Construction of Agricultural Information Service Platform of Chinese Herbal Medicine Based on Android

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Abstract: Through the construction of agricultural information service platform of Chinese herbal medicine, this topic includes planting technology, recommendation of improved varieties, market dynamics, grade identification, online question answering and other services. It can also push relevant information according to users' concerns after considering the differences of users' needs. The APP can provide service guidance for the production of Chinese medicinal materials in the first time and improve the economic benefits of growers.

Modern agriculture refers to the socialized agriculture that applies modern industry and scientific management methods provided by modern science and technology .Information technology has gradually penetrated into the production, sale, storage and transportation of agricultural services. It is the core element to optimize the structure of agricultural industry and improve the pattern and quality of agricultural development, which is the stage of modern agricultural development that traditional agriculture must go through.[1]

1. The Background and Significance of the Study

With the continuous development of the economy and the unstoppable improvement of people's living standards, people's pursuit of health has become more and more intense. Maintaining physical health through health care products has gradually developed into a social trend. People's demand for Chinese herbal medicine will also continue to grow. While, how to optimize the varieties of medicinal materials, together with the scientific and standardized planting, and the way to precisely regulate and manage ,all require more specialized decision-making ability of medicinal herb growers. Nowadays, with the rapid development of information technology, it is an important subject to be solved urgently to precisely guide the pharmacists to cultivate marketable Chinese medicines delicately[2].With the widespread popularity of mobile devices such as smart phones and tablet computers, the promotion service of Chinese herbal medicine planting information can effectively solve the problem that it is difficult for Chinese herbal medicine growers to earn the information. Solutions to the "last kilometer" problem restricting agricultural production [3-7].The platform can optimize the methods of information collection, strengthen the supervision and management of the production quality of Chinese medicinal materials, facilitate the standardization of planting and intensive cultivation during the procedure when guiding the Chinese medicine farmers to product the Chinese medicinal plants, together with providing service guidance for the production of Chinese medicinal materials. Besides above, it can improve the economic benefits of growers, and promote the rational and effective use of various projects of supporting funds of Chinese medicinal materials invested by the government [8].

2. Agricultural Information Service System

Agricultural informationization is the trend and mainstream of the world agricultural development, which conforms to the development thinking of science and technology agriculture. At present, in the

process of rural information service, there are some problems in information quality, information content and information validity, which can not meet the actual needs of drug farmers. Based on this situation, the personalized push technology, regarded as an effective and fast way to obtain information, is an effective way to solve the problem of earning information. Implementing the agricultural information resources planning policy, realizing the high integration of agricultural information resources from macro and systematic aspects, effectively improving the sharing of agricultural information, will improve the level of agricultural development qualitatively. The agricultural information service system of Chinese herbal medicine mentioned in this paper is to provide real-time agricultural information service and consultation for the medicine farmers. The agricultural information obtained can directly satisfy agricultural production activities, mainly including obtaining initial agricultural information, technology dissemination and relevant agricultural information of Chinese herbal medicine. Agricultural information of Chinese herbal medicine covers a relatively wide range, including agricultural production information, agricultural market information, agricultural consumption information and so on. [9-12].The service platform can provide users with price trend queries , which can provide basis and guidance for planting varieties selection in the next year. The platform is widely used by users, not only for Chinese herbal medicine growers, but also for Chinese herbal medicine production and circulation enterprises, government agencies, drug regulatory departments, and research institutes of medical colleges and universities. All of them can use the platform to earn relevant services. Traditional Chinese medicine production and circulation enterprises can use this platform to inquire about the information of traditional Chinese medicine and find the source of goods; government agencies can use this platform to guide farmers to achieve precise poverty alleviation and poverty alleviation; drug supervision and management departments can use this platform to real-time monitor the market price of traditional Chinese medicine; scientific research units of medical colleges and universities can use this platform to inquire about the latest market trends of traditional Chinese medicine and carry out breeding together with analysing and predicting of seed market, besides, they can also get the technology frontier information of Chinese herbal medicine planting and so on. Therefore, in the long run, the platform can create high economic and social benefits.

3. Software Function Design

The system mainly provides the following services for Chinese herbal medicine planters: technical information related to Chinese herbal medicine planting and information guidance for breeding, market dynamics, policies and regulations, grade identification, data analysis, harvesting and processing. Besides, they offer data supports to the intelligent construction of the system. The main function modules are as follows:

3.1 Seed Farming Management.

This function module is the core module of the system. It introduces the planting and Cultivation Techniques of common Chinese herbal medicines suitable for national or regional planting, Including how to choose the appropriate geographical location, when to raise seedlings, inoculation, pest control related to Chinese herbal medicine, how to fertilize and other relevant information. To help farmers to achieve standardized and scientific cultivation of Chinese medicinal materials, while increasing the output of medicinal materials, more attention should be paid to the quality of medicinal materials, so that the limited input of the farmers has the greatest benefit.

3.2 Precise Recommendation of Improved Varieties.

The main function of this module is to provide high-quality medicinal seeds for farmers with the support of the latest science and technology. The data of seed price, amount of seed used per mu, when is the best sowing date, fertilization in growth period, and yield per mu of Chinese medicinal materials are clear at a glance. especially those from some genuine origins of Chinese medicinal materials, have begun to consider planting Chinese medicinal materials under the encouragement of

relevant government policies, but many of them plant for the first time . They have no experience in planting Chinese medicinal materials let alone knowing how to choose varieties. This module will answer the questions about planting and breeding of Chinese medicinal materials, and accurately recommend popular varieties in the current market for the medicine farmer to select.

3.3 Harvesting and Processing of Traditional Chinese Medicine.

The difference between Chinese medicinal materials and other agricultural products is that Chinese medicinal materials should be harvested when the content of their active ingredients ranked the highest level. However, many farmers do not know the harvesting season of Chinese medicinal materials and the law of the growth and decline of their active ingredients. The processing methods of Chinese medicinal materials only stay in the basic operation of airing and drying, nor do they know the different parts of Chinese medicinal materials and the processing methods. This column mainly introduces the harvesting season and processing methods of medicinal materials according to the Pharmacopoeia of the People's Republic of China, and provides the latest information for the pharmacists as a reference from the factors that affect the properties and qualities of medicinal materials.

3.4 Classification Identification of Traditional Chinese Medicine.

Identification of traditional Chinese medicines is a necessary knowledge for drug farmers. In addition to introducing the commonly used methods for identifying the appearance characteristics of Chinese medicinal materials according to the Pharmacopoeia of the People's Republic of China, this module also includes some relatively simple physical, chemical or instrumental analysis methods for identifying the purity and quality of Chinese medicinal materials. The commonly used grading methods of some precious and fine medicinal materials with grading and specifications are also introduced. To help farmers identify the authenticity and quality of cultivated medicinal materials, and to achieve market segmentation of medicinal materials, so that the farmers can sell their products by the grade.

3.5 Market Dynamics Information.

This function mainly includes the analysis of the market situation and the forecast of the development trend of the traditional Chinese medicine industry. It considers the market price and market demand of the individual Chinese medicine, and the forecast of the price trend with the help of experts according to the market experience, so as to help and guide the drug farmers to connect with the market and sell their products at the most appropriate time and at the most suitable price.

3.6 Data Analysis.

The system can record the clicks of different users in different seasons and columns, and analyze the relevant data to get the preference degree of medicine farmer for the current columns and medicinal materials, so as to guide the backstage service personnel to adjust their work focus in time and prepare for the next precise push. The system automatically records the user's clicks on the content of each column[13].

4. System Development and Implementation

4.1 Overall Design

The overall design of APP is four layers (Figure. 1). Data layer: Cloud database, responsible for storing all kinds of data; Service layer: used as providing data access, privilege allocation, decision support and message push services; Application layer: in charging of service and client messaging and data format conversion, serialization, visualization and other docking work; Performance layer: including APP customers and background management clients.
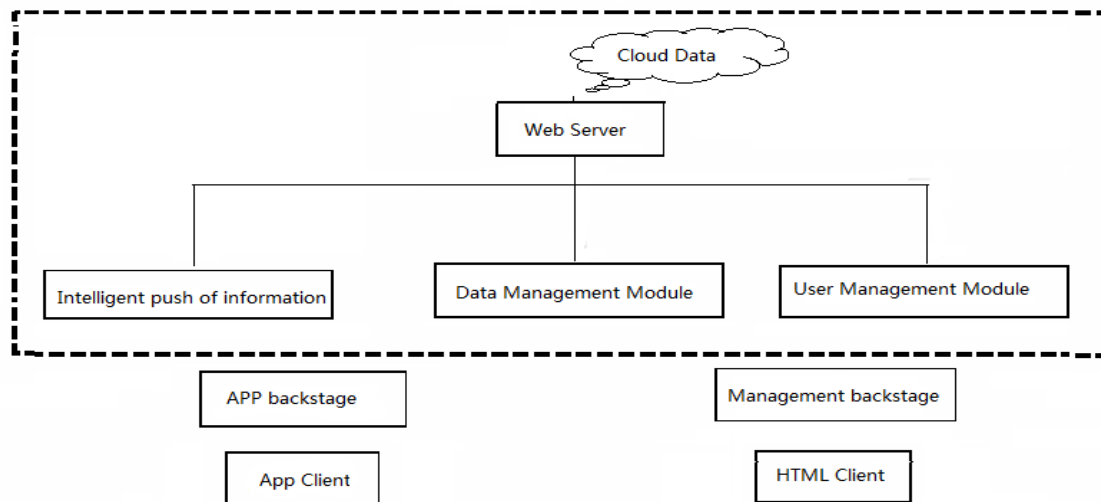
Figure. 1 System Overall Design

4.2 Interface Design.

The original intention of APP design is precise, reliable, pragmatic and timely. The interface design of the APP is rather simple and intuitive. It provides professional and accurate agrotechnical services for the main body of pharmaceutical and agricultural management. It can fully display the functions of APP in an effective interface as far as possible. Meanwhile, it explores how to solve the problems of peasant households'demand and agrotechnical services in traditional agrotechnical services and how to solve the timeliness and service effect of agrotechnical services. It aims to realize the real-time questions and experts from peasant household Real-time answers, learning real-time docking, so as to effectively help the farmers to obtain the required technology and information and improve the efficiency of agricultural technology services. Besides above, the experts can obtain feedback information from drug farmers through APP and to understand farmers' satisfaction with service products and improve opinions. The interface design is based on sorting out and analyzing the user's concerns and experiencing similar applications. Beside that, it also considers the principle of simple user experience, easy operation and easy access to agro-technical guidance for agricultural operators. Therefore, the corresponding plates are specially designed. Starting with a concise and clear operation interface, we try our best to make it possible for even the ordinary farmers to operate quickly. In addition to that, we try to highlight the practical function, which makes it easier for the user to discover and search other kinds of information.

4.3 Business Modeling.

Business modeling describes the objects and elements involved in enterprise management and business in the way of software model, as well as their attributes, behaviors and relationships. Business modeling emphasizes to understand, design and construct enterprise information system in a systematic way.

The business model of common Chinese herbal medicine planting information service platform carries out business modeling in three aspects: front end, back end and database from the perspective of managers and users. Background part: Web service that includes news addition, market dynamics, and organizing relevant data for mobile phone. Front-end section: column view, data list, data display (show. html). Column name edits the column corresponding column ID. list.htm finds the column in the database corresponding data items through the request . Show. HTML searches the data under the specific data ID through the request. In the background, Load in Web Service is responsible for organizing the data needed by .html, and show. PHP in Web Service is in charge of organizing the data needed by. html.

5. Expectation

At present, it has become a must for more Chinese farmers and even people engaged in agriculture-related industries to obtain relevant agricultural technology guidance information through portable mobile terminals (mobile phones, tablet computers).Moreover, in the environment of increasing network speed and lowering tariffs, using mobile portable terminals to provide agricultural technology services is a sustainable, less burdensome and scalable mode. Facing the huge demand of pharmaceutical farmers, the agricultural technology promotion of Chinese herbal medicine informationization work is expected to have some achievements [14-15].Of course, the agricultural technology extension of Chinese herbal medicine based on APP focuses on solving small problems and personalized services that agricultural operators encounter in daily production. In case of major agricultural production problems, it should be supplemented by other ways to ensure the smooth progress of agricultural production. In the future, the functions of APP will be gradually improved according to the feedback from pharmacists. For example, after drug farmers ask questions through APP, they can use short message to push the first time. The app may join expert consultation to further improve the real-time and authority of problem solving and insert map navigation module to show the qualified agricultural enterprises around the region, in order to save the time of selecting and purchasing agricultural funds and so on, which can make contributions to promote the rapid and healthy development of regional herbal medicine agricultural technology promotion work.

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