Evaluation of IMS Based Mobile Mass Examination System

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Abstract

This research is carried out to develop IMS-Based MObile Mass Examination (MOMEX) system. MOMEX system is intended to improve on management of examination process for large number of examinees.IMS based application is considered to be the next generation mobile applications that enable developers to take advantage of mobile networks resources. IMS-based application is attributed with robustness and improved Quality of Experience (OoE) for mobile users. Such quality is needed to ensure users reliabilities on the system. In This paper, we cover the analysis and design phase of MOMEX system. We have designed set of questionnaires aimed to gathering insights how much the concept of mobile exam and assessment will be accepted among the students and faculty members. Based on the results obtained, we concluded the functional requirements of MOMEX system prior to implementation phase.

Keywords: Mass examination system; Component-Based Development; IMS, SIP, Next Generation Networks

1. Introduction

In the recent years with the advancement of mobile wireless technologies, there is a significant shift in the academic from traditional way of teaching and examination pattern to mobile learning environment. Several universities incorporated the mobile technology into their teaching and learning environment and recognizes the potential of mobile technologies as an effective medium for teaching and assessment tools especially when there are mass students appeared in an exam (for example entrance exam for a university. There are already several research works published[1][2][3] on online E-exam systems to simplify the assessment process by automatic marking which significantly reduce the complex paper assessment work especially when

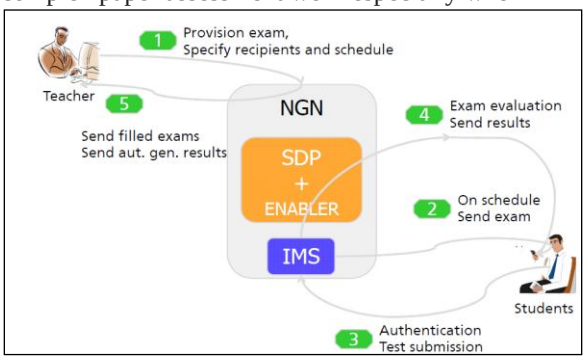

Figure 1 IMS-based mobile exam scemniro [4]

there are mass students appeared in an exam. However, little research has been done on effect of the use of ubiquitous devices for teaching and learning. To investigate how far the concept of mobile exam and assessment as shown in figure 1 is accepted by the students and faculty members in King Abdul Aziz University, Jeddah, KSA, questionnaires are used which are analyzed and result are then reported in this paper.

Session initial protocol (SIP) based IP Multimedia Subsystem (IMS) is considered as the foundation stone for Next generation Network (NGN). The IMS platform is based on three layered architecture design, The IMS core network consists of mainly Transport layer, Control layer and Application layer. SIP has emerged as the vital technology for controlling communication in IP-based Networks. IMS is best described as the glue between the "global" applications world (Internet) and the mobile world. Using IMS third party developers can easy deploy their applications over mobile networks [4] . According to the standards, IMS is defined in the form of reference architecture to enable delivery of next-generation communication services of voice, data, video, wireless, and mobility over an Internet Protocol (IP) network [5].