WEB BASED APPLICATION OF INTERNSHIP LOGBOOK FOR PRACTICAL STUDENT

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A report submitted in partial fulfilment

of the requirements for the award

of the degree of

Bachelor of Computer Science (Computer System & Networking)

Faculty of Computer Systems & Software Engineering

University Malaysia Pahang

MAY 2011

ABSTRACT

A Web-Based Application of Internship Logbook for Practical Student which has been developed is to automate the currently manual system processes. The used of paper based logbook encountering many problem to the user especially to the student and lecturer. The application allows internship eligibility checking, online-logbook submission and monitoring as well as grade book of industrial internship program at Universiti Malaysia Pahang. PHP 5, PHP MyAdmin 2.0, Macromedia Dreamweaver MX 2004, MySQL Database and Apache Web Server is being used to develop the application. Phased development model has been used in the development process by applying the Rapid Application Development (RAD). Online Knowledge defines RAD as "a methodology that enables organizations to develop strategically important systems faster while reducing development costs and maintaining quality". The application is hopefully can be easily used as an aid for the internship student to record their logbook without afraid of losing the logbook or anything bad happen to it. Thus, in general aspect, this application may not only benefit the student, but also to all the persons that involve in this internship program.

ABSTRAK

Aplikasi Buku Log Latihan Industri untuk pelajar yang menjalani latihan industri yang sudah dibangunkan adalah untuk mengautomatikan penggunaan proses manual pada ketika ini. Penggunaan buku log berasakan kertas menyebabkan pertembungan dengan pelbagai masalah kepada pengguna terutamanya kepada pelajar dan pensyarah. Aplikasi ini membenarkan pemeriksaan latihan industry, penghantaran buku log secara online, dan memerhati dalam masa yang sama pengredan bagi latihan industri di Universiti Malaysia Pahang. PHP 5, PHP MyAdmin 2.0, Macromedia Dreamweaver MX 2004, MySQL Database dan Apache Web Server telah digunakan dalam membangunkan aplikasi ini. Model fasa pembangunan yang digunakan dalam pembangunan sistem ini adalah Pembangunan Aplikasi Pantas (RAD). "Online Knowledge" mendefinasikan RAD sebagai methodologi yang membolehkan sesebuah organisasi untuk membangunkan aplikasi dengan pantas yang secara strategiknya adalah penting dan dalam masa yang sama mengurankan kos pembangunan dan menetapkan kualiti. Aplikasi ini diharapkan dapat digunakan dengan mudah sebagai bantuan kepada pelajar yang menjalani latihan industri tanpa mereka perlu merasa takut untuk kehilangan buku log atau sesuatu yang buruk berlaku kepada buku log tersebut. Jadi, dari segi keseluruhannya, aplikasi ini bukan sahaja' memberi kebaikan kepada pelajar, malahan juga kepasa semua pihak yang terlibat dengan program latihan industri ini.

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LIST OF ABBREVIATION

GAN	- Global Accelerator Network
XML	- Extensible Markup Language
HCI	- Human Computer Interactive
GUI	- Graphical User Interfaces
CDROM	- Compact Disc, Read Only Memory
ASCII	- American Standard Code for Information Interchange
HTML	- HyperText Markup Language
CGI	- Common Gateway Interface
PHP	- Hypertext Preprocessor
PDF	- Portable Document Format
DBMS	- Database Management System
MYSQL	- Relational Database Management System
SSADM	- Structured System Analysis & Design Method
SDLC	- Software Development Life Cycle
RAD	- Rapid Application Development

CHAPTER 1

INTRODUCTION

This chapter briefly discusses about introduction for the purpose project. There are five main sections in this chapter. The first main section is introduction of this chapter. Then, the next main section describes problems statements. After problems statements, the next section will briefly discuss about the objectives for this project to achieve. Next is the scope for this project. The last main section reviews the thesis organization for each chapter in this report. The thesis organization will discuss briefly about each chapter in this report.

1.1. INTRODUCTION

This introduction provides information needed for brief description on project which going to be developed; Web-Based Application of Internship Logbook for Practical Student. From that, web based application that going to be develop consist of several part involving the internship student and the lecturer or staff. Internship is an 8 credit hours non-course component compulsory for all students registered in any programs under Faculty of Computer System & Software Engineering. Currently, the student who undergo this program will spend their internship for about 6 month at wherever company that willing to accept those student to undergo the program.

Starting from the first day of the program, the student need to report everything they have learnt until the end of the program. Therefore, they were given a logbook to jot down their report. Each and every activity that is happen during the internship program should be reported in the logbook as one of the requirement for grading purpose. The people involved in the internship program are as follow [1]:

- Intern - The student undertaking the internship.
- On-Site Supervisor - A person in the *host organization* responsible for supervising student work during the internship. The on-site supervisor manages student day-to-day activities, arranges resources (both physical and human), determines project milestones, and provides feedback on student progress, including a final evaluation.
- Faculty Supervisor – A Computer System & Software Engineering faculty member responsible for overseeing the selection of an appropriate internship opportunity, negotiating duties and working conditions, providing support on academic and other issues, and monitoring student progress.

From the above explanations, the web based application which is going to be developed will function as a tool for the practical students who undergo internship program to easily make their logbook visible for the knowledge of their lecturer who monitor their internship program, without need to come back to the university. This is because whoever got the access to the system can monitor student activity via the recorded logbook. In addition, this project will save time and reduce cost to the student that undergoes the internship program from wasting it come back to the university because as we know, the student is still new to the working world and need lots of time and money to be able to adapt in the new way of life. Thus, for that purpose, the web based application that are going to be develop is hoped to be one of the ways that can help internship students to make their work not only at the company, but also their work as a student to be much more easy.

1.2. PROBLEM STATEMENT

Presently, an internship student needs to make their logbook in a physical paper which is only visible for him or herself view. Then after their internship program is done, they need to come back to the university in order to submit the logbook to the lecturer for grade and graduation purpose. The problem is usually the internship company is not located near the university, thus make the student to face difficulties when they are required to send their logbook to the faculty. Moreover, as an internship student, they cannot easily get the leaves unless in case of emergency or others reasons that is considerable. To solve this problem, the online logbook can be used as a tool that can reduce the difficulties to the student. As the lecturer, they may use this application to help improve student performance at the internship company.

1.3. OBJECTIVES

The objectives of the project are to:

i.   Implement online logbook for internship students.

ii. To help students and lecturers who are involve in internship program to be able to update their activity easily.

1.4. SCOPE

The scope of the project is base on:

i.   UMP student who undergoes internship program.

ii. UMP lecturer and staff.

iii. Student internship company.

1.5. THESIS ORGANIZATION

This thesis contains six (6) chapters. Chapter 1 (Introduction) will introduce the application that is being developed, "Network Sniffer", the problem statement, objective and scope. In Chapter 2 (Literature Review), it will explain about the literature research of this project by referring any other existing application. For Chapter 3 (Methodology), explains about the methods to be used to develop this system. Chapter 4 (Implementation) will explain about the system that have been developed. Chapter 5 (Discussion and Result) explain about the analysis come from the result. Lastly, chapter 6 (Conclusion) emphasize on the conclusion of the overall application.

CHAPTER 2

LITERATURE REVIEW

Chapter 2 is the important chapter for any project that will be develops. The purpose of this chapter is to present a selected literature review, which is very important for the research. This chapter also describes and explains on the literature review carried out on the system that be used in developing this system. Besides that, previous research also will be discussed in this section and at least three existing system that being used in to make as a research which is related to this system will be explained and compared to highlight the differences. For the project required section, where all the requirements such as software and hardware as well as the operating system requirement will be listed so that developer can understand all the features that are available in the requirement before proceeding to the proposed project. Finally, the last section of the chapter discusses the project schedule and milestones. In this section, a Gantt chart will be attached together with this section. The Gantt chart listed details of all task and activity required during the progress of the project and the conclusion section will end the entire explanation for this chapter.

2.1 INTRODUCTION

This chapter briefly discusses about the literature review Web-Based Application of Internship Logbook for Practical Student. There are five main sections in this chapter. The first main section is introduction of literature review. Then, the next main section describes the concept of online logbook. In this section also, there will be a discussion about the manual system of internship logbook and also the existing system of online logbook. Next, is the technology use to develop the system. After that, the next main section will discuss about the technique use for deploying system. While the last main section, will be focus on the development methodology.

2.2 CONCEPT OF ONLINE LOGBOOK

Basically, the online logbook which is going to be developed is a tool that can be use by the user as a wide range of overlapping Personal Information Management (PIM) tools such as calendars, contact lists and email, running on computers and mobile phones. The information across these devices and applications needs to be consolidated into one place and directed towards support for learning [2]. At the same time, this application also being developed to support students in maintaining learning portfolios and personal development plans, as aids to reflective learning and as transferable records of achievement of the user [2]. So, the user not only can view back what have they done before but also it is visible to the other people who are get involve with their achievement such as authorized staff or even the lecturer.

For that, by the adoption of a more comprehensive online logbook system, it is motivated by the importance of providing routine real-time access to full detailed

commissioning logs to all commissioning personnel. This has the immediate effect of improving meeting efficiency (an observation from FNAL). All interested parties can read recent log entries and review graphics before each meeting, and thus feel well-prepared to deal with daily issues. Like the shift coordinator summary logs, this log system also avoids many pitfalls of hardcopy logbooks. It is easily backed up, printed for hardcopy archives, searched for keywords, and integrated to controls to consistently mark major events such as new ramps, quenches, and beam aborts [3].

Base on that reasons, its leads to a first version of online logbook which is proven to be a software tools in sense of a "Global Accelerator Network" (GAN) to support international collaborative activities. The implementation follows the, in the area of web ser-vices widely used, client-server concept [4]. On the client side every standard web browser can be used as user interface for input of text and retrieval of information. Graphical data can be inserted by use of low level post-script print services to offer a platform and program independent input interface. All data is stored in the XML format to allow interfacing with other web services and fast access for searching [4].

In addition, by converting paper notebook to electronic logbook form of system management, operation can be going efficiently, improve communication, and many others advantage. All users can use it to record experiment data, machine status and events. Moreover, retrieval of record information can be done via internet without physical limit [5]. This is due to online logbook relational database relies on a human-computer interactive (HCI) system of graphical user interfaces (GUI) to improve the information management and oversight process.

In nut shell, what can be say about the online logbook is that this application will not only give benefit by reducing the using of paper, but also help the student to make their logbook more readable to all viewers. At the same time, lecturer may also help the student to improve their work at the company where student undergoes internship program. From the above explanation about the concept of online logbook

system, it is hope that all people may get the idea of what will this project is all about.

2.2.1 Manual System

Traditionally, logbook is being writing on a paper according to specific schema and after all the information required or end of internship program, the document must be sent to the faculty for checking and grading purpose. Problem with the paper-based logbook is that much learning activity is now carried out online, through email, web browsing and word processing. On the other hand, there are also learning are base on instructor that need the student to record it as video, audio or even in picture. Currently, students have to add these activities to the paper logs by printing out the documents or transcripts of email and pasting them into the logbook. Activities such as interactive software design and video production can only be included in the logbook as CDROMs or as references to online websites. If that action is not taken, it will cause their mark for internship program being given is low.

In addition, traditional logbooks also suffer from several drawbacks. Creation (writing comments, pasting in copies of graphics) and backup/duplication are both labor-intensive, and can distract operations from more important machine tasks. Text can be illegible, and valuable copies of logbooks can be misplaced or lost. Most importantly, these logbooks are only available to a few within the organization at any one time; other operators, system specialists, engineers and administrators have to rely on second-hand information [3]. By looking to nowadays activities, those type of action are no longer effective toward the needs of people who wanted everything to be easy and fast. There is no doubt to say that the old way of logbook still can be used as an easy way of logbook being practice, but by only depend on traditional way may not give the best output or result.
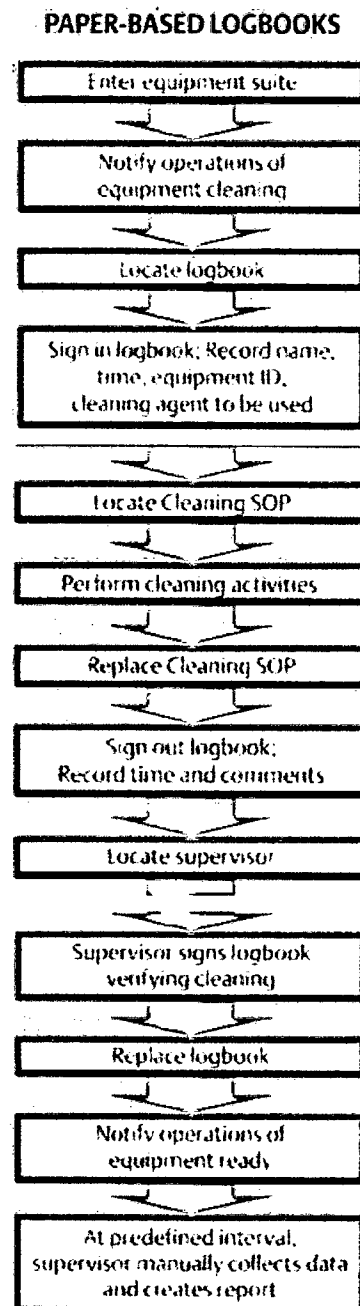
PAPER-BASED LOGBOOKS

Figure 2.1: Manual logbook system using paper-based [12].

For that, an online logbook must be developing in order to have a better ways of life. If this action is not being taken, soon or later there will be problem face by all people involve such as lost of document, misplace, accidently spill by coffee or many others problem.

2.2.2 Existing System

Currently, the existing system being develops by java technology for the online logbook which follows the classical client-server architecture as shown in figure 2.2.
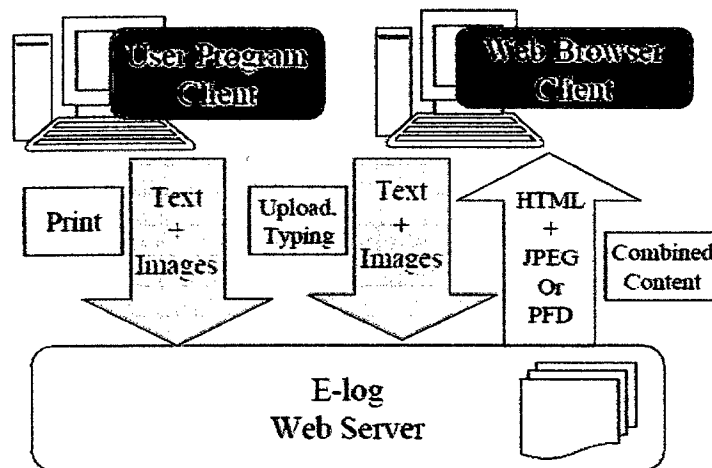

Figure 2.2: Basic architecture of the online logbook [4].

As can be seen on the figure, there are two ways to store data in the online logbook, which functions in this view as a kind of database. One way is mostly used for the input of graphical data and is realized by a simple low level Postscript (PS) print service. This input channel can easily be realized on any standard UNIX system that provides the so called pipe mechanism. Any user program that is capable of printing to a standard postscript printer is able to write graphical and textual data into the online logbook via this channel. The second input channel is mainly meant for input of ASCII text data but we now also provide the common file upload functionality. A plain HTML "forms" page as front end in the browser is provided to directly type in comments to the graphical data and also to place text-only entries. The core functionality provided by the online logbook is based on the internal data handling and storing by using the extensible mark-up language (XML). The XML file is a specified format of the contents. Figure 2.3 shows a more detailed view of

the dataflow that will be invoked by an input of graphical data (green arrows) and the request for certain period of time (blue arrows) by a client[4].
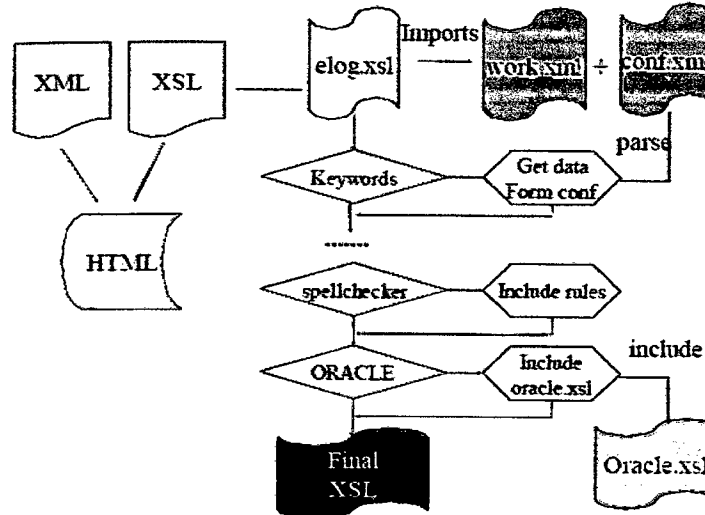

Figure 2.3: Sketch of the modular XSL architecture.

We have implemented JDBC (JAVA database connectivity) support to allow direct storing of main machine parameters and standard shift settings (like names of the shift crew, goals, achievements etc.). This allows the operators to do most of the standard documentation from within the online logbook environment. Further we now gathered first experience with an authentication and authorization schema. We are using the Apache httpd mod_ssl to provide a secure http (https) connection to authenticate the user via Apache Tomcat by use of JAAS (JAVA authentication authorization schema). This will not only allow to fine grade control the accessibility of certain resources on a per user basis but also allow personalizing the user's special desires [6].

2.3 TECHNOLOGY

The online logbook that will be develop is implemented by approximately 8000 lines of Perl5 CGI scripts beneath an Apache 1.3.20 web server on a Sun Ultra-2 running Solaris 5.7. The original FNAL separation into approximately two dozen Perl files integrated by two master CGI scripts has been maintained; this separates functionality into easily-supported modular components [3]. A simple small Perl scripts has been developed which is a copy versions of online logbook between development and operations machines running Solaris and Linux, allowing development and testing of multiple versions. These scripts also are used to copy functional versions of online logbook to CD-ROM as browsable offline archives.

Two other small scripts bypass the CGI interface to append either text or graphics to the current online logbook. Data files are stored as flat text files for logbook entries, and normal jpg or gif files for graphics. These files are straight forward to maintain, and flat text files can be edited by hand if necessary. However, flat text files are inefficient to manage in bulk, particularly with regards to online logbook searches for combined keywords. The user interface for this online logbook is by using any HTML4.0-compliant web browser supporting Javascript, including most reasonable versions of Netscape, Mozilla, Opera, and Microsoft Explorer. HTML4.0 is required for online logbook navigation frame support, while Javascript is used for form submission and client-side integrity checks before data posts [8].

In addition, the existing online logbook application was implemented using the IDL language and its interface to the Microsoft SQL Server relational database. This interface was developed as part of the MDSplus system. Besides that, the information which is going to be can be stored in tables in a MS SQL Server database, this database platform was also used for the additional tables required to organize the information. The web based applications were developed using the PHP CGI scripting language. The logbook application provides live updates when new