University of San Carlos Audio Visual Center Asset Management and Reservation System

A Capstone Project

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And

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**CHAPTER 1**

**INTRODUCTION**

The Audio Visual Center has a manual operation of Reservation of the AV Halls and as time goes by, most people are using online services which can be easily used. We, as BS ICT and IT students, developed an Online Reservation System with Asset Management that can greatly help the Audio Visual Center in their services.

**1.1. Background of the Project**

The USC Audio Visual Center is one of the units under the Library System that involves not only complex process of accepting a reservation and monitoring the assets, it is also responsible for providing a good quality service to the different users of the halls in the university.

This study is conducted for the reason that the reservation of the different Audio Visual halls in the university takes immense time and effort in processing the reservation and also to monitor the statistical data of the usage in each Audio Visual halls. As a result, it has been a problem for the faculty, employees and student organizations to reserve and view the available time, date and other information of the Audio Visual halls.

More often, they have difficulties in processing the reservation forms of the Audio Visual halls because of the different signatories involved in the forms. On the other hand, the Audio Visual Center also faced difficulties in summarizing the statistical data of the usage of the halls in the University. The Audio Visual Office is basing the reservation forms to summarize the usage of the halls per month by tallying. With this, problems occur if the form is not kept properly or lost. The system also monitors the equipments use in each hall.

The University of San Carlos Audio Visual Center Asset Management and Reservation System for Audio Visual Center will be develop to provide a paperless reservation process for the different users of the Audio Visual halls in the University. Viewing of available schedules in the different Audio Visual halls will be stressed to help the users decide on which halls will they be using and provide a detailed report for the summary of the usage of the halls.

**1.2 Project Objectives**

**1.2.1 General Objectives**

To develop an online Asset Management and Reservation System for Audio Visual Center of the University of San Carlos to help the faculty, students, employees to reserve halls online and have an integrated asset management.

**1.2.2 Specific Objectives**

Specifically, this study aims to:

1. Identify and analyze Audio Visual Center process and provide options to address the needs of Audio Visual Center.

2. Design and develop the modules for automated Audio Visual Center Asset Management and Reservation System of University of San Carlos' Audio Visual Center.

3. Improve the Audio Visual Center of the University of San Carlos through our Audio Visual Center Asset Management and Reservation System.

4. Test and evaluate the developed modules to check for error; and

5. Deploy the created automated Audio Visual Center Reservation and Management System to the University of San Carlos.

**1.3 Significance of the Study**

The study could provide information on the issues of the automated management and reservation system of Audio Visual halls particularly on the functionality and efficiency of the system. This study would be beneficial to the following:

**1.3.1 Audio Visual Staff**

The staff can generate the report of the statistical data they need, which is the number of usage of each hall per month. By just accessing the system and they don’t have to record and monitor data manually since the system spontaneously do it. Equipments and facilities can be prepared ahead by the Audio Visual Center Staff once the bookings are approved. If ever equipment is lost or destroyed, the staff can track the users who are held liable of the asset.

**1.3.2 School Administrators**

With the automated system, school administrators can track and view status of the reservations requested. They can also approve and disapprove reservations with one click.

**1.3.3 Student Organizations, Departments and Non-Teaching Offices**

They can now easily book reservations for Audio Visual halls without filing forms like the manual reservation system. All they have to do is go online and reserve a hall in just a few clicks. Equipments can also be borrowed without any hassle on the client side.

**1.3.4 Developers**

They can enhance their basic skills in information technology and broaden their knowledge in developing the system especially in web-platform.

**1.4 Scope and Limitation**

The scope of our study will only cover the Audio Visual Halls of the university in Talamban, Downtown and South Campus. It entertains the different users in the university such as such as Faculty, Student, Organizations, and Offices by reserving the halls through online. The Reservation will undergo to different people such as deans from the different colleges and OSA for endorsement; Vice President of Academics Affairs and Vice President of Administration of the University for Approval.

The reservation of the halls is a first come first serve basis. The reservation of each user is only limited to three reservations per week. The system also manages the assets of the halls. The system provides statistical reports of the number of usage in every hall per month. The system notifies the user’s reservation status via email.

The study does not cover any other halls or facilities that are not under the University of San Carlos Library Systems. The system would only work by accessing online. If payments are needed, the system won’t accept online payment but only to present the receipt to their respective Audio Visual office and the system can’t access accounting office for the confirmation of the payment. Users can only reserve for the following month if it is the last week of the current month.

**CHAPTER II**

**REVIEW OF RELATED WORKS AND STUDIES**

After a comprehensive search done by the researchers for this study, this chapter presents the related literature and studies concerning asset management and reservation system. The review of the literature focuses on the importance, effectiveness and efficiency of asset management and reservation system implemented in an institution or business. In this review, the researchers examined the crucial relation between the related literatures and the research with regards to the implementation of the project, University of San Carlos Audio Visual Center Asset Management and Reservation System.

One of the most pronounced trends has been the establishment of audio-visual centers in many libraries.With the accrediting agencies requiring audio-visual instruction as part of the certification requirement, many colleges and universities are offering courses in the field (Quinly, 1977). The audio visual center as a part of the library has proved most successful in many large operations in an institution as emphasized in the book “The Selection, Acquisition, and Utilization of Audiovisual Materials”.

**Asset Management and Its Importance**

As one of the units of the library, the audio-visual center houses materials and equipments for audio-visual presentations. To optimize the sole function of an audio visual center, assets should be managed and maintained properly for long-time usage. In the journal “Choosing a Digital Asset Management System That’s Right for You”, it suggested that to manage assets, one will need both software and human solutions since the problems of preservation, organization, access of objects are extremely difficult to solve. Maintenance is a massive task that it requires both archival knowledge and technical knowledge for the system will not run or maintain itself, on either the technical side or the design side (Kaplan, 2009). Moreover, the management of assets depends on knowledge about the organization’s asset, in terms of both equipments, business role of the assets and future prospects according to the book entitled “Physical Asset Management”. Providing resources to support the acquisition, in service-support and disposal of the physical assets of the organization is the purpose of the asset management. A central management of assets is needed since facilities need to support assets throughout their life (Hastings, 2010).

Furthermore, facility management is an essential business function and a form of practicing management discipline that needs to be exercised by the organization. In the “Facility Management Handbook, Fourth Edition”, since Facility Management is evolving, it concerns to organizations which associate security to avoid potential risks. In today’s world, security plays a very important role throughout an organization. In this matter, security measures should be taken with regards to the facilities and equipments for its sustainability. With technology occurring in the picture, security can be properly implemented in the management of facilities. The book stated that the four principles of security, which are facility management, public safety, information technology and employees, must cooperate and collaborate. To eliminate or reduce thefts and losses of the organization’s equipments, then security through technology should be taken seriously (Roper and Payant, 2014). In the article “The Asset and Maintenance Management System (AMMS) Project”, it becomes necessary to manage assets efficiently and managing it the right way cuts down maintenance costs with the advent of ever evolving technology. Varieties of IT-maintenance software products exist in the market which can be used to manage equipments. With faster access to technology and reduced costs, resources can be managed efficiently. But often these softwares do not always fulfill the requirements of an organization (Khan, 2010).

**Reservation Systems**

All throughout these years, some institutions, companies, organization, etc. still continue to strive with the manual process of reservation of the facilities. To reduce the inconvenience, an automated process must be implemented. Having a manual process has many processes to undergo but if we do it in an automated process then the process will be shorten and become efficient. As stated in the Automated Construction of Web Accessibility Models from Transaction Click-streamsarticle, the application of automated process is for the people who prefer at-hand transactions. Their automated process is unique in which they combined multiple of functions of the manual process and enhanced it for the betterment of an organization’s operations (Mahmud, Borodin, Ramakrishnan, and Ramakrishnan, 2009). Constructing automated system can only be done with use of the technology.

Since the application of Internet has become a major trend in the business world, countless companies, institutions, etc made it as a channel to operate efficiently in a most convenient way through technology. In a world where technology is the center of the business, organizations associate business with technology strategy. In the article, “Aligning Business and Technology Strategy within the Airline Industry”, it shows how technology has emerged as a solver of complex and strategic issues in the business world. Nowadays, technology has become the driving force that creates change in any business that uses it. With the use of the technology, organizations become increasingly technology-dependent to improve their performance in order to be extremely flexible to their clients and meet their demands. Their research also explores the integration between technology strategy and business strategy in the airline industry through the development of a reservation system. They figured out that with the help of the system, it has become greatly beneficial to airline companies for business process has radically altered (Althonayan and Sharif, 2010).

Based on the article, The Impacts of the Online Reservation System in London City Hotels, it tells that by using the technology will make their business to be cost-effective. Having an online reservation is less time-consuming for their customers to book a room. The system is a very useful tool as a competitive profit strategy. The researchers investigate the implication of reservation systems and their impact in the business world. The results and findings have proved that the online system has positively affected the businesses (Lin and Lee, 2009). Meanwhile, computer programmers are continuously developing an online system application to better serve clients who are in the business field. According to a study, which is the Lan-Based Reservation System for Hacienda Gracia Resort and Hotel, the advent of new technology gave rise to easy and hassle-free interaction between and among humans. This is why most hotel and resorts prefer to employ computerization in their business. The researchers introduce a “LAN-Based Reservation with Billing System” to improve its reservation and billing system (Lagman, 2012).

Moreover, negotiation has been examined and used for years in business transactions. With the development of information and communication technology, Internet-based negotiations, or also referred to as online negotiations became popular in both academic and practice domains. This is according to a study, Reservation price reporting mechanisms for online negotiations. Although information technology caters convenient information exchange with less temporal and geographical restrictions, pure internet-based negotiation can be effectively implemented in real business practice. However it is believed that greater efficiency can be achieved when more information to participants is provided in online transaction by transformation systems (Barua et al., 1989). If online negotiation facilitates a better information exchange mechanism following which the participants may enjoy greater payoffs by sharing more information without damaging their own profits, pitfalls of online communication can be mitigated.

Although the literature presents the concepts in a variety of context with arguments supporting the concepts, the primary focus of the paper is to develop an Asset Management and Reservation System for the University of San Carlos Audio Visual Centers.

**CHAPTER 3**

**PROJECT METHODOLOGY**

This chapter explained the details of the methodology that is used in making and implementing this project. This methodology is used to acquire the objective of the project that will produce a perfect result. To evaluate this project, the methodology based on Iterative and Incremental Development.

Nowadays, software development process is most commonly built around iterative and incremental approach. According to Techopedia website, iterative and incremental development is a discipline for developing systems based on producing deliverables. In incremental development, different parts of the system are developed at various times or rates and are integrated based on their completion. Project work is split into iterations that in every iteration included such phases as requirements analysis, design, implementation, testing, and functional requirements. The product is incrementally enhanced with additional functionality in every iteration.In iterative development, teams plan to revisit parts of the system in order to revise and improve them. User feedback is consulted to modify the targets for successive deliverables.

Iterative and incremental development is grouped into the following phases namely: Inception Phase, Elaboration Phase, Construction Phase, and lastly Transition Phase. In Inception phase, it deals with the scope, requirements, and risks of the project. In Elaboration phase, it delivers working architecture that moderates risks identified in the inception phase and satisfies nonfunctional requirements. In Construction phase, it fills the architecture components incrementally with product-ready code which can be produced during analysis, implementation, design, and testing of functional requirements. And lastly, In Transition phase, it delivers the system to the production operating environment.

The developers have chosen the iterative and incremental development model to develop the automated system for it suits best the developer’s development process of the project. Thus, iterative and incremental development model helps to reach project goals in the most efficient way.

**Figure 3.1 Iterative and Incremental Development**

This figure showed the process in developing systems based on the producing deliverables through an iterative and incremental development cycle.

**3.1 Initial Planning**

In this phase, we interviewed Working students from the Audio Visual Center Office, faculty members of the Department of Computer Science, Director of Libraries, Head of Audio Visual Center, librarians and the technician of the Audio Visual Center at University of San Carlos Talamban Campus about our proposed system. We studied the manual process and come up to a solution.

**3.2 Define Requirements**

After identifying the process of what should be done, we determined the system requirements as what our respondents and adviser recommended and identified the problems encountered while using the manual reservation of Audio Visual Rooms and Asset management system.

We defined the requirements by creating different users and specify its roles and privileges’. We also consider the different scenarios in which the activities vary according to the users’ particular type.

**3.3 Analysis and Design**

In this phase, we analyzed all the information gathered with the documentation of the project, interviews, and all needed data and came up with the solution to the problem. We established the kind of system that should be developed for the future University of San Carlos Audio Visual Center Asset Management and Reservation System after studying their manual business process flow. We view the problem from the user’s perspective, the business requirements and came up a solution in terms of usage scenarios.

We also started creating lay-out, design, module, and prototype that will be needed for the efficiency of our proposed Audio Visual Center Asset Management and Reservation System. We created Flow Chart, ERD (Entity-Relation Diagram), Use Case Diagram to fully understand the flow of the University of San Carlos’ manual process into our proposed system.

**3.4 Implementation**

In this phase, we created the solution for the improvement of the Audio Visual Center. During our coding, we find out that there are problems encountered in the process of the system. Functions were also added to meet the requirements of the system.

**3.5 Testing and Evaluation**

In this phase, we are ready for testing our proposedAudio Visual Center Asset Management and Reservation system. We gathered all the testing results to identify from the different users of the system and were able to identify if there are any problems found in the proposed system. Evaluation from the users was made after testing the system in line with the system requirements.

**3.6 Deployment**

In this phase, we and the client will settle on if the system is ready for deployment or the system will undergo revisions for improvements. If the system is ready for deployment, we will present a user manual and conduct training on how to use our proposed system.