The Feedback Platform for People’s Livelihood Projects Based on SOA

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Abstract—In order to meet the needs of the rural livelihood construction, the C# is used to realize the information feedback platform of rural people's livelihood which is based on B/S architecture. The proposed system is designed as three layers that are the business logic layer (BLL), data processing layer (DAL) and physical layer (Model). The system realizes the basic database operations for browsing, querying and management of feedback data. The system uses the service-oriented architecture (SOA). The proposed system functions are divided into different Web Service which makes the function call converted into service call in the system. It also publishes the service of standard interfaces on the internet which realizes cross-platform on sharing of resources. The feedback platform for rural people's livelihood projects provides online message, e-mail, SMS messages and other information feedback methods which can collect the effectiveness evaluation on the prophase, middle and late of rural livelihood construction projects in time.

Keywords- rural people's livelihood, construction projects, information feedback platform, service-oriented architecture, Web Service

I. INTRODUCTION

With the in-depth development of the economy and administrative reform, the main functions of the government's economic management are changing to strengthen macroeconomic guidance and regulation. In this case, information is used for leaders to make decision. The strengthening of all aspects of the feedback become the urgent needs of the development of the situation. The countries whose earlier study of the feedback used in e-government is the developed countries as the United States and Western, for example, the system of the failure of the U.S. government planning projects and e-government projects to prevent and reduce the risk [1], communication system between the government and citizens of the Chicago Police Department, the system, immigration services system [2], Energy decision-making publicly system in Belgium [3], business tracking system in Austrian companies [4], communication between the public and government system in Spain [5], the progress of the government services network platform in Lesotho [6], Rural health care system in Norway [7], Internet public opinion and analysis system for the political issues in Swiss and so on. With the wide application and development of Information technology, especially communications technology and internet, feedback has been rapid development in China, the field of application also has the rapid expansion, such as public system that researched by Mo Yunfeng [9], the teaching platform feedback system that researched by Lele Qin, Performance evaluation strategy of local government leaders that that researched by Jingkun Zhou and leading environmental management strategy of the local government that researched by Wang Wenhua [10], public opinion collection and processing platform based on short message and Internet that Shumin researched by Zhou [11], communication between the government and the people of the Li and so on.

In China, the feedback system is mainly used in education; services and e-government. Use of modern communications technology and network technology to the people's livelihood construction projects have not been reported. However, from the research point of view of foreign. The website of information feedback channels is the overall trend of livelihood projects, construction projects and is also a necessary means of the service government construction.

II. WEB SERVICE ARCHITECTURE

Web Service is a technical specification. SOA (Service Oriented Architecture) is a design principle. It is also an SOA supporting interface definition standard. It is also a fundamental link of the Web Services and SOA. In essence, SOA is an architectural pattern, Web Service is a set of standard services of achieved, Web services are one way to implement SOA. Web services use SOA (Service Oriented Architecture) model.

SOA is composed of three separate roles, and the three basic operations. The three roles are the service provider, service requestor and service registry. The three basic operations are publishing service descriptions, to find service descriptions and binding, or call the service. To make the service accessible in the Internet environment, service providers need to publish its services to a directory on the service registry. In the release operation, service providers may decide to release (registered) or remove the services. When the service requester needs to call a service, we should search for the type of service to be called in service registry, which can get the service interface description and binding information (service access path, call parameters, return results, transport protocols, security requirements, etc.). And then according to this information, we can call the service.

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provider to release service [12]. Specific processes are shown in Figure 1.

![Web Service Architecture Diagram](image)

**Figure 1. Web Service Architecture**

III. PLATFORM ARCHITECTURE AND DATA PROCESSES

A. Data structures

Almost all Web projects are based on the database. This makes the design of the database holds an important position in the entire project. Research indicates that the success of the project 50% rely on database design in the development of database applications platform. Good database design is often able to reduce the burden of development.

Considering the database application platform and development process, database design can be divided into six phases: requirements analysis, concept of structural design, the logical structure of the design, physical structure design, database implementation, operation and maintenance of the database. According to this design process, different stages of the database structure design can be formed all levels of the database model.

The data structure reflects the relationship of the combination between the data. A data structure can be composed from a number of data items or a number of data structures or a number of data items and data structures. The platform was divided into three groups, which are shown in Table 1.

<table>
<thead>
<tr>
<th>Data Structure Name</th>
<th>Meaning of The Instructions</th>
<th>Composition</th>
</tr>
</thead>
<tbody>
<tr>
<td>User</td>
<td>Describe Basic information of the administrator in the government departments</td>
<td>User number + User’s name + Password + Department that belongs + Permission + Creation time + Last login time</td>
</tr>
<tr>
<td>Department</td>
<td>Describe the information of government departments</td>
<td>Department number + Department’s name + Department administrator + phone number + email + Creation time + Time of changing information</td>
</tr>
<tr>
<td>Website information released</td>
<td>Describe the site released by the department</td>
<td>Web site number published + Site name + Status + Mark + Creation time + Department that belongs</td>
</tr>
<tr>
<td>Sector configuration</td>
<td>Describe the sector configuration</td>
<td>Sector configuration number + Sector label + Configuration name + Configuration details + Creation time + Configuration of people + Time of changing information</td>
</tr>
<tr>
<td>System configuration</td>
<td>Describe the system configuration content of the platform itself</td>
<td>System Configuration Number + Configuration title + Configuration details + Status + Time of creating information</td>
</tr>
<tr>
<td>News</td>
<td>Describe the information of news released</td>
<td>News Number + News title + News content + Time of publish + Time of modifying + Publisher + Department that belongs + News categories + Approval Status</td>
</tr>
<tr>
<td>Operation log</td>
<td>Describe history information of the platform operation</td>
<td>Operation log number + Operation content + Operating time + Operator</td>
</tr>
<tr>
<td>Message</td>
<td>Describe user’s message on the platform</td>
<td>Message number + Content + Time + IP</td>
</tr>
<tr>
<td>Reply of message</td>
<td>Describe public message to Response information</td>
<td>Replying message number + IP + content + Time</td>
</tr>
<tr>
<td>Short message</td>
<td>Describe the feedback of the public against government departments</td>
<td>Short message number + content + Source number + Target number + Receive time + Send time + Permission + Message status</td>
</tr>
<tr>
<td>Feedback themes</td>
<td>Describe the theme for government departments to get on its Web site to gather feedback</td>
<td>Feedback topic number + Title + Mark + Department + Creation time + Status</td>
</tr>
<tr>
<td>Feedback content</td>
<td>Describe the public feedback content on the department website</td>
<td>Feedback content number + Theme ID + Content + Creation time</td>
</tr>
</tbody>
</table>

IV. PLATFORM CLASS DESIGN

The platform uses the NET three-tier design, divided into business logic layer (BLL), the data processing layer (DAL) and physical layer (Model).
C. Physical layer (Model) class diagram

Model Platform defines a total of eleven classes. They are Content class, feedback class, Department class, Exchange class, feedback_detail class, History class, News class, plat class, Setting_Department class, User class, exchange_reply class. Layer DAL class chart is shown in Figure 5.

Figure 5.Model layer

V. PLATFORM DESIGN

The Feedback Platform for People’s Livelihood Projects is available to different government departments. Government departments can build their own website, post the news of theirs and manage thier department’s all kinds of information on open platform. The different is that government staff by the administrator of the platform under the Government's request will be given account to log on to the platform’s background without opening up a registered account. Government workers with landing permission can log in background management system through the login module of the platform’s home page. According to the requirements of the various government departments, they can publish department news, messages, feedback theme and solicit public feedback. After login into the management system, government staff can increase the department information feedback system administrator according to level and workload of the department staff. And they also can assign administrative rights of sector information feedback system for better management. The general public enters into the different departments of the feedback site through a link on the platform. And then they can browse and feedback on the site, which can help the government more effective implementation of the construction of rural livelihood projects.

The system adopts a custom template technology. The user can create a feedback platform on the platform. Firstly the system will give users an initial template interface. According that, the user can customize feedback platform depending on their needs. Users can be modified in the background configured feedback platform. At the same time, users can modify the feedback platform with configuration on the background of the System.

A. Web page design

With the development of the network, more and more enterprises build a website platform. The friendly interface
of the site is becoming increasingly important. Friendly interface not only can more effectively highlight the platform theme, but also can improve the site visit rate and get recognized by the visitor. Platform in order to improve the friendliness of the platform interface as much as possible, it adopted web front-end three elements: HTML5, Ajax and the CSS3.0 technology. It is shown as Figure 6.

Figure 6. Three elements of the Web front-end

B. User permissions Design

The letters and numbers mixed verification code technology is frequently used for site registration and login module authentication technology. Developers can prevent the illegal operation of the user through the verification code technology. In this program by reference the Web service can realize the verification code technology. The page can use the Image control to display verification code.

C. MD5 encryption

When designing Web applications, it sometimes needs to store user registration information. If you do not have any security measures, once someone would get the database file, all user information will be leaked. In order to increase security, it is necessary to encrypt. In that case, even if some people get the entire database, he can not see the user registration information database without decryption algorithm encrypt.

Encryption has generally two types: two-way password and one-way password. Two-way password is the most commonly used, it can not only encrypt but also decrypt; One-way encryption can only encrypt data and can not decrypt it. The MD5 encryption is a one-way encryption. MD5 encryption is specified password and hash algorithm to generate a hash password in the configuration file for storage.

Password encryption code as follows:

```csharp
```

Among them, the “ToUpper ()” is for the case of the unified data stored in the user password.

VI. CONCLUSION

This article adopted the SOA architecture design ideas, and feedback applied to the government network platform. It adopted VS 2010 development environment, and selected SQL Server 2008. The basic platform developers and data binding completed the design of the feedback platform. The platform design uses a short message cat that enables users to exchange information with the public through information feedback and timely solve the problems of public feedback. Platform three-tier platform of each module can exist independent of other modules, not only improve the flexibility and portability of the platform, suitable for extension of the code secondary development platform, but also reduces maintenance costs and difficulty of the platform. Various government departments according to the department on the platform to build their own website, news release and information collection and processing; the public can have the corresponding site on the feedback of the people's livelihood and construction projects.

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REFERENCES

[3]. Da Ruan; Jie Lu; Lae, E.; Guangquan Zhang; Fengjie Wu; Hardeman, F. Fuzzy Multi-criteria Group Decision Support in Long-term Options of Belgian Energy Policy. NAIPS 2007.5(1) : 496 - 5013
[5]. Sanchez-Nielsen, E.; Chavez-Gutierrez, F. MyLegislative information service: Closing the gap between the citizens and the democracy. ICDIM 2008.9(1) : 19-30
[6]. Lerato, L.; Molapo, M. Proposed information access network architecture for Government information and services: Progress report. IST-Africa 2010.2(1) : 1 - 8
[7]. Quraishy, Z.B. Revolutionizing Rural Health Care Delivery Using Improved Health Information Systems - A Case from Indian Scenario. HEALTHCOM 2006.8(1) : 88 - 94
[9]. Mo Yufeng; Lin Qingxia. A mobile public information system based on subsumption architecture. ICCSIT 2010.11(2) : 331 – 334