

Implementation of e-FYP Management System at Faculty Level in Malaysian Universities

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Abstract: Final Year Project (FYP) is a compulsory course requirement in the form of a major project that must be completed by all students in the final year of their study. This research looks into previous methods commonly used for FYP supervision at faculty level in Malaysian universities. Currently most faculties including the Faculty of Computer Science and Information Technology, Universiti Putra Malaysia are still largely dependent on manual methods. To get a better view, comparisons were made with existing FYP System at several other universities. In general, it is found that the current systems have many shortcomings. Based on the gap analysis, the e-FYP Management System is developed with more features to provide better supervision. The user acceptance test conducted proved that this e-FYP Management System will provide a better system that is user friendly to all the users especially student, supervisor and course coordinator.

Key words: *Final Year Project, e-Management, Student, Supervisor, Coordinator.*

INTRODUCTION

With the rapid growth of technology in this era of globalization, humans are becoming more dependent on computerized systems for their daily tasks. In order to achieve the desired objective, computerized information system such as web-based applications have evolved significantly over recent years with further improvements in security and technology. There are plenty of scenarios where traditional software-based applications and systems could be improved by migrating them to a web-based application [1]. All the important information that is valuable, fast and timely will not be secured if they are not supported by a good system. Hence, the web-based system should be designed so that access to better Final Year Project management can be achieved.

Recently, the development of web-based system has affected various aspects, including personnel data management. Faculty of Computer System and Information Technology (CSIT) of Universiti Putra Malaysia is striving towards better management system especially in document submission and result checking of FYP by final year students. Therefore, CSIT needs a facility that would meet all the requirements. The process of FYP in the CSIT has

many shortcomings, especially in the document submission such as proposal and thesis submission which is still done manually. This has caused many problems such as misplace of documents or clash of schedules for presentation due to over reliance on paperwork.

Final year student scheduling process include proposal presentation scheduling, thesis presentation scheduling and document submission scheduling. In the process of creating schedule, coordinator of the FYP begins by assigning the students to their respective supervisors who shall evaluate them besides determining the schedule for key deliverables including due date for document submission. The numbers of students and supervisor can lead the coordinator overlooked the presentation schedule of the students.

Parallel with the problems that exist, there must have the better platform to support the management process of the FYP that involved scheduling, submission, updating, editing of users is better with web-based system that can be accesses in a variety of responsive device. Most web-based applications are far more compatible across platforms than traditional installed software. Typically, the minimum requirement would be a web browser of

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which there are many such as Internet Explorer, Firefox and Netscape. These web browsers are available for a multitude of operating systems and so whether you use Windows, Linux or Mac OS you can still run the web application. Furthermore, to faster and easier the management is also expected to be more accurate to improve the operations of the FYP environment and into the supporting facilities in order to improve the quality of service to be more effective and efficient.

BACKGROUD STUDY

The main problem of the manual method of FYP Management that currently used in CSIT is that difficult to assign the amount of final year students who takes project bachelor under one supervisor. In other word, the system difficult to make selection of student since no system to do that. Problems arise when students are unable to select the potential supervisor as well as supervisor that can't select their students. Supervisor also not clear what the actual number of students that they need to choose at a time.

Other problem is the system unable to monitor the work of students. In other words, the method is ineffective and inefficient to identify which of the documents that have been submit by the students. This is because each student must submit various documents to show progress in his/her working by hardcopy. Thus, the problem is supervisor difficult to manage the submission since too many different forms need to consider because all handle in manual activities. Besides, there is no system that enable user to make registration for final year project through online system that cause them to make registration by manually. Currently students need to find available time to take signature from their supervisor meanwhile both have time constraint to meet.

Next problem of manual existing method is difficult to view the presentation schedule. By the manual method, students and supervisor difficult to check their presentation details such as time, date, venue and panel that involved. They only can know their presentation schedule by view or check from the other system like Putra Blast. So, this method not efficient for students and supervisor. Other problem arise by manual method is about result checking since there is no web-based system that enable the user to view the result such as proposal, thesis and presentation of the project via online.

This project tries to develop an online platform which facilitates the final year projects process implemented by our information technology

programme [2]. The main purpose of this project is to develop an online system that can reduce the workload of the FYP Committee in managing the workflows of the FYP [3]. Data can be collected from all users and automatically compile into more organize way for ease of access [4]. The portal is very convenient because it is always available anytime and can be access anywhere by anyone who needs the information [5]. So that, this system helps student to complete projects, stay on track, and collaborate with supervisor [6]. This system can be accessed at anytime and anywhere as long as there is a PC with an Internet connection, giving user the control of where and when they can access the system.

LITERATURE REVIEW

There are many systems that related to e-Management FYP System. Thus, the studies have been carried out for several systems that worth to be reviewed.

Online Project Evaluation and Supervision System (oPENs) [7] were developed to ease the whole process involved in FYP1 course. The design of this system is based on two main purposes, namely to facilitate the project evaluation and monitoring of project progress reports through on-line. In addition, this system can assist the FYP1 coordinator in managing the entire FYP1-related activities such as project registration, update presentation schedule, and make an announcement and so on. This system also accessible for the user to search about project information conducted by previous semester students for reference purposes. Other than that, there is an announcement corner to notify the user the latest information and access to the system archive where all previous FYP projects are stored for reference purposes. The system archives can be searched by the project's title keyword and supervisor name. There is also login buttons for all users, including for coordinator and administrator.

Progress Monitoring System for Student Final Year Project [8] enable students to update their log book at any time via a paperless, environmentally-friendly method as well as submit their log book and final report through online. Supervisors can access the student's document submission at any time, therefore they can evaluate and grade the student at their own page. Student can submit their documents that related to Final Year Project and get feedback from their supervisor. Supervisor will assign marks to students on their progress and performance during presentation. After that, student able to check their result. The result will generate automatically. In addition, student can submit documents through

system without do it manually which is they need sent by hand to their supervisor. But students or supervisors can't get update or notices from coordinator as this system does not provide this platform that allowed coordinator to post any announcements or notices. Students also can't make any update for their profile that caused supervisor can't view the latest details of their students.

In UTAR FYP Management Portal [9], the student is able to view the newly-updated supervisor assignment which means the supervisor that just assigned to the students. The overall student-supervisor list for project 1 and project 2 can also be viewed where the user is able to choose whether to have the list sort by course or by supervisor. All the report on the screen can be printed easily by pressing the "Print Report" button at the bottom of the page. For the booking, assignment of supervisors can be done by considering the workload of the supervisors whether he/she have any supervisee. FYP committee will also consider on the title and the area of the supervisors. A list of supervisor-student can be generated to show the name of students with their supervisors. If there is any student without supervisor and there is supervisor without supervisee or less supervisee, the FYP committee can perform assignment straightaway. This is because the information on both student and supervisor can be viewed easily. For registration, this system more focusing on title registration. In this module, the supervisor login to their own account in the login page. Supervisors have to login with their username and password. After that, supervisor is able to go the "Register Project Titles" page. At that page, fill in the form with the details such as the supervisor name, room, email, project title, objective, innovative, deliverables, skill required, no. of student and student's course. Next, save the details and publish the titles for the students to view. But there are some drawbacks from this system which is no appointment module, document submission, result checking, presentation schedule and also log book for supervisors to monitor progress of their students.

UKM Final Year Supervision Management System [10], has several modules. The modules are appointment module, schedule monitoring for system development and monitor student's progress for document submission by supervisor, log book module in order to log the discussion during meetings and also administrator module that able to assign students to supervisor. However, this system not have result checking for students and also notification or announcements. The system has profile module for shows the details of students and lecture.

Latihan Industri Fakulti Sains Komputer Teknologi Maklumat (LI FSKTM) [11] have been our benchmark for our system development. This is because, LI FSKTM is the system that most related to our system that will be developed. This system has provided document submission for the students which is require them to report their activities during the internship programme. Students can submit their log book to the system, instead of sending them manually to their visited supervisor or industrial supervisor. Coordinator can easily check all the submission status and obtain all the deliverables by simply download from the system. Students also are able to view and update their profile details if might have any changes. Hence, supervisor can view their latest updates. However, students unable to check their results through the system which is they need to check the result through the other system like SMP System. Besides that, if students need to make registration for internship programme, they need to meet the coordinator face to face. This issue always happens when coordinator was not free because of packed schedule to meet. In addition, users also can't view any schedule that related to internship meeting or briefing. Unfortunately, they just get the info by email or WhatsApp that probably can cause a lot of miscommunication.

Overall, they are closely related to the development of the system. The functions of each system and comparison of each system are the things that have been focused on. To conclude, in order to develop a system that can be used in future, each of aspects or details need to concern and study well. So that the system will be easier to use, practical and in other words is user friendly.

METHODOLOGY

This section describes the methods that has been used in order to complete this project. In addition, it includes some of the tools used for developing the web-based system for this Final Year Project. It includes several phases until this project complete. For the development of the system, we start off with planning and design of the system which would later results in the development of the system and finally followed by testing of the complete system. The system initial design is defined within an existing system overview. It represents an overall model of the project. Plus, the user requirements were translated into the system functionality diagram and system database design.

The development process of this system is developed based on the module. There are few of functional modules. The most important module in

the development of this system is the module for the supervisors to monitor and control the progress of the students' project through the web-based system. In this phase, the system testing process by the users will be made in order to determine whether the developed system can run properly and met user requirements or vice versa. The implementation is important for detecting error in the system. After the initial system test is made by the users such as supervisor, student and the coordinator, correction will be made if there is any problem with the system before it can be fully used.

Before that, it will be tested and maintained for the last time before use in order to ensure there is no errors identified in the previous phase. Hence, the system can be improved and corrected as closely as possible to make sure the system runs smoothly. After the correction and enhancement is made, the final presentation will be carried out. Later, the final draft will be submitted to the supervisors and the final report of the project will be prepare by the students and will be submitted to the faculty.

As shown in table 1, tools and technologies are required in order to implement this system. This is web-based system. Hence, the coding part has been done using PhP and XAMPP with MySQL as a storage. Human interface of this system is via the Google Chrome or Internet Explorer. Reporting has been done in MS Word. The system overview is one of the important elements in the system design as it explains the scope and also the edge for the system to be built as shown in Fig. 1 which are consist of three actors involved the Coordinator, Supervisor and Student. The system will be providing an interface for these actors to communicate each other.

In this project development, two types of testing were performed namely unit testing and system testing. This level is important in system design in order to check whether the system that has been

build is defect-free or not. The process involved verification and validation of the software service or application by checking it is meeting the user requirements or not and all the requirements successfully implemented or not. There are several reasons why testing for each proses is important. First is to ensure the error handling has been done graciously towards the system which is when user enter incorrect input, the system will display or pop – up user-friendly message other than to achieve customer satisfaction. There are several tests performed which are validation, buttons' function and flow of the system. System testing is about verifying what was already specified and delivered whether the system meets its functional, performance, design and implementation requirements.

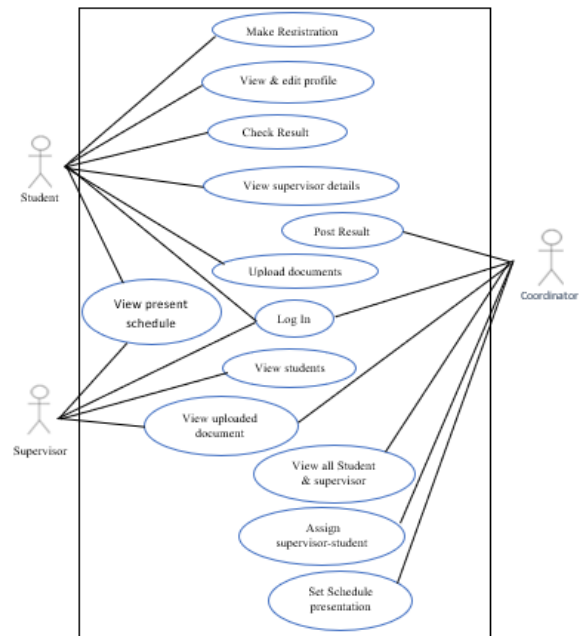


Fig 1. System Overview.

Table 1. Software used on e-Management FYP System.

Software	Description
Google Chrome	This software will be used to view the interface after being designed using programming language
XAMPP	This software is used to allow this system able to use with Google Chrome software
PhpMyAdmin	This software is used to manage the database for this system
MySQL	This software is used as database system
Microsoft Word 2016	This software is used to generate project report and documentation

Table 2. Differences of Functions between Existing System and e-Management FYP System.

Functions	oPENS for FYP Proposal Development Process of UITM	UTAR FYP Management Portal	UMP Progress Monitoring FYP System	UKM Final Year Supervision Management System	LI FSKTM	e-Management FYP System
Online registration	/	/	x	/	X	/
View & set schedule	/	x	/	/	X	/
View result	x	x	/	x	X	/
Submit & download document	/	x	/	/	/	/
Assign student - supervisor	/	/	x	/	X	/
Notification and announcement	/	x	x	x	X	/
View and update profile	X	/	x	/	/	/

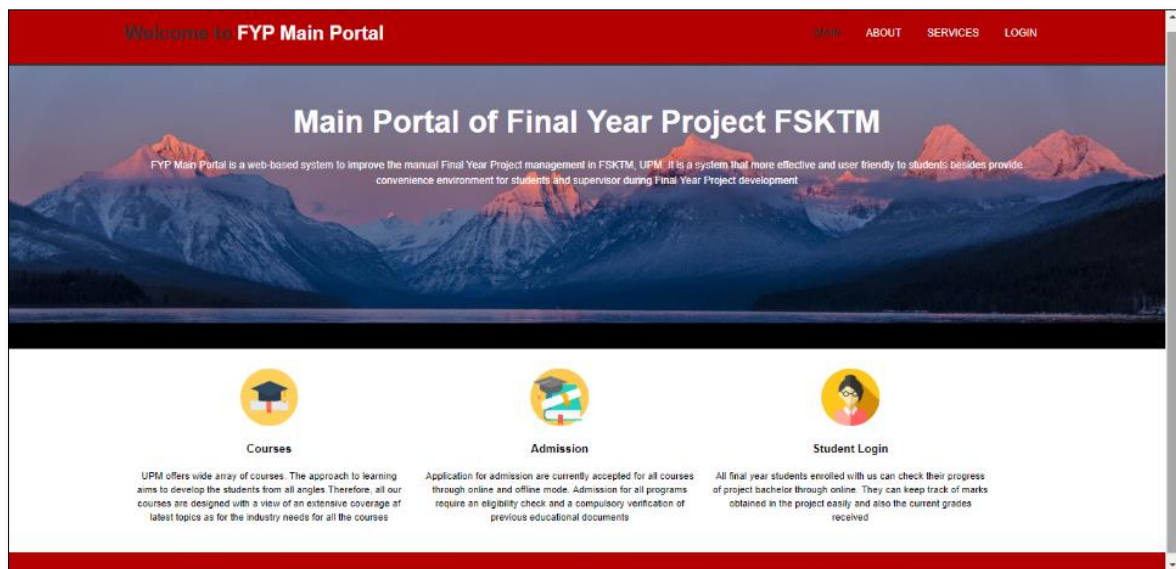


Fig 2. Main Page.

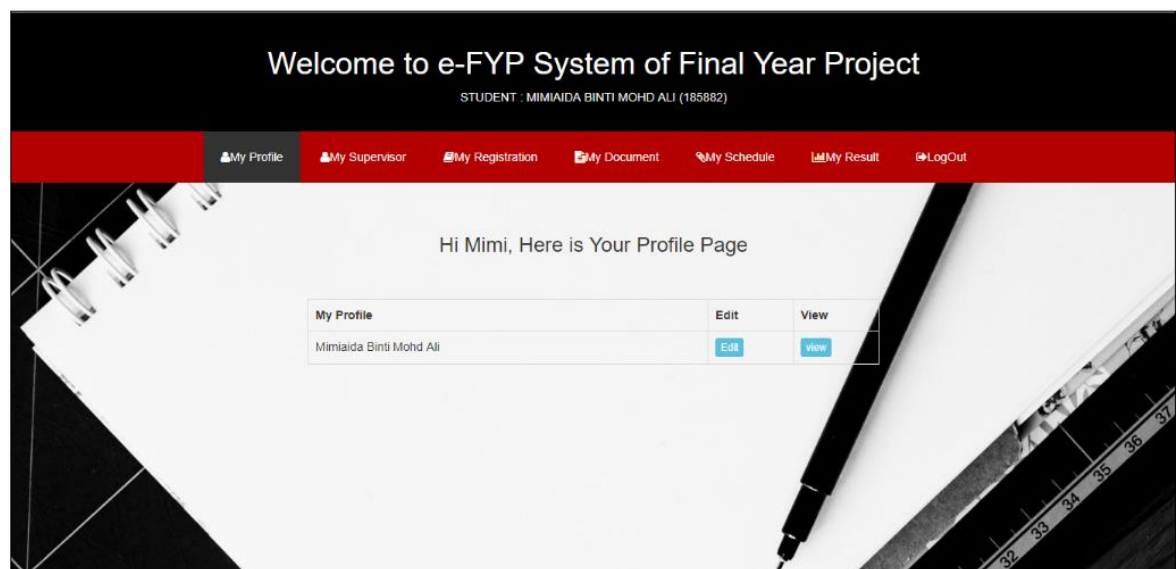


Fig 3. Student Profile Page.

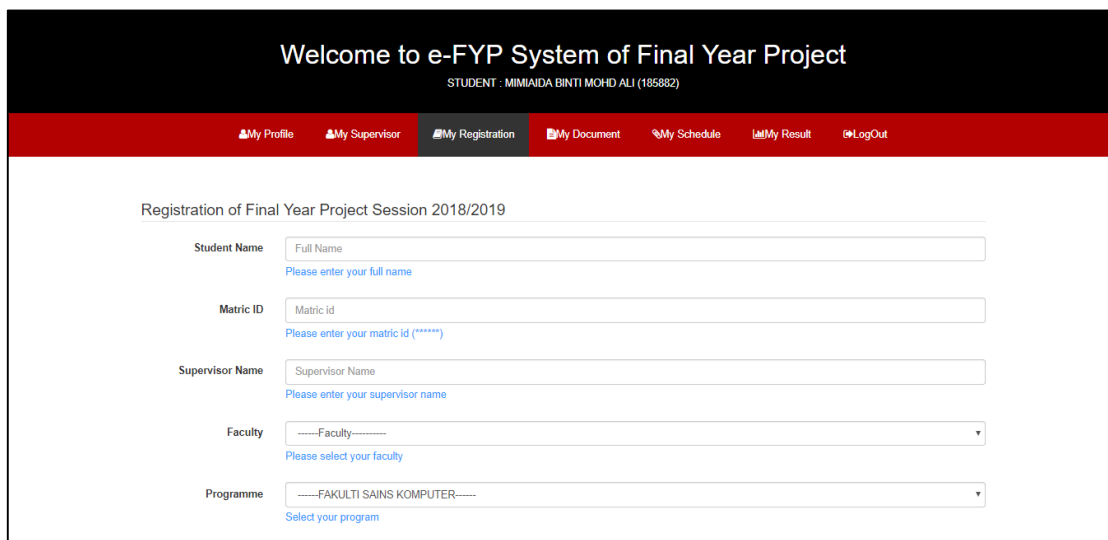


Fig 4. FYP Registration Page.

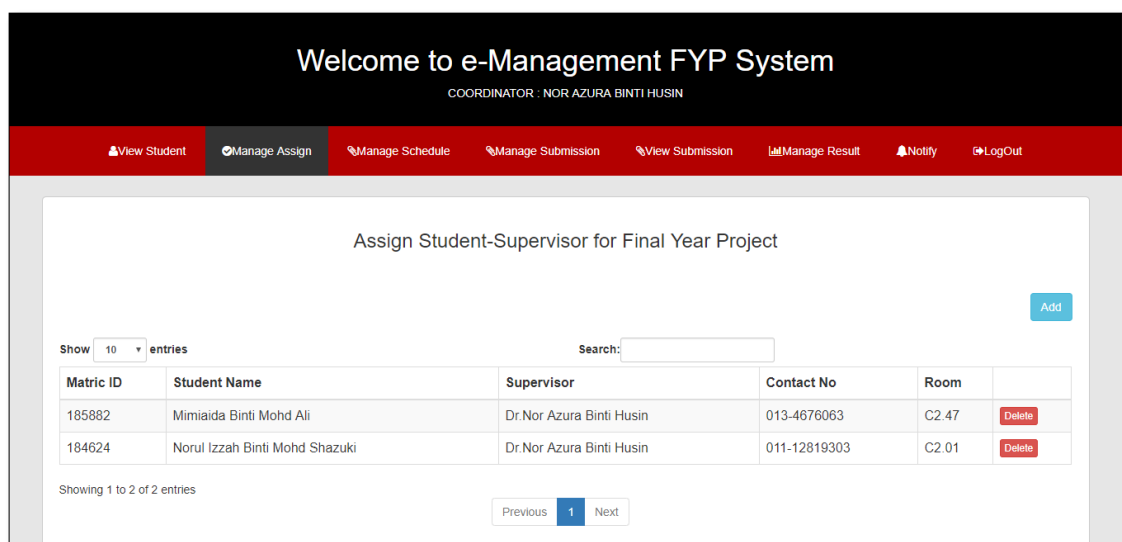


Fig 5. Coordinator Assign Students under One Supervisor.

IMPLEMENTATION

This section will discuss the implementation of the system. System details and specification for all functions will be included in form of screen shot of user interfaces of e-Management FYP System.

The functions offered by this system are as shown in Table 2 that involved online registration, view and set schedule, view result, submit and download document, assign student and supervisor, notification and announcement and view and update profile. For the first function which is online registration, only oPENs of UITM, UTAR FYP Management Portal and UKM Final Year Supervision that have online registration platform for their students meanwhile UMP Progress

Monitoring and LI FSKTM does not provide that functions. Secondly, oPENs of UITM, UMP Progress Monitoring and UKM Final Year Supervision have view and set schedule function However, UTAR FYP Management Portal and LI FSKTM does not have that function. For view result functions, the only one existing system that have this function is oPENs of UITM while the others are not. The next function is submitting and download documents. All the existing systems have this function in their system except for UTAR FYP Management Portal. For the assign students and supervisor, the systems that have this function is oPENs of UITM, UTAR FYP Management Portal and UKM Final Year Supervision. On the other hand, only one system that have notification and announcement function and that system is oPENs of

UITM. For the last function, which is view and update profile, most of the system have this function in their system except for oPENs of UITM and, UMP Progress Monitoring and UKM Final Year Supervision. Hence, e-Management FYP System is developed to provide all these functions to accommodate any shortcoming found in the existing systems in order to overcome any problems and constraints associated with management of Final Year Project.

In order to achieved all the objectives that were stated before, the system design was converted into working and functional web-based system that delivered benefits for all users which are students, supervisor and also the coordinator. Hence, the testing has been done to detect the possible errors that may arise in the product. The most important parts are the main interface, Coordinator, Supervisor and Student interfaces. Fig. 2 to Fig. 5 shows some of the interfaces offered by this system.

Fig. 2 shows the main page of e-Management FYP System. In this page, user can view some details about Final Year Project (FYP) at Student Login section, about admission and about courses that offers in University Putra Malaysia, UPM. There are also About, Services and Login that displayed at navigation bar. According to Fig.3, as student you can view all students profile details.

There is only student's name that display first in the table. On the right side of table, there are two clickable buttons displayed namely edit button and view button. Students can edit or update their profile details when they click on edit button. All their details which are full name, matric id, supervisor name, faculty, program, credit hour, current semester, contact details, email, PNGK and also their project title will be displayed as popup when they click on edit button.

Meanwhile, students who are taking project bachelor need to fill this form as shown in Fig. 4. They need to fill up all the requirement that needed which are their full name, matric id, their supervisor name, faculty, study program, credit hour, semester, gender, contact details, email address, their permanent address, latest CGPA and also title suggestion for their project, which will later will be submitted to the coordinator for further action.

Finally, as a coordinator, they are responsible to assign students under supervision one supervisor as shown in Fig 5. Coordinator should fill out the name of each student and supervisor in the editable table. The table contains five columns that namely as matric id, student name, supervisor name, supervisor contact detail and room number. On the upper side

of the table, there is add button that enable coordinator to add new to if needed. Also, there is search box that allowed coordinator to search the data by entered any input into the search box. If coordinator need to change some data in the table, he or she just need to edit the data in the row that they need to update.

RESULT

The result of this system is expected to produce a web-based system that provides a systematic assign of students under supervision of a supervisor. In addition, the system expected to be successful on the connection and server part without having problem. At the end of this project, the system expected to be a user-friendly. Even user will use this system for the first time, they will able to use it without facing any problems. This is very important because the system will be used by each students, supervisors and coordinator at CSIT, UPM. e- Management FYP System is also expected to be more efficient and more effective than manual methods that currently used. On the other hand, this system is expected to be a friendly system to submit documents for final project to be monitored and complete requirement following the timeline that replace manual method that traditionally submitted by hands. The system also is expected to ease registration for their Final Year Project online rather than using manual method that requires filling up the registration form on paper.

CONCLUSION

As a conclusion, e-Management FYP System can reduce the difficulty and workload has happened in the manual system that recently used. At the same time, e-Management FYP System provide convenience environment for students and supervisor during Final Year Project development where supervisor can keep track and control students' progress with efficiently project management besides the coordinator control all task that related to the system.

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