Design and Implementation of Intelligent Community Management System

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Abstract: The purpose of intelligent community is to provide better, efficient and convenient intelligent services for community residents. Therefore, we can simply believe that the construction of intelligent community is to meet the public service demands of community residents as the goal, the use of information technology, and finally realize the integrated community management system of the new form of community. With the development of intelligent community, the design of intelligent community platform is inevitable. At present, many communities still use the traditional method of hand writing, technology community information. Community management involves the management of large amounts of data. Especially in Beijing, Shanghai, Shenzhen, Guangzhou and other first-tier cities, the area is large, the information is miscellaneous. If still use manual operation, it is a large probability of causing a large amount of waste of resources. Not only inefficient, but also extremely error-prone. This undoubtedly increases the cost and operational difficulty. If these data are centralized into a database platform under the software platform operation, will use little financial resources and manpower, greatly improve the management efficiency.

1. Introduction

With the rapid development of China's market economy and the continuous improvement of people's living standards and the coming of intelligent trend, people have higher and higher requirements for intelligent communities. Simple manual information collection and information sorting efficiency is getting lower and lower, and the error rate remains high. Therefore, computer technology is bound to be introduced to store, transmit and analyze documents. The efficiency of information sorting can be realized, so as to improve the working efficiency and service level of staff [1].

Since IBM put forward the concept of "smart city" in 2008, "smart community" has also developed rapidly in relatively fast developing countries such as the United States and Japan [2]. In China, the concept of smart community has gradually become an important strategic step in urbanization development since The State Council issued Opinions on Strengthening and Improving Urban and Rural Community Governance and implemented the "Internet + Community" action plan in 2017.

This system is designed by the actual management needs of the intelligent community management platform, and the work flow of the intelligent community management platform is

consistent with the real work needs. The intelligent community management platform is simple to operate, convenient to use, and greatly alleviates the working pressure of residents management personnel. In addition, it also designed and realized the collection and solicitation of residents' information, and established a database for data storage, query and modification. System functions cover a series of functions such as resident information registration, basic information input, background audit of the administrator system, administrator registration, audit and so on. The system is especially suitable for the old community, where residents have many inconveniences, such as the payment of water and electricity bills, community complaints, feedback, etc., which is of great significance for the construction of intelligent community platform.

2. Feasibility Demand Analysis

For common cpus on the market such as i5 or i7, and common memory such as 256MB [3]. These configurations are common on computers today, even those with more than 1 gigabyte of memory. Therefore, the minimum configuration required by the intelligent community management system is the common computer on the market, almost no hard requirements for computer configuration problems [4]. With Windows XP and higher versions of the operating system more and more common. The operating system function of the computer on the market is becoming more and more powerful and perfect, so the operating environment of the system is very common, almost can meet. Figure 1 shows the total functional modules of the intelligent community management system.
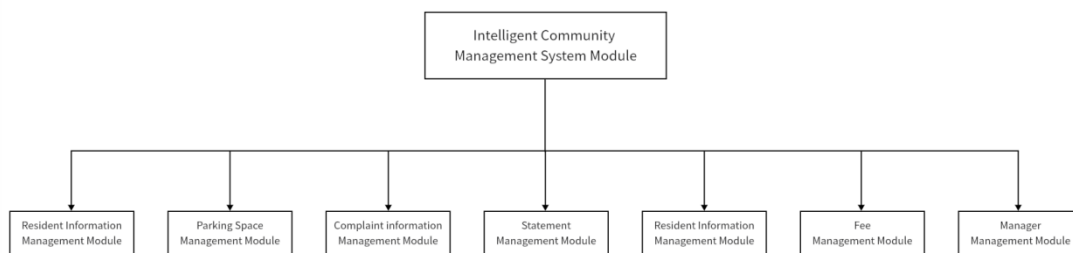

Figure 1: A diagram of the total functionality of the Smart Community Management System

3. System Function Realization

This system uses phpstudy development platform and mysql relational database basic tools. The system has realized the predetermined functional design scheme and realized the functional modules which have been designed. The purpose is to facilitate the entry and deletion of resident information and the administrator's online operation management [5].

The process of foreground management of the system is shown in Figure 2:
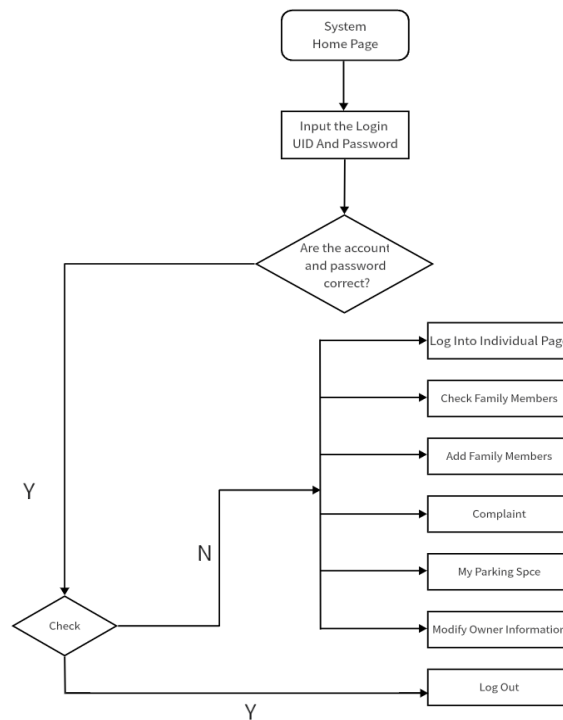
Figure 2: Flowchart of foreground management program of intelligent community management system

The process of system background management program is shown in Figure 3:
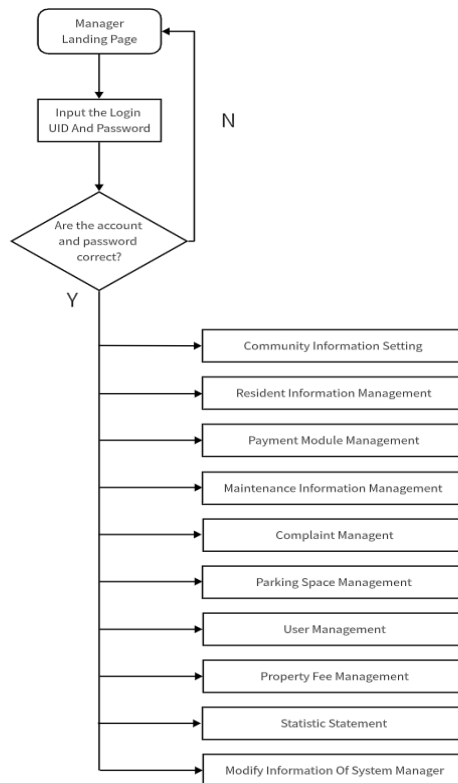

Figure 3: Flow chart of background management program of intelligent community management system

System home page design is simple, easy to operate, clear function. After logging in to the system, you can perform operations on the system functions. Such as resident information registration, modification, family member information management, administrator login [6].

Resident system login interface, enter the account and password. After the password is entered, the basic information page is displayed. After a resident logs in, they can see basic information, such as their name, phone number, and housing information. If basic resident information is changed, you can modify the basic information. For example, room number, move-in time, house model, remarks, etc.

On the administrator login page, enter the account and password of the administrator background. The password of the account is set. Only the administrator can access the account, not the resident account. If the account password is entered correctly, the switch is performed.

After logging in to the administrator page, enter the correct account and password to log in to the administrator system. You can see the five modules of the administrator system. One is administrator management. The second is owner data management. The third is the property management module. The fourth is the cost management module. Five is the report management module. Functions vary.

3.1. Resident Functions

Resident information registration, this page is used for new resident information entry into this system, input their own basic information including contact phone number, room number, move in time, set account password login basic operation [7]. After successful addition, the resident can log in and use the system with this account.

After logging in, residents can add their own family members. Select the gender of the family member, the relationship with the head of the household, the name of the family member, click the Add button to generate.

Family member management module, the account of the owner of the family member name and the relationship between the owner. There are two sub-functions, one is modification. You can either modify the family member information or delete it.

My parking space interface, the interface displays the user's parking space number, parking space valid time to query. The effective management of parking space plays a great role in improving the overall quality of residents.

Resident complaint information interface, you can make complaints on this interface. The complaint content is directly transferred to the administrator's complaint information management. The resolution of complaint information can effectively improve the happiness value of residents.

3.2. Administrator Functions

Administrator module the system management module. You can view all registered administrator accounts [8]. There are two sub-functions below. One is to change the administrator account and go to the next interface. The second is the deletion function.

Add an administrator account and set the password. Click Submit.

This interface is applicable to administrator accounts that need to be changed. Note the administrator account cannot be changed. Only one administrator account can be changed.

This interface is for owner interface management. In this interface, you can see all the residents registered in the resident interface of the system and the basic information of the residents, you can directly jump to add members and view the operations of the members.

Under this interface, the residents who apply to become the head of household are reviewed and modified. After the application is made on the resident interface, the administrator can see all the information of the residents in the background, check correctly and pass the review.

Users' complaints and suggestions are displayed on this screen. The complaints and suggestions on the residents page are directly displayed in the administrator system, which facilitates the community management personnel to solve the users' suggestions and improve the happiness level of residents.

After the residents buy the parking space, the administrator will add the parking space information, use time and remark information to the residents in this system.

Owners need maintenance operations, or the community needs maintenance operations, can be declared on this interface. Edit the date, edit the item can be good, so that later statistics.

In the owner maintenance management interface, the administrator can see all the items that need to be repaired and the basic properties of the items, and modify and delete the errors when they occur.

Property fee payment module, select the residents who pay the property fee, the date, the amount of the fee, remarks and other operations. For future statistics, unified payment. The payment of property fees facilitates the daily life of residents and improves the convenience of their lives.

Property fee payment inquiry module, in this module, the administrator can see all the users who have paid property fees, money and types, convenient for the community in the future statistics [9].

The number of residents statistics module, the module shows the number of residents in the community, the number of men and women, convenient for census inquiry.

4. Test

The Smart Community Management Platform test consists of two test phases. One is to test when the code of each module is written to test whether the function of the module can run normally. The writer of the module code is the same person as the tester of that module code. Writing code and testing modules belong to the same phase of the same period. When this testing phase is complete, comprehensive testing of the management platform is also required. The integrated test phase is the second separate phase in the management platform lifecycle. The second phase of comprehensive testing requires specialized testers to carry out [2].

The test steps of the intelligent community management platform mainly adopt the "white box test method". White box method was used to test the program. The first condition is that the application to be tested is viewed as a transparent box. That is to say, before testing the program, the structure of the program and the operation process has a certain understanding. During white box testing, the corresponding test procedures are carried out according to the corresponding logical infrastructure within the program. The process of testing the program is to test each execution path in the program to ensure its normal operation [10].

In contrast, the black box method tests a program that needs to be tested on condition that the internal structure of the program is viewed as an opaque black box. During the testing process, the processing process of the program and the corresponding internal structure are completely ignored. That is to say, in the process of black box testing, the program execution process is tested for basic functions. Do not know its operation process and structure [4].Black box testing only needs to monitor whether the program function is functioning properly. Whether the program can produce a normal result of data input and output according to the program's running process, the testing process needs to ensure the integrity of information.

This paper uses white box test because the program source code of the system is written by oneself, the function and structure of each module are very clear. The writing process of source code encountered a lot of bugs, resulting in the module function can not run normally, resulting in platform development difficulties. In the process of testing the program, breakpoint processing is carried out for each module to minimize the scope of bug occurrence and accurately locate the location of bug occurrence. Finally, the bug was successfully modified. Source code writing process, using a write,

a test method, timely correct bugs. Try to keep each module running smoothly [5].Make the module function close to the actual needs of residents. Stand in the resident user's point of view to consider the problem, solve the problem. Students should be invited to use the intelligent community management platform from the perspective of resident users and put forward valuable practical suggestions [6]. When the function of all modules of the intelligent community management platform is perfect, comprehensive test is carried out. Test all module functions by concatenating them together. When all submodules pass the test, the overall system test can be declared that the system function is basically passed.

5. Conclusions

This research is a management system for intelligent community, which is a practical management platform. The platform has effective control and specific process management for the intelligent community. The system uses php programming technology and mysql relationship management database as the main tools to design. The practicability and efficiency of the system are greatly improved.

Acknowledgments

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