

Editorial

Special Issue on Smart Environments and Healthcare

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Smart environments are the fragmentations of smart cities under the topic of the Internet of Things. Smart environments and healthcare contain interoperable thoughts, things, and organizations, which arrange new information and correspondence progressions to improve and update individual fulfillment for people at all stages of life [1–3]. The smart environment for healthcare monitors the vital parameters of an individual under a monitoring environment. Smart environment frameworks may be all the more promptly embraced by occupants if the checking frameworks were composed and created as a uniquely-crafted apparatus and provided suitable help to administer well-being.

Smart environments are an amalgamation of three critical elements: Firstly, the physical segments (sensors and electronic gadgets); secondly, the communication segment used to realize the systems; and third, data analytics via machine learning and data mining [4–8]. The present progress in smart environments and healthcare systems is towards hazard-free protection and, in addition, agreeable genuine settings for private-environment conditions [9–12].

This special issue is launched to provide a possibility for researchers in the area of smart environments and healthcare to highlight the most recent exciting developments and discuss different strategies that shall improve the efficiency, productivity, quality, and reliability of smart environments for health care. There are 6 papers selected for this special issue, representing the potential applications in the amalgamation of smart environments for healthcare.

Inspired by the recent developments of the Internet of Things (IoT), relay and mobile edge computing (MEC), Yangzhe Liao and co-authors have proposed a hospital/home-based medical monitoring framework in which the intensive computing tasks from the implanted sensors can be efficiently executed by on-body wearable devices or a coordinator-based MEC (C-MEC) [13]. Shaobo Li, Yong Yao et al. have empirically shown that convolutional neural networks (CNNs) with log-mel audio representation and CNN-based end-to-end learning have better performance for the environmental event sound recognition (ESC) [14].

Xiao Cheng et al. have developed a new mobile phone application (app) based on plantar pressure analysis to fulfill the requirements of remote postoperative rehabilitation [15]. It is designed, implemented, tested, and used for a pilot experiment in conjunction with the system design methodology of the waterfall model. Preliminary testing and a pilot experiment showed that the app has realized basic functions and can achieve patient rehabilitation out of hospitals. The development of the app can shorten the hospitalization time of patients, reduce medical costs, and make up for the current shortage of medical resources.

To enhance the curative influence of a drug, Kyong-Hoon Choi et al. suggested the use of a new micro-porous mesh nebulizer consisting of a controllable palladium–nickel (Pd–Ni) membrane filter, piezoelectric element, and a cavity in the micro-pump [16]. Basically, a biocompatible Pd–Ni membrane filter was optimized such that it generated the smallest aerosol particles of various drugs. Junggil Kim et al. have developed a wearable plasma pad that can be attached to human skin and which is flexible and can be used for biomedical applications such as the treatment of wounds and bacterial infections [17]. Woo-Hyuk Jung et al. have proposed electrocardiogram (ECG) identification based on non-fiducial feature extraction using window removal method, nearest neighbor (NN), support vector machine (SVM), and linear discriminant analysis (LDA) [18]. Further, the proposed method demonstrated good results with regard to data that not only includes normal signals, but also abnormal signals. In addition, the window removal method has improved the individual identification accuracy by removing windows that cannot be recognized.

This Special Issue with 6 papers has provided a broad platform for publishing the many rapid advances that are being currently achieved in the area of assisted living to improve the sensing awareness with regard to humans for better well-being conditions.

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