



Research Article

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Livestock and Poultry Monitoring Management System Based on Wireless Sensor

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ABSTRACT

In order to solve the uncertain perception information appears in the perception process of intelligent wireless sensor, this paper considers the intelligent perception problem of Internet of Things (IoT) based on context perception. The current status of the research on intelligent perception and its existing problem is analyzed, and then a context perception method to solve the intelligent perception problem of Internet of Thing is proposed. The intelligent perception context description model of Internet of Things is constructed. In addition, it was investigated that how the intelligent routing maintained under fault conditions, and intelligent information management system of livestock and poultry's was proposed of agricultural IoT system, combined with livestock and poultry automatic control devices, which had already been successfully used in the livestock and poultry production.

Keywords: Learning design; ecological learning; open learning; supply

INTRODUCTION

In recent years, the Internet of Things (IoT) as an international research hotspot, have obtained broad attention. It's represents the future trend of development of the network, and requires sharing interoperability and information, so as to realize human society, the information space, the physical world ternary comprehensive connectivity and integration as the goal. Therefore, the Internet of things is regarded as the third technological revolution in information field.

Sensing technology is an important part of the field of computer science and control science, for every object to implement networking of IOT environment "can be addressed; every object network can control [1]; every spatial networking can be communication" goal, sensing technology needs formatting commands from the past context-aware simple development to the natural perception of all-round, three-dimensional, modes of perception from a single man-machine perception extended to man, machine, material ternary world interaction mode. Therefore, research on key technology of intelligent sensing network environment, effectively solve the problem of environment perception of things, the realization of the human society, the information space, the physical world ternary has important theoretical significance and urgent reality needs.

Over the past decade, studies carried out by China in the field of Livestock and poultry monitoring IOT technology covers the use of agricultural resources [2], agricultural ecological environment monitoring, fine management of agricultural production, agricultural product quality safety management and traceability, and other fields, but basically is at the start stage. The IOT in the utilization of agricultural natural resources monitoring, based on the GPS land management and farmland information acquisition and positioning technology, the wireless sensor network, mobile communication network and information transmission and so on, to carry out agricultural resources network investigation of agricultural ecological environment monitoring aspect, carried out the research of soil

moisture monitoring combined with ground stations and remote sensing technology based on the developed, atmospheric environment and water environment monitoring system; agricultural production of fine management, to carry out agricultural bio - environment information acquisition system, developed intelligent monitoring system for orchard production facilities [3]; development of livestock and poultry, aquaculture network monitoring system; developed agricultural management and traceability of the quality and safety of agricultural products, agricultural produce real-time information collection and transmission technology, application evaluation system and agricultural produce secure digital early warning model; electronic tag information classification and coding rules, the development of agricultural and rural consumer goods circulation regulatory information service system.

To sum up, Livestock and poultry monitoring IOT technology includes not only digital Livestock and poultry monitoring sensing technology, but also including wireless Livestock and poultry monitoring information network transmission technology; it is the reverse of the traditional Livestock and poultry monitoring practices, conservation of resources, and the importance of environmental protection scientific means, the main direction of the future development of Livestock and poultry monitoring. This topic using context-aware intelligent perception of key technology on the theoretical calculation of network environment, analysis of the current status of intelligent perception and the existing problems, put forward an intelligent sensing architecture based on context awareness, conducted in- depth study and on the interaction context perception, expression, fusion model and algorithm of the basic problem.

INTELLIGENT PERCEPTION AND ARCHITECTURE OF IOT ENVIRONMENT

Livestock and poultry monitoring of IoT consists of three layers: that is the farmland information perception layer, information transmission layer and application layer system. The first layer is the information perception layer, including the RFID barcode, sensors and other equipment, can achieve real-time information, dynamic perception, recognition and information acquisition, perception layer mainly consists of farmland environment information collection, soil information, plant nutrition and physiological information; the second level is the information transmission layer, can realize remote wireless transmission from the Internet data information, it is mainly reflected the farmland information acquisition and transmission of large scale in the agriculture of Things [4]; the third level is the application of information system, the system can provide intelligent agriculture management by controlling the data processing and intelligent management, agricultural automation equipment, combined with the realization of intelligent agricultural production and information management, to achieve the target of save resources, protect environment and improve product quality and yield of agricultural production. Three levels of agricultural network were given an IOT to overall perception information, data transmission reliability; optimize system and intelligent information processing characteristics. Agricultural technology three levels as shown in figure 1.

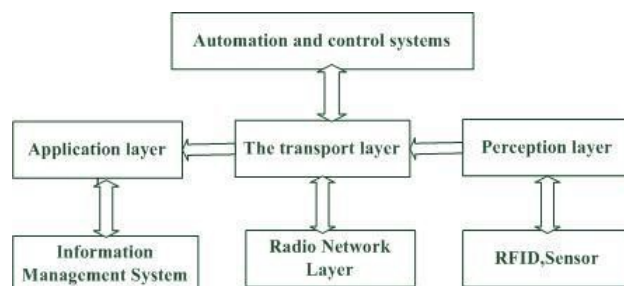


Fig. 1: Three levels of Livestock and poultry monitoring IOT

Intelligent perception system of IoT supports intelligent interaction the ternary of the world among of the people, machines and materials. This new type of interactive system makes the traditional IntelliSense system will face unprecedented new problems and challenges. The Internet of things to achieve the ternary world of human society, physical world, information space comprehensive connectivity and integration, it allows anyone to interaction anything at any time and any place to use any network and any service interaction.

In the IoT environment, various sensors, radio frequency identification technology, infrared sensing, global positioning system and other information generating apparatus coexist, and complex association. The user input is no longer the only trigger a system's driving force, in the IoT environment, even if the user does not sends service request, all kinds of "physical interaction" can also trigger system of intelligent computing services. In order to achieve this goal, we propose to implement the intelligent interactive system networking environment by using the context-aware technology. In this system, in addition to the user input, equipment, people, systems in various connected depending on the context interact, thus it can be seen, the networking environment context contains not

only the user, system related information collection ,but also contains a collection of related information objects.

DESIGN OF HARDWARE FOR THE DATA MONITORING NODE

The pH transmitter is a LE-438 integrated pH and temperature sensor manufactured by METTLER TOLEDO. A weak voltage signal, output by the sensor, was converted to a standard 4–20 mA signal via the pH and temperature transmitter circuit.

The transmitter circuit can be divided into two parts: the signal amplifying circuit and electrical level raising circuit. One magnifying circuit can amplify four-fold the original voltage from the pH transmitter. Since the original one is a two-way differential signal, it is still a two-way voltage signal after being amplified (–1.5 V to 1.5 V). The amplified signal should have its electrical level raised to 0–3.0 V to simplify the AD sampling of the microprocessor. Only the temperature signal should be amplified. The amplified voltage signal should convert the 0–3 V voltage signal to a standard 4–20 mA signal through V/I conversion circuit and output to an AD module in the MCU.

In view of the above problems, we propose the intelligent sensing architecture for Internet of things based on the context, as shown in figure 2. In this architecture, users and objects interact through the architecture of the intelligent sensing system. Where the object is divided into general devices and smart object class two, general equipment refers to the physical equipment can be identified single, one-way only provide environmental parameters for the system, intelligent objects can be perceived and physical equipment intelligent control. The technical framework of fusion rules to realize context, such as the environment changes, we only need to modify the corresponding rules without the need to modify the program code can adapt to these changes, thus increasing the intelligent interactive system adaptability.

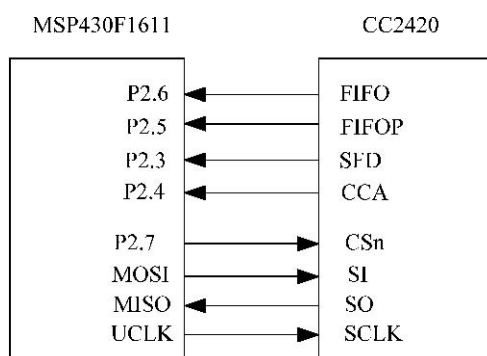


Fig.2: Power module.

SYSTEM STRUCTURE DESIGN

This management information system improved the internal marketization for mine construction enterprises, their budget management, compensation management and implementation details of evaluation, and promoted CBM for mine construction enterprises. A range of modules were provided by the system, including production progress management, project material management, mechanical and electrical equipment management, human resource management budget management, and integrated management statements etc., which is shown in Figure 3.

Internet was used as a support for the system to ensure the information exchange within enterprises. The system network architecture and hierarchical structure is shown in Figure 4.

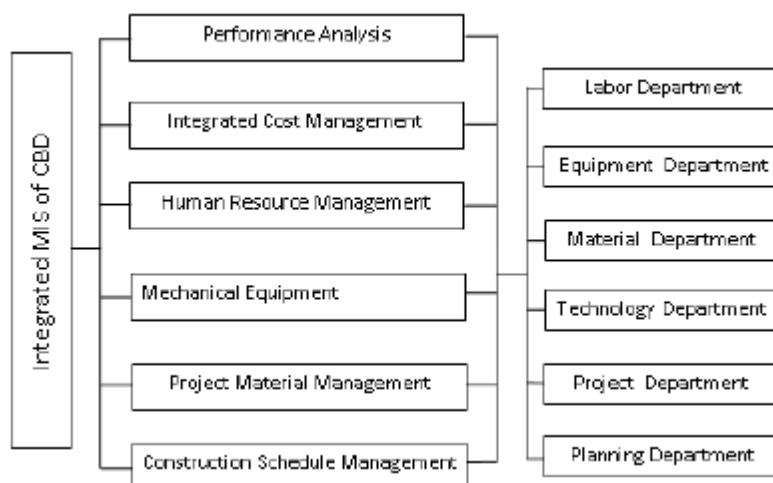


Fig. 3: System structure diagram

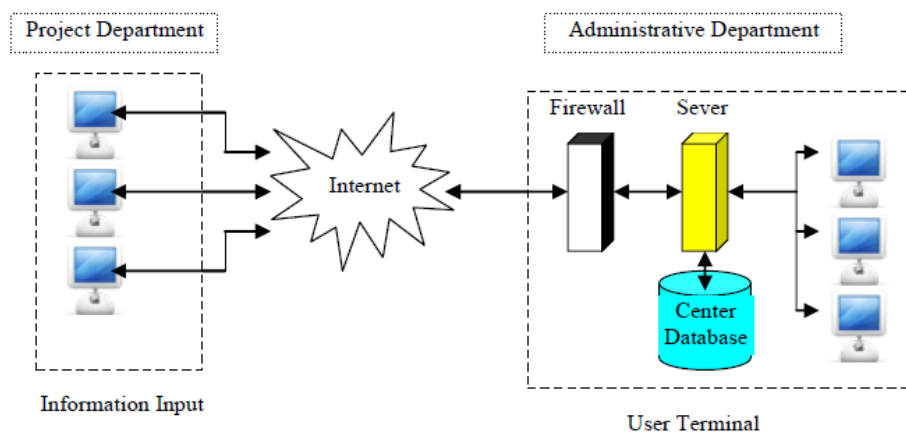


Fig.4: System network structure

CONCLUSION

This paper proposes the use of context-sensitive technology to achieve intelligent interactive environment of IoT[5].IoT environment intelligent interaction throughout the entire space of human activities, any legitimate user can at any place, any time, any computing resources and services, low-cost access. People do not need to care about the specific means to achieve the calculation, they do not care about the form in which computing and services, so that humans can achieve the status of "wisdom" more refined and dynamic management of production and life, improve resource utilization and productivity levels.

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