Design and Application of Agricultural E-commerce Intelligent Voice Drive System

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Abstract: With the rapid development of Internet technology, e-commerce has surpassed the traditional business model and has been developing rapidly. It has become a new direction for the continuous development of the economy. As a big agricultural country, China must constantly improve agricultural informatization, achieve efficient and modernized development of agriculture, and bring development and convenience to society and the economy. The intelligent speech recognition system can provide evolutionary and upgraded support for the development of agricultural e-commerce, improve efficiency and create profit space for agricultural e-commerce activities.

1. Introduction

China is a big agricultural country. Under the market-oriented advancement of agricultural industrialization, mainstream offline market transactions can no longer meet supply and demand. With the ongoing of information technology, e-commerce stands-out by reducing transaction cost and inventory pressure, plus shortening trading cycle and creating more business opportunities. In this way general e-commerce greatly stimulates the development of agricultural e-commerce.

In the field of e-commerce, the interaction between man and machine can be easily achieved in the form of language, which is state-of-the-art. The intelligent voice system can help farmers with weaker literacy levels to conduct agricultural e-commerce activities more conveniently.

2. An Overview of Agricultural E-commerce Intelligent Voice

2.1 The concept of speech recognition technology

Speech recognition technology, also known as Automatic Speech Recognition (ASR), aims to convert vocabulary content in human speech into computer readable input such as buttons, binary codes or sequences of characters. Through the process of machine recognition, the speaker's voice information is converted into a corresponding text command, so that the machine can understand the natural language of human beings.

2.2 Development Status of Agricultural E-Commerce Intelligent Voice

In the current situation, the development of speech & text translation and question & answer is influenced by artificial intelligence technology and multilingual big-data. After the information partition breaks down, it can be realized through the voice database big data. If the software platform can be combined with the artificial intelligence translation, and the language cognitive situation be applied, those above can bring new vitality and challenges to the language service industry.

Until now, there are more than 6,000 agricultural websites in China. However, due to the lack of agricultural information talents, more than 80% of the operators are between 50 and 60 years old, and a few farmers still have difficulties in literacy, which makes it difficult to effectively dock in e-commerce activities. .

The realization of intelligent voice interaction not only needs establishing the theoretical system of intelligent language language understanding and knowledge sharing from the perspective of big

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data, but also needs dealing with the unbalanced development among voice and text, the complex interaction scene, the individualized demand and the user's intention difficult to grasp and so on.

3. Research on Key Technologies of Agricultural E-Commerce Intelligent Voice Drive

The intelligent voice-driven technology based on big data is to convert voice information into a signal that can be recognized by the machine, and into an open domain intelligent Q&A in the field of e-commerce. According to a large number of agricultural e-commerce text data, combined with the existing e-commerce big data platform, the technical training of cloud computing, big data and intelligent processing technology, we can customize the intelligent speech recognition model conforming to the multi-scenario application of agricultural e-commerce. The model adopts a distributed architecture, which splits a large task into many small tasks and processes them at the same time. This improves the accuracy of speech recognition, simplifies the service process, and brings the users a more convenient experience in the agricultural e-commerce activities.

Agricultural e-commerce intelligent voice drive key technology workflow: Build an agricultural e-commerce big data platform-Build a featured voice database-Establish a speech recognition model-Personalized interactive questions and answers using deep neural networks to create personalized interactive questions and answers.

3.1 Build a voice database with characteristics of the agricultural e-commerce industry

The intelligent voice database and pronunciation rule base are important parts of the establishment of the voice system. It contains the collection of voice resources, and the existing agricultural e-commerce voice data, including basic data, industry voice data, and enterprise voice database. In another part, the database is the basic resource of the question and answer system. Natural language understanding is the core technology for the following: deep representation and reasoning of questions and answers, deep semantic representation method independent of the form of language surface, the semantic relationship network, knowledge community of establishing knowledge maps, the collation of multiple methods of pedigree analysis.

3.2 Integrating speech recognition technology in the field of agricultural e-commerce

Natural language question expressions are characterized by diversity, ambiguity and ambiguity. Therefore, it is necessary to deeply study the deep and unified problem representations that are independent of language type, language style and surface form, and to accurately understand and model user problems and intentions at the semantic and logical levels for context and user attributes.

Starting from the unbalanced characteristics of multi-language and multi-domain resources in big data, this paper explores the migration method of machine translation knowledge from labeling resource-rich language to labeling resource scarce professional language, and designing machine transformation model combining big data and prior knowledge. The digital coded real natural language is converted into a digital model, and the data is encoded and compressed. The reflection speed and the service efficiency are improved, and the voice data detected in the information is collected in a large amount to determine effectively voice information from the user. By feature extraction, transforming speech into vector sequence, allowing speech recognition engine to align, analyze, judge, solve accent problems, break through resource constraints, effectively mine and migrate translation knowledge of resource-rich languages, we can build the conversion system between voice and text in the specific field.

3.3 Establish a personalized interactive Q&A

Smart Q&A will be conducted in an interactive environment, so it is necessary to track changes in user intent, to capture multi-layer, long-distance context window valid information, to establish an analytical model of semantic-level user intent understanding, and efficient correlation calculation between problem intent representation and answers. By integrating a variety of interactive answer strategies, it is possible to implement and push forward multiple rounds of intelligent questions and

answers in an interactive environment. The deep neural network is used to establish a personalized user language style model to achieve a variety of answer generation. Training is performed according to the voice resource library to form a speech model covering different application scenarios. A database is generated after combining a large amount of general-purpose text data, e-commerce text data and self-learning of speech library. Through the combination of probabilistic reasoning model and retrieval model, the technology of dialogue data semantic modeling is realized, which is deeply adapted to various environments.

4. Application Benefits of Intelligent Speech Recognition Technology in Agricultural E-commerce

With the development and advancement of technology, intelligent speech recognition technology and a wide range of products and services aim to reduce employee pressure and improve user experience for a wide range of artificial intelligence technologies. At present, the application of speech recognition in the field of e-commerce is mainly based on speech recognition technology to create an e-commerce security model and to realize artificial intelligence as well as human-computer interaction.

4.1 Social benefits

The realization of information exchange and question answering system in the field of agricultural e-commerce will directly solve the weak points of agricultural e-commerce customer service, logistics, product information consultation and artificial experience, and it is expected to completely change the traditional human-computer interaction. Based on the new theory of representation and reasoning in the industry knowledge base, it can greatly enhance the performance of the authoritative intelligent question-and-answer system and greatly improve the operational experience of rural users, the operational efficiency of the entire agricultural e-commerce field, and benefit new agricultural informationization. The rapid spread of technology will further advance the agricultural e-commerce industrialization model.

4.2 Economic benefits

Big data contains economic trends. Getting high quality and large-scale knowledge from big data is the core technology. First, the key technologies mentioned above will be applied to agricultural e-commerce intelligent language understanding, question and answer and speech translation. According to relevant reports, by 2020, smart seats will replace 40% of traditional artificial seats, and 10 million customer service personnel in the Chinese market will be replaced by smart seats. The market have a lot of space, and economic benefits are generated by saving labor.

The second is to build a big data-driven agricultural e-commerce intelligent language understanding, voice translation and question-and-answer system common key technology cloud platform, which can form a fast channel for the transformation of key technologies into intelligent language information service capabilities. The voice recognition technology of the agricultural e-commerce platform breaks through the technical barriers of farmers' lack in professional knowledge. It enable farmers to use electronic equipment to conduct online business activities without leaving home, which is to be a new type of e-commerce peasant, and to better participate in and promote the construction of e-commerce platform.

The artificial intelligence technology in the field of agricultural e-commerce will assist the intelligent voice system. The application scope of the intelligent voice customer service is very wide, which can alleviate the artificial pressure, improve the work efficiency, prolong the working time, and can process quickly a large amount of similar customer service consulting, helping users achieve a keyboard-free operation. So it achieves autonomy and digitization in a efficient and convenient way.

5. Conclusion

The development of agricultural e-commerce intelligent voice and digital is inseparable. The needs of society and industry are the biggest driving force. The establishment of practical and professional domain intelligent voice system will provide more personalized and convenient services to our life and work.

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