



# Design and Implementation of Community Canteen Website Based on ASP.NET

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**Abstract.** In recent years, community canteens have been widely used in major communities to provide healthy and convenient catering services for people in the community. However, there is no online management ability, so creating a community canteen website that can be manipulated online is crucial. Therefore, this paper based on B/S model, using ASP. Net as programming language, background database using SQL Server to develop a happy "food" light community canteen website. The website can publish information, publish community activities, solicit volunteers, share community news, and allow community residents to communicate and interact, so that users can actively participate in the community, feel the warmth and vitality of the community, and make the community life of users more beautiful.

**Keywords:** community canteen; ASP. NET; public service

## 1 Introduction

Community canteen, as a kind of public facilities to provide catering services for community residents, in recent years across the country has been widely promoted and applied in recent years, with the growing demand of community service, and the rapid development of Internet technology, the traditional community canteen management and service mode is facing great challenges and opportunities<sup>[1]</sup>. In order to improve the operation efficiency and service quality of community canteens, and to meet the diversified and personalized catering needs of residents, it is particularly important to build a community canteen website based on the Web<sup>[2]</sup>. Based on this, this paper is based on the ASP. NET has built the "Happy Food Light" community canteen website, which aims to realize the transparency and accessibility of canteen information through information means, and provide convenient service experience for residents. At the same time, it will also become a new platform for community residents to communicate and interact, and promote the enhancement of community cohesion. This paper will elaborate on the design and implementation process of the website, and explore its innovation and application value in the community service.

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## 2 System Analysis

### 2.1 The goal of the System

The main goal of the community canteen website is to achieve online control of the canteen, so that the canteen can better serve the community residents. Therefore, the community canteen website should achieve the following goals: (1) show the basic information of the canteen in the community, such as location, opening time, providing dishes, etc., so that users can have a better understanding of the canteen.(2) Display community news, community food and public welfare activities, so that residents can fully understand the current affairs of the community and beneficial activities for themselves, improve the community cohesion, and enrich the residents' daily life.(3) Provide residents' message platform, and suggestions for the community canteen can be timely reflected to the management so as to better improve the operation mechanism of the canteen, but also promote the daily communication of residents, and activate the community atmosphere.(4) Use map information to display the community canteen of each district and county, so that residents can understand the development trends of the community canteen and pay attention to the canteen governance ability of the community canteen.(5) Be able to manage the information of each section, modify or delete the information of errors or failures in time, to ensure timeliness to ensure the rights and interests of users.(6) The information of each section can be added to ensure the timely update of the website, so that residents can better grasp all kinds of community information<sup>[3]</sup>.

### 2.2 Requirement Analysis

The work described in this paper was supported by Chongqing Youth Innovative Talent Training Young Eagle Program (NO:CY240505), Chongqing Middle School Students "Talent Plan" project.

(1) User category: The login personnel categories of the light community canteen website are divided into two categories: ordinary users, administrators. Ordinary users include volunteer users. (2) Permission management: the login interface of the happy "food" is different community canteen website. The identity of the user is different, and the interface is different after entering. Ordinary users have the functions of user login, user registration, web browsing, music appreciation, food query, message addition, information modification, login exit; and administrator users, administrator login, setting introduction, management user, management administrator, food management, community canteen management, public welfare activity management, community news management, music appreciation management, message management, system management, etc. (3) Music appreciation function: users can log in the system after registration, and enter the home page to click to play music to get a better sense of web browsing experience. (4) Query food function: users can query whether the local canteen has their own favorite food according to their own preferences. (5) Add the message function: users can write down their suggestions for the community canteen and publish them in the message form, so as to get a better community canteen service

experience. (6) Management function: the system administrator can modify the content and published information according to the rules to ensure the correctness and timeliness of the website information. (7) Add function: the system administrator will write and publish various real-time information in the corresponding plate position according to the rules, so that users can check the relevant information in time<sup>[4]</sup>.

### 3 System Development Platform and Key Technology Analysis

This system is mainly based on B/S mode and adopts ASP.NET technology for the system development.

#### 3.1 B/S Pattern

B/S structure is a classic browser / server mode, that is, a network structure that appeared after the advent of WEB browser<sup>[5]</sup>. Compared with the end-to-end development of C/S mode, B/S structure has a wider range, only needs operating system and browser, requiring low hardware environment<sup>[6]</sup>. The B / S pattern plot is shown in Figure 1.

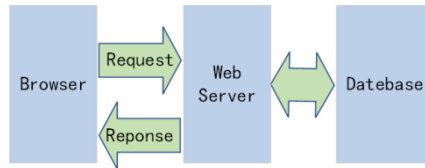


Fig. 1. B / S pattern diagram

#### 3.2 ASP.NET

ASP.NET is developed by Microsoft Corporation based on .NET Framework's Open Source Web Framework, a new generation of powerful tools for building dynamic web pages, web applications, and Web services. ASP.NET divides the page logic and business logic into two parts, which divides the program code from the display content, making it easier to write the program<sup>[7]</sup>. ASP.NET has the advantages of easy to learn, high development efficiency, using page off code technology to improve operation efficiency and strong adaptability.

## 4 System Design

### 4.1 Overall Functional Structure of the System

The happy "food" light community canteen website is divided into ordinary users and administrator users, ordinary users include volunteer users; ordinary users have user

login, user registration, browse the web, music appreciation, query food, add messages, modify information, exit the login and other functions; administrator users have administrator login, setting introduction, management users, management administrator, food management, community canteen management, public welfare activities management, community news management, music appreciation management, message management, system management and other functions<sup>[8]</sup>. The main functions of the system are shown in Figure 2.

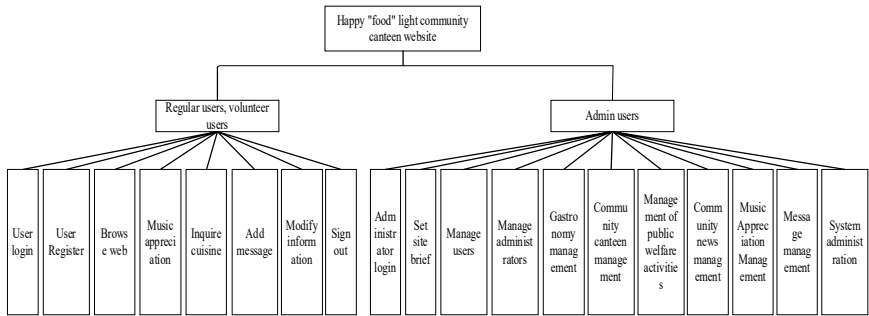


Fig. 2. A Functional Structure Diagram

4.2 System Flow Chart

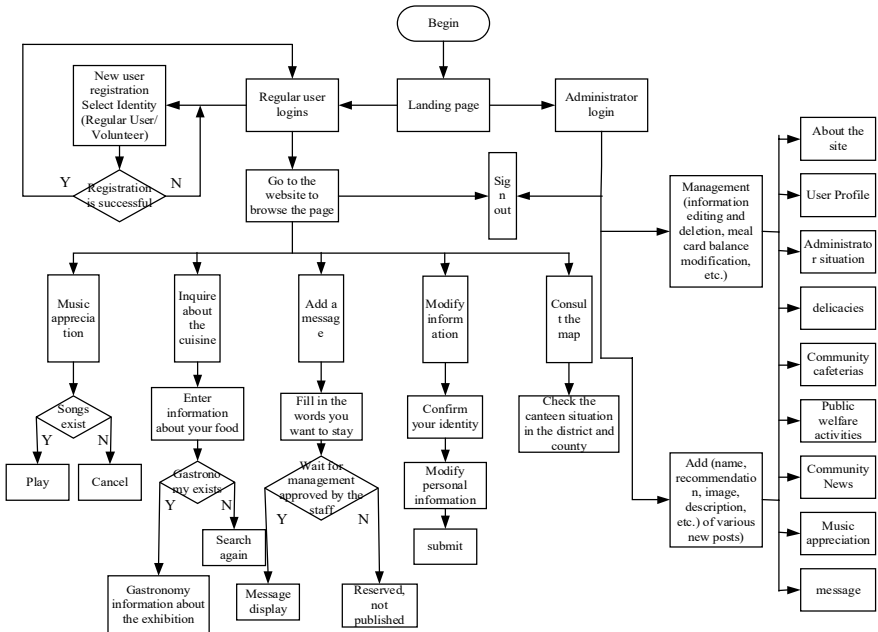


Fig. 3. Flow chart of the data

Data flow chart is an effective tool for system structured analysis. It abstracts describes the data processing of the system<sup>[9]</sup>. It reflects some links of data processing. It can generally understand the operation process and data situation of the system through this chart. The business flow chart of the system is shown in Figure 3.

### **4.3 Detailed Design of Functional Modules**

#### **4.3.1 Design of the System Landing Module.**

The login process of the happy "food" light community canteen website includes selecting the user identity (ordinary user or administrator), entering the user name and password, and clicking "OK" for verification. If the user name and password match the record in the database, enter the corresponding main interface according to the user permission; if not, a prompt appears. If there is no account or the account is deleted, click the registration button to register the account. The website has two kinds of permissions: system administrator and ordinary users, with different access addresses, the administrator has additional management functions. Different users enter the main interface and functions.

#### **4.3.2 Design of Public Welfare Activity Module.**

In the public welfare activities, there are three aspects: health lecture, donation information and volunteer information; in the health lecture, the information of the given or upcoming health lectures, such as the address, the information, and contact volunteers for help, it is our duty, according to the purpose of our website design, to serve the community people.

#### **4.3.3 Design of Community News.**

"Community news" is the introduction of community news. A page can introduce three news, each news contains four parts: "news category", "news title", "publication time" and "news content". Users browse community news to obtain all kinds of information about the community every day, to enrich life and give guidance to life.

#### **4.3.4 Design of the Community Food Module.**

The community food module is the introduction of the community food, showing the characteristic food of the community canteen, and provides the query function to search whether the canteen has the food it is interested in. Click the "fuzzy query" and "food name" selection box, you can choose "fuzzy query", "accurate query" and "food name", "recommendation index" selection. Enter the search criteria in the search box and click the search button to return the food information that meets the criteria. If there is no food information meeting the condition, the system prompts "this record is not found". "Community food" is an introduction to each community food. A page can introduce three food, each food contains three parts: "food", "recommendation index" and "description".

#### 4.3.5 Design of the Community Map Module.

Community map module gives a map of Chongqing, the user can click on the map query of community canteen including canteen name, food recommendation, canteen address and canteen description, understand the progress of community canteen service and each regional features, the site mainly carried out the yuzhong district, fuling, fengdu community canteen deployment work<sup>[10]</sup>.

#### 4.3.6 Design of the Message Module.

Message plate is mainly show the user's evaluation and Suggestions, so that managers can understand the community canteen work progress and shortcomings, users can see the others after the review, and they want to release the message also need the administrator review after show comments in website plate, so effectively improve the social opinion correctness, avoid malicious criticism but also protect the user's information security.

#### 4.3.7 Design of the Meal Card Recharge Module.

Rice card recharge is a service of the personal information center, which provides users with a convenient recharge function. Click "Recharge Rice Card", and the right side of the page will display the payment QR code and the amount input box, as well as the recharge button. Enter the amount you want to recharge and then scan the code. The payment will update the remaining amount of the user in the database simultaneously.

#### 4.3.8 Design of the Administrator Management Module.

The administrator has the highest permission, and after login, it will enter the background management, and can add, delete and modify all the functional modules of the system.

### 4.4 Database Design

#### 4.4.1 Concept and Structure Design.

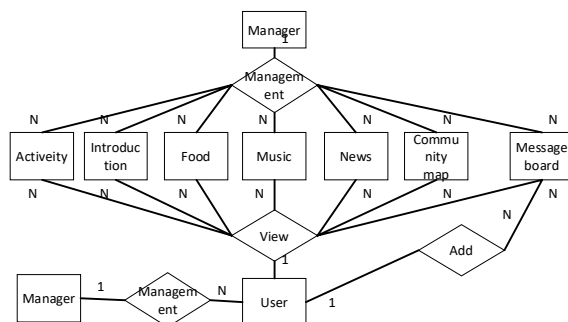


Fig. 4. Total E-R diagram of the system

The system includes nine entities: administrators, users, charity activities, website profiles, messages, food, music, news, and community maps. The total E-R diagram of the system is obtained according to the relationship composition between the entities<sup>[11]</sup>, shown in Figure 4.

#### 4.4.2 Logical Structure Design.

Through the conceptual design analysis, the E-R diagram is converted into a relationship model, mainly including:

- User (no number, user name, password, gender, telephone number, registration date, age, meal card, type), in which the number is the main key.
- Administrator (serial number, user name, password, gender, telephone number, registration date, authority)
- Activity (no., activity name, picture, address, description)
- Introduction (serial number, content)
- Message (serial number, user name, time, content, review, reply time, reply content)
- Food (no., food name, recommendation index, picture, description)
- Music (No., song name, singer, music file, picture)
- News (number, category, title, content, time of release)
- Community map (No., canteen name, level, price, picture, address, description)

## 5 System Implementation

### 5.1 System Login

The interface requires the user to select the user identity, enter the user name and password, and verify that the approved user can enter the main interface. Unregistered users can click in the words " No friend account? Go to register " link, click the link to enter the registration page. You can register as a user after entering your name, password, contact information, date of birth and choosing your identity and gender.

### 5.2 Main Interface of the System

After logging in, ordinary users will enter the main interface of the system, as shown in Figure Figure \*. At the top of the main user interface, there is a navigation bar, and there are nine sections: "Home page", "Community Food", "Community News", "public welfare activities", "community map", "message", "Login", "registration and" personal center ". Click on each plate to jump to the corresponding section. Below the menu bar of the main interface is a rotation map, showing the classic landmarks of Chongqing. On the left side of the main interface are two sections: "Website Introduction" and "Music Appreciation". Realize the function of introducing the website and playing and switching music respectively. On the right are three sections: "community news", "community food" and "public welfare activities". Click any item in the plate

to jump to the corresponding section in the navigation bar. Main interface is shown in Figure 5.



Fig. 5. [Home page] interface

### 5.3 Community News

The community news section in this interface is an introduction to community news. A page shows three news, each news contains four parts: news category, news title, publication time and news content. Community news interface is shown in Figure 6.

### 5.4 Community Food Interface

Users click on the navigation bar "Community Food", which is in the middle of the interface, the Community Food will be shown. It has two parts: "Website profile" and "Community Food". The website introduction section is a brief introduction to the community canteen website. The community food section is an introduction to the community food.



Fig. 6. [Community News] interface

### 5.5 Interface of Public Welfare Activities

This interface is an introduction to community public welfare activities, which can choose any of the three options: "health lecture", "donation information" and "volunteer information". Each page of the health lecture "and" Donation information "can introduce two activities, and each activity contains three sections:" Activity category ", " Activity address ", and" Description ". The Volunteer Information page shows the name and contact information of each volunteer

### 5.6 Community Canteen Map Interface

On the right side of the middle of the interface, there are two parts: "map of Chongqing district and county" and the corresponding community canteen. "Map of Chongqing District and counties" is a display of the map of Chongqing, which is covered with various districts and counties in Chongqing. Users can click on each district and county to display the information of the community canteen in the community can-

teen section on the right. Including: canteen name, food recommendation, canteen address and canteen description.

### 5.7 Message Board Interface

On the right side of the interface. A message record is a record of the messages of all users. Each message contains three parts: "user name", "published time" and "published content".

### 5.8 Administrator Interface

This module is available to the administrator. The main functions of this module: the administrator realizes the editing, management, and modification of the website in the system. Background management interface management can manage all the functions of the system, such as website introduction, users, food, community canteen, public welfare activities, community news, and other functions in the system, including addition, deletion and modification.

## 6 Conclusion

The development of the whole system has realized the functions of music appreciation, query food, adding messages, modifying information, setting brief introduction, management module, adding module information and so on. This system mainly adopts the research method of software engineering, the specific steps include: the overall design of the system, detailed design, code writing, unit test method. The system is based on B/S mode with ASP.NET is a programming language. The background database uses SQL Server for its design and maintenance, and html, css, VS2022, etc., are used to design each interface. This website provides users with community news, community food, public welfare activities such as information, also can enjoy music, add messages, allows the user to obtain community news information and related information at the same time to relax, also can realize communication, fully enrich the user's community life, enhance the vitality and cohesion of the community. Because of the lack of time and design experience, there are still some imperfect places in this website, but the development of this website makes the administrators have a deep understanding of the process of website development. In the future, the author will design a more perfect, more practical value website.

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