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A Mobile Commerce Model for Automobile Rescue Services

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1. Introduction

The automobile is usually composed by four components of automobile engines, chassis, body and the electrical equipments. The spare parts of it reach over ten thousand, the reason of the initiation breakdown is numerous, therefore the duty of automobile rescue services is not to repair automobiles, but to restore the ability of safe driving. Generally speaking, the content of automobile rescue services include: (1) some breakdown, which could be restored within half an hour and in the conditions of not-for-pieces and not to disintegrate ;(2) some ordinary rescue services such as sending oil, replacing spare tire and unlock services under the permission of law; (3) The specialized automobiles towing services in the condition that the automobiles' normal capacity cannot be restored at the scene (Liyi Zhang & Qihua Liu, 2008) .

With the rapid economy development of China, the total number of society vehicles has increased dramatically. From the information of the Ministry of Public Security of China, as the end of September 2007, the total number of personal vehicles is 118129662. It has increased by 7.22% comparing with the end of 2006. Among them, private automobiles are accounted for 61.25% of the total number of automobiles, private motorcycles are accounted for 97.08% of the total number of motorcycles; private trailers are accounted for 23.48% of the total number of trailers. The information demonstrated that business vehicles are accounted for 9.21% of the total number of vehicles. It has the growth of 8.82% comparing with the end of 2006.

With the rapid development of the automobile industry, the demand for automobile rescue services has also become increasingly strong. The CCTV reported the total number of China private automobiles are 13,000,000 in November 2005. According to the empirical statistics, 10% vehicles will need rescue services . So, we can estimate that the number of the automobile rescue services is 1.3 million every year. If an automobile rescue services will cost 150 Yuan by an average, the annual market share of automobile rescue services are 195,000,000 Yuan(Lin Deng, 2006).

But there are still many problems in China's automobile rescue services. The article firstly analyses and compares the models of automobile rescue services both at home and abroad, and then builds an e-commerce site of automobile rescue services—995 Automobiles Rescue Network.(995ARN), and analyze its mobile commerce solution. The article firstly analyses

and compares the models of automobile rescue services both at home and abroad, and then builds an e-commerce site of automobile rescue services—995 Automobiles Rescue Network.(995ARN), and at last analyze its mobile commerce solution. This article creatively integrates some technologies of mobile commerce such as LBS, SMS and Electronic Map and SNS in automobiles rescue service, reflecting a certain amount of advanced and innovative.

2. The analysis of automobile rescue market at home and abroad

2.1 The analysis of foreign automobile rescue market

Automobile rescue markets have highly developed in some western countries. International Automobile Travel Alliance (AIT) already has 138 members club. Its headquarters locate in Switzerland, is an Automobile Club Organization, which is mainly engaged in rescue services. It is divided into North, South, Europe and Asia-Pacific, has 200 million members. It has a unified telephone number, membership-based chain brand and standard services (Liyi Zhang & Qihua Liu, 2008).

Germany's automobile maintenance club (ADAC), which is managed by ministry of communications, is responsible for the maintenance work of vehicles. It has set up some filiations in some Germany's cities, European countries and some Asian countries.

There are also a number of other departments actively involved in the automobile rescue services, such as Australian Automobile Association (NRMA), some foreign insurance companies, telecommunications operators (Nextel, Onstar and the SUNCOM companies of ATT), automobile manufacturing enterprises and highway departments. But, different organizations provide different services. For example, some insurance companies provide short-term Motorists travel insurance services; transnational automobile manufacturer enterprises are implementing the plan of automobile emergency rescue, to provide rescue services for new automobiles at appointed time or mileage.

Overall, foreign vehicle rescue and maintenance services have become a relatively perfect service system, and the efficiency of rescue services is more efficient. If the owner of automobile ask for help under steam, rescue vehicles can be arrived at the scene within half an hour, and provide rescue services for member. Foreign automobile rescue companies all pay high attention on rescue effect and user's satisfaction. They not only regularly launch market surveys and evaluation, but also seriously accept customer complaints. Each year, they all hire professional consultant firm to evaluate the effect of rescue, so that can constantly improve the service system and the level of services.

2.2 The analysis of domestic automobile rescue market

In recent years, some provinces and municipalities have been carrying out automobile rescue services. Among them, some offices also formed the network of automobile rescue. The work of automobile rescue services has achieved positive effects in general. There are four automobile rescue models in china. Those are Member model, bidding model, enterprises construction model .

2.2.1 Membership model

The Hebei province is the representation of member model. The Hebei Province Communications Department has launched the building work of automobile rescue

network in 1998. In 2006, the Hebei Province automobile rescue network (HARN) is formally established.

The HARN is constituted by Hebei Province and every city's automobile rescue center, some automobile rescue companies and owners of automobile under the circumstances of agreeing to fulfill a contractual obligation of the constitution of HARN and enjoying corresponding power. The network will use uniform operation model and corporate image to serve the overwhelming majority of automobile units and individuals. Among them, the companies are intitled as "net"; the individuals are intitled as "member".

Now, the HARN has used uniform telephone number. It is 1019122. It has produced good results.

2.2.2 Bidding model

The representation of bidding model is Liaoning province. Bidding model is that the local government adopt bidding scheme to fix on member so that to set up the rescue network. By the end of 2004, Liaoning Province have established municipal vehicle rescue service centers, and used uniform telephone number to provide service. In 2004, the total number of automobile rescue services is more than 75,000 times, and the rescue work achieves good benefit.

2.2.3 Enterprises construction model

Enterprises construction model is that some enterprises through a lot of business cooperation to set up a club such as Beijing Mainland Automobile Club, Shanghai Anji Automobile Club and SUyou Automobile Club. They all have rescue equipment and set up mobile rescue team. But they always focus on providing services for member; the item of services also is relatively simple. The representation of the model is UAA.

United Automobile Association (UAA), founded in March 2005 and headquartered in Beijing, is a foreign invested membership based company. By incorporating the successful experiences of international automobile service industry, as well as utilizing the Internet and CRM-integrated call center technology, the company provides automobile owners and drivers nationwide with efficient, flexible and competitive services, including full-range automobile and travel-related services such as automobile rescue, auto insurance, auto repairs, hotel accommodations, airline tickets and map guides, etc.

2.2.4 Problems

There are other model to provide automobile rescue service such as the intelligent traffic network patterns of Hubei and "11185 automobile rescue network" of Quanzhou city in Fujian province.

Overall, the three rescue model before all have the following problems (Liyi Zhang & Qihua Liu, 2009):

- Not building a transparent supply and demand platform of the rescue services;
- The three rescue models have a clear regional characteristics and different service model.
- In these models, service organizers always can obtain a majority of the rescue profits. So, it objectively has led to the lower customer satisfaction rate of automobile rescue service.

2.2.5 Solutions

In order to solve these problems, the author proposes a new model of the automobile rescue services: E-commerce model.

The so-called E-commerce model is building a transparent platform for the owners of automobile and the repairers. Firstly, the owners of automobile can contact with the system through three ways such as call telephone send messages and Internet. Secondly, the system chooses some suitable repairers to the owners. Thirdly, the repairers can contact the owners. According to the concept, the authors build the 995ARN.

3. The analysis of 995ARN's model

3.1. The framework of 995ARN

The 995ARN is developed by the authors in 2007, which is a third-party automobile rescue service platform. The platform locates in providing the nationwide "one-stop" service platform for the members, is for the purpose of establishing the scientific and standard automobile rescue network, and improving the level of rescue service so that to meet the growing demand of automobile rescue.

The 995ARN's framework is that the automobile rescue platform is the resources deployment center, automobile maintenance service providers is the crunodes, the automobile owners membership is main form, as shown in Fig.1.

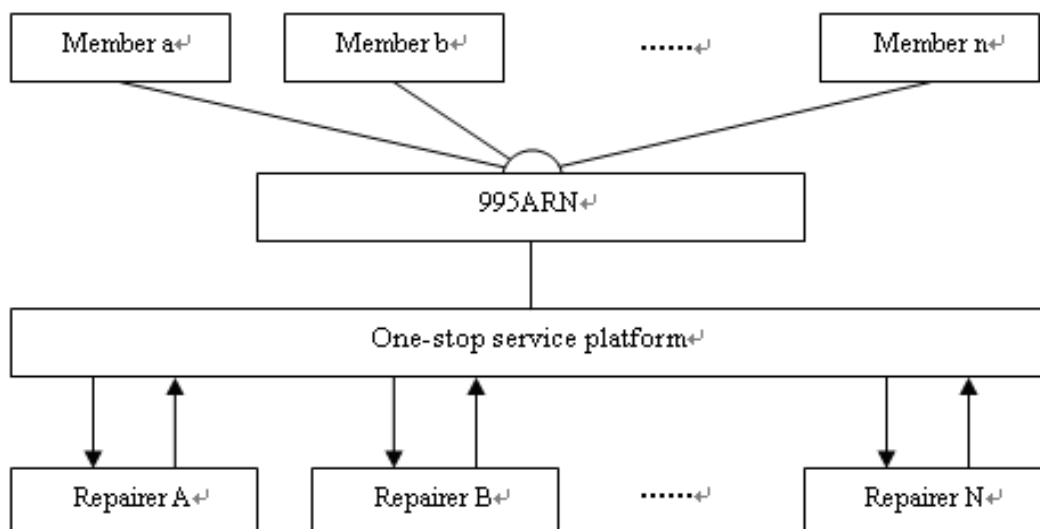


Fig. 1. The framework of 995ARN

3.2. The one-stop service platform in 995ARN

The one-stop service platform in 995ARN is that system through an entrance to provide resources integration services for all members, including automobile rescue, the Internet Shopping Mall, automobile news and forum, as shown in Figure 2.

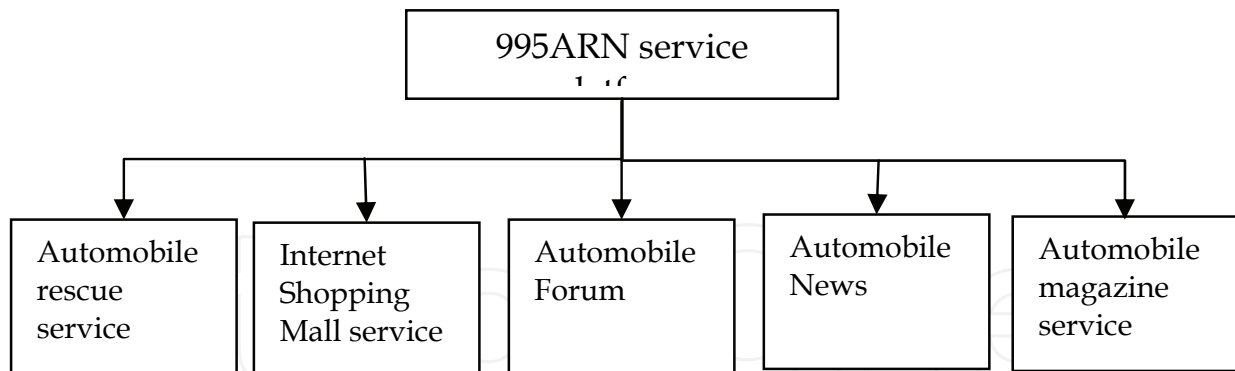


Fig. 2. The components of 995ARN service platform

3.2.1. Automobile rescue service

Automobile rescue service platform is a system using mobile commerce technologies (SMS and Location Based Servers) to provide reasonable match for the member, according to location, the degree of damaging and Rescue Company's rank.

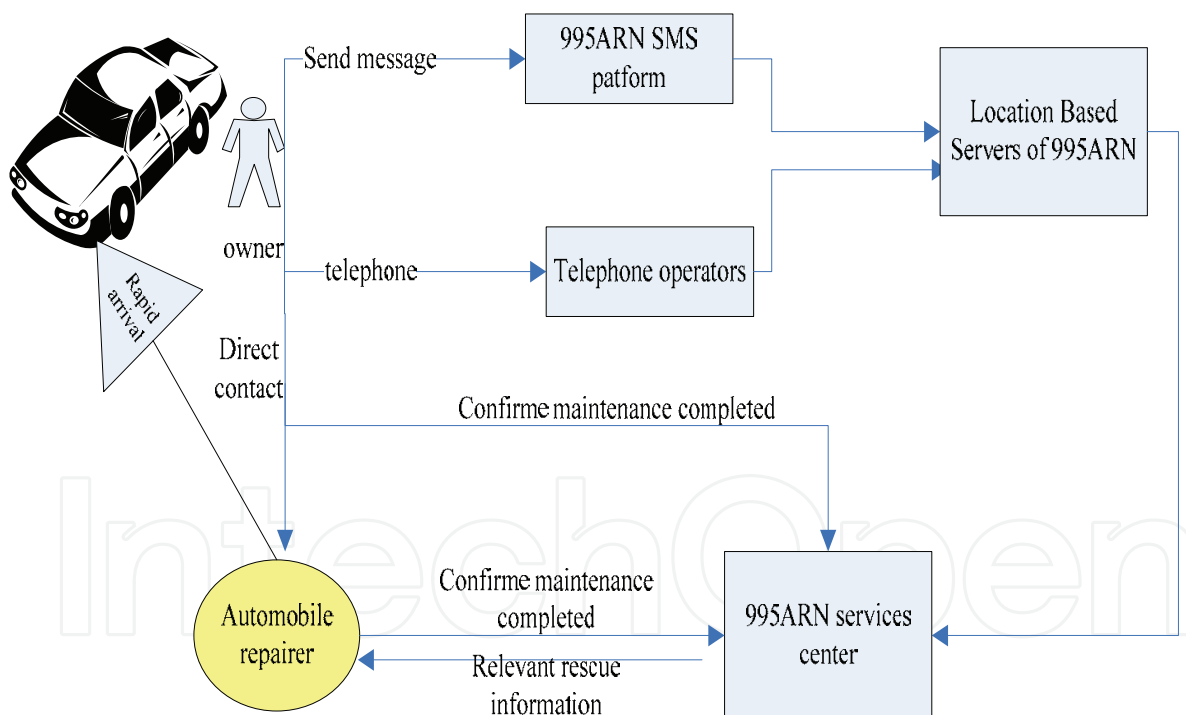


Fig. 3. The process of automobile rescue service in 995ARN

As Figure 3 shows, the process of 995ARN's rescue platform is composed by three ways: send message, call the telephone hot-line and direct contact. If the owner of automobile knows the address and telephone of rescue member, he or she can direct contact the company to obtain service. If he doesn't familiar with the situation of rescue member in the vicinity, he can send messages or call the telephone hot-line to 995ARN, and the system will

provide the information of reasonable rescue member for him. Of course, rescue member and the owners of automobile should feedback the new circumstances to the system after complete the rescue services.

3.2.2. Internet Shopping Mall service

The internet shopping mall service is that system provides a product or service transaction platform for relevant automobile companies such as automobile parts suppliers, automobile repairers, automobile manufacturers, sales of automobiles and automobile beauty service. It can provide the following services:

- Automobile parts transaction service
- Comparison service of new automobile's price
- The second-hand automobile transaction service
- Automobile maintenance service

3.2.3. Automobile Forum

Automobile Forum is a network community, which provides an immediate communication platform for paying members of 995ARN, as shown in Fig.4.

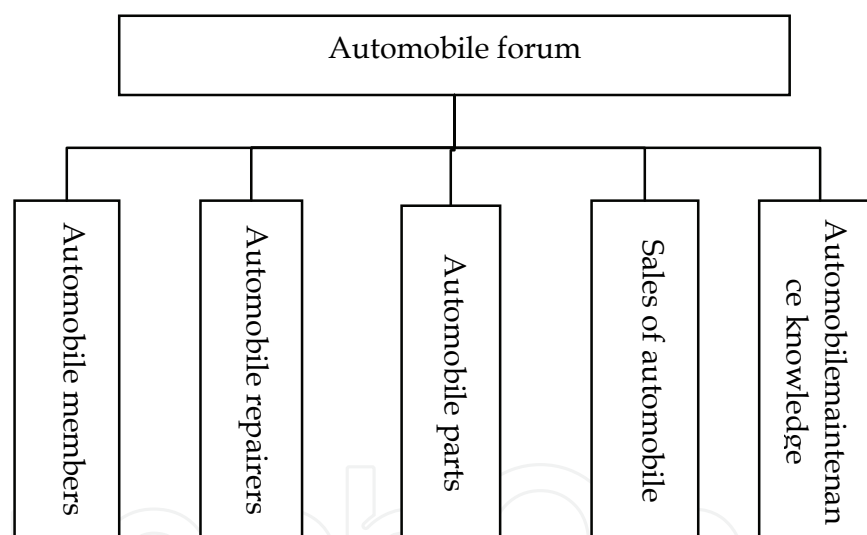


Fig. 4. The components of automobile forum

In addition, users can also establish their own circle of friends according to their own interest, so that can share and transmit information.

3.2.4. Automobile News

995RAN provides some news of new automobile, the second-hand automobile, the auto parts, automobile maintenance and so on for all customers. At the same time, it also provides automobile industry investigation reports, the practical guide service, rescue policies and regulations, correlation technique standard for members of 995RAN.

3.2.5 Automobile magazine service

There are some very exciting rescue stories and automobile news in 995ARN. So, we use some technologies such as data-mining to obtain some useful knowledge of automobile industry from automobile news, rescue stories and automobile forum. Then, we will regularly publish some electronic magazine to members.

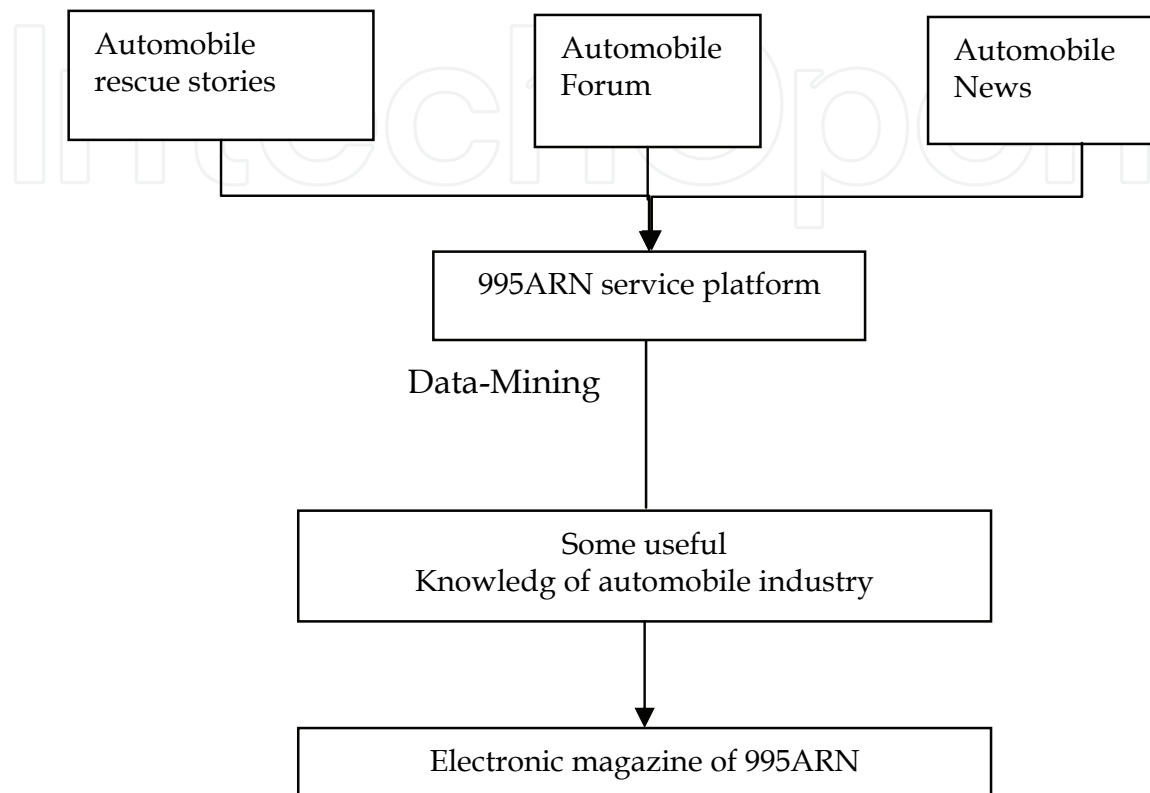


Fig. 5. Automobile magazine of 995ARN

3.3. The members' management of 995ARN

3.3.1 The types of members

995ARN mainly contains three types of Members: Ordinary Members, individual VIP members and industry VIP Members. In order to improve service levels, the system will provide different service permissions to different members types, as shown in Table.1.

Function directory	Ordinary members	Individual VIP members	Industry VIP members
Publish purchasing information	0	0	1
Publish selling information	0	0	1
My consumption points	1	1	0
automobile rescue services	0	1	0
My purchasing history	1	1	1
My selling history	0	0	1
My Collector	1	1	1
Change password	1	1	1
Individual/ Industry Information Maintenance	1	1	1
Integral query	1	1	1

Notes: '0' indicated that they had no authority; '1' indicated that they had authority.

Table 1. The types of members

3.3.2 Members registration

Users can use the following four ways to become the members of 995ARN: Online registration, service point registration, telephone registration and SMS registration.

3.4. Combination of 995ARN and SNS

The combination between 995ARN and SNS is to provide a convenient platform for making friends so that to strengthen communication and cooperation of members.

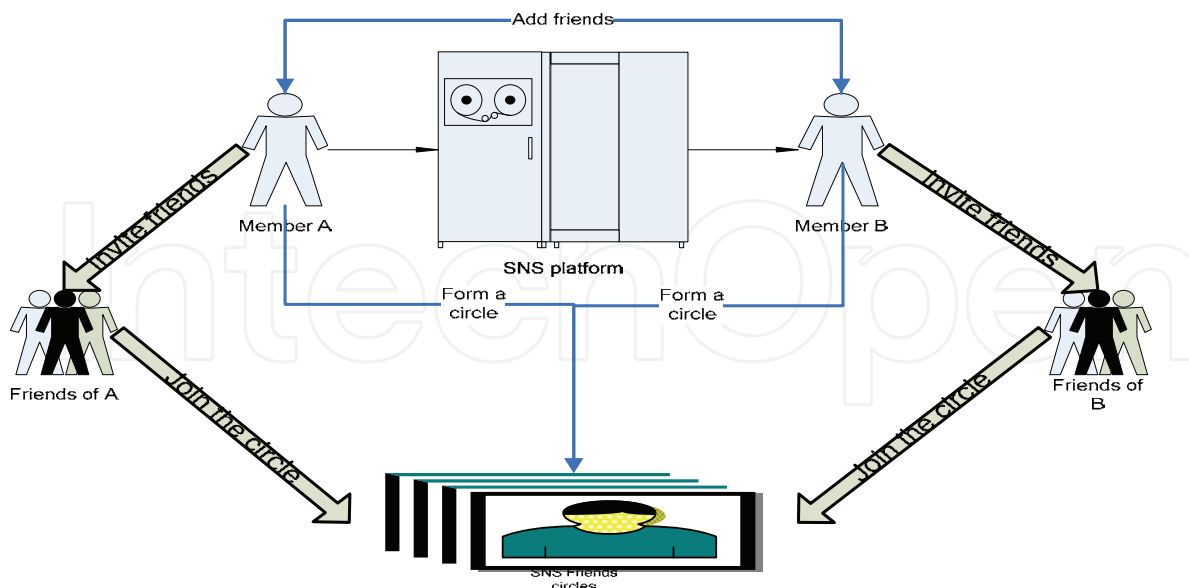


Fig. 6. SNS services model

4. The mobile commerce solution of 995ARN

The mobile commerce solution of 995ARN includes three aspects: GSM-Modem SMS platform, Location Based Servers platform and Electronic Map, as shown in Fig.7.(Liyi Zhang & Qihua Liu, 2009)

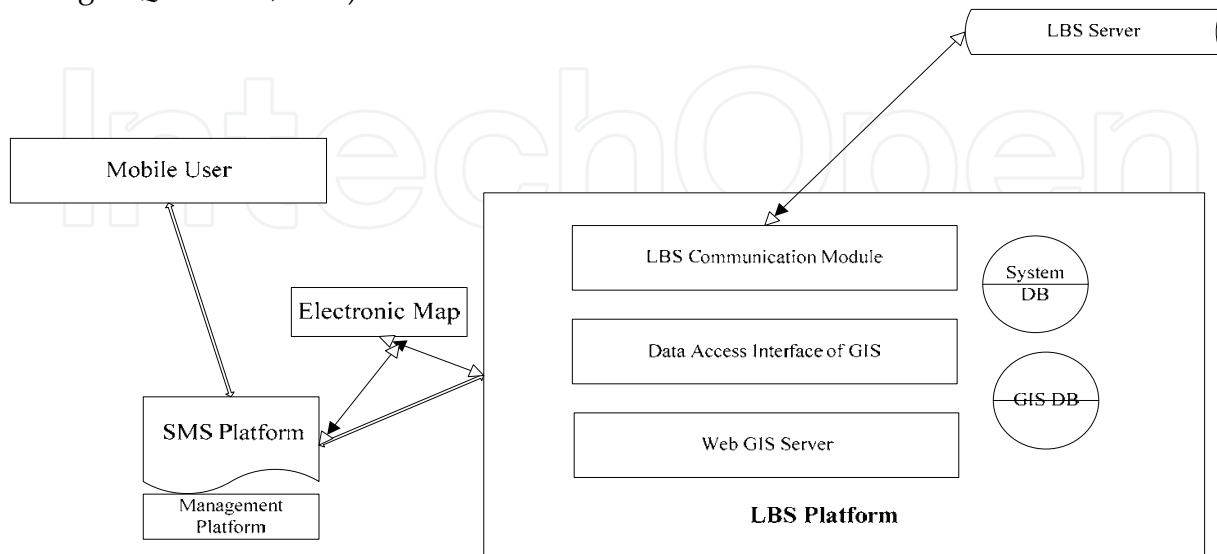


Fig. 7. The mobile commerce solution of 995ARN

4.1. GSM-Modem SMS platform of 995ARN

The Short Message Service (SMS) is based on outof-band message delivery, which permits users to send and receive text messages to/from their mobile phones.

SMS was introduced in 1992 and, since then, has experienced a remarkable success: by the end of 2002, 30 billion messages have been exchanged monthly, and the growth rate has been 0.5 billions per month. This makes SMS to represent about 10% of the revenue of mobile operators.

Considering the particularity of the users of the website, it is inconvenient for the drivers in the way to go online, so 995ARN provides its members with convenient message platform. A small cell phone can be used to send the information of the rescue, information about the member's number, and request of rescue and so on.

The internet can be connected with the SMS Network in three ways.

The first approach is that the internet cooperates with the mobile service operators (SO) directly, and gets a special-service number. Besides, we pay for the services according to a certain accounting method and can acquire some technical support from the mobile SO. This approach often has high stability and quality. However, the related costs are high. Moreover, a relatively high threshold may be set up by the mobile service operator. SP usually adopt this approach to connect with the mobile service operators.

And the second approach is to connect with the mobile SO with the help of the SP. That is the internet being connected to mobile service operators with SP as an intermediary. A SP can provide accesses for more than 100 users. It is bound to affect the communicating quality and the stability must be affected by the SP itself.

The final approach is connecting with the mobile SO with the help of their own SMS modem which supports GSM (Global System for Mobile Communications). With an SMS modem

and a mobile phone SIM card, we can send and receive text messages like using a common mobile phone and needn't any other procedures. Comparing with the above two approaches, this one is more convenient and its stability is relatively higher. The only disadvantage is the limited transmission capacity and speed.

Here, we use equipment named SMS Modem which supports GSM. It can get access to the SMS gateway which is a component of SMS server center through a wireless access.

Considering that 995ARN's requirement is not too high and is usually stable, we choose the third one as the approach to access to the SMS network in our 995ARN's SMS Platform System.

4.1.1. The Framework of 995ARN's SMS Platform

As Fig.8 shows, the framework of 995ARN's SMS platform is composed by three tiers: R/S (Receive /Send) Protocol Control Tier, R/S Control Tier and Application Tier. The R/S Protocol Control Tier is responsible for using some SMPP Message gateway protocol such as CMPP, SGIP, SMGP, SMPP and producing a platform-crossed SMS service. So it can provide a SMS R/S interface for the above Tiers. Here we use the JSMSEngine 2.0.4, which is a popular open-source java package in the internet. The R/S Control Tier is responsible for packaging the messages which need to be sent and unpacking the received SMS formatted text messages from the SMS server centers and routing and choosing an appropriate application for the received messages. Text message package is to package the text messages which include the Cell Phone Numbers, Text Message, SMS Gateway Protocol, SMS Encoding, etc in accordance with the requirements of the R/S interface format and then send them to the R/S Protocol Control Tier whose duty is to send the text message to the SMS server center. The third Tier - the Application Tier has to analyze the messages and then choose a certain application unit to deal with and respond to them. The Application Tier is mainly dealing with the content of the text message and the operation of receiving and the sending of the text message means a black-box to the Application Tier (Yadong Lang & Juan Wu, 2004).

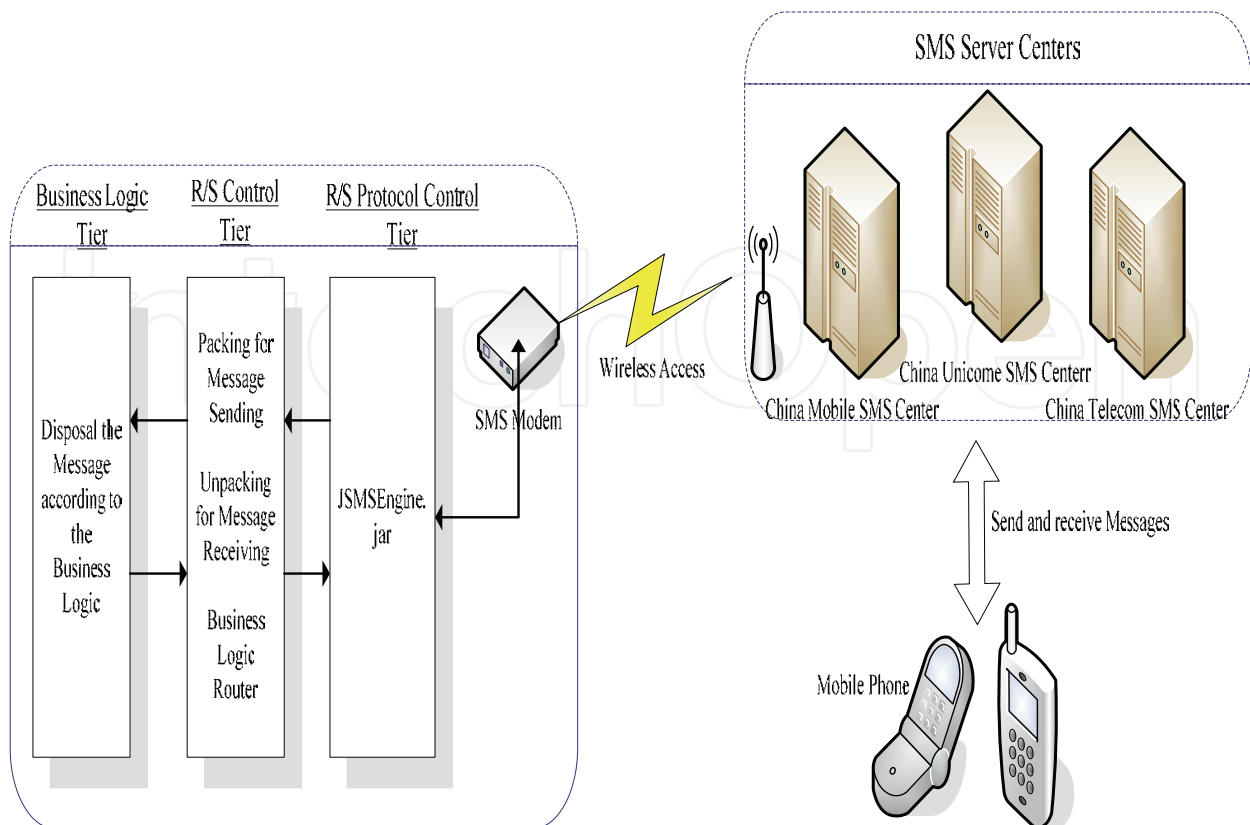


Fig. 8. the model of GSM-Modem

4.1.2. The Design of R/S Control Tier

R/S Control Tier has three tasks: sending text messages, receiving text messages and application routing. Moreover, necessary log document must be written in. Sending and receiving text messages are both communicating operations, while the writing of log is the database operation and the application routing is WEB operation. Three independent threads are designed to take charges of these three functional operations. And we have also set two text-message queues to manager the text messages. The structure of R/S Control Tier is shown as Fig.6.

R/S Control Tier is a gateway communication Tier which takes responsibility to maintain a connection to the gateway, send messages to the gateway, and receive messages from the gateway and send them to Message Receiver Queue.

Message Sender Queue and Message Receiver Queue are two Queues which see to the message management.

Application Router takes responsibility to send text messages to the related application.

Logger Thread is log-writing programs which fetches text messages from the message queues, and then write in the log.

Sender Thread is a thread program which submits text messages to R/S Control Tier. The SMS gateway protocol is asynchronous, however, in most of the time, a synchronous one is needed which means that we have to know whether the sending is successful. Therefore, Sender Thread always provides a method to keep synchronous. After sending a text

message, Sender Thread will wait for the result until it is notice that the message has been send successfully or not.

Receiver Thread is a thread program which sees to receive the text messages. It fetches the text messages from Message Receiver Queue and then delivers the text messages to different application routers according to the contents of the text messages (Qi Zhu, 2005).

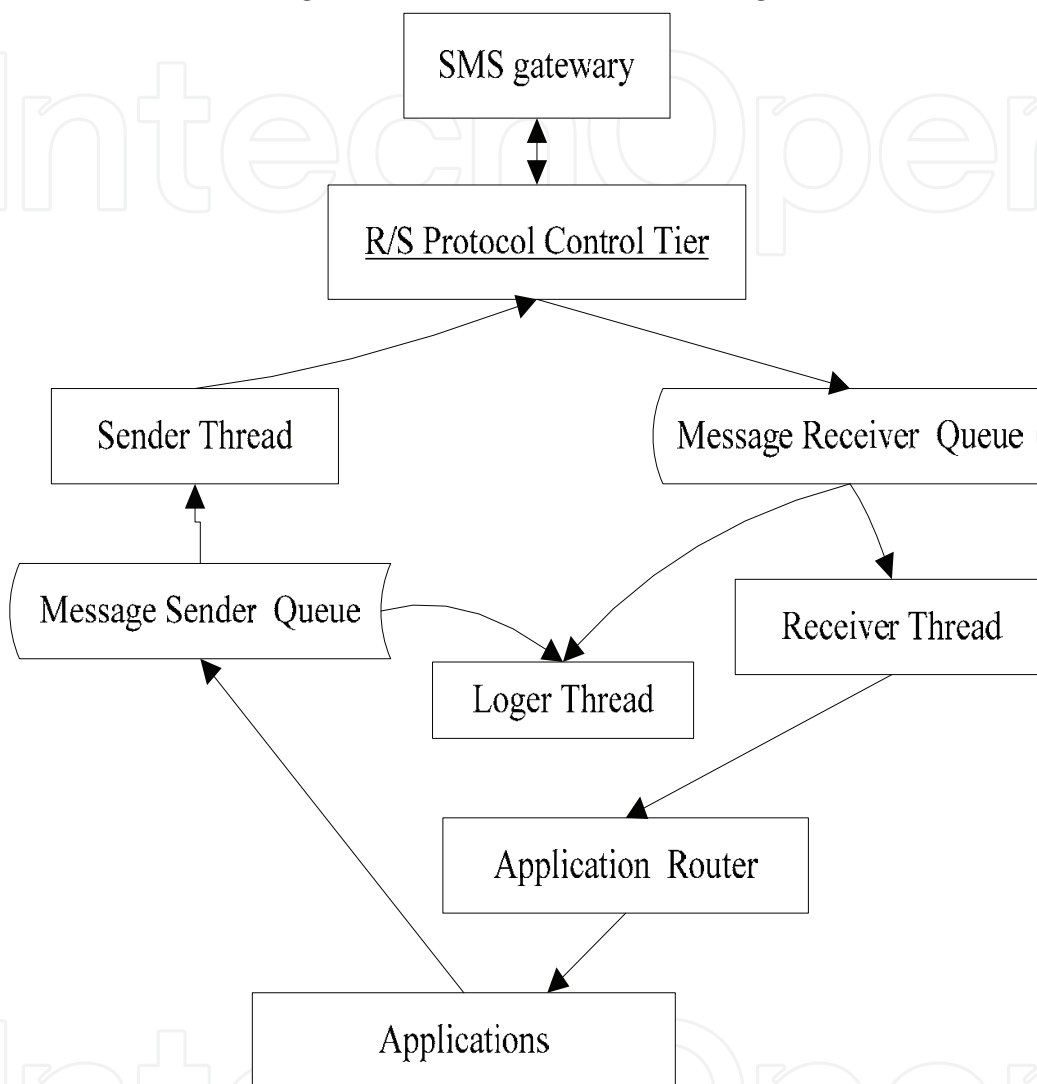


Fig. 9. Structure of the R/S Control Tier

The data structure of text message class and the queue algorithm are described as follows. The queue is designed as a linked list which uses "last Node" as a reference variable. (Qi Zhu, 2005)

```

class MessageBean
{
  // definition of MessageBean
  private String cellPhoneNumbers;
  private String textMessage;
  public MessageBean(String cellPhoneNumbers, String textMessage){
    this.cellPhoneNumbers = cellPhoneNumbers;
  }
}
  
```

```

        this.textMessage = textMessage;
    }
    //get and set methods
} //end class MessageBean
class Node
{
//definition of Node
private MessageBean item;
private Node nextNode;
public Node(MessageBean mewItem){
    item = mewItem;
    nextNode=null;
}
public Node(MessageBean mewItem,Node next){
    item = mewItem;
    nextNode=next;
}
//get and set methods
} //end class Node
public class MessageQueue{
//definition of MessageQueue
private Node lastNode;
public MessageQueue(){
lastNode=null;
} //end structure method MessageQueue
public isEmpty(){
return lastNode==null; //determines whether a queue is empty
}
public enqueue(MessageBean newMessage){
//insert a new node
} //end enqueue
public MessageBean dequeue throws QueueException(){
//retrives and removes the front of the queue
} //end dequeue
public MessageBean peek throws QueueException(){
// retrives the item at the front of the queue
} //end peek
} //end class MessageQueue

```

4.2. Location Based Servers platform of 995ARN

With the development at full speed of mobile Internet and progress constantly, the demand for 4A (anytime, anywhere, anybody, anything) service of spatial information increase day by day, so LBS appears with the combination of wireless information service and spatial information service. LBS refer to offering information service based on geographical location for mobile terminal by utilizing GIS echnology, GPS technology, embedded technology and

wireless network communication technology under mobile environment. It is convenient for user to query present location, the nearby market and other information with the advantage of LBS.

Location-based services (LBS) are services that utilize their ability of location awareness to simplify user interactions and adapt to the specific context. With advances in automatic position sensing and wireless connectivity, the application range of mobile LBS is rapidly developing, particularly in the field of geographic, tourism, and logistic information systems.

In 995ARN, we use the Location Based Servers technology to quickly determine the location of members after SMS Modem received the members' messages.

LBS is an interface provided by China Mobile network operator. First, mobile operator develop a port to receive the SP location request in the form of XML package, and then send back the result in XML after they got the location information. To carry out the port of message platform and location service, we write a program to receive parsing request, send and revive location request package, return the results in SMS, and take it as a part of the message management platform , as shown in Fig.10.(Liyi zhang & Shitong Zhang, 2007)

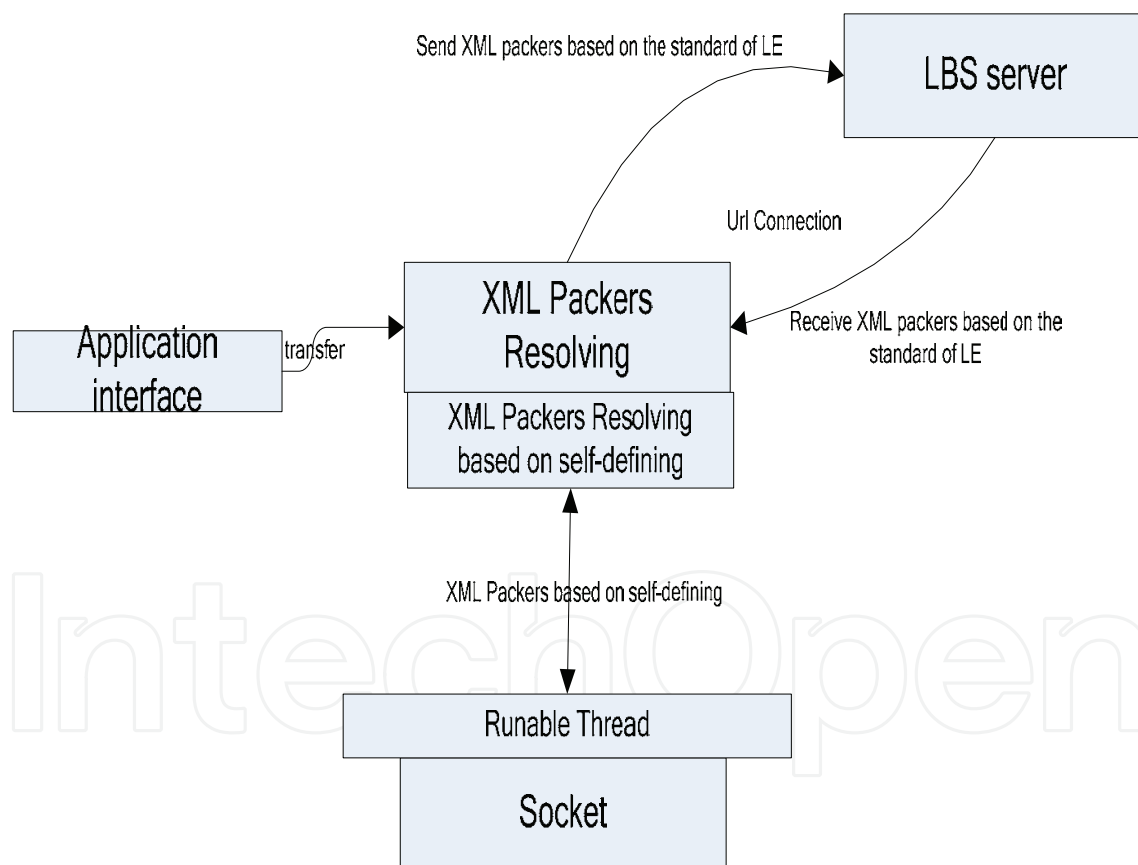


Fig. 10. Structure of the 995ARN's LBS platform

The result returned to LBS is denoted in longitude and latitude coordinate (X, Y), and we have to transform it to geographic location so that it is legible. In LBS, users may be interested in the following information: space date, such as the shortest way (path information); position of interest (location information); and non-spatial information such as

all kinds of Stat. analysis etc. Therefore how to amalgamation multi-source data efficiently become the main problem. And we design two interfaces: Query Interface and SMS Interface on the electronic map to implement the integration between SMS Platform and Electronic Map.

4.3 Electronic Map

With the development at full speed of computer technology, spatial information technology and modern information infrastructure, the importance of geographical information system (GIS) grows with each passing day in the information-based process of national economy. Nowadays the proposition of digital earth concept makes people understand the importance of GIS more deeply. Since entering 1990s, GIS got unprecedented development in the whole world and produced the enormous economic and social benefit.

In 995ARN, we use MapXtreme as a map server to achieve electronic map services. MapXtreme is the leading software development kit (SDK) for integrating location intelligence with existing business systems. It allows developers to build custom mapping applications, provide tailored views of geographic data and automate and augment business processes. MapXtreme's powerful spatial capabilities are geared toward solving real business problems, with a powerful, user-friendly feature set. Flexible deployment options include both desktop and web from a single SDK.

We use MapInfo to create a thematic map of automobile repairers information. The key steps include: accessing map data, creating thematic map, and developing the user-defined servlet. This paper focuses on the introduction of the production of a thematic map and the development process of user-defined servlet.

4.3.1 The steps of creating a thematic map

The process of creating a thematic map includes the following steps(Shitong Zhang, 2008):

- Plan the thematic map;
- Select elements of base map and thematic;
- Create the table of elements *. Tab;
- Deal with data and symbols;
- Configuration notes and legend;
- Map landscaping;
- Output of thematic maps.

The flow chart of creating the thematic map can be shown in Fig.11.

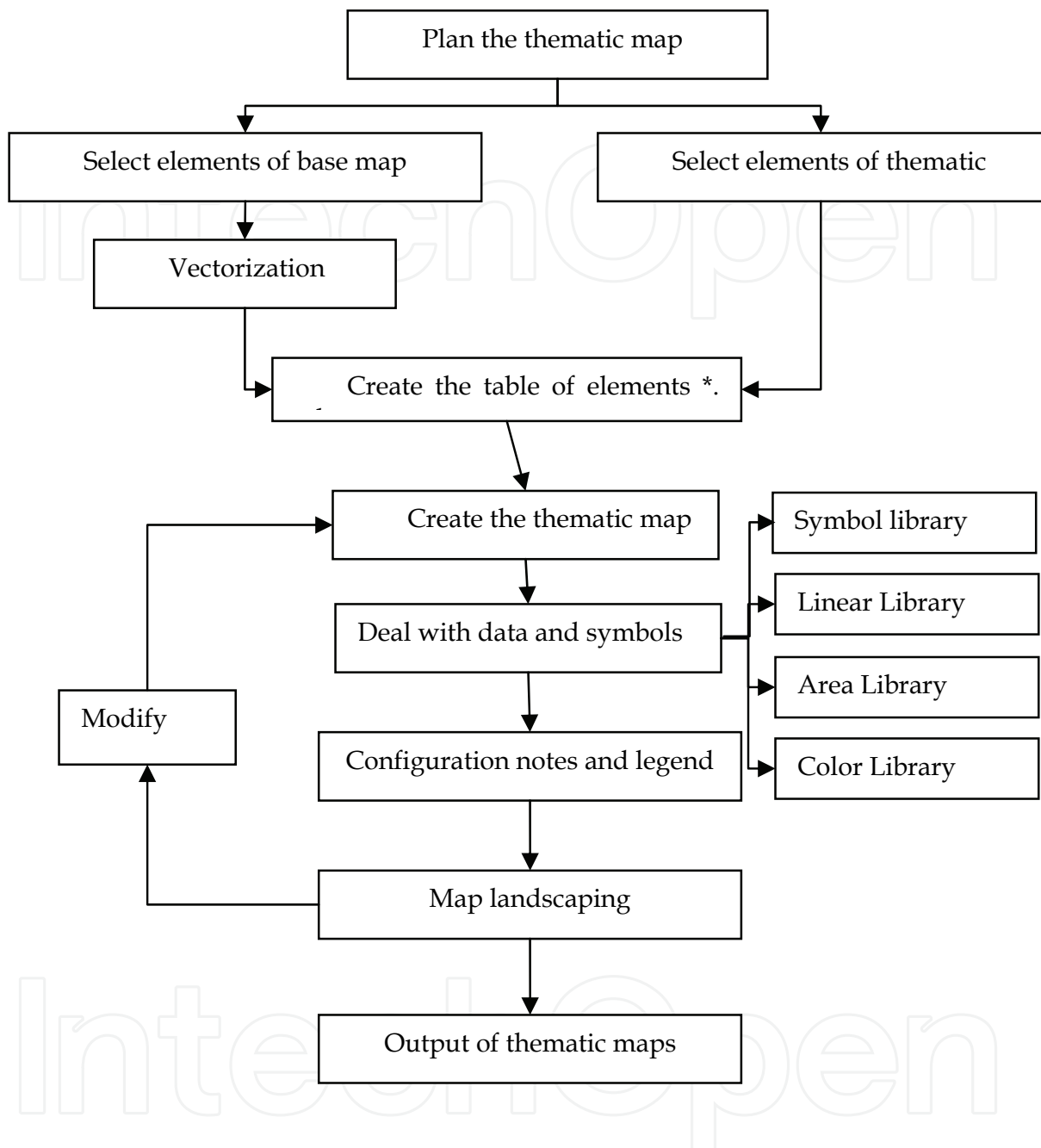


Fig. 11. The steps of creating a thematic map

4.3.2 The development process of user-defined servlet

The user-defined servlet can help us to complete map initialization, map zooming, the user-defined queries of map and user-defined interface.

The following table give the main methods and descriptions of the user-defined servlet-SMSHTMLEmbeddedMapServlet.

Method name and parameters	Method Description
public void service (HttpServletRequest req, HttpServletResponse res)	The main function of servlet.
Hashtable getFormFieldsHT(HttpServletRequest req, MapToolkit toolkit)	Access to list of all the parameters of the request, and save them in the Hashtable.
MapJ initMapJ()	Initialization map object
private void sendHTMLResponse(HttpServletResponse res, HttpServletRequest req,Hashtable ht, MapToolkit toolkit, String strRequestType)	This method return the page controls of controlling map and the map table.
private void sendImageResponse(HttpServletResponse res, HttpServletRequest req)	According to the user's request, the methos will generate a picture to the client.
private void sendMsgResponse(HttpServletResponse res, HttpServletRequest req)	Build a MSG to the user. This method can show the location of users.
void applyHiddenFormFields(MapJ myMap, Hashtable ht, HttpSession session)	Application of user-defined map display settings
public void FindingXYFeature(MapJ myMap,Hashtable ht,DoublePoint dp)	Accroding to the latitude and longitude, this method can return surrounding environment information.
public void FindingXYFeature2(MapJ myMap,Hashtable ht,DoublePoint dp)	Accroding to the latitude and longitude, this method cannot return surrounding environment information.
private void setMapSize(MapJ myMap, boolean bSmallSize)	Set the display size of map
public void rendeFindFeature(MapJ myMap,FeatureSet fs,DoublePoint dp)	Mark and highlight the points of map

Table 2. The main methods and descriptions of the user-defined servlet

5. Conclusion

With the advance of mobile commerce technology, mobile businesses rapidly gain its popularity. Many factors, including LBS (Location-Based Services) SMS and Electronic Map are becoming the key words of mobile business. The authors comprehend those factors as

well as extend the 995ARN using the convenience given by those factors. The mobile commerce solution of 995ARN will certainly open up a new value-added services for the project.

But, the authors believe that we can still make some expansion in the following aspects:

- Using the GPRS-model as the Means of system's communication to replace the GSM-Model, but this model's application case is relatively small, technology is also not very mature now.
- Using the technology of system recommendation such as Content-based Recommendation, Collaborative Filtering Recommendation, Association Rule-based Recommendation, Utility-based Recommendation, Knowledge-based Recommendation, Hybrid Recommendation and so on, to improve the match effect of rescue services and the value of news.
- In SNS platform, we can design interpersonal retrieval system according to the theory of "Six Degrees of Separation". For example, if A is friend of B, and C also is friend of B, system can design a retrieval path from A to C. It is A-B-C.

6. Acknowledgment

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7. References

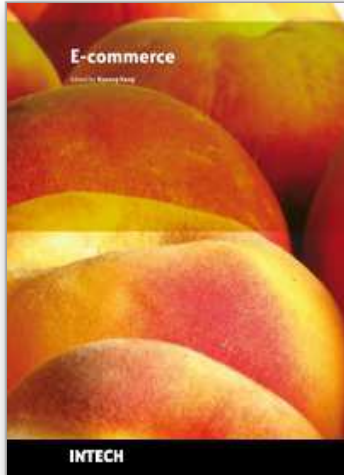
- Ferman M.A, Blumenfeld D.E, and Xiaoxue Dai. A simple analytical model of a probe-based traffic information system Proc: Intelligent Transportation Systems, 2003 IEEE, p: 263~268 vol.1
- Greenfeld J S(2002). Matching GPS Observations to Locations on A Digital Map. In: Proc. the 81th Annual Meeting of the Transportation Research Board, Washington D.C
- Greenfeld J S.(2002). Matching Gps Observations to Locations On A Digital Map. In: Proc. The 81th Annual Meeting of the Transportation Research Board, Washington D.C
- GSM Association, www.gsmworld.com
- Handset Location Technology at <http://nings.cn/2008/01/03/cmda-gpsone.html>
- <http://www.mapinfo.com>
- Kevin J, Kruzman, homas E.Biedka, and Theodore S. Rappaport.(1997). Wireless Position Location Fundamentals, Implementation Strategies, and Sources of Error. IEEE Vehicular Technology Conference
- Yadong Lang, Juan Wu.(2004). GSM Handset Location Technology. Designing Techniques of Posts and Telecommunications
- Ling deng. market share of automobile rescue services will nearly reach 200 million, http://www.autopx.cc/article_detail.asp?articleID=1554
- Liyi Zhang and Qihua Liu(2009). 995ARN: Automobile Rescue Services Mobile Commerce Solution, Journal of Computational Information Systems

- Liyi Zhang, Qihua Liu (2008). An E-commerce Model for Automobile Rescue Services, ISM 2008
- Liyi zhang, Shitong zhang(2007). Analysis of China Special Transportation Network Websites.WICOM2007, 3490~3493
- Liyi zhang, Shitong zhang(2007). Analysis of CSTN's Model and Special Transportation Solution. DCABES2007, 356~360
- Marko Silventoinen, Timo Rantalainen. Kyamakya(1995). Mobile Station Location in GSM. Wireless communication system symposium, IEEE 27-28 nov, pp53-59
- Qi Zhu.(2005). Web-Oriented JMS Application Systems. Computer Engineering and Design.
- Shitong Zhang.(2008). Research and Implementation of Mobile Business Service Platform Which Based on Location Based Services:[Master thesis].Wuhan: Wuhan University
- The present situation, problem and development trend of automobile rescue service at www.chevip.com.cn
- The SMS Interface Platform at <http://zeroliu.blogdriver.com/zeroliu/1215155.html>. 2007/04/10
- Vittorio Astarita, Michael Florian(2001). The Use of Mobile Phones in Traffic Management and Control. 2001 IEEE Intelligent Transportation Systems Conference Proceedings. Okland (CA), USA. August 25-29
- Vittorio Astarita, Michael Florian.(2001). The Use of Mobile Phones in Traffic Management and Control. 2001 IEEE Intelligent Transportation Systems Conference Proceedings. Okland (CA), USA. August 25-29
- Yanying Li, Mike McDonald.(2002). Link Travel Time Estimation Using Single GPS Equipped Probe Vehicle. In: Proc. 2002 IEEE Intelligent Transportation System Conference Proceedings, 932-938

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E-commerce provides immense capability for connectivity through buying and selling activities all over the world. During the last two decades new concepts of business have evolved due to popularity of the Internet, providing new business opportunities for commercial organisations and they are being further influenced by user activities of newer applications of the Internet. Business transactions are made possible through a combination of secure data processing, networking technologies and interactivity functions. Business models are also subjected to continuous external forces of technological evolution, innovative solutions derived through competition, creation of legal boundaries through legislation and social change. The main purpose of this book is to provide the reader with a familiarity of the web based e-commerce environment and position them to deal confidently with a competitive global business environment. The book contains a numbers of case studies providing the reader with different perspectives in interface design, technology usage, quality measurement and performance aspects of developing web-based e-commerce.

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