ENHANCEMENT OF SCHEDULING SYSTEM INTERFACES AND FUNCTIONALITIES
CASE STUDY: ASIAN INSTITUTE OF MEDICAL, SCIENCE AND TECHNOLOGY (AIMST) SCHEDULING SYSTEM

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ABSTRACT

The purpose of the AIMST project is to produce a scheduling system for AIMST that allows the user to setup scheduling time for selected control unit and monitoring the control unit based on the scheduling time given. The issue that arises is that the AIMST system was developed based on the requirements by AIMST. Therefore the system might have some difficulties to be adapted for other organization or places because different organization might have different needs. Other issue is that the AIMST system interfaces are not well organized and might confuse the users. The intention of the project is to produce a scheduling system based on the AIMST system by enhancing the interfaces and functionalities. The project also intends to tackle the weaknesses of the AIMST system for the enhanced scheduling system. The enhanced scheduling system was developed using Visual Basic programming language and Microsoft Office Access as the system database. The functionalities of the system were modeled and recorded using Unified Modeling Language (UML) and system documents were produced based on DOD-STD-2167-A. The enhanced scheduling system provides users with a standard Window application interfaces such as menu bar and toolbox. The enhanced scheduling system also offering users with the control to system functions based on the user's need. Users also provided with functions and interfaces to alter the system data such as add, edit and delete function. Documents that have been produced are Software Development Plan (SDP), Software Requirement Specification (SRS), Software Design Document (SDD) and Software Test Description (STD).

ABSTRAK

Projek AIMST bertujuan untuk menghasilkan satu sistem penjadualan waktu untuk organisasi ini bagi membenarkan pengguna-pengguna di AIMST menetapkan jadual waktu bagi unit-unit kawalan dan mengawal unit-unit kawalan ini berdasarkan jadual waktu berkenaan. Masalah yang timbul berkaitan dengan sistem AIMST adalah sistem ini dihasilkan berdasarkan kepada keperluan dan kehendak pengguna di AIMST. Ini mungkin menyebabkan sistem ini sukar untuk digunakan di organisasi lain disebabkan keperluan organisasi yang berbeza-beza. Sistem AIMST juga mempunyai antaramuka yang tidak tersusun dan akan menyebabkan kekeliruan kepada pengguna. Tujuan projek ini adalah untuk menghasilkan sistem penjadualan berdasarkan kepada sistem AIMST dan menambahbaikkan antaramuka dan fungsi sistem. Projek ini juga bertujuan untuk mengatasi beberapa kelemahan sistem AIMST. Sistem penjadualan baru ini dihasilkan menggunakan bahasa pengaturcaraan Visual Basic dan Microsoft Office Access sebagai pangkalan data bagi sistem ini. Fungsi-fungsi sistem ini telah dimodelkan dan direkodkan menggunakan Unified Modeling Language (UML) dan dokumen yang telah dihasilkan berpandukan kepada DOD-STD-2167-A.Sistem baru ini menyediakan pengguna dengan standard antaramuka bagi aplikasi Window seperti kotak menu dan kotak alatan. Sistem ini juga menawarkan pengguna dengan pengawalan kepada fungsi sistem berdasarkan kepada keperluan pengguna itu sendiri. Sistem ini turut menyediakan antaramuka bagi fungsi mengubah data sistem seperti fungsi menambah, mengedit and memadam. Dokumen yang telah dihasilkan adalah Pelan Pembangunan Perisian (SDP), Spesifikasi Keperluan Perisian (SRS), Dokumen Rekabentuk Perisian (SDD) dan Huraian Ujian Perisian (STD).

TABLE OF CONTENTS

CHAPTER 1

INTRODUCTION

1.1   Project Background

One of the Mahkota Research Sdn. Bhd project is AIMST project where Mahkota Research were given responsibility to build a scheduling system to be used at AIMST University. The system consists of the software and the hardware part. The software part of the system is to control the interaction between the system and the user while the hardware part is to control the interaction between the system and the equipment.

The project is to build a new scheduling system based on the AIMST scheduling system and the project only involved the software part of the system. The system requirements are based on the AIMST system requirements and alter the requirements so that the new scheduling system can be suitable enough to be used on any different kind of organization. The system allow the user to control the system data before the system be used to schedule the equipment. The purpose of the new scheduling system is also to provide the user with a better user interface than the previous scheduling system.

1.2   Problem Statement

The issues arise from the existing system are:-

a.   The system was built specifically from requirements of one organization. If the company wishes to reuse the existing system for different organization, major changes have to be made to the existing system.

b.   The system data can be altered only at the system database and not through the system interfaces itself. Users are only allowed to add or change the schedule time data. Users are not allowed to add or delete any equipment data.

c.   The system interfaces was not well-organized. All system buttons and functions were placed on one single form. Users may confuse with the organization of the system controls.

1.3   Project Mission

The mission of the project is to develop a standard system for scheduling equipment such as Air Handling Unit and the system have to be appropriate for various kind of building. The purpose is to develop a scheduling system that can be used at various organization and different places.

1.4   Project Vision

The vision of the project is to build a basic scheduling system where the requirements of the system are not specific for any specific project. The user of the system will have chance to control on the number of the building, the number of floor and the number of equipment to be entered to the system. It is also to avoid the company from developing a different system for different clients that has same purpose with AIMST System.

1.5   Project Objective

There are three objectives recognized for the project and the objectives are as the followings:

a. To produce a scheduling system based on specification of AIMST Project.
b. To build a scheduling system which will offer the user to control the number of building or equipment based on their own needs.
c. To develop a scheduling system with the better user interface than the existing system.

1.6   Project Scope

The scopes of this project are:-

a. The project specification is general to allow the system to be used by many other projects or organization that ask for scheduling system from Mahkota Research Sdn. Bhd.

b. The system only includes the interaction between the user of the system and the system itself and will not involve the interaction between the system and the hardware.

c. Deliverables planned to be produced are Software Development Plan (SDP), Interface Requirement Specification (IRS), Software Requirement Specification (SRS), Software Design Document (SDD) and Software Test Description (STD).

d. The documentation standard that will be use is DOD-STD-2167-A.

1.7   Project Description

The system is an extended system from the previous scheduling system which is currently used for AIMST project. The system requirements mostly gathered from the previous system because the system is build based on the previous system. This system allow user to select the level of which the equipment will control, select the holiday type, do the setting for each level they chose and setting the equipment schedule.

The scheduling system has to be generic thus it can be installed and used by various kind of organization. If there are any changes needed, only minimal modification need to be perform on the system. The system shall take into consideration the type of building and equipment that might use the system.

1.8 Project Plan

Please refer to APPENDIX A for the Gantt chart.

1.9 Company Background

1.9.1 Mahkota Technologies Sdn. Bhd

Mahkota Technologies Sdn Bhd stated in Petaling Jaya, Selangor was formerly known as the General Electric Company (GEC) of Malaysia. Mahkota Technologies Sdn. Bhd is one of Malaysia's leading engineering companies and has sales across South East Asia region. In 1997 the company name has been changed from GEC Malaysia into Mahkota Technologies Sdn Bhd. showing that Mahkota Technologies is heading toward to becoming one of the largest companies in Malaysian engineering industry. Mahkota Technologies Sdn. Bhd then is divided into subsidiaries consists of Mahkota Research Sdn. Bhd., Mahkota Manufacturing

Sdn Bhd, Mahkota Protection and Control Sdn Bhd and Mahkota Engineering and Power Systems Sdn Bhd.

The company was incorporated in 1960 and until today, the company continues to serving the nation with new technology of engineering industry and utilities infrastructure. Mahkota Technologies Sdn. Bhd is specializing in providing the engineering industries with the integrated turnkey systems solution in infrastructure development, engineering solutions and providing engineering services and products. Mahkota Technologies has more than 200 engineers and staffs who shared same goal with the company to enhance the electrical and mechanical engineering solution and combined the engineering solution with the newer technologies offered by the digital revolution.

1.9.2   Mahkota Research Sdn. Bhd

Mahkota Research Sdn. Bhd. is one of the Mahkota Technologies subsidiary and responsible as the in-house research and development unit of Mahkota Technologies. Mahkota Research Sdn. Bhd. responsibility is to support the company with strong engineering presence and its continuous positioning of the Mahkota Technologies products and services. Mahkota Research Sdn. Bhd. involved in developing several Mahkota projects such as AIMST project and TNB project. Mahkota Research Sdn. Bhd. continues to evolve as one of the primary division of Mahkota Technologies Sdn Bhd by generating new technologies and products.

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