RESEARCH STUDY

COMPUTER SCIENCE

RSPR CS-02-01
TOWARDS SYMBOLIC COMPUTATION WITH EXTENSIBLE STYLESHEET LANGUAGE TRANSFORMATION (XSLT)
Sonam Tobgay
Prof. Vilas Wuwongse

This study aims at investigating the possibility of employing Extensible Markup Language (XML) for symbolic computation. Polynomial functions are represented in terms of Mathematical Markup Language (MathML) and computed by programs written in Extensible Stylesheet Language Transformation (XSLT). The results show the feasibility and effectiveness of the approach.

RSPR CS-02-02
MACRO VIRUSES
Dang Kien Cuong
Prof. Phan Minh Dung

Nowadays, applications such as Word, Excel, PowerPoint, etc are very popular. Almost everybody uses these applications. These applications are often supported by macro language and Visual Basic Application. Based on macro language and Visual Basic Application, the macro viruses are written. The more advanced a Visual Basic Application the more easily it is to write Macro Virus for it. Macro viruses represent the newest virus category and are spreading faster than any previous category of viruses.

This research analyzes the structure of applications that support macro language and Visual Basic Application. We analyze the behavior of Macro Virus through Macro Virus source code and various virus detection techniques. From these studies, we can get the methods and tool for Macro Virus detection and system protection.

We also present a demonstration of a simple Anti-Macro Virus tool that can detect Macro Viruses and let users perform basic operations against these viruses – analysis, file locking and deletion.

RSPR CS-02-03
MOBILE BILL PAYMENT: A CASE STUDY OF TOT CORPORATION PUBLIC COMPANY LIMITED
Chatchawan Gansaree
Dr. Vatcharaporn Esichaikul

TOT Corporation Public Company Limited (TOT) is the state enterprise agency provided a telephone service for a domestic telephone network in Thailand. TOT has provided a billing service called "TOT Express Service" based on the Internet and Web technology since two years ago. This application's objective is to provide a clearing telephone bill payment service for TOT's customers.

The popularity of mobile devices and wireless technologies are increasing dramatically in Thailand, together with a number of commercial commerce contents is growing up. The use of these technologies could contribute to the proliferation of mobile commerce (m-commerce) development in Thailand. With M-commerce technology, the payment service is accessible anywhere and anytime. In addition, this technology will bring a new payment channel for serving nation-wide customers. TOT, as a prominent company in Thailand, should utilize mobile service technology to increase the efficiency and effectiveness of services to its customers throughout the nation.

This research aims to study and to analyze the characteristics of I-mode and Wireless Application Protocol (WAP) technologies in the context of service technology. The comparison between I-mode and WAP based on the characteristics of each technology reveals that WAP is more appropriate than I-mode technology due to the open standard and the popularity of supported technologies. This research also develops a prototype called "TOT M-payment Systems" to demonstrate the implication and the usefulness of wireless technology on the bill payment system of the TOT.

RSPR CS-02-04
EXTENSIBLE BUSINESS REPORTING LANGUAGE (XBRL) AND BUSINESS RULES
E.R.H. Ariyasena
Prof. Vilas Wuwongse

This research study focused on developing a method for incorporating business rules with XBRL compliant data so that it enables to check the consistency of reports with underlying concepts and rules within which the business is operating. XML Equivalent Transformation (XET) is used in order to implement the rules with XBRL data since it provides computational ability and flexibility. This method provides a mean, especially for managers and decision makers by enabling them to check the various business report and financial statements with underlying rules and concepts and thereby for better decision making.

INFORMATION MANAGEMENT

RSPR IM-02-01
ELECTRONIC COMMERCE FOR GEM TRADING IN MYANMAR
Tay Zar Aung
Dr. Vatcharaporn Esichaikul

Information Technology is changing the world in all aspects. With its advent, also in business sector, it brought about the challenging technology of Electronic Commerce in the form of most efficient and effective ways. Internet has become increasing important to Myanmar organizations and community as the number of Myanmar Internet users gradually increased in the past few years. Some Myanmar business organizations have set up their own Web pages to capture the attention of the potential buyers and to develop business relationship. Like other companies, gem dealers in Myanmar have gradually moved to advertise their products on Internet.

The purpose of this research is to investigate the potential of Electronic Commerce in Myanmar particularly in gem trading. This comparative approach primarily specifies the practices and procedures of working gem Electronic Commerce over Internet. From that learning, this research explores how to implement the gem Electronic Commerce in Myanmar by pointing out requirements of Myanmar Electronic Commerce infrastructure and suggests that it might be the necessity of Myanmar to catch up with arising Electronic Global Village.

RSPR IM-02-02
QUEUEING ANALYSIS AND APPLICATION IN TELEPHONE TRAFFIC SIMULATION
Vu Duc Tai
Prof. Huynh Ngoc Phien

RSPR IM-02-03
EMAIL SECURITY
Bui Manh Tuong
Prof. Phan Minh Dung

Nowadays, the networking revolution has finally come of age. More than ever before, we see that the Internet is changing computing, as we know it. The possibilities and opportunities are limitless; unfortunately, so too are the risks and chances of malicious intrusions.

It is very important that the security mechanisms of a system are designed so as to prevent unauthorized access to system resources and data. However, completely preventing breaches of security appear, at present unrealistic.

This research provides a detailed mechanism of electronic mail security, and shows security weaknesses of email systems using POP3 service as well as how to protect an email system against possible attacks. A simple email program which supports user to send or receive messages through networks, is developed as a demonstration for the proposed approach.

RSPR IM-02-04
DEVELOPMENT OF HUMAN RESOURCE INFORMATION SYSTEM: A CASE STUDY OF DEPARTMENT OF FISHERIES IN CAMBODIA
Ngor Pengbun
Dr. Vatcharaporn Esichaikul

This study presents the development of a Human Resource Information System (HRIS) for the Department of Fisheries of the Ministry of Agriculture, Forestry and Fisheries in Cambodia. The present personnel work of the Department of Fisheries was analyzed, problems encountered in the existing system were identified, and information requirements in term of personnel resource planning and administration were studied. The new system was developed following these requirements with an emphasis on providing timely and relevant information for personnel management.

The HRIS is divided into five sub-systems: General Information, Education and Training, Salary Management, Performance Appraisal and Resource Planning. The normalization technique is used in designing files (tables), which result in sixteen files (tables) in all. Each file is used for a particular requirement. Twenty-one interactive forms have been created for data entries, and thirty reports can be generated from the system.

The whole system was developed and implemented in Microsoft Access 2000. The system is tested with the real data, which was collected from the Department of Fisheries in Cambodia.

RSPR IM-02-05
INFORMATION AND COMMUNICATION TECHNOLOGY IN MONGOLIA: CURRENT STATE AND FUTURE DEVELOPMENT
Zagd Oyunchimeg
Dr. Sumanta Guha

The development of the ICT sector would benefit the entire Mongolian economy, would create numerous new job opportunities, would accelerate the diffusion of information and communication technologies in the country, and would impact positively the entire society of Mongolia.

The purposes of this research study are, on one hand, to analyze strengths and weaknesses of Mongolian ICT companies, and to investigate Mongolian companies' competitive advantages and disadvantages in the international market and international business experience; on the other hand, it is to provide recommendations on how to help these companies to compete in the international market.

In this study, a survey of thirty companies in Mongolia was conducted to identify major factors for the development of ICT companies from the international market viewpoints.

The last chapter of the research study provides detailed recommendations on how to achieve the following objectives: increase the size of the firms, match international standards of quality, increase contacts with developed countries companies, improve its business culture, reduce piracy and enhance the regulatory and legal environment and develop a country image.

RSPR IM-02-06
INFORMATION TECHNOLOGY IN HIGHER EDUCATION IN DEVELOPING COUNTRIES: A CASE
STUDY OF CAMBODIA
Men Saravuth
Dr. Vatcharaporn Esichaikul

The simple meaning of science is acquiring knowledge about the environment. This scientific knowledge with new technologies is encompassing the whole world. It provides avenues for better understanding of matter and materials of universe. In many countries there seems to be a growing recognition that Information Technology (IT) and science education (SE) are important for higher education system. Nowadays, almost of teachers and many students are in a need of using IT and scientific knowledge to be obtained in day-to-day activities for their research and educational purposes. The established higher education system in Cambodia does not cope with these changes alone and the changing needs of population at various levels. Hence, the conventional use of teaching and learning of IT have been drastically changing and developing continuously in higher education system.

Nevertheless, IT is a result of scientific advancement and can be used in wide variety of educational environments. Most of the developing countries still have to successfully implement IT policies in science education especially in higher education level, but they are needed to be supported with necessary technological infrastructures, human resources and financial resources. Cambodia faces the same condition that other developing countries encounter in implementing IT in higher education system.

A key factor towards improvement of higher education system is the development of instructional support system that accommodates the responsibility of educator to be constantly updated in subject matter and teaching methodology. The use of IT such as Internet Application, Internet functions of communication, information retrieval, and information publishing provides solutions to the need of fast and relevant information in the higher education system.

While IT has been widely used in South East Asia, its systematic integration in to the higher education institutes instructional support system is only evident especially in Cambodia. Hence, this research is direct response to need of the region to harness the benefits of Internet application to use in higher education and to achieve improvement of the education system.

In particular Cambodia has been introducing IT in higher education system. The Ministry Education Youth and Sport has recently set up an IT unit to design a strategy to introduce computer in schools and higher education institutes. In addition pilot projects have been have been introduced to improve the level of using IT in higher education with the collaboration of foreign aid. In implementing IT for higher education in Cambodia, hardware configurations, development of high quality educational software, teacher training for usage of IT and proper management becomes imperative.

RSPR IM-02-07
PERSONALIZATION AND CUSTOMER RELATIONSHIP MANAGEMENT FOR ONLINE CUSTOMERS IN
HOTEL INDUSTRY
Saw Nixon Eway
Dr. Vatcharaporn Esichaikul

Due to the rapid increase in mass tourism in Japan, Korea, Taiwan, Hong Kong and South East Asia, this situation was changing remarkably. In 1996, the East Asia and Pacific region's market share of international tourist arrivals reached 16%, more than doubling the figure in early 1980s. With the growth rate annually around 10%, the East Asia and Pacific region has been observed as a phenomenal growth in the international tourism market (WTO, 1997).

Hotel Industry is one of the major sectors of Travel Industry and it has a lot of potential for income generation in most countries. Hotel reservation is important and hotels have to provide enough information for their customers. Online reservation helps their customers to reserve rooms and facilities of such hotels.

Personalization can customize the information for regular customers and it improves the mutual profit for hotels and their customers. If hotels can provide enough and satisfactory information to customers, they can get regular customers and as a result they can extend their business.

This research study will emphasize on the attitudes and expectations from online customers and will provide them the

information as close as they need. If hotels can improve their reservation for online customers, they can eliminate unnecessary cost for labour and human errors.

RSPR IM-02-08
SUSTAINABLE CONTINUITY OF CORPORATE PORTALS AFTER IMPLEMENTATION

Martijn Snepvangers
Prof. Ramakoti Sadananda

Corporate portals try to capture knowledge, both tacit and explicit, that resides with the employees. This research argues that one of the success criteria for corporate portals is maintenance, or sustainable continuity after implementation. This depends on technical factors such as the information infrastructure, as well as ability of the organizational environment to create a caring environment for employees in which the sharing of knowledge is motivated. These results are based on a study carried out during an internship at Infosys Technologies, a large Indian IT company based in Bangalore. Although design and implementation of a knowledge management system are important success factors, the sustainability of a well set-up knowledge management system depends on how well it is, can be maintained. Knowledge can be very volatile, especially in a corporate environment, knowledge is also represented in many ways, every person represents his or her knowledge on his or her own 'personal ontology' and knowledge systems also have their own ways of knowledge representation. Therefore, the ability to capture and recapture knowledge and to enable the ability to share knowledge among employees (the knowledge workers) is of critical importance.