

Foreword and Editorial

International Journal of Smart Home

We are very happy to publish this issue of International Journal of Smart Home by Science and Engineering Research Support soCiety.

This issue contains 25 articles. Achieving such a high quality of papers would have been impossible without the huge work that was undertaken by the Editorial Board members and External Reviewers. We take this opportunity to thank them for their great support and cooperation.

The paper “Design of On-line Monitoring System for Intelligent Package Substation based on WSN and GPRS”, points out which can be taken as the research focus in the future such as intellectualized reconstruction of package substation, network security and clock synchronization.

This Research “Potential and Viability of Stand Alone Solar PV Systems for Rural Electrification of Pakistan by using RET Screen Software” will provide an assessment of the solar potential of Khyber Pakhtunkhwa (K.P.K) region.

The paper “The Research on Intelligent Component Immunity Testing Method of Intelligent Substation” analyzes the distribution characteristics of interference sources and the intelligent substation of intelligent component performance requirements of electromagnetic compatibility, and has carried on the intelligent substation electromagnetic compatibility testing technology related research.

The research paper entitled “SPWM Implementation Using DSP Model Programming Based on Simulink” offers a popular asymmetric sampling SPWM prototype with algorithm deduction, codes and models from Matlab RTW-EC. Finally, a practical result which can prove the method to be functional is also provided. This may accelerate the power electronics developing project with reliability in projects.

The paper “Development of High-efficient, Low-concentration Photovoltaic System” researched a method to enhance low solar concentrator system efficiency using general photovoltaic (PV) module whose price is low. This paper has used a reflective type optical device to raise low solar concentrator system efficiency and lower its price, and has developed a solar tracking system combining an image recognition type and a program type using the difference of brightness.

The paper “Design and Implementation of Energy Saving Controller for Air-Conditioner in Building” completed the hardware design of STM32F103 system circuit, infrared code learning module, human body infrared sensor module, indoor temperature and humidity sensor module, completes the software design of learning air conditioning remote control code, indoor temperature and humidity sensor module, also completes the energy-saving controller hardware and software debugging. Finally, this paper takes split type air conditioning units in a conference room as the control object (including indoor lighting system) to complete the energy-saving controller in air conditioner electrical system design, installation and debugging, completes the air conditioning start-stop and infrared temperature control code learning test.

In the paper “Image Processing for Monitoring Diagnostic Devices with Automated Pipetting”, presents an image processing technique for monitoring diagnostic devices with an automated pipetting function. A video camera is employed to inspect whether the device operation, including the tip holder position, the absence of the tip, and the alignment of the holder and the tip, is appropriate. The processing results can be utilized for indicating the overall malfunction of the entire device or for warning that the user has forgotten to load the required tip.

In the thesis “The Model of the Exploratory Factor Analysis about Residents’ will of Rural Land Transfer” analyzes the promoting effect of the government policies and re-employment work. The results show: There is a significant correlation among residents’ will of rural land transfer, government policies and re-employment work.

The paper “An Empirical Study on the Energy Intensity in China Based on the Skew-normal Distribution” It shows that the technology progress, industry structure and energy consumption structure have significant influences on the energy intensity for the whole country, eastern and mid-western region, with the R&D input and electricity consumption proportion influencing negatively while the secondary industry proportion influencing positively.

Authors of the paper “IO Standards based Energy Efficient Room Temperature Sensor design” energy efficient room temperature sensor is designed using various IO standards. This design is implemented on Kintex-7 FPGA, XC7K70T device and FBG676 package.

The research paper “Effect Analysis of Speed Guidance Control at Urban Expressway Intersection” As the backbone of metropolitan transportation, urban expressway shares a large proportion of long distance traffic flow. With the motorization processing, traffic congestion is becoming more and more serious.

This study “A Study on the Remodeling Policies in South Korea”, investigates the changes in policies that have taken place for the remodeling of residential areas in Korea.

In the paper “Research on Quick-freezing Device with Ultralow Temperature Water Medium under Negative Pressure and Quick-freezing Method”, puts forward a quick-freezing method by putting the ultralow temperature medium into a negative pressure. Through the experiment, it indicated the speed and quality to refrigerating water under the condition of negative pressure.

The paper “Design and Realization of Smart Home Terminal Applications Based on IOT Technology” designs and develops two smart mobile terminal applications based on smart home technologies research: one is the smart remote control application based on infrared technology, which realizes remote controlling on infrared smart devices based on infrared transmission technology, Wi-Fi and Socket technology; the other is remote control and monitor application based on PhoneGap, which realizes remote controlling and monitoring on the devices directly connected to the gateway based on PhoneGap, HTTP request and HTML5 cache technology.

In this paper “A Review of Non-Isolated High Step-Down Dc-Dc Converters” is the review of the common techniques used for high step-down dc-dc voltage conversion is presented. First, the limitations of conventional buck & synchronous rectifier buck converters used for high step down dc-dc voltage conversion which include narrow duty

cycle, high voltage stress, large ripple and low efficiency are briefly discussed. Then various topologies of non-isolated step-down dc-dc converters are reviewed and discussed.

This report “A Proposal for Deriving Timing Constraint Context on Using Multiple Sensor Web Servers in Service-Oriented Home Network

”, we propose a method for deriving the timing constraints context bases on the extended study of SSF. We first divide timing constraint in the context into two types: the sequential timing constraint and the continuous timing constraint. By using two types of timing constraint, the high-level context can be defined as conditions by using multiple sensors.

The paper “The Smart Technology Application Study of the Leisure Agriculture Parks”, studied the framework and approach of integrating smart technology into the planning of leisure Agriculture Park. The application of smart technology centers on integrated platform, and is divided into smart breeding, smart planting, smart sunlight greenhouse, virtual park, visualization, smart logistics, smart sale modes and so on, and it forms a hierarchical structure consisting of perception layer, network layer, application layer, platform layer and service layer.

In this paper “Context-Aware Computing for delivering u-Healthcare Services”

we proposed a component based development framework for context-aware processing for u-healthcare application that can reduce network traffic, by using the framework, the information gathered from the environment and patient condition will be process using the designed component development and send to the user or hospital in form of different services (1) alert message service, (2) location information services (3) condition of patient services. We also present the sensor interface framework and multi-purpose gateway to process the contextual data and send to medical centers, hospital or patients mobile device as u-healthcare services.

In the paper “Analysis on Fly Ash Sediment of Biomass Fuel Boiler Heating Surface”, analysis the element content of the Cl, S in biomass straw and alkali meta such as K, Na and the composition of biomass (straw) and ash, meanwhile it analysis the composition of fly ash deposits sediments on heating surface of straw fuel boiler and determines the components of depositional aggressive medium and its mass ratio.

The paper “A Focused Crawling Method Based on Detecting Communities in Complex Networks” A focused crawling method based on the two granularities is put forward. Firstly, using detecting community algorithm to analyze the link structure of the network composed of websites, a given topic web sites group is built up. It contributes to narrow the crawling range. Secondly, all topic relevant analysis for web pages and link prediction are performed inside this generated group. Topic relevant analysis is implemented through calculating the topic similarity for title and content separately. The similarity of father pages, anchor texts and the string text for URL all are considered to predict the topic relevance for unknown links. The experimental results suggest that this method is very effective for given topic, and it can improve the precision.

In the paper “Research on Security Construction of Smart City”, solve the security problem of smart city should put forward a system security mode from the view of system engineering. Through analyzing smart city architecture and security risk, put forward smart city security platform, studied the physical equipment protection, information security technologies, effective management, laws, personal information security literacy of smart city.

The paper “Improving Public Health Multidimensional Services Through the Use of Smart Cloud Model” researches the application results of Smart Cloud Model Based Public Health Multidimensional Services (SCMBPHMS). Different from the previous studies that focused on the details, this paper establishes a relatively macroscopic large model of SCMBPHMS, we have established a knowledge model based on artificial neural network on the model data processing to sense various users’ data acquisition habits of SCMBPHMS and let Public Health Smart Cloud Service (PHSCS) gaining the function of intelligent mining and data intelligent classification via training library.

Paper “The Digital Signage System Supporting Multi-Resources Schedule on an Elevator”, we propose an integration digital signage platform supporting a various contents and devices based on open framework structure. And we will apply the system to an elevator environment. It includes a schedule and service method for various devices and resources on an elevator. It will be able to make the system flexible and efficient for various market, contents and devices.

In the paper “Urban Road Traffic State Identification Algorithm Based On Particle Filter and Fuzzy Discrimination”, The experiment results show that the improved particle filter algorithm’s mean squared error has increased about 55.437% compared with GPS method, and the traffic state identification algorithm can accurately identify the traffic state of the study area, it can prove that the urban road traffic state identification algorithm based on particle filter and fuzzy discrimination is feasible and effective.

The paper “Forest Fire Detection Solution Based on UAV Aerial Data”, This software provides functions on processing UAV (unmanned aerial vehicle) aerial image data according to the requirements of forestry area application on UAV platform. It gives a real-time and remote watch on fire in Greater Xing’ an Mountains, simultaneously the UAV is flying and getting the aerial data, helping users quickly master the number and location of fire points.

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Carlos Ramos, Instituto Politécnico do Porto, Portugal

**Editors of the August Issue on
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