

Design and Implementation of University SMS Platform Based on .NET

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Abstract—To meet the needs of University management, a university short message platform based on .NET is designed and built. The architecture, function modules and key technologies of the platform are described.

Keywords—SMS platform, short message, University Management, .NET Framework

I. INTRODUCTION

With the development of modern communication technology, short message service has been well applied in many industries. Short message service improves reliable and low-cost wireless data service through storage, forwarding and real-time monitoring mechanism, and meets the user's requirements in resource-constrained wireless networks and devices[1-2].

The short message platform based on .NET mode in campus network has successfully solved the problem of communication between schools, teachers and students through short message, and realized the short message communication between computers, computers and mobile phones in an all-round way[3]. It has the advantages of timeliness, rapidity, convenience, small investment and low cost[4]. It can meet the diverse needs of users and students at all levels in Colleges and universities.

II. SYSTEM STRUCTURE ANALYSIS AND FUNCTION MODULE

A. Problems of Construction of SMS Platform

The construction of SMS platform in Colleges and universities should first consider the following problems.

1) *Fault tolerance*: good fault tolerance judgement and detailed logging.

2) *Scalability*: the platform has strong scalability for sending or receiving. In terms of sending function, we only need to add the content of short message to the short message platform and send it uniformly by sending service; in terms of receiving function, we only need developers to develop the processing of new functions, and configure the short message sending and receiving program without modifying when adding new functions on receiving[5-6].

3) *Reliability*: confirm the success of mobile phone reception by checking the successful status.

4) *Configurability*: Regardless of the connection parameters, the number of retransmits and the time interval, the receiving function can be modified and expanded by configuring[7].

B. System Architecture

The system adopts the idea of separation of business and exchange, and is divided into three layers in the design structure, namely user presentation layer, business logic layer and data processing layer, as shown in Fig. 1.

1) The user presentation layer provides the user interface of the system and runs on the Web browser. It mainly includes the page presentation of the system and the code of related controls[8].

2) On the one hand, business logic layer calls classes and methods of data processing layer to implement business rules in the system; on the other hand, it encapsulates corresponding calling methods for user presentation layer to call. It acts as the intermediary between data processing layer and application client (browser in this system). It manages data interaction

between client and data processing layer, including processing HTTP requests, updating or querying database, etc. The system uses web services as the middle layer of data access[9].

3) The data processing layer system operates the database, and all the calls to the database in the system are realized through the data processing layer. To achieve access to all stored procedures in the database, as well as some basic database operations. This layer includes a number of data tables, which store the data related to the sending and receiving of short messages and the management and maintenance of short messages..

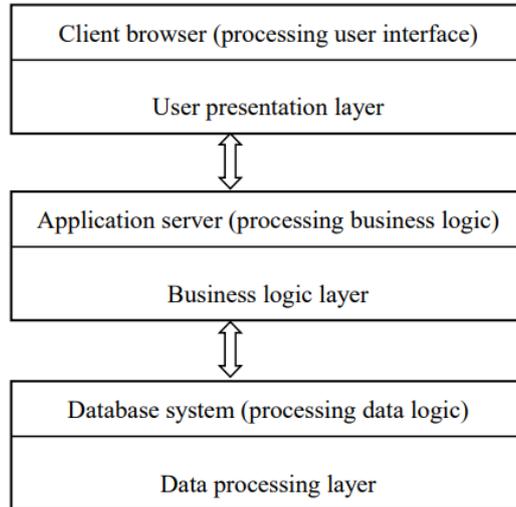


Figure 1. System logic architecture

C. System Function Module

The overall goal of our short message platform is to develop a university short message platform with good human-computer interaction interface by utilizing existing resources to facilitate the communication and interaction between schools and students. The function modules of the system are shown in Fig. 2.

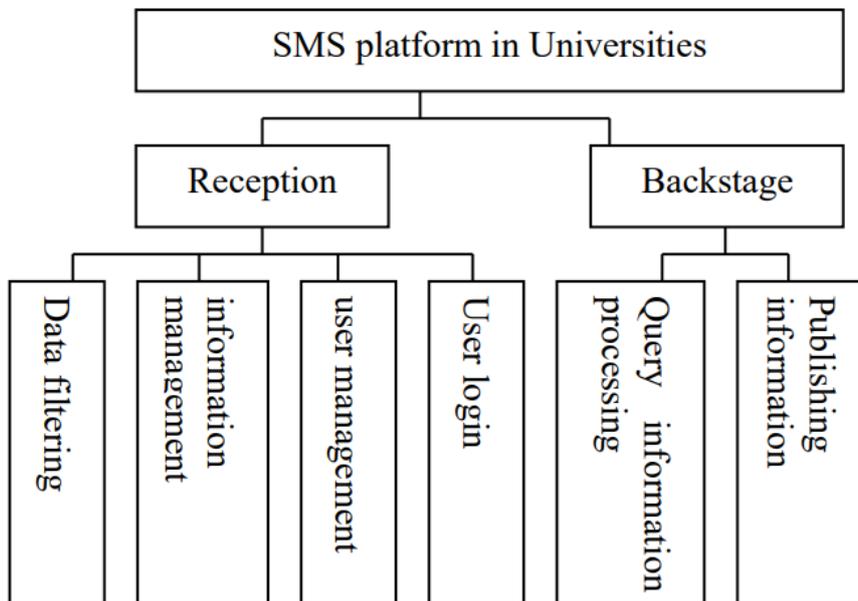


Figure 2. System function module diagram

III. DESIGN AND IMPLEMENTATION OF SYSTEM

A. Database Design

1) Manage user information table: record and manage user's detailed information, including mobile phone number, password of user login system maintenance module, gender, fixed telephone, home address and note information, etc.

2) To-be-sent message table: Record all messages to be sent, including the recipient's mobile phone number, content, priority, time to be sent, etc.

3) Send a successful message table: record all the messages that have been sent, including the content of the message, the sender's mobile phone number, the receiver's mobile phone number, the message receipt, the sending time and so on.

4) Send failure message table: record all sent failure messages, including text message content, sender's mobile phone number, receiver's mobile phone number, message receipt, sending time, retry times, etc.

5) Message Receiving Table: Record all received short messages, including the content of short messages, sender's mobile phone number, receiver's mobile phone number, receiving time, etc[10].

B. Implementation of Key Technologies

The system uses ASP.NET technology to design dynamic web pages, completes the interactive function, takes Microsoft Visual Studio.NET 2013 as the development platform, SQL Server 2010 as the background database, and adopts the smart client development mode to complete the entire construction of the platform. The source code for SMS sending is as follows:

```
// get cell phone number and SMS content
String cSendPhoneNum = tbPhoneNum.Text.Trim ();
String cSendContent = tbContent.Text.Trim ();
// return the list of successful mobile phones.
Byte[] bSuccess = new byte[cSendPhoneNum.Length];
// return the list of mobile phones that failed to send.
Byte[] bFailure = new byte[cSendPhoneNum.Length];
// return the number of successful messages.
Int iSuc = 0;
// return the number of failed transmission.
Int iFail = 0;
// initialization login
Int iInit = SkInit ("se1.china-sms.com:9900; se2.china-sms.com:9900; se3.china-sms.com:9900";
Se5.china-sms.com:9900 ", " missun ", " 000000 ", " 0 ", " 0 ", " 0 ", " (" )".
// initialization iInit return value 0 indicates initialization success, sending SMS.
If (iInit==0)
SkMultiSend (101, System. DateTime. Now. ToString (), cSendPhoneNum, cSendContent, bSuccess, bFailure, out iSuc,
out iFail);
SkLogout ();
```

Abnormal handling: In the short message platform, if the short message transmission fails, the short message platform will automatically retransmit; if more than a certain number of times are not successful, the record will be deleted and written to the log.

IV. CONCLUSIONS

At present, the construction of campus information has already achieved a certain scale, and more and more means have been adopted. Undoubtedly, the use of short message platform will be a novel, convenient and scientific means of management. It will be another important channel for schools to communicate, obtain and publish information, and will achieve good social benefits.

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