

**COLLABORATIVE TIMESHEET MANAGEMENT  
SYSTEM**

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# COLLABORATIVE TIMESHEET MANAGEMENT SYSTEM

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A project report submitted in partial fulfilment of the requirements for the award of  
degree of Master of Science (Information Technology – Management)

FAKULTI SAINS KOMPUTER DAN SISTEM MAKLUMAT  
UNIVERSITI TEKNOLOGI MALAYSIA

APRIL 2006

*I dedicate this thesis to my beloved family.*

*To my husband Adam, thank you for being together through-out our studies,  
It has been one enjoyable journey. I Love You.*

*To my precious son Daanish, you are the joy of my life.*

*To Mak and Abah, thanks for being there when in need.  
I give you all my success as appreciation for your undying love and care.*

*To Mama and Papa, thank you for your support and advice.  
This success is because of your full spirit.*

*And lastly to all my brothers, thank you for your support you have given me through the  
obstacles I have faced.*

## **ABSTRACT**

Collaborative Timesheet Management System is believed to be found under one of many modules of a Project Management. It is crucial that the system to be developed in line with company's business objectives. This is to ensure that the system is well developed, so that every part of the modules and functions will be fully utilized by the Project Manager, Project Staffs, and Higher Management personnel. Apart from that, this project enables our participants to gather enormous amount of knowledge, not just in system development, but the whole process of managing every single phase of project development. This project is developed with the help of Unified Modeling Language as one of the development tool. The basic concept of this system is to improve the process of task delegation and monitoring project performance for Project Manager and Project Staff, and logging it into a nice and well-defined database. It helps the company to be at much competitive with the other multi-national organizations in terms of much higher service quality.

## ABSTRAK

Adalah dipercayai bahawa *Collaborative Timesheet Management System* adalah merupakan salah sebuah modul kecil didalam Pengurusan Projek. Untuk memastikan bahawa segala ciri-ciri dan modul-modul sistem yang telah dibangunkan dapat dipergunakan sepenuhnya oleh Pengurus Projek, Pekerja Projek, dan pihak pengurusan syarikat, proses pembangunan sistem perlu dilakukan dengan amat teliti supaya tidak mudah terpesong daripada objektif utama syarikat. Selain daripada itu, adalah diharapkan dengan adanya projek ini, dapat diterapkan unsur kerjasama dikalangan rakan sekerja, dan juga dapat menggalakkan penambahan ilmu pembangunan sistem dikalangan pekerja. Selain itu, projek ini akan dapat menunjukkan cara pengurusan yang baik bagi setiap fasa-fasa pembangunan projek. Projek ini dibangunkan dengan bantuan pendekatan Unified Modelling Language sebagai alat bantuan pembangunan. Konsep asas projek ini dibangunkan untuk memperbaiki proses pembahagian tugas dan memerhati kemajuan projek bagi Pengurus Projek dan Pekerja Projek, dimana sistem akan menggunakan proses penyimpanan data-data pelanggan ke dalam pangkalan data yang lebih kemas. Akhirnya, data-data tersebut akan dapat dipaparkan dengan paparan yang lebih elok dan teratur untuk kegunaan audit.

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# CHAPTER I

## PROJECT INTRODUCTION

### 1.1 Overview

Over the years, Information and Communication Technology (ICT) has rapidly changed the way we do things in our life. Without a doubt, the usage of computer aided has given an enormous impact in each and every sector that involves human lives. Without the aid of computers, tasks and routines will be done inefficiently and occasionally it is impossible to have done it at all. There are a lot of applications being developed each day in fulfilling the requirements addressed by various sectors such as education institution or other organizations.

It is definite that computers are now vital in today's environment which is everything are moving rapidly in a sense that every process are being done within split seconds. With the aid of computers, it is not only proven that organizations could smoothen out their everyday-routines, but furthermore, organizations could achieve their corporation objectives effortlessly. Besides other than individuals could improve their productivity, and skills, they could also provide a better quality of service in terms of efficiency and effectiveness to their employers and country as a whole.

## 1.2 Company Background

KDEB ANZAGAIN was founded in 1999. It is a subsidiary of Kumpulan Darul Ehsan Berhad and it is target to become one of the nation's leading developers in Multimedia Educational products. The company is taking the challenge from the government in achieving its MSC goal and developed country by the year 2020.

The identified company's core business is in the area of education, content development that includes the development of multimedia product and services (electronic publishing/courseware development), education portal, on-line products and services, training and consultancy on education and IT. KDEB Anzagain Sdn Bhd will also be the receiver for any content development works required by or through the broadband business company i.e. The VDSL broadband ISP services company- VDSL Network Sdn. Bhd. Further more, the company was also chosen as one of the consortium members responsible for the development of Teaching Learning Material for primary mathematics for the Malaysian Smart School.

**Table 1.1 :** KDEB Anzagain's Business Process

Business Areas	Educational Courseware (Subject Discipline / Based)	Computer Based / On-line tutorials	Edutainment Programs	Training & Consultancy	R&D and product commerlization
Products & Services	<ul style="list-style-type: none"> <li>• Translation of Smart School c/w</li> <li>• BTP Readers Books. Imported titles and own publishing titles</li> <li>• Text books for the Malaysian Schools govt. contract</li> </ul>	<ul style="list-style-type: none"> <li>• Test items</li> <li>• Extracts On MalaysianS mart School products derivatives</li> <li>• Glory Mathematics from yr 1 to for 3 tuition online products.</li> <li>• Tuition online portal My sifoo</li> </ul>	Non-formal Education	<ul style="list-style-type: none"> <li>• Smart Learning               <ul style="list-style-type: none"> <li>- UPSR</li> <li>- PMR</li> </ul> </li> <li>• Extended learning program for teachers.</li> </ul>	<ul style="list-style-type: none"> <li>• Curriculum Management Flow</li> <li>• School management packages</li> </ul>
Target Market	Schools and other learning institution in Selangor, other states. Open market/beyond the geographical limit of Malaysia.				

### 1.3 Problem Background

KDEB Anzagain Sdn Bhd is an IT company that involved in the development of multimedia product and services. Products that are being produced by the company are CD-ROM Courseware, Books, Education Website and School Textbooks. The clients are the Ministry of Education, Bookstores, Telekom Smart School Sdn Bhd and Schools.

Currently, once the company awards the project, the manager will delegate the task during the project meeting. The staffs are required to do the timesheet manually to identify that they list down their task and total time they need for every task given by superior. Usually they update their superior only when they have meeting. Sometimes lack internal communications and task delegation problems might lead to miscommunications and not everybody will get the exact message and instruction.

The management and superior also have to go through the staff timesheet filing manually to make sure the staffs are doing their task and it is hard to keep track the total amount of time that needed for every staff to finish the project.

The management will depend only on the hardcopy of timesheet documentation for every staff and sometimes the filing system is not complete and the document is missing when we want the document. Sometimes staffs will argue that the tasks given are not equally delegated. Furthermore, lack of project monitoring will ultimately causes a project to be over cost and over schedule.

The management also needs to refer to the timesheet documentation if there is any staff wants to claim that they work after working hours. As such, if there is a system that able to update online and reducing redundant work between staffs and help company to function more efficiently and effectively.



KDEB Anzagain Sdn Bhd is an IT company but most of the business processes in the company needs improvement by using IT solution and develop a management system that can help company running the business better.

#### **1.4 Problem Statement**

The productivity of team-based core activities of Project Manager and Project Staff in KDEB Anzagain Sdn Bhd is hampered due to no systematic task delegation to staff and difficulties in monitoring project performance.

#### **1.5 Statement of Purpose**

The purpose of the study is to provide a web-based solution mainly to improve the process of task delegation and monitoring project performance for Project Manager and Project Staff.

## **1.6 Project Objective**

The objectives of the project are:

- i. To study the business process of staff task delegation and monitoring of project performance.
- ii. To design the Collaborative Timesheet Management System which include the following functionalities:
  - a. Assigning
  - b. Scheduling
- iii. To improve the task delegation and project performance monitoring.
- iv. To formulate a management strategy for the successful implementation of the timesheet management.

## **1.7 Project Scope**

The project scopes are listed below:

- i. This prototype system can only be used by the staff of KDEB Anzagain Sdn. Bhd.
- ii. This system is in web-based in which it can only be accessed from the Intranet or the company internal network.

## **1.8 Project Limitations**

Since it is a prototype of an actual system, it will not provide feature of notifications of email to the staffs. The limitation would require the staff to login to the system frequently if they want to be notified on what the new tasks are given by their superior. Other features that system will not provide is file sharing. If staffs want to pass the file that need to be amended the others they cannot pass through this system.

## **1.9 Project Importance**

The benefits that KDEB Anzagain Sdn Bhd could benefit from this system are:-

- i. The staff could perform the well in terms of professionalism, skill, and more effective and efficient which it could help the management to save more time supervision project all the time.
- ii. The management could save and make use of their time to think more on how to improve the procedures and increase the business marketing and sales of the company for one reason that is to increase the company's yearly revenue.

## **1.10 Description of Solution**

The solution is to develop a centralized server that situates a database in it that the staff can access through a web. Besides the database, there will also be a web server that controls and manages the transition of data and the input and output of information through the network. The system will be a real-time and online which is accessible 24 hours.

## **1.11 Chapter Summary**

From the initial study, it is found that KDEB Anzagain Sdn Bhd requires a Collaborative Timesheet Management System that can improve the task delegation and project performance monitoring. A client server type of environment and a web-enabled kind of application is required, as this will easily enable remote access to the system by the users. From the implementation, this new system will enable sharing of information and improve communications between the users and also generate a report for every project and staffs for Management and Project Manager to analyze and review to assist decision making. It is hoped with this new system implementation enable to resolve the above-mentioned problems, and further on, enable the users have the flexibility to directly access the information as and when is necessary.

## REFERENCES

David J. Barnes (2000), "Object-Oriented Programming with Java, An Introduction", Prentice Hall.

Universiti Teknologi Malaysia (1999), "Panduan Menulis Tesis Universiti Teknologi Malaysia", Skudai, Johor. Pusat Pengajian Siswazah.

H. M. Deitel, P. J. Deitel, T. R Neito (2002), "Internet & World Wide Web. How To Program", New Jersey. Prentice Hall.

Grady Booch, Ivar Jacobson, James Rumbaugh (1998), "Rational Unified Process, Best Practices for Software Development Teams", White Paper. Rational Software Corp.

David West (2003), "Planning a Project with The IBM Rational Unified Process", New York. IBM Corp.

Redside Solutions Inc (2002), "The Adaptive Delivery Framework Process Toolkit", Portland. Redside Solutions Inc.

Kathy Schwalbe (2004), "Information technology Project Management", Third Edition. Massachusetts. Thomson Course Technology.

John W. Satzinger, Robert B. Jackson, Stephen D. Burd (2004), "Systems Analysis and Design", Third Edition. Massachusetts. Thomson Course Technology.