AO 120 (Rev. 08/10)

TO:	Mail Stop 8 Director of the U.S. Patent and Trademark Office P.O. Box 1450 Alexandria, VA 22313-1450	REPORT ON THE FILING OR DETERMINATION OF AN ACTION REGARDING A PATENT OR TRADEMARK

In Compliance with 35 U.S.C. § 290 and/or 15 U.S.C. § 1116 you are hereby advised that a court action has been filed in the U.S. District Court Northern District of Illinois on the following

☐ Trademarks or ☑ Patents. (☐ the patent action involves 35 U.S.C. § 292.):

DOCKET NO.	DATE FILED	U.S. DISTRICT COURT
16cv9915	10/21/2016	Northern District of Illinois

PLAINTIFF	DEFENDANT
Anuwave LLC	First Personal Financial Corp.

PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1 See Attachment		
2		
3		
4		
5		

In the above—entitled case, the following patent(s)/ trademark(s) have been included:

DATE INCLUDED	INCLUDED BY ☐ Amendment ☐ Answer ☐ Cross Bill ☐ Other Pleading	
PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1		
2		
3		
4		
5		

In the above—entitled case, the following decision has been rendered or judgement issued:

DECISION/JUDGEMENT
11/23/2016: see Order

CLERK	(BY) DEPUTY CLERK	DATE
Thomas G. Bruton	Rosio Mendez	12/22/2016

Copy 1—Upon initiation of action, mail this copy to Director **Copy 3—Upon termination of action, mail this copy to Director**
Copy 2—Upon filing document adding patent(s), mail this copy to Director **Copy 4—Case file copy**

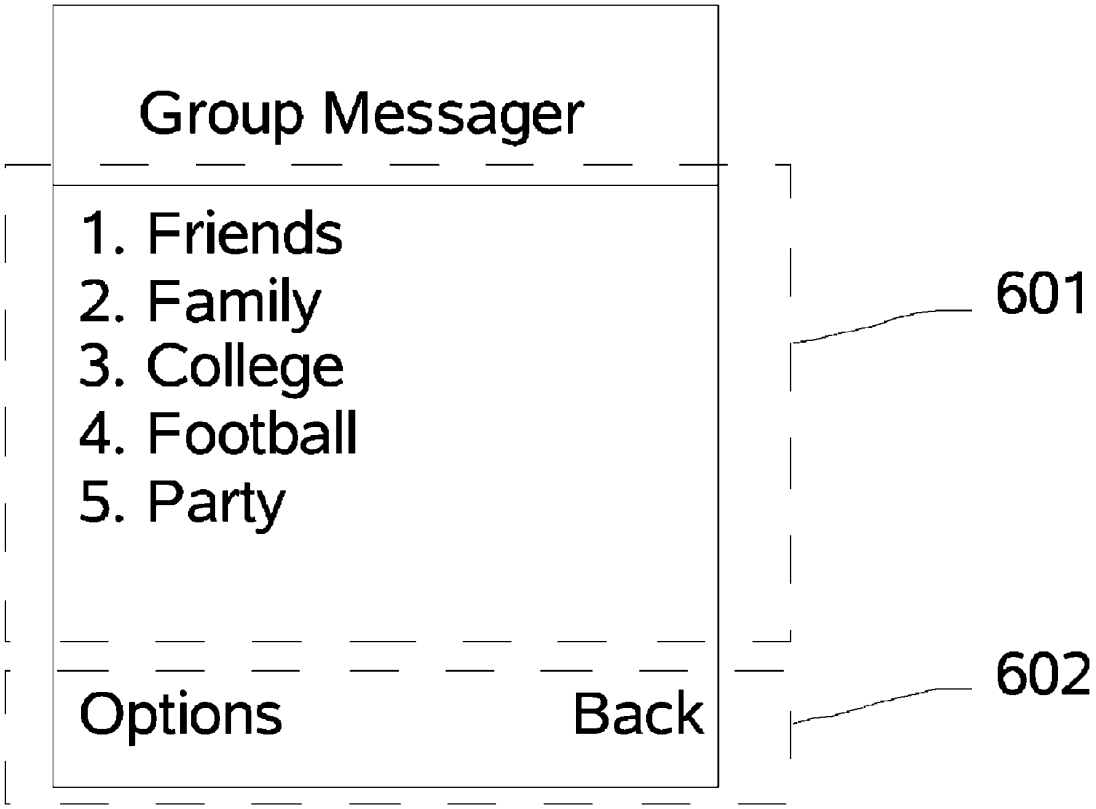

Group Messager
1. Friends
2. Family
3. College
4. Football
5. Party
Options
Back
601
602

FIG 6A

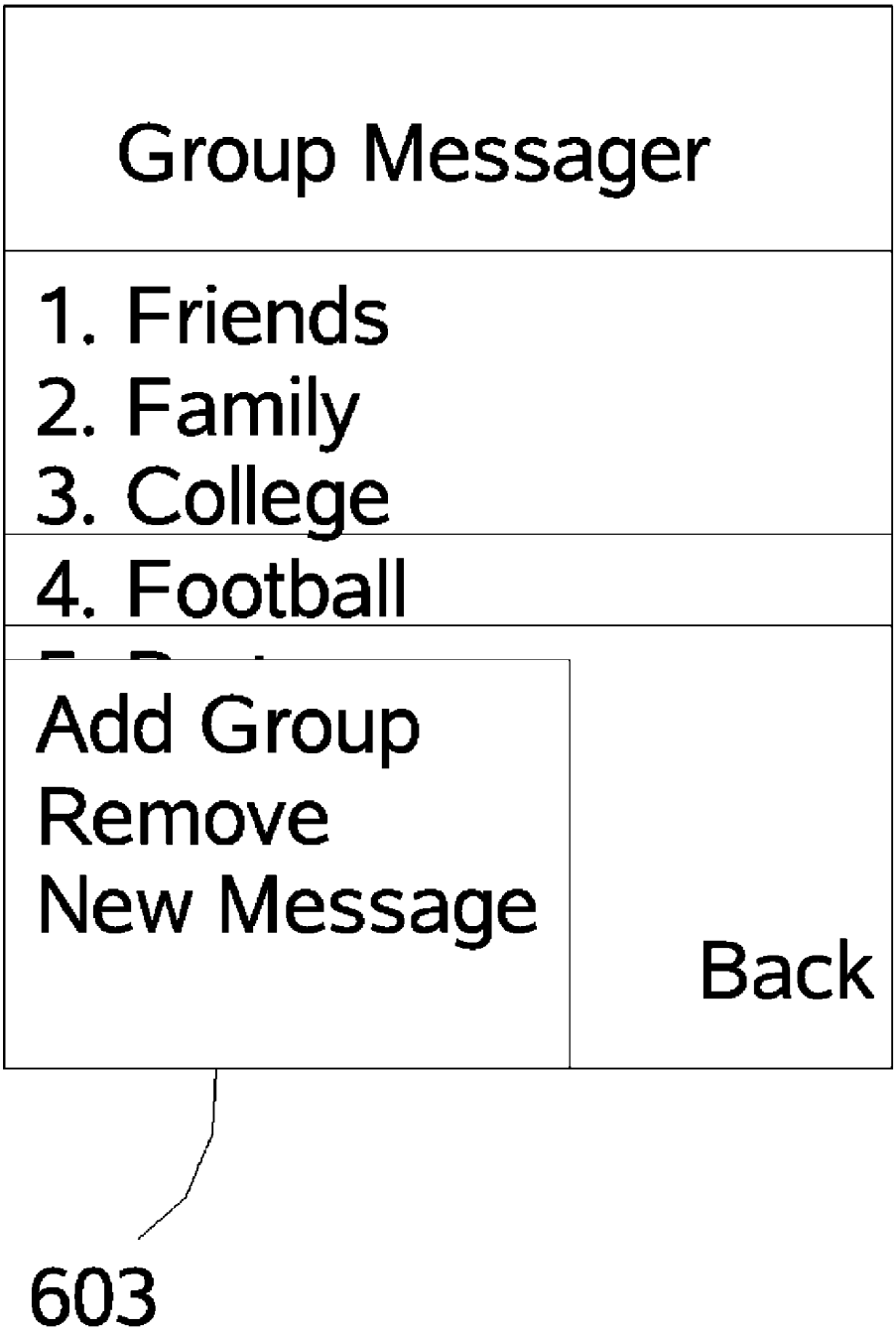

Group Messager
1. Friends
2. Family
3. College
4. Football
Add Group
Remove
New Message
Back
603

FIG 6B

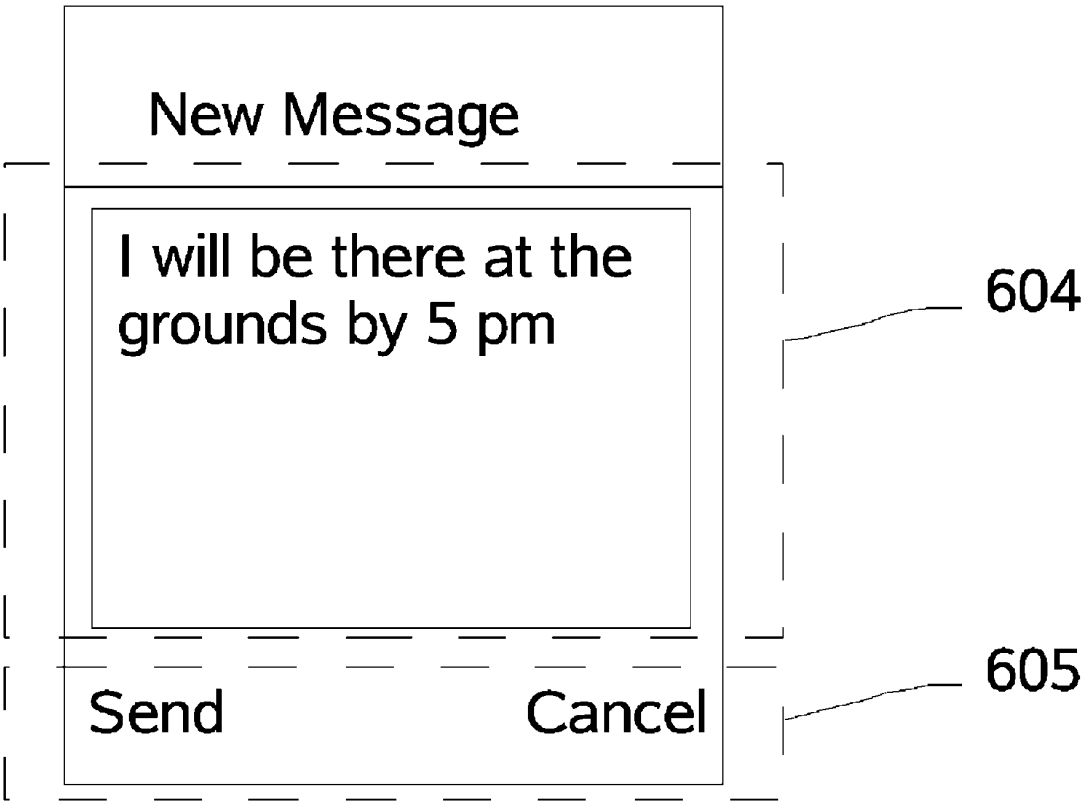

New Message
I will be there at the grounds by 5 pm
Send
Cancel
604
605

FIG 6C

METHOD AND SYSTEM TO ENABLE COMMUNICATION THROUGH SMS COMMUNICATION CHANNEL

RELATED APPLICATIONS

The present application is based on, and claims priority from, IN Application Number 1378/CHE/2006, filed Aug. 3, 2006, the disclosure of which is hereby incorporated by reference herein in its entirety.

TECHNICAL FIELD

The invention relates to the field of telecommunications. More particularly the present invention relates to telecommunications using SMS as communication channel.

BACKGROUND AND PRIOR ART

SMS is one of the most important medium of communication today. Most wireless phones come with a standard SMS client along with a simple text based user interface (UI). These SMS clients resemble the command prompt on the PC world.

Due to the huge boom in mobile commerce, various companies are trying to use the SMS medium to generate more revenue by creating customized advertisements, innovative contests for people to participate in, and allowing people to download various multi-media content including music, images, ring tones etc. Access to each of these services requires users who want to participate to remember certain commands to be sent using SMS so that the SMS is interpreted in the desired manner. Users need to remember such commands and also type the messages which is a tedious process specially considering the fact that most mobile phones come with a keypad where each key is linked to three letters or four letters.

With the advancement of technology especially in computing, mobile devices are becoming more and more sophisticated. Today many such devices are able to run operating systems like winCE and Symbian OS that allow custom applications to be built the same way applications are built to be run on a PC. While there exist many such applications, most of these applications require access to Internet Protocol (IP) based communication channels like WAP or GPRS to communicate. And these technologies are not accessible to every mobile user either because a service provider does not provide the facility or accessing networks implementing these technologies means additional cost for the users.

There exists a need to provide the services to mobile phones which do not have IP access with the existing facilities available on the phone. The utilization of SMS as a channel of communication facilitates the user of a mobile phone to access information over the Telecommunication network.

SUMMARY OF THE INVENTION

A primary object of the invention is to enable communication for various applications using existing SMS communication channels.

Another object of the invention is to avoid the necessity to used IP based communication channels for communication.

Accordingly, the present invention provides a method and system to provide network aware applications on a mobile device that can communicate using existing SMS communication channels without resorting to other IP based communication channels that are costlier and are not available on many of the networks.

According to one embodiment of the method of the invention, a user's terminal station (for example, a mobile phone) receives a message with a question and a set of options to be chosen; before the message is processed by the standard SMS module on the terminal station, a middleware checks the message and sends it to a network aware application (for example, embedded client); the network aware application presents an interface for the user to select or enter a choice; the choice selected or entered by the user is converted into a command that can be interpreted by the middleware; middleware encodes the command and sends the command as an SMS through an SMS gateway; gateway decodes the command of the message and handles the command to a middleware at a central station; the middleware at the central station gets a response based on the command; the response is converted into a command that the network aware application can understand; the command is encoded and sent back to the user's terminal station as one or more SMS messages; middleware decodes the command of the message and handles the command to the network aware application; and the network aware application reconverts the command into a response, renders the reponse and builds a user interface to show the response to the user.

According to one embodiment of the system of the invention, there is provided plurality of network terminal stations (for example, mobile phones, PDAs, computers) each terminal station running various network aware applications managed by a middleware, the middleware listening to a specific port on the terminal station to check for incoming messages; a central station (for example, a server) to provide application services to the various network aware applications running on the network terminal station; an SMS gateway to facilitate SMS communication between a network terminal station and the central station; and a network connection connecting the plurality of network terminal stations, the central station, and the SMS gateway.

According to another aspect of the invention, an network aware application being controlled by a middleware is used to send messages to a short code or a value added service (VAS). The network aware application itself can be a browser for accessing a plurality of short code based SMS services or VASs. The network application application is bundled with a meta information of available SMS based services, the number (for example, mobile number) for the gate way that is delivering the services and the parameters that a user needs to select or enter for each of the service. The network aware application, when opened, lists all the services that are available with a SMS gateway according to the meta information. Based on service selected, the network aware application displays the associated parameters that the user needs to select or enter. For example, when a user selects a survey, the network aware application displays the choices or when the user selects a information service the network aware application displays a select box for user to enter his email id. Based on user selection requests gets submitted to SMS gateway. SMS gateway responds back with the response as it responds to request typed by users as SMS.

In another embodiment of the invention, two or more terminal stations (for example, mobile phones) communicate with each other simultaneously using SMS communication channel. For example, such multi-user communication can be used to play multi-player games on mobile phones and for collaborative discussions.

Further objects, features and advantages will become apparent from the following description, claims and drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

The above aspects of the invention are described in detail with reference to the attached drawings, where:

FIG. **1** illustrates one embodiment of the method of the invention through a flow chart.

FIG. **2** illustrates the system of the invention

FIG. **3** shows the block diagram of a terminal station

FIG. **4** shows the logical diagram of the system of the invention

FIGS. **5**A, **5**B, **5**C and **5**D shows the screen shots of the display of a terminal station for an example application

FIGS. **6**A, **6**B, and **6**C shows the screen shots of the display of a terminal station for an example application

DETAILED DESCRIPTION OF THE INVENTION

FIG. **1** illustrates one embodiment of the method of the invention, the method described herein is accompanied by the steps illustrated in the flowchart in FIG. **1**

A user's terminal station, examples of the terminal station including and not limited to a mobile phone, receives a message with a question and a set of options to be chosen (**101**). The message which is received by the user terminal station is checked by a middleware (ex: an embedded software program). The middleware checks if the received message is intended for the network aware application (NWA) including but not limited to an embedded client (**102**). The embedded client can be written in programming languages including but not limited to Embedded C, on platforms including but not limited to Windows, Linux, Embedded 2 Micro Edition, Brew. The message is passed to a standard SMS module of the terminal station (**114**) if the middleware determines that the message is not intended for NWA. If the middleware determines that the received message is intended to NWA, the message is handed over to the NWA by the middleware (**103**). NWA present in the user's terminal station presents and interface with questions and options to the user (**104**).The user of the terminal station selects or enters a choice on the interface (**105**). The choice selected or entered by the user is converted into a command that can be interpreted by the middleware (**106**). The middleware encodes the command and sends the command as an SMS through an SMS gateway (**107**). The SMS gateway decodes the received command of the message and handles the command to a middleware at the central station (**108**). The middleware at the central station gets a response based on the command from the Data Store (**109**). The middleware converts the response into a command that NWA can understand (**110**). The aforementioned command is encoded and sent back to the user's terminal station as one or more SMS messages (**111**). The user's terminal station receives the SMS messages; the middleware in the terminal station decodes the command of the message and handles the command to the NWA (**112**). The NWA reconverts the command into a response, renders the response and builds a user interface to show the response to the user (**113**).

FIG. **2** illustrates one embodiment of the block diagram of the components of the system involved in rendering the method described in FIG. **1** functional. The system includes a plurality of terminal stations (**201**) wherein the terminal station can include but is not limited to the mobile device. The plurality of terminal stations (**201**) interacts with the server over the Telecommunication network (**202**). The SMS Center (**203**) receives the encoded command over the Telecommunication Network (**202**) from the plurality of terminal stations (**201**) and sends the encoded command which is the response to the hereinabove mentioned command from the terminal station to the corresponding terminal station. The SMS Gateway (**204**) decodes the command received from the SMS Centre (**203**) and handles the command to a middleware at the central station (**205**). The SMS Gateway further encodes the command received from the middleware (**204**) in response to the aforementioned command. The middleware (**205**) for gets a response based on the command from the Data Store (**206**). Further, the middleware (**205**) converts the response into a command that NWA can understand. Data Store (**206**) is a server capable of servicing requests along with data.

In FIG. **3**, The SMS Module (**301**) handles the normal SMS messages. The middleware (**302**) interrupts all the messages received by the mobile device. Further, the middleware (**302**) checks if the SMS message is intended for the plurality of Applications (**304**) including but not limited to network aware applications which can include but not limited to embedded client. Further, the middleware (**302**) handles the message to the SMS module in the event of the message is not intended to the plurality of applications (**304**). The middleware (**302**) further transmits and receives the messages to the Transceiver (**303**).

FIG. **4** illustrates interaction between some of the modules in the mobile device with the server over the Telecommunication Network (**202**).

In FIG. **4**, the User Interface Module (**401**) comprises of:

1. User Interface Builder (**402**) contains the meta information of available SMS based services, the mobile number for the SMS gateway (**413**) that is delivering the services and the parameters that the user needs to enter or select for each of the services.
2. User Interface (**403**) is built by the NWA when opened by using the meta data information contained in the User Interface Builder (**402**).

In FIG. **4**, the middleware (**302**) comprises of:

1. User Action Handler (**404**) to display the associated parameters when the user has to enter an answer or select an option from available options.
2. Command Generator (**405**) to convert the response of the user into a command that can be decoded by the SMS gateway (**204**).
3. Encryptor/Decryptor (**406**) encodes the command where the algorithms including but not limited to standard encoding are used for encoding. The encoding of the command is optional and is dependent on the application.
4. Response Handler (**407**) receives the decoded response from the Encryptor/Decryptor (**406**) and sends it to the User Interface Builder (**402**).

In FIG. **4**, the Transceiver (**303**), comprises of:

1. Message Sender (**408**) to send the encoded command received from the Encryptor/Decryptor (**405**) or the command which is not encoded received from the Command Generator (**406**) as SMS by emulating the role of an SMS client.
2. Message Listener (**409**) receives the messages through the Telecommunication Network (**202**) by listening to specific SMS port and interprets the relevant message.

In FIG. **4**, the interaction of the mobile device with the server is communicated over the Telecommunication Network (**202**).

EXAMPLE 1

FIG. **5** illustrates an example of the browser of the various short code based services. The services available in the NWA

(**501**) is displayed to the the user, (**502**) displays the available user actions to the options on the interface where the user can "Select" a service or return "Back" to the previous active browser screen.

In FIG. **5**, (**503**) displays the options available in the event of the user selecting the first option "Check scores" in (**501**). The different scores available with the NWA is displayed as shown in (**503**). (**504**) displays the available user actions to the options on the interface where the user can "Select" a service or return "Back" to the previous active browser screen.

The message sent from the user terminal which is interrupted by the middleware (**302**) is: 76548, 00056765, Check scores, FB scores.

In the above example, 76548 is the short code, 00056765 is the Customer ID, "Check scores" is the option selected by the user, "FB scores" is the specific choice of the user among the options available for "Check scores".

In FIG. **5**, (**505**) displays user terminal in the event of the user selecting the second option "Find Restaurants" in (**501**). The user types further details regarding the restaurant he wishes to find in the interface as shown in (**505**); the user can "Send" the details entered in (**505**) or "Cancel" the entry of the text shown in (**506**).

The message sent from the user terminal which is interrupted by the middleware (**302**) is: 76548, 00056765, Find Restaurant, "J P Nagar".

In the above example, 76548 is the short code, 00056765 is the Customer ID, "Find Restaurant" is the option selected by the user, "J P Nagar" is the text entered by the user indicating the location.

In FIG. **5**, (**507**) displays the user terminal in the event of the user selecting "Find train timings" in (**501**); the user enters the text of the train details as shown in (**507**); further the user can "Send" the details entered in (**507**) or "Cancel" the entry of the text to return to (**507**) to enter a new text as shown in (**508**).

The message sent from the user terminal which is interrupted by the middleware (**302**) is: 76548, 00056765, Find train timings, "7054".

In the above example, 76548 is the short code, 00056765 is the Customer ID, "Find train timings" is the option selected by the user, "7054" is the text entered by the user indicating the train number.

EXAMPLE 2

FIG. **6** illustrates another example wherein multiple users in groups are sent the same message. The groups available to the user terminal is displayed as shown in (**601**). The user can further view the "Options" available in the NWA or move "Back" to the previously active browser window as shown in (**602**). The "Options" available in the Group Messager is as shown in (**603**). The "New Messages" interface window which will be displayed on the user's terminal if the user selects the "New Message" in (**603**) is as shown in (**604**). The user can "Send" the typed message in (**604**) or "Cancel" the typed message as shown by (**605**).

Although the present invention has been described with particular reference to specific examples, variations and modifications of the present invention can be effected within the spirit and scope of the following claims.

What is claimed is:

1. A method of enabling communication through SMS communication channel, comprising:

listing all services at a terminal station that are available with an SMS gateway according to meta information available at the terminal station;

upon selecting a service, a network aware application displaying associated parameters that a user needs to select or enter;

upon user selection, submitting a request to the SMS gateway; and

the SMS gateway responding back with a response,

wherein the associated parameters include the parameters listed at the terminal station and the parameters desired by the user and not listed at the terminal station.

2. The method as claimed in claim **1**, further comprising:

receiving a message with a question and a set of options to be chosen at the terminal station;

a middleware at the terminal station checking the message and sending it to the network aware application before the message is processed by a standard SMS module on the terminal station;

the network aware application presenting an interface for the user to select or enter a choice;

converting the choice selected or entered by the user into a command that can be interpreted by the middleware at the terminal station;

the middleware at the terminal station encoding the command and sending the command as an SMS through the SMS gateway;

the gateway decoding the command of the message and handling the command to a middleware at a central station;

the middleware at the central station getting the response based on the command;

converting the response into a command that the network aware application can understand by the middleware at the central station;

encoding the command and sending the encoded command back to the terminal station as one or more SMS messages;

the middleware at the terminal station decoding the command of the message and handling the command to a network aware application; and

the network aware application reconverting the command into the response, rendering the response and building a user interface to show the response to the user.

3. The method as claimed in claim **1**, wherein the response received at a terminal station is a set of questions and answers for retrieval of further information.

4. The method as claimed in claim **1**, further comprising:

a middleware at the terminal station interrupting messages received by the terminal station;

the middleware checking if the SMS message is intended for the plurality of applications; and

the middleware handling the message to the SMS module in the event of the message is not intended to the plurality of applications.

5. The method as claimed in claim **1**, further comprising the steps of the network aware application building the user interface using the meta data information according to the choice selected.

6. The method as claimed in claim **1**, wherein the middleware at the terminal station is used to send messages to a short code or a value added service (VAS).

7. A method of enabling communication through SMS communication channel, comprising:

listing all services at a terminal station that are available with an SMS gateway according to meta information available at the terminal station;

upon selecting a service, a network aware application configured to allow a user to type in a desired parameter;

upon user entering the desired parameter, submiting a request to the SMS gateway; and

the SMS gateway responding back with a response,

wherein the desired parameter is not listed at the terminal station.

* * * * *

UNITED STATES DISTRICT COURT
FOR THE Northern District of Illinois – CM/ECF LIVE, Ver 6.1.1
Eastern Division

Anuwave LLC

Plaintiff,

v.

Case No.: 1:16–cv–09915
Honorable Matthew F. Kennelly

First Personal Financial Corp.

Defendant.

NOTIFICATION OF DOCKET ENTRY

This docket entry was made by the Clerk on Wednesday, November 23, 2016:

MINUTE entry before the Honorable Matthew F. Kennelly: Pursuant to the notice of voluntary dismissal [4], this case is dismissed with prejudice with each party bearing their own costs, expenses, and attorneys' fees. Civil case terminated. Mailed notice. (pjg,)

ATTENTION: This notice is being sent pursuant to Rule 77(d) of the Federal Rules of Civil Procedure or Rule 49(c) of the Federal Rules of Criminal Procedure. It was generated by CM/ECF, the automated docketing system used to maintain the civil and criminal dockets of this District. If a minute order or other document is enclosed, please refer to it for additional information.

For scheduled events, motion practices, recent opinions and other information, visit our web site at ***www.ilnd.uscourts.gov***.

A TRUE COPY-ATTEST
THOMAS G. BRUTON, CLE
By /s/ ROSIO MENDEZ
DEPUTY CLERK
U.S. DISTRICT COURT, NORT
DISTRICT OF ILLINOIS
December 22, 2016

US008295862B2

(12) **United States Patent**
Suresh

(10) **Patent No.: US 8,295,862 B2**
(45) **Date of Patent: Oct. 23, 2012**

(54) **METHOD AND SYSTEM TO ENABLE COMMUNICATION THROUGH SMS COMMUNICATION CHANNEL**

(75) Inventor: **Narasimha Suresh**, Bangalore (IN)

(73) Assignee: **Telibrahma Convergent Communications Pvt Ltd**, Bangalore (IN)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 1252 days.

(21) Appl. No.: **11/734,295**

(22) Filed: **Apr. 12, 2007**

(65) **Prior Publication Data**

US 2008/0032718 A1 Feb. 7, 2008

(30) **Foreign Application Priority Data**

Aug. 3, 2006 (IN) 1378/CHE/2006

(51) **Int. Cl.**
H04W 4/00 (2009.01)

(52) **U.S. Cl.** **455/466**

(58) **Field of Classification Search** 455/466
See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

6,085,099	A *	7/2000	Ritter et al.	455/466
7,003,307	B1 *	2/2006	Kupsh et al.	455/466
2002/0119793	A1 *	8/2002	Hronek et al.	455/466
2005/0102381	A1 *	5/2005	Jiang et al.	709/220

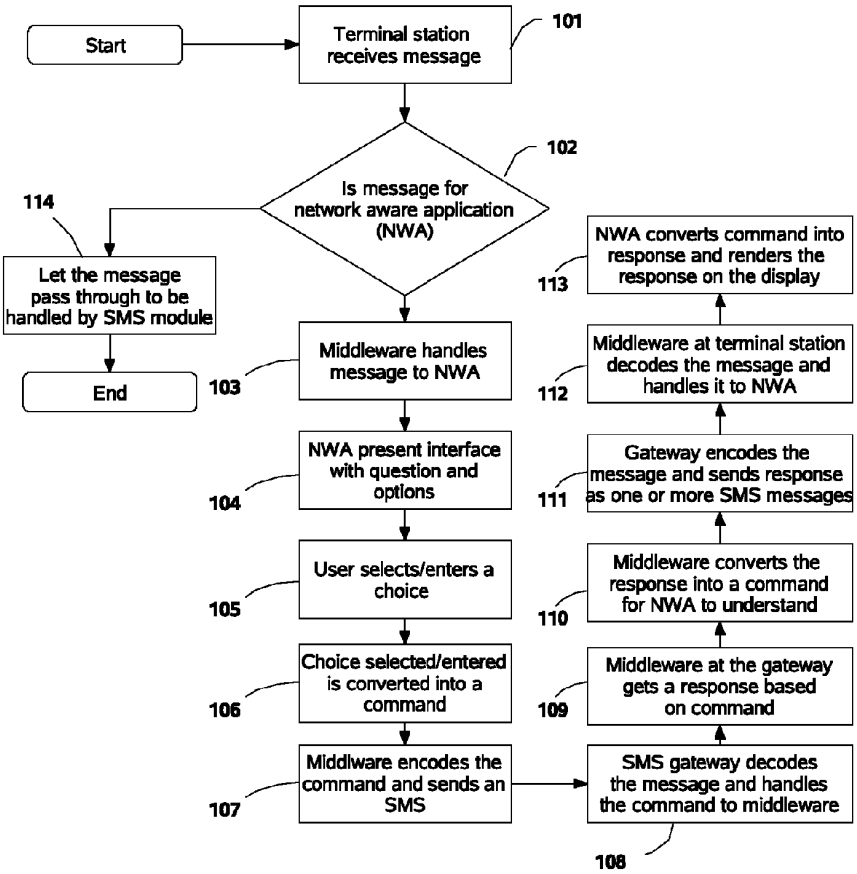
* cited by examiner

Primary Examiner — Steven Lim
(74) *Attorney, Agent, or Firm* — Lowe Hauptman Ham & Berner LLP

(57) **ABSTRACT**

The present invention provides a method and system to provide network aware applications on a mobile device that can communicate using existing SMS communication channels without resorting to other IP based communication channels that are costlier and are not available on many of the networks.

7 Claims, 9 Drawing Sheets



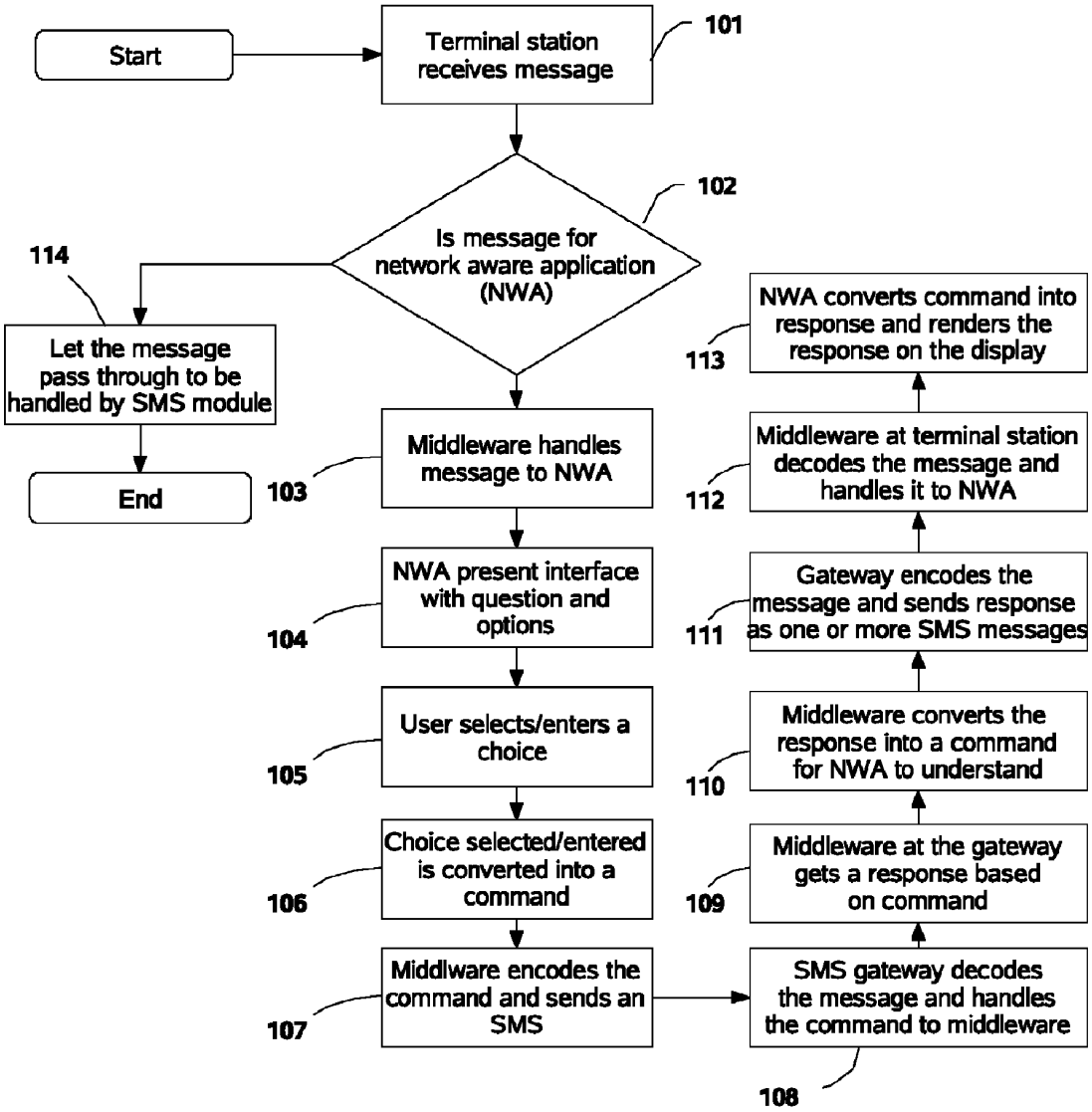

Start
Terminal station receives message
101
Is message for network aware application (NWA)
102
114
Let the message pass through to be handled by SMS module
End
Middleware handles message to NWA
103
NWA present interface with question and options
104
User selects/enters a choice
105
Choice selected/entered is converted into a command
106
Middlware encodes the command and sends an SMS
107
SMS gateway decodes the message and handles the command to middleware
108
Middleware at the gateway gets a response based on command
109
Middleware converts the response into a command for NWA to understand
110
Gateway encodes the message and sends response as one or more SMS messages
111
Middleware at terminal station decodes the message and handles it to NWA
112
NWA converts command into response and renders the response on the display
113

FIG 1

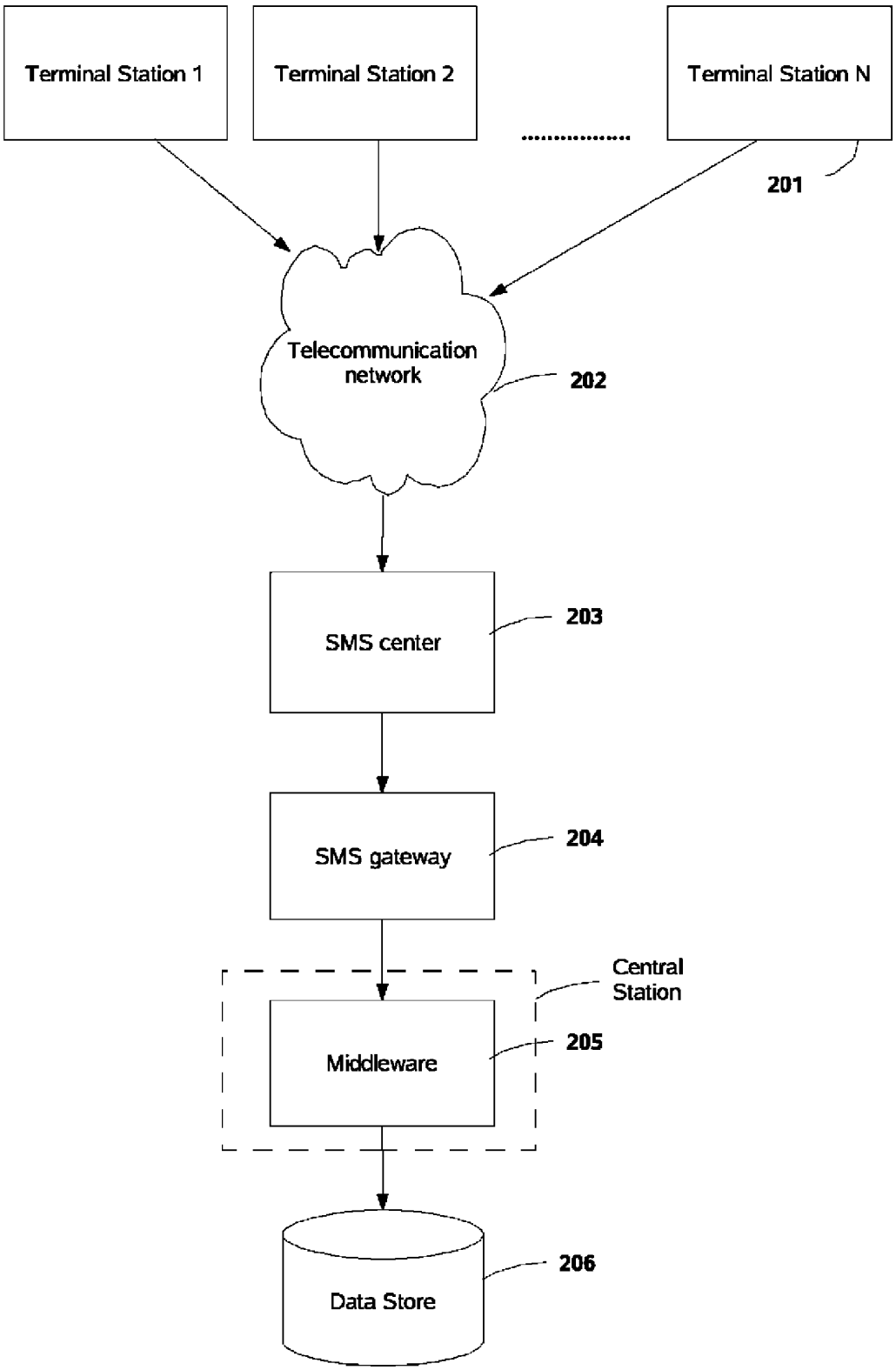

Terminal Station 1
Terminal Station 2
Terminal Station N
201
Telecommunication network
202
SMS center
203
SMS gateway
204
Central Station
Middleware
205
Data Store
206

FIG 2

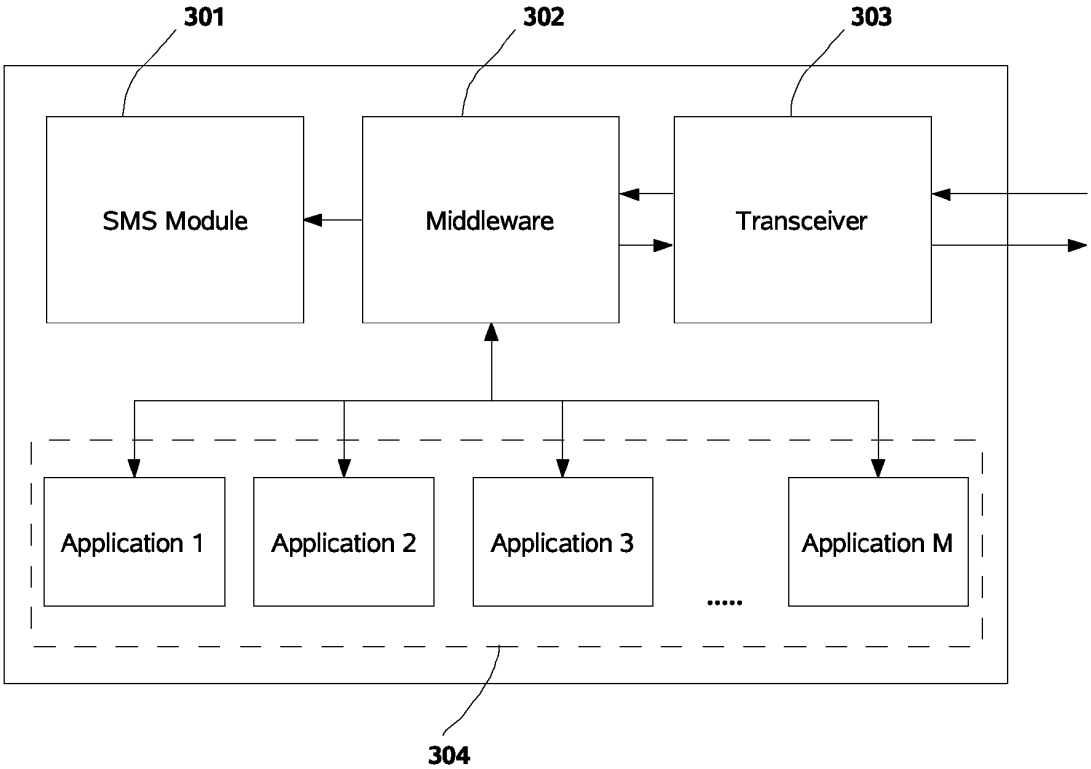

301
302
303
SMS Module
Middleware
Transceiver
Application 1
Application 2
Application 3
.....
Application M
304

FIG 3

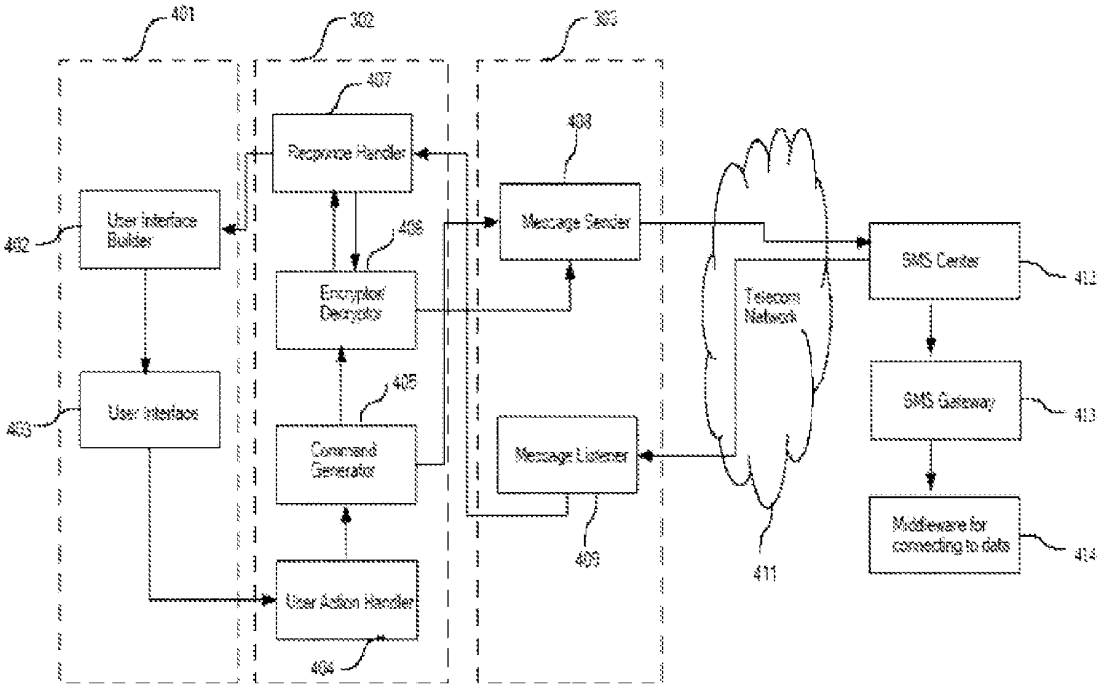

401
302
303
407
Response Handler
408
Message Sender
402
User Interface Builder
406
Encryptor/ Decryptor
Telecom Network
SMS Center
412
405
SMS Gateway
413
403
User Interface
Command Generator
Message Listener
Middleware for connecting to data
414
409
411
User Action Handler
404

FIG 4

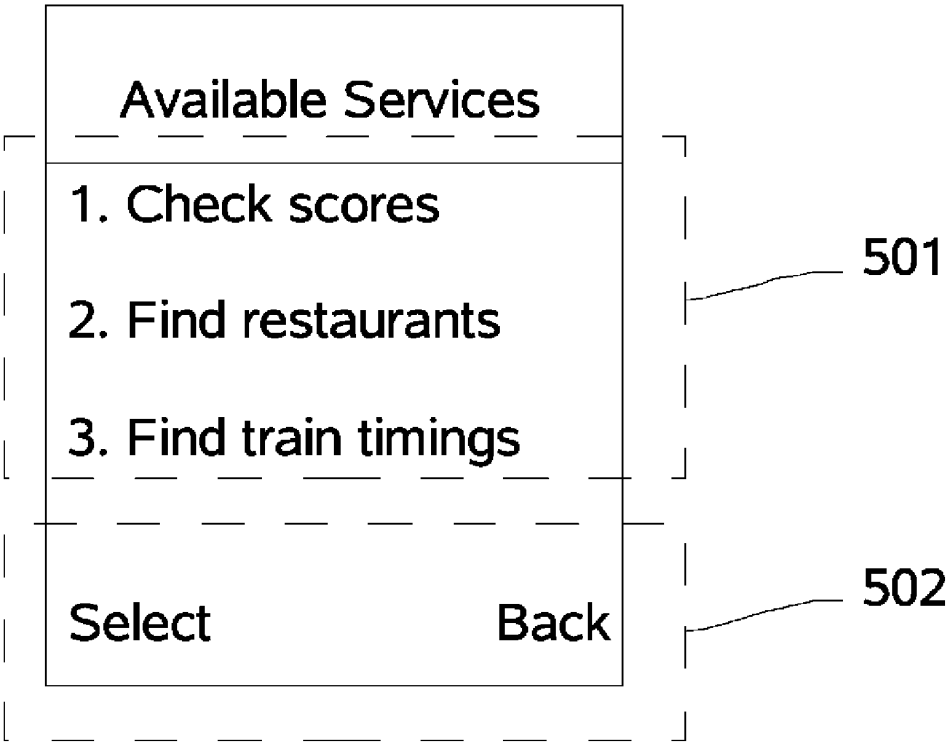

Available Services
1. Check scores
2. Find restaurants
3. Find train timings
Select
Back
501
502

Fig 5A

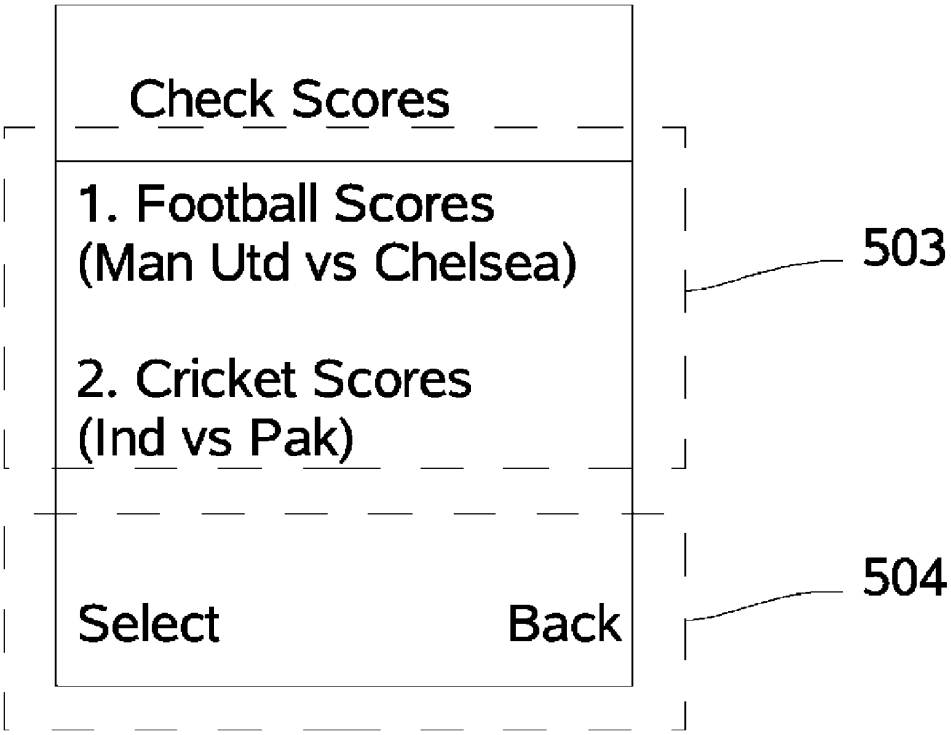

Check Scores
1. Football Scores
(Man Utd vs Chelsea)
2. Cricket Scores
(Ind vs Pak)
Select
Back
503
504

FIG 5B

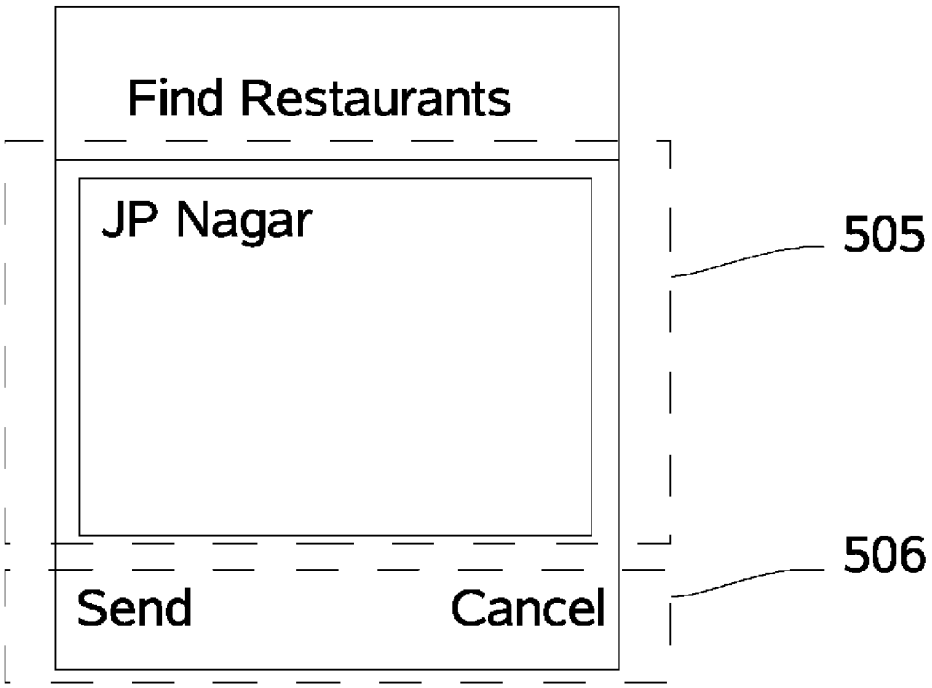

Find Restaurants
JP Nagar
505
506
Send
Cancel

FIG 5C

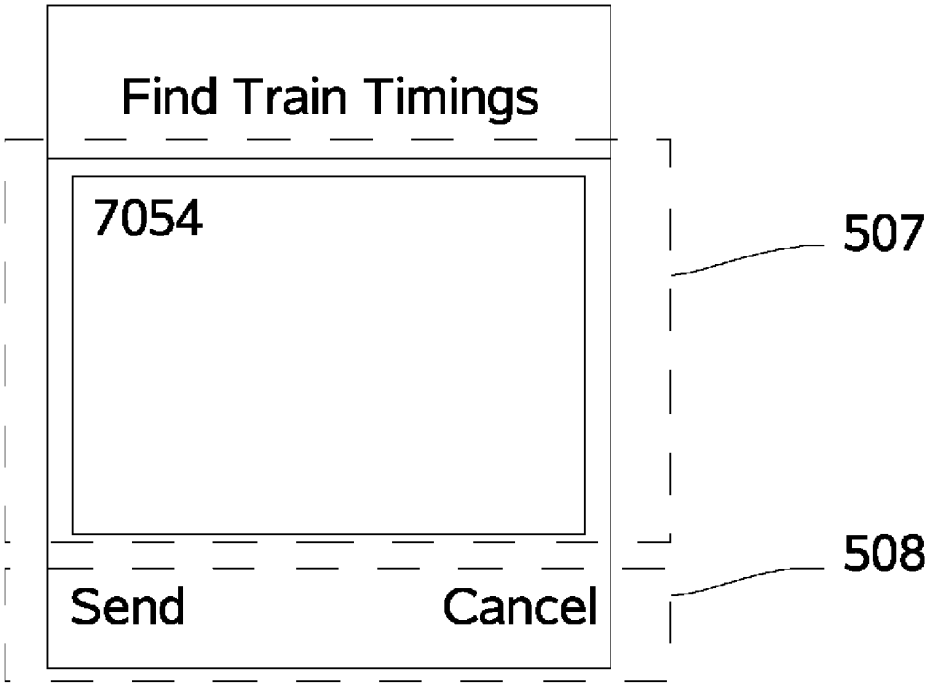

Find Train Timings
7054
507
508
Send
Cancel

FIG 5D