Memória Descritiva

Patentes de Invenção

1	Informação do Requerente		
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A   TÍTULO DA INVENÇÃO

This invention has the codename of "SMSP" with the meaning of "Short Message Service Proxy" and as the name indicates, the idea behind it is forwarding SMS but in a different way.

B   CAMPO TÉCNICO A QUE SE REFERE A INVENÇÃO

The sector or technical field that this invention applies is to Informatics Sciences, more specifically to the field of communications via SMS, not only using mobile devices, but also other kind of computers.

C   ESTADO DA TÉCNICA

The approach described in this document enables people using old mobile phone without the capacity to install smartphone applications for sending free sms to benefit from that service.

SYSTEM AND METHOD FOR PROVIDING A PROXY IN A SHORT MESSAGE SERVICE (SMS) ENVIRONMENT
http://worldwide.espacenet.com/publicationDetails/biblio?
CC=WO&NR=2006093841A2&KC=A2&FT=D&ND=5&date=20060908&DB=worldwide.espacenet.com&locale=en_EP

METHODS, SYSTEMS, AND COMPUTER READABLE MEDIA FOR SHORT MESSAGE SERVICE (SMS) FORWARDING
http://worldwide.espacenet.com/publicationDetails/biblio?

CC=WO&NR=2010105043A2&KC=A2&FT=D&ND=5&date=20100916&DB=worldwide.espacenet.com&locale=en
A METHOD FOR THE FORWARDING OF SMS IN A MOBILE COMMUNICATION SYSTEM
http://worldwide.espacenet.com/publicationDetails/biblio?
DB=worldwide.espacenet.com&II=14&ND=3&adjacent=true&locale=en_EP&FT=D&date=20081204&CC=WO&NR=2008146097A1
&KC=A1

Proxy for extending IMS services to mobile terminals with SMS capabilities
http://worldwide.espacenet.com/publicationDetails/biblio?
CC=US&NR=2007156909A1&KC=A1&FT=D&ND=8&date=20070705&DB=worldwide.espacenet.com&locale=en_EP

D   VANTAGENS DA INVENÇÃO

This document is about a new way of redirecting SMS. A new way that creates the possibility to offer low cost or even free SMS.

There are already some similar solutions, but are only applicable to smartphones. This other solutions don't work for people using old mobile phones that are unable to use the current available softwares for sending free SMS.

The services available for smartphones work the following ways:

1. The sender have their application installed in the mobile phone and the receiver also has it installed:

   1. The sender presses the send button, the SMS is saved in an online database and the receiver can read the SMS from that same database.

   This way the SMS is free for the service provider and for the user, because isn't really an SMS. Is text saved in a database.

2. The sender have the application installed and the receiver has an old mobile phone or doesn't have the application installed:

   1. The sender presses the send button, the SMS is saved in an online database, a server using GSM Modem's to send SMS, and the SMS is sent to the receiver from one of the GSM Modem's.

   2. The sender presses the send button, the SMS is saved in the database of the SMS provider via IP communication and the SMS provider or Operator sends the SMS using their own SMS Centers (SMSC) to the receiver.

   This way the SMS if not free, it's paid to the GSM Modem SIM card Operator or directly to the Operator.

Now let's think, and if the user doesn't have the Application installed? Thats right, he can't use the service and will never benefit from the solution, that is the 3 point missing the current systems.

This document is not about that, this document is about the people using old phones that can not benefit from the currently available services for low cost or even free text messaging.
The solution described here can offer to everyone using any kind of mobile phone what is only possible to smartphone users.

New lets see how it is possible to a person using an old mobile phone to send and SMS using the solution provided in this document:

3. The sender named John Smith has an old mobile phone and can only send SMS via GSM network. He creates an account in the website offering this solution and the website provides a phone number for the user to send the SMS to.

   Next the sender will save some contacts (number and keyword for each one of them)

   1. The sender writes "351912345678 Hey Joe, how are you?" and sends this message to the number the website provided. The GSM Modem that receives the SMS saves it in the private global online database. The Server that manages the GSM Modems and SMS's will transform the sending sms into: "John Smith: Hey Joe, how are you?", assigns a GSM Modem to send it and finally the GSM Modem assigned will send the treated SMS to the number the sender wrote in first place (351912345678).

   2. The sender writes "joe Hey Joe, how are you?" and sends this message to the number the website provided. The GSM Modem that receives the SMS saves it in the private global online database. The Server that manages the GSM Modems and the SMS's will transform the sms into: "John Smith: Hey Joe, how are you?" assigns a GSM Modem to send it and finally the GSM Modem assigned will send the treated to the number of the contact with the filter "joe" from the sender account.

This is just a simple example, can be used keywords for groups of contacts using different Operators and the Main Server using the Country Code and the Operator Code of the number will find out witch GSM Modem has the same Operator SIM card and assign each SMS to the GSM Modem that can provide the lower cost to the usage of GSM traffic.

The real life application that are can be done using this idea are immense.

Having in account the prices that Mobile Operators charge for SMS traffic in their network to normal SIM cards Tariffs and the prices the charge for Enterprise Tariffs, we can conclude that we can benefit a lot from using multiple GSM Modems with normal Tariffs to do what they offer on Enterprise Tariffs.

Now, lets see how to replicate what they offer in Enterprise Tariffs using GSM Modems with normal Tariffs SIM cards in the following example:

	Description	N. Operators	SMS p/month	Price p/month
Enterprise Tariff	SMS for all the Operators at the same price using a direct connection to Operators SMSC.	**3**	**8000 SMS**	**300€**
Simple Solution	Having one GSM Modem with normal Tariff (+/- 1500 free sms to the same operator per week) for each Country Operator and each GSM Modem only sends SMS for it's SIM card Operator	**3**	(1500 sms * 3 modems * 4 weeks = 18000) **18000 SMS**	(15€ * 3 modems = 45) **45€**

Table 1: Tariff Comparison

You can see that there is a huge difference and a really big benefit for using GSM Modems. This simple solution can offer more than the double of the SMS for less than half of the price.

Now that you know the benefits of using this simple solution, how about using this huge amount of SMS for people to send it using the idea of proxying SMS from Mobile Phone to Server to Mobile Phone?
It is a huge amount of GSM network traffic for a really small price.

E   EXPLICAÇÃO DA INVENÇÃO

There are already some solutions for forwarding SMS, but none of them meet all the needs of the market. This current available solutions have a smartphone based application to preform this "SMS forward", but isn't really an SMS forwarding service. They are most of the cases message forwarding, because the message isn't sent via GSM network.

The way this applications work is very simple and easy to understand. You install an application in your smartphone that enables you to write and read messages.

Their base functionality is to send a message to another smartphone using that application, and the way this works is the following: The user writes a message, selects the destination and presses the Send button. The message is stored in an online database and can be almost Instantly viewed by the receiver using the same application provided.

The next functionally that some of this SMS solutions provide is to send an SMS to a mobile phone not using the application. And there are two possible ways they can make the job of sending SMS to a mobile phone done. The first way is to have a deal with a Mobile Operator that enables them to have a direct line to the Operator's SMS Center and when the user sends the SMS using the smartphone application, the message is stored in the database of the provider of the solution, then saved to the Operator's SMS Center and then the Operator will send the text message via GSM network. The second way of doing this is using a computer with GSM Modems attached to them and by doing this, it is possible to send the SMS via GSM network by the GSM Modems to the receiver of the SMS that doesn't have the smartphone application.

But there is one need of the market that this solutions doesn't provide solution. The need is the missing connection, and if the person that wants to send the SMS doesn't have the smartphone application installed or this person doesn't have a smartphone and wants to send an SMS?
The idea presented in this document provide a simple way of doing this, and anyone that has a mobile phone can send SMS using the solution here by this invention.

This system architecture has tree types of Server, we will take a look at the system architecture in Figure 1: SMSP - Main Frame.

SMSP - Main Frame
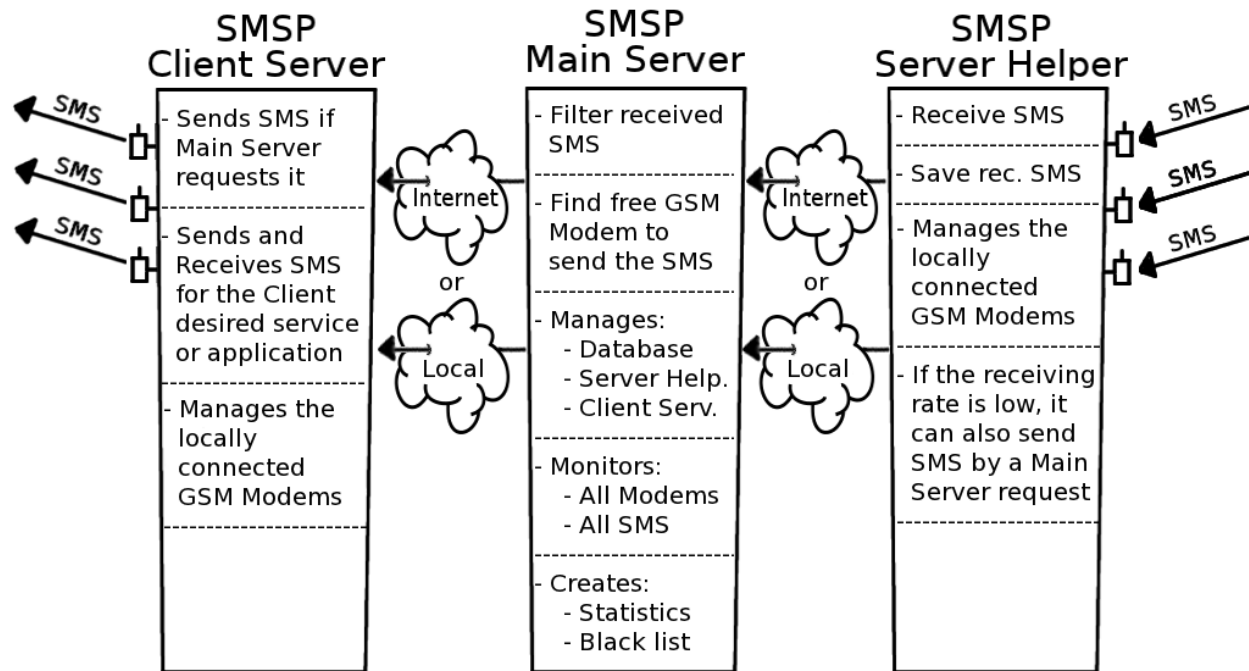
SMSP Server Helper

This server has GSM Modems attached to it and its job is to receive SMS sent by the users and save them into the Database.

SMSP Main Server

This server is the manager and the most important part of the puzzle. It's SMSP Main Server job to treat the new received SMS saved in the database, treat them and find one of the available GSM Modem attached to a SMSP Client Server to send the SMS to the destination.

SMSP Client Server

This server has GSM Modems attached to it and its job is to send SMS that as been assigned to the GSM Modems attached to it.
(Optional: They can also be part of other SMS application, and there comes the name "Client Server").

Let's take a look to an actual SMS example (Figure 2: SMSP – The SMS Path).

The user already has an account on the this SMS Service provider using he's mobile phone number and name ("John Crane") and also he already has the number of a SIM Card of a GSM Modem attached to an SMSP Server helper. The user also has a list of contacts (keywords and number) saved in he's account.

The user types a message with the following text: "jack Hey dude! How are you?". He sends the SMS to the SMSP Server Helper GSM Modem. The SMS is read by the Modem and saved in the online database. The SMSP Main Server reads the message from the database and separates the keyword from the message: keyword = "jack", message = "Hey dude! How are you". Then the SMSP Main Server will check if the keyword has a match in the user contacts, it gets the number and name of the contact that matches the keyword. Now that the SMSP Main Server has the name and number of the contact, it will restructure the message using the name of the user as the sender and the message with out the keyword: "John Crane: Hey dude! How are you", syntax: "<User name>: <Message>". Now that the message has a new structure, the SMSP Main Server will find an available GSM Modem
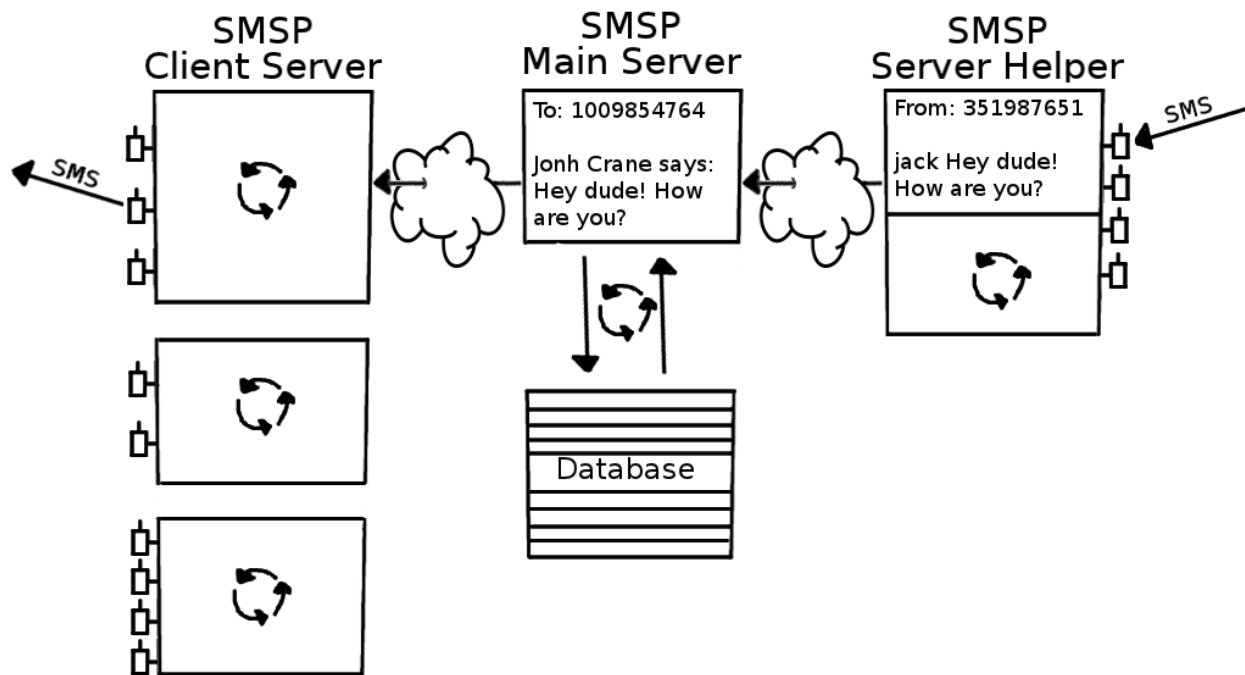
Figure 2: SMSP - The SMS Path

connected to a SMSP Client Server that has a SIM card from the same Operator as the destination to be send the message. The message is assigned, then sent by the GSM Modem to the destination and after that updated in the database as Sent SMS.

Another way to send SMS via SMS Proxy is instead of using a keyword of a contact, the user also can use the number itself, starting by the country code, followed by the operator code and then the number.
Message Example: "351923456789 Hello, how are you?".

The invention explained in this document also offers a really simple way to send SMS to groups of contacts. The user can save groups of contacts in is account on the website of the SMS Proxy provider and using a simple keyword can mean send an SMS for all contacts in that group.
Message Example: "mygroup Hello my friends, Friday we will have a meeting at 16pm at the laboratory".
The SMSP Main Server will find different GSM Modems to send the different contacts of the "mygroup" based on the contacts Operator and the GSM Modem is free to send SMS or is already sending one.

Now let's see how the SMSP Main Server finds out the Operator of the user contact.

Every mobile phone in the world can be separated in 3 different parts, country code, operator code and the SIM card number. For example, a Portuguese number: +351923456789.

Explanation:

+351	Country Code (351 = Portugal)
92	Mobile Operator Code (92 = TMN)
3456789	The SIM card number

Using this as a base, the only thing needed for the SMSP Main Server to find out the operator of the contact is a table of all country codes in the world and another connected table where every Mobile Operator code of every Country is saved.

By separating the number into different parts it is simple to find out what is the Operator of any number and by doing this we can use the different GSM Modems for different Mobile Operators getting the benefit of the free SMS that this Operators offer for sending SMS to other numbers using this Operator.
It is a huge amount of GSM network traffic for a really small price (Table 1: Tariff Comparison).

SMSP system architecture detailed explanation (Figure 1: SMSP – Main Frame):

SMSP Server Helper
The main purpose of this server is to receive SMS and store them in the online database. It also manages the attached GSM Modems and if the receiving SMS rate is low it can also send SMS.

SMSP Main Server
This is the most important and intelligent component of this invention. This server doesn't have any GSM Modem attached to it, but it will monitor all the GSM Modems attached to all the other servers. It will also create statistics and blacklist of number (SPAM, etc.).
This server also keeps track of everything that is happening in all the other servers and make database cleaning to better performance of the entire system.
The Main Server is always keeping track of the received SMS to almost instantly treat them and find an Operator compatible GSM Modem to send them to the destination.

SMSP Client Server
This server has an optional role to play in the hole system. In addition to Send the SMS assigned to the attached GSM Modems it can also provide a simple way to create an SMS Gateway to other purposes.

Concluding, this is a very simple idea that can make a lot of difference.

F   UM OU MAIS EXEMPLOS DE FORMAS DE REALIZAÇÃO DA INVENÇÃO

One of the best use cases of the invention is to combine this SMS Proxy system with the existing smartphone application that are making living based in advertising.

Another use case of this idea is to offer a faster way for people to communicate, inside business, universities, etc. Using a single keyword to send an SMS to a group is an incredibly great and simple way to set a meeting or a presentation or even an event. It is much more efficient to send a text message than an e-mail to tell something important to people.

There is also the opportunity to use this invention to get people more interested in a website, and by doing this it will create a much more compelling experience to the user than creating more network traffic and also popularity in the younger audience.

G   RESUMO

This document will explain you how to forward SMS in a way you have never seen before. It will also teach you how to benefit more from creating an SMS Application using GSM Modems and normal tariffs than from using a Business Plan of an Operator also a simple explanation of how provide a service to enable users to send SMS to Numbers, Contacts or Groups of Contacts for Free even in older mobile phones not capable of using the smartphones applications to do that.

I   CARACTERÍSTICAS TÉCNICAS ESSENCIAIS

Mobile phone, Computer, Sound waves.