target group comprises a computer instruction for:

observing at different intervals an amount of time that each potential message recipient is within the targeted region; and

deciding to designate a potential message recipient to be a member of the target group based upon at least one of

number of time intervals that the potential message recipient is in the targeted region, and,

amount of time per different interval that the potential message recipient is in the targeted region.

28. The computer readable storage medium of claim 25, further comprising a computer instruction for polling each member of the selected target group.

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