Mobile Application Design of Internet of Things in Large Nuclear Power Enterprise

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Abstract. In order to adapt to the development of nuclear power enterprises of IOT based on mobile business, the full realization of the application system construction of moving target, using HTML5 mobile technology to a new generation of network development, material management object of smart mobile devices based on mobile application system. In this paper, the overall goal of the project design.

Introduction

Internet of Things refers to a huge network of information sensing devices, such as radio frequency identification (RFID) devices, infrared sensors, global positioning systems, laser scanners and other devices combined with the internet. The purpose is to connect all the objects with the Internet, and the system can automatically, real-time identify, locate, track, monitor objects, and trigger the corresponding events. "Internet of things" is the third wave of the world information industry after the computer, Internet and mobile communication network. IOT refers to various information sensing device, such as wireless sensor networks (WSN, Wireless Sensor Network, radio frequency identification (RFID) node, Radio Frequency Identification) device, infrared sensors, mobile phone, PDA, global positioning system (GPS Global, Positioning System), a huge network of laser scanners and various devices and the Internet combine. In this network, objects become "feel, think", and can communicate with each other without human intervention. Its essence is to embed sensors and other devices into the Internet and eventually access to the Internet, by enabling objects to have "wisdom", thereby extending the ability of human perception and control of the outside world. With the rapid development of broadband Internet, especially mobile Internet and mobile intelligent terminal, mobile broadband Internet has become an indispensable part of people's life.

Capes material management networking system has been operated for more than 3 years, in order to adapt to the business development, realize the application system construction of moving target, want to use HTML5 mobile technology to a new generation of network development, material management object of smart mobile devices based on mobile application system. This article aims at this project construction goal, the design plan general mentality.

Design Idea

Supplies the real-time accurate management needs based on the introduction of remote visualization management tools to achieve the material in the library and check out of the box business through the screen for remote viewing, replace the management of the source or the supplier must be present to inspect management methods, so as to save the management cost. The overall idea of the design is as follows:

1. On the basis of the existing business of the Internet of things system, develop mobile application WebService interface, and the existing IOT system deployed in the DMZ area server. In HBuilder, MUI and 5+Runtime mobile framework as technology route, by calling the mobile networking application WebService interface, and use Eclipse to compile a small part of the native code, the realization of the use of the Internet and mobile applications installed on the platform of Android.
2. Mobile networking application by a group of mobile application security platform for unified publishing, installed in the Android portable intelligent terminal and part of the group's employees to use Android mobile phone, and through the Internet or intranet site warehouse Hongyanhe WiFi access network group, the mobile middleware security authentication, and deployed in the DMZ area of the Internet of things the mobile application service data exchange interface WebService.

3. Set up 5 HD network camera in warehouse, realize the video image front-end collection of warehouse. The camera connects to the intranet through the wired network in the warehouse area. The development of a video service software, deployed in the DMZ server, realize the front-end acquisition camera equipment management, and the warehouse district streaming video collection, caching, scheduling and broadcast transmission.

In 4, now Web networking applications, the new warehouse management and goods Web services such as video viewing function, user login through networking, open phase Web application page, access to video service software, warehouse materials and video, so as to realize the real time video out of the box to see.

**System Architecture**

According to the design level, the system architecture is divided into hardware layer.

**Hardware Design**

Mainly by the network camera, its function is to collect the video in the warehouse, to flow into the media, video service software, when users view video, forwarded by the video streaming media service software.

**Application Service Layer**

Video streaming service software: network camera LAN exists simultaneously by multiple page preview operation needs, take the camera flow limit are often unable to support some of the camera to take the current limit is only 24, single channel current limit is only 6 road, through the use of video of video data forwarding can greatly reduce the equipment and flow pressure flow the media service software, to meet the needs of users.

Internet of things video Web applications: Web applications mainly realize warehouse panoramic video viewing, material physical video viewing, unpacking inspection video viewing three functions.

IOT mobile application WebService interface software: the interface software is the original Internet of things business layer, data access layer of encapsulation, for mobile applications access Internet of things background.

Middleware: the current middleware for Android mobile terminal access to the unified management of the network, and the Internet of things mobile application authentication, the mobile application and application of data between the background forwarding.

**User Layer**

It is mainly composed of Web pages of users and applications running in Android handheld terminals (mobile phones).

**Technology Realization Principle**

**Development of Mobile App Based on HTML5**

The development of this mobile application will use HBuilder+ '5+Runtime' +MUI mobile development framework as a technical route. The framework of application architecture as shown below:
Tool Hbuilder

HBuilder as a mobile IDE application development, developers to provide accurate and efficient to write HTML5 code, and integrated Run in device real machine debugging, publishing and other functions, the software project will use it as the main encoding and debugging tools.

Summary

If you follow the “checklist” your paper will conform to the requirements of the publisher and facilitate a problem-free publication process.

5+ Runtime

5+ Runtime mainly provides the following 3 mechanisms to solve the HTML5 and the system and the three party native code interaction problem.

The commonly used API-HTML5plus package into HTML5plus specification: cross platform, including two-dimensional code, a shake, voice input, map, payment, sharing, file system, mail list and other commonly used API.

The other is not commonly used for native API-Native.js: do not have the characteristics of cross platform iOS or Android native API, calls through the technology of Native.js API JS.

The introduction of -5+ Runtime third native SDK SDK: 5+ SDK by the 5+ runtime, as a SDK into other native App, and the primary layer of mutual communication. In this project, for Android handheld terminals in the "RFID, bar code, two-dimensional code scanning" and other equipment specific features, will be developed using this method.

System Design Principle

On the basis of advanced and practical utility in the first place, the principle of the technology, should use the existing mature and advanced and has many successful cases of the product of the mobile information platform; demand oriented, grasp the application, promote the development of. To provide a reliable guarantee for the mobile business of the China Guangdong Nuclear Power group.

In order to improve the usability of the system and reduce the user cost of learning, the terminal interface should be as beautiful and friendly, business operations should be as far as possible with the original business system, in a different terminal user interface should be consistent.
References


