

Foreword and Editorial

International Journal of Smart Home

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

This issue contains 15 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.

In the paper “A Study on Daylighting Performance Evaluation of Light Shelf based on the Spatial Form of Inclined Ceiling”, establish the basic sources for designing light selves, which are suggested as a solution to the lighting energy issue, conducted performance evaluation of light shelves depending on the spatial forms.

Paper “A Framework for Ranking of WSNs Performance Based on Cloud Model and Entropy Weight” construct WSNPI architecture to rank and observe WSNs, which includes WSNPI Broker, Monitoring and WSNs Catalogue. It offer a more comprehensive evaluation index system including accountability, agility, cost, security and privacy, then build a cloud model and entropy weight method to evaluate WSNs performance.

The paper “Development and Research of Digital Campus System Based on Android” provides a practical solution to access School Dean, libraries, etc. Compared with the traditional way to access Web pages through the mobile browser, the software is more convenient and saves much more data traffic. At the same time, the software not only achieves the docking of Mobile and campus information, and bring a great convenience to the majority of students, but also provides efficient support for the school management.

The Author of “Research Trends on Graph-Based Text Mining” explained and classified the previous text-representing models based on graphs. Since text mining has been assumed to apply for unformatted text (document), it is necessary to represent text with simplified models. One of the most commonly used models is the vector space model, in which text is represented as a bag of words. Recently, many researches tried to apply a graph-based text model for representing semantic relationships between words.

The paper “Identifying Key Factors Affecting Information Disclosure Intention in Online Shopping” aims to provide a better picture of factors affecting personal information disclosure in online shopping. Online survey data from 212 online consumers of five largest Chinese online companies are used to test the proposed model. It conducts structural equation modeling with partial least squares to analyze the measurement and structural models.

The Authors of “Evaluation by Residents after Home Modification for the Disabled in Japan” evaluate residence in housing modified with the assistance of Japan's home modification program; problems with the home modification program, reasons for the need of re-modification, and satisfaction and dissatisfaction after home modification. Most of the

disabled who had had their homes modified expressed satisfaction, saying that their lives had become more convenient after modification. However, some modified parts at their homes are still inconvenient to use because the modifications were carried out without much preparation.

The paper “Predicting Electricity Consumption Based on Optimized Model of GM(1,1)” proposed optimized GM(1,1) model based on least absolute criteria. Since the initial condition of original GM(1,1) model is not very suitable, it use the modified latest data which generating from the accumulative generating operation as the new initial condition. And the least absolute criteria is applied instead of least square criteria to improve the stability and prediction accuracy of GM(1,1) model. Then the particle swarm optimization is adapted to the parameters optimization.

Paper “A Novel Deployment Algorithm Based on Fluid Dynamics Approach” proposes a deployment algorithm for mobile sensor networks, based on fluid dynamics in three-dimensional circumstance. In the algorithm, the entire wireless sensor network is viewed as a fluid body while nodes as charged particles. In the algorithm, nodes tend to spread out into the deployment area automatically, driven by the interaction force between nodes and nodes, nodes and obstacles, as well as nodes and boundaries. It achieves the desirable properties of self-adaption, robustness and simpleness, so that it is especially applicable to deployment in unknown environments.

In the paper “A Semiotic Narratological Approach to the Facilitation of Persona Method for Enhancing User Experience” presents methods to correct deficiencies among users by facilitating achievement of individual goals through the actant model, and by supplementing the

In the paper “Design and Implementation of Remote Control System for Mobile Platform Based on Interoperation of Android and Arduino” designed and implemented an interoperability mobile platform with a system based on Android open source software platform and Arduino open source hardware platform , an Android program on the host terminal receiving environment data from the mobile platform and sending message through 3G channel using XMPP protocol, and an Android program on the remote control terminal which could process the environment data sent from the mobile platform according to the algorithm and send back control commands. With this system, the mobile intelligent terminal can collect environment data of moving objects in any area through the 3G signal and control the behavior of distant moving objects to avoid collision.

The Authors of “Forecasting of Busy Telephone Traffic Based on Wavelet Transform and ARIMA-LSSVM” propose a combined traffic forecasting model considering the influence of multiple factors based on wavelet transform and ARIMA-LSSVM. The single frequency components of signal are got through the wavelet decomposition and reconstruction, the better stability of each component, and easier to predict. Given the characteristics of each component, and the advantages of the ARIMA forecasting in stationary series and the PSO-LSSVM forecasting in non-stationary series, it put the low-frequency component into the ARIMA model to predict, while the high-frequency component as well as the key factors into the PSO-LSSVM model to predict.

Paper “An Intelligent PSO-based Topology Control Protocol for Wireless Sensor Networks” proposes a new Particle Swarm Optimization-based Topology Control protocol for wireless

sensor networks called PSOTC. In this protocol, proper transition radius can be determined using Particle Swarm Optimization (PSO) algorithm. The proposed protocol dynamically adjusts transition radius of nodes (unlike previous protocols which should select radius values from among predefined values). Thus, the proposed protocol has some advantages compared to the previous protocols. PSOTC protocol has less average number of neighbors compared to the existing protocols. Also, the energy consumption in the protocol is less than other protocols and the network lifetime will be prolonged.

The paper “Statistical Description and Analysis of the Concurrent Data Transmission from Massive MTC Devices” discuss some prime issues for MTC traffic modeling under the assumption of Beta arrival. By the usage of renewal theory and Volterra integral equation of the second kind with difference kernel, it presents the methodology to deduce the access intensity of MTC arrival process, which is defined as the mean number of renewals by time t .

In the paper “The Development of a Modular Platform for Convergence Service in Home Network”, proposed a modular type home network service platform and implemented for different types of services. This platform is equipped with sufficient interface and expansion facilities for different service module. It uses Real Time Operating System (RTOS), framework and Platform Application Interface (API) for services. It has flexibility to support each service depending on the selected hardware module. It provides convergence service (Home device control and status monitoring management service, healthcare service, community computing service, etc) platform for home user.

The Authors of “The Adoption of Mobile Self-Service Technologies: Effects of Availability in Alternative Media and Trust on the Relative Importance of Perceived Usefulness and Ease of Use” examine the availability of mobile services with regard to wire-line device and user trust in these services as the moderating variables in order to determine the relative importance of the perceived usefulness (PU) and perceived ease of use (PEU) for users adopting new SSTs on mobile devices. It collected data from two distinctive mobile services: mobile banking and location-based (“finding my friend”) services in Korea. The findings of this study reveal that when new services are available with existing wire-line services, PEU is more important than PU in driving the adoption of new SSTs. In contrast, when mobile services are relatively brand new, PU is more important than PEU in the adoption of new SSTs.

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**Editors of the July Issue on
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