Application of WeChat Mini Program in Xindong Gate Project

Qifeng Ding
Zhejiang Jianghe Construct Co., Ltd, Hangzhou, Zhejiang, 310008, China
*Corresponding author’s e-mail: dingqifeng@chinayasha.com

Abstract. The WeChat Mini Program is a lightweight application. It is a mobile application that does not need to be installed and can be used at any time. The application effectively reduces the difficulty for mobile phone users to use the application, and well solves the cross-platform and adaptation problems of mobile application development. After the system is designed and developed, it will be used in the water diversion project of the Xindong gate project. This project makes full use of the advantages of small programs to greatly improve the work efficiency of the construction site and ensure the safety of the construction site.

1. Introduction

The WeChat Mini Program is a lightweight application. It is a mobile application that does not need to be installed and can be used at any time.[1] The application effectively reduces the difficulty for mobile phone users to use the application, and well solves the cross-platform and adaptation problems of mobile application development.[2] At present, WeChat Mini Programs have been widely used in various industries.[3]

The Xindong gate project has 6 holes and each hole has a net width of 6m. The engineering level of this project is Class II. In order to conveniently manage the information of the construction process of the project and control the status of the project site in real time, we have developed a WeChat Mini Program for the management of the construction site of this project.

2. System Functions

2.1 Overall system function

This project is a small program designed and developed for use in housing construction. The main purpose is to improve the quality of housing construction and lay the foundation for the harmonious and stable development of society. Therefore, in view of some of the problems existing in modern water conservancy construction management, we provide the following four solutions: strengthening the physical fitness of the constructors, improving the management level of construction materials, paying attention to the professional skills training of the constructors, and improving the housing construction supervision system.

In summary, the overall function of this project can be divided into three modules: project information, site management, and personal center. It has been shown in figure 1.
2.2 Project information function
The functions included in this module include project creation and information management. Information management includes member information and spatial information. It has been shown in figure.

2.2.1 New project
After entering the project information page, click New in the upper right corner to enter the new project page. After filling in the necessary information, click the New button to complete the new project.

2.2.2 Member management
Different project management identities have different permissions so that users can make timely adjustments in management. The person who creates the new project is the administrator of this project. Administrators can invite or remove project members, and submit changes to the project, but they can only view their own information and data. In addition, the administrator can also invite WeChat friends to join the project through the mini program. After the friend has successfully joined the project, the administrator can set up relevant permissions for him.
2.2.3 Space management
A large building can be divided into small blocks, usually divided by building, floor, room, stairs and others. The division of space can provide convenient selection operations and make the format of location information more standardized.

2.3 Site management function
The main function of this module is to meet the needs of information management, quality management, material management, personnel management and schedule planning of engineering projects. It has been shown in figure 3.

![Site management function diagram]

Figure 3. Site management function

2.3.1 Project selection
If the user uses the on-site management module for the first time, he must first select the project before using the following functions. If you want to manage multiple projects at the same time, you can switch here.

2.3.2 My
This module mainly solves the communication problems between users of the platform during the project operation. It will realize information exchange and problem feedback between users. When the task is completed, the result will be displayed in red font "Pending Rectification".

2.3.3 Commonly used functions
There are five important parts in common functions: quality inspection, safety inspection, schedule, material record, and contact person. After the user enters, it is generally to view the information that he has submitted. The project manager has the authority to view all data. If you need to add information, click the upper right corner to enter the new page.

The contact is a module similar to the address book. Click the icon to quickly call the corresponding member.
2.4 Personal center function
This module includes functions: login and registration, personal center, which includes: user information, about, sharing applets. It has been shown in figure 4.

![Diagram of Personal Center Function](image)

**Figure 4. Personal center function**

2.4.1 Registered
Users who use the Mini Program for the first time need to register an account first. The server will generate the "userId" program and bind the user's "openid" program in the applet to realize the user management.

2.4.2 Log in
The login function will be automatically completed after the applet is opened. Personal Center.

2.4.3 Personal Center
The main function is to manage user information and ensure the security and accuracy of user information. It will expand the range of users and realize sharing and communication functions.

3. Business Process

3.1 "My" Business Process
The system is fully functional, rich and diverse. I will mainly analyze the business process of the main functions in the system. The main function of this module is to provide users with a platform for information exchange and feedback. It has been shown in figure 5.
4. System implementation

4.1 System interface
The color matching of the applet interface is mainly gray, white, and blue, and some of them are green, red, and orange. They are used in buttons to guide and remind. The overall style is simple. It has been shown in figure 6.

Figure 6. Color matching

I will show the module interface of the on-site management function, and switch between the functional modules through the tabBar navigation at the bottom. It has been shown in figure 7.
4.2 The realization of the code

This part will mainly show part of the code of the quality check module. It has been shown in figure 8.

```html
1. <view class="top flex">
2.   <view class="time">{{todayDate}}</view>
3.   <view class="add flex" hover-class="hover" bindtap="bindAddBtn"></view>
4. </view>
5. </view>
6. <view class="qualityGroup">
7.   <view class="qualityList" wx:for="{{qualityList}}" wx:for-item="item2" wx:
key="item2" wx:for-index="group">
8.     <view class="item flex" wx:for="{{item2}}" wx:key="item" wx:for-index="index">
9.       <view class="item-body flex submitView">
10.      <view class="img flex">
```

Figure 8. Part of the code
5. Conclusions and Prospects
I put the developed small program into the Xindong gate project for practical operation. This program is extensible, convenient for management function transplantation and multi-party cooperation. It has good interactivity in use, provides users with a convenient and diversified platform, and meets the management needs of the whole process of project construction. The WeChat Mini Program has a large customer base and a large market prospect. Therefore, we can make full use of the advantages of small programs to improve the work efficiency of the construction site and ensure the safety of the construction site. The test results show that the system has reached the target requirements of engineering informatization and intelligence, which is conducive to improving the efficiency and level of engineering project management. In the near future, 5G mobile networks and artificial intelligence will gradually become popular, and the development of the mobile Internet is bound to become more rapid. I hope that the water conservancy engineering industry can gain momentum and create another glorious era under the influence of this industry.

References
[1] Liu Yujia. System realization and prospect analysis of WeChat "small program" development [J]. Information and Communication, 2017(01): 260-261.
[2] Liu Jialin. "One Belt One Road" information and route dynamic visualization based on WeChat applet[J]. Beijing Surveying and Mapping, 2018, 32(11): 1293-1296.
[3] Sun Xiangping. Analysis of the existing problems and countermeasures in the current building construction process [J]. Building Engineering Technology and Design, 2014, 19: 285-285.
[4] Zhang Xiaoyan. System realization and prospects of WeChat "small program" development[J]. Electronic Technology and Software Engineering, 2018(12): 49-50.
[5] Ye Jianqiang. Research on the design and realization of the intelligent management system for the whole process of engineering projects based on big data[J]. China Management Information Technology, 2020, 23(22): 91-93.