

# **SIAT-Sys: SAFETY INDUCTION ATTENDANCE TRACKING SYSTEM**

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**This report is submitted in partial fulfillment of the requirements for the Bachelor of Information & Communication Technology (Software Development).**

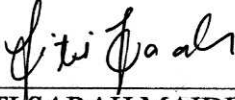
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
**ADMISSION**

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## **DEDICATION**

Specially dedicated to my beloved parents, family and fellow friends, who had encouraged and supported me in my entire journey of learning...

## ACKNOWLEDGEMENTS

*Assalamualaikum Wbt.*

*Praise to Allah SWT, the Most Merciful and the Most Benevolent who has given His blessing to complete my thesis that was conducted during semester 7, 21<sup>th</sup> June – 22<sup>th</sup> October 2004.*

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## ABSTRACT

This project is to be done for OMQ department, Security department and HSSE department at Shell Refining Company (F.O.M), Port Dickson, Negeri Sembilan.. This project aims to ease the way to record the attendance of staff and contractor that has completed SI course and to simplify the way information being shared by OMQ department, Security department and HSSE department. This project name is Safety Induction Attendance Tracking System (SIAT-Sys) and being developed by using Windows XP as operating system, Active Server Page (ASP) as server side scripting, VB Script and JavaScript as client-side scripting and Microsoft Access 2000 as database platform.

This project will track the attendance of participants that has attended SI course. SI course is a prerequisite course for the staff or contractor whom wants to enter refinery. Refinery is an area in SRCPD that sensitive to heat and waves. Therefore, SI course will give information about safety measures that should be taken while in the refinery.

Unified Rational Process methodology being chosen as a methodology for the development of this project. UML diagram is a tool to illustrate the flow of SIAT-Sys.

The scope for this project is as save information electronically about staff and contactors that has attended SI course when they enroll with the course, to make it easy and simplify the process of Refinery Entry Batch processing for security department from the information given by OMQ department and to make fast and updated for security department to view information about participants that has attend SI course for current day.

This project has two significances such as to ensure that Shell follows occupational safety and health act 1994 (ACT 514). This act will ensure staff and contractor safety while working in Shell and increase the productivity of Shell. The staff and contractor feel safe while working in refinery and make them comfortable to work and contribute to Shell. As a conclusion, SIAT-Sys is a solution for fast and updated track of Safety Induction attendance tracking.



## ABSTRAK

Projek ini adalah untuk kegunaan jabatan OMQ, Keselamatan dan HSSE. di Shell Refining Company (F.O.M), Port Dickson, Negeri Sembilan. Projek ini bertujuan untuk memudahkan proses merekodkan kedatangan ke kursus induksi keselamatan di dan untuk memudahkan informasi yang dikongsi bersama oleh jabatan OMQ, Keselamatan dan HSSE. Tajuk system ini adalah system mengesan kehadiran kursus induksi dan dibangunkan menggunakan Microsoft Windows XP sebagai system pengoperasian, Active Server Page (ASP), VBScript, JavaScript dan Microsoft Access 2000 sebagai pangkalan data.

Projek ini akan merekodkan kehadiran kakitangan ke kursus induksi keselamatan. Kursus induksi keselamatan adalah mustahak kepada kakitangan kerana kursus ini akan menerangkan langkah keselamatan yang perlu dipatuhi ketika berada di kawasan penapisan minyak di SRCPD. Kilan penapisan adalah kawasan dimana ia sensitive kepada haba dan gelombang.

Metodologi yang digunakan untuk membangunkan projek ini adalah metodologi Rational Unified Process. Gambarajah UML digunakan sebagai ilustrasi untuk menunjukkan perjalanan system.

Tujuan projek ini adalah untuk menyimpan maklumat secara elektronik mengenai kakitangan yang telah menghadiri kursus induksi, memudahkan proses pembuatan lencaha kemasukan ke kilang penapisan minyak di SRCPD.

Signifikansi projek ini adalah untuk menentukan bahawa Shell mematuhi Akta kesihatan dan keselamatan 1994(ACT 514). Akta ini akan memastikan keselamatan kakitangan ketika bekerja di Shell. Secara kesimpulannya, SIAT-Sys merupakan solusi untuk mempermudah urusan merekodkan kehadiran kakitangan ke kursus induksi keselamatan di shell.

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## LIST OF ACRONYMS AND ABBREVIATIONS

ASP	-	Active Server Page
CDO	-	Collaboration Data Object
CDRW	-	Compressed Data Read-Write
ERD	-	Entity Relationship Diagram
HTML	-	Hypertext Markup Language
IR	-	Information Retrieval
OMQ	-	Oil Manufacturing Quality Department
PHP	-	Hypertext Preprocessor
RAM	-	Random Access Memory
REB	-	Refinery Entry Batch
SRCPD	-	Shell Refining Company (F.O.M) Port Dickson, Negeri Sembilan.
SI	-	Safety Induction
SIAT-Sys	-	Safety Induction Attendance Tracking System
WWW	-	World Wide Web
XML	-	Extensible Markup Language

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# CHAPTER 1

## INTRODUCTION

### 1.1 Preamble/Overview

This project is to be done for the OMQ department of Shell Refining Company (F.O.M) Port Dickson. OMQ department is responsible to conduct Safety Induction course for staff and contractor in the refinery. Safety induction is a three hour course that will be attended by new staff or contractor and staff that attend SI course for past two years. This is because every two years, the contents of SI will change. SI course is a must seems that it will indicate safety measures that should be taken while in the refinery. Steps taught in this course are such as wear protective equipments, own permit to work, aware of the fire alarm, how to react if accident occur and process of identification batch and effects of not following rules. Refinery is an area where it produces gas and oils that are very sensitive to fire, sparks, waves and heats. Refinery can easily explode if it is being exposed with fire and waves.

### 1.2 Problem statement(s)

Upon the completion of SI course, the participants will have to fill up a form indicating that they had participated with the course. These forms will ask for information about their name, department, indicator, identification card number, date of enrollment, address and contact number. The OMQ department will use manual files to

keep these forms and records and will send the information about the staff or contractor such as their name, status, department, indicator and date of enrollment to the security department twice a week. Security department will process the Refinery Entry Batch based from the information being sent by OMQ department. Refinery Entry Batch is a card that will identify that the staff or contractor had attended the SI course. Only persons that possess this card only can enter the refinery.

OMQ department will transfer the record about the participant attendances to the HSSE department once a week. HSSE department being responsible for monitoring the movement of SI either it is being conducted as scheduled for four sessions per day or not. HSSE also will have to do audit tracking about staff or contractor that attending SI course for daily, either it is consistent or not. Currently, the problem is the Security and HSSE department cannot not see the statistic about participants that has attend SI course on the current day. This project will concern about the best way to record the staff or contractor attendance and make information sharing fast and for OMQ department, Security department and HSSE department about staff and contractor that has attended SI course.

### **1.3 Objective**

- a) To ease the way to record the attendance of staff and contractor that has completed SI course.
- b) To simplify the way information being shared by OMQ department, Security department and HSSE department.

## 1.4 Scopes

This project is to be done for OMQ department, Security department and HSSE department in SRCPD. The scope for this project is as below:

- a) Save information electronically about staff and contactors that has attended SI course when they enroll with the course.
- b) To make it easy and simplify the process of Refinery Entry Batch processing for security department from the information given by OMQ department.
- c) To make fast and updated for security department to view information about participants that has attend SI course for current day.

## 1.5 Contributions

This project has two significances such as below:

- a) To ensure that Shell follows occupational safety and health act 1994 (ACT 514). This act will ensure staff and contractor safety while working in Shell.
- b) Increase the productivity of Shell. The staff and contractor feel safe while working in refinery and make them comfortable to work and contribute to Shell.

## 1.6 Expected Output

The project is expected to ease the way to record the attendance of staff and contractor that has completed SI course and to simplify the way information being shared by OMQ department, Security department and HSSE department.

## 1.7 Conclusion

This project is important to identify the solving method for the way to record the attendance of staff and contractor that has completed SI course and the way information being shared by OMQ department, Security department and HSSE department.

## 1.8 Report Organization

Chapter I discuss about project introduction, project objectives, project scope, project contributions and expected output from the project.

Chapter II covers about literature review about data processing and report generating. Data processing covers literature review about two online systems that runs at SRCPD, which are change management proposal ad approval system and time information system, phone number validation in form, sending e-mail via asp and cdo for NT Server. Report generating literature review covers about query processing, query decomposition and remote data service.

Chapter III discusses about project planning and methodology. Methodology being used in this project is Rational Unified Process. Unified Modeling Language (UML) being uses as a tools to model this project.

Chapter IV covers about analysis of current safety induction course attendance tracking system and analysis of to be safety induction course attendance tracking system.



## CHAPTER II

### LITERATURE REVIEW

#### 2.1 Introduction

This chapter will discuss literature review about data processing and generating report. Literature review is being conducted to give an idea on how to solve the problem that being identified previously and to find out the solution for this project.

#### 2.2 Fact and finding

##### 2.2.1 Data Processing

##### 2.2.1.1 Change Management Proposal and Approval System (CM-Sys)

This system is an internal system that runs in SRCPD via LAN that can be accessed by <http://sww.sope.shell.com/cmspa/index.html> as an URL address. This system is for the use of staff in all departments in Shell to propose their changes about formal assessment, risk assessment and operability review to the manager. The features of this system that it has login function, register new staff, register new manager, delete current manager and send email automatically upon staff change approval. Reports are being generated for the staff to know the status of their proposal. The features for this system are as below:

- a) View report by date based on proposal status – report on proposal is viewed by date and status, by selecting the date from combo box.
- b) Send proposal for approval electronically - Once the staff has submitted the change proposal form, CM system will automatically send the information from the staff to

- the manager. The manager can login to the system and can view the list proposal for approval.
- b) Shows an updated data sharing between manager and staff – Manager can view list of proposal waiting for approval and staff can view the status for proposal approval. Staff can only send one proposal via the system to the manager for approval.

### 2.2.1.2 Time Information System (TIS-SYS)

This is an online system in SRCPD for OMT department manager to track the duration of staff that works with each server in SRCPD. This system runs internally via <http://scrweb/omt/salb/index.html>. The user for this system is staff and manager in OMT department. There are 10 servers in SRCPD which are OASIS, PACER, PCD, BDC, MAIL, LIMS, WTS, GI SERVER, DL380 and DL580. The function of each server is listed below in Table 2.1.

**Table 2.1 Functions of servers in SRCPD**

Server	Functions
OASIS	This server is used for all finance & accounting system.
PACER	This server is an application server acts like a maintenance server. It can identify problem arise so that technicians can solve it.
PDC	This server is a Primary Domain Controller that controls servers & data storage.
BDC	This server is a Backup server to PDC. It has got WINS here where we can change a server name to an IP address when it is ping.
MAIL	This server keeps all the mail storage.
LIMS	This server keeps all the Lab information system.
GI SERVER	This server is connected to shell Cyberjaya where the administration can be done over there.

Staff will log in to the desired server based on the function of the server and job they want to perform. Before the development of this system, the current method that

OMT department uses Microsoft Excel sheets to key in the data about how many hours the staff has spent in each server. In the end of the month, the staff will send the record on how many hours that they had spent on each server to the manager. The manager will keep these records in a manual files.

By the development of this system, the staff and manager in OMT department does not have to key in the data manually in Microsoft Excel sheet. System will capture automatically hours that staff has spent on each server. Staff can check their spent time on each server by key in their ID system will display the hours for each server that they spent. Then, the staff will fill up the form to key in the hours that they had spent on each server based on the previous information. The information being entered by the staff will be captured by database automatically upon submission of the staff form. OMT manager can logon to the system and view the report based on date and server.

The features of this system are that it can add manager, delete manager and change password for manager and staff and report generating section for manager's view. The part of this system that can be adapted to this project is:

- 1) Updated information for the authorized person, for instance manager – data being entered by the staff once they fill up the form is automatically stored in the database. If the manager query report, the records in the database will be retrieved and display to the manager.

### **2.2.1.3 Phone Number Validation in Form**

In form, it is important to have features to prevent user from entering invalid data type for specified fields. Mathew David in his article "Core JavaScript Guide" (2000) has discovers about phone number validation in form. Phone number validation is to



prevent user from entering data type other than numbers in phone number field. This will act as an event handling. The author states that “for phone number validation, when the users enters the phone number and press enter, the script checks the validity of the number. If the number is valid (matches the character sequence specified by the regular expression), the script posts a window thanking the user and conforming the number. If the number is invalid, the script posts a window informing the user that the telephone number is not valid. The regular expressions look for zero or one open parenthesis \(?, followed by three digits \d{3}, followed by zero or one close parenthesis \)?, followed by one dash, forward slash, or decimal point and when found, remember the character ([-\./]), followed by three digits \d{3}, followed by the remembered match of a dash, forward slash, or decimal point \1, followed by four digits \d{4}”.

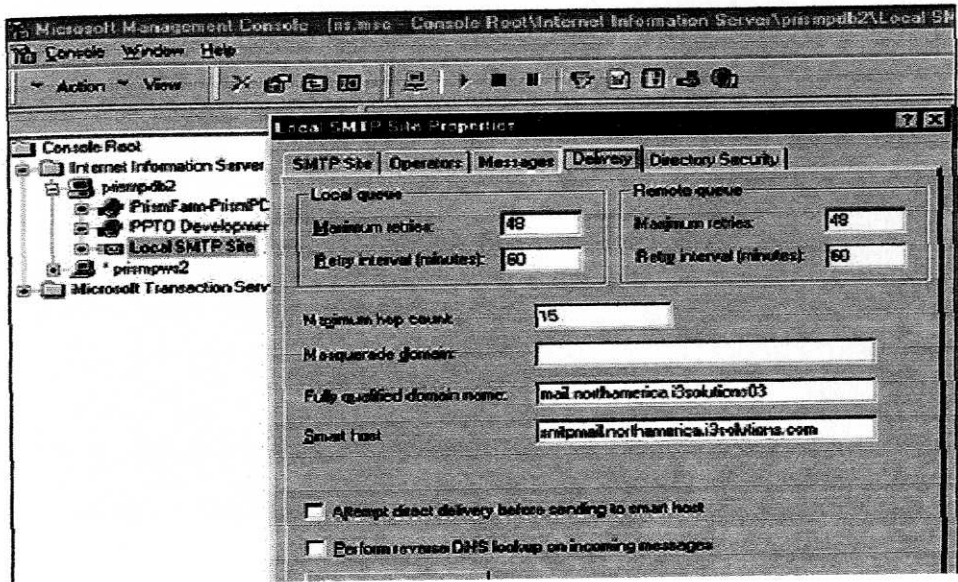
#### **2.2.1.4 Sending e-mail via asp and CDO for NT Server**

This article “ActiveServer Developer’s Journal” by Scott Johnson (2000) discuss about the ability of Internet mail to provide real-time messaging capabilities. He utilizes features of CDO (Collaboration Data Object) and MAPI Messaging Application Program Interfaces. Collaboration Data Object (CDO) is an interface into a messaging through Messaging Application Program Interfaces (MAPI). MAPI is a messaging architecture. CDO makes development of email-enabled applications easier. According to Scott Johnson (2000), there are two extensions involve for sending mail which are .html and .asp. First, create the html file to gather input from user. Second, use ASP and CDONTS (object) to send a message to the local SMTP (send Mail Transfer Protocol) server. The message will route to the remote SMTP. If SMTP server resides in the same machine, local SMTP Server will automatic send the mail. If SMTP server is located as a separate machine from IIS machine, the web server operator’s Internet anonymous user account right will have to give to the remote SMTP server.



Below is the method on configuring SMTP Server according to Scott Johnson (2000):

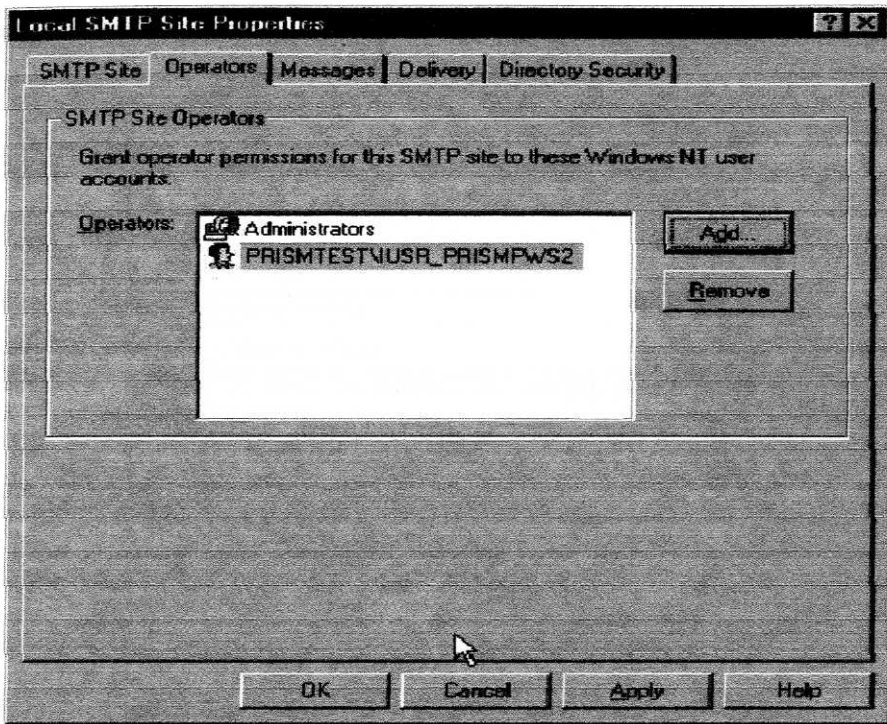
First, use the SmartHost to route SMTP requests to an additional SMTP Server.



**Figure 2.1: SmartHost to route SMTP requests**

Message information is collected via an HTML page. The message is converted to a file via CDO for NTS via ASP. The local SMTP Server delivers the message itself or can use another SMTP server that acts as an Internet mail gateway.

Secondly, assign an operator permissions for a remote SMTP Server.



**Figure 2.2: Assign an operator permissions**

Below is a sample of user input form. This page enables the user to specify whom to send the message to, from whom the message is sent, the subject matter, the importance level and the message.



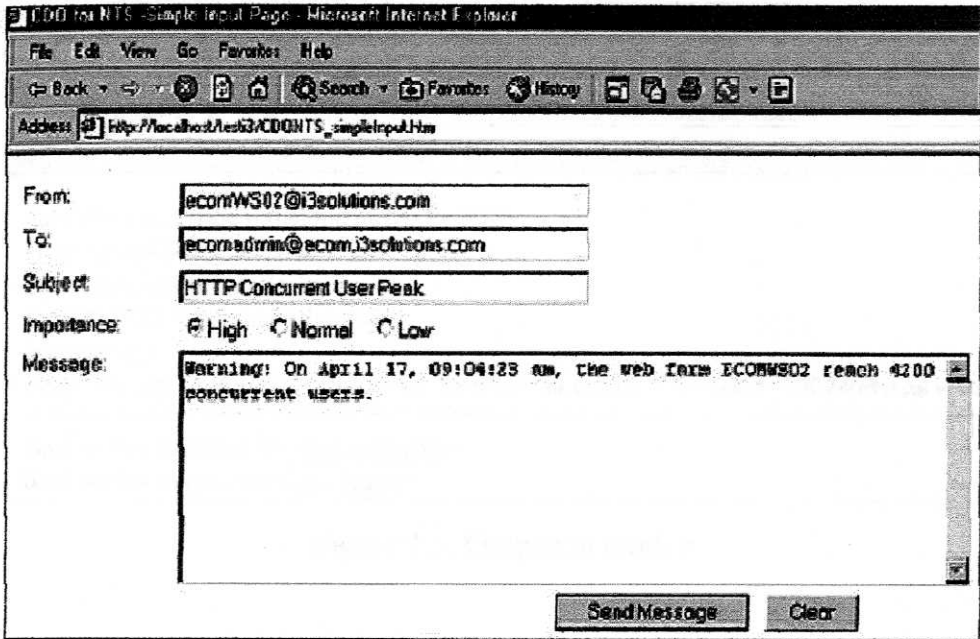


Figure 2.3: Forms that enables user to send message

Below is the alert message delivered by CDONTS.

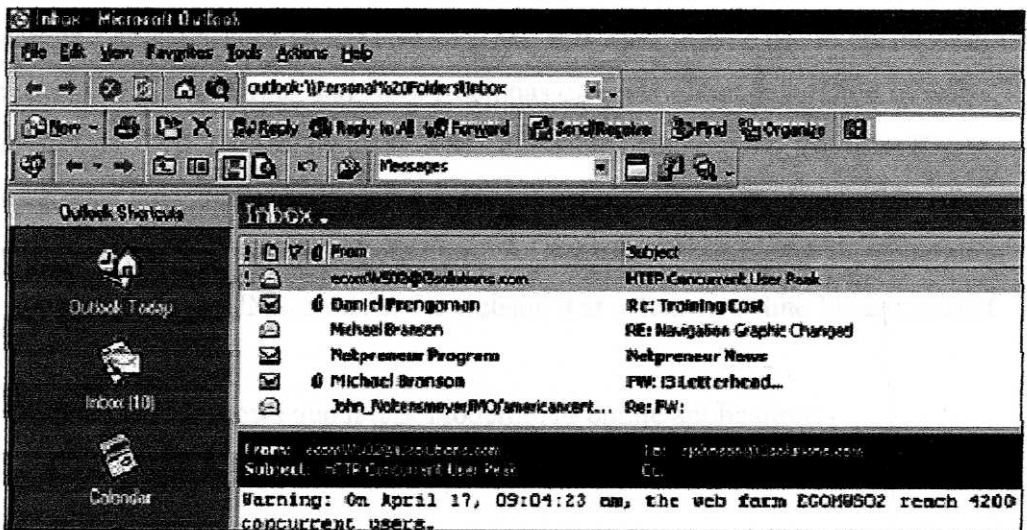
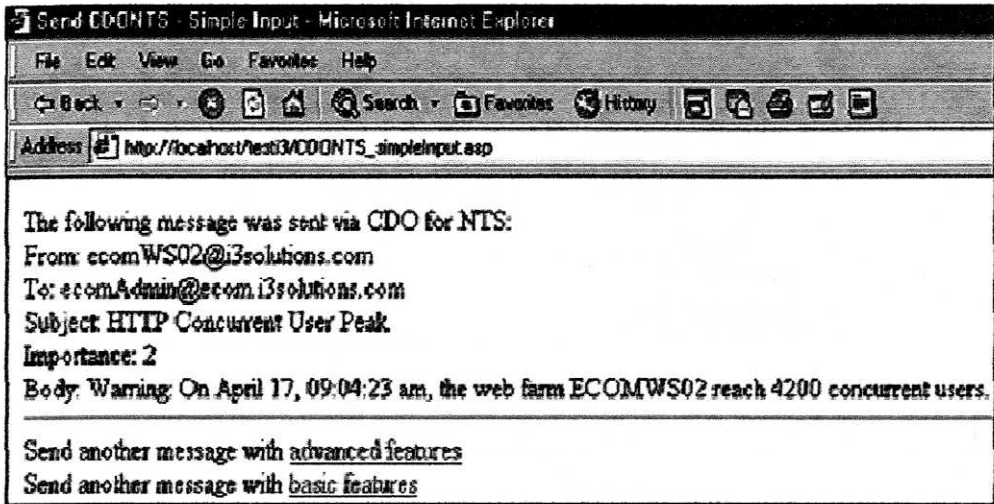


Figure 2.4: Alert message by CDONTS

After the message being delivered, the below output will be sent to the sender.



**Figure 2.5: Output to sender**

### 2.2.1.5 Generation of web application from UML models using an XML publishing framework

Markup Language such as XHTML, HTML and XML can be use to create form in an application. Andreas Kraus and Nora Koch has discover about generation of web application from UML models by using XML publishing framework. Andreas Kraus and Nora Koch (June 2002), presented a paper for transition from design models of a web application to a running implementation. As a running example for the generation of web application from UML models, the website that offers on online library is used for an example.

Figure 2.6 below shows about task modeling in online application