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Student Project Monitoring System (SPMS) Using Text Recognition

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Abstract—Recently, most of the courses at the university require students to complete a specific project within a given timeline. Some courses contain several projects that have to be completed in several phases. Therefore, managing and monitoring students project can be nontrivial. One of the solutions to simplify project monitoring is by developing a system that can monitor progress of student project. Thus, we design and develop a student project monitoring system known as SPMS. The uniqueness of the proposed system is it integrates text recognition algorithm into student project monitoring system. At the same time, the proposed system has advantage to simplify student project monitoring process rather than manual process especially during report submission for each project phases. It also can be accessed online through any web browser. As a result, the proposed work is capable to monitor progress of student project effectively for students and lecturers. The proposed work can be implemented in relevant industry such as in monitoring the worker's task.

Keywords—monitoring system, student project, text recognition, Tesseract OCR

I. INTRODUCTION

Nowadays, most of the courses in university require students to complete a specific project within a given timeline. Some courses contain several projects that have to be completed in several phases. Lecturers are normally assigned a project that consists of several tasks whether in group of students or individual. Students need to complete and submit each task based on a specific date given by the lecturers. There is a situation that students submit their tasks at lecturer's room without meeting directly with their lecturer. They need to ask their lecturer in order to know the status of their submissions such as accepted or require a resubmission. This situation may produce problems to both

students and lecturers in handling project progress. Therefore, managing and monitoring students project can be nontrivial for the lecturers. In this situation, project monitoring is very important to monitor students' project. Project monitoring can be defined as a process of keeping track of all project-related metrics including team performance and task duration, recognizing possible problems and taking corrective actions necessary to guarantee that the project is within budget, scope, and meets the specified deadlines [1].

One of the solutions to simplify project monitoring is by developing a system that can monitor progress of students' project [2]. Thus, we design and develop a student project monitoring system known as SPMS to monitor several students' project submission report such as project proposal, project implementation and final report. In this project, there are two main objectives to be achieved. The first objective is to design SPMS to effectively monitor the progress of student projects by lecturers. The second objective is to implement text recognition algorithm on SPMS in order to automate the report submission approval. The following sections will highlight the details of the SPMS project.

METHODS

To complete this project, there are two stages of process which are coding and interface design and text recognition algorithm.

A. Coding and Interface Design

To create online monitoring system using SPMS, we use PHP as a programming language and Notepad++ as an integrated development environment (IDE). PHP is used to create coding for web development of SPMS. PHP has many

advantages such as an open source language, free of cost and cross platform [3]. On the other hand, Notepad++ is a free source code editor that supports several languages such as PHP and C++. In SPMS, there are many interfaces has been developed such as interface for homepage, registration page, login page, view project profile page and enrol project page.

B. Text Recognition Algorithm

SPMS integrates text recognition algorithm to automate report submission approval as shown in Fig.1. In this project, we used Tesseract OCR. OCR is a short form for optical character recognition. OCR is one of the methods that converts the printed or scanned image document into an editable text document [4]. In general, Tesseract OCR is used to recognize characters from images. It is an OCR engine for various operating system including Windows. It was measured as one of the most accurate open source OCR engine and has been applied in many researches [4], [5].

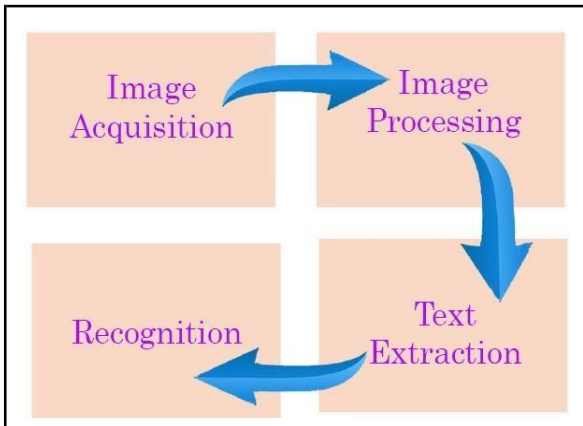


Fig. 1. Text recognition process

Specifically, SPMS integrates Tesseract OCR to recognize project title in cover page of student report. Then, it will convert into text and compare with selected task or phase during project submission report. If the text and the selected task is not match, the system will set as -Not approved!. Therefore, student needs to resubmit a correct document of report.

III. RESULTS AND FINDINGS

Based on the objective, this section describes about interface of SPMS and automation of report submission approval.

A. Interface of SPMS

This SPMS has two main modules as depicted in Fig.2. User Management module is used for registration new user and update user information. On the other hand, Project Management module is used to manage progress of student project. Both of the module is used by the lecturer and student with different features.

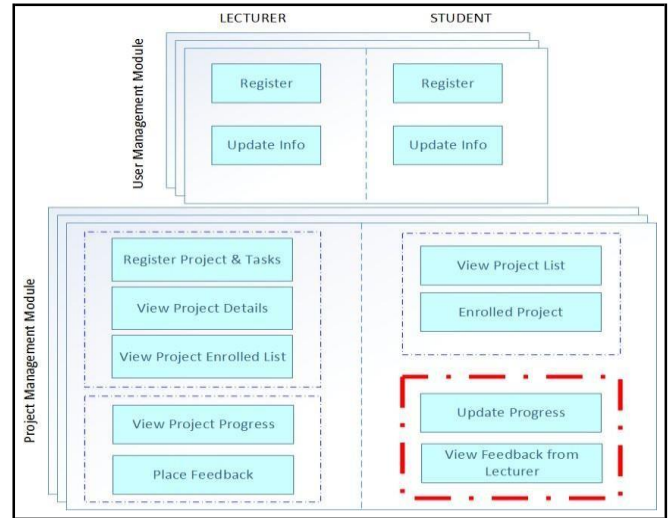


Fig. 2. Two main modules of SPMS

1) User Management Module

Two main functions of this module are user registration and update user information. New user need to register first before they can use the system. There are three types of user; admin, student and lecturer. The existing user can update user information after the registration process such as change password.

2) Project Management Module

This module has several different functions for lecturer and student. The lecturer can register new project and project details, view project details, view list of enrolled projects by student, view project progress and add comment or feedback to student task. Fig. 3 and Fig. 4 show example of interface for view project profile and view project progress by lecturer.



Fig. 3. Interface of view project profile

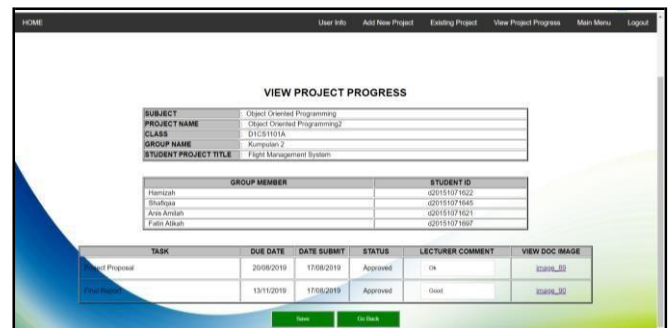


Fig. 4. Interface of view project progress by lecturer

On student's side, they can view project list and enrol project. To enrol student project, they need to add their project title, group name and add group members as shown in Fig. 5. Moreover, student can update the progress by submitting the report based on the due date set by the lecturers. They also can view feedback from lecturer whether their task is accepted or require for correction and need to resubmit new report.

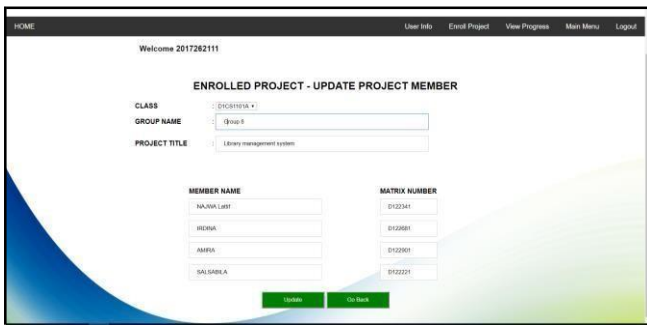


Fig. 5. Interface of enrol project by student

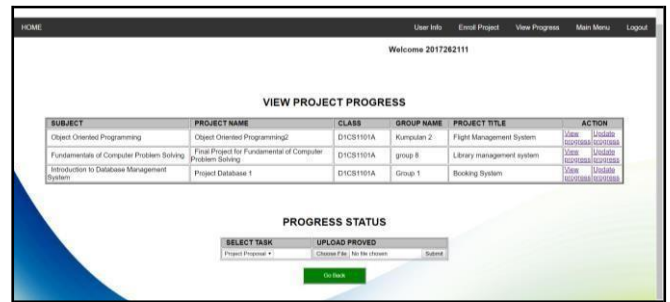


Fig. 6. Interface of submission project report

B. Automation of Report Submission Approval

As mentioned in Part A in this section, student can update project progress by submitting the report based on the due date set by the lecturers. For an example, if the project has two phases or tasks, so student needs to submit two different reports based on given due date. Therefore, student need to upload file for project report and select the specific phase or task as depicted in Fig. 6. SPMS will automatically recognize the text in the cover page by using text recognition algorithm. The submission of correct report will be assigned as –Approved while the submission of wrong report will be assigned as –Not Approved. The system also will automatically set the submitted date into the system. By using the automation of report submission approval, it can produce an effective way of monitoring student project especially for lecturer.

IV. CONCLUSIONS

As a conclusion, the proposed SPMS is capable to monitor student's project effectively for lecturers and students. The advantage of the SPMS is it can simplify student project monitoring process and can be accessed online through web browser. The limitation of the SPMS is this system can only recognize text for project title in cover page of project report. For future enhancement, we will upgrade this system to recognize the group members and other information in the cover page. The proposed system can be implemented in relevant industry such as in monitoring the worker's task.

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