Chapter 6
A Design Model of Embedded Engineering Learning on Social Cloud

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ABSTRACT

Based on the results of the evaluation of an embedded engineering learning on social cloud model, the author suggests whether an "Imagineering" approach to learning is and complies with design principles leading to creative products. It can also provide an evidence for whether the SC supports co-learning environments which contributes to the efficiency of the process. Not only training institutions, but also knowledge enterprises should have a ready infrastructure for network systems to access the cloud technology. This chapter discusses the options of a design model on social cloud.

INTRODUCTION: EMBEDDED SYSTEM

Our future is driven mainly by disruptive technologies and the convergence of the technological trends. Among these technologies, augmented reality, mobility, social media, cloud computing, big data and embedded systems have shown tremendous growth. With regard to these developments, the software industry improved on an ongoing basis to fulfill a variety of needs in our daily life concerning the safe and convenient use of electronic devices (Barr & Massa, 2006; Jacobson, 2001). At the same time, given the rapid proliferation of these technologies, relevant policies need to be developed that facilitate the development of embedded systems.

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In our times of creative economy, the professional development of the production and management workforce plays an important role for the development of creative thinking skills (Henri, 1992). Especially, when it comes to the competency development in the field of ICT (Information Communication Technologies), the development of the abilities of software team to fulfil the needs of the embedded systems industry becomes crucial more than ever. Furthermore, this issue also needs the involvement of training institutes to equip the personnel in engineering sectors with required practical skills as well as to update their curriculum with regard to the embedded systems industry.

Embedded System refers to a built-in or programmable capability device that is managed by a combination of specific computer hardware and software designed for a specific purpose. Embedded System relates to the process for designing pragmatic inventions and innovations. Among the examples of possible hosts of an embedded system, medical equipment, industrial machines, airplanes, automobiles, household appliances, vending machines, cameras and toys can be counted (Barr & Massa, 2006; Johnson & Johnson, 1994;Harris, 2000-01; Schnabel & Ham, 2014).

Let's take an example of Raspberry PI as an Embedded Device which is a hardware board. Such a system development does not only include hardware design, components selections and a firmware design, but also a development of GUI based applications along with cloud computing and remote access of devices.

In summary, any real time gadget which can be seen by naked eyes is an embedded device which includes multiple works that combine best performance and best user experience.

SOCIAL CLOUD

Social Cloud (SC) refers to the service-sharing and resource framework based on the relationships between members of a social network. This involves the online co-working process that is specific of many social-specialized electronic platforms. (Chard et al., 2012; Schnabel & Ham, 2014; Chard et al., 2010; Babaoglu & Marzolla, 2014).

Furthermore, SC is a scalable computing model as users can contribute important resources that are dynamically prepared and freely shared among various collaborators (Haas et al., 2013;Chard et al., 2010; Babaoglu & Marzolla, 2014).

The tenets of SC has been famously put into use by the Berkeley Open Infrastructure for Network Computing (BOINC), serving as the largest computing grid in the world. Another service that makes use of social cloud computing is Subutai Social which allows peer-to-peer sharing of hardware resources globally or within a small network.

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