

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 & Engineering Research Support soCietY.

This issue contains 4 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 “Improved Home Energy Management Techniques for Smart Grids”, Wireless Sensor Networks (WSNs) have become more integrated into their daily lives in various fields such as health, energy management systems, and safety applications. The use of WSNs in home environment applications is increasing rapidly. Smart homes implement Home Area Network (HAN) for many different applications including smart grids. in-Home Energy Management (iHEM) has been proposed in the literature to decrease energy expenses. In this paper, they propose to shift the consumers’ demands to off-peak and mid-peak periods based on the device/appliance priority. In their system they use three levels of appliance priorities; high priority, medium priority and low priority. they discuss using iHEM with different delays, and also augment iHEM with priority scheme and iHEM with different delays scheme to get better results. they simulate their work and compared it with the previous techniques using their discrete event simulator implemented in C++. The main performance measure used to compare their work with the traditional iHEM scheme is the total savings in the cost of energy consumption in dollars.

The study “Big Data Analytics for Distribution System Monitoring in Smart Grid” states that Advanced Metering Infrastructure (AMI) is an integral part of Smart Grid. Utilities made huge investments in AMI to fully utilize the benefits of smart grid. Efforts must be made to utilize this infrastructure beyond billing purpose. Smart meters can act as a good sensor for distribution system monitoring. But system monitoring based on AMI requires real time computing of smart meter data. Considering the size of smart meters deployed, real time big data analytical tools and techniques are required for system monitoring based on AMI data. Stream Computing is a real time data analytical technique used in big data. In their paper system monitoring applications for outage detection and peak load tracking from AMI data is implemented using stream computing technique. This work revealed that stream computing is a promising big data analytics that can be used in real time applications of Smart Grid.

In the article “Development of a Cooperative Middleware to Provide Context-Aware Service in Smart Home”, to realize smart home services, several context-aware applications should be deployed which adapt their behavior depend on context information of home occupants. For context-aware service, context providing, processing, reasoning, delivery and designing context-aware applications are complex tasks. Although every application uses its registered contexts to provide services but some of the contexts are common for different services. So, it is wise to compute contexts at once and distribute to each application cooperatively rather than compute the same context for different application separately. Here the context reusable mechanism can significantly reduce the context computing cost. For this purpose, middleware-based implementation is a good alternative. Middleware uses raw data through sensors then generates context

using these data, and finally conveys context to applications. In this paper, they present a context-aware middleware which provides above tasks and supports context sharing in cooperative manner. Context reasoning is an important task in context-aware systems. A formal context model based on ontology can play a vital role in facilitating reasoning by formally representing domain knowledge. they model domain context using ontology and adopt FOL which helps the context reasoning.

In the research entitled “Laser Alarm System based on GSM Module Family, at present, most home alarm system mainly USES the smoke sensor and other sensors to monitor the safety of the indoor environment, and truly burglar alarm is little effect of strangers. This design is based on GSM module new home alarm system, remote control is mainly composed of AT89C52 microcontroller C programming control, through the single chip microcomputer and laser alarm interconnection communication real-time monitoring anomaly in the home, with mature and reliable GSM mobile network, real-time anomaly will be home in Chinese news sent to visually set by phone. In this way, both did to people for anti-theft and situation can be real-time reporting to his owner. Owners can also use outside messages in a timely manner to understand the home situation, circuit is simple and novel features and characteristics of the remote control, is a new type of family security alarm system.

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**Editor of the May Issue on
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