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Improving Social Management Innovation Ability by Using Internet of Things Technology

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Abstract: *In the context of the Internet of Things, the future network will be able to more effectively promote the mutual progress between personal development, social management and smart goods. On the demand of the social network model and its research background and the related information, the thesis provides a model of the relevant information from the Internet and social material base, the extraction of the business process layer, transport layer, information processing, and formulate the function of the application layer, through the social network of social relations, and positioning information for the object of the basic theory in the study of data analysis. The simulation results of the above algorithms show that although the social network architecture is not fully applicable to the social Internet of Things, by modifying the specific functions in the structure, two serial ports support 485 connection, and IG1000 can support the convergence of 100 devices. IG1000 northbound provides 100 M network and mobile wireless broadband interface, data reading speed up to 10 000 /s. Object related standards can obtain the structure of social Internet of Things, including ontology semantic web and social function, which well proves the effectiveness and efficiency of the above algorithm and lays a foundation for further research in the future.*

Keywords: *Internet of Things, Technology Improvement, Social Management, Innovation Ability*

1. Introduction

The Internet of Things refers to the use of perceptual computing and communication capabilities to expand the use of physical objects and devices connected into a network. The use of network objects to collectively influence the perception of the real world is a technological revolution that represents the future of computing and communication. Internet of Things research is mainly object centered, including object definition and object tracking, object addressing, object control, and perception of data visualization and data access. The social Internet of Things is defined as a complex network architecture to achieve an effective and reliable Internet of Things, mainly involving real world awareness, data transfer, management of related services, and ultimately the development and construction of applications.

Iot systems are widely used, and complex application scenarios may lead to failures of iot systems. In order to avoid harm to users, the use of effective and uniform system modeling and validation methods has become an important issue. Many scholars at home and abroad have carried out researches on improving the innovation ability of social management by using Internet of things technology. Zhang Y believes that nowadays, the development of traditional business model is more and more mature, and people use traditional business model to guide various e-commerce activities. As an Internet-based innovation revolution, the Internet of Things has become a new platform for e-commerce. However, the old business model is difficult to adapt to e-commerce on the Internet of Things [1].Kshetri believes that from a security perspective, this article highlights how blockchain-based solutions are in many ways superior to iot ecosystems that currently rely primarily on centralized cloud servers. Using real-world applications and real-world examples, this paper argues that the decentralized nature of blockchain is likely to lead to low susceptibility to manipulation and forgery by malicious actors. Particular consideration is given to how blockchain-based identity and access management systems address some key challenges related to Internet of Things security [2]. Although there are many related researches on the use of Internet of Things technology to improve the innovation ability of social management, no

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solutions have been provided so far to solve some other problems. Therefore, it is necessary to strengthen the research on it.

The Social Internet of Things is a complex network architecture built for the realization of an effective and reliable Internet of Things, mainly involving realWorld awareness, data transmission, management related services and other issues, ultimately realizing the development and construction of applications. In recent years, the baoResearch Group, which includes the International Telecommunication Union (ITU), EPCGlobal, CASAGRAS and uID, has come up with some major architectural solutions, and even EU-funded project proposals, including many coordinated by IERC, are also keen to study iot architectures.

2. Research on Improving the Innovation Ability of Social Management by Using Internet of Things Technology

2.1 Deficiencies of the Internet of Things management system

(1) The sensor network is difficult to form the node center of the network

Sensor networks are designed and operated differently from other forms of wireless networks because they lack a fixed central entity. In normal cellular wireless networks, positive coordination functions are performed by these central entities, whereas sensor networks must be performed by allocation algorithms[3].

(2) The processing capacity of Internet of Things nodes is limited

In general, sensor with an embedded processor or memory, these sensors have the ability to calculate and some data processing tasks can be performed, but the disadvantage is that the Internet of things node structure is relatively complex, large volume, high power consumption, high cost, limited storage capacity and memory, sensor computing power is very limited.

(3) The correlation between network terminals is low

There is less information transfer between nodes and more independence between terminals. In general, the detection and control terminals in the Internet of Things transmit information through network devices or local points on the upper layer when they are working, so the information correlation between sensors is very small and the independence is stronger.

2.2 Necessity analysis of Internet of Things management system

(1) The Internet of Things network has certain requirements on data security

That's because the Internet of Things usually requires no human intervention and relies entirely on networks that automatically collect, transmit, store, analyze and report on the results of connections and take the necessary steps. If the iot data goes wrong, it will inevitably lead to wrong decisions and systems, unlike the Internet. Because Internet users are smart enough to make judgments, they can usually take aggressive measures to protect and restore their networks and information security when they are attacked.

(2) The shortage of network address leads to the complexity of networkmanagement

We all know that sensors and devices in the Internet of Things need a unique location to work. Rather, though, because of the huge number of IPv4 locations that are coming, even places on the network are already tight, causing resources to be reallocated. Compared with the Internet of Things, location search is a more pressing issue for the Internet, which uses a lot of sensor nodes. Although lPv6 has taken this into account, the compatibility between ipv6 and ipv4 needs to be considered in the deployment of ipv6 [4], resulting in a large number of ipv6 investment resources can not immediately bring huge returns to the market, address search is more urgent. That's why carriers have been cautious about deploying ipv6 so far, and for now, it's best to use internal floating-point addresses for resolution.

(3) The service functions of the Internet of Things

In a service-based iot system, the functions provided by each entity can be treated as services. Based on the same classification standard and scope discussed in this topic, Internet of Things services can be divided into three types according to their functions: information service, operational service and logical

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service [5-6]. They all have atomic services, and composite services are composed of integrated services provided by iot systems.

2.3 Feasibility of Internet of Things management

(1) The network topology changes rapidly

This is because sensor networks work in a very dense and independent environment and need to collect information. Multi-sensor deployment, average life, single construction. But in fact, the life of the top sensor is limited by many factors, and errors are common, and sensor errors generally lead to changes in the sensor network. This is especially evident in the complex and multi-level industrial Internet system [7-8].

(2) Benefits of the Internet of Things

The benefits of the Internet of Things come from two factors: information and networking. Personal interests and public interests are integrated in an organic way. These silos and barriers arise because people tend to set their personal and partial interests against those of the whole. For example[9], the application of new technologies and changes in traditional management systems are often met with departmental or partial resistance. Under the guidance of the mentality of the individual and the whole and putting personal interests first formed in the industrial age [10], the development of the Internet of Things will obviously be hindered.

(3) Promoting the development of the Internet of Things

If we want to effectively promote the development of the Internet of Things, we should vigorously advocate and promote the new concept of scientific, dialectical and reconciliatory interests of individuals and the overall interests of the whole society, including executives, entrepreneurs and all citizens, instead of focusing only on local interests and immediate interests. In short, for the healthy development of this new thing, the Internet of Things, we must advance together in three areas: comprehensive development of technology, system and ideology [11-12].

3. Research and Investigation on Improving the Innovation Ability of Social Management by Using Internet of Things Technology

When the number of users in the system is large and increasing rapidly, there is a certain user-based collaborative filtering modelAt this time, collaborative filtering method based on items is needed. Slope One algorithm mentioned in the Internet of Things is a common collaborative filtering algorithm based on projects, which is easy to implement, with high query efficiency and accurate results. Given any two items I and J, the item evaluation in the user evaluation vector is respectively expressed as, and the calculation formula of the average deviation between item I and item J is shown in Figure (1).

$$\mathrm{dev}_{j,\ j} = \sum_{Rp \in Si,\ j(x)} \frac{r_{pj} - r_{pi}}{\left| S_{i,j}(x) \right|} \tag{1}$$

On the basis of what is known, it can be predicted by calculation. A reasonable prediction is generally the average of all predictions, so the evaluation of predicted users on project J can be obtained by formula (2).

$$P(r_{pj}) = \frac{1}{w_j} \sum_{i \in wj} (\mathrm{dev}_{j,\ i} + r_{pj}) \tag{2}$$

So far, the larger the value is, the more similar the two partition schemes are, that is, the closer the partition scheme obtained by the algorithm in this paper is to the known partition scheme, thus confirming the effectiveness of the algorithm in this paper.

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4. Research and Investigation on the Improvement of social Managemen Innovation Ability by Internet of Things Technology

4.1 Social Iot architecture

The server is composed of three main layers. The basic layer includes storage database, data management, semantic engine, ontology database and communication, which can realize the location of physical objects and objects can communicate with each other through specific communication interfaces. Component layer includes basic component implementation tools and important components to implement various functional components. The application layer mainly consists of object interfaces, user interfaces and third-party service apis (Application programming interfaces), which are used to implement various social iot applications. The architecture of the social system of the Internet of Things, as shown in Table 1, includes two parts: client and server.

Table 1: Usage habits of new media tools

Message type	The name of the	The initiator	meaning	ratio
2	Response	The pipe node	Response message to query or set the result of an operation	13%
3	Inform	The pipe node	Send notifications or alarms to DMA nodes	17%
4	Confirm	The DMA node	Acknowledgement message sent by a DMA node to a managed node after receiving a packet	10%

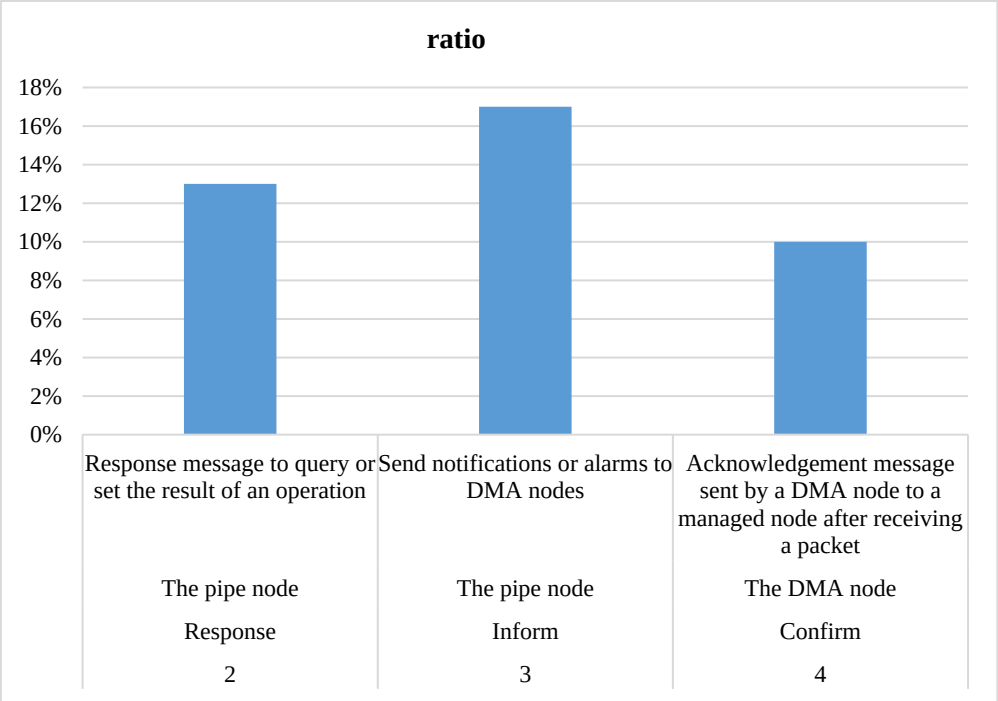

Figure 1: Usage habits of new media tools

As shown in Figure 1, object end consists of object layer, object abstraction layer and service agent layer. The object layer contains various basic objects, such as RFID tags and sensors; Object abstraction layer is mainly used to coordinate the communication behavior of different devices using common language and program. For basic objects, the function of object abstraction layer needs a specific gateway, while complex objects themselves can realize the function of object abstraction layer. Service broker layer is divided into service management and social agency two parts, service management is the human control behavior of the interface objects in social iot, social agents are used to implement the communication between the object, and the object and social networking communication between the server and update the configuration files and social relations, can also be found in the social network services, and complete the service request.

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4.2 Social Iot Composition

By comparing the basic structural differences between social network and social Internet of Things, the system composition and main features of social Internet of things are analyzedSocial functions, as shown in Figure 2, are the common SNS architecture model on the left and the social Internet of Things system composition on the right, where the dashed boxes and bold text show the main differences between the two network structures.

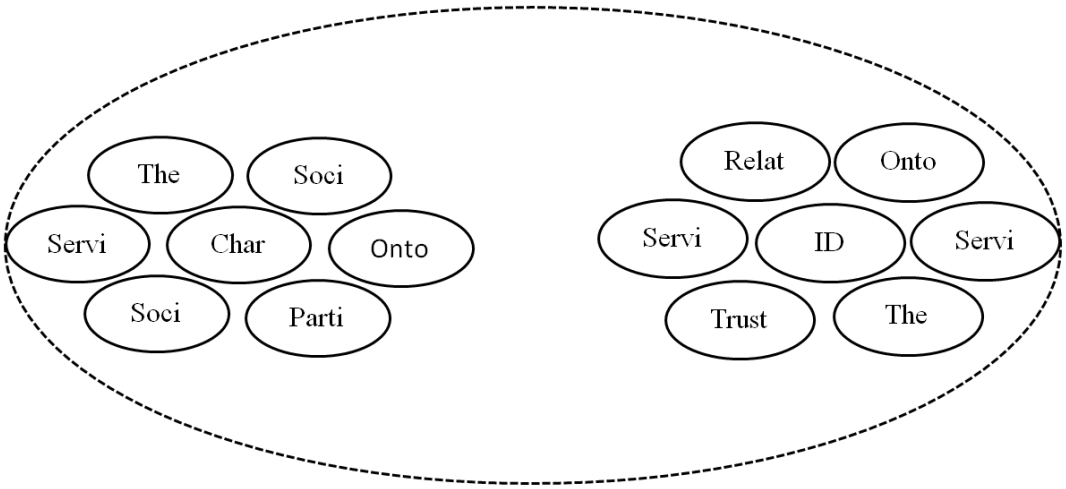

Figure 2: Degree of understanding of traditional sports of the ethnic group

Although the social network architecture is not fully applicable to the social Internet of Things, specific functions in the structure can be modified and combinedObject related criteria can be used to derive the social Iot component structure, including ontology semantic web and social function. Trust management is used to understand the information provided by other objects. Trust can be estimated by relevant indicators in social networks, such as centrality. Reliability is strictly related to relationship management. Service APIs are similar to application programming interfaces (APIs) needed in social networks. The social features of the Internet of Things help to better visualize relationships between objects.

5. Conclusions

With the development of social networking, object relationship gradually evolved into social structure. Published services are usually associated with the highest overall or authoritative level of an object, rather than being called structural characteristics; The structure of market price relationship is established between mutually beneficial and win-win cooperation objects. Only when objects think they can get the benefits they need by participating in the relationship, they will participate in the relationship in proportion. The combination of object social relationship structure with sociology, anthropology, cognitive science and other aspects of research will help maximize the advantages of social Internet of things in serving social discovery and development.

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