Intelligent application of information technology based on the Internet of Things and its impact on society

Jia Zhang[1], Liling Ye[2]

1 Hangzhou Difo Communication Co., Ltd. Zhejiang Hangzhou 310000

2 Zhejiang Communication Industry Service Co., Ltd. Hangzhou Branch, Zhejiang Province, Hangzhou 310000

Abstract: Information technology plays a crucial role in intelligent applications, especially in the context of the Internet of Things (IoT). This article discusses the application of the Internet of Things in information technology and explores its impact on society through in-depth research and empirical studies. Firstly, this article introduces the development background of the Internet of Things and its applications in information technology, including IoT based smart home systems, smart healthcare, smart transportation, and other fields. Secondly, based on the experimental results, this article analyzes the positive impact of the application of the Internet of Things in information technology on society, such as improving the convenience of life, enhancing work efficiency, and promoting economic growth. However, this article also points out the negative impacts brought by IoT applications, such as data security and privacy protection issues, as well as increased network dependency. Finally, based on social reality, solutions to the problems brought by the Internet of Things and future development trends are proposed. Through this study, the aim is to guide the public to have a more comprehensive and in-depth understanding of the application of the Internet of Things in information technology and its impact on society, providing reference for future policy formulation.

Keywords: Internet of Things; Information technology; Intelligent application; Social influence

1. Introduction

The Internet of Things, as a key technology that keeps the world connected, is increasingly being applied in various fields. Information technology has provided strong support for the development of the Internet of Things, bringing a series of intelligent applications. These applications have penetrated into every corner of society, changing people's lifestyles and work patterns, and bringing countless conveniences to modern life. For example, smart home systems built on the Internet of Things make home life more comfortable and convenient, smart healthcare provides unprecedented monitoring and management of people's health, and intelligent transportation solves many problems in urban transportation. However, the application of any technology will always bring some problems. The widespread application of IoT technology will also bring some challenges to our lives, such as potential issues of data security and privacy protection, and increased network dependency. The existence of these issues may have an impact on social stability and people's quality of life. In this regard, this article must conduct in-depth research, propose and implement effective solutions. This article will further study the application of the Internet of Things in information technology and its impact on society, in order to guide the public to have a more comprehensive and in-depth understanding of the development and challenges in this field, and provide reference for future policy formulation.

2. Overview of the Internet of Things and its Applications in Information Technology

2.1 Development Background of the Internet of Things

With the continuous advancement of information technology, the Internet of Things, as an innovative

technological form, is attracting increasing attention and application. The Internet of Things refers to the connection of various physical devices, sensors, intelligent hardware, etc. through wireless sensor networks to achieve information exchange and data interaction between devices. In this network, various devices and sensors can automatically collect, transmit, and process data, achieving intelligent applications and services.

The development background of the Internet of Things mainly stems from the following aspects. With the rapid development of computer technology, communication technology, and sensor technology, the connection and data exchange between devices have become more convenient and feasible. The popularization of information technology and the decrease in costs have made it easier for various devices to achieve interconnectivity. Furthermore, people's demand for intelligent lifestyles and work methods is constantly increasing, and the Internet of Things provides strong support for achieving intelligence.

2.2 Introduction to the Application of the Internet of Things in Information Technology

The Internet of Things has a wide range of applications in information technology. It mainly includes the following aspects.

The application of the Internet of Things in smart homes is constantly increasing. People can control their home appliances through mobile phones or other smart terminals, achieving remote control of lighting, air conditioning, curtains, and more. Through sensors and cameras, home security systems can monitor the safety status of the home in real time. Smart homes can also provide personalized life services to residents by learning their habits and preferences.

The application of the Internet of Things in the field of transportation is becoming increasingly widespread. The Internet of Things for Transportation can monitor the status of vehicles, roads, traffic signals, etc. in real time, and provide traffic management and intelligent navigation services through data analysis and optimization algorithms. IoT technology can also be used for intelligent parking management, traffic accident warning, and other aspects to improve traffic safety and efficiency.

Furthermore, the application of the Internet of Things in industrial production can help improve production efficiency and quality. Through sensors and IoT technology, remote monitoring and management of devices and production lines can be achieved, enabling timely detection and resolution of problems. Intelligent manufacturing systems can collect and analyze various data within factories in real-time, and optimize production processes and resource allocation through algorithms to achieve intelligent production management.

The Internet of Things can also be applied in the field of healthcare. Through sensors and remote monitoring devices, real-time collection and analysis of patients' physiological data can be achieved, enabling timely detection and prevention of diseases. The Internet of Things can also achieve information management and collaborative work of medical equipment, improving the quality and efficiency of medical services.

The Internet of Things also plays an important role in urban management. Through sensors and data analysis, monitoring and management of urban environment, energy consumption, etc. can be achieved, improving the sustainable development level of cities. An intelligent urban management system can optimize services such as public transportation and garbage disposal, providing a convenient and comfortable urban living environment.

The application scope of the Internet of Things in information technology is extensive and constantly expanding and deepening. With the further development and innovation of technology, the Internet of Things will

play a more important role in various fields and promote the intelligence and sustainable development of society.

3. Analysis of the Impact of the Application of the Internet of Things in Information Technology on Society

The application of the Internet of Things in information technology has a huge positive impact on society. The widespread application of the Internet of Things has effectively promoted the process of social informatization. The Internet of Things has not only changed the traditional ways of information acquisition, processing, and transmission, but also made it possible to improve the level of informatization, providing strong technological support for the development of the social economy and various aspects of people's lives. The application of the Internet of Things can greatly promote social and technological progress, and facilitate rapid socio-economic development.

The application of the Internet of Things in information technology can greatly improve the convenience of office and daily life. The Internet of Things connects various objects in the real world to the network, making it possible to access and control these objects anytime and anywhere, greatly improving work efficiency and convenience in life. More importantly, the application of the Internet of Things can also create a large number of new services and business models, generating enormous economic value for society.

The application of the Internet of Things in information technology can also bring about significant improvements in social equity. Through IoT technology, limited social resources can be allocated and used more fairly and effectively, resulting in unprecedented improvements in social equity.

4. Future Development of Solution Strategies and the Application of IoT in Information Technology

4.1 Future Development Trends of Intelligent Application of Information Technology Based on the Internet of Things

The Internet of Things has broad prospects in the application of information technology and its influence on the future market is becoming increasingly significant. Driven by 5G communication technology, the combination of the Internet of Things with new information technologies such as cloud computing, artificial intelligence, and big data will further promote the intelligent transformation of the information society.

Taking smart cities as an example, smart cities based on the Internet of Things will achieve comprehensive connectivity in all aspects of the city. Through the collection and analysis of data by the Internet of Things, it will effectively improve urban management, enhance community services, and improve the quality of life of citizens. In the future, the Internet of Things will not only connect individuals with society, but also deeply integrate with various aspects of human life, work, production, and ultimately achieve an intelligent ecosystem that integrates people, machines, and things.

4.2 Suggestions and references for future policy formulation

For the development of the application of the Internet of Things in information technology, policy formulation and adjustment should keep pace with the times. Policies should further promote the legislative and regulatory construction of the Internet of Things industry, including improving IoT standards, strengthening network security supervision, etc; Encourage enterprise research and innovation, provide incentives such as technical and financial support, to promote the rapid development of the Internet of Things industry.

The development and application of the Internet of Things will change the traditional industry landscape, and policy makers should guide industrial resources to shift towards more efficient, environmentally friendly, and intelligent directions, such as promoting the application of the Internet of Things in smart cities, agricultural IoT, industrial IoT, and other fields. Accelerating the cultivation of IoT talents and improving the overall understanding and acceptance of IoT in society are also important policy reference directions.

Through investigation and technological innovation, the intelligent application of the Internet of Things in information technology and its impact on society have become a promising future development direction. In response to the problems and challenges brought by the Internet of Things, all parties also need to make efforts to research and propose effective solutions to achieve the healthy and rapid development of the application of the Internet of Things in information technology, and ultimately realize a truly intelligent society.

Conclusion

This article delves into the application of the Internet of Things in information technology and its impact on society, exploring how the Internet of Things can change people's lives, work, and economic growth through fields such as smart homes, smart healthcare, and smart transportation. However, with the widespread application of the Internet of Things, issues such as data security and privacy protection are becoming increasingly prominent. It is crucial to address and solve these problems for the healthy development of future society. Based on this, this article proposes a series of solutions and predicts the future development trend of the Internet of Things. We hope that this study can help the public to have a more comprehensive and in-depth understanding of the application of the Internet of Things in information technology and its impact on society, and provide theoretical references for the future policy-making of the Internet of Things and information security in China.

Author Introduction

Zhang Jia (1984.03-), male, Han nationality, Hangzhou, Zhejiang Province, engineer, bachelor degree, Research Direction: Information Technology, system integration.

Reference

[1]   Liu Mei. Exploration of the Application of Intelligent Agricultural Information Technology [J]. Leisure, 2021, (21)

[2]   Niu Xiaoli. Intelligent Application of Internet of Things Technology [J]. Integrated Circuit Applications, 2023, 40 (07)

[3]   Cao Rongrong and Han Quanxi. Information Security and Intelligent Development of Internet of Things [J]. Journal of Information Engineering University, 2020, 21 (03)

[4]   Qin Tiantian, Bai Fan, Wei Lihong. Research on the Application Mode of Intelligent Agricultural Information Technology [J]. Farmer's Staff, 2021, No. 686 (06)

[5]   Zhang Xinyi. Intelligent Application of Cold Chain IoT Technology [J]. Logistics Engineering and Management, 2021, 43 (08)