Application of AIGC Based Virtual Community in Rural Cultural Revitalization

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Abstract: *With the help of AIGC technology, we have created a unique platform for innovation in rural culture and successfully incubated multiple innovative IPs. At the same time, through artistic sound synthesis and the creation of captivating videos and images, we have injected new vitality into the comprehensive revitalization and sustainable development of rural culture. This measure not only brings glory to the ancient stories, quaint street scenes, and unique ethnic characteristics of rural areas, but also opens a new window for promoting rural specialty agricultural products, promoting the deep integration of rural culture and tourism, and bringing new opportunities for rural economy and culture.*

Keywords: AIGC, Virtual community, Rural cultural revitalization.

1. Introduction

China's precision poverty alleviation work has shifted from the tackling stage to the consolidation stage [1], More ways and means are needed to promote the comprehensive development of rural areas. In recent years, the widespread application of artificial intelligence has provided new ideas for rural development. The rapid development of Artificial Intelligence Generated Content (AIGC) technology, with its powerful data processing capabilities and innovative potential, has brought new possibilities for the inheritance and development of rural culture. Imagine a platform that not only gathers rich materials of rural culture, but also utilizes AI technology to deeply mine and creatively transform these materials, presenting them in a new form to the public. Such a platform can not only better inherit and protect rural culture, but also stimulate more people's interest and love for rural culture, thereby promoting the revitalization and development of rural culture.

2. Introduction to Development Environment and Technology

The front-end of the virtual community page for rural cultural revitalization is built using Vue and ElementUI, while the back-end is built using Springboot and Mybatis. Content acquisition uses ChatGpt, ERNIE Bot, etc. to generate novels. SpringBoot is a popular development framework designed based on Spring 4.0 [2], which features automatic configuration and convention over configuration, simplifying the configuration and development of Spring applications [3], enabling developers to build and deploy applications more quickly. MyBatis is an open-source project from Apache, which is a persistence framework [4], designed to simplify database access. ElementUI is a UI framework designed for Vue. ElementUI is a UI library that does not rely on Vue and is currently a good UI framework for project development in collaboration with Vue [5]. Vue.js is a progressive JavaScript framework primarily used for building user interfaces, built on standard JavaScript, HTML, and CSS [6].

ChatGPT is the latest achievement of AI Ge adapted Content (AIGC) technology, which relies on artificial intelligence, neural networks, human-computer interaction and other technologies to generate text, images, audio, video and other content according to user needs. ERNIE Bot is a big language model for knowledge enhancement. Based on the PaddlePaddle deep learning platform and Wenxin knowledge enhancement big model, it continues to integrate learning from massive data and large-scale knowledge, and has the technical characteristics of knowledge enhancement, retrieval enhancement and dialogue enhancement [8].

3. System design

3.1 System Framework Structure Design

3.1.1 View Layer

The view level can be divided into two main parts, namely the administrator view and the user view, each of which carries specific functions and management requirements.

Firstly, the administrator view function.

After the administrator logs in and verifies, they can comprehensively manage various functions of the platform. Administrators can not only view and edit administrator and user information to ensure accuracy and completeness, but also manage novel IPs, policies, rural tourism, and products to ensure timely updates and effective communication of their content. At the same time, the administrator is responsible for reviewing poverty alleviation projects and applications from impoverished households, as well as shipping orders. In addition, administrators also supervise novel IPs, understand user feedback, and provide strong support for poverty alleviation work.

Secondly, the annual user view function.

Users can browse the latest novel IPs and policies. At the same time, users can also view farmhouses and purchase poverty alleviation goods. In addition, users can manage their own orders, including viewing, confirming receipt, and deleting orders, and can submit applications for impoverished households and poverty alleviation projects. Users can also comment and like poverty alleviation policies, share insights, and jointly promote the improvement and development of poverty alleviation work.

3.1.2 Business Logic Layer

The business logic layer is the core component of this platform, which receives requests from the view layer, executes corresponding business regulations and data validation, and interacts with the data access layer to obtain or store data. The business logic layer ensures the consistency of the system's business logic and data, and is the key to system stability and scalability.

3.1.3 Data Access Layer

The data access layer is responsible for the interaction between the platform and MySQL database, including operations such as querying, adding, updating, and deleting data. This ensures that the system can obtain and process data in real-time and accurately, providing efficient and reliable services for administrators and users.

3.1.4 Physical Layer

The physical layer provides the actual storage and retrieval mechanism for data. Through the physical layer, MySQL can efficiently and reliably manage large amounts of data and support various complex data operations.

3.2 System Database Design

The database design mainly revolves around novel IP, poverty alleviation projects, users, applications, reviews, policies, and related comment and like functions. The entire database system achieves structured and effective management of data by defining multiple entities and their attributes, as well as their relationships.

Users can submit multiple applications, each associated with a user. Each application needs to be reviewed, and there is a one to many relationship between review and application. In addition, users can comment and like poverty alleviation policies, so there is a one to many relationship between policies, comments, and likes.

4. System Outlook

The younger generation can fully participate in and immerse themselves in the cultural characteristics of rural areas by creating and sharing novel IPs generated from AIGC content, synthesizing emerging cultural forms such as music and videos, providing new vitality and increasing popularity for enriching rural cultural elements.

The old customs and stories in rural culture are often incomplete in content and difficult to excavate historical sedimentation. The virtual community deeply combines rural scenes with the experience gained from reading, effectively enhancing the impression of rural culture, strengthening the regional pride of loving and praising hometown, and promoting the long-term concept of building and revitalizing rural areas.

1) The purpose of the project is to use storytelling as a prelude, industry linkage as the tone, and grand IP development as the trend. The project will create a modern novel IP with distinctive rural cultural elements, creating a new model for promoting rural characteristics and promoting the integration of rural culture and tourism. The so-called IP (Intellectual Property) refers to intellectual property. In this project, the essence of novel IP refers to the diversified operation of a certain work based on textual content, in order to achieve coverage of multiple audience groups, maximize popularity, and achieve the highest economic value and brand effect. The development forms include movies, games, anime, peripheral derivatives, etc.

Integrating Chinese rural and cultural elements into modern novel IPs can inherit and promote traditional rural culture, promote a new model of rural cultural tourism integration, explore the intrinsic value of different rural cultures in China, and adapt traditional rural cultural elements such as intangible cultural heritage into interesting novel forms such as suspense stories, detective novels, fantasy novels, etc., attracting more readers' attention, thereby enhancing their understanding and interest in traditional culture, and attracting more tourists and literary researchers to visit and investigate rural areas.

Through the creation and promotion of novel IPs, the rural cultural industry can be expanded, attracting more domestic tourists to travel and consume in rural areas, cultivating rural cultural and creative industries, creating more employment opportunities, improving the quality of life and happiness of local residents, and thus driving local economic development.

The novel IP showcases traditional and rural culture to the world, allowing more people to understand and love rural culture. At the same time, it also helps to increase the output of rural cultural products and enhance the influence of regional rural culture.

2) Novel IP based on AIGC assisted creation will become a new model for cultivating innovative talents in rural culture. AIGC refers to the use of artificial intelligence technology to generate content, and is also considered a new type of content production method after UGC and PGC. AI painting, AI writing, etc. are all branches of AIGC. AIGC makes writing and drawing activities more convenient, but it also has some shortcomings. For the team's project, AIGC cannot provide a detailed description of the rural culture in Maoming, a special location, and adapt it into a complete novel due to the lack of relevant rural data in some unknown and underdeveloped areas. Therefore, the team's goal is to enable AIGC to learn more rural cultural data from different regions in order to make the data more complete and create better works. This project combines AIGC writing and drawing assistance with manual production, which can be completed at a lower cost, and adds a variety of vivid content to attract users. These generated contents will ultimately be manually detected, reducing the risk of content violations.

3) The project aims to explore, integrate, and innovate rural culture, enhance farmers' cultural literacy and identity, and attract more cultural talents to create and research in rural areas, promoting the prosperity and development of rural culture. This is not only beneficial for rural revitalization, but also for the construction of Chinese culture.

Text can become a carrier for recording the inheritance of rural culture, organically combining traditional rural culture, rural customs, rural architectural styles, etc. into various types of novels, allowing more people to understand, recognize, and love rural culture, thereby promoting the development of rural economy, cultural innovation, cultural inheritance, urban-rural cultural exchange, and other aspects, with broad social value and economic benefits.

4) Novel IPs not only have beautiful textual descriptions, but also can automatically generate corresponding scene images through AI. By visualizing the story scenes, character images, etc., users can have a deeper understanding of the story, improve their reading experience and participation, and solve the problem of mismatched novels and illustrations. Through exquisite text and images, attract more readers to join this creation, share their stories and creativity, and create a "down-to-earth" novel, thereby promoting the development and growth of IP content, and providing more comprehensive data on the specific details of traditional rural culture in different regions.

Not only that, our team will provide new ideas for rural revitalization, attract more attention to rural areas through the creation of novel IPs, explore new ideas and plans for rural revitalization, and promote the development of rural revitalization.

5) Grounded and close to life are the core, open and intelligent creation allows more people to participate in creation, and the works created are also closer to life, with stronger practical significance and communication power, which can better meet readers' pursuit of real life. At the same time, it stimulates people's enthusiasm for creation and creativity, and can also improve people's cultural confidence and cultural identity. Moreover, some rural cultural data that AI lacks can be supplemented and improved.

5. Epilogue

People from different cultural backgrounds understand rural areas and participate in rural revitalization. Our team's original intention for this project is to discover more outstanding creators and create more new inspirations for rural revitalization through IP forms.

Fund Project

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