

Mobile Student Verification System for Major Examination (S-VEC)

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ABSTRACT

Mobile computing is one of the emerging fields in computer science. Its concept is to utilize the power of computational in a mobile device such as mobile phone and pocket PC. This research project has been carried out to investigate the possibility of using mobile application in simplifying and automated processes in invigilating examination. We have collected feedback from invigilators regarding the issue towards process improvement in invigilating processes. The positive feedback from the survey have lead this proposal to the prototype development of the mobile application. However, after the application was tested in a real environment (examination), we found that the prototype needs more improvement especially in the part of searching the candidates' information. We also used a single XML data to store text data and image data of students. The test parameter of the prototype is search duration for each candidate based on time stamp recorded in XML data file.

Keywords: Mobile application, mobile computing, XML, Mobile verification

INTRODUCTION

Mobile computing systems are distributed systems connected with various types of machines (Adelstein *et al*, 2005). This emerging technology has become so popular because of wide use of wireless networking and affordable price of mobile devices. Places like coffeehouse and airport are now set with wireless Internet access for those who are traveling with their mobile devices. The increasing demand of mobile devices especially laptop also contributes to mass production of the devices which at last give a great impact on the price per unit. S. Kurkovsky (S. Kurkovsky *et al*, 2004) categorized mobile application into two types; collaborative applications and stand alone application (S. Kurkovsky *et al*, 2004). While antoher study also classified mobile applications into two types: applications focus on data sharing and applications that are concerned with transient interaction with other component as the context of changes (Gian *et al*, 2000). In general, mobile application can be categorized according to the environment and how it function within that environment.

The purpose of this article is to review our previous studies in investigating how mobile computing can contribute to education sector focusing on the process improvement in invigilating universities examination (Ong Lai Chin, 2007) and (Aziman *et al*, 2007). In that study, a survey has been carried out on lecturers from different departments with experience as an invigilator. Our proposed application is not similar with an online examination where each candidate need to use computer in answering the question. It is rather an assistant to compliment with the current practice of examination where large number of student sitting in the examination hall. Our proposal is to integrate mobile application for invigilators to perform their task during examination with case (see Figure 1).



Figure 1: Invigilator Calculating Attendance Slip and Verify With Student List

The scope of the application is to automate the reporting task performed by the invigilators by validating the candidates' attendance in handheld devices. Research methods used in this project are survey and software approach (experiment). The reason why survey has been selected is because there is human or user (invigilator) involvement in the targeted process. Therefore, it will be meaningful to us if we can identify user readiness towards process improvement with mobile technology. We hypothesize by using mobile application in invigilating examination, more time for report writing can be saved and the risk of human errors in report writing due to handwriting and miscalculating can be minimized.

METHODOLOGY

In order to evaluate our hypothesis, a questionnaire approach and interview had been carried out. The targeted population for questionnaire are lecturers who have been appointed as invigilators in previous university examination. A total of 50 surveys were distributed via representatives from each faculty. All the responses were received 2 weeks later which comprise of a respond rate of 80 percent. The questionnaire (Appendix A) was launched as a response mode to measure the perceived values of each respondent (invigilators) towards the manual student verification and reporting tasks. The questionnaire was designed to determine the level of satisfaction of invigilators on the current approach and their perception towards process improvement based on major tasks performed by invigilator during examination.

As for measuring time duration taken for report writing, an experimental through software approach had been selected because of the ability of this method to simplify and automate data processing in a fast and accurate manner. The sample used for this part was XML data file (Appendix B) which contained information for 102 candidates for a specific paper or course in examination. There were three searching techniques that were designed for this prototype by using the datagrid (Figure 2(a)), wild card searching (Figure 2(b)) and directed wild card (Figure 2(c)).