

**Approved Contract Value Monitoring System**

By

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**Project Dissertation**

**Submitted to the Business Information System Program  
in Partial Fulfillment of the Requirements  
for the Degree  
Bachelor of Computer Science (Hons)  
(Business Information System)**

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# **CERTIFICATION OF APPROVAL**

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Approved:



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DECEMBER 2011

## CERTIFICATION OF ORIGINALITY

This is to certify that I am responsible for the work submitted in this project, that the original work is my own except as specified in the references and acknowledgements, and that the original work contained herein have not been undertaken or done by unspecified sources or persons.

A handwritten signature in black ink, consisting of a large, stylized 'A' followed by 'F B S' and a small '9' at the end.

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Ahmad Farid Bin Sainuri

## **ABSTRACT**

Approved Contract Value Monitoring System is a monitoring system designed especially for Petronas Carigali Sabah Operations Sdn Bhd (PCSB SBO) Administration Department to keep track with its approved contracts. It is done without hiring external parties to provide the department with sophisticated monitoring software. The system is developed using visual basic language on Microsoft Access. It is not only can be use by this specific department but also in any organizations that have contracts to be monitored. The system works by analyzing the raw data needed from the organization SAP database about the contract which needs to be monitored. User need to export the data from SAP application into (.accdb) format file so it can be open in Microsoft Access. This is all can be done without any additional operating cost. The most important thing is to assist end user to make decision faster and more precise. User will be notified about the contract's utilization, expiry and duration by using the system. In SAP application environment, the interface is not user friendly and contract details cannot be analyzed. By using the system, time consumed to end user to come up with results from SAP database has significantly reduced. The effectiveness of monitoring activities has been increased compare to previous monitoring activities. Throughout the development of the system, it shows that monitoring activities on SAP raw data still can be done effectively and with nearly no additional cost at all. Optimization of software in business computers can avoid any additional cost to install third party application. -Such as Microsoft Access utilization as analysis tools.

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# CHAPTER 1

## INTRODUCTION

### 1.1 Introduction

In any business operations, making a right decision is very important in order to stay productive. It is not only making a right decision that is crucial, but also the period of time consumed to come up with it. Technology nowadays has been a tool for business people to assist them in making decision. Somehow, it did not come in cheap. So this project utilized the usual software available in any organization as analysis and monitoring tools.

Approved Contract Value Monitoring System is chosen as the title of this Final Year Project because of the project focuses on only approved contract values. The contract needs to be monitored on its expiry date, utilization and its duration. This monitoring system assists end user to make business decision by displaying notifications so the user is reminded to take the appropriate action. The first chapter discusses on the project's objectives, problem statements, background of study and scope of study.

## **1.2 Objectives**

The main objective of this project is to develop an application to monitor contracts value. Other objectives of this project are as follow:

1. Develop a system to view SAP data on an organized and user friendly interface
2. Analyze raw data of contracts from SAP database to assist end user with decision making
3. To notify user about contract's expiry date, utilization and contract's duration
4. To optimize software available at workplace as monitoring interface which is Microsoft Access

## **1.3 Problem Statement**

The effectiveness of contract monitoring does not rely solely on the database warehouse. It also affected by the computer human interface on a computer. A good GUI design removes the impediment of communication with the computer system and allows the user to work directly on the problem at hand. [5] H.E. Dunsmore [6] [7] [8] showed that making screens less crowded improves screen clarity and readability. The problem with SAP database interface in any organization is the lack of graphical image to assist end user to operate the system.

Since SAP is developed to be a very effective data warehouse, it doesn't work as an effective monitoring medium. The task can be done but at minimum level of effectiveness. Most of SAP database end user agreed that they have problems monitoring data from SAP database. It is not because of the system is not functioning. It is because to retrieve data from the system requires certain particular skills. It made the monitoring process to be so hard. The system need to be easy to use just like a personal computer.

Productivity relies on a few factors such as Information Technology (IT) implementation. [9] However, when the technology is not fully implemented, there is no added value to be added in completing daily business operation tasks. It is not only increasing the operational cost but also decreasing the productivity of a business operation.

The SAP database is not a proactive system. Monitoring contract value in a crowded database is hard enough for end user to make decision. There is no notification system that would work as a pro active system to remind user if there is any contracts need to be renewed. Automation is not happening if there is no monitoring system in a database. The current database which is a computerized system is not working as a proactive system to ease decision makers' task.

#### **1.4 Background of Study**

Any business entities have running contracts to be handled. Every department in an organization usually has at least one contract to be managed. Software licenses photocopy machines contracts, building maintenance contracts, stationary supplies are some of the contracts example. These contracts need to be monitored as it has its own maximum usage percentage. Any contract that exceeds the maximum value, it needs to be renewed. That is why monitoring contract value effectively is so important in a business operation. Disability to renew contract value on time would affect the productivity of a business operation.

There is no doubt that Information System/Technology (IT/IS) had played its role to increase the productivity of an organization as it is cheaper and less time consuming. The development of IT/IS is intimately associated with the overwhelming advances recently accomplished in microelectronics. [1] However, in a marketing sector, Salespeople who lack training and support failed to increase their job performance even when they increased their technology use. [2]

One of the technologies endorsed by most of business entity to store and manage their database is SAP Database. The technology is effective but too complicated and not user friendly. Even the Germany based software giant itself agrees to the fact that their application requires intensive training before it can be use by end user [3] Thus, it leads to time consumption and increment in operational cost.

This is why there is a need for a no cost system to be use as analyzing tools to assist end user making decisions. It not only increase monitoring activity effectiveness but also has to be done with minimal cost.

## **1.5 Scope of Study**

This project focuses only on analyzing the raw data from SAP database by using external application. It is to reduce the time consumed in monitoring those contracts in SAP application. The project is limited only to the extent of researching and developing the new application. The project is specifically on the development of an application that will retrieve contracts value in a certain department in an organization. To be specific, the functionality of this system is to monitor only contract values. The project also focuses on creating a notification system in the monitoring system itself for end user. It is to assist them in making daily business decision.

The project uses Rapid Application Development as its development methodology. Due to time constraint and end user's direct involvement in the project, this model is suitable to be used as the development method. To avoid redundancy and to develop the right system based on user requirement.

## CHAPTER 2

### LITERATURE REVIEW

#### **2.1 Importance of Monitoring Activities in Business Operation**

Defining effective contract management is the manager or decision makers established controls and monitor its performance to ensure all works is completed in the period of time given. Establishing controls and monitoring performance can be define as automated system which give the contract manager recommendation on decision need to be made. Monitoring contract can be viewed as: [17]

- i. A preventative function to avoid any uncertainties
- ii. An opportunity to determine the contractor's need for technical assistance.
- iii. A valuable source of information concerning the effectiveness and quality of services being provided.

Disability to monitor contracts properly is against a good management principle. It could lead to several negative implications: [18]

- i. Poorly established criteria for evaluating vendor performance;
- ii. Perception of oversight as a responsibility to develop a partnership rather than enforce rules, regulations, or contract provisions;
- iii. Focus on rules and regulations rather than outcomes;
- iv. Failure to conduct follow-up reviews to ensure that corrective action was taken; and, Failure to identify the risk and level of review necessary for each vendor.

Good management and supervision requires follow-up, feedback, and enough awareness of what is occurring to eliminate surprises. [18] In a contract, the agreement between two parties needs to be agreed by both parties until the contract

period finished. By having a good and effective contract monitoring, an organization could ensure these criteria: [18]

- i. To establish what each party is obliged (or permitted, or prohibited, or empowered and so on) to do at a given point in time;
- ii. To determine whether each party complies with the behavior stipulated for it by the agreement; and
- iii. Where a party deviates from prescribed behavior – intentionally or due to force majeure – to determine what, if any, remedial mechanisms are applicable that might return the business exchange to a normal course.

Business process monitoring provides real-time access to critical performance indicators of ongoing processes and supports decision-making and risk management during execution of the processes. Integrated with event processing technologies, the monitoring of current business processes is based on knowledge extracted from historical process logs in order to detect distinct patterns in event data, which enable businesses to operate proactively (Buytendijk and Flint, 2002; Grigori *et al.*, 2004). [19]

In other developments such as power transport lines, Wichers (1996) [20] discusses a reliability-centred maintenance based system for maintenance planning, specially stressing condition monitoring, which is connected to a manual or computerised maintenance management system. Pearce and Hall (1994) recognise the advantages of vibration monitoring and the importance of connecting on-line monitoring data to a computerised maintenance management system

An external company (Revelation Software Concepts Pty Ltd) took advantage of the importance of monitoring contract in SAP database by developing an application that provides user with graphical interface. The application will be reference for contract monitoring system development. It shows that SAP database users are demanding a better interface for better data monitoring and retrieval.

Based on these findings, contract monitoring is in the business operation or. It is a tool to avoid any manipulation of cost. To maximize profit in a business operation, contract monitoring is crucial for decision makers.

## **2.2 Importance of Information Technology Usability in Increasing Productivity**

The implementation of information technology in daily business operation is one of a major thing in business entity. Most of the organizations started to invest heavily in information technology before 1995. Successful IT applications also typically occurred where outcomes could be quantified and monitored. [11]

The main objective of the implementation of a system is to ensure it could accelerate the productivity. However, when it comes to involvement of IT and new model of business process, human naturally is more comfortable to keep on using the previous process which brings the issue: lack of usability. [12]

Delays have been distortions towards business today. To escape them, companies have a choice: they can produce to forecast or they can reduce the time delays in the flow of information and product through the system. The traditional solution is to produce to forecast. The new approach is to reduce time consumption. [13]

Implementation of information technology in an organization is considered as business redesigning. The outcome of the process should be categorized under four main objectives: [14]

1. Cost reduction
2. Time reduction
3. Output quality
4. Quality of work life /Learning/ Empowerment



To achieve the objective of time reduction and better output quality, the percentage of system usability need to be increased.

Beside the lack of usability of existing technology in an organization, the productivity paradox risk can always be related. Mismanagement; there are no gains because of the unusual difficulties in managing IT or information itself. Productivity is the fundamental economic measure of a technology's contribution. With this in mind, CEOs and line managers have increasingly begun to question their huge investments in computers and related technologies. While major success stories exist, so do equally impressive failures (see, for example (Kemerer & Sosa, 1990)) [15]

Based on Erik Brynjolfsson review, [15] there are four Explanations for the Paradox. Although it is too early to conclude that IT's productivity contribution has been subpar, a paradox remains in our inability to unequivocally document any contribution after so much effort. The various explanations that have been proposed can be grouped into four categories:

1. Miss measurement of outputs and inputs,
2. Lags due to learning and adjustment,
3. Redistribution and dissipation of profits,
4. Mismanagement of information and technology.

A survey of executives suggested that many expected it to take as much as five years for IT investments to pay-off. [15] In order to avoid this problem, building a more usable system is better to ensure the growth of a business operation.

Based on the review of published works, contract monitoring affect business as a whole. Employee productivity and business operation are the main elements that directly influenced by the effectiveness of contract monitoring. To ensure the organization running productively, a good contract monitoring system need to be applied in the daily business operation.

## CHAPTER 3

### METHODOLOGY

Feasibility analysis is then conducted to ensure the system is possible to be develop and easy to be used by end user.

<p>Technical feasibility</p>	<p>It will be develop using Visual Basic Application (VBA)</p> <p>The expertise has more than 8 months to learn VBA, writes working codes and do research on API.</p> <p>There is no need to buy neither new hardware nor software. Existing equipments can be use to develop the system</p>
<p>Economic feasibility</p>	<p>Development cost is manageable</p>
<p>Operational feasibility</p>	<p>Users are IT literate and usually use Microsoft Office to complete tasks. It requires no programming language or any technical skills to use the system.</p> <p>Developer could search information on SAP database from various of sources from university's library</p>
<p>Organizational feasibility</p>	<p>All machines in the Organization of end users installed with Microsoft Office software and easy to use. All computers within the organization operating using Windows XP operating system which is compatible with Microsoft Office software.</p>

*Table 1.0: System Development Life Cycle*

### **3.1 Phase 1: Planning**

The planning phase is started with the development of Gantt chart to ensure the application is developed within time period given. It is to establish a high-level view of the intended project and determines its goals. [10] It includes what are the development tools and testing tools to be used.

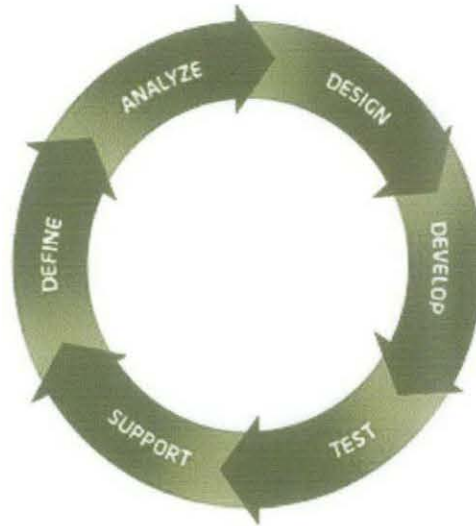
Development tools:

- Microsoft Access 2007
- Adobe Photoshop CS3 Extended – Version 10.0
- SAP Database
- Macromedia Code Editor

Testing Tools:

- Different desktop within organization's network
- Any computers using Microsoft Windows' operating system.

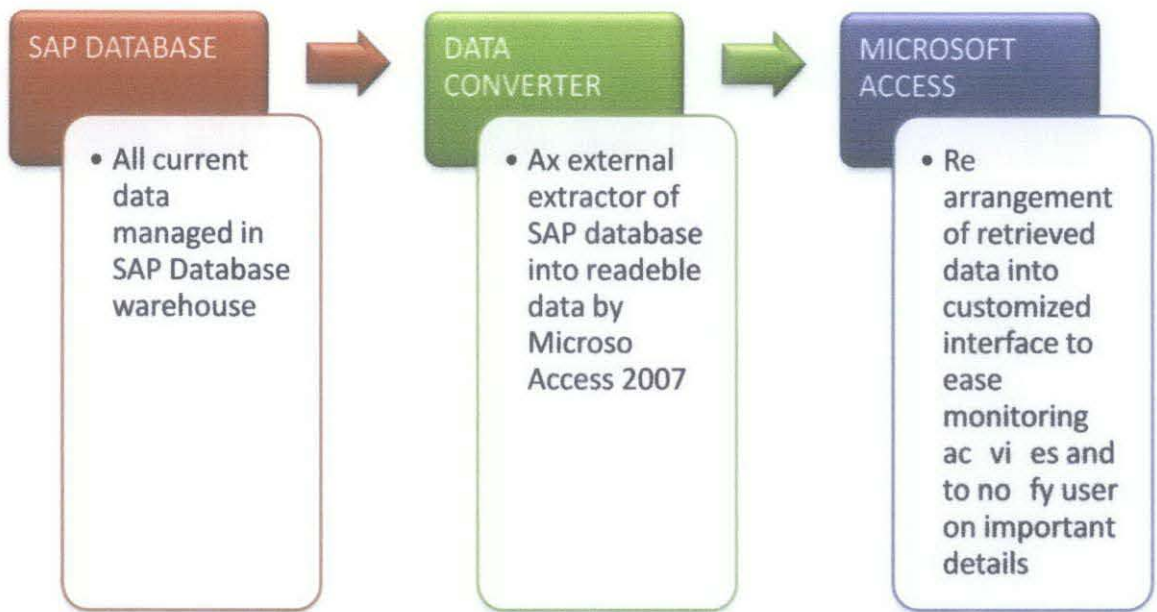
The data gathering of user requirement will be using the Contact Method. To collect the most accurate data from users, personal interviewing and telephone interviewing methods is applied. Appointments and meetings need to be conducted to gather the information needed. Since the system is specially design for a specific department, data collection can easily be done as all personnel are contributing to ensure the system will work exactly how they want it to be.



*Figure 1.0: Rapid Application Development Cycle*

The project's methodology is based on system development life cycle. It started with the planning phase, analysis phase including feasibility analysis, design phase and implementation phase. The Rapid Application Development is implemented on the designing phase. End user involvement is important to ensure the application is build according to their requirement. Diagram 7 describes the whole process which it rotates in a cycle so end user will be satisfied with the system.

User usability is crucial so Rapid Application Development is implemented because the main objective of the implementation of a system is to ensure it could increase the effectiveness of monitoring activities. If the user cannot use the system properly and it did not assist end user to make decision, the system is not achieving its objective.



*Figure 2.0: System process*

Based on figure 2.0, to ensure the prototype to simulate how the exact system will be, an SAP sample database will be created. This database sample is to mock the actual SAP database warehouse used by organizations. Data converter represents the third party data converter from ABAP language to .csv file. The actual converter will be provided by a third party to the organization but for prototyping, a converting function in the SAP database sample will be commanded and retrieve the data needed to be displayed on the interface.

There are methods of creating a CSV file from SAP database. The first one is the `SAP_CONVERT_TO_CSV_FORMAT` function. Other method is to create an internal table with one char field of size as required and try to concatenate all values with the required delimiters and put it into internal table to be downloaded.

## **3.2 Phase 2: Analysis**

The analysis phase is to analyze the compatibility of integrating SAP database with external application. It is also to build a logical model of the new system. Identification of current problems and requirements by review and evaluate current data storage and conduct interview with stakeholders to draft requirements of the to-be system. To ensure the system will be developed according to what user want, system request form is filled by user. (Refer appendix). These are the business requirements by user;

### **Business Need:**

This project is initiated to ease SAM department personnel observe budget utilization and to improve work efficiency.

### **Business Requirements**

- Friendly interface to ease inserting data process
- Archive function for expired contracts
- Overall page to view all contracts in datasheet format
- Notification when contract is 6 months before expiry
- Notification whenever budget has been utilized more than 70%
- Capture date when budget is utilized more than 70%

The will be developed system is compared with Salt applications to ensure the system will be at least at par with the industry standard. From the Salt's website, it mentioned that Salt, with SAP Certified Integration, is a unique software platform containing a growing collection of apps and functionalities specifically designed for SAP project team members to make working with SAP easier, faster and more productive. The Salt application will assist user on:

- To be able to see the difference between your SAP systems
- Being able to browse and access any system's hierarchy of objects and all known versions
- See all your Work in Progress across SAP systems
- To quickly identify work that may have been forgotten or abandoned
- Having automatic snapshots of unreleased objects available to fall back on
- The ability to monitor and set alerts so when nominated objects are changed you are notified
- Access to a “Google-like” engine to rapidly search your ABAP source code

However, Salt application can be access online while the will be developed system can only be accessed using Microsoft Access in any computers using Windows as its operation system. Plus, Salt have various applications for users to assist them using SAP database. Table below is comparison between Salt applications and the will be developed Contract Value Monitoring System.

<b>Salt Applications</b>	<b>Contract Value Monitoring System</b>
<p><b>Version Vault</b></p> <p>This app continuously collects and indexes versions of system objects and allows a user to browse and access any system's hierarchy of objects and all known versions</p>	<p>Version vault application will be the system's references for browsing of contract value to ease user to monitor all contracts stored in the database.</p>
<p><b>Match Box</b></p> <p>Instantly shows the differences between the various versions of objects or other objects and systems versions.</p>	<p>Match box application is similar to the system main task which is to compare values of contract and identify contracts which is near to expiry date. Values are to be compared with other elements from</p>

	other table.
<p><b>Matrix</b></p> <p>A reality check app, allowing you to quickly understand your SAP landscape integrity by displaying all object differences across the systems.</p>	Not applicable
<p><b>WIP Window</b></p> <p>Shows all Work in Progress — unreleased changes in development as well as finished changes not yet moved to production.</p>	Not applicable
<p><b>Cold Case</b></p> <p>Save some money (or just clean up the development box) by identifying expensive work that may have been forgotten or abandoned along the way.</p>	Not applicable
<p><b>Life Saver</b></p> <p>Automatically takes periodic snapshots of unreleased objects for an author to view, compare or salvage, even when the original system is lost — a great rescue device.</p>	Not applicable

*Table 2.0: Comparison between Salt applications and Contract Value Monitoring System*



While Salt Applications has a standard set of system requirements for a machine to run the application, the system will to be developed has least requirements. So the system would be easier to use. To run Salt applications any VMware virtual platform that can play a .vmx or .ovf file could run it. The Salt Installation Guide explains how to install and use the free VMware Player. VMware host should have a CPU speed of at least 1 GHz, with 2 GHz or faster recommended. It should satisfy the following memory and disk space requirements:

License Type	Max SAP Systems	Development Systems	VM Memory Required	VM Disk Usage Guide	VM Disk Size
Standard	3	1	1.0GB	5GB	35GB
Professional	10	3	1.5GB	10GB	35GB
Enterprise	20	6	2.0GB	20GB	35GB

Salt can be used inside any of the following web browsers:

- Internet Explorer 7 or later;
- Firefox 3.5 or later;
- Chrome; or
- Safari.

Salt can also be used inside SAP GUI for Windows (Internet Explorer 7 or later required) Salt also requires that Javascript and cookies are enabled in your web browser and for the network setting; The Salt virtual machine requires a fixed IP address. The network should support a speed of at least 10 Mbps between the Salt server and the SAP systems. While the SAP versions that salt application could cater is the version of 4.6c to 711.

To design the whole system together with its functionality and VBA coding, the SAP database version that this system could cater will be discover later. As SAP has a lot of versions, it has high possibility that it cannot run in certain versions. The plan is to ensure that the system can be used by SAP database which most of the enterprises is using nowadays.

### **3.3 Phase 3: Design and Develop mathematical functions / database structure**

This phase is to design user interface with effective interactive human computer interaction (HCI). Most of the standard SAP components (such as ABAP ALV, WebDynpro ALV, System menu.) provide the option to export data in MS Excel 2003 or in many other MS Excel compatible file formats such as csv and plain text. To avoid any bugs which might corrupt the raw data transferred from SAP database application; it is easier to directly export the data into other format which is .accdb before rearrange back on Microsoft Access interface.

SAP

List Edit Goto Settings System Help

### System Availability Reporting

#### Reporting Results

SID	Installation	Date	Availabil	EWA System Availabil	Down until	Number	Reason of dow	
STE	120021077	21.10.2005	100	Protocol data are fully	00:00:00	0		
STE	120021077	20.10.2005	100	Protocol data are fully	00:00:00	0		
STE	120021077	20.10.2005			19:00:00	3.600	OS/Hardware	
STE	120021077	19.10.2005	100	Protocol data are fully available	00:00:00	0		
STE	120021077	19.10.2005		Business Process	19:00:00	20:00:00	3.600	Application Se
STE	120021077	18.10.2005	100	Protocol data are fully available	00:00:00	00:00:00	0	
STE	120021077	17.10.2005	100	Protocol data are fully available	00:00:00	00:00:00	0	

You export the table to SAP Solution Manager as a \*.csv file.  
Click on the 'Export Table as Attachment' button (F9).

Figure 3.0: Export button in SAP application

An export button to export raw data from SAP database into other formats can be found in most of SAP applications. It has to be export to other software to be analyzed and monitor by user. SAP application interface is not user friendly. User need more user friendly graphic user interface.

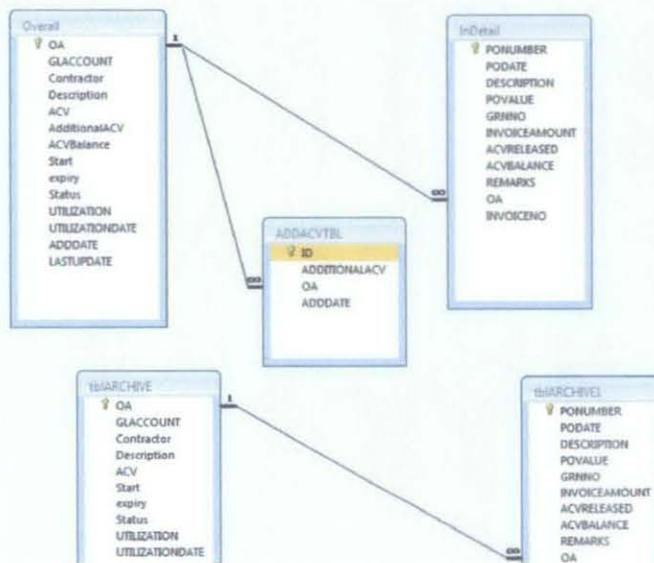


Figure 3.1: System Relationship table

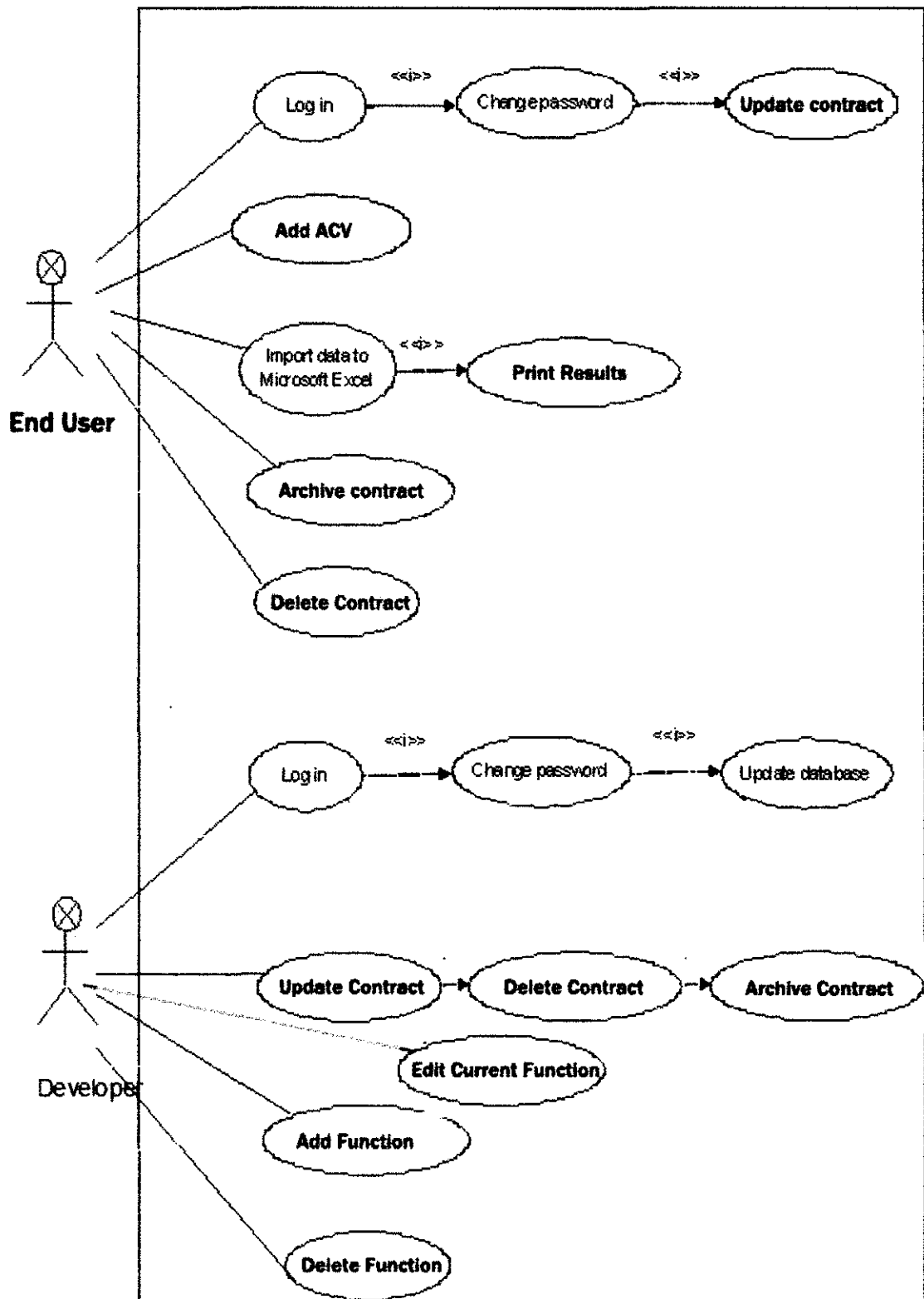


Figure 4.0: System Use Case Diagrams

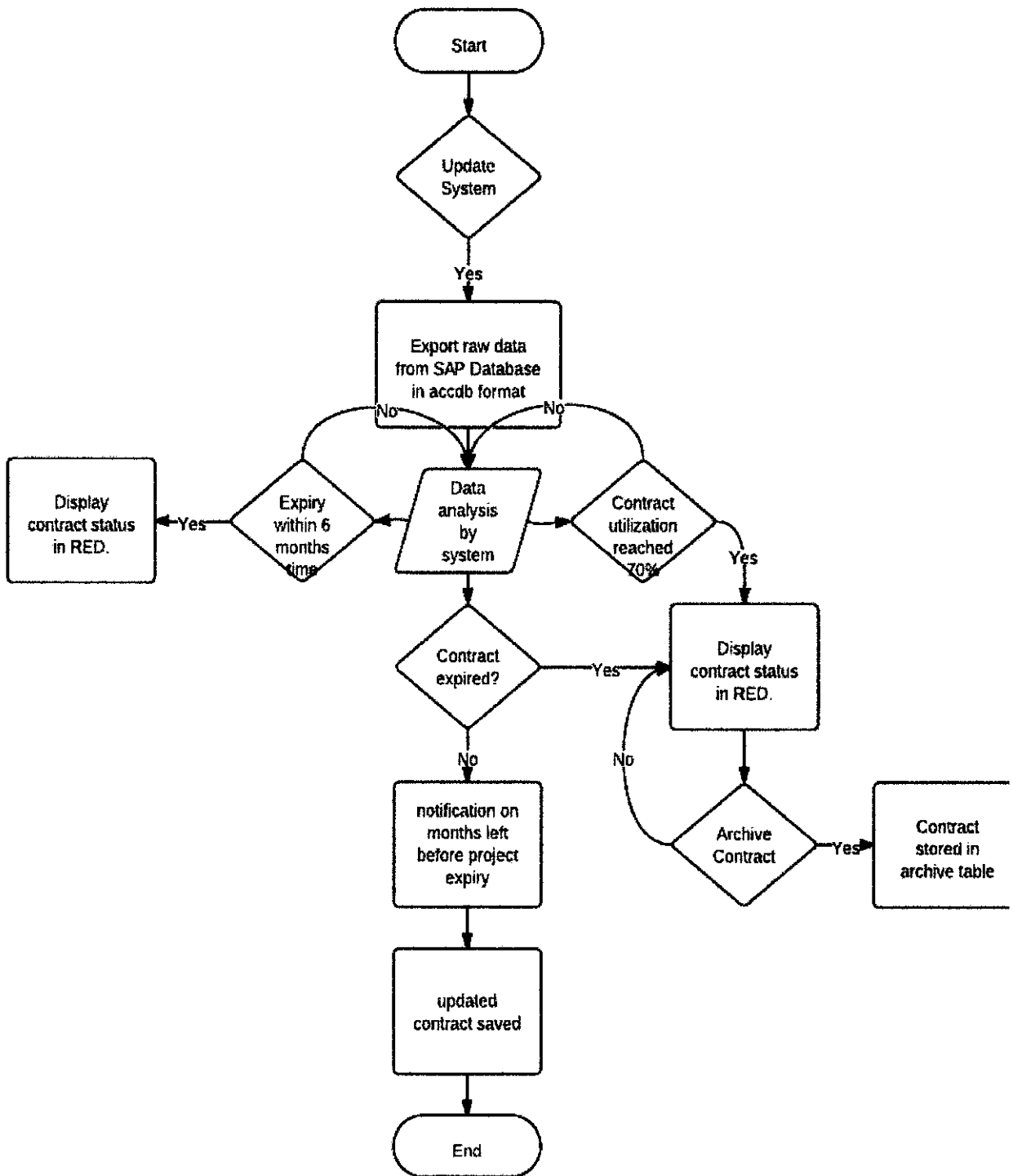


Figure 5.0: System Flow Chart

### **3.4 Phase 4: Evaluation, Testing, and Further Enhancements**

The system had been used by end user and they responded that what is lacking off is only the maintenance part. As the functionality of the system might need some modification according to the end user needs, they need a person in charge to be refer to if there is any changes have to be made. This problem can be solved if there is a compilation of function which can be added by user manually by them. But this is not a major setback as the system does work properly according to user request. For future changes, they can just contact the developer. User did not have any requests to add more functions to the system as it supposed to simplify their works no complicate it. It was developed according to the system request.

There is no need for tutorial sessions for user as the system is using Microsoft Office software platform. Most of the user is IT literate. Plus, it doesn't have any complicated settings to produce the output. User need only to export data and click an action button to produce the output. This particular phase will be discussed further on the next chapter; Result and Discussion.

# CHAPTER 4

## RESULT AND DISCUSSION

### 4.1 Introduction

This chapter will be linked with methodology chapter, specifically the last phase of system development which is System Evaluation, Testing, and Further Enhancements. This system architecture represents the whole process of the system. How it manages to assist user in monitoring activities by analyzing the raw data from SAP database.

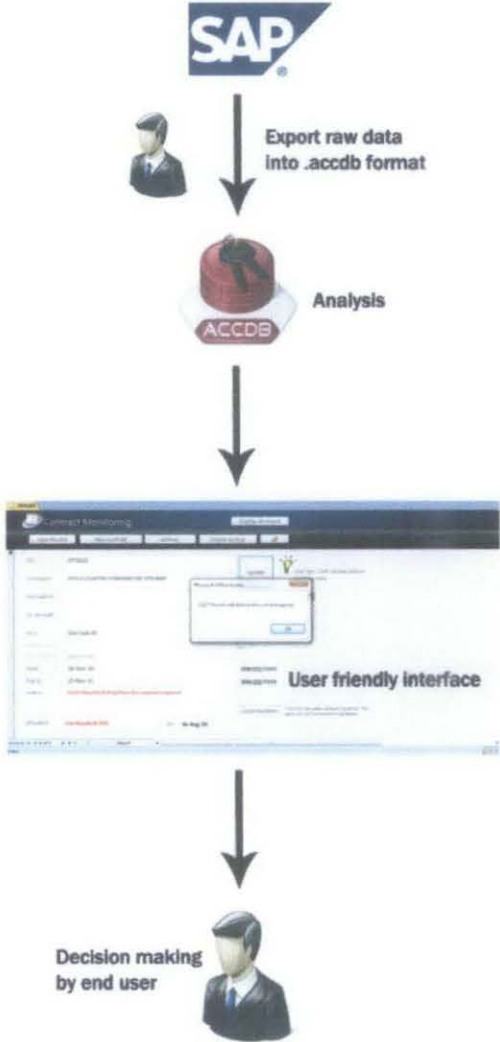


Figure 6.0: System architecture

## 4.2 Prototype

For prototyping purposes, the actual system will be represented by a simulation of sample database exported to Comma Separated Values (CSV) before re arranged in the interface which is Microsoft Access.

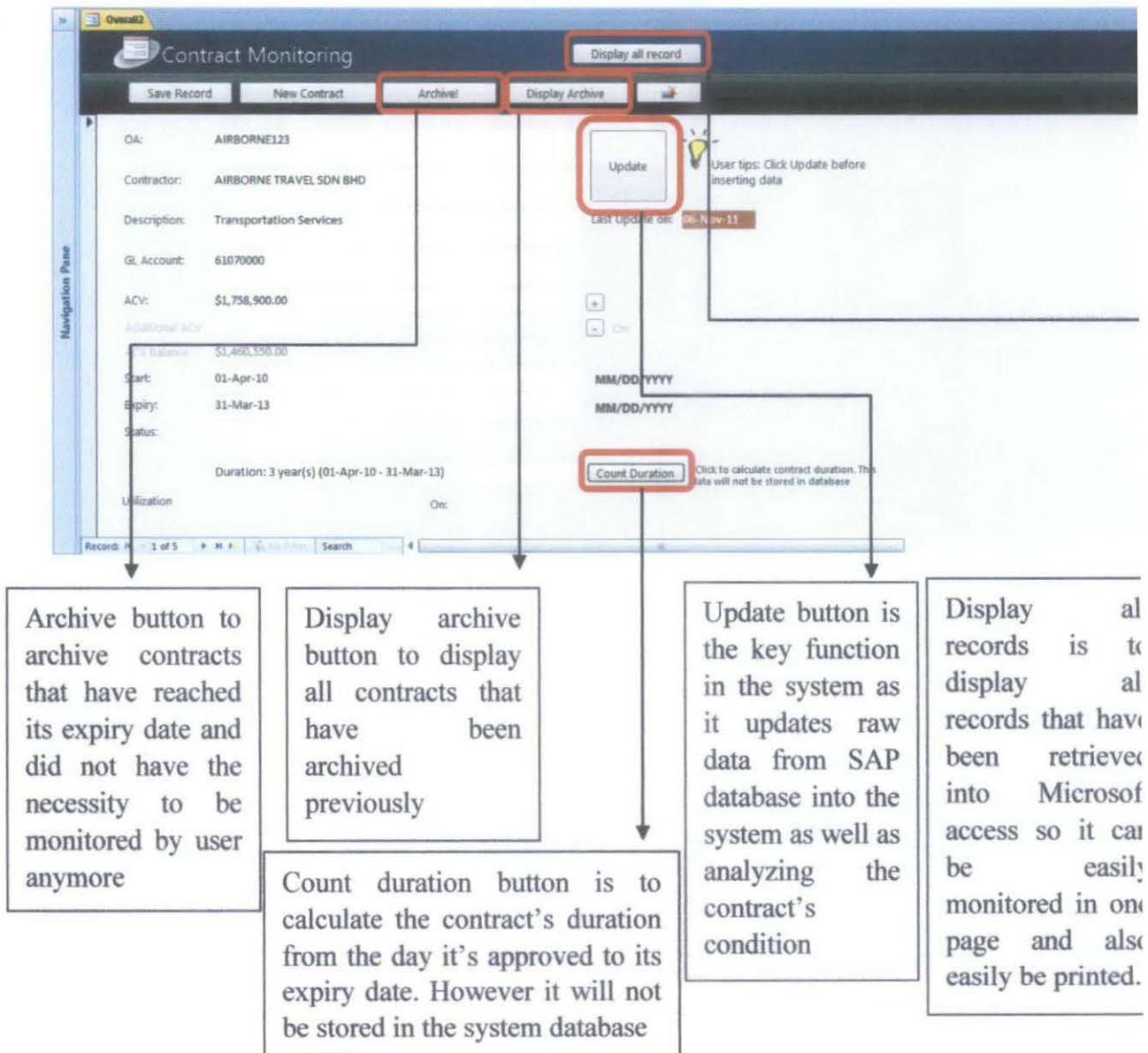


Figure 7.0: Overall2 (Main page) Interface and button functionality



The application Overall2 interface shows the crucial information together with all contracts notifications such as expiry date, contract usage and recent update. Utilization and contract status is two main things in monitoring activities so it will assist user to make decision making.

The screenshot shows the 'Contract Monitoring' interface with the following details:

- Contract Information:**
  - OA: OTIS123
  - Contractor: OTIS ELEVATOR COMPANY (M) SDN BHD
  - Description:
  - GL Account:
  - ACV: \$167,688.00
  - Additional ACV: \$34,372.00
  - Start: 26-Nov-10
  - Expiry: 25-Nov-11
  - Status: 0.627 Months left before the contract expired
  - Utilization: Has Reached 70% On: 16-Aug-10
- Actions and Controls:**
  - Buttons: Save Record, New Contract, Archive!, Display Archive, Update
  - Input fields: MM/DD/YYYY, MM/DD/YYYY
  - Buttons: +, -
  - Count Duration: \*Click to calculate contract duration. This data will not be stored in database
- Annotations:**
  - Utilization:** Shows the contract usage. It will notify user in red font that they have utilized the contract up to 70%.
  - Status:** Contract status will be display in red font if it will be expired in 6 months time. It is to remind user whether to renew the contract of come up with new contract.
  - Last Update:** This is to show the recent update that have been done that have been done as the system might be used by other authorized personnel.
  - Additional Button:** The additional button is to add any additional approved contract value (ACV) for the contract.

Figure 8.0: Expiry and Usage Notification

Overall2 SplitForm

View All Contracts

OA: AIRBORNE123 ACVBalance: \$1,460,550.00  
 GLACCOUNT: 61070000 Start: 01-Apr-10  
 Contractor: AIRBORNE TRAVEL SDN BHD expiry: 31-Mar-13  
 Description: Transportation Services UTILIZATION:  
 ACV: \$1,758,900.00 On:  
 AdditionalACV:  
 On:

User tips: Drag the divider vertically to display all contracts in datasheet form

OA	GLACCOU	Contractor	Description	ACV	ACVBalance	Start	expiry	Status	UTILIZATION	On
AIRBORNE123	61070000	AIRBORNE TRAVEL SDN BHD	Transportation Serv	\$1,758,900.00	\$1,460,550.00	01-Apr-10	31-Mar-13			
CANON123		CANON MARKETING (MALAYSIA)	Photocopying serv	\$519,875.15	\$364,184.37	01-Dec-09	17-Jan-11	Contract h		
FOURWIND123		FOUR WINDS WORLDWIDE SDN B		\$2,342,753.90	\$2,253,267.90	09-May-10	08-May-13			
OTIS123		OTIS ELEVATOR COMPANY (M) SD			\$34,372.00	26-Nov-10	25-Nov-11	0.627 Mon	Has Reached 70%	16-Aug-10
SRTTEON			SECURITY SERVICES	\$3,780.00	\$3,150.00	21-Jun-07	20-Jun-12			
				5	\$4,625,309.05					

Record: 1 of 5

Figure 9.0: View All Contracts interface

All contracts can be viewed in one page for contracts screening. The home interface can only view one contract at one page. This view all contracts function is to ease end user to preview all contracts in one time.

Overall2

Contract Monitoring

Display all record

Save Record New Contract Archive Display Archive

OA: OTIS123  
 Contractor: OTIS ELEVATOR COMPANY (M) SDN BHD  
 Description:  
 GL Account:  
 ACV: \$167,688.00  
 Additional ACV:  
 ACV Balance: \$34,372.00  
 Start: 26-Nov-10  
 Expiry: 25-Nov-11  
 Status: 0.627 Months left before the contract expired

Update

User tips: Click Update before saving data

Microsoft Office Access

0.627 Months left before the contract expired

OK

MM/DD/YYYY  
 MM/DD/YYYY

Count Duration \*Click to calculate contract duration. This data will not be stored in database

Utilization Has Reached 70% On: 16-Aug-10

Record: 4 of 5

Figure 10.0: Pop up notification reminding user how many months left before contract's expiry

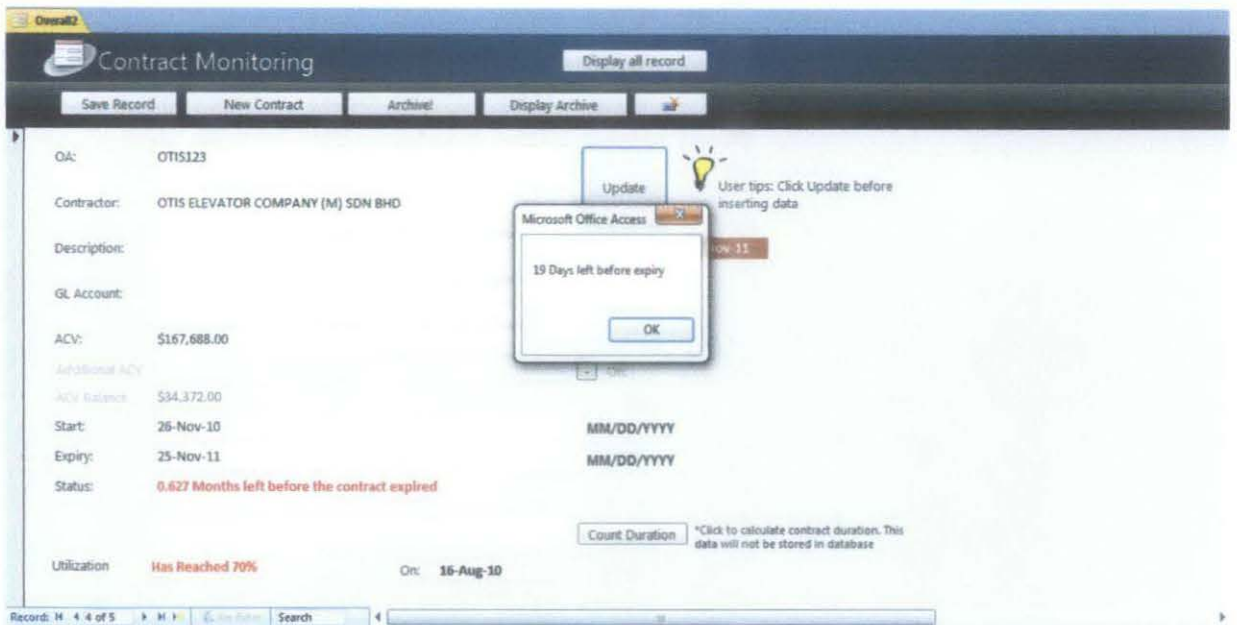


Figure 10.1: Expiry Notification (Month/day)

Any contracts that are still have more than 6 months will not be notified. But if the contract below 6 months duration, a pop up notification will appear and saved in red at “status” so end user will always be reminded to renew contract or create new contract.

PONUMBER	PODATE	DESCRIPTION	POVALUE	ACVRELEASE	ACVBALANCE	GRNNO	INVOICENO	INVOICEAMO	OA	REMARKS
3500383417	28-Jan-09		\$12,366.00	\$12,366.00	\$155,322.00			\$12,366.00	OTIS123	
3500391539	13-Apr-09		\$23,290.00	\$35,656.00	\$132,032.00			\$23,290.00	OTIS123	
3500391564	13-Apr-09		\$4,658.00	\$40,314.00	\$127,374.00			\$4,658.00	OTIS123	
3500397945	11-Jun-09		\$4,658.00	\$44,972.00	\$122,716.00			\$4,658.00	OTIS123	
3500398015	12-Jun-09		\$4,658.00	\$49,630.00	\$118,058.00			\$4,658.00	OTIS123	
3500400725	30-Jun-09		\$4,658.00	\$54,288.00	\$113,400.00			\$4,658.00	OTIS123	
3500404447	30-Jul-09		\$4,658.00	\$58,946.00	\$108,742.00			\$4,658.00	OTIS123	
3500407458	11-Nov-09		\$4,658.00	\$63,604.00	\$104,084.00			\$4,658.00	OTIS123	
3500408059	01-Dec-09		\$4,658.00	\$68,262.00	\$99,426.00			\$4,658.00	OTIS123	
3500408097	02-Dec-09		\$4,658.00	\$72,920.00	\$94,768.00			\$4,658.00	OTIS123	
3500408098	02-Dec-09		\$4,658.00	\$77,578.00	\$90,110.00			\$4,658.00	OTIS123	
3500408980	13-Jan-10		\$4,658.00	\$82,236.00	\$85,452.00			\$4,658.00	OTIS123	
3500410292	18-Mar-10		\$4,658.00	\$86,894.00	\$80,794.00			\$4,658.00	OTIS123	
3500410294	18-Mar-10		\$4,658.00	\$91,552.00	\$76,136.00			\$4,658.00	OTIS123	
3500411332	07-May-10		\$4,658.00	\$96,210.00	\$71,478.00			\$4,658.00	OTIS123	
3500411504	13-May-10		\$4,658.00	\$100,868.00	\$66,820.00			\$4,658.00	OTIS123	
3500412762	14-Jul-10		\$4,658.00	\$105,526.00	\$62,162.00			\$4,658.00	OTIS123	
3500412767	14-Jul-10		\$4,658.00	\$110,184.00	\$57,504.00			\$4,658.00	OTIS123	
3500413510	16-Aug-10		\$9,158.00	\$119,342.00	\$48,346.00			\$9,158.00	OTIS123	
3500413775	03-Sep-10		\$4,658.00	\$124,000.00	\$43,688.00			\$4,658.00	OTIS123	
3500413776	03-Sep-10		\$4,658.00	\$128,658.00	\$39,030.00			\$4,658.00	OTIS123	
3500414537	13-Oct-10		\$4,658.00	\$133,316.00	\$34,372.00			\$4,658.00	OTIS123	
* 22			\$133,316.00							

Figure 11.0: Purchase Order (PO) Details

Purchase order section is to list all sub contracts under the one major contract. It is to trace back all the transactions have been done before. It will automatically update the contract balance so it will be shown at the home interface to be monitored by end user.

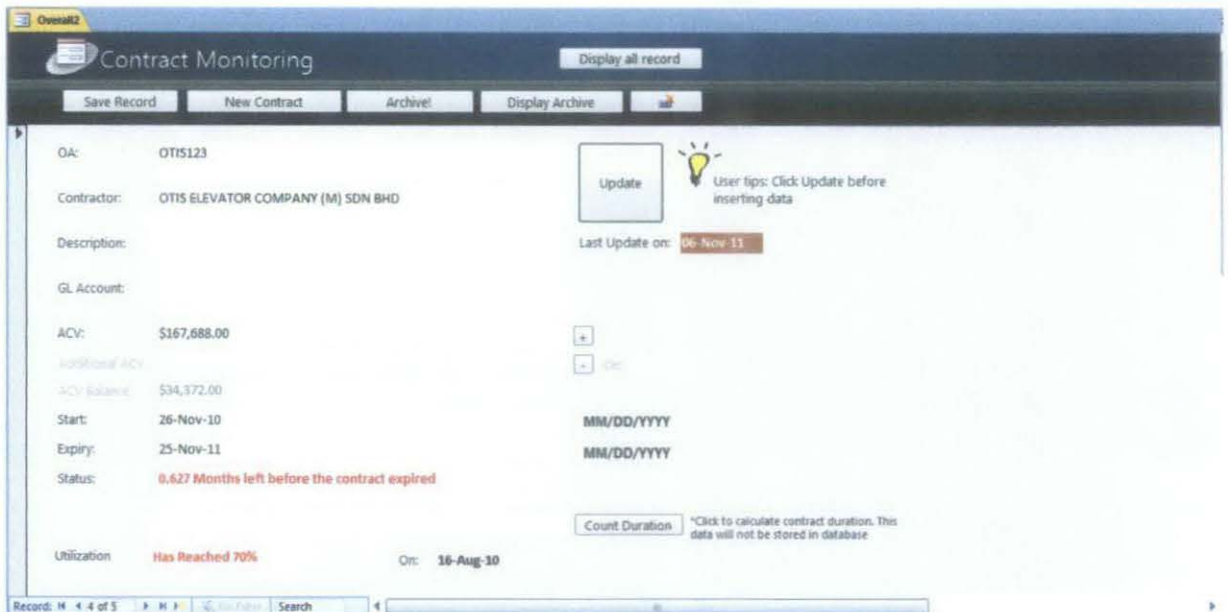


Figure 12.0: Count Project Duration

Some function in this application is not really important but need to be viewed by user. This function is requested by user to calculate how many years the contract is awarded to the particular company. That is why this function is not an auto save function.

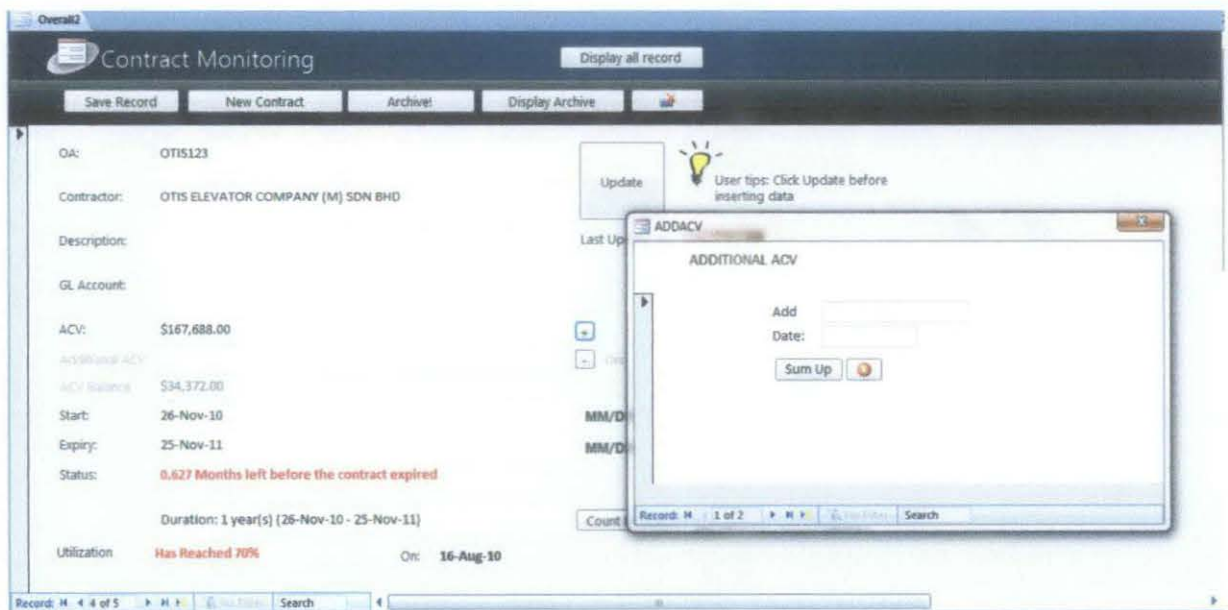


Figure 13.0: Approved Contract Value (ACV) addition popup windows

ACV addition function is to add more the total value of a contract if there is any. This function is needed as the top management usually adds more money into a certain contracts depends on requests.

Navigation Pane

Overall | **EMARCHIVE**

Table Archive

Delete Record

OA: **EMARCHIVE**

GLACCOUNT: 55AAV

Contractor: Berkat Nikmat

Description: Drill pipe

ACV: \$500.00

Start: 08-Feb-08

expiry: 05-May-11

Status: **6.503 Months left before the contract expired**

Utilization: **Has Reached 70%**

On: **08-Feb-2111**

PONUMBER	PODATE	DESCRIPTION	POVALUE	GRNNO	INVOICEAM	ACVRELEAS
33333	02-Feb-10		\$50.00		\$50.00	\$50.0
44444	08-Feb-2111		\$20.00		\$20.00	\$70.0
7777	08-Feb-2044		\$10.00		\$10.00	\$80.0

Record: 1 of 2 | Search

Figure 14.0: Archive Table

Any contracts that have reached its expiry date will be recommended to be archived so it can be refer in the future. The notification is in windows pop up and also will be displayed in red font. User will be notified to archive expired contracts. Any contracts that have already archived can also be deleted as the data can be retrieved from SAP database warehouse.

### **4.3 Prototype Testing**

The system prototype had been tested by several key people who are the end users of this system. They handled most of the contracts in the department and if there is anything needs to be done for example contract renewal, termination or alteration these personnel are the one in charge. The system prototype had already been commented Petronas Carigali Sabah Operations Sdn Bhd (PCSB SBO) personnel which the system is developed for:

- Sabah Admin Manager: Mr Shafee Bin Din
- Sabah Admin Executive: Ms. Yusmarinor Yum
- Sabah Building and Maintenance Executive: Mr. Nabil Fikri

Comments had been pointed out after the testing:

1. The system need to be more confidential as the details stored in the system are only for internal use. This problem was solved as the file will only be in the department's local area network (LAN) which can only be accessed within department. To avoid any unauthorized personnel from opening the file, a one layer security password is built.
2. There are possibilities that the file will be opened in the same time by different user. The possibilities of redundancy are high.
3. More functions will be needed in the near future such as developing graphs out of the system to track the contract Purchase order flow.
4. The interface has to be improvised to be more neat and easy to navigate. Some comments and instructions is needed so user can use the system easily.

## **CHAPTER 5**

### **CONCLUSION AND RECOMMENDATION**

#### **5.1 Summary**

The development of Contract Monitoring System as an interface of a database can assist business personnel to track contract values without consuming too much time. In order to make sure the system will run as an interface of a large database, it is important to specialize its task for only a few tasks in a period of time. This is how the system is different with others. However, the main objective is to consume less time on completing tasks. The lesser time consumed to make a business decision, the more effective the business operation would be.

#### **5.2 Recommendations**

The idea of Approved Contract Value Monitoring System is to develop a system that can analyze data that displays the result on a user friendly interface. SAP application is still crucial in business operation but the usability of the database is also important. The current system can analyze contract utilization, expiry date and calculate the contract duration from time to time. In the near future the system should have more additional functionality so it can be use for not only monitoring activities but also a thorough analyzer system.

According to the comments by user, they might need more functions such as graphs generator and other presentation tools that can help them on coming up with good business decisions. As one of the project objectives is to optimize the usage of software in the current operating system, the most applicable method is to manually export raw data from SAP application into the system but there might be suitable Application Programming Interface (API) that can be use to integrate SAP database with the system automatically with only one button.

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## **Appendix A: ACV Monitoring System System Request**

**Project Name: ACV Monitoring System**

**Date: 2<sup>nd</sup> September 2010**

### **Project Sponsor:**

Name: Shefee Bin Din

Department: Sabah Administration

Organization: Petronas Carigali Sdn Bhd

E-mail: [shefee@petronas.com.my](mailto:shefee@petronas.com.my)

### **Business Need:**

This project is initiated to ease SAM department personnel observe budget utilization and to improvise work efficiency.

### **Business Requirements**

- Friendly interface to ease inserting data process
- Archive function for expired contracts
- Overall page to view all contracts in datasheet format
- Notification when contract is 6 months before expiry
- Notification whenever budget has been utilized more than 70%
- Capture date when budget is utilized more than 70%

**Business Value:** We expect ACV Monitoring System to reduce the risk of overspent budget and miss looked data on monitoring the budget provided by the organization. Plus, with ACV Monitoring System, it should also assist executives to make presentations using the organized data in ACV Monitoring System. We expect the system will help SAM department to avoid doing repetitive tasks as it will affect the department productivity. Repetitive task of proposing budget suppose to be happened once ACV Monitoring System is completed because of the early notification to remind user what is the current budget balance for respective contracts.

#### **Tangible:**

- Proper data storage
- Systematic data retrieval

#### **Intangible:**

- Work efficiency improvement
- Risk management improvement

### **Special Issues or Constraints:**

The system need to be accessible whenever user needs it.

The system should be protected (encrypt with password)

The system need to be accessible in any machine in organization LAN network

ID	Task Name	Deliverables	Duration	April	May	June	July	August	September	October	November
<b>Contract Value Monitoring System</b>											
<b>Phase 1: Documentation</b>											
1	Research on database integration with external application	Documented reports									
2	Literature Review and consultation with supervisor	Reports and drafting									
<b>Phase 2: Planning and Design</b>											
3	Database design	Documentation & Discussion									
4	Database structure in temporary database										
5	Database retrieval from main database to temporary database										
6	Data retrieval from secondary database										
7	Application interface and process flow design										
8	Graphical interface design										
9	Pages										
10	Structuring report										
<b>Phase 3: Development</b>											
11	Connecting database with application										
12	API implementation										
13	Connecting database with application										
14	Import data										
15	Writing code for application functionality										
16	Math function to create new data										
17	Browsing function to retrieve exact data needed by user										
18	Notification function										
19	Function to create report										
<b>Phase 4: Testing and Evaluation</b>											
20	End user testing										
21	Additional requirement										
22	Continue with system development										
23	Debugging										
24	measure the effectiveness of application: comparing time consumption to monitor data										
25	Submission of the working prototype	Presentation									